MOBILE PLANT FOR LANDSPREADING DEPLOYMENT APPLICATION

STANDARD RULES SR2010No4 PERMIT

Prepared for: SJ Contractors

Permit ref: JB3533RJ

August 2019

INDEX

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 JB3533RJ

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) SJ Contractors

Title Mr

First name Simon

Last name Jones

Address Plas Cemlyn

	Cemlyn
	Cemaes Bay
Postcode	LL67 0 DY
Telephone - mobile	07979 506715
Telephone - office	
Email address	sjcontractors@aol.com

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	Graeme	
Last name	Kennett	
Telephone - mobile	07743 988951	
Telephone - office		
Email address	graeme.kennett@360environmental.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	Simon	
Last name	Jones	
Telephone - mobile	07979 506715	

Telephone - office	
Email address	sjcontractors@aol.com

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 _____ *Go to section 4c*

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

CIWM / WAMITAB ☒

ESA / EU ☐

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

4c Which risk band does the activity fall within?

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

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

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

Table 1 – risk band

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

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

4d Additional information on sensitive receptors

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

No ☒

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

4e Site specific risk assessment

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

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

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

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

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

4f About the waste

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

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

Table 2 – waste types

	List of Waste code (6 digit)	**Waste description**	**Physical form**	**Waste producer**	**Total amount being spread/used** (tonnes)
e.g.	03 03 05	De-inked paper	Sludge	Smith's Newsprint	500
1	02 05 01	biodegradable materials unsuitable for consumption or processing	Liquid	Glanbia Cheese Ltd	8331
2	02 05 01	biodegradable materials unsuitable for consumption or processing	Liquid	Glanbia Cheese Ltd	2500
3	02 05 02	sludges from on-site effluent treatment	Liquid	Glanbia Cheese Limited	2861
4	02 05 01	biodegradable materials unsuitable for consumption or processing	Liquid	Glanbia Cheese Limited	12500
5	19 06 06	whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste	Liquid	Grays Biogas Ltd	12500
6	19 06 05	liquor from anaerobic treatment of source segregated biodegradable waste	Liquid	Grays Biogas Ltd	3750
7					
8					
9					

10					
				Total tonnage	

4g About the land you want to treat

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

Address	Plas Newydd
	Llanfarthlii
	Caergybi
	Anglesey
Postcode	LL65 4NL
National grid reference (12 digit)	SH 31872 85696

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

Agricultural land ☒ Please give your County/ Parish/ Holding number 53/136/0034

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 see additional sheet**			
2				
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	Eurig	
Last name	Jones	
Address	Hendra	
	Llandrugan	
	Llanerchymedd	
	Anglesey	
Postcode	LL77 7UG	
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	

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**	**Deployment/ other reference** (if known)

				hectare (in tonnes)	
e.g.	East field	Digested sewage sludge cake	Eastern Waters	20	PAN 000000
1	SH31858358	Slurry	Mr. Owen	18	n/a
2	SH31857844	Slurry	Mr. Owen	18	n/a
3	SH30859599	Slurry	Mr. Owen	18	n/a
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	SH 31837 85690	See ABS	Lagoon	3000
2				
3				
4				
5				
6				
7				
8				
9				
10				

5 Payment

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

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

5b Paying by electronic transfer

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

Company name:	Natural Resources Wales
Company address:	Income Dept., PO BOX 663, Cardiff, CF24 0TP
Bank:	RBS
Address:	National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA
Sort code:	60-70-80
Account number:	10014438

Reference number

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

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

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

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

BACS reference	EPDEPSSJCON0004
Amount paid	£779

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)	☒	Appendix 1 - Location plan
Benefit statement (required for all deployments)	☒	ABS Plas Newydd III
Waste analysis (required for all deployments)	☒	Appendix 2 – Waste analysis
Receiving soil analysis (required for all deployments)	☒	Appendix 3 – Soil analysis
Site-specific risk assessment (in accordance with 4e)	☐	
Any other additional information	N/A	
	N/A	
	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	Graeme	
Last name	Kennett	
On behalf of (if relevant)	Simon Jones	
Today's date (DD/MM/YYYY)	13/08/2019	

#	Field ref	NGR	Waste types to be spread	Spread area
1	1	SH 44789 81497	Please see appendix 2	5
2	2	SH 44781 81733	Please see appendix 2	4
3	3	SH 45026 81355	Please see appendix 2	4
4	4	SH 44963 81661	Please see appendix 2	4
5	5	SH 45185 81369	Please see appendix 2	5
6	6	SH 45118 81873	Please see appendix 2	2
7	7	SH 44899 81929	Please see appendix 2	4
8	8	SH 44959 82253	Please see appendix 2	4
9	9	SH 44943 82116	Please see appendix 2	5
10	10	SH 44665 82014	Please see appendix 2	6
11	11	SH 44421 81842	Please see appendix 2	2
12	12	SH 44612 81749	Please see appendix 2	5
			Total	**50**

Prepared by: 360 Environmental Ltd
The Oak Business Centre
79 – 93 Ratcliffe Road
Sileby
Leics
LE12 7PU

LANDSPREADING DEPLOYMENT APPLICATION

Agricultural Benefit Statement

August 2019

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1. APPROPRIATE TECHNICAL EXPERTISE

Graeme Kennett B.Sc. (*Hons*), MBPR (*Fert*)

FACTS registration: - FE/4305

WAMITAB Operator Competence Certificate (4MTMPL6): - OCC66497

After leaving agricultural college in 1983 I have worked in the agricultural industry in an extremely wide variety of roles. Following this I moved in to the organic material recycling sector in 1995, in roles ranging from machine operator to contract manager. I spent a period of time in the Environment Agency (2002 – 2007) as an Environment Officer and then employed as a technical operations manager and compliance manager at a recycling company from 2007. From 2013 I have been employed as a senior consultant at an independent environmental consultancy and as such have an extremely broad base of experience that covers all aspects of the landspreading operation.

