# 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 | Chris | |
| Last name | Ash | |
| Telephone - mobile | 07950 285 187 | |
| Telephone - office | | |
| Email address | chris.ash@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**<br>- Not in an SPZ 2, and/or<br>- Over 500 meters from:<br>• European site, and/or<br>• Ramsar, and/or<br>• SSSI | **High risk location**<br>- In a Source Protection Zone 2, and/or<br>- 500 meters or less from:<br>• European site, and/or<br>• Ramsar, and/or<br>• SSSI<br>**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 | Sludge cake | DCWW Bolton Hill | 1872 |
| 2 | 19 09 02 | Potable water treatment sludge | Sludge cake | DCWW Preseli | 2280 |
| 3 | 19 09 02 | Potable water treatment sludge | Liquid sludge | DCWW Preseli | 9500 |
| 4 | 19 09 02 | Potable water treatment sludge | Sludge cake | DCWW Bontgoch | 969 |
| 5 | 19 09 02 | Potable water treatment sludge | Liquid sludge | DCWW Capel Dewi | 8930 |
| 6 | 19 09 02 | Potable water treatment sludge | Sludge cake | DCWW Llechryd | 3468 |
| 7 | 19 09 02 | Potable water treatment sludge | Liquid sludge | DCWW Llechryd | 8683 |
| 8 | 19 09 02 | Potable water treatment sludge | Sludge cake | DCWW Strata FLorida | 3971 |
| 9 | 19 09 02 | Potable water treatment sludge | Liquid sludge | DCWW Strata Florida | 9500 |
| 10 | 19 06 06 | Whole anaerobic digestate | Liquid sludge | Andigestion Ltd. | 1934 |
| | | | | **Total tonnage** | 9500 |

**4g About the land you want to treat**

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

| | |
|---|---|
| Address | Ty Meini |
| | Henry's Moat |
| | Clarbeston Road |
| | Pembrokeshire |
| Postcode | SA63 4TU |
| National grid reference (12 digit) | 204261 227670 |

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

Agricultural land ☒ Please give your County/ Parish/ Holding number 55/468/0003

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 | Mr |
| First name | Simon |
| Last name | John |

| | |
|---|---|
| Address | Ty Meini |
| | Henry's Moat |
| | Clarbeston Road |
| | Pembrokeshire |
| Postcode | SA63 4TU |
| Telephone - mobile | |
| Telephone - office | |
| 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 | 19 09 02 | Potable water treatment sludges | 4R | 40 | PAN-004406 |
| 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 | 203840 227870 | 19 09 02 | Field stockpile | 3000 |
| 2 | 203357 227724 | 19 09 02 | Field stockpile | 3000 |
| 3 | 191923 211772 | 19 09 02 | Field stockpile | 3000 |
| 4 | 191985 211994 | 19 09 02 | Field stockpile | 3000 |
| 5 | 191829 212056 | 19 09 02 | Field stockpile | 3000 |
| 6 | 191792 211054 | 19 09 02 | Field stockpile | 3000 |
| 7 | | | | |
| 8 | | | | |
| 9 | No more than 3000t of | cake will be stored across | all storage locations at any | one time. |
| 10 | Liquids will be spread on | delivery. | | |

## 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 | PSCAPPBYPRO0923 |
| Amount paid | £798.00 |

**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) | ☒ | Location plan |
| Benefit statement (required for all deployments) | ☒ | 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 | RE – Trainimg certificate, waste to land |
| | N/A | LPD1 Supplement |
| | 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) | 16/02/2021 | |

**Table 3 – Parcels of land**

| | Field reference | Grid reference | Waste types to be spread | Size (ha) |
|---|---|---|---|---|
| | **Bolton Hill Mill** | | | |
| 1 | **6** | 192078 212078 | 190902, 190606 | 1.5 |
| 2 | **7** | 191943 211963 | 190902, 190606 | 5.1 |
| 3 | **8** | 191901 210947 | 190902, 190606 | 7.1 |
| 4 | **9** | 191949 211844 | 190902, 190606 | 2.4 |
| | | | | |
| | **Ty Meini** | | | |
| 5 | **1** | 203947 228030 | 190902, 190606 | 1.7 |
| 6 | **2** | 204027 227911 | 190902, 190606 | 2.9 |
| 7 | **3** | 203938 227813 | 190902, 190606 | 2.3 |
| 8 | **4** | 204081 227730 | 190902, 190606 | 4.4 |
| 9 | **5** | 203763 227773 | 190902, 190606 | 2.8 |
| 10 | **6** | 203844 227664 | 190902, 190606 | 2.3 |
| 11 | **7** | 203746 227558 | 190902, 190606 | 2.3 |
| 12 | **8** | 203612 227641 | 190902, 190606 | 2.2 |
| | | | ***Total hectares*** | *38* |

**4i Continued**.

***Name:***

Mr. W. Roch

***Address:***

Bolton Hill Mill Farm, Denant Hill, Haverfordwest, Pembrokeshire, SA62 3EN

***Tel:***

01437 890346

# Location Plan

Ty Meini & Bolton Hill

**Site:**

Ty Meini
Henry's Moat
Clarbeston Rd
Pembrokeshire
SA63 4TU

**Client:**
Dŵr Cymru / Welsh Water

**Key:**

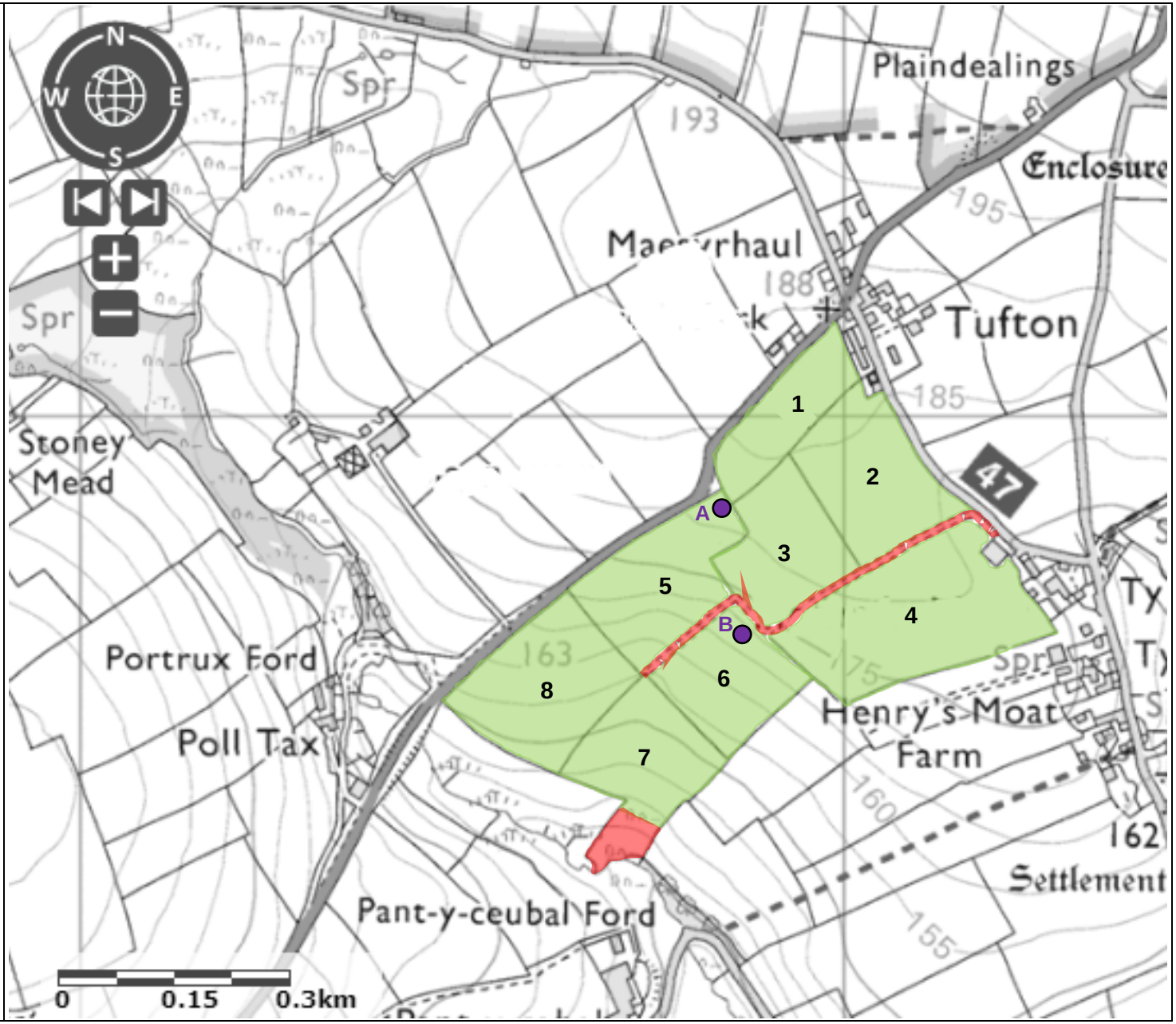
Spreading area

Non-spreading area

Location tags

**Location tags:**
Field stockpiles

A. 203840 227870
B. 203357 227724



# Location Plan

Ty Meini & Bolton Hill

**Site:**
Bolton Hill Mill Farm
Denant Hill
Haverfordwest
Pembrokeshire
SA62 3EN

**Client:**
Dŵr Cymru / Welsh Water

**Key:**

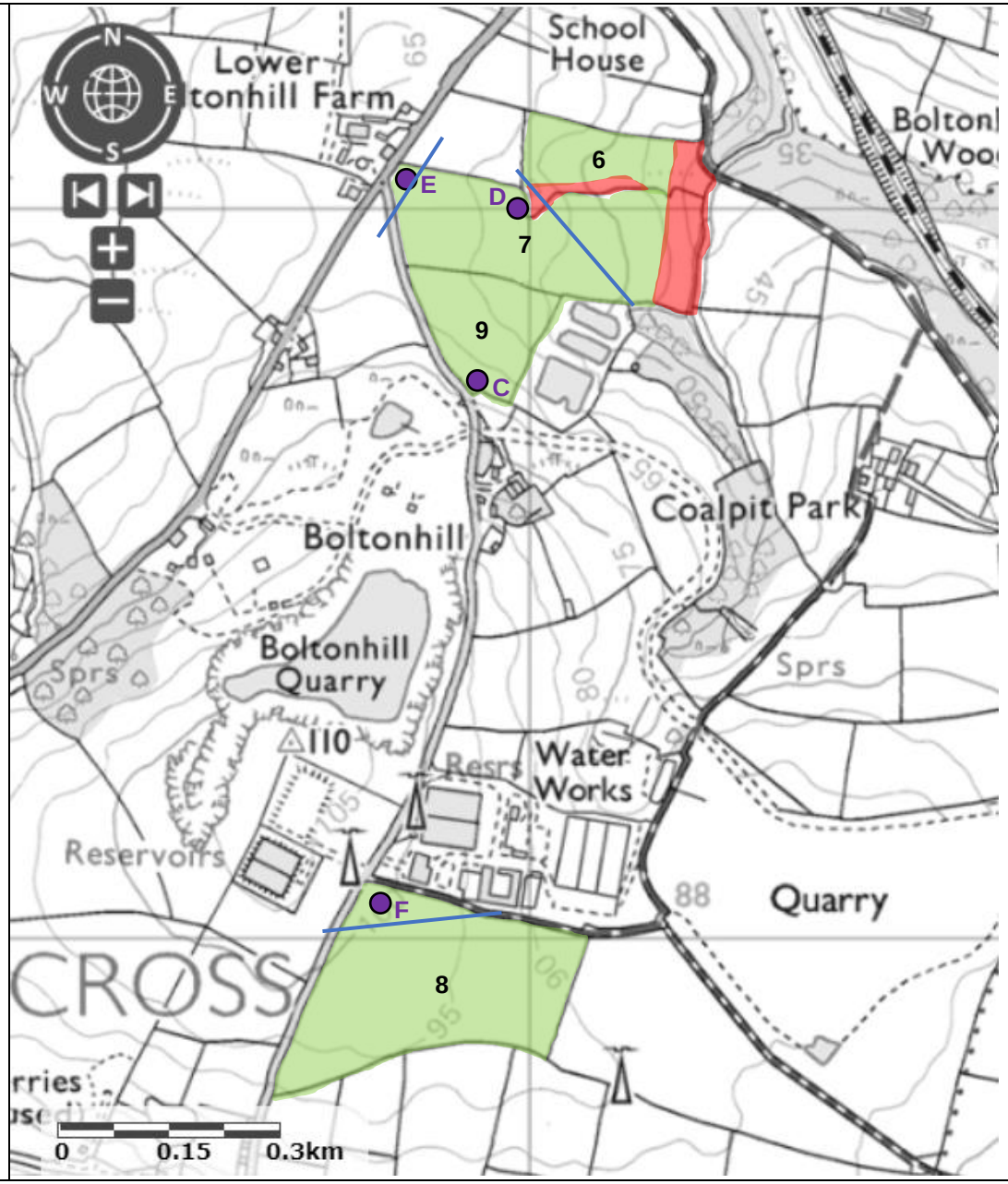
Spreading area

Non-spreading area

Location tags

**Location tags:**
Field stockpiles

- C. 191923 211772
- D. 191985 211994
- E. 191829 212056
- F. 191792 211054



# Agricultural Benefit Statement

**For the application of beneficial wastes to fields at;**

**Ty Meini Henry's Moat Clarbeston Road Pembrokeshire SA63 4TU Bolton Hill Mill Farm, Denant Hill, Haverfordwest, Pembrokeshire. SA62 3EN**

