Application for an environmental permit:
Part LPD1 – Application for a deployment

Use this form for deployments for the landspreading of waste where the operator holds a permit for any of the following standard rules:

- SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit);
- SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land;
- SR2010No6 Mobile plant for landspreading of sewage sludge; or a
- Bespoke mobile plant permit for landspreading or land reclamation.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that come with it. All relevant guidance documents can be found on our website.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Contents

1 About the permit

1a Discussions before your application

If you have had discussions with us before your application, give us the case reference or details on a separate sheet.

Case or document reference	

1b Permit number

Permit number this application relates to	GP3792SK

1c What type of permit do you want to deploy under? (Please tick)

SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit)	☒
SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land	☐
SR2010No6 Mobile plant for landspreading of sewage sludge	☐
Bespoke mobile plant permit for landspreading or reclamation, restoration or improvement of land	☐

2 About you

Please give us details of the permit holder. For companies, the details must match Companies House.

Organisation name (if relevant)	ByProduct Recovery Ltd	
Title		
First name		
Last name		
Address	Control House	

	A1 Business Park
	Knottingley
	West Yorkshire
Postcode	WF11 0BU
Telephone - mobile	07824 323 318
Telephone - office	0113 232 2418
Email address	info@4r-group.co.uk

If you are applying as an organisation of individuals, every partner needs to give us their details, including their title. If necessary, continue on a separate sheet and tell us the reference you have given the sheet.

Document reference	

3 Contact details

Who can we talk to about your application? This can be someone acting as a consultant or 'agent' for you.

Title	Mr	
First name	Adam	
Last name	Stone	
Telephone - mobile	07508 322259	
Telephone - office		
Email address	adam.stone@4r-group.co.uk / info@4r-group.co.uk	

4 About the deployment

4a Multiple deployments for one area of land

You may spread more than 10 waste streams on the same area of land, provided you submit additional fully completed deployment forms listing the additional wastes. Your benefit statement must take into account the total benefit to the land of all wastes to be spread.

Is this deployment one of a batch (multiple deployments) for the same area of land?

No ☒ *Go to section 4b*

Yes ☐ How many deployments are in the batch?

4b Nominated competent person

4b1 Give us details of the nominated competent person. This is the person who will be responsible for compliance with the permit for this deployment. See the guidance notes on LPD1 for further details.

Title	Mr	
First name	Richard	
Last name	Evans	

Telephone - mobile	07506 672839
Telephone - office	
Email address	richard.evans@4r-group.co.uk / info@4r-group.co.uk

4b2 What evidence are you using to show the nominated competent person has suitable technical skills and knowledge to manage the activity?

An approved technical scheme ☐ *Go to section 4b3*

Documented in-house training ☒ You must provide evidence – see below.

You must provide evidence to show the documented in-house training meets the requirements set out in technical guidance. See the guidance notes on LPD1 for further details and give us the document reference.

Document reference: 4R Training Certificate Waste to Land - RE *Go to section 4c*

4b3 Which approved scheme are you using to show you have the suitable technical skills and knowledge to manage your facility?

CIWM / WAMITAB ☐

ESA / EU ☐

4b4 Tick to confirm you've included all original *and* continuing competence evidence. ☐

4c Which risk band does the activity fall within?

Please complete Table 1 below to indicate which risk band your activity falls within. This is a combination of waste types and proximity to sensitive receptors.

Once you have selected the risk band your activity falls within, the form guidance tells you what additional information you need to send with the application.

The risk banding affects the fee you need to send with your deployment application. See section 6.

Table 1 – risk band

Permit type	**Lower risk location** - Not in an SPZ 2, and/or - Over 500 meters from: • European site, and/or • Ramsar, and/or • SSSI	**High risk location** - In a Source Protection Zone 2, and/or - 500 meters or less from: • European site, and/or • Ramsar, and/or • SSSI **You *must* submit a site specific risk assessment.**
SR2010No4 List A wastes (Lower risk)	Low risk deployment ☐	Medium risk (2) deployment ☐
SR2010No4 List B wastes (Higher risk)	Medium risk (1) deployment ☒	High risk deployment ☐
SR2010No5 (Any waste listed)	Medium risk (1) deployment ☐	High risk deployment ☐
SR2010No6 (Any waste listed)	Medium risk (1) deployment ☐	High risk deployment ☐

Bespoke mobile plant permit	Low risk deployment ☐	Medium risk deployment ☐	High risk deployment ☐

4d Additional information on sensitive receptors

Is the deployment within an SPZ 2 and/or 500m of a European site, Ramsar or SSSI, or being made under a

bespoke permit?

No ☒

Yes ☐ You must submit a site specific risk assessment (see question 4e).

4e Site specific risk assessment

Your site specific risk assessment must show how you intend to prevent any harm to any SPZ 2, European site, Ramsar or SSSI. For more information on risk-assessment please see the accompanying guidance to LPD1 and Technical Guidance Note 'TGN 8.01'.

Please tick a box below to indicate which type of risk-assessment you have submitted.

I have attached a site-specific risk-assessment as the deployment is within and SPZ 2 and/or 500m of a European site, Ramsar or SSSI. I have also addressed risks to other receptors in the risk assessment ☐

I am not within an SPZ 2 and/or 500 m of a European site, Ramsar or SSSI but have addressed risks to other receptors in my benefit statement. ☒

I am deploying under a bespoke permit and have attached a site-specific risk assessment (regardless of location). ☐

4f About the waste

Please list all the individual waste streams you want to spread/use under this deployment, in Table 2 below. We've included an example to help you.

Please note: You can only spread/use 10 waste types per deployment.

Table 2 – waste types

	List of Waste code (6 digit)	**Waste description**	**Physical form**	**Waste producer**	**Total amount being spread/used** (tonnes)
e.g.	03 03 05	De-inked paper	Sludge	Smith's Newsprint	500
1	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Bryngwyn	12313
2	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Capel Dewi	12313
3	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Crai	12313
4	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Elan Valley	12313
5	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Hirwaun	12313
6	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Llechryd	11252
7	19 09 02	Potable water treatment sludge	Liquid sludge	DCWW Llyswen	12313
8					
9					
10					
				Total tonnage	12313

4g About the land you want to treat

4g1 Please give details of the main address of the land to be treated.

Address	Tyncwm

	Llansawel
	Llandeilo
	Carmarthenshire
Postcode	SA19 7PQ
National grid reference (12 digit)	SN 63494 35562

4g2 What type of land do you want to treat?

Agricultural land ☒ Please give your County/ Parish/ Holding number 55/052/0003

Non-agricultural land ☐

4h The parcels of land you want to treat

Please list all the individual areas (parcels) of land you want to include this deployment, in Table 3 below.

Please note: the total area to be treated must not be more than 50 hectares.

Table 3 – parcels of land

	Field name/ number/ reference	**Grid reference - centre of field** (12 digit)	**Waste types to be spread/used** (List of Waste code) Separate using commas.	**Size** (hectares)
1	**Please refer to LPD1**			
2	**Supplement**			
3				
4				
5				
6				
7				
8				
9				
10				
			Total hectares	

4i Is the permit holder the owner or occupier of the land you want to spread on/treat?

Yes ☐ *Go to section 4k*

No ☒ You must give us details of the land owner or occupier, below.

Organisation name (if relevant)		
Title	Mrs	
First name	S M	
Last name	Speke	
Address	Tyncwm	

	Llansawel
	Llandeilo
	Carmarthenshire
Postcode	SA19 7PQ
Telephone - mobile	
Telephone - office	01558 685244
Email address	

If there is more than one owner or occupant for the area covered by this deployment, you must give us details of each. Please continue on a separate sheet and tell us the reference you have given the sheet.

Document reference	LPD1 Supplement

4j Do you have the consent of the owner or occupier to carry out the activity?

Yes ☒ *Go to section 4k*

No ☐ You must tell us why you think you can carry out the activity without the consent of the occupier. Please give an explanation in the box, below. Continue on a separate sheet if needed.

Explanation

4k Previous land treatment

Has any of the land listed in Table 3 been treated with other wastes, sewage sludge, slurries or manures etc. in the last 12 months?

No ☒ *Go to section 4l*

Yes ☐ You must give us details in Table 4 below *and* account for them in your benefit statement.

Table 4 – previous land treatment

	Field name/ number/ reference	**Describe the waste spread** (in last 12 months)	**Person/ company who spread the waste**	**Quantity spread per hectare** (in tonnes)	**Deployment/ other reference** (if known)
e.g.	East field	Digested sewage sludge cake	Eastern Waters	20	PAN 000000
1					
2					
3					
4					
5					

6					
7					
8					
9					
10					

4l Waste storage

Are you proposing to store waste in connection with this deployment?

No ☐ *Go to section 5*

Yes ☒ You must give us details in Table 5 below.

Table 5 – waste storage details

	Grid reference (12 digit)	**Waste type being stored** (6 digit List of Waste code)	**Storage method**	**Quantity stored at any one time** (in tonnes)
1	SN 63562 35540	19 09 02	Above ground storage tank	1250
2	SN 63509 35534	19 09 02	Slurry pit	1250
3				
4				
5				
6				
7				
8				
9	No more than 1250t shall	be stored across all storage	locations at any one time.	
10				

5 Payment

5a Tick an option below to show how you will pay for the application.

Electronic transfer (for example, BACS)	☒	*Go to section 5b*
Cheque	☐	*Go to section 5c*
Postal order	☐	*Go to section 5d*
Credit or debit card	☐	*Go to section 5e*

5b Paying by electronic transfer

If you choose to pay by electronic transfer use the following information to make your payment.

Company name: Natural Resources Wales

Company address: Income Dept., PO BOX 663, Cardiff, CF24 0TP

Bank: RBS

Address: National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA

Sort code: 60-70-80

Account number: 10014438

Reference number

You can use any reference number but we prefer the number to be 'EPDEP' followed by the first five letters of your organisation name followed by a four-digit number.