This Agricultural Benefit Statement, therefore fulfils permit requirement 2.1.3

2. ACTIVITY LOCATION

LAND AT PLAS LLANFIHANGEL III

MAENADDWYN

ISLE OF ANGLESEY

LL71 8BD

Field details are given in the field summary table overleaf, and also shows the projected yields for the crop. Grass, grown for silage, is planned to be cut in three cuts through late summer 2019 through to early summer 2020.

The area given is that available for spreading and takes in to account no spread zones and a minimum 10m buffer zone adjacent to all sensitive features. Water features include dry ditches that may become connected with other surface water bodies during times of intense rainfall events.

TABLE 1: FIELD CROPPING DETAILS

Field #	Current crop	Next crop	SNS	Crop yield	Area	pH	Soil type
1	Grass (Silage)	Grass (Silage)	M[1]	47 t/ha[2]	5	5.5	Med Clay Loam
2	Grass (Silage)	Grass (Silage)	M	47 t/ha	4	5.2	Med Clay Loam
3	Grass (Silage)	Grass (Silage)	M	47 t/ha	4	5.3	Med Clay Loam
4	Grass (Silage)	Grass (Silage)	M	47 t/ha	4	5.1	Med Clay Loam
5	Grass (Silage)	Grass (Silage)	M	47 t/ha	5	5.3	Med Clay Loam
6	Grass (Silage)	Grass (Silage)	M	47 t/ha	2	5.0	Med Clay Loam
7	Grass (Silage)	Grass (Silage)	M	47 t/ha	4	5.2	Med Clay Loam
8	Grass (Silage)	Grass (Silage)	M	47 t/ha	4	5.4	Med Clay Loam
9	Grass (Silage)	Grass (Silage)	M	47 t/ha	5	5.0	Med Clay Loam
10	Grass (Silage)	Grass (Silage)	M	47 t/ha	6	5.2	Med Clay Loam
11	Grass (Silage)	Grass (Silage)	M	47 t/ha	2	5.0	Med Clay Loam
12	Grass (Silage)	Grass (Silage)	M	47 t/ha	5	5.3	Med Clay Loam
			Total spread area		**50**		

3. WASTE DETAILS

The waste details, including benefit statement, analysis and maximum application rates are stated in Appendix 2 with specific field application rates detailed in the table 3 overleaf.

The waste streams are able to convey agricultural benefit and the application rate is calculated to ensure that disbenefit does not occur when applied.

Digestate producer details

Former Grays Biogas site.

New owner Anglesey Energy

Permit Number EPR/AP3033HY (Permit holder unchanged, Optimal Biogas Ltd)

[1] Medium clay loam soils in a high rainfall area
[2] Intensive farming four cut silage system

TABLE 2: FIELD NUTRIENT STATUS AND CROP REQUIREMENTS

Field ref	Crop	Total N reqd	P index	P reqd	P offtake	K index	K reqd	K offtake	Mg index
1	Grass (Silage)	250	1	110	98	1	290	338	2
2	Grass (Silage)	250	2	80	98	1	290	338	3
3	Grass (Silage)	250	1	110	98	1	290	338	3
4	Grass (Silage)	250	1	110	98	1	290	338	3
5	Grass (Silage)	250	2	80	98	2+	160	338	4
6	Grass (Silage)	250	1	110	98	2-	250	338	3
7	Grass (Silage)	250	1	110	98	1	290	338	2
8	Grass (Silage)	250	1	110	98	1	290	338	3
9	Grass (Silage)	250	1	110	98	2-	250	338	3
10	Grass (Silage)	250	1	110	98	1	290	338	3
11	Grass (Silage)	250	1	110	98	2-	250	338	3
12	Grass (Silage)	250	1	110	98	1	290	338	3

TABLE 3: INDIVIDUAL FIELD APPLICATION AND NUTRIENT SUPPLY TABLE

Waste ref / **Field/ App rate (t/ha)**		**Liquid Digestate**	**Whole Digestate**	**Leachate**	**Glanbia (*DAF sludge*)**	**Glanbia (*WW*)**
1		**40**	**40**	**250**	**250**	**250**
N (kg/ha)	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P (kg/ha)	110 (98[3])	103	68	6	74	16
K (kg/ha)	290 (338[4])	139	168	36	5	14
Tonnage (x 5 ha)		*200*	*200*	*1 250*	*1 250*	*1 250*
2		**18**	**28**	**250**	**200**	**250**
N	250	90 (51)	168 (111)	100 (13)	160 (10)	100 (13)
P	80 (98)	78	80	10	98	26
K	290 (338)	62	118	36	4	14
Tonnage (x 4 ha)		*72*	*112*	*1 000*	*800*	*1 000*
3		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	16
K	290 (338)	139	168	36	5	14
Tonnage (x 4 ha)		*160*	*160*	*1 000*	*1 000*	*1 000*
4		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)