15th February 2021

## 1 Person with appropriate technical expertise and permit details

This benefit statement has been compiled by Chris Ash who has the following qualifications and experience;

- Ph.D. Fate and Behaviour of Potentially Toxic Elements in Soils
- MSc. Natural Resources and Environment
- BSc. (Hons) Environmental Science
- FACTS Qualified Advisor (No. FE/6324) and Full Member of BASIS Professional Register
- 4 Years of landspreading experience

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

## 2 Where the waste is to be spread

Table 1. Where the waste is to be spread

| | | |
|---|---|---|
| *Farm address:* | Ty Meini, Henry's Moat, Clarbeston Road, Pembrokeshire. SA63 4TU<br><br>Bolton Hill Mill Farm, Denant Hill, Haverfordwest, Pembrokeshire, SA62 3EN | |
| *Stockpile grid reference:* | Refer to Table 4 | |
| *Area of the receiving land:* | 38 ha | |
| *Quantity to be stored at any one time:* | Stackable: 3,000t | Non-Stackable: Spread on delivery |
| *Total maximum quantity to be spread:* | 9,500 t | |
| *Location map document reference:* | Location Plan_Ty Meini & Bolton Hill | |

## 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.<br>Residual waste leftover from previous deployment that was unable to be spread. | DCWW Bolton Hill | Stackable alum sludge cake |
| 2 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Preseli | Stackable alum sludge cake |
| 3 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Preseli | Non-stackable alum liquid sludge |
| 4 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Bontgoch | Stackable ferric sludge cake |
| 5 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Capel Dewi | Non-stackable ferric liquid sludge |
| 6 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Llechryd | Stackable ferric sludge cake |
| 7 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Llechryd | Non-stackable ferric liquid sludge |
| 8 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Strata Florida | Stackable alum sludge cake |
| 9 | 19 09 02 | Sludges from water clarification. Potable water treatment effluent. | DCWW Strata Florida | Non-stackable alum sludge |
| 10 | 19 06 06 | Whole digestate from anaerobic treatment of source segregated biodegradable waste. | Andigestion Ltd. | SP3132VU |

# 4 Operational details

## *4.1 Cropping details*

Table 3. Cropping details

| | |
|---|---|
| *Current crop including projected yield if known:* | Refer to Tables 6-15 |
| *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 6-15 |
| *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).<br><br>Targeted periods of spreading on grass fields include spring (late Feb – Apr), and after cutting of silage through summer and autumn.<br><br>Arable fields can be sprerad on emerging crops at stem extension in early Spring or onto stubble post-harvest (Jul-Aug).<br><br>Liquid sludges will be spread on delivery.<br>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?*<br><br>*e.g. mobile tank, field heap, spread on delivery* | Stackable wastes: field stockpiles<br><br>Non-stackable wastes: spread on delivery |
| *Where is the waste to be stored prior to spreading?* | Field stockpiles:<br>A. 203840 227870<br>B. 203357 227724<br>C. 191923 211772<br>D. 191985 211994<br>E. 191829 212056<br>F. 191792 211054 |

| | |
|---|---|
| *Why were these storage locations chosen?* | The storage locations are accessible by delivering vehicle, near field entrances so the potential damage to fields by delivering vehicles is minimal.<br><br>The storage locations are not within 10m of any ditch, watercourse, or footpath, not within a 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?* | The cake will be spread using conventional rear discharge spreaders as this equipment is readily available to the farmer/contractor and the most appropriate for the material and application rates used.<br><br>Liquid sludges will be surface spread by tractor and tanker using a low-trajectory splash plate. |
| *How do you plan to incorporate the waste following application?* | There is no requirement for further incorporation of wastes on grass or actively growing crop fields due to low ammonia content and minimal odour. |
| *With liquid wastes is there any mole draining or sub-soiling planned?*<br><br>*Are there land drains in the field?* | No<br><br>No |
| *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.<br><br>Fields have been spread with potable water treatment sludge in the last 12 months (please refer to **LPD1 Supplement** for details).<br><br>All fields are pH 6 or above so alum-based sludge (DCWW Bolton Hill, Preseli, Strata Florida) can be spread across all fields. |

Table 6. DCWW Bolton Hill cake

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 0.4 | 3 | 20 | 80 | 80* | 2+ | 180 | 282 | 6.7* | 2 | 0 | 1.3 | 54 | **81** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 0.4 | 3 | 20 | 80 | 80* | 3 | 70 | 282 | 6.7* | 1 | 0 | 1.3 | 54 | **275** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.3 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 4.4* | 2 | 0 | 0.8 | 35 | **249** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.3 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 4.4* | 2 | 0 | 0.8 | 35 | **84** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 4 | 0 | 1.3 | 54 | **92** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 3 | 0 | 1.3 | 54 | **157** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 3 | 0 | 1.3 | 54 | **124** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 4 | 0 | 1.3 | 54 | **238** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 3 | 0 | 1.3 | 54 | **151** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 4 | 0 | 1.3 | 54 | **124** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 4 | 0 | 1.3 | 54 | **124** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 6.7* | 4 | 0 | 1.3 | 54 | **173** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **1872** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 54t/ha is 105kg/ha

Table 7. DCWW Preseli cake

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 0.4 | 3 | 20 | 80 | 80* | 2+ | 180 | 282 | 5.1* | 2 | 0 | 0.9 | 65 | **98** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 0.4 | 3 | 20 | 80 | 80* | 3 | 70 | 282 | 5.1* | 1 | 0 | 0.9 | 65 | **332** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.3 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 3.3* | 2 | 0 | 0.6 | 45 | **320** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.3 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 3.3* | 2 | 0 | 0.6 | 45 | **108** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 4 | 0 | 0.9 | 65 | **111** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 3 | 0 | 0.9 | 65 | **189** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 3 | 0 | 0.9 | 65 | **150** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 4 | 0 | 0.9 | 65 | **286** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 3 | 0 | 0.9 | 65 | **182** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 4 | 0 | 0.9 | 65 | **150** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 4 | 0 | 0.9 | 65 | **150** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 0.4 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 5.1* | 4 | 0 | 0.9 | 65 | **208** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **2280** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 65t/ha is 140kg/ha

Table 8. DCWW Preseli liquid

| | | | | | | N | | | $P_2O_5$ | | | | $K_2O$ | | | | Mg | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Field Reference** | **Total Area** | **Sprd Area** | **Previous Crop** | **Next Crop** | **Soil pH** | **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** | **Rate t/ha** | **Totals tonnes** |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 1.5 | 3 | 20 | 80 | 47* | 2+ | 180 | 282 | 4.9* | 2 | 0 | 0.4 | 250 | **375** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 1.5 | 3 | 20 | 80 | 47* | 3 | 70 | 282 | 4.9* | 1 | 0 | 0.4 | 250 | **1275** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 1.5 | 3 | 0 | 52 | 47* | 2+ | 40 | 71 | 4.9* | 2 | 0 | 0.4 | 250 | **1775** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 1.5 | 3 | 0 | 52 | 47* | 3 | 0 | 71 | 4.9* | 2 | 0 | 0.4 | 250 | **600** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 4 | 0 | 0.4 | 250 | **425** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 3 | 0 | 0.4 | 250 | **725** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 3 | 0 | 0.4 | 250 | **575** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 4 | 0 | 0.4 | 250 | **1100** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 3 | 0 | 0.4 | 250 | **700** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 4 | 0 | 0.4 | 250 | **575** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 4 | 0 | 0.4 | 250 | **575** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 1.5 | 3 | 20 | 80 | 47* | 3 | 90 | 282 | 4.9* | 4 | 0 | 0.4 | 250 | **800** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **9500** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 Bontgoch cake

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 0.2 | 3 | 20 | 80 | 80* | 2+ | 180 | 282 | 0.5* | 2 | 0 | 0.9 | 28 | **42** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 0.2 | 3 | 20 | 80 | 80* | 3 | 70 | 282 | 0.5* | 1 | 0 | 0.9 | 28 | **143** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.1 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 0.3* | 2 | 0 | 0.6 | 18 | **128** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.1 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 0.3* | 2 | 0 | 0.6 | 18 | **43** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 4 | 0 | 0.9 | 28 | **48** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 3 | 0 | 0.9 | 28 | **81** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 3 | 0 | 0.9 | 28 | **64** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 4 | 0 | 0.9 | 28 | **123** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 3 | 0 | 0.9 | 28 | **78** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 4 | 0 | 0.9 | 28 | **64** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 4 | 0 | 0.9 | 28 | **64** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 0.2 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 0.5* | 4 | 0 | 0.9 | 28 | **90** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **969** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 80t/ha is 73kg/ha

Table 10. DCWW Capel Dewi liquid

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 1.5 | 3 | 20 | 80 | 69* | 2+ | 180 | 282 | 9.2* | 2 | 0 | 2.0 | 250 | **375** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 1.5 | 3 | 20 | 80 | 69* | 3 | 70 | 282 | 9.2* | 1 | 0 | 2.0 | 250 | **1275** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 1.2 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 7* | 2 | 0 | 1.5 | 190 | **1349** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 1.2 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 7* | 2 | 0 | 1.5 | 190 | **456** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 4 | 0 | 2.0 | 250 | **425** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 3 | 0 | 2.0 | 250 | **725** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 3 | 0 | 2.0 | 250 | **575** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 4 | 0 | 2.0 | 250 | **1100** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 3 | 0 | 2.0 | 250 | **700** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 4 | 0 | 2.0 | 250 | **575** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 4 | 0 | 2.0 | 250 | **575** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 1.5 | 3 | 20 | 80 | 69* | 3 | 90 | 282 | 9.2* | 4 | 0 | 2.0 | 250 | **800** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **8930** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 30kg/ha

Table 11. DCWW Llechryd cake

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 0.8 | 3 | 20 | 80 | 79* | 2+ | 180 | 282 | 8* | 2 | 0 | 2.5 | 100 | **150** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 0.8 | 3 | 20 | 80 | 79* | 3 | 70 | 282 | 8* | 1 | 0 | 2.5 | 100 | **510** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.5 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 5.2* | 2 | 0 | 1.6 | 65 | **462** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.5 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 5.2* | 2 | 0 | 1.6 | 65 | **156** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 4 | 0 | 2.5 | 100 | **170** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 3 | 0 | 2.5 | 100 | **290** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 3 | 0 | 2.5 | 100 | **230** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 4 | 0 | 2.5 | 100 | **440** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 3 | 0 | 2.5 | 100 | **280** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 4 | 0 | 2.5 | 100 | **230** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 4 | 0 | 2.5 | 100 | **230** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 0.8 | 3 | 20 | 80 | 79* | 3 | 90 | 282 | 8* | 4 | 0 | 2.5 | 100 | **320** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **3468** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 100t/ha is 146kg/ha