For example, for a company named Joe Bloggs Ltd, the reference number might be EPDEPJOEBL0001. (Remember you can use any four-digit number at the end.)

The reference number you will provide will appear on our bank statements so we can check your payment. We may need to contact your bank to make sure the reference number is quoted correctly.

You should also email your payment details and payment reference number to banking.team@naturalresourceswales.gov.uk / banking.team@cyfoethnaturiolcymru.gov.uk or fax it to 0300 065 3001 and enter it in the space provided below.

BACS reference	PSCAPPBYPRO0904
Amount paid	£798

Making payments from outside the UK

These details have changed. If you are making your payment from outside the United Kingdom (which must be received in sterling), our IBAN number is GB70 NWBK6070 8010 0144 38 and our SWIFT/BIC number is NWBKGB2L.

If you do not quote your payment reference number, there may be a delay in processing your payment and application.

5c Paying by cheque or postal order

You should make cheques or postal orders payable to Natural Resources Wales and they should be marked 'A/c Payee'. We will not accept post-dated cheques (cheques with a future date written on them).

Cheque/ postal order number	
Amount paid	

5d Paying by credit or debit card

If you are paying by credit or debit card, please fill in the separate form CC1.

You can download this from our Website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only.

6 Supporting documents

You must provide all relevant documents to support your application. The information we need depends on the type of deployment application you're making. If you don't provide us with all the information we need, we won't be able to assess your proposal and the application may be rejected.

Better quality deployments result in shorter processing times. If we don't need to come back to you for more information, we'll be able to give you a decision quicker.

6a What supporting evidence do you need to send?

Are you applying to spread/use waste under a SR2010 No4 standard rule set permit?

Yes	☒	Complete the checklist in Table 6 *and* Table 7	*Go to section 6b*
No	☐	Complete the checklist in Table 7 only.	*Go to section 6c*

6b Checklist for deployments under SR2010 No4 only

Complete the checklist in Table 6, below. Tick to confirm you've completed the action.

Table 6	
Do the grid references (for fields and storage areas) match the map locations?	☒

Are the grid references in the correct format i.e. AB 12345 67890?	☒
Have details of previous land treatment been provided?	☒
Have you included a location map?	☒
Does the map include all the relevant features as set out in the guidance?	☒
Have you included a waste analysis?	☒
Is the waste analysis for each waste less than 12 months old?	☒
Does the waste analysis include pH, Nitrogen (N), Phosphorus (P), Potassium (K), % dry matter and Potentially Toxic Elements (PTE's)?	☒
Have you included a soil analysis?	☒
Is the soil analysis less for each field than 4 years old?	☒
Does the soil analysis provide the soil pH, Potassium (K), Phosphorus (P), Magnesium (Mg) and PTEs if they are high in the waste?	☒
Have the soil indices for P, K and Mg for each field been provided?	☒
Have you included a Certificate of Agricultural Benefit?	☒
Has the proposed cropping regime been stated?	☒
Has the waste application rate been stated?	☒
Has the timing of application been stated and is it appropriate for the cropping regime?	☒
Has the intended method of waste application been stated?	☒
Have the total nutrients supplied by the waste been stated and have they been provided in oxide format?	☒
Has the nutrient requirement for the proposed crop been provided?	☒
Has the soil nitrogen supply (SNS) for each field been provided?	☒
If the land has been treated with other wastes, sewage sludge, slurries manures etc. in the last 12 months, has relevant information been provided?	☒
If more than one waste stream is to be applied to the land; has the benefit for each individual waste stream been demonstrated?	☒
Have you included a site specific risk assessment? (where relevant)	☐
Does the Site Specific Risk Assessment; consider all potential receptors, identify all risks from the activity, and include information on all measures you'll use to minimise or mitigate the impact and why they're suitable.	☐

6c Checklist for all types of deployment application.

Complete the checklist in Table 7, below. Tick to confirm you've completed the action.

Table 7

Item	Complete	Your document reference/ description
Location map (required for all deployments)	☒	T2 Maps
Benefit statement (required for all deployments)	☒	T2 ABS
Waste analysis (required for all deployments)	☒	Waste AnalysIs
Receiving soil analysis (required for all deployments)	☒	Soil AnalysIs
Site-specific risk assessment (in accordance with 4e)	☐	

Any other additional information	N/A	LPD1 Supplement
	N/A	4R Training Certificate Waste to Land - RE
	N/A	
	N/A	

7 The data Protection Act 1998

We, the Natural Resources Body for Wales (hereafter “Natural Resources Wales”), will process the information you provide so that we can:

- deal with your application;
- make sure you keep to the conditions of the licence, permit or registration;
- process renewals; and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues;
- carry out research and development work on environmental issues;
- provide information from the public register to anyone who asks;
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows).

We may pass the information on to our agents or representatives to do these things for us.

8 Confidentiality and national security

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by ticking the box below and enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application.

Please treat the information in my application as confidential. ☐

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Welsh Ministers and you must still include the information in your application. We will not include the information in the public register unless the Welsh Ministers decides that it should be included.

Only tick the box below if you are certain that you wish to claim confidentiality or national security for your application. This may delay your application.

I attach a letter stating that I have written to the Welsh Ministers explaining why my information should not be included on the public register for national security reasons ☐

9 Declaration

You must read this section before making the declaration and sending your form to us.

A relevant person should make the declaration. You must be a relevant person or have the authority of a relevant person to sign this application on their behalf.

Relevant people means each applicant, and in the case of a company, a director, manager, company

secretary or any similar officer or employee listed on current appointments in Companies House. In the case of a Limited Liability Partnership (LLP), it includes any partner. If the permit holder is an organisation of individuals, each individual (or individual trustee) must complete the declaration.

To simplify and speed up the application process we recommend that the declaration is filled in by an officer of a company or one of the partners in a Limited Liability Partnership (LLP).

If you wish a manager, employee or consultant etc. to sign the declaration on behalf of a relevant person, we will need written confirmation from a relevant person; that is, an officer of the company, a partner in the LLP or the individual, confirming that the person has the authority to fill in the declaration.

If you are joint permit holders you should each fill in your own declaration. We have provided a separate sheet for this.

Where the operator is the subject of any insolvency procedure, the declaration must be filled in by the official receiver/appointed insolvency practitioner.

9a Are you signing the form on *behalf of* a relevant person?

If you are *not* a relevant person, but want to sign the application on their behalf, you must include confirmation that you can do this.

I have included written confirmation from a relevant person to confirm I can sign on their behalf. ☐

9b Does your deployment application relate to a standard facility permit?

If your deployment application is being made in relation to a standard facility permit (SRP), you also need to confirm that you are able to meet all relevant criteria of the standard rule set/sets under which you are applying.

I confirm that my activity/activities will fully meet the rules of the permit deployment I have applied for. ☒

9c Sign to confirm you understand the declaration.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title	Mr	
First name	Jon	
Last name	Smith	
On behalf of (if relevant)		
Today's date (DD/MM/YYYY)	06/01/2020	

LPD1 Supplement

4h The parcels of land you want to treat.

Table 3 – parcels of land				
	Field name/ number/ reference	**Grid reference – centre of field** (12 digit)	**Waste types to be spread/used** (List of waste code) separate using commas	**Size** (hectares)
Tyncwm				
1	**17**	**SN 63990 35515**	19 09 02	1.96
2	**18**	**SN 64069 35412**	19 09 02	1.39
3	**19**	**SN 63561 35754**	19 09 02	5.35
4	**20**	**SN 63407 35847**	19 09 02	4.71
5	**21**	**SN 63092 35700**	19 09 02	6.93
Ystradwalter				
6	**1**	**SN 78572 36569**	19 09 02	3.04
7	**2**	**SN 78505 36769**	19 09 02	4.09
8	**3**	**SN 78744 36828**	19 09 02	3.96
9	**4**	**SN 78698 36698**	19 09 02	2.68
10	**5**	**SN 78949 36708**	19 09 02	4.28
11	**6**	**SN 78792 36541**	19 09 02	3.82
12	**7**	**SN 78490 36293**	19 09 02	3.41
Bwlchmaenllwyd				
13	**1**	**SN 74837 37376**	19 09 02	3.63
			Total	**50.00**

4i Additional land owner / occupiers

Mr Morgan & Partners
Ystradwalter
Llandovery
Carmarthenshire
SA20 0YL

CPH: 55/046/0177

Mark Davies
Bwlchmaenllwyd
Siloh
Llandovery
Carmarthenshire
SA20 0HR

Location Plan

Tyncwm 2

Sites:
Tyncwm
B4337
Llansawel
Llandeilo
Carmartenshire
SA19 7PQ

Client:
Dŵr Cymru / Welsh Water

Key:

Spreading area

Non-spreading area

Location tags

Location tags:
Above ground storage tank
A. SN 63562 35540
Slurry pit
B. SN 63509 35534