[3] Crop offtake used where no crop requirement

[4] Crop offtake used where no crop requirement

P	110 (98)	103	68	6	74	16
K	290 (338)	139	168	36	5	14
Tonnage (x 4 ha)		*160*	*160*	*1 000*	*1 000*	*1 000*
5		**18**	**28**	**250**	**200**	**250**
N	250	90 (51)	168 (111)	100 (13)	160 (10)	100 (13)
P	80 (98)	78	80	10	98	26
K	160 (338)	62	118	40	4	14
Tonnage (x 5 ha)		*90*	*140*	*1 250*	*1 000*	*1 250*
6		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	10	74	16
K	250 (338)	154	187	36	5	14
Tonnage (x 2 ha)		*80*	*80*	*500*	*500*	*500*
7		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	16
K	290 (338)	139	168	36	5	14
Tonnage (x 4 ha)		*160*	*160*	*1 000*	*1 000*	*1 000*
8		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	16
K	290 (338)	139	168	36	5	14
Tonnage (x 4 ha)		*160*	*160*	*1 000*	*1 000*	*1 000*

9		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	26
K	290 (338)	154	187	36	6	16
Tonnage (x 5 ha)		*200*	*200*	*1 250*	*1 250*	*1 250*
10		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	16
K	290 (338)	139	187	36	5	14
Tonnage (x 6 ha)		*240*	*240*	*1 500*	*1 500*	*1 500*
11		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	26
K	250 (338)	154	187	40	6	16
Tonnage (x 2 ha)		*80*	*80*	*500*	*500*	*500*
12		**40**	**40**	**250**	**250**	**250**
N	250	200 (113)	240 (159)	100 (13)	200 (13)	100 (13)
P	110 (98)	103	68	6	74	16
K	290 (338)	139	168	36	5	14
Tonnage (x 5 ha)		*200*	*200*	*1 250*	*1 250*	*1 250*
Tot tonnage (x 50ha)		***1 802***	***1 892***	***12 500***	***10 950***	***12 500***

4. OPERATIONAL DETAILS

The material will be applied in multiple applications before/after each silage cut by low trajectory splash plate applicator, or shallow tine injector so that the nutrients are placed in close proximity to the roots for maximum uptake.

Application timings are very dependent upon ground conditions, weather conditions, proximity to sensitive receptors and wind direction.

Applications to the silage crop are planned to be from late summer 2019 providing the grass is actively growing. Applications will be made from late winter/early spring 2020 once grass growth commences. Liquids will not be applied at times when the fields are too wet/cold and will not be applied should conditions not be in line with permit conditions.

Table 3 above shows the application rate for each individual waste with the main nutrients applied. Each waste is able to convey a benefit in its own right and application rates are calculated for each waste stream, taking in to account any limiting factor, and the benefits are described in the relevant nutrient analysis interpretation. The mix of up to, and including, any of the waste streams, when the material is stored and applied in unequal amounts, will be applied at the rate of the waste stream with the highest nutrient limiting parameter, i.e. the waste will be spread at the lowest application rate.

Soil type is a medium clay loam. All soil sampling was undertaken according to the principles in the ADHB Nutrient Management Guide (RB209) Updated May 2017.

1. NVZ COMPLIANCE

The notified area is located outside a designated Nitrate Vulnerable Zone. However, compliance with the requirements of CoGAP will be achieved by ensuring that application

rates are reflected by the crop requirement and are limited to a maximum of **250** kg total N/ha. During the last 12 months there have been now applications to the fields.

To aid compliance with the Cross-Compliance recording requirements, this Agricultural Benefit Statement will be supplied to the farmer/landowner after application.

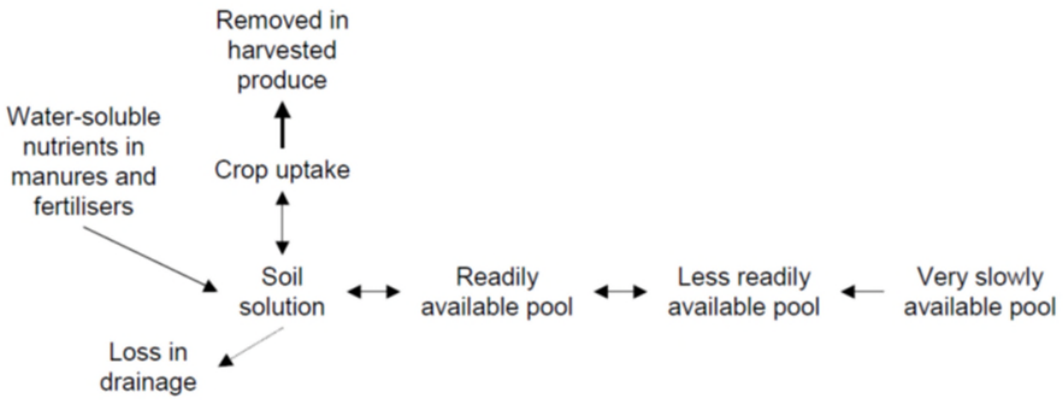
2. BENEFITS OF THE OPERATION

The specific benefits of the materials are described in *Appendix 2 - Waste analysis*. The materials contain all of the major nutrients required by a growing crop along with minor nutrients, copper, sodium and zinc etc. Although only required in small amounts, minor nutrients (micronutrients, or trace elements) are essential for plant growth. These nutrients often act as catalysts in chemical reactions, although it is possible to have toxicities of trace elements, as well as deficiencies. Some of the micronutrient deficiencies in plants can cause nutrient deficiencies in the animals that graze those plants. In some cases (for example, copper and manganese), these micronutrients are also essential for plant growth.