Table 12. DCWW Llechryd liquid

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 6.0 | 3 | 20 | 80 | 80* | 2+ | 180 | 282 | 28* | 2 | 0 | 23 | 250 | **375** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 6.0 | 3 | 20 | 80 | 80* | 3 | 70 | 282 | 28* | 1 | 0 | 23 | 250 | **1275** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.2 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 19* | 2 | 0 | 15 | 164 | **1164** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.2 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 19* | 2 | 0 | 15 | 164 | **394** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 4 | 0 | 23 | 250 | **425** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 3 | 0 | 23 | 250 | **725** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 3 | 0 | 23 | 250 | **575** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 4 | 0 | 23 | 250 | **1100** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 3 | 0 | 23 | 250 | **700** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 4 | 0 | 23 | 250 | **575** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 4 | 0 | 23 | 250 | **575** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 6.0 | 3 | 20 | 80 | 80* | 3 | 90 | 282 | 28* | 4 | 0 | 23 | 250 | **800** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **8683** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 75kg/ha

Table 13. DCWW Strata Florida cake

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 2.1 | 3 | 20 | 80 | 78* | 2+ | 180 | 282 | 1* | 2 | 0 | 0.4 | 114 | **171** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 2.1 | 3 | 20 | 80 | 78* | 3 | 70 | 282 | 1* | 1 | 0 | 0.4 | 114 | **581** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 1.4 | 3 | 0 | 52 | 52* | 2+ | 40 | 71 | 0.6* | 2 | 0 | 0.3 | 76 | **540** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 1.4 | 3 | 0 | 52 | 52* | 3 | 0 | 71 | 0.6* | 2 | 0 | 0.3 | 76 | **182** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 4 | 0 | 0.4 | 114 | **194** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 3 | 0 | 0.4 | 114 | **331** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 3 | 0 | 0.4 | 114 | **262** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 4 | 0 | 0.4 | 114 | **502** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 3 | 0 | 0.4 | 114 | **319** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 4 | 0 | 0.4 | 114 | **262** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 4 | 0 | 0.4 | 114 | **262** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 2.1 | 3 | 20 | 80 | 78* | 3 | 90 | 282 | 1* | 4 | 0 | 0.4 | 114 | **365** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **3971** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 114t/ha is 249kg/ha

Table 14. DCWW Strata Florida liquid

| 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 |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 0.1 | 3 | 20 | 80 | 0.5* | 2+ | 180 | 282 | 0.1 | 2 | 0 | 0.0 | 250 | **375** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 70 | 282 | 0.1 | 1 | 0 | 0.0 | 250 | **1275** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 0.1 | 3 | 0 | 52 | 0.5* | 2+ | 40 | 71 | 0.1 | 2 | 0 | 0.0 | 250 | **1775** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 0.1 | 3 | 0 | 52 | 0.5* | 3 | 0 | 71 | 0.1 | 2 | 0 | 0.0 | 250 | **600** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 4 | 0 | 0.0 | 250 | **425** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 3 | 0 | 0.0 | 250 | **725** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 3 | 0 | 0.0 | 250 | **575** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 4 | 0 | 0.0 | 250 | **1100** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 3 | 0 | 0.0 | 250 | **700** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 4 | 0 | 0.0 | 250 | **575** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 4 | 0 | 0.0 | 250 | **575** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 0.1 | 3 | 20 | 80 | 0.5* | 3 | 90 | 282 | 0.1 | 4 | 0 | 0.0 | 250 | **800** |
| **Ha** | **39.5** | **38** | | | | | | | | | | | | | | | | | | | **9500** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 1.4kg/ha

Table 15. DCWW Andigestion digestate

| | | | | | | N | | | $P_2O_5$ | | | | $K_2O$ | | | | Mg | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Field Reference** | **Total Area** | **Sprd Area** | **Previous Crop** | **Next Crop** | **Soil pH** | **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** | **Rate t/ha** | **Totals tonnes** |
| **Bolton Hill Mill** | | | | | | | | | | | | | | | | | | | | | |
| 6 | 2.2 | 1.5 | Grass | Grass | 7.6 | Mod | 235 | 133 | 3 | 20 | 80 | 50* | 2+ | 180 | 282 | 102* | 2 | 0 | 2.0 | 43 | **65** |
| 7 | 5.9 | 5.1 | Grass | Grass | 7.7 | Mod | 235 | 133 | 3 | 20 | 80 | 50* | 3 | 70 | 282 | 102* | 1 | 0 | 2.0 | 43 | **219** |
| 8 | 7.1 | 7.1 | Maize | SB | 7.6 | 1 | 140 | 133 | 3 | 0 | 52 | 50* | 2+ | 40 | 71 | 102* | 2 | 0 | 2.0 | 43 | **305** |
| 9 | 2.4 | 2.4 | Maize | SB | 7.7 | 1 | 140 | 133 | 3 | 0 | 52 | 50* | 3 | 0 | 71 | 102* | 2 | 0 | 2.0 | 43 | **103** |
| | | | | | | | | | | | | | | | | | | | | | **0** |
| **Ty Meini** | | | | | | | | | | | | | | | | | | | | | **0** |
| 1 | 1.7 | 1.7 | Grass | Grass | 6.9 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 4 | 0 | 2.0 | 43 | **73** |
| 2 | 2.9 | 2.9 | Grass | Grass | 6.4 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 3 | 0 | 2.0 | 43 | **125** |
| 3 | 2.3 | 2.3 | Grass | Grass | 6.7 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 3 | 0 | 2.0 | 43 | **99** |
| 4 | 4.4 | 4.4 | Grass | Grass | 7.5 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 4 | 0 | 2.0 | 43 | **189** |
| 5 | 2.8 | 2.8 | Grass | Grass | 6.4 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 3 | 0 | 2.0 | 43 | **120** |
| 6 | 2.3 | 2.3 | Grass | Grass | 7.3 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 4 | 0 | 2.0 | 43 | **99** |
| 7 | 2.3 | 2.3 | Grass | Grass | 8.0 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 4 | 0 | 2.0 | 43 | **99** |
| 8 | 3.2 | 3.2 | Grass | Grass | 7.1 | Mod | 250 | 133 | 3 | 20 | 80 | 50* | 3 | 90 | 282 | 102* | 4 | 0 | 2.0 | 43 | **138** |
| **Ha** | **39.5** | **38.0** | | | | | | | | | | | | | | | | | | | **1634** |

Nutrient requirement based on values for 3 cuts of grass for silage (target DM yield 9-12t/ha) described in RB209 (2020)

Nutrient requirement based on values for spring barley, described in RB209 (2020)

Crop use based on Grass totalling 47t/ha yield where 1.7kg/t $P_2O_5$ and 6.0kg/t $K_2O$ removed in offtake

Crop use based on spring barley totalling 5.5t/ha yield where 8.5kg/t $P_2O_5$ and 12kg/t $K_2O$ removed in offtake

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 43t/ha is 249kg/ha

# 5 Compliance with NVZ regulations

Table 16. 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 ☐<br><br>Applicable to:<br><br>If yes, please indicate the appropriate period:<br><br>
<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>
<br>*For Tillage Land with crops sown on or before 15th September<br><br>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 in Tables 6-15 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 sufficient background concentrations of Mg (*i.e.* ADAS Index 1-4). It is therefore unlikely that the crop will require any additional input of Mg over the course of the cropping cycle.

## *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 6-15 above.

The limiting factors for the different wastes are as follows;

Limited by $P_2O_5$ content = Bolton Hill cake, Preseli cake, Llechyryd cake/liquid
Limited by total N = Strata Florida cake
Max rate of 250 t/ha application = Preseli liquid, Capel Dewi liquid, Strata Florida liquid, Andigestion

### 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 6-15 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 Strata Florida cake consist of 64% 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 5.5 to 8.3

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 ≥ 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 low trajectory splash plate.
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 **B&TM 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9271 | Cadmium | 0.39 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9282 | % Minerals | 55.3 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 4620 | pH | 6.4 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 7774 | Mercury | 0.34 | < | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9281 | % Dry solids | 14.7 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9284 | % P (dry weight) | 0.441 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9234 | Sulphur | 5860 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 288 | Aluminium | 154000 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 238 | Magnesium | 1020 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9275 | Nickel | 28.8 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9233 | Ammoniacal nitrogen | 52 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9278 | Iron | 23400 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9276 | Lead | 9.3 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9272 | Chromium | 10.8 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9285 | % N (dry weight) | 1.32 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9273 | Copper | 67.9 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 8241 | Volatile solids | 44.7 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9277 | Zinc | 119 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 357 | Arsenic | 17.4 | | | | | 6879844 | ME | A | A | |
| 120038 | BOLTON HILL Sludge Tankering Point | 13/Jan/2021 09:20 | 9283 | % K (dry weight) | 0.0707 | | | | | 6879844 | ME | A | A | |

# Historical Data

| Det Comment | OOH |
|---|---|
| EMPTY | N |
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# Sample Analysis Report

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|---|---|---|---|
| **Sampling Point No:** | 100506 | **Location:** | PRESELI WTW SLUDGE Tankering Point (New Works) |
| **Date Sampled:** | 13/01/2021 | **Time Taken:** | 09:07 |
| **Laboratory**: | ALS | **Sample ID:** | 6879830 |
| **No. of Results:** | 20 | | |
| **Sampling Reason:** | WTW Sludge - Product Monitoring (SW_ME) | | |
| **Type:** | WTW Sludge (SW) | | |

## Sample Results

Dŵr Cymru
Welsh Water

# Sample Analysis Report

Dŵr Cymru Welsh Water

# Sample Analysis Report

| Code | | Result | Units | Qualifier | Lower Limit |
|---|---|---|---|---|---|
| 238 | Magnesium | 556 | mg/kg | | |
| 288 | Aluminium | 108000 | mg/kg | | |
| 357 | Arsenic | 15 | mg/kg | | |
| 4620 | pH | 6.6 | pH | | |
| 7774 | Mercury | 0.32 | mg/kg | < | |
| 8241 | Volatile solids | 42.599998 | % | | |
| 9233 | Ammoniacal nitrogen | 37 | mg/kg | < | |
| 9234 | Sulphur | 7410 | mg/kg | | |
| 9271 | Cadmium | 0.83 | mg/kg | | |
| 9272 | Chromium | 5.66 | mg/kg | | |
| 9273 | Copper | 27.700001 | mg/kg | | |
| 9275 | Nickel | 28 | mg/kg | | |
| 9276 | Lead | 2.02 | mg/kg | < | |
| 9277 | Zinc | 147 | mg/kg | | |
| 9278 | Iron | 13200 | mg/kg | | |
| 9281 | % Dry solids | 16.4 | % | | |
| 9282 | % Minerals | 57.400002 | % | | |
| 9283 | % K (dry weight) | 0.0395 | mg/kg | | |
| 9284 | % P (dry weight) | 0.33 | % | | |
| 9285 | % N (dry weight) | 1.31 | % | | |

**Comments:**

**Signed:** _____

**Approved by:**

**Position:**

Upper Limit

# Sample Analysis Report

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|---|---|---|---|
| **Sampling Point No:** | 100506 | **Location:** | PRESELI WTW SLUDGE Tankering Point (New Works) |
| **Date Sampled:** | 13/01/2021 | **Time Taken:** | 09:09 |
| **Laboratory**: | ALS | **Sample ID:** | 6879832 |
| **No. of Results:** | 20 | | |
| **Sampling Reason:** | WTW Sludge - Product Monitoring (SW_ME) | | |
| **Type:** | WTW Sludge (SW) | | |