Location Plan

Tyncwm 2

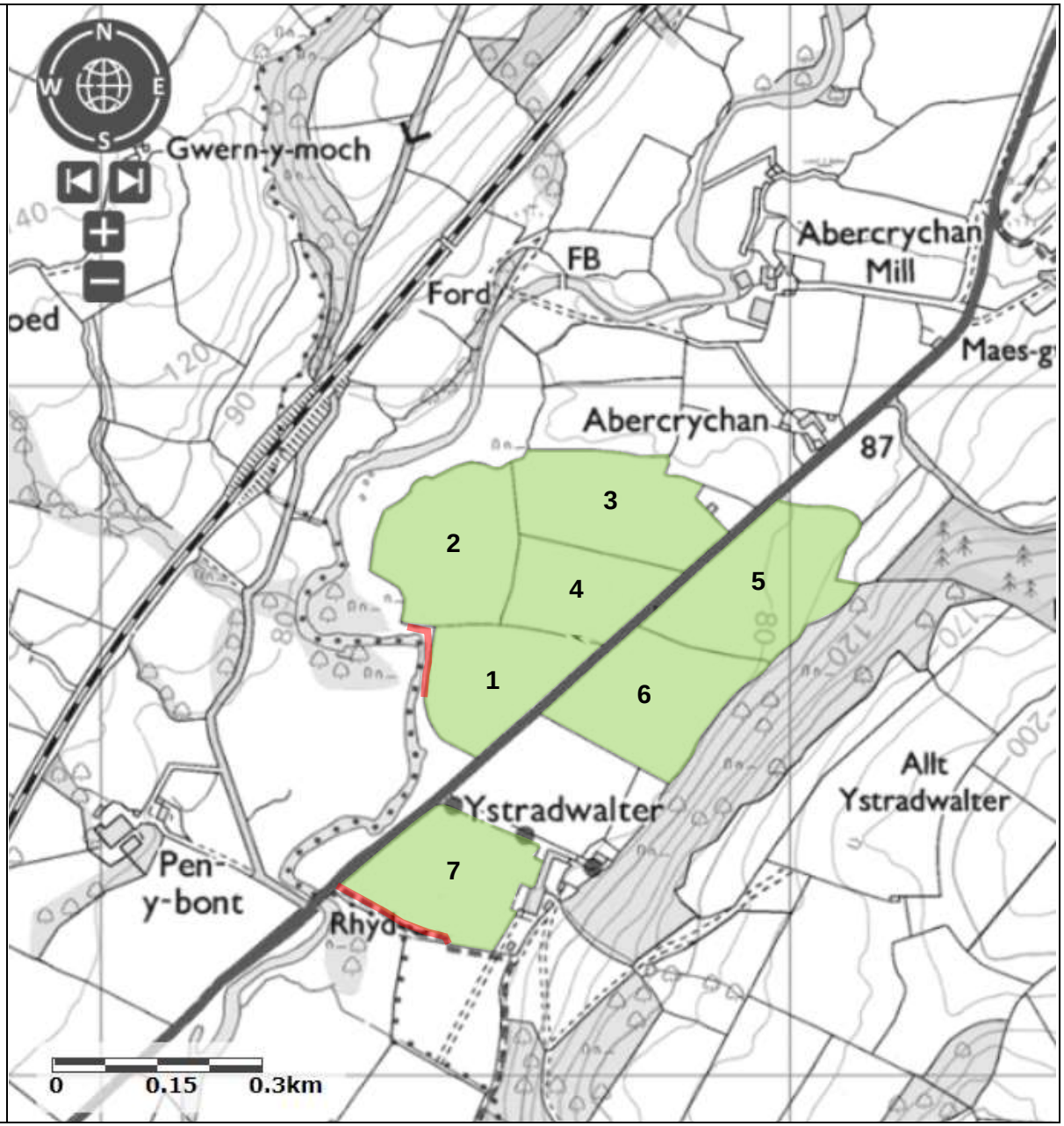
Sites:
Ystradwalter
Llandovery
Carmarthenshire
SA20 0YL

Client:
Dŵr Cymru / Welsh Water

Key:

Spreading area

Non-spreading area



Location Plan

Tyncwm 2

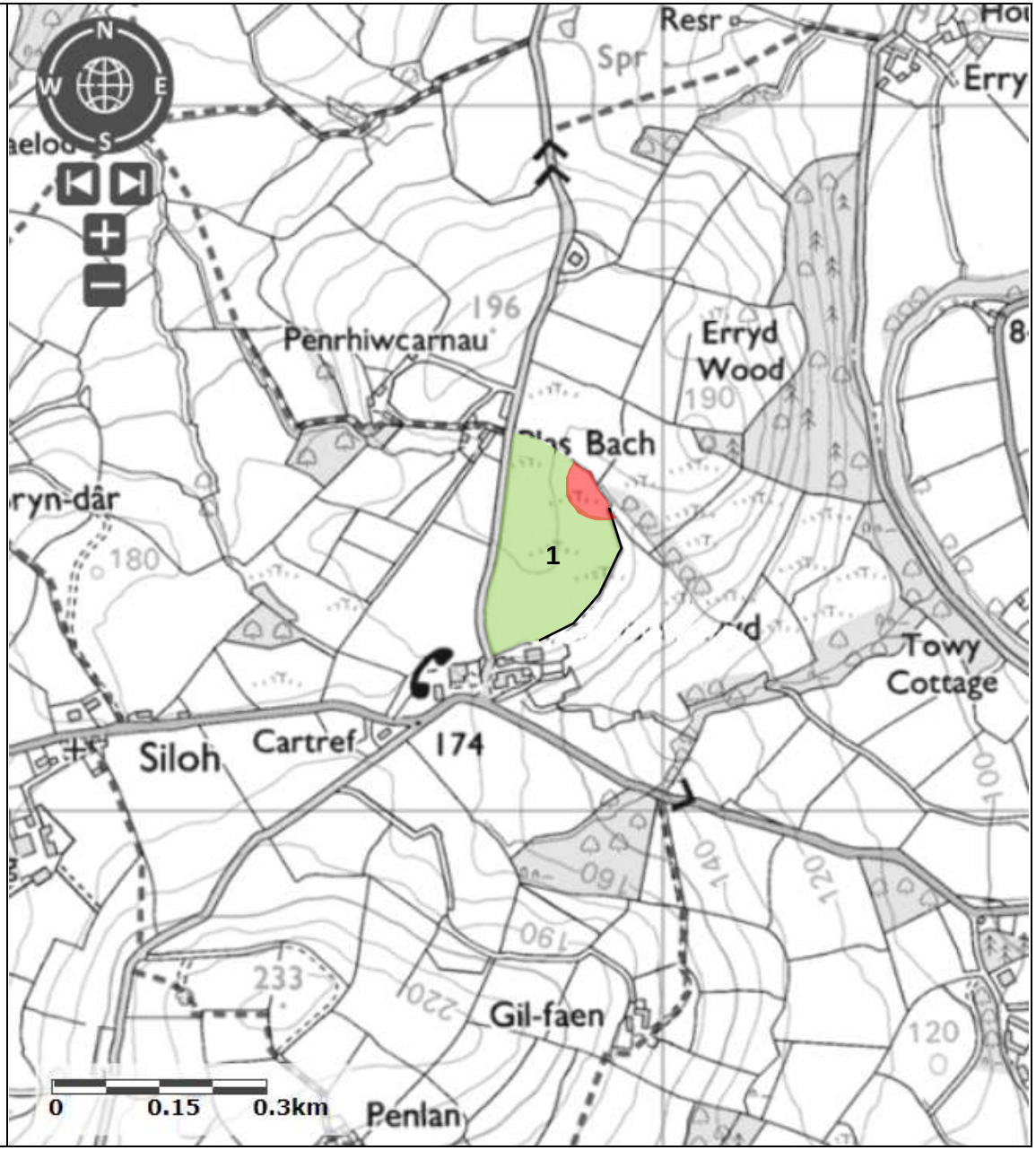
Sites:
Bwlchmaenllwyd
Siloh
Llandovery
Carmarthenshire
SA20 0HR

Client:
Dŵr Cymru / Welsh Water

Key:

Spreading area

Non-spreading area



Agricultural Benefit Statement

For the application of beneficial wastes to fields at;

Tyncwm, B4337, Llansawel, Llandeilo, Carmarthenshire. SA19 7PQ

Ystradwalter, Llandovery, Carmarthenshire. SA20 0YL

Bwlchmaenllwyd, Siloh, Llandovery, Carmarthenshire. SA20 0HR

6th January 2021

1 Person with appropriate technical expertise and permit details

This benefit statement has been compiled by Adam Stone (Consultant at 4R Group) who has the following qualifications and experience;

- MSc Geoenvironmental Engineering
- BSc (Hons) Physical Geography
- AssocMCIWM
- FACTS Qualified Advisor (No. FE/6321) and Full Member of BASIS Professional Register

Verified by; Chris Ash FQA (FE/6324)

Permit number under which this deployment application is being made: GP3792SK

2 Where the waste is to be spread

Table 1. Where the waste is to be spread

Farm address:	Tyncwm, B4337, Llansawel, Llandeilo, Carmarthenshire. SA19 7PQ Ystradwalter, Llandovery, Carmarthenshire. SA20 0YL Bwlchmaenllwyd, Siloh, Llandovery, Carmarthenshire. SA20 0HR
Stockpile grid reference:	Please refer to table 4.

Area of the receiving land:	49.25ha	
Quantity to be stored at any one time:	Stackable: N/A	Non-Stackable: 1,250t
Total maximum quantity to be spread:	12,313t	
Location map document reference:	T2 Maps	

3 What is the waste to be spread

Table 2. Description of waste(s) to be applied

Waste	***EWC Code***	***Description***	***Waste Producer***	***Additional Information***
1	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Bryngwyn	Non-stackable ferric liquid sludge
2	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Capel Dewi	Non-stackable ferric liquid sludge
3	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Crai	Non-stackable ferric liquid sludge
4	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Elan Valley	Non-stackable ferric liquid sludge
5	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Hirwaun	Non-stackable ferric liquid sludge
6	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Llechryd	Non-stackable ferric liquid sludge
7	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Llyswen	Non-stackable ferric liquid sludge

4 Operational details

4.1 Cropping details

Table 3. Cropping details

Current crop including projected yield if known:	Refer to tables 6-12
Is straw removed?	Y ☐ N ☐ N/A ☒

Following crop and any sensitive crops within rotation which you are amending the soil for in good time:	Refer to tables 6-12
When do you intend to apply this waste; e.g. post-harvest – pre-ploughing, during seed bed cultivations, on the stubble over winter:	Spreading will only take place subject to ground conditions and following the Code of Good Agricultural Practice (Defra, 2011), NVZ regulations and the permit holder's Environmental Management System (EMS). Targeted periods of spreading on grass fields include spring, and after cutting of silage through summer and autumn. No more than 50t/ha of liquid sludge will be spread on a field in any 3-week period in accordance with CoGAP, and no more than 250t/ha will be spread within any 12-month period.