The materials have been analysed using the parameters specified in Technical Guidance Note EPR8.01 (v2) guidance document and also to highlight if any potential disbenefit are present within the material.

The sludges will also provide organic matter, in the form of lignin, which will supply solid material to the soil and will act as an organic conditioner and to the soil nutrient reservoir. This further benefits soil health by holding nutrients in the solid fraction which become available to the growing crop as they are released. Increased organic matter also provides physical benefits such as increased water holding capacity, increased workability, improved drainage and less potential for capping and wind erosion amongst other benefits.

A growing crop has a high requirement for nutrients, a large amount of which are taken with the crop as it is removed from the field. It can be seen that all the crops have a requirement for phosphate, but also the amount taken off the field exceeds the amount supplied by the sludge in all cases.



However, soil phosphorus (P) fertility arising from historic P inputs is a major driver of P mobilisation in agricultural runoff and increases the risk of aquatic eutrophication. Where the soil is at target Index (usually Index 2) or above for phosphate or potash, the *total* phosphate and potash content of the organic material has been used in the nutrient sheet calculations. Where crop responses to phosphate or potash are expected (e.g. soil Indices 0 or 1 for combinable crops and grassland) or where responsive crops are grown (e.g. potatoes or vegetables), the *available* (not total) phosphate and potash content of the organic material has been used when calculating the nutrient contribution. Soils at Index 0 will particularly benefit from organic material applications.

For most arable crops, typical organic material application rates can supply the phosphate and potash requirement. At soil P Index 3 or above, the total phosphate inputs will not exceed the amounts removed in crops during the rotation. This will avoid the soil P Index reaching an unnecessarily high level. It is important to manage organic material applications to ensure phosphate and potash is used through the crop rotation. Recent research has shown that there is an increased risk of phosphate transfer from soil to surface water when soils are at P Index 3 and above. Much of this transfer is due to phosphate being attached to eroded soil. At indices 4 or above, the application rate will be calculated to ensure that any additions of P are at a minimum level that enables the other benefits to be realised.

The application rate has been calculated on a field by field basis to ensure that crop removal of P exceeds P supplied which in turn will mean that P indices will not increase, in fact are more likely to steadily reduce to the target index

Applications to soils with P and K indices below target have a higher requirement for P and K. Nutrients which are not immediately available will mostly become available over a period of years and will usually be accounted for when soil analysis is carried out. The availability of organic phosphate to the next crop grown (typically 50%) is lower than from water-soluble

phosphate fertilisers. However, around 90% of organic potash is readily available for crop uptake. Where crop responses to phosphate or potash are expected (e.g. soil Indices 0 or 1 for combinable crops and grassland) or where responsive crops are grown (e.g. potatoes or vegetables), the available (not total) phosphate and potash content of the organic material should be used when calculating the nutrient contribution. Soils at Index 0 will particularly benefit from organic material applications.

3. POTENTIAL DISBENEFITS

The sludges as described previously possess benefits for the soil and growing crop. However, if not applied correctly the same material may possess potential disbenefits that may cause uneven ripening, scorch, lodging, phosphate loss amongst other issues.

A growing crop has a high requirement for nutrients, a large amount of which is taken with the crop as it is removed from the field. It can be seen that the grass crops, have a very high requirement for phosphate and potash.

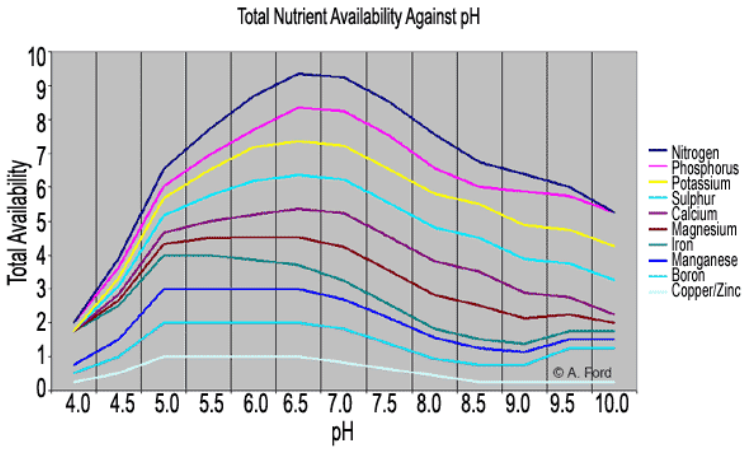
Generally, formation of Al and Fe phosphates, either by precipitation or sorption, limits P solubility in acid soils and Ca phosphates limit P solubility in alkaline soils. This creates a "sweet spot" for maximum P solubility in equilibrium with P minerals at pH 6.5. By the same token, the minimum amount of P retention, or fixation, (within the range of common soil pH values) is at pH ~6.5. Any residual P will be taken up by the following crop, and as the spreading areas are generally gently sloping are unlikely to suffer with P run off.

Excess applications of P can lead to phosphate being transferred from soil to surface fresh water bodies may cause algal blooms and other adverse effects on the biological balance in the water where soil erosion is a problem.