## Sample Results

Dŵr Cymru
Welsh Water

# Sample Analysis Report

Dŵr Cymru Welsh Water

# Sample Analysis Report

| Code | | Result | Units | Qualifier | Lower Limit |
|---|---|---|---|---|---|
| 238 | Magnesium | 570 | mg/kg | | |
| 288 | Aluminium | 173000 | mg/kg | | |
| 357 | Arsenic | 17.299999 | mg/kg | < | |
| 4620 | pH | 6.7 | pH | | |
| 7774 | Mercury | 1.16 | mg/kg | < | |
| 8241 | Volatile solids | 43.200001 | % | | |
| 9233 | Ammoniacal nitrogen | 354 | mg/kg | < | |
| 9234 | Sulphur | 11800 | mg/kg | | |
| 9271 | Cadmium | 0.98 | mg/kg | | |
| 9272 | Chromium | 3.92 | mg/kg | < | |
| 9273 | Copper | 29.1 | mg/kg | | |
| 9275 | Nickel | 13.9 | mg/kg | | |
| 9276 | Lead | 7.49 | mg/kg | < | |
| 9277 | Zinc | 225 | mg/kg | | |
| 9278 | Iron | 13900 | mg/kg | | |
| 9281 | % Dry solids | 1.73 | % | | |
| 9282 | % Minerals | 56.799999 | % | | |
| 9283 | % K (dry weight) | 0.0949 | mg/kg | | |
| 9284 | % P (dry weight) | 0.473 | % | | |
| 9285 | % N (dry weight) | 1.39 | % | | |

**Comments:**

**Signed:** _____

**Approved by:**

**Position:**

Upper Limit

Dŵr Cymru Welsh Water

# Sample Analysis Report

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**Sampling Point No:** 100521

**Location:** BONTGOCH WTW SLUDGE TANKERI

**Time Taken:**

**Date Sampled:** 29/01/2021 11:34

**Laboratory:** ALS

**Sample ID:** 6894538

**No. of Results:** 20

**Sampling Reason:** WTW Sludge - Product Monitoring (SW, ME)

**Type:** WTW Sludge (SW)

## Sample Results

| Code | | Result | Units | Qualifier | Lowe |
|---|---|---|---|---|---|
| 238 | Magnesium | 1220. | mg/kg | | |
| 288 | Aluminium | 126000 | mg/kg | | |
| 357 | Arsenic | 14.3 | mg/kg | | |
| 4620 | pH | 7. | pH | | |
| 7774 | Mercury | 0.3 | mg/kg | < | |
| 8241 | Volatile solids | 44.599998 | % | | |
| 9233 | Ammoniacal nitrogen | 35.799999 | mg/kg | < | |
| 9234 | Sulphur | 2350. | mg/kg | | |
| 9271 | Cadmium | 0.52 | mg/kg | | |
| 9272 | Chromium | 16. | mg/kg | | |
| 9273 | Copper | 16.4 | mg/kg | | |
| 9275 | Nickel | 20.200001 | mg/kg | | |
| 9276 | Lead | 49.400002 | mg/kg | | |
| 9277 | Zinc | 353. | mg/kg | | |
| 9278 | Iron | 5300 | mg/kg | | |
| 9281 | % Dry solids | 16.9 | % | | |
| 9282 | % Minerals | 55.400002 | % | | |
| 9283 | % K (dry weight) | 0.0087 | mg/kg | < | |
| 9284 | % P (dry weight) | 0.743 | % | | |
| 9285 | % N (dry weight) | 1.54 | % | | |

**Comments:**

**Signed:** _____

Dŵr Cymru
Welsh Water

# Sample Analysis Report

**Approved by:**

**Position:**

NG POINT

| r Limit | Upper Limit |
| --- | --- |

Dŵr Cymru Welsh Water

# Analysis report

| SPT Number | SPT Description | Date Time Taken | Det Code | Det Description | Result Value | Result Qual | Original Sample |
|---|---|---|---|---|---|---|---|
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9282 | % Minerals | 77.2 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 357 | Arsenic | 15.9 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9233 | Ammoniacal nitrogen | 213 | < | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 238 | Magnesium | 1740 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9281 | % Dry solids | 2.88 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9284 | % P (dry weight) | 0.147 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9271 | Cadmium | 0.33 | < | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9285 | % N (dry weight) | 0.415 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9276 | Lead | 217.7 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9278 | Iron | 351000 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 4620 | pH | 6 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9275 | Nickel | 12 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 7774 | Mercury | 0.7 | < | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9277 | Zinc | 503 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9234 | Sulphur | 2830 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9272 | Chromium | 12.7 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 288 | Aluminium | 7680 | | 6879842 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 8241 | Volatile solids | 22.8 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9283 | % K (dry weight) | 0.106 | | 6879842 |
| 122055 | Capel Dewi WTW Sludge Tankering Point | 13/Jan/2021 09:18 | 9273 | Copper | 48 | | 6879842 |

# Sample Analysis Report

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|---|---|---|---|
| **Sampling Point No:** | 100504 | **Location:** | LLECHRYD WTW SLUDGE TANKERING POINT |
| **Date Sampled:** | 08/10/2020 | **Time Taken:** | 14:28 |
| **Laboratory**: | ALS | **Sample ID:** | 6792626 |
| **No. of Results:** | 20 | | |
| **Sampling Reason:** | WTW Sludge - Product Monitoring (SW_ME) | | |
| **Type:** | WTW Sludge (SW) | | |

## Sample Results

Dŵr Cymru
Welsh Water

# Sample Analysis Report

Dŵr Cymru Welsh Water

# Sample Analysis Report

| Code | | Result | Units | Qualifier | Lower Limit |
|---|---|---|---|---|---|
| 238 | Magnesium | 1360 | mg/kg | | |
| 288 | Aluminium | 6860 | mg/kg | | |
| 357 | Arsenic | 18.4 | mg/kg | | |
| 4620 | pH | 5.5 | pH | | |
| 7774 | Mercury | 0.18 | mg/kg | < | |
| 8241 | Volatile solids | 51.799999 | % | | |
| 9233 | Ammoniacal nitrogen | 73 | mg/kg | | |
| 9234 | Sulphur | 4820 | mg/kg | | |
| 9271 | Cadmium | 0.09 | mg/kg | < | |
| 9272 | Chromium | 15.8 | mg/kg | | |
| 9273 | Copper | 35.5 | mg/kg | | |
| 9275 | Nickel | 16.5 | mg/kg | | |
| 9276 | Lead | 31.299999 | mg/kg | | |
| 9277 | Zinc | 117 | mg/kg | | |
| 9278 | Iron | 243000 | mg/kg | | |
| 9281 | % Dry solids | 11.3 | % | | |
| 9282 | % Minerals | 48.200001 | % | | |
| 9283 | % K (dry weight) | 0.0589 | mg/kg | | |
| 9284 | % P (dry weight) | 0.308 | % | | |
| 9285 | % N (dry weight) | 1.29 | % | | |

**Comments:**

**Signed:** _____

**Approved by:**

**Position:**

Upper Limit

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

V724

Please quote above code for all enquiries

LLECHRYDD WWTE

LIQUID WASTE

# SLURRY/SLUDGE ANALYSIS RESULTS

| Laboratory References | |
|---|---|
| Report Number | 43906 |
| Sample Number | 105647 |

Sample Reference :

LLECHRYDD

Sample Matrix : SLURRY/SLUDGE

| | |
|---|---|
| Date Received | 08-MAR-2021 |
| Date Reported | 12-MAR-2021 |

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 | 5.89 | % |
| Conductivity 1:6 | 87.0 | uS/cm |
| Total Kjeldahl Nitrogen | 0.03 | % w/w |
| Ammonium Nitrogen | <25 | mg/kg |
| Total Phosphorus (P) | 140 | mg/kg |
| Total Potassium (K) | 94.3 | mg/kg |
| Total Magnesium (Mg) | 229 | mg/kg |
| Total Copper (Cu) | 2.25 | mg/kg |
| Total Zinc (Zn) | 9.56 | mg/kg |
| Total Sulphur (S) | 170 | mg/kg |

Released by ..... *Myles Nicholson* ..... Date ..... *12/03/21* .....

**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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V724

Please quote above code for all enquiries

LLECHRYDD WWTE

LIQUID WASTE

# SLURRY/SLUDGE ANALYSIS RESULTS

| Laboratory References | |
|---|---|
| Report Number | 43906 |
| Sample Number | 105647 |

Sample Reference :

LLECHRYDD

Sample Matrix : SLURRY/SLUDGE

| | |
|---|---|
| Date Received | 08-MAR-2021 |
| Date Reported | 12-MAR-2021 |

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) | 156 | mg/kg |
| Total Molybdenum (Mo) | 0.12 | mg/kg |
| Total Lead (Pb) | 2.38 | mg/kg |
| Total Cadmium (Cd) | 0.02 | mg/kg |
| Total Mercury (Hg) | <0.05 | mg/kg |
| Total Nickel (Ni) | 1.79 | mg/kg |
| Total Chromium (Cr) | 1.94 | mg/kg |
| Total Sodium (Na) | 14.8 | mg/kg |
| pH 1:6 [Fresh] | 5.44 | |
| Organic Matter LOI | 1.11 | % w/w |

Released by *Myles Nicholson* Date *12/03/21*

**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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LLECHRYDD WWTE

LIQUID WASTE

# SLURRY/SLUDGE ANALYSIS RESULTS

| Laboratory References | |
|---|---|
| Report Number | 43906 |
| Sample Number | 105647 |

Sample Reference :

LLECHRYDD

Sample Matrix : SLURRY/SLUDGE

| | |
|---|---|
| Date Received | 08-MAR-2021 |
| Date Reported | 12-MAR-2021 |

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 |
|---|---|---|
| Lime Equivalent as CaCO3 | <2 | % w/w |
| Total Aluminium | 989 | mg/kg |
| Fluoride [100:1 H2S04 Soluble] | <10 | mg/kg |
| Total Arsenic (As) | 1.13 | mg/kg |
| Total Selenium (Se) | 0.09 | mg/kg |
| Neutralising Value as CaO [TNV] | <1 | % w/w |

Released by ..... *Myles Nicholson* .....  Date ..... *12/03/21* .....

**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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STRATA FLORIDA WTW

CAKE

# CAKE ANALYSIS RESULTS (Metric Units)

Sample Reference : STRATA FLORIDA CAKE

Sample Matrix : CAKE

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

The sample will be kept as the dry ground sample for at least 1 month.

| Laboratory References | |
|---|---|
| Report Number | 38749 |
| Sample Number | 119897 |

| | |
|---|---|
| Date Received | 01-FEB-2021 |
| Date Reported | 09-FEB-2021 |

## ANALYTICAL RESULTS

| Determinand on a DM basis unless otherwise indicated | Units | Result | Amount per fresh tonne | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|
| pH 1:6 [Fresh] | | 6.09 | | | |
| Oven Dry Matter | % | 14.1 | 141.00 | 16129 | kg DM |
| Total Nitrogen | % w/w | 1.55 | 2.19 | 250 | kg N |
| Ammonium Nitrogen | mg/kg | 128 | 0.02 | 2.06 | kg NH4-N |
| Total Phosphorus (P) | % w/w | 0.213 | 0.69 | 78.67 | kg P2O5 |
| Total Potassium (K) | % w/w | <0.005 | | | kg K2O |
| Total Magnesium (Mg) | % w/w | 0.016 | 0.04 | 4.28 | kg MgO |
| Total Sulphur (S) | % w/w | 0.401 | 1.41 | 161.69 | kg SO3 |
| Total Copper (Cu) | mg/kg | 17.3 | < 0.01 | | kg Cu |
| Total Zinc (Zn) | mg/kg | 75.7 | 0.01 | 1.22 | kg Zn |
| Total Sodium (Na) | % w/w | 0.052 | 0.10 | 11.31 | kg Na2O |
| Total Calcium (Ca) | mg/kg | 751 | 0.11 | 12.11 | kg Ca |
| Equivalent field application rate | | —— | 1.00 | 114.39 | tonnes/ha |

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by ..... *Myles Nicholson* ..... Date ..... *09/02/21* .....