4.2 Waste storage

Table 4. Waste storage

How is the waste to be stored? *e.g. mobile tank, field heap, spread on delivery*	Stackable: N/A Non-stackable wastes: Above the ground storage tank / slurry pit / spread on delivery
Where is the waste to be stored prior to spreading?	A. SN 63562 35540 (above the ground storage tank) B. SN 63509 35534 (slurry pit)
Why were these storage locations chosen?	The storage locations are accessible by delivery vehicle near field entrances so the potential damage to fields by delivering vehicles is minimal. The storage locations are not within 10m of any ditch, watercourse, or footpath, nor within an SPZ1, and are at least 50m from any well spring or borehole. They are also a safe distance from overhead powerlines.

4.3 Waste application

Table 5. Waste application

How is the waste to be spread and why is it to be spread that way?	Liquid sludges will be surface spread by tractor and either an umbilical system or tanker, using a dribble bar. An umbilical system or tanker will be used depending on which is better practicable on each field.
How do you plan to incorporate the waste following application?	There is no requirement for further incorporation of wastes on grass fields due to low ammonia content and minimal odour.

With liquid wastes is there any mole draining or sub-soiling planned? *Are there land drains in the field?*	No to both.
Other relevant operational information:	The wastes may be applied separately or in combination. If the wastes are applied in combination the total combined amount applied will not exceed 250t/ha, the total nitrogen loading will be less than 250kg/ha, and the amount of available nitrogen and total or available phosphate and potash (whichever is appropriate) will not exceed the fertiliser recommendation or the amount removed in crop offtake, whichever is the greater.

Table 6. DCWW Bryngwyn

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	2.9	0	350	248	0.6	2	0	1.6	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	2.9	0	350	248	0.6	2	0	1.6	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**15	2-	230	248	**3.1	3	0	1.6	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**15	1	285	248	0.6	3	0	1.6	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	2.9	0	350	248	0.6	2	0	1.6	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**15	2-	230	248	**3.1	3	0	1.6	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**15	2-	230	248	**3.1	3	0	1.6	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**15	2-	230	248	**3.1	3	0	1.6	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**15	2-	230	248	**3.1	3	0	1.6	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**15	2-	230	248	**3.1	3	0	1.6	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**15	2-	230	248	**3.1	2	0	1.6	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**15	2-	230	248	**3.1	3	0	1.6	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	2.9	2-	230	248	**3.1	2	0	1.6	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 56kg/ha

Table 7. DCWW Capel Dewi

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	4.4	0	350	248	0.8	2	0	2.1	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	4.4	0	350	248	0.8	2	0	2.1	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**4.2	3	0	2.1	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**22	1	285	248	0.8	3	0	2.1	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	4.4	0	350	248	0.8	2	0	2.1	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**22	2-	230	248	**4.2	3	0	2.1	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**22	2-	230	248	**4.2	3	0	2.1	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**22	2-	230	248	**4.2	3	0	2.1	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**22	2-	230	248	**4.2	3	0	2.1	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**4.2	3	0	2.1	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**4.2	2	0	2.1	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**22	2-	230	248	**4.2	3	0	2.1	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	4.4	2-	230	248	**4.2	2	0	2.1	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 54kg/ha

Table 8. DCWW Crai

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	1.4	0	350	248	0.6	2	0	1.7	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	1.4	0	350	248	0.6	2	0	1.7	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**7.2	1	285	248	0.6	3	0	1.7	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	1.4	0	350	248	0.6	2	0	1.7	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**7.2	2-	230	248	**2.9	2	0	1.7	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**7.2	2-	230	248	**2.9	3	0	1.7	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	1.4	2-	230	248	**2.9	2	0	1.7	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 60kg/ha

Table 9. DCWW Elan Valley

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	4.3	0	350	248	2.7	2	0	8.6	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	4.3	0	350	248	2.7	2	0	8.6	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**14	3	0	8.6	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**22	1	285	248	2.7	3	0	8.6	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	4.3	0	350	248	2.7	2	0	8.6	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**22	2-	230	248	**14	3	0	8.6	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**22	2-	230	248	**14	3	0	8.6	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**22	2-	230	248	**14	3	0	8.6	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**22	2-	230	248	**14	3	0	8.6	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**14	3	0	8.6	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**22	2-	230	248	**14	2	0	8.6	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75		2-	230	248	**14	3	0	8.6	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	4.3	2-	230	248	**14	2	0	8.6	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 97kg/ha

Table 10. DCWW Hirwaun

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	0.6	0	350	248	0.4	2	0	1.3	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	0.6	0	350	248	0.4	2	0	1.3	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**3.2	1	285	248	0.4	3	0	1.3	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	0.6	0	350	248	0.4	2	0	1.3	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**3.2	2-	230	248	**1.9	2	0	1.3	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**3.2	2-	230	248	**1.9	3	0	1.3	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	0.6	2-	230	248	**1.9	2	0	1.3	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 52kg/ha

Table 11. DCWW Llechryd

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	6.3	1	120	75	17	0	350	248	2.9	2	0	7.0	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	6.3	1	120	75	17	0	350	248	2.9	2	0	7.0	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	5.5	2	75	75	**75	2-	230	248	**13	3	0	6.2	220	**1177**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	5.5	2	75	75	**75	1	285	248	2.6	3	0	6.2	220	**1036**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	6.3	1	120	75	17	0	350	248	2.9	2	0	7.0	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	5.5	2	75	75	**75	2-	230	248	**13	3	0	6.2	220	**669**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	5.5	2	75	75	**75	2-	230	248	**13	3	0	6.2	220	**900**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	5.5	3	20	75	**75	2-	230	248	**13	3	0	6.2	220	**871**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	5.5	3	20	75	**75	2-	230	248	**13	3	0	6.2	220	**590**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	5.5	2	75	75	**75	2-	230	248	**13	3	0	6.2	220	**942**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	5.5	2	75	75	**75	2-	230	248	**13	2	0	6.2	220	**840**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	5.5	3	20	75	**75	2-	230	248	**13	3	0	6.2	220	**750**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	6.3	1	120	75	17	2-	230	248	**15	2	0	7.0	250	**908**
Ha	**50.33**	**49.25**																			**11252**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 100kg/ha

Table 12. DCWW Llyswen

Nutrient Requirements for Land at Tyncwm 2

Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	N			P_2O_5				K_2O				Mg			Rate	Totals
						SNS	Req kg/ha	*In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	*In Wst kg/ha	Mg Ind	Req kg/ha	*In Wst kg/ha	t/ha	tonnes
Tyncwm																					
17	1.96	1.96	Grass	Grass	5.0	Mod	235	1.5	1	120	75	9.1	0	350	248	0.0	2	0	1.0	250	**490**
18	1.43	1.39	Grass	Grass	5.1	Mod	235	1.5	1	120	75	9.1	0	350	248	0.0	2	0	1.0	250	**348**
19	5.35	5.35	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**46	2-	230	248	**0.0	3	0	1.0	250	**1338**
20	4.78	4.71	Grass	Grass	5.3	Mod	235	1.5	2	75	75	**46	1	285	248	0.0	3	0	1.0	250	**1178**
21	7.31	6.93	Grass	Grass	5.4	Mod	235	1.5	1	120	75	9.1	0	350	248	0.0	2	0	1.0	250	**1733**
Ystradwalter																					
1	3.12	3.04	Grass	Grass	6.0	Mod	235	1.5	2	75	75	**46	2-	230	248	**0.0	3	0	1.0	250	**760**
2	4.09	4.09	Grass	Grass	5.9	Mod	235	1.5	2	75	75	**46	2-	230	248	**0.0	3	0	1.0	250	**1023**
3	3.96	3.96	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**46	2-	230	248	**0.0	3	0	1.0	250	**990**
4	2.68	2.68	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**46	2-	230	248	**0.0	3	0	1.0	250	**670**
5	4.28	4.28	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**46	2-	230	248	**0.0	3	0	1.0	250	**1070**
6	3.82	3.82	Grass	Grass	5.8	Mod	235	1.5	2	75	75	**46	2-	230	248	**0.0	2	0	1.0	250	**955**
7	3.59	3.41	Grass	Grass	5.8	Mod	235	1.5	3	20	75	**46	2-	230	248	**0.0	3	0	1.0	250	**853**
Bwlchmaenllwyd																					
1	3.96	3.63	Grass	Grass	5.9	Mod	235	1.5	1	120	75	9.1	2-	230	248	**0.0	2	0	1.0	250	**908**
Ha	**50.33**	**49.25**																			**12313**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2020)

Expected Grazing yield of 7-9t/ha

Grass crop use based on yield totalling 38t/ha where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2020)

To account for aftermath grass grazing, 1/2 of the P & K requirement for grazing has been added, and 10kg/ha P and 20kg/ha K is added to crop use

*N, P_2O_5, K_2O and Mg stated are **available** concentrations in units of kg/ha

****Total** P_2O_5 and K_2O stated where soil indices ≥2

Total N supplied at an application rate of 250t/ha is 72kg/ha

5 Compliance with NVZ regulations

Table 13. Compliance with NVZ regulations

<table>
<tr><td>Does the site fall within a designated NVZ?</td><td>Y ☐ N ☒ (Please skip to section 6)</td></tr>
<tr><td>Do closed periods apply for the wastes to be applied?</td><td>Y ☐ N ☐

Applicable to: N/A

If yes, please indicate the appropriate period:

<table>
<tr><th>Start Date</th><th>End Date</th><th>Land Use</th><th>Soil Type</th><th></th></tr>
<tr><td>1st Aug</td><td>31st Dec</td><td>Tillage Land</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>1st Sept</td><td>31st Dec</td><td>Grassland</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>16th Sept</td><td>31st Dec</td><td>Tillage Land*</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>1st Oct</td><td>31st Jan</td><td>Tillage Land</td><td>All Other Soils</td><td>☐</td></tr>
<tr><td>15th Oct</td><td>31st Jan</td><td>Grassland</td><td>All Other Soils</td><td>☐</td></tr>
</table>