As phosphorous and potassium ions bind strongly to organic matter and are relatively immobile it is important that the nutrients are easily available to the plant. Topographically, the land is gently undulating and as such will not present a problem with run-off in to watercourses. However, this risk can be reduced even further by applying the materials in split, reduced applications, where possible, which will thereby reduce the potential for eutrophication of any water bodies. Any phosphate will also be bound tightly to the Ca within the materials thereby reducing its availability.

The fields have a pH range of 5.0 to 5.5, i.e. generally below the target pH range (6 – 7.2 measured in water). Only wastes with a pH above that of the receiving soils will be applied to these soils. Maintenance of an optimum soil pH ensures nutrients are readily available and

maximizes growth. Grass has a good tolerance of low (<5.0) pH soils when aluminium toxicity reduces root development and manganese toxicity reduces plant development.



The safe range of conductivity for the application of wastes to crops is between 2000 and 4000µS/cm (micro-Siemens per cm). In common with many digestates, the AD digestate has an elevated conductivity. The electrical conductivity of digestates can be high mainly because of the presence of water-soluble nutrients (e.g. ammonium-N), the use of dietary salts (such as NaCl) and in some instances the use of water containing high concentrations of salts. The dominant ions that contribute to electrical conductivity of manures are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate.

High EC of applied materials may directly scorch foliage or restrict root growth and function. This is of particular concern where the product is not incorporated into the soil or when the material is applied at times of high soil temperatures. This will reduce potential foliage and root damage and will also reduce the potential for N volatilisation.

Perennial Ryegrass (PRG) has a higher tolerance of **soil** EC (up to 5600 µS/cm), and as the soils in this application are considered to be non-saline (<1500 µS/cm) the application of digestate will not affect the soil EC, even though it lies above the 'acceptable' level previously stated.

The feedstock of the digester contains poultry manure that has a high EC that is applied to suitable without requiring a permission and without causing disbenefit. The PAS110 digestate standard contains no EC limit, and once this material achieves that standard it will be able to be applied to land without permission. As soil with high concentrations of salts can force the clay to be dispersed, in this case the impact on the soil structure will be minimal as the material also contains sulphur that will have the opposite effect in that it deflocculates clay particles, thereby not creating any lasting disbenefit.

Leaf scorch in green crops may occur if wastes with higher conductivities are applied resulting in detriment to the crop growth and yield. The highest risk period is in the dry summer months when grass swards are often injected with wastes. Materials such as the digestate also contains soluble salts, that may initially increase electrical conductivity (EC) of soil pore water when land applied that can injure salt-sensitive plants or seedlings. These salts are rapidly leached out of the root zone within a few rainfall events, and have no residual effect on plant growth.

The material is to be applied by shallow tine injector/dribble bar that places the digestate on, or close to, the soil surface. The material will not be applied during long periods of hot, dry weather.

When the materials are correctly applied at the specified application rates these disbenefits will not materialise. The specified application rates take in to account all of the nutrient supply and will limit this to crop requirement. Potentially Toxic Elements (PTEs) are also calculated not to cause disbenefits with the application rate ensuring that the specified limits of concentration in the soil are not exceeded as detailed in the *Code of Practice for agricultural use of sewage sludge*.

4. POTENTIAL SENSITIVE RECEPTORS

As with all operations of this nature odour from the spreading of the material may be an issue. By using accurate spreading equipment and by the use of dribble bar equipment this is minimised as far as possible. Where sensitive receptors are located in close proximity to the spreading operation, the use of the injection equipment will be employed in tandem with utilising favourable wind direction.

The nearest sensitive human receptors are:-

SR1 – located in the prevailing wind direction and in the vicinity of the operational area

SR2 - located downwind of the operational area

SR3 - located downwind of the operational area

A search on the MAGIC and NRW websites has shown that there are no Groundwater Source Protection Zones (SPZ) and no identified sensitive receptors within 500 m of the deployed area.

5. MITIGATION METHODS

The methods to reduce the impact of the operation on the previously identified receptors are stated below:-

- Injection of the material, where possible, will reduce potential odour transmission
- High EC materials will not be surface applied during periods of hot, dry weather
- Wind direction will be taken in to account when applying the material. Any sensitive receptors located downwind will prevent spreading from taking place.
- Spreading will only take place during the week when use of the public right of way is low.
- A suitable non application distance will be used so that material does not remain on the footpath surface
- Operations will halt where users of the footpath are observed.
- The land slopes, but run-off will not be an issue due to soil type and gradient.
- All turns made by the application machinery will be gentle with the sole intention of preventing wheel slip and excess soil damage in the form of ruts.
- All deliveries to the field will be made during the working day.
- All application machinery is calibrated and regularly checked in order to ensure the stated application rates are maintained.
- *To fulfil permit requirement 2.1.7, the spreading activity will not be carried out within:*
    - *10 metres of any watercourse;*
    - *groundwater Source Protection Zone 1, or if a Source Protection Zone has not been defined then within 50 metres of any well spring or borehole used for the supply of water for human consumption including from a private water supply or supplies.*
- *Waste will not be spread on land if (condition 2.3.2(i)and (ii)):*
    - *i. the land has been frozen for 12 hours or more in the preceding 24 hours*
    - *ii. the land is waterlogged, frozen or snow covered*

6. CONTINGENCY PLANNING

To cover **machinery breakdown** replacement machinery is available. All machinery is regularly serviced and, if required, hire vehicles can be used. There is sufficient **trained staff** to maintain sickness and holiday cover