**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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STRATA FLORIDA WTW

CAKE

# CAKE ANALYSIS RESULTS (Metric Units)

Sample Reference : STRATA FLORIDA CAKE

Sample Matrix : CAKE

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

The sample will be kept as the dry ground sample for at least 1 month.

| Laboratory References | |
|---|---|
| Report Number | 38749 |
| Sample Number | 119897 |

| | |
|---|---|
| Date Received | 01-FEB-2021 |
| Date Reported | 09-FEB-2021 |

## ANALYTICAL RESULTS

| Determinand on a DM basis unless otherwise indicated | Units | Result |
|---|---|---|
| Conductivity 1:6 [Fresh] | uS/cm | 72.0 |
| Total Iron (Fe) | mg/kg | 12449 |
| Total Molybdenum (Mo) | mg/kg | 0.596 |
| Total Lead (Pb) | mg/kg | 34.1 |
| Total Cadmium (Cd) | mg/kg | 0.314 |
| Total Mercury (Hg) | mg/kg | 0.161 |
| Total Nickel (Ni) | mg/kg | 8.32 |
| Total Chromium (Cr) | mg/kg | 6.31 |
| Organic Matter LOI | % w/w | 67.3 |
| Lime Equivalent as CaCO3 | % w/w | <2 |
| Total Aluminium | mg/kg | 116537 |
| Fluoride [100:1 H2S04 Soluble] | mg/kg | 364 |
| Total Arsenic (As) | mg/kg | 23.1 |
| Total Selenium (Se) | mg/kg | 2.50 |
| N. V. as CaO equivalents | % w/w | <1 |

Released by ..... *Myles Nicholson* ..... Date ..... *09/02/21* .....

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
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## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

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V724

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STRATA FLORIDA WTW

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS

Sample Reference :

STRATA FLORIDA LIQ

Sample Matrix : SLURRY/SLUDGE

| Laboratory References | |
|---|---|
| Report Number | 38719 |
| Sample Number | 104212 |

| | |
|---|---|
| Date Received | 01-FEB-2021 |
| Date Reported | 05-FEB-2021 |

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 | 1.85 | % |
| Conductivity 1:6 | 25.0 | uS/cm |
| Total Kjeldahl Nitrogen | 0.03 | % w/w |
| Ammonium Nitrogen | <25 | mg/kg |
| Total Phosphorus (P) | 47.9 | mg/kg |
| Total Potassium (K) | <10 | mg/kg |
| Total Magnesium (Mg) | <10 | mg/kg |
| Total Copper (Cu) | 0.38 | mg/kg |
| Total Zinc (Zn) | 1.57 | mg/kg |
| Total Sulphur (S) | 106 | mg/kg |

Released by *Myles Nicholson* Date *05/02/21*

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| | |
|---|---|
| Date Received | 01-FEB-2021 |
| Date Reported | 05-FEB-2021 |

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) | 18.6 | mg/kg |
| Total Iron (Fe) | 291 | mg/kg |
| Total Molybdenum (Mo) | <0.05 | mg/kg |
| Total Lead (Pb) | 0.68 | mg/kg |
| Total Cadmium (Cd) | <0.01 | mg/kg |
| Total Mercury (Hg) | <0.05 | mg/kg |
| Total Nickel (Ni) | <0.2 | mg/kg |
| Total Chromium (Cr) | 0.28 | mg/kg |
| Total Sodium (Na) | 21.4 | mg/kg |
| pH 1:6 [Fresh] | 5.81 | |

Released by *Myles Nicholson* Date *05/02/21*

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STRATA FLORIDA WTW

SLUDGE

# SLURRY/SLUDGE ANALYSIS RESULTS

Sample Reference :

STRATA FLORIDA LIQ

Sample Matrix : SLURRY/SLUDGE

| Laboratory References | |
|---|---|
| Report Number | 38719 |
| Sample Number | 104212 |

| | |
|---|---|
| Date Received | 01-FEB-2021 |
| Date Reported | 05-FEB-2021 |

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 |
|---|---|---|
| Organic Matter LOI | 1.18 | % w/w |
| Lime Equivalent as CaCO3 | <2 | % w/w |
| Total Aluminium | 2534 | mg/kg |
| Fluoride [100:1 H2S04 Soluble] | 12.7 | mg/kg |
| Total Arsenic (As) | <0.5 | mg/kg |
| Total Selenium (Se) | 0.06 | mg/kg |
| Neutralising Value as CaO [TNV] | <1 | % w/w |

Released by *Myles Nicholson* Date *05/02/21*

**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

REAL BCS Approved Testing Laboratory

# PAS110 2014 Certificate of Analysis

**Client:** ANDIGESTION LTD
**(T489)** WINGMOOR FARM EAST
STOKE ORCHARD ROAD
BISHOPS CLEEVE
GLOUCESTERSHIRE
GL52 7DG

**Originator:** WINGMOOR FARM EAST
WHOLE DIGESTATE

**Lab ID:** 20009 - 98914
**Sample ID:** 08/20 25/08/20
**Sample Type:** Whole Digestate

**Certification Code:** AND-WIN-WD
**BCS Number:** AD00046

**Date Received:** 26/08/2020
**Date Reported:** 02/09/2020
**Date Sampled:** 25/08/2020

**Potentially Toxic Elements in WD / SL / SF, on a fresh weight basis**

| Parameter | Units | Result | Upper Limit | Pass | Method of Test |
|---|---|---|---|---|---|
| Cadmium (Cd) | mg/kg | 0.01 | 0.72 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Chromium (Cr) | mg/kg | 0.53 | 48 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Copper (Cu) | mg/kg | 1.18 | 96 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Lead (Pb) | mg/kg | <0.5 | 96 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Mercury (Hg) | mg/kg | <0.05 | 0.48 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Nickel (Ni) | mg/kg | 0.53 | 24 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |
| Zinc | mg/kg | 5.03 | 192 mg / kg | Y | BS EN 15587 (soluble in aqua regia) |

**Stability of WD / SL / SF on a fresh weight basis**

| Parameter | Units | Result | Upper Limit | Pass | Method of Test |
|---|---|---|---|---|---|
| Volatile Fatty Acids | g COD / g VS | N/A | 0.774 g VS | | Chromatography |

Test is valid unless otherwise specified

**Physical contaminants in WD / SL / SF on a fresh weight basis**

| Parameter | Units | Result | Upper Limit | Pass | Method of Test |
|---|---|---|---|---|---|
| Plastics > 2mm | kg / t | 0.051 | | | NRM-SOP-JAS-497 |
| Glass > 2mm | kg / t | Zero | | | NRM-SOP-JAS-497 |
| Metals > 2mm | kg / t | 0.003 | | | NRM-SOP-JAS-497 |
| Other > 2mm | kg / t | Zero | | | NRM-SOP-JAS-497 |
| Total > 2mm | kg / t | 0.054 | 0.22 kg / t | Y | NRM-SOP-JAS-497 |
| of which Sharps: | kg / t | Zero | Zero in sample tested | Y | NRM-SOP-JAS-497 |
| Stones > 5mm | kg / t | Zero | 19.2 kg / t | | NRM-SOP-JAS-497 |

Zero - No visible contaminants were found in the sample as submitted

The sample was dispatched within 1 working day after sampling
The sample was received within 48 hours after dispatch.
The sample was received in a cool box with ice packs

**Released by:** *Linaben Patel* **Date: 02/09/2020**

REAL BCS Approved Testing Laboratory

# PAS110 2014 Certificate of Analysis (Continued)

**Client:** ANDIGESTION LTD
**(T489)** WINGMOOR FARM EAST
STOKE ORCHARD ROAD
BISHOPS CLEEVE
GLOUCESTERSHIRE
GL52 7DG

**Originator:** WINGMOOR FARM EAST
WHOLE DIGESTATE

**Lab ID:** 20009 - 98914
**Sample ID:** 08/20 25/08/20
**Sample Type:** Whole Digestate

**Certification Code:** AND-WIN-WD
**BCS Number:** AD00046

**Date Received:** 26/08/2020
**Date Reported:** 02/09/2020
**Date Sampled:** 25/08/2020

**Characteristics of WD / SL / SF for declaration, without limit values, that influence application rates**
(Results on an 'as received' basis)

| Parameter | Units | Result | M * | Amount per fresh tonne or $m^3$ | Amount applied at an equivalent total Nitrogen application of 250 kg N/ha | Units |
|---|---|---|---|---|---|---|
| pH | | 8.3 | 1 | | | |
| Oven Dry Matter | % m/m | 4.90 | 2 | 49.00 | 2112 | Kg DM |
| Loss On Ignition | % m/m | 3.32 | 3 | 33.20 | 1431 | Kg OM |
| Total Kjeldahl Nitrogen (N) | % m/m | 0.58 | 4 | 5.80 | 250 | Kg N |
| Ammoniacal Nitrogen (NH4-N) | mg/kg | 3101 | 5 | 3.10 | 133.65 | Kg NH4-N |
| Total Phosphorus (P) | mg/kg | 507 | 6 | 1.16 | 50.04 | Kg P2O5 |
| Total Potassium (K) | mg/kg | 1976 | 6 | 2.37 | 102.20 | Kg K2O |
| Total Magnesium (Mg) | mg/kg | 105 | 6 | 0.17 | 7.51 | Kg MgO |
| Total Sulphur (S) | mg/kg | 427 | 6 | 1.07 | 46.01 | Kg SO3 |
| Equivalent field application rate | | —— | | 1.00 | 43.10 | tonnes or $m^3$ / ha |

*** Method of Test**

1 BS EN 13037
2 BS EN 14346
3 BS EN 15169
4 BS EN 13654-1 (Kjeldahl)
5 Sciantec SOP S1162 (Kjeldahl)
6 BS EN 15587 (soluble in aqua regia)

REAL BCS Approved Testing Laboratory

# PAS110 2014 Certificate of Analysis (Continued)

**Client:** ANDIGESTION LTD
**(T489)** WINGMOOR FARM EAST
STOKE ORCHARD ROAD
BISHOPS CLEEVE
GLOUCESTERSHIRE
GL52 7DG

**Originator:** WINGMOOR FARM EAST
WHOLE DIGESTATE

**Lab ID:** 20009 - 98914
**Sample ID:** 08/20 25/08/20
**Sample Type:** Whole Digestate

**Certification Code:** AND-WIN-WD
**BCS Number:** AD00046

**Date Received:** 26/08/2020
**Date Reported:** 02/09/2020
**Date Sampled:** 25/08/2020

**Pathogens** (human and animal indicator species) **in WD / SL / SF**

| Parameter | Units | Result Rep 1 | Result Rep 2 | Result Rep 3 | Result Rep 4 | Result Rep 5 | Pass | Method of Test |
|---|---|---|---|---|---|---|---|---|
| Salmonella | | Absent | Absent | Absent | Absent | Absent | Y | Part II schedule of ABP regulations 2005 |
| E. coli | CFU/g | <10 | <10 | <10 | <10 | <10 | Y | Part III schedule of ABP regulations 2005 |

For Salmonella spp 5 out of 5 sub-sample results must be ABSENT in the quantity tested.

For Escherichia coli 4 out of 5 sub-sample results must be less than or equal to 1000 CFU/g but none may be greater than 5000 CFU/g.