*For Tillage Land with crops sown on or before 15th September

If no, applications will be carried out as per CoGAP i.e. when ground conditions are suitable and when no heavy rain is forecast.</td></tr>
<tr><td>Will application rates comply with crop requirement and field/whole farm limit?</td><td></td></tr>
<tr><td>Previous applications:</td><td></td></tr>
</table>

6 Benefits and nutrients supplied to the soil or crop from this application

6.1 Receiving soils

The nutrient status of individual fields to be registered are provided to table 6-12 above. General soil type(s) for the fields to be registered are;

Table 17. Soil type

Light sand soils	Soils which are sand, loamy sand or sandy loam to 40cm depth and are sand or loamy sand between 40 and 80 cm, or over sandstone rock.	☐
Shallow soils	Soils over impermeable subsoils and those where the parent rock (chalk, limestone or other rock) is within 40cm of the soil surface. Sandy soils developed over sandstone rock should be regarded as light sand soils.	☐
Medium soils	Mostly medium-textured mineral soils that do not fall into any other soil category. This includes sandy loams over clay, deep loams, and silty or clayey topsoils that have sandy or loamy subsoils.	☒
Deep clayey soils	Soils with predominantly sandy clay loam, silty clay loam, clay loam, sandy clay, silty clay or clay topsoil overlying clay subsoil to more than 40cm depth. Deep clayey soils normally need artificial field drainage.	☐
Deep silty soils	Soils of sandy silt loam, silt loam or silty clay loam textures to 100 cm depth or more. Silt soils formed on marine alluvium, warp soils (river alluvium) and brickearth soils are in this category. Silty clays of low fertility should be regarded as other mineral soils.	☐
Organic soils	Soils that are predominantly mineral but with between 10 and 20% organic matter to depth. These can be distinguished by darker colouring that stains the fingers black or grey.	☐
Peat soils	Soils that contain more than 20% organic matter derived from sedge or similar peat material.	☐

The soil analyses (**Soil Analysis**) shows the soils to have ample background concentrations of Mg (*i.e.* ADAS Index of 2-3). It is therefore unlikely that the crop will require any additional input of Mg over the course of the cropping cycle. None of the wastes contain any notable concentration of Mg and therefore applications of these materials will not increase background levels in the receiving soil over time.

6.2 Waste characterisation

Full characterisations of individual wastes with total and available nutrients at the recommended rates for each waste stream are supplied in **Waste Analysis**. This information is further summarised against the nutrient requirements for proposed crops in Tables 6-12.

Limiting factors for the different wastes are as follows;

- Llechryd: Max rate of 250t/ha or total P on fields with P index ≥2
- All other liquids: Max rate of 250t/ha

6.3 Summary of benefits

These wastes are a source of essential elements N, P, K, macronutrients Mg, Ca, S and provide trace amounts of micronutrients. Wastes are beneficially used to replace a proportion of the bagged mineral fertiliser used by farmers. The recommended application rates shown in Tables 6-12 are based on the crop requirement and soil analysis.

Clean water treatment sludges contain significant amounts of organic matter, for example, the dry solids in Crai waste consist of 37% organic matter. Additions of organic matter to soil will improve soil structural stability, biological activity, water and nutrient holding capacity, i.e. resistance to drought, and reduction of localised flooding, reduced leaching of nutrients, and improved workability in soil. Organic matter is a particularly good source of N and S, and organic acids that aid nutrient solubility and uptake, as well as enhancing microbial activity for enhanced nutrient cycling in soils.

6.4 Additional requirements

Fields may require additional N, P, and K to achieve optimum yield.

7 Potential negative impacts to the soil or crop from this application

7.1 Potentially Toxic Elements (PTEs)

All the wastes contain traces of PTEs, however concentrations applied to the receiving soils are below maximum upper limits for heavy metal applications described in the Sludge (Use in Agriculture) Regulations 1989 (SI, 1989). Refer to interpretations in **Waste Analysis**.

7.2 Other waste characteristics

The pH levels in the wastes range from 5.7 – 6.8.

It is unlikely that soil pH will decrease following the application detailed here due to the extensive buffering capacity of the receiving soils. The pH levels of the receiving soils are between 5.0 and 6.0, therefore it is unlikely that availability of any naturally occurring heavy metals present in these soils will become more available after application of these wastes.

7.3 Operational factors

1. Solid wastes will be spread using conventional rear discharge spreaders.
2. Liquid wastes will be surface spread, applied using a dribble bar.
3. Potential compaction of receiving soil will be mitigated by suitable adjustment of tyres/tyre pressure to match soil conditions, direction of spreading and load to be spread.
4. Sampling methods will be consistent with those set out in the RB209, and the analysis for PTEs are consistent with the code of agricultural practice.
5. Wastes will be applied when ground and weather conditions are suitable, following CoGAP to avoid soil damage including wheel ruts, compaction, structural damage, erosion and run-off.

8 Sensitive human and environmental receptors

There are no identified risks to local potentially sensitive receptors. This is because the risk of emissions produced from the waste activity is low due to waste type and distance to the receptors from the activity.

Locations of sensitive receptors are shown in **T2 Maps**. Prevailing winds are south-westerly.

9 Practices to reduce the impacts of the operation on identified sensitive receptors

Generic measures (in addition to permit requirements and following the EMS) to reduce potential negative impacts of the proposed spreading operation will be as follows;

1. Spreading will only be undertaken when weather conditions are suitable within restrictions outlined in CoGAP and any relevant closed periods.
2. Spreading will not be carried out in any areas of a field that will be sub-soiled.
3. Machinery operations will take account of soil conditions, slopes *etc.*
4. Liquid spreading machinery will be turned off and lifted away from soil prior to turning at the end of each run.
5. Machinery will be checked daily when in use, regularly serviced and spreading equipment calibrated. Umbilical hoses will be regularly checked for damage to prevent leaks.
6. Machinery turns will not be executed in the buffer strips.
7. Waste deliveries to field/stores will be supervised.
8. All spillages will be reported immediately to NRW.

10 Contingency planning

Replacement spreading machinery will be available to prevent waste being retained in faulty machinery. Hire vehicles will be used if required. All machinery will be fully serviced.

There will be a sufficient number of trained staff available to ensure that the operation continues throughout operational hours (*i.e.* there will be sufficient cover for illness, holiday *etc.*).

In adverse weather, storage is available until ground/weather conditions become favourable for land application.

In circumstances where the wastes cannot be stored or spread beyond normal capacities, wastes will be diverted to a local alternative deployment or DCWW sewage treatment works.

Dŵr Cymru Welsh Water

Historical Data

SPT Number	SPT Description	Date Time Taken	Det Code	Det Description	Result Value	Result Qual	Result Check	Min Limit	Max Limit	Original Sample	PC	Sample Status	Result Status	Sampler Comment
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	288	Aluminium	2210					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9272	Chromium	6.67					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9277	Zinc	138					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	4620	pH	6.4					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	8241	Volatile solids	32.5					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9282	% Minerals	67.5					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9275	Nickel	5.1	<				6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9234	Sulphur	2200					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9283	% K (dry weight)	0.0377					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	7774	Mercury	0.73	<				6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	357	Arsenic	21.9					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9284	% P (dry weight)	0.0928					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	238	Magnesium	712					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9278	Iron	431000					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9276	Lead	15.5					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9285	% N (dry weight)	0.798					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9271	Cadmium	0.11	<				6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9233	Ammoniacal nitrogen	221	<				6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9281	% Dry solids	2.78					6758789	ME	A	A	
79131	BRYNGWYN WTW SLUDGE TANKERING POINT	20/Aug/2020 16:15	9273	Copper	14					6758789	ME	A	A	

DCWW Potable Water Treatment Sludge

Analysis of Bryngwyn liquid sludge

Date: 20/08/20 Lab ref no. 6758789

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**6.4**
Dry solids (%)	**2.8**
Organic matter (%)	**32.5**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.80	%	0.22	55.5	0.01	1.5
Ammonium-N	221	mg/kg	0.01	1.5		
Phosphorus (P)	928	mg/kg	0.03	6.4		
Phosphate (P_2O_5)			0.06	14.7	0.0	2.9
Potassium (K)	377	mg/kg	0.01	2.6		
Potash (K_2O)			0.01	3.1	0.0	0.6
Magnesium (Mg)	712	mg/kg	0.02	4.9		
Magnesium (MgO)			0.03	7.9	0.0	1.6
Sulphur (S)	2200	mg/kg	0.06	15.3		
Sulphur (SO_3)			0.15	38.2	0.0	3.8

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	138.0	mg/kg	3.8	0.96	15.00
Copper	14.0	mg/kg	0.39	0.10	7.50
Nickel	5.1	mg/kg	0.14	0.04	3.00
Lead	15.5	mg/kg	0.43	0.11	15.00
Cadmium	0.11	mg/kg	0.00	0.00	0.15
Chromium	6.7	mg/kg	0.19	0.05	15.00
Mercury	0.7	mg/kg	0.02	0.01	0.10
Arsenic	21.9	mg/kg	0.61	0.15	0.70
Other Elements					
Aluminium	2210	mg/kg	61.4	15.4	
Iron	431000	mg/kg	11981.8	2995.5	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

Dŵr Cymru
Welsh Water

Sample Analysis Report

Sampling Point No -	122055	**Location -**	Capel Dewi WTW Sludge Tankering Point
Date Sampled -	09-Jan-20	**Time Taken -**	15:28
Originator -	SEWAGE	**Purpose -**	EQO/DIRECTIVE COMPLIANCE
Laboratory -	GLASLYN	**Lab Ref No -**	S 6591305
Sampler -	EXTA	**No Results -**	20
Type -			