Spreading operations will not be carried out when **weather conditions** are likely to interfere with the operation. These conditions include; heavy rain, when heavy rain is imminent or

during periods of heavy snow or frozen ground as defined in the *Code of Good Agricultural Practice.*

7. BIBLIOGRAPHY

How to Comply with your landspreading permit TGN EPR 8.01 (v2 February 2013)

ADHB *Nutrient Management Guide (RB209) 9th Edition May 2017*

HGCA Research Review #74 *Response of cereals to soil and fertiliser phosphorous*

SRUC TN668 – *Managing soil phosphorous*

Digestate and compost use in agriculture. A guide to good practice (including the Renewable Fertiliser Matrix) Renewable Energy Association

Grassland soils and fertilisers: digging out the answers British Grassland Society

Potash Development Association leaflet 6 – *Potash, magnesium and Sodium. Fertilisers for grass.*

Potash Development Association leaflet 14 – *Potash for grassland for silage and grazing*

British Grassland Society *Grassland soils and fertilisers: digging out the answers.*

ADHB *Identification of critical soil phosphate (P) levels for cereal and oilseed rape crops on a range of soil types*. Knight, S., Morris, N., Goulding, K., Johnston, J., Poulton, P., and Philpott, H.

Estimation of the Nutrient Value of Agricultural Slurries by Measurement of Physical and Chemical Properties Scotford,. M *et al*