## How does your sample analysis compare with the 'standard' figures for organic manures?

| **Farmyard Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 9.4 | 2.4 | 1.8 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 | 3.4 | 1.8 |
| Sheep FYM | 25 | 7.0 | 3.2 | 8.0 | 4.0 | 2.8 |
| Duck FYM | 25 | 6.5 | 5.5 | 7.5 | 2.6 | 2.4 |
| Horse FYM | 25 | 5.0 | 5.0 | 6.0 | 1.6 | 1.5 |
| Goat FYM | 40 | 9.5 | 4.5 | 12.0 | 2.8 | 1.8 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Poultry Manure** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| | 20 | 9.4 | 8.0 | 8.5 | 3.0 | 2.7 |
| | 40 | 19.0 | 12.0 | 15.0 | 5.6 | 4.3 |
| | 60 | 28.0 | 17.0 | 21.0 | 8.2 | 5.9 |
| | 80 | 37.0 | 21.0 | 27.0 | 11.0 | 7.5 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

| **Cattle & Pig Slurries** | Dry Matter (% DM) | Total Nitrogen (Kg N/m3) | Total Phosphate (Kg P2O5/m3) | Total Potash (Kg K2O/m3) | Total Sulphur (Kg SO3/m3) | Total Magnesium (Kg MgO/m3) |
|---|---|---|---|---|---|---|
| Cattle slurry | 6.0 | 2.6 | 1.2 | 2.5 | 0.7 | 0.6 |
| Dirty water (from cattle) | 0.5 | 0.5 | 0.1 | 1.0 | 0.1 | 0.1 |
| Separated cattle slurries | | | | | | |
| - strainer box liquid | 1.5 | 1.5 | 0.3 | 1.5 | ND | ND |
| - weeping wall liquid | 3.0 | 2.0 | 0.5 | 2.3 | ND | ND |
| - mechanically separated liquid | 4.0 | 3.0 | 1.2 | 2.8 | ND | ND |
| - solid portion after separation | 20.0 | 4.0 | 2.0 | 3.3 | ND | ND |
| Pig slurry | 4.0 | 3.6 | 1.5 | 2.2 | 0.7 | 0.7 |
| Separated pig slurry - liquid | 3.0 | 3.6 | 1.1 | 2.0 | ND | ND |
| Separated pig slurry - solid | 20.0 | 5.0 | 3.7 | 2.0 | ND | ND |

Notes: ND = no data.
The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

| **Biosolids** | Dry Matter (% DM) | Total Nitrogen (Kg N/t) | Total Phosphate (Kg P2O5/t) | Total Potash (Kg K2O/t) | Total Sulphur (Kg SO3/t) | Total Magnesium (Kg MgO/t) |
|---|---|---|---|---|---|---|
| Digested cake | 25 | 11.0 | 11.0 | 0.6 | 8.2 | 1.6 |
| Thermally dried | 95 | 40.0 | 55.0 | 2.0 | 23.0 | 6.0 |
| Lime stablised | 25 | 8.5 | 7.0 | 0.8 | 7.4 | 2.4 |
| Composted | 40 | 11.0 | 10.0 | 3.0 | 6.1 | 2.0 |

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

| **Other Organic Manures** | Dry Matter | Total Nitrogen | Total Phosphate | Total Potash | Total Sulphur | Total Magnesium |
|---|---|---|---|---|---|---|
| ***Composts*** | (% DM) | (Kg N/t) | (Kg P2O5/t) | (Kg K2O/t) | (Kg SO3/t) | (Kg MgO/t) |
| Green compost | 60 | 7.5 | 3.0 | 6.8 | 3.4 | 3.4 |
| Green/food compost | 60 | 11.0 | 4.9 | 8.0 | 5.1 | 3.4 |
| Mushroom compost | 35 | 6.0 | 5.0 | 9.0 | ND | ND |
| ***Digestates*** | | | | | | |
| Food-based whole | 4.1 | 4.8 | 1.1 | 2.4 | 0.7 | 0.2 |
| Food-based separated liquor | 3.8 | 4.5 | 1.0 | 2.8 | 1.0 | 0.2 |
| Food-based separated fibre | 27.0 | 8.9 | 10.2 | 3.0 | 4.0 | 2.2 |
| Farm-sourced whole | 5.5 | 3.6 | 1.7 | 4.0 | 0.8 | 0.6 |
| Farm-sourced separated liquor | 3.0 | 1.9 | 0.6 | 2.5 | <0.1 | 0.4 |
| Farm-sourced separated fibre | 24.0 | 5.6 | 4.7 | 6.0 | 1.2 | 1.8 |
| ***Paper Crumble*** | | | | | | |
| Chemically / physically treated | 40 | 2.0 | 0.4 | 0.2 | 0.6 | 1.4 |
| Biologically treated | 30 | 7.5 | 3.8 | 0.4 | 2.4 | 1.0 |
| ***Water Treatment Cake*** | | | | | | |
| Water treatment cake | 25 | 2.4 | 3.4 | 0.4 | 5.5 | 0.8 |
| ***Food industry 'wastes'*** | (% DM) | (Kg N/m3) | (Kg P2O5/m3) | (Kg K2O/m3) | (Kg SO3/m3) | (Kg MgO/m3) |
| Dairy waste | 4 | 1.0 | 0.8 | 0.2 | ND | ND |
| Soft drinks waste | 4 | 0.3 | 0.2 | Trace | ND | ND |
| Brewing waste | 7 | 2.0 | 0.8 | 0.2 | ND | ND |
| General food waste | 5 | 1.6 | 0.7 | 0.2 | ND | ND |

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.

# DCWW

## Analysis of Bolton Hill cake

**Date: 13.1.2021** Sample ID. 6879844

| | |
|---|---|
| **Application rate (t/ha)** | **54** |
| **Application rate (t/acre)** | **21.6** |
| **pH** | **6.4** |
| **Dry solids (%)** | **14.7** |
| **Organic matter (%)** | **44.7** |
| **Conductivity (µS/cm)** | |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.32 | % | 1.94 | 104.8 | 0.01 | 0.4 |
| **Ammonium-N** | 52 | mg/kg | 0.01 | 0.4 | | |
| **Phosphorus (P)** | 4410 | mg/kg | 0.65 | 35.0 | | |
| **Phosphate ($P_2O_5$)** | | | 1.48 | 79.8 | 0.3 | 39.9 |
| **Potassium (K)** | 707 | mg/kg | 0.10 | 5.6 | | |
| **Potash ($K_2O$)** | | | 0.12 | 6.7 | 0.0 | 6.1 |
| **Magnesium (Mg)** | 1020 | mg/kg | 0.15 | 8.1 | | |
| **Magnesium (MgO)** | | | 0.24 | 13.0 | 0.0 | 1.3 |
| **Sulphur (S)** | 5860 | mg/kg | 0.86 | 46.5 | | |
| **Sulphur ($SO_3$)** | | | 2.15 | 116.3 | 0.2 | 11.6 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 119.0 | mg/kg | 17.5 | 0.94 | 15.00 |
| **Copper** | 67.9 | mg/kg | 9.98 | 0.54 | 7.50 |
| **Nickel** | 28.8 | mg/kg | 4.23 | 0.23 | 3.00 |
| **Lead** | 9.3 | mg/kg | 1.37 | 0.07 | 15.00 |
| **Cadmium** | 0.4 | mg/kg | 0.06 | 0.00 | 0.15 |
| **Chromium** | 10.8 | mg/kg | 1.59 | 0.09 | 15.00 |
| **Mercury** | 0.3 | mg/kg | 0.05 | 0.00 | 0.10 |
| **Arsenic** | 17.4 | mg/kg | 2.56 | 0.14 | 0.70 |
| **Aluminium** | 154000 | mg/kg | 22638 | 1222 | - |
| **Iron** | 23400 | mg/kg | 3439.80 | 185.75 | - |
| | | | | | |

# DCWW

## Analysis of Preseli cake

**Date: 13.1.2021** Sample ID. 6879830

| | |
|---|---|
| **Application rate (t/ha)** | **65** |
| **Application rate (t/acre)** | **26.0** |
| **pH** | **6.6** |
| **Dry solids (%)** | **16.4** |
| **Organic matter (%)** | **42.6** |
| **Conductivity (µS/cm)** | |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.31 | % | 2.15 | 139.6 | 0.01 | 0.4 |
| **Ammonium-N** | 37 | mg/kg | 0.01 | 0.4 | | |
| **Phosphorus (P)** | 3300 | mg/kg | 0.54 | 35.2 | | |
| **Phosphate ($P_2O_5$)** | | | 1.23 | 80.2 | 0.2 | 40.1 |
| **Potassium (K)** | 395 | mg/kg | 0.06 | 4.2 | | |
| **Potash ($K_2O$)** | | | 0.08 | 5.1 | 0.0 | 4.5 |
| **Magnesium (Mg)** | 556 | mg/kg | 0.09 | 5.9 | | |
| **Magnesium (MgO)** | | | 0.15 | 9.5 | 0.0 | 0.9 |
| **Sulphur (S)** | 7410 | mg/kg | 1.22 | 79.0 | | |
| **Sulphur ($SO_3$)** | | | 3.04 | 197.5 | 0.3 | 19.7 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 147.0 | mg/kg | 24.1 | 1.57 | 15.00 |
| **Copper** | 27.7 | mg/kg | 4.54 | 0.30 | 7.50 |
| **Nickel** | 28.0 | mg/kg | 4.59 | 0.30 | 3.00 |
| **Lead** | 2.0 | mg/kg | 0.33 | 0.02 | 15.00 |
| **Cadmium** | 0.8 | mg/kg | 0.14 | 0.01 | 0.15 |
| **Chromium** | 5.7 | mg/kg | 0.93 | 0.06 | 15.00 |
| **Mercury** | 0.3 | mg/kg | 0.05 | 0.00 | 0.10 |
| **Arsenic** | 15.0 | mg/kg | 2.46 | 0.16 | 0.70 |
| **Aluminium** | 108000 | mg/kg | 17712 | 1151 | - |
| **Iron** | 13200 | mg/kg | 2164.80 | 140.71 | - |
| | | | | | |

# DCWW

## Analysis of Preseli liquid sludge

**Date: 13.1.2021** Sample ID. 6879832

| | |
|---|---|
| **Application rate (t/ha)** | **250** |
| **Application rate (t/acre)** | **100.0** |
| **pH** | **6.7** |
| **Dry solids (%)** | **1.7** |
| **Organic matter (%)** | **43.2** |
| **Conductivity (µS/cm)** | |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.39 | % | 0.24 | 60.1 | 0.01 | 1.5 |
| **Ammonium-N** | 354 | mg/kg | 0.01 | 1.5 | | |
| **Phosphorus (P)** | 4730 | mg/kg | 0.08 | 20.5 | | |
| **Phosphate ($P_2O_5$)** | | | 0.19 | 46.6 | 0.0 | 23.3 |
| **Potassium (K)** | 949 | mg/kg | 0.02 | 4.1 | | |
| **Potash ($K_2O$)** | | | 0.02 | 4.9 | 0.0 | 4.4 |
| **Magnesium (Mg)** | 570 | mg/kg | 0.01 | 2.5 | | |
| **Magnesium (MgO)** | | | 0.02 | 3.9 | 0.0 | 0.4 |
| **Sulphur (S)** | 11800 | mg/kg | 0.20 | 51.0 | | |
| **Sulphur ($SO_3$)** | | | 0.51 | 127.6 | 0.1 | 12.8 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 225.0 | mg/kg | 3.9 | 0.97 | 15.00 |
| **Copper** | 29 | mg/kg | 0.50 | 0.13 | 7.50 |
| **Nickel** | 13.9 | mg/kg | 0.24 | 0.06 | 3.00 |
| **Lead** | 7.5 | mg/kg | 0.13 | 0.03 | 15.00 |
| **Cadmium** | 1.0 | mg/kg | 0.02 | 0.00 | 0.15 |
| **Chromium** | 3.9 | mg/kg | 0.07 | 0.02 | 15.00 |
| **Mercury** | 1.2 | mg/kg | 0.02 | 0.01 | 0.10 |
| **Arsenic** | 17.3 | mg/kg | 0.30 | 0.07 | 0.70 |
| **Aluminium** | 173000 | mg/kg | 2992.90 | 748.23 | - |
| **Iron** | 13900 | mg/kg | 240.47 | 60.12 | - |
| | | | | | |