Sample Results

Code	Determinand Name	Units		Result	Limit
238	Magnesium	MG/KG		1060	
288	ALUMINIUM (DRY WT)	MG/KG		45300	
357	ARSENIC (DRY WT)	MG/KG		30	
4620	pH	PH UNITS		6.2	
7774	WTW MERCURY TOTAL	MG/KG	LT	0.82	
8241	LOSS ON IGNITION	%		35.3	
9233	Ammoniacal nitrogen	MG/KG	LT	251	
9234	Sulphur	MG/KG		4430	
9271	Cadmium	MG/KG	LT	0.38	
9272	CHROMIUM TOTAL	MG/KG		14.4	
9273	Copper	MG/KG		14.4	
9275	Nickel	MG/KG		10.2	
9276	LEAD TOTAL	MG/KG		10	
9277	ZINC TOTAL	MG/KG		138	
9278	IRON TOTAL	MG/KG		324000	
9281	% Dry solids	%		2.43	
9282	% Minerals	%		64.7	
9283	% K (dry weight)	%		0.0579	
9284	% P (dry weight)	%		0.158	
9285	% N (dry weight)	%		0.88	

DCWW Potable Water Treatment Sludge

Analysis of Capel Dewi liquid sludge

Date: 09/01/20 Lab ref no. S 6591305

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**6.2**
Dry solids (%)	**2.4**
Organic matter (%)	**35.3**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.88	%	0.21	53.5	0.01	1.5
Ammonium-N	251	mg/kg	0.01	1.5		
Phosphorus (P)	1580	mg/kg	0.04	9.6		
Phosphate (P_2O_5)			0.09	21.9	0.0	4.4
Potassium (K)	579	mg/kg	0.01	3.5		
Potash (K_2O)			0.02	4.2	0.0	0.8
Magnesium (Mg)	1060	mg/kg	0.03	6.4		
Magnesium (MgO)			0.04	10.3	0.0	2.1
Sulphur (S)	4430	mg/kg	0.11	26.9		
Sulphur (SO_3)			0.27	67.3	0.0	6.7

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	138.0	mg/kg	3.4	0.84	15.00
Copper	14.4	mg/kg	0.35	0.09	7.50
Nickel	10.2	mg/kg	0.25	0.06	3.00
Lead	10.0	mg/kg	0.24	0.06	15.00
Cadmium	0.38	mg/kg	0.01	0.00	0.15
Chromium	14.4	mg/kg	0.35	0.09	15.00
Mercury	0.8	mg/kg	0.02	0.00	0.10
Arsenic	30.0	mg/kg	0.73	0.18	0.70
Other Elements					
Aluminium	45300	mg/kg	1100.8	275.2	
Iron	324000	mg/kg	7873.2	1968.3	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

Sample Analysis Report

xxxx

xxxx

xxxx

xxxx

xxxx

Sampling Point No:	79114	**Location:**	CRAY WTW SLUDGE TANKERING POINT
Date Sampled:	29/09/2020	**Time Taken:**	10:15
Laboratory:	ALS	**Sample ID:**	6782072
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Sample Analysis Report

Dŵr Cymru Welsh Water

Sample Analysis Report

Code		Result	Units	Qualifier	Lower Limit
238	Magnesium	758	mg/kg		
288	Aluminium	2170	mg/kg		
357	Arsenic	59.200001	mg/kg		
4620	pH	5.7	pH		
7774	Mercury	0.73	mg/kg	<	
8241	Volatile solids	37.200001	%		
9233	Ammoniacal nitrogen	223	mg/kg		
9234	Sulphur	7240	mg/kg		
9271	Cadmium	0.34	mg/kg	<	
9272	Chromium	9.41	mg/kg		
9273	Copper	11.3	mg/kg		
9275	Nickel	3.12	mg/kg	<	
9276	Lead	23.5	mg/kg		
9277	Zinc	150	mg/kg		
9278	Iron	434000	mg/kg		
9281	% Dry solids	2.77	%		
9282	% Minerals	62.799999	%		
9283	% K (dry weight)	0.0346	mg/kg		
9284	% P (dry weight)	0.0454	%		
9285	% N (dry weight)	0.871	%		

Comments:

Signed: _____

Approved by:

Position:

Upper Limit

DCWW Potable Water Treatment Sludge

Analysis of Crai liquid sludge

Date: 29/09/20 Lab ref no. 6782072

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**5.7**
Dry solids (%)	**2.8**
Organic matter (%)	**37.2**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.87	%	0.24	60.3	0.01	1.5
Ammonium-N	223	mg/kg	0.01	1.5		
Phosphorus (P)	454	mg/kg	0.01	3.1		
Phosphate (P_2O_5)			0.03	7.2	0.0	1.4
Potassium (K)	346	mg/kg	0.01	2.4		
Potash (K_2O)			0.01	2.9	0.0	0.6
Magnesium (Mg)	758	mg/kg	0.02	5.2		
Magnesium (MgO)			0.03	8.4	0.0	1.7
Sulphur (S)	7240	mg/kg	0.20	50.1		
Sulphur (SO_3)			0.50	125.3	0.1	12.5

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	150.0	mg/kg	4.2	1.04	15.00
Copper	11.3	mg/kg	0.31	0.08	7.50
Nickel	3.1	mg/kg	0.09	0.02	3.00
Lead	23.5	mg/kg	0.65	0.16	15.00
Cadmium	0.34	mg/kg	0.01	0.00	0.15
Chromium	9.4	mg/kg	0.26	0.07	15.00
Mercury	0.7	mg/kg	0.02	0.01	0.10
Arsenic	59.2	mg/kg	1.64	0.41	0.70
Other Elements					
Aluminium	2170	mg/kg	60.1	15.0	
Iron	434000	mg/kg	12021.8	3005.5	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

Dŵr Cymru
Welsh Water

Historical Data

SPT Number	SPT Description	Date Time Taken	Det Code	Det Description	Result Value	Result Qual	Result Check	Min Limit	Max Limit	Original Sample	PC	Sample Status	Result Status	Sampler Comment
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9284	% P (dry weight)	0.0887					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9283	% K (dry weight)	0.105					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9271	Cadmium	0.28					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	7774	Mercury	0.47	<				6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9285	% N (dry weight)	0.898					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9281	% Dry solids	4.3					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	4620	pH	5.9					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9275	Nickel	7.7					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9272	Chromium	8.34					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	8241	Volatile solids	20.3					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9273	Copper	23.8					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9276	Lead	44.7					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	357	Arsenic	49.9					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9282	% Minerals	79.7					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9233	Ammoniacal nitrogen	142	<				6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9277	Zinc	160					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	238	Magnesium	2500					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	288	Aluminium	3370					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9234	Sulphur	5560					6792638	ME	A	A	
340282	ELAN WTW SLUDGE TANKERING POINT	08/Oct/2020 14:34	9278	Iron	280000					6792638	ME	A	A	

Det Comment	OOH
EMPTY	N
EMPTY	N
EMPTY	N
EMPTY	N
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EMPTY	N
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EMPTY	N
EMPTY	N

DCWW Potable Water Treatment Sludge

Analysis of Elan Valley liquid sludge

Date: 08/10/20 Lab ref no. 6792638

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**5.9**
Dry solids (%)	**4.3**
Organic matter (%)	**20.3**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.90	%	0.39	96.5	0.01	1.5
Ammonium-N	142	mg/kg	0.01	1.5		
Phosphorus (P)	887	mg/kg	0.04	9.5		
Phosphate (P_2O_5)			0.09	21.7	0.0	4.3
Potassium (K)	1050	mg/kg	0.05	11.3		
Potash (K_2O)			0.05	13.5	0.0	2.7
Magnesium (Mg)	2500	mg/kg	0.11	26.9		
Magnesium (MgO)			0.17	43.0	0.0	8.6
Sulphur (S)	5560	mg/kg	0.24	59.8		
Sulphur (SO_3)			0.60	149.4	0.1	14.9

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	160.0	mg/kg	6.9	1.72	15.00
Copper	23.8	mg/kg	1.02	0.26	7.50
Nickel	7.7	mg/kg	0.33	0.08	3.00
Lead	44.7	mg/kg	1.92	0.48	15.00
Cadmium	0.28	mg/kg	0.01	0.00	0.15
Chromium	8.3	mg/kg	0.36	0.09	15.00
Mercury	0.5	mg/kg	0.02	0.01	0.10
Arsenic	49.9	mg/kg	2.15	0.54	0.70
Other Elements					
Aluminium	3370	mg/kg	144.9	36.2	
Iron	280000	mg/kg	12040.0	3010.0	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

Sample Analysis Report

xxxx

xxxx

xxxx

xxxx

xxxx

Sampling Point No:	303551	**Location:**	HIRWAUN WTW SLUDGE TANKERING POINT
Date Sampled:	29/09/2020	**Time Taken:**	10:17
Laboratory:	ALS	**Sample ID:**	6782074
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Sample Analysis Report

Dŵr Cymru Welsh Water

Sample Analysis Report

Code		Result	Units	Qualifier	Lower Limit
238	Magnesium	676	mg/kg		
288	Aluminium	1090	mg/kg		
357	Arsenic	65.099998	mg/kg		
4620	pH	5.7	pH		
7774	Mercury	0.82	mg/kg	<	
8241	Volatile solids	36.900002	%		
9233	Ammoniacal nitrogen	248	mg/kg	<	
9234	Sulphur	7900	mg/kg		
9271	Cadmium	0.38	mg/kg	<	
9272	Chromium	4.32	mg/kg		
9273	Copper	9.22	mg/kg		
9275	Nickel	7.4	mg/kg		
9276	Lead	26	mg/kg		
9277	Zinc	139	mg/kg		
9278	Iron	445000	mg/kg		
9281	% Dry solids	2.48	%		
9282	% Minerals	63.099998	%		
9283	% K (dry weight)	0.0255	mg/kg		
9284	% P (dry weight)	0.0229	%		
9285	% N (dry weight)	0.845	%		

Comments:

Signed: _____

Approved by:

Position:

Upper Limit

DCWW Potable Water Treatment Sludge

Analysis of Hirwaun liquid sludge

Date: 29/09/20 Lab ref no. 6782074

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**5.7**
Dry solids (%)	**2.5**
Organic matter (%)	**36.9**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.85	%	0.21	52.4	0.01	1.5
Ammonium-N	248	mg/kg	0.01	1.5		
Phosphorus (P)	229	mg/kg	0.01	1.4		
Phosphate (P_2O_5)			0.01	3.2	0.0	0.6
Potassium (K)	255	mg/kg	0.01	1.6		
Potash (K_2O)			0.01	1.9	0.0	0.4
Magnesium (Mg)	676	mg/kg	0.02	4.2		
Magnesium (MgO)			0.03	6.7	0.0	1.3
Sulphur (S)	7900	mg/kg	0.20	49.0		
Sulphur (SO_3)			0.49	122.5	0.0	12.2

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	139.0	mg/kg	3.4	0.86	15.00
Copper	9.2	mg/kg	0.23	0.06	7.50
Nickel	7.4	mg/kg	0.18	0.05	3.00
Lead	26.0	mg/kg	0.64	0.16	15.00
Cadmium	0.38	mg/kg	0.01	0.00	0.15
Chromium	4.3	mg/kg	0.11	0.03	15.00
Mercury	0.8	mg/kg	0.02	0.01	0.10
Arsenic	65.1	mg/kg	1.61	0.40	0.70
Other Elements					
Aluminium	1090	mg/kg	27.0	6.8	
Iron	445000	mg/kg	11036.0	2759.0	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

RICHARD EVANS
4 RECYCLING LTD
CONTROL HOUSE
A1 BUSINESS PARK
KNOTTINGLEY ROAD
KNOTTINGLEY WF11 0BU

V724

Please quote above code for all enquiries

LLECHRYD WTW
LLECHRYD
CARDIGAN

SLUDGE

SLUDGE

Sample Reference :

LLECHRYD LIQUID

Sample Matrix : SLUDGE

Laboratory References	
Report Number	85962
Sample Number	91867

Date Received	04-FEB-2020
Date Reported	11-FEB-2020

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Oven Dry Solids	3.69	%
Conductivity 1:6	53.6	uS/cm
Total Kjeldahl Nitrogen	0.04	% w/w
Ammonium Nitrogen	<25	mg/kg
Total Phosphorus (P)	150	mg/kg
Total Potassium (K)	49.0	mg/kg
Total Magnesium (Mg)	87.7	mg/kg
Total Copper (Cu)	1.59	mg/kg
Total Zinc (Zn)	8.14	mg/kg
Total Sulphur (S)	79.4	mg/kg

Released by ..... *Myles Nicholson* ..... Date ..... *11/02/20* .....

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

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KNOTTINGLEY WF11 0BU

V724

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LLECHRYD WTW
LLECHRYD
CARDIGAN

SLUDGE

SLUDGE

Sample Reference :

LLECHRYD LIQUID

Sample Matrix : SLUDGE

Laboratory References	
Report Number	85962
Sample Number	91867

Date Received	04-FEB-2020
Date Reported	11-FEB-2020

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Total Calcium (Ca)	235	mg/kg
Total Iron (Fe)	8906	mg/kg
Total Lead (Pb)	1.02	mg/kg
Total Cadmium (Cd)	0.02	mg/kg
Total Mercury (Hg)	<0.05	mg/kg
Total Nickel (Ni)	1.00	mg/kg
Total Chromium (Cr)	1.32	mg/kg
Total Sodium (Na)	19.6	mg/kg
pH 1:6 [Fresh]	6.41	
Total Aluminium	364	mg/kg

Released by *Myles Nicholson* Date *11/02/20*

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

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KNOTTINGLEY WF11 0BU

V724

Please quote above code for all enquiries

LLECHRYD WTW
LLECHRYD
CARDIGAN

SLUDGE

SLUDGE

Sample Reference :

LLECHRYD LIQUID

Sample Matrix : SLUDGE

Laboratory References	
Report Number	85962
Sample Number	91867

Date Received	04-FEB-2020
Date Reported	11-FEB-2020

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units
Total Arsenic (As)	0.87	mg/kg

Released by *Myles Nicholson* Date *11/02/20*

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www**.nrm.uk.com

DCWW Potable Water Treatment Sludge

Analysis of Llechryd liquid sludge

Date: 11/02/20

Lab report no. 85962
Lab sample no. 91867

Application rate (t/ha)	**220**
Application rate (t/acre)	**88**
pH	**6.41**
Dry solids (%)	**3.69**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.04	%	0.40	88.0	0.03	5.5
Ammonium-N	25	mg/kg	0.03	5.5		
Phosphorus (P)	150	mg/kg	0.15			
Phosphate (P_2O_5)			0.34	75.2	0.07	15.0
Potassium (K)	49	mg/kg	0.05			
Potash (K_2O)			0.06	12.9	0.01	2.6
Magnesium (Mg)	87.7	mg/kg	0.09			
Magnesium (MgO)			0.14	30.9	0.03	6.2
Sulphur (S)	79.4	mg/kg	0.08			
Sulphur (SO_3)			0.20	43.7	0.04	8.7

POTENTIALLY TOXIC ELEMENTS

			Rate		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	8.14	mg/kg	8.14	1.79	15.00
Copper	1.59	mg/kg	1.59	0.35	7.50
Nickel	1.00	mg/kg	1.00	0.22	3.00
Lead	1.0	mg/kg	1.02	0.22	15.00
Cadmium	0.02	mg/kg	0.02	0.00	0.15
Chromium	1.32	mg/kg	1.32	0.29	15.00
Mercury	0.05	mg/kg	0.05	0.01	0.10
Arsenic	0.87	mg/kg	0.87	0.19	0.70
Other Elements					
Aluminium	364	mg/kg	364.0	80.1	
Iron	8906	mg/kg	8906.0	1959.3	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

DCWW Potable Water Treatment Sludge

Analysis of Llechryd liquid sludge

Date: 11/02/20

Lab report no. 85962
Lab sample no. 91867

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**6.41**
Dry solids (%)	**3.69**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	0.04	%	0.40	100.0	0.03	6.3
Ammonium-N	25	mg/kg	0.03	6.3		
Phosphorus (P)	150	mg/kg	0.15			
Phosphate (P_2O_5)			0.34	85.5	0.07	17.1
Potassium (K)	49	mg/kg	0.05			
Potash (K_2O)			0.06	14.7	0.01	2.9
Magnesium (Mg)	87.7	mg/kg	0.09			
Magnesium (MgO)			0.14	35.1	0.03	7.0
Sulphur (S)	79.4	mg/kg	0.08			
Sulphur (SO_3)			0.20	49.6	0.04	9.9

POTENTIALLY TOXIC ELEMENTS

			Rate		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	8.14	mg/kg	8.14	2.04	15.00
Copper	1.59	mg/kg	1.59	0.40	7.50
Nickel	1.00	mg/kg	1.00	0.25	3.00
Lead	1.0	mg/kg	1.02	0.26	15.00
Cadmium	0.02	mg/kg	0.02	0.01	0.15
Chromium	1.32	mg/kg	1.32	0.33	15.00
Mercury	0.05	mg/kg	0.05	0.01	0.10
Arsenic	0.87	mg/kg	0.87	0.22	0.70
Other Elements					
Aluminium	364	mg/kg	364.0	91.0	
Iron	8906	mg/kg	8906.0	2226.5	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

Sample Analysis Report

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Sampling Point No:	360173	**Location:**	LLYSWEN WTW SLUDGE TANKERING POINT
Date Sampled:	15/06/2020	**Time Taken:**	09:55
Laboratory:	ALS	**Sample ID:**	6709531
No. of Results:	20		
Sampling Reason:	WTW Sludge - Product Monitoring (SW_ME)		
Type:	WTW Sludge (SW)		

Sample Results

Code		Result	Units	Lower Limit	Upper Limit
238	Magnesium	623	mg/kg		
288	Aluminium	660	mg/kg		
357	Arsenic	14.8	mg/kg		
4620	pH	6.8	pH		
7774	Mercury	0.99	mg/kg		
8241	Volatile solids	32.400002	%		
9233	Ammoniacal nitrogen	299	mg/kg		
9234	Sulphur	6840	mg/kg		
9271	Cadmium	0.46	mg/kg		
9272	Chromium	3.35	mg/kg		
9273	Copper	8.57	mg/kg		
9275	Nickel	4.24	mg/kg		
9276	Lead	6.4	mg/kg		
9277	Zinc	21.6	mg/kg		
9278	Iron	2890	mg/kg		
9281	% Dry solids	2.04	%		
9282	% Minerals	67.599998	%		
9283	% K (dry weight)	2.18	mg/kg		
9284	% P (dry weight)	0.392	%		
9285	% N (dry weight)	1.42	%		

Comments:

Signed: _____

Approved by:

Position:

DCWW Potable Water Treatment Sludge

Analysis of Llyswen liquid sludge

Date: 15/06/20 Lab ref no. 6709531

Application rate (t/ha)	**250**
Application rate (t/acre)	**100**
pH	**6.8**
Dry solids (%)	**2.0**
Organic matter (%)	**32.4**

NUTRIENT CONTENT

			Total		Available	
TOTALS	**result**	**units**	**(kg/tonne)**	**(kg/ha)**	**(kg/tonne)**	**(kg/ha)**
Nitrogen (N)	1.42	%	0.29	72.4	0.01	1.5
Ammonium-N	299	mg/kg	0.01	1.5		
Phosphorus (P)	3920	mg/kg	0.08	20.0		
Phosphate (P_2O_5)			0.18	45.6	0.0	9.1
Potassium (K)	2	mg/kg	0.00	0.0		
Potash (K_2O)			0.00	0.0	0.0	0.0
Magnesium (Mg)	623	mg/kg	0.01	3.2		
Magnesium (MgO)			0.02	5.1	0.0	1.0
Sulphur (S)	6840	mg/kg	0.14	34.9		
Sulphur (SO_3)			0.35	87.2	0.0	8.7