LANDSPREADING DEPLOYMENT APPLICATION

Appendix 1 – Location plan

Prepared for: SJ Contractors

August 2019

KEY

SSSI

Footpath

Track

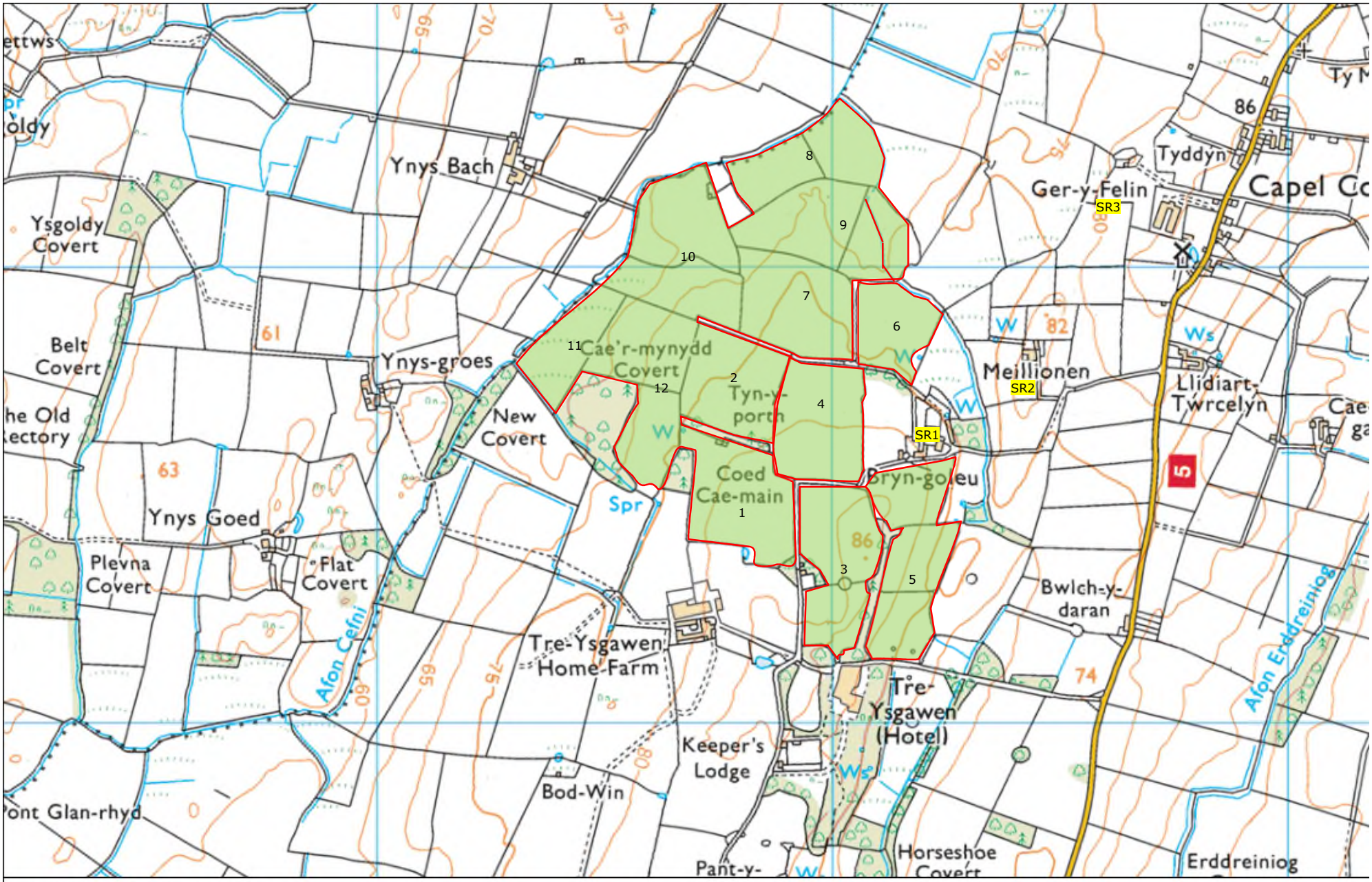
Field boundary

No spread zone

Minimum 10m no spreading zone

SR1

Sensitive receptor



LANDSPREADING DEPLOYMENT APPLICATION

Appendix 2 - Waste analyses

Prepared for: SJ Contractors

Permit ref: JB3533RJ

August 2019

#	EWC code	Description	Producer	Reference
1	02 05 02	sludges from on-site effluent treatment	Glanbia Cheese Ltd	DAF sludge
2	02 05 01	biodegradable materials unsuitable for consumption or processing	Glanbia Cheese Ltd	Wash down water
3	19 06 06	whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste	Optimal Biogas Ltd	Liquid Digestate
4	19 06 06	whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste	Optimal Biogas Ltd	Solid Digestate
5	19 06 05	Liquor from anaerobic treatment of source segregated biodegradable waste	Optimal Biogas Ltd	Leachate
6				
7				
8				
9				
10				

SIMON JONES CONTRACTING
PLAS CEMLYN
CEMLYN
CEMEAS BAY
ANGLESEY
LL67 0DY

T372

Please quote above code for all enquiries

SIMON JONES CONTRACT

DAF

DAF (Metric Units)

Sample Reference : DAF

Sample Matrix : DAF

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

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

Laboratory References	
Report Number	48744
Sample Number	80545

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		6.10			
Oven Dry Solids	%	0.840	8.40	2625	kg DM
Total Nitrogen	% w/w	0.080	0.80	250	kg N
Ammonium Nitrogen	mg/kg	<50	< 0.01		kg NH4-N
Total Phosphorus (P)	mg/kg	214	0.49	153.14	kg P2O5
Total Potassium (K)	mg/kg	20.7	0.02	7.76	kg K2O
Total Magnesium (Mg)	mg/kg	<10			kg MgO
Total Sulphur (S)	mg/kg	30.1	0.08	23.52	kg SO3
Total Copper (Cu)	mg/kg	<0.2	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	<0.5	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	84.8	0.11	35.72	kg Na2O
Total Calcium (Ca)	mg/kg	177	0.18	55.31	kg Ca
Equivalent field application rate		——	1.00	312.50	tonnes or m3 / 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 J Doyle Date 22/03/19

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

SIMON JONES CONTRACTING
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CEMLYN
CEMEAS BAY
ANGLESEY
LL67 0DY

T372

Please quote above code for all enquiries

SIMON JONES CONTRACT

DAF

DAF (Metric Units)

Sample Reference : DAF

Sample Matrix : DAF

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

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

Laboratory References	
Report Number	48744
Sample Number	80545

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	109
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	<0.2
Total Chromium (Cr)	mg/kg	0.221
Total Arsenic (As)	mg/kg	<0.5
Oils,Fats and Grease	mg/kg	1960

Released by J Doyle Date 22/03/19

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

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.

BENEFIT STATEMENT

Glanbia - *Sludge* 48744/80545				
Determinand	**Nutrient content**		**Nutrient supplied**	
		Application rate (t/ha)		**250**
Total N	0.08 %w/w			200
Nitrate N	-			-
Ammonium N	<50 mg/kg			13
Total P	214 mg/kg			123
Total K	20.7 mg/kg			6
Total Mg	<10 mg/kg			4
Total Cu	<0.2 mg/kg			0.05
Total Zn	<0.5 mg/kg			0.13
Total S	30.1 mg/kg			18.81
Total Pb	<0.5 mg/kg			0.13
Total Cd	<0.01 mg/kg			0
Total Hg	<0.05 mg/kg			0.01
Total Ni	<0.2 mg/kg			0.05
Total Cr	0.221 mg/kg			0.06
Total Na	84.8 mg/kg			21.2
Total Ca	177 mg/kg			44.25
Total As	<0.5 mg/kg			0.13
Dry matter	-	**Total solids**	0.84 %	
Conductivity 1:6	109 µS/cm	**pH**	6.1	
Organic matter LOI	-	**Oils, fats and grease**	1 960 mg/kg	

Prepared by: 360 Environmental Ltd
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BENEFIT STATEMENT

Description:

EWC 02 05 02

Sludges from on-site effluent treatment

Benefits:

- The material will give a very useful supply of nitrogen that is approximately **7%** available so **can** be spread in isolation during NVZ closed periods.
- When applied to stubbles in the autumn any N not used immediately by the plant will react chemically with organic matter to form stable organic N complexes.
- Phosphate supplied is below that of crop requirement, or of crop offtake.
- A higher amount of K is supplied, which remains below that removed by crop requirement/offtake.
- Sulphur content will help to supply a proportion of that required by a growing crop.
- Sodium content is below that which would cause crop or soil damage.
- The material has a very low conductivity
- Acidic p*H*
- Low concentrations of heavy metals (PTEs).
- Fats, oils and grease content is very low and will not cause issues with the coating of soil particles or root hairs.
- Electrical conductivity (EC) is extremely low and the dominant ions that contribute to electrical conductivity are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate are at very low levels.