# DCWW

## Analysis of Bontgoch cake

**Date: 29 Jan 21** Sample ID. 6894538

| | |
|---|---|
| **Application rate (t/ha)** | **28** |
| **Application rate (t/acre)** | **11.2** |
| **pH** | **7.0** |
| **Dry solids (%)** | **16.9** |
| **Organic matter (%)** | **44.6** |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.54 | % | 2.60 | 72.9 | 0.01 | 0.2 |
| **Ammonium-N** | 35.8 | mg/kg | 0.01 | 0.2 | | |
| **Phosphorus (P)** | 7430 | mg/kg | 1.26 | 35.2 | | |
| **Phosphate ($P^2O^5$)** | | | 2.86 | 80.2 | 0.6 | 40.1 |
| **Potassium (K)** | 87 | mg/kg | 0.01 | 0.4 | | |
| **Potash ($K^2O$)** | | | 0.02 | 0.5 | 0.0 | 0.4 |
| **Magnesium (Mg)** | 1220 | mg/kg | 0.21 | 5.8 | | |
| **Magnesium (MgO)** | | | 0.33 | 9.2 | 0.1 | 0.9 |
| **Sulphur (S)** | 2350 | mg/kg | 0.40 | 11.1 | | |
| **Sulphur ($SO_3$)** | | | 0.99 | 27.8 | 0.1 | 2.8 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 353 | mg/kg | 59.7 | 1.67 | 15.00 |
| **Copper** | 16.4 | mg/kg | 2.77 | 0.08 | 7.50 |
| **Nickel** | 20.2 | mg/kg | 3.41 | 0.10 | 3.00 |
| **Lead** | 49.4 | mg/kg | 8.35 | 0.23 | 15.00 |
| **Cadmium** | 0.5 | mg/kg | 0.09 | 0.00 | 0.15 |
| **Chromium** | 16.0 | mg/kg | 2.70 | 0.08 | 15.00 |
| **Mercury** | 0.3 | mg/kg | 0.05 | 0.00 | 0.10 |
| **Arsenic** | 14.3 | mg/kg | 2.42 | 0.07 | 0.70 |
| **Aluminium** | 5980 | mg/kg | 1011 | 28 | - |
| **Iron** | 331000 | mg/kg | 55939.00 | 1566.29 | - |
| | | | | | |

# DCWW

## Analysis of Capel Dewi liq.

**Date: 13/01/2021** Sample ID. 122055

| | |
|---|---|
| **Application rate (t/ha)** | **250** |
| **Application rate (t/acre)** | **100.0** |
| **pH** | **6.0** |
| **Dry solids (%)** | **2.9** |
| **Organic matter (%)** | **22.8** |
| **Conductivity (µS/cm)** | |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 0.42 | % | 0.12 | 29.9 | 0.01 | 1.5 |
| **Ammonium-N** | 213 | mg/kg | 0.01 | 1.5 | | |
| **Phosphorus (P)** | 4170 | mg/kg | 0.12 | 30.0 | | |
| **Phosphate ($P_2O_5$)** | | | 0.27 | 68.5 | 0.1 | 34.2 |
| **Potassium (K)** | 1060 | mg/kg | 0.03 | 7.6 | | |
| **Potash ($K_2O$)** | | | 0.04 | 9.2 | 0.0 | 8.2 |
| **Magnesium (Mg)** | 1740 | mg/kg | 0.05 | 12.5 | | |
| **Magnesium (MgO)** | | | 0.08 | 20.0 | 0.0 | 2.0 |
| **Sulphur (S)** | 2830 | mg/kg | 0.08 | 20.4 | | |
| **Sulphur ($SO_3$)** | | | 0.20 | 50.9 | 0.0 | 5.1 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 503.0 | mg/kg | 14.5 | 3.62 | 15.00 |
| **Copper** | 48.0 | mg/kg | 1.38 | 0.35 | 7.50 |
| **Nickel** | 12.0 | mg/kg | 0.35 | 0.09 | 3.00 |
| **Lead** | 217.7 | mg/kg | 6.27 | 1.57 | 15.00 |
| **Cadmium** | 0.33 | mg/kg | 0.01 | 0.00 | 0.15 |
| **Chromium** | 12.7 | mg/kg | 0.37 | 0.09 | 15.00 |
| **Mercury** | 0.70 | mg/kg | 0.02 | 0.01 | 0.10 |
| **Arsenic** | 15.9 | mg/kg | 0.46 | 0.11 | 0.70 |
| **Aluminium** | 7680 | mg/kg | 221 | 55 | - |
| **Iron** | 351000 | mg/kg | 10108.80 | 2527.20 | - |
| | | | | | |

# DCWW

## Analysis of Llechyryd cake

**Date: 08.10.2020** Sample ID. 6792626

| | |
|---|---|
| **Application rate (t/ha)** | **100** |
| **Application rate (t/acre)** | **40.0** |
| **pH** | **5.5** |
| **Dry solids (%)** | **11.3** |
| **Organic matter (%)** | **51.8** |
| **Conductivity (µS/cm)** | |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.29 | % | 1.46 | 145.8 | 0.01 | 0.8 |
| **Ammonium-N** | 73 | mg/kg | 0.01 | 0.8 | | |
| **Phosphorus (P)** | 3080 | mg/kg | 0.35 | 34.8 | | |
| **Phosphate ($P_2O_5$)** | | | 0.79 | 79.4 | 0.2 | 39.7 |
| **Potassium (K)** | 589 | mg/kg | 0.07 | 6.7 | | |
| **Potash ($K_2O$)** | | | 0.08 | 8.0 | 0.0 | 7.2 |
| **Magnesium (Mg)** | 1360 | mg/kg | 0.15 | 15.4 | | |
| **Magnesium (MgO)** | | | 0.25 | 24.6 | 0.0 | 2.5 |
| **Sulphur (S)** | 4820 | mg/kg | 0.54 | 54.5 | | |
| **Sulphur ($SO_3$)** | | | 1.36 | 136.2 | 0.1 | 13.6 |
| **Calcium (Ca)** | | mg/kg | 0.0 | 0.0 | | |
| **Sodium (Na)** | | mg/kg | 0.00 | 0.0 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 117.0 | mg/kg | 13.2 | 1.32 | 15.00 |
| **Copper** | 35.5 | mg/kg | 4.01 | 0.40 | 7.50 |
| **Nickel** | 16.5 | mg/kg | 1.86 | 0.19 | 3.00 |
| **Lead** | 31.3 | mg/kg | 3.54 | 0.35 | 15.00 |
| **Cadmium** | 0.1 | mg/kg | 0.01 | 0.00 | 0.15 |
| **Chromium** | 15.8 | mg/kg | 1.79 | 0.18 | 15.00 |
| **Mercury** | 0.2 | mg/kg | 0.02 | 0.00 | 0.10 |
| **Arsenic** | 18.4 | mg/kg | 2.08 | 0.21 | 0.70 |
| **Aluminium** | 6860 | mg/kg | 775 | 78 | - |
| **Iron** | 243000 | mg/kg | 27459.00 | 2745.90 | - |
| | | | | | |

# DCWW

## Analysis of Llechyryd liquid sludge

**Date 13/03/2021** **Lab ref. 43906**

| | |
|---|---|
| **Application rate (t/ha)** | **250** |
| **Application rate (t/acre)** | **100.0** |
| **pH** | **5.4** |
| **Dry solids (%)** | **5.9** |
| **Organic matter content (%)** | **1.1** |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 0.03 | % | 0.30 | 75 | 0.03 | 6 |
| **Ammonium-N** | 25 | mg/kg | 0.03 | 6 | | |
| **Phosphorus (P)** | 140 | mg/kg | 0.14 | | | |
| **Phosphate ($P_2O_5$)** | | | 0.32 | 80 | 0.16 | 40 |
| **Potassium (K)** | 94.3 | mg/kg | 0.09 | | | |
| **Potash ($K_2O$)** | | | 0.11 | 28 | 0.10 | 25 |
| **Magnesium (Mg)** | 229 | mg/kg | 0.23 | | | |
| **Magnesium (MgO)** | | | 0.37 | 92 | 0.09 | 23 |
| **Sulphur (S)** | 170 | mg/kg | 0.17 | | | |
| **Sulphur ($SO_3$)** | | | 0.43 | 106 | 0.09 | 21 |
| **Sodium (Na)** | 14.8 | mg/kg | 0.01 | 4 | 0.01 | 2 |

### POTENTIALLY TOXIC ELEMENTS

| | | | Rate | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **( kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 9.56 | mg/kg | 9.6 | 2.39 | 15.00 |
| **Copper** | 2.25 | mg/kg | 2.3 | 0.56 | 7.50 |
| **Nickel** | 1.79 | mg/kg | 1.8 | 0.45 | 3.00 |
| **Lead** | 2.38 | mg/kg | 2.4 | 0.60 | 15.00 |
| **Cadmium** | 0.02 | mg/kg | 0.0 | 0.01 | 0.15 |
| **Chromium** | 1.94 | mg/kg | 1.9 | 0.49 | 15.00 |
| **Mercury** | 0.05 | mg/kg | 0.1 | 0.01 | 0.10 |
| | | | | | |

# DCWW

## Analysis of Strata Florida cake

**Date: 01/02/2021** Sample ID. 38749

| | |
|---|---|
| **Application rate (t/ha)** | **114** |
| **Application rate (t/acre)** | **45.6** |
| **pH** | **6.1** |
| **Dry solids (%)** | **14.1** |
| **Organic matter (%)** | **67.3** |
| **Conductivity (µS/cm)** | **72** |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 1.55 | % | 2.19 | 249.1 | 0.02 | 2.1 |
| **Ammonium-N** | 128 | mg/kg | 0.02 | 2.1 | | |
| **Phosphorus (P)** | 2130 | mg/kg | 0.30 | 34.2 | | |
| **Phosphate ($P_2O_5$)** | | | 0.68 | 78.1 | 0.1 | 39.0 |
| **Potassium (K)** | 50 | mg/kg | 0.01 | 0.8 | | |
| **Potash ($K_2O$)** | | | 0.01 | 1.0 | 0.0 | 0.9 |
| **Magnesium (Mg)** | 160 | mg/kg | 0.02 | 2.6 | | |
| **Magnesium (MgO)** | | | 0.04 | 4.1 | 0.0 | 0.4 |
| **Sulphur (S)** | 4010 | mg/kg | 0.57 | 64.5 | | |
| **Sulphur ($SO_3$)** | | | 1.41 | 161.1 | 0.1 | 16.1 |
| **Calcium (Ca)** | 751 | mg/kg | 0.1 | 12.1 | | |
| **Sodium (Na)** | 520 | mg/kg | 0.07 | 8.4 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 75.7 | mg/kg | 10.7 | 1.22 | 15.00 |
| **Copper** | 17.3 | mg/kg | 2.44 | 0.28 | 7.50 |
| **Nickel** | 8.3 | mg/kg | 1.17 | 0.13 | 3.00 |
| **Lead** | 34.1 | mg/kg | 4.81 | 0.55 | 15.00 |
| **Cadmium** | 0.3 | mg/kg | 0.04 | 0.01 | 0.15 |
| **Chromium** | 6.3 | mg/kg | 0.89 | 0.10 | 15.00 |
| **Mercury** | 0.2 | mg/kg | 0.02 | 0.00 | 0.10 |
| **Arsenic** | 23.1 | mg/kg | 3.26 | 0.37 | 0.70 |
| **Aluminium** | 116537 | mg/kg | 16432 | 1873 | - |
| **Iron** | 12449 | mg/kg | 1755.31 | 200.11 | - |
| | | | | | |

# DCWW

## Analysis of Strata Florida liquid

**Date: 01/02/2021** Sample ID. 38719

| | |
|---|---|
| **Application rate (t/ha)** | **250** |
| **Application rate (t/acre)** | **100.0** |
| **pH** | **5.8** |
| **Dry solids (%)** | **1.9** |
| **Organic matter (%)** | **1.2** |
| **Conductivity (µS/cm)** | **25** |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 0.03 | % | 0.01 | 1.4 | 0.00 | 0.1 |
| **Ammonium-N** | 25 | mg/kg | 0.00 | 0.1 | | |
| **Phosphorus (P)** | 48 | mg/kg | 0.00 | 0.2 | | |
| **Phosphate ($P_2O_5$)** | | | 0.00 | 0.5 | 0.0 | 0.3 |
| **Potassium (K)** | 10 | mg/kg | 0.00 | 0.0 | | |
| **Potash ($K_2O$)** | | | 0.00 | 0.1 | 0.0 | 0.0 |
| **Magnesium (Mg)** | 10 | mg/kg | 0.00 | 0.0 | | |
| **Magnesium (MgO)** | | | 0.00 | 0.1 | 0.0 | 0.0 |
| **Sulphur (S)** | 106 | mg/kg | 0.00 | 0.5 | | |
| **Sulphur ($SO_3$)** | | | 0.00 | 1.2 | 0.0 | 0.1 |
| **Calcium (Ca)** | 19 | mg/kg | 0.0 | 0.1 | | |
| **Sodium (Na)** | 21 | mg/kg | 0.00 | 0.1 | | |