POTENTIALLY TOXIC ELEMENTS

			Amount		Limit
TOTALS	**result**	**units**	**(g/tonne)**	**(kg/ha)**	**(kg/ha/yr)**
Zinc	21.6	mg/kg	0.4	0.11	15.00
Copper	8.6	mg/kg	0.17	0.04	7.50
Nickel	4.2	mg/kg	0.09	0.02	3.00
Lead	6.4	mg/kg	0.13	0.03	15.00
Cadmium	0.46	mg/kg	0.01	0.00	0.15
Chromium	3.4	mg/kg	0.07	0.02	15.00
Mercury	1.0	mg/kg	0.02	0.01	0.10
Arsenic	14.8	mg/kg	0.30	0.08	0.70
Other Elements					
Aluminium	660	mg/kg	13.5	3.4	
Iron	2890	mg/kg	59.0	14.7	

To convert from kg/tonne to units/ton multiply by 2
To convert from kg/ha to units/acre multiply by 0.8

ANALYTICAL REPORT

Report Number	**84506-20**	**V724**	**RICHARD EVANS**	**Client**	**TYN Y CWM FARM**
Date Received	**23-JAN-2020**		**4 RECYCLING LTD**		**LLANSAWEL**
Date Reported	**28-JAN-2020**		**CONTROL HOUSE**		**LLANDEILO**
Project	**SOIL**		**A1 BUSINESS PARK**		**SA19 7PQ**
Reference	**TYN Y CWM FARM**		**KNOTTINGLEY ROAD**		
Order Number			**KNOTTINGLEY WF11 0BU**		

Laboratory Reference		**SOIL467483**	**SOIL467484**	**SOIL467485**
Sample Reference		**FIELD 17**	**FIELD 18**	**FIELD 19**
Determinand	**Unit**	**SOIL**	**SOIL**	**SOIL**
pH water [1:2.5]		5.0	5.1	5.8
Available Phosphorus (Index)	mg/l	9.6 (1)	12.2 (1)	23.8 (2)
Available Potassium (Index)	mg/l	55.6 (0)	56.8 (0)	122 (2-)
Available Magnesium (Index)	mg/l	55.9 (2)	54.9 (2)	112 (3)
Total Copper	mg/kg	22.9	25.5	22.4
Total Zinc	mg/kg	95.6	97.8	105
Total Lead	mg/kg	87.4	52.7	38.7
Total Arsenic	mg/kg	27.2	27.7	21.7
Total Cadmium	mg/kg	0.18	0.21	0.24
Total Nickel	mg/kg	23.7	24.1	25.3
Total Chromium	mg/kg	31.3	32.5	28.6
Total Mercury	mg/kg	<0.2	<0.2	<0.2
Total Selenium	mg/kg	0.96	1.04	0.63
Total Molybdenum	mg/kg	1.5	1.4	1.7
Fluoride	mg/kg	9.4	10.8	11.8

Notes

Analysis Notes

The sample submitted was of adequate size to complete all analysis requested.
The results as reported relate only to the item(s) submitted for testing.
The results are presented on a dry matter basis unless otherwise stipulated.

ANALYTICAL REPORT

Report Number	**84507-20**	**V724**	**RICHARD EVANS**	**Client**	**TYN Y CWM FARM**
Date Received	**23-JAN-2020**		**4 RECYCLING LTD**		**LLANSAWEL**
Date Reported	**28-JAN-2020**		**CONTROL HOUSE**		**LLANDEILO**
Project	**SOIL**		**A1 BUSINESS PARK**		**SA19 7PQ**
Reference	**TYN Y CWM FARM**		**KNOTTINGLEY ROAD**		
Order Number			**KNOTTINGLEY WF11 0BU**		

Laboratory Reference		**SOIL467486**	**SOIL467487**
Sample Reference		**FIELD 20**	**FIELD 21**
Determinand	**Unit**	**SOIL**	**SOIL**
pH water [1:2.5]		5.3	5.4
Available Phosphorus (Index)	mg/l	20.8 (2)	10.0 (1)
Available Potassium (Index)	mg/l	72.9 (1)	52.8 (0)
Available Magnesium (Index)	mg/l	110 (3)	75.4 (2)
Total Copper	mg/kg	20.9	19.4
Total Zinc	mg/kg	98.6	88.8
Total Lead	mg/kg	37.6	36.7
Total Arsenic	mg/kg	31.0	30.3
Total Cadmium	mg/kg	0.32	0.24
Total Nickel	mg/kg	24.5	21.4
Total Chromium	mg/kg	31.9	28.9
Total Mercury	mg/kg	<0.2	<0.2
Total Selenium	mg/kg	0.63	0.64
Total Molybdenum	mg/kg	1.9	1.6
Fluoride	mg/kg	22.0	15.1

Notes

Analysis Notes

The sample submitted was of adequate size to complete all analysis requested.
The results as reported relate only to the item(s) submitted for testing.
The results are presented on a dry matter basis unless otherwise stipulated.

Document Control

ANALYTICAL REPORT

Report Number	**34003-20**	**V724**	**RICHARD EVANS**	**Client FIELD 1-7**
Date Received	**10-DEC-2020**		**4 RECYCLING LTD**	
Date Reported	**16-DEC-2020**		**CONTROL HOUSE**	
Project	**SOIL**		**A1 BUSINESS PARK**	
Reference	**RICHARD EVANS**		**KNOTTINGLEY ROAD**	
Order Number			**KNOTTINGLEY WF11 0BU**	

Laboratory Reference		**SOIL499437**	**SOIL499438**	**SOIL499439**	**SOIL499440**	**SOIL499441**	**SOIL499442**	**SOIL499443**			
Sample Reference		**FIELD 1**	**FIELD 2**	**FIELD 3**	**FIELD 4**	**FIELD 5**	**FIELD 6**	**FIELD 7**			
Determinand	**Unit**	**SOIL**	**SOIL**	**SOIL**	**SOIL**	**SOIL**	**SOIL**	**SOIL**			
pH water [1:2.5]		6.0	5.9	5.8	5.8	5.8	5.8	5.8			
Available Phosphorus (Index)	mg/l	23.8 (2)	23.4 (2)	27.4 (3)	29.4 (3)	22.8 (2)	24.0 (2)	30.0 (3)			
Available Potassium (Index)	mg/l	131 (2-)	156 (2-)	178 (2-)	147 (2-)	137 (2-)	141 (2-)	159 (2-)			
Available Magnesium (Index)	mg/l	108 (3)	120 (3)	116 (3)	112 (3)	102 (3)	99.0 (2)	114 (3)			
Total Copper	mg/kg	21.9	22.8	22.4	23.1	23.0	22.9	23.3			
Total Zinc	mg/kg	132	133	133	135	138	136	138			
Total Lead	mg/kg	38.6	40.0	38.5	40.5	40.5	40.2	40.2			
Total Arsenic	mg/kg	23.3	22.8	22.6	23.9	23.0	23.2	23.2			
Total Cadmium	mg/kg	0.35	0.38	0.36	0.39	0.37	0.38	0.38			
Total Nickel	mg/kg	28.7	27.4	27.6	28.5	30.2	29.9	29.5			
Total Chromium	mg/kg	42.1	47.3	42.5	46.8	43.5	46.0	43.0			
Total Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Total Selenium	mg/kg	0.61	0.65	0.60	0.62	0.58	0.60	0.59			
Total Molybdenum	mg/kg	1.4	1.5	1.2	1.5	1.2	1.4	1.3			
Fluoride	mg/kg	23.1	21.9	20.9	21.0	20.3	21.5	20.5			

Notes

Analysis Notes

The sample submitted was of adequate size to complete all analysis requested.
The results as reported relate only to the item(s) submitted for testing.
The results are presented on a dry matter basis unless otherwise stipulated.

ANALYTICAL REPORT

Report Number	**34002-20**	**V724**	**RICHARD EVANS**	**Client FIELD 1-2**
Date Received	**10-DEC-2020**		**4 RECYCLING LTD**	
Date Reported	**16-DEC-2020**		**CONTROL HOUSE**	
Project	**SOIL**		**A1 BUSINESS PARK**	
Reference	**RICHARD EVANS**		**KNOTTINGLEY ROAD**	
Order Number			**KNOTTINGLEY WF11 0BU**	

Laboratory Reference		**SOIL499435**
Sample Reference		**FIELD 1**
Determinand	**Unit**	**SOIL**
pH water [1:2.5]		5.9
Available Phosphorus (Index)	mg/l	13.0 (1)
Available Potassium (Index)	mg/l	159 (2-)
Available Magnesium (Index)	mg/l	81.3 (2)
Total Copper	mg/kg	21.9
Total Zinc	mg/kg	125
Total Lead	mg/kg	39.7
Total Arsenic	mg/kg	25.7
Total Cadmium	mg/kg	0.33
Total Nickel	mg/kg	31.7
Total Chromium	mg/kg	38.0
Total Mercury	mg/kg	<0.2
Total Selenium	mg/kg	0.74
Total Molybdenum	mg/kg	2.1
Fluoride	mg/kg	18.5

Notes

Analysis Notes

The sample submitted was of adequate size to complete all analysis requested.
The results as reported relate only to the item(s) submitted for testing.
The results are presented on a dry matter basis unless otherwise stipulated.

This is to certify that

Richard Evans

Has successfully completed

Recycling Waste to Land Training

Including: Environmental Permitting, How to Comply with your Land Spreading Permit, 4R's Environmental Management System, Requirements of Technically Competent Managers and Nominated Competent Persons, and Adherence to Quality Protocols

At: 4R Newent Office

Date: 22/02/18

Trainer's Name: Dr Becky Wheeler

Training Organisation: In-House

Renewal Date: Ongoing

4R Group Ltd is an ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 Certified organisation.