### POTENTIALLY TOXIC ELEMENTS

| | | | Amount | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **(kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 1.6 | mg/kg | 0.0 | 0.01 | 15.00 |
| **Copper** | 0.4 | mg/kg | 0.01 | 0.00 | 7.50 |
| **Nickel** | 0.2 | mg/kg | 0.00 | 0.00 | 3.00 |
| **Lead** | 0.7 | mg/kg | 0.01 | 0.00 | 15.00 |
| **Cadmium** | 0.0 | mg/kg | 0.00 | 0.00 | 0.15 |
| **Chromium** | 0.3 | mg/kg | 0.01 | 0.00 | 15.00 |
| **Mercury** | 0.1 | mg/kg | 0.00 | 0.00 | 0.10 |
| **Arsenic** | 0.5 | mg/kg | 0.01 | 0.00 | 0.70 |
| **Aluminium** | 2534 | mg/kg | 47 | 12 | - |
| **Iron** | 291 | mg/kg | 5.38 | 1.35 | - |
| | | | | | |

# Andigestion Ltd.

## Analysis of whole digestate

**Date 25/08/2020** **Lab ref. 20009 - 98914**

| | |
|---|---|
| **Application rate (t/ha)** | **43** |
| **Application rate (t/acre)** | **17.2** |
| **pH** | **8.3** |
| **Dry solids (%)** | **4.9** |
| **Organic matter content (%)** | **3.2** |

### NUTRIENT CONTENT

| | | | Total | | Available | |
|---|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(kg/tonne)** | **( kg/ha)** | **(kg/tonne)** | **( kg/ha)** |
| **Nitrogen (N)** | 0.58 | % | 5.80 | 249 | 3.10 | 133 |
| **Ammonium-N** | 3101 | mg/kg | 3.10 | 133 | | |
| **Phosphorus (P)** | 507 | mg/kg | 0.51 | | | |
| **Phosphate ($P_2O_5$)** | | | 1.16 | 50 | 0.58 | 25 |
| **Potassium (K)** | 1976 | mg/kg | 1.98 | | | |
| **Potash ($K_2O$)** | | | 2.37 | 102 | 2.13 | 92 |
| **Magnesium (Mg)** | 105 | mg/kg | 0.11 | | | |
| **Magnesium (MgO)** | | | 0.17 | 7 | 0.04 | 2 |
| **Sulphur (S)** | 427 | mg/kg | 0.43 | | | |
| **Sulphur ($SO_3$)** | | | 1.07 | 46 | 0.21 | 9 |
| **Sodium (Na)** | | mg/kg | 0.00 | 0 | 0.00 | 0 |

### POTENTIALLY TOXIC ELEMENTS

| | | | Rate | | Limit |
|---|---|---|---|---|---|
| **TOTALS** | **result** | **units** | **(g/tonne)** | **( kg/ha)** | **(kg/ha/yr)** |
| **Zinc** | 5.03 | mg/kg | 5.0 | 0.22 | 15.00 |
| **Copper** | 1.18 | mg/kg | 1.2 | 0.05 | 7.50 |
| **Nickel** | 0.53 | mg/kg | 0.5 | 0.02 | 3.00 |
| **Lead** | 0.50 | mg/kg | 0.5 | 0.02 | 15.00 |
| **Cadmium** | 0.01 | mg/kg | 0.0 | 0.00 | 0.15 |
| **Chromium** | 0.53 | mg/kg | 0.5 | 0.02 | 15.00 |
| **Mercury** | 0.05 | mg/kg | 0.1 | 0.00 | 0.10 |
| | | | | | |

# ANALYTICAL REPORT

| | | | | | |
|---|---|---|---|---|---|
| **Report Number** | **64664-19** | **V724** | **RICHARD EVANS** | **Client** | **BOLTON HILL MILL** |
| **Date Received** | **06-AUG-2019** | | **4 RECYCLING LTD** | | |
| **Date Reported** | **09-AUG-2019** | | **CONTROL HOUSE** | | |
| **Project** | **SOIL** | | **A1 BUSINESS PARK** | | |
| **Reference** | **BOLTON HILL MILL** | | **KNOTTINGLEY ROAD** | | |
| **Order Number** | | | **KNOTTINGLEY WF11 0BU** | | |

| **Laboratory Reference** | | **SOIL444553** | **SOIL444554** | **SOIL444555** | **SOIL444556** | **SOIL444557** | **SOIL444558** | **SOIL444559** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | **FIELD 3** | **FIELD 4** | **FIELD 5** | **FIELD 6** | **FIELD 7** | **FIELD 8** | **FIELD 9** | | | |
| **Determinand** | **Unit** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | | | |
| pH water [1:2.5] | | 7.3 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.7 | | | |
| Available Phosphorus (Index) | mg/l | 31.6 (3) | 30.0 (3) | 28.0 (3) | 30.0 (3) | 29.2 (3) | 28.4 (3) | 28.8 (3) | | | |
| Available Potassium (Index) | mg/l | 233 (2+) | 207 (2+) | 228 (2+) | 234 (2+) | 243 (3) | 225 (2+) | 260 (3) | | | |
| Available Magnesium (Index) | mg/l | 65.7 (2) | 52.5 (2) | 57.2 (2) | 51.1 (2) | 47.6 (1) | 58.7 (2) | 52.8 (2) | | | |
| Total Copper | mg/kg | 31.6 | 30.3 | 24.1 | 29.4 | 29.3 | 25.3 | 29.4 | | | |
| Total Zinc | mg/kg | 90.0 | 84.5 | 73.4 | 82.2 | 90.0 | 78.7 | 83.1 | | | |
| Total Lead | mg/kg | 24.4 | 22.3 | 20.8 | 19.5 | 18.3 | 19.4 | 18.3 | | | |
| Total Arsenic | mg/kg | 9.1 | 8.2 | 8.7 | 8.0 | 8.1 | 8.6 | 8.1 | | | |
| Total Cadmium | mg/kg | 0.26 | 0.24 | 0.24 | 0.25 | 0.26 | 0.25 | 0.26 | | | |
| Total Nickel | mg/kg | 20.3 | 20.9 | 18.8 | 19.4 | 19.0 | 19.5 | 19.1 | | | |
| Total Chromium | mg/kg | 40.8 | 41.6 | 42.3 | 50.9 | 51.1 | 47.8 | 49.5 | | | |
| Total Mercury | mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | 0.28 | <0.2 | <0.2 | | | |
| Total Selenium | mg/kg | 1.25 | 1.04 | 1.00 | 1.12 | 1.13 | 0.88 | 1.19 | | | |
| Total Molybdenum | mg/kg | <1 | <1 | <1 | <1 | <1 | <1 | <1 | | | |
| Fluoride | mg/kg | 42.7 | 44.6 | 39.6 | 46.2 | 45.6 | 37.6 | 46.3 | | | |

**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 NOTES

| | | | | |
|---|---|---|---|---|
| **Report Number** | **64664-19** | **V724** | **RICHARD EVANS** | **Client BOLTON HILL MILL** |
| **Date Received** | **06-AUG-2019** | | **4 RECYCLING LTD** | |
| **Date Reported** | **09-AUG-2019** | | **CONTROL HOUSE** | |
| **Project** | **SOIL** | | **A1 BUSINESS PARK** | |
| **Reference** | **BOLTON HILL MILL** | | **KNOTTINGLEY ROAD** | |
| **Order Number** | | | **KNOTTINGLEY WF11 0BU** | |

**Notes**

Reported by

*Myles Nicholson*

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# ANALYTICAL REPORT

| | | | | | |
|---|---|---|---|---|---|
| **Report Number** | **32258-18** | **V724** | **RICHARD EVANS** | **Client** | **TY MEINI FARM** |
| **Date Received** | **26-OCT-2018** | | **4 RECYCLING LTD** | | **TUFTON** |
| **Date Reported** | **02-NOV-2018** | | **CONTROL HOUSE** | | **PEMBROKE** |
| **Project** | **SOIL** | | **A1 BUSINESS PARK** | | |
| **Reference** | **TY MEINI FARM** | | **KNOTTINGLEY ROAD** | | |
| **Order Number** | | | **KNOTTINGLEY WF11 0BU** | | |

| **Laboratory Reference** | | **SOIL410561** | **SOIL410562** | **SOIL410563** | **SOIL410564** | **SOIL410565** | **SOIL410566** | **SOIL410567** | **SOIL410568** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Reference** | | **FIELD 1** | **FIELD 2** | **FIELD 3** | **FIELD 4** | **FIELD 5** | **FIELD 6** | **FIELD 7** | **FIELD 8** | | |
| **Determinand** | **Unit** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | **SOIL** | | |
| pH water [1:2.5] | | 6.9 | 6.4 | 6.7 | 7.5 | 6.4 | 7.3 | 8.0 | 7.1 | | |
| Available Phosphorus (Index) | mg/l | 34.8 (3) | 37.8 (3) | 36.6 (3) | 33.4 (3) | 35.0 (3) | 35.4 (3) | 36.4 (3) | 37.2 (3) | | |
| Available Potassium (Index) | mg/l | 278 (3) | 278 (3) | 268 (3) | 269 (3) | 280 (3) | 282 (3) | 328 (3) | 306 (3) | | |
| Available Magnesium (Index) | mg/l | 177 (4) | 150 (3) | 159 (3) | 183 (4) | 149 (3) | 209 (4) | 226 (4) | 185 (4) | | |
| Total Copper | mg/kg | 22.5 | 23.9 | 24.1 | 23.4 | 23.6 | 23.8 | 23.3 | 23.3 | | |
| Total Zinc | mg/kg | 85.5 | 86.7 | 86.8 | 91.0 | 83.3 | 91.1 | 100 | 93.8 | | |
| Total Lead | mg/kg | 38.1 | 32.5 | 37.4 | 39.8 | 33.2 | 39.2 | 44.1 | 37.2 | | |
| Total Arsenic | mg/kg | 13.7 | 15.5 | 14.8 | 14.8 | 15.2 | 14.4 | 13.6 | 14.7 | | |
| Total Cadmium | mg/kg | 0.33 | 0.22 | 0.28 | 0.38 | 0.22 | 0.36 | 0.43 | 0.41 | | |
| Total Nickel | mg/kg | 13.1 | 14.7 | 21.3 | 14.1 | 14.9 | 14.8 | 16.5 | 14.0 | | |
| Total Chromium | mg/kg | 44.1 | 56.9 | 53.4 | 48.9 | 51.3 | 55.0 | 43.9 | 49.3 | | |
| Total Mercury | mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | | |
| Total Selenium | mg/kg | 0.86 | 0.90 | 0.90 | 0.88 | 0.94 | 0.83 | 0.90 | 0.90 | | |
| Total Molybdenum | mg/kg | <1 | <1 | 2.2 | <1 | <1 | 1.0 | 1.6 | <1 | | |
| Fluoride | mg/kg | 40.2 | 36.5 | 39.2 | 40.5 | 33.8 | 39.9 | 43.2 | 42.5 | | |

**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 NOTES

| | | | | | |
|---|---|---|---|---|---|
| **Report Number** | **32258-18** | **V724** | **RICHARD EVANS** | **Client** | **TY MEINI FARM** |
| **Date Received** | **26-OCT-2018** | | **4 RECYCLING LTD** | | **TUFTON** |
| **Date Reported** | **02-NOV-2018** | | **CONTROL HOUSE** | | **PEMBROKE** |
| **Project** | **SOIL** | | **A1 BUSINESS PARK** | | |
| **Reference** | **TY MEINI FARM** | | **KNOTTINGLEY ROAD** | | |
| **Order Number** | | | **KNOTTINGLEY WF11 0BU** | | |

**Notes**

Reported by

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# 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.**