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SIMON JONES CONTRACT

WASH WATER

WASH WATER

Sample Reference :

WASH WATER

Sample Matrix : WASH WATER

Laboratory References	
Report Number	48746
Sample Number	80547

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

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	0.480	%
Conductivity 1:6	470	uS/cm
Total Nitrogen	<0.04	% w/w
Ammonium Nitrogen	<50	mg/kg
Total Phosphorus (P)	45.8	mg/kg
Total Potassium (K)	52.1	mg/kg
Total Magnesium (Mg)	<10	mg/kg
Total Copper (Cu)	<0.2	mg/kg
Total Zinc (Zn)	<0.5	mg/kg
Total Sulphur (S)	75.9	mg/kg

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WASH WATER

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Sample Reference :

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Sample Matrix : WASH WATER

Laboratory References	
Report Number	48746
Sample Number	80547

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

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)	75.2	mg/kg
Total Lead (Pb)	<0.5	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)	0.26	mg/kg
Total Sodium (Na)	634	mg/kg
pH 1:6 [Fresh]	6.33	
Total Arsenic (As)	<0.5	mg/kg
Oils,Fats and Grease	<200	mg/kg

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BENEFIT STATEMENT

Glanbia - *Washwater* 48746/80547				
Determinand	**Nutrient content**		**Nutrient supplied**	
		Application rate (t/ha)		**250**
Total N	<0.04 %w/w			100
Nitrate N	-			-
Ammonium N	<50 mg/kg			13
Total P	45.8 mg/kg			26
Total K	52.1 mg/kg			16
Total Mg	<10 mg/kg			4
Total Cu	<0.2 mg/kg			0.05
Total Zn	<0.5 mg/kg			0.13
Total S	75.9 mg/kg			47.44
Total Pb	<0.5 mg/kg			0.13
Total Cd	<0.01 mg/kg			0
Total Hg	<0.05 mg/kg			0.01
Total Ni	<0.2 mg/kg			0.05
Total Cr	0.26 mg/kg			0.07
Total Na	634 mg/kg			158.5
Total Ca	75.2 mg/kg			18.8
Total As	<0.5 mg/kg			0.13
Dry matter	-	**Total solids**	0.48 %	
Conductivity 1:6	470 µS/cm	**pH**	6.33	
Organic matter LOI	-	**Oils, fats and grease**	<200 mg/kg	

Prepared by: 360 Environmental Ltd
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BENEFIT STATEMENT

Description:

EWC 02 05 01

Biodegradable materials unsuitable for consumption or processing

Benefits:

- The material will give a very useful supply of nitrogen that is approximately **13%** available so **can** be spread in isolation during NVZ closed periods.
- When applied to stubbles in the autumn any N not used immediately by the plant will react chemically with organic matter to form stable organic N complexes.
- Phosphate supplied is below that of crop requirement, or of crop offtake.
- A higher amount of K is supplied, which remains below that removed by crop requirement/offtake.
- Sulphur content will help to supply a proportion of that required by a growing crop.
- Sodium content is below that which would cause crop or soil damage.
- The material has a very low conductivity
- Slightly acidic p*H*
- Low concentrations of heavy metals (PTEs).
- Fats, oils and grease content is very low and will not cause issues with the coating of soil particles or root hairs.
- Electrical conductivity (EC) is extremely low and the dominant ions that contribute to electrical conductivity are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate are at very low levels.

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SIMON JONES CONTRACT

DIGESTATE

DIGESTATE (Metric Units)

Sample Reference : LIQUID DIGESTATE

Sample Matrix : DIGESTATE

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

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

Laboratory References	
Report Number	48747
Sample Number	80548

Date Received	20-MAR-2019
Date Reported	25-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		8.58			
Oven Dry Solids	%	6.07	60.70	3035	kg DM
Total Nitrogen	% w/w	0.500	5.00	250	kg N
Ammonium Nitrogen	mg/kg	2828	2.83	141.40	kg NH4-N
Total Phosphorus (P)	mg/kg	1880	4.31	215.26	kg P2O5
Total Potassium (K)	mg/kg	3189	3.83	191.34	kg K2O
Total Magnesium (Mg)	mg/kg	1165	1.93	96.69	kg MgO
Total Sulphur (S)	mg/kg	461	1.15	57.63	kg SO3
Total Copper (Cu)	mg/kg	8.76	0.01	0.44	kg Cu
Total Zinc (Zn)	mg/kg	39.9	0.04	2.00	kg Zn
Total Sodium (Na)	mg/kg	262	0.35	17.66	kg Na2O
Total Calcium (Ca)	mg/kg	946	0.95	47.30	kg Ca
Equivalent field application rate		—	1.00	50.00	tonnes or m3 / 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 *Joe Cherrie* Date *25/03/19*

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SIMON JONES CONTRACT

DIGESTATE

DIGESTATE (Metric Units)

Sample Reference : LIQUID DIGESTATE

Sample Matrix : DIGESTATE

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

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

Laboratory References	
Report Number	48747
Sample Number	80548

Date Received	20-MAR-2019
Date Reported	25-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	4576
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	0.028
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.558
Total Chromium (Cr)	mg/kg	0.391
Total Arsenic (As)	mg/kg	<0.5
Oils,Fats and Grease	mg/kg	<200

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SIMON JONES CONTRACT

DIGESTATE

DIGESTATE (Metric Units)

Sample Reference : WHOLE DIGESTATE

Sample Matrix : DIGESTATE

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

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

Laboratory References	
Report Number	48747
Sample Number	80549

Date Received	20-MAR-2019
Date Reported	25-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		8.50			
Oven Dry Solids	%	7.79	77.90	3246	kg DM
Total Nitrogen	% w/w	0.600	6.00	250	kg N
Ammonium Nitrogen	mg/kg	3975	3.97	165.64	kg NH4-N
Total Phosphorus (P)	mg/kg	1241	2.84	118.42	kg P2O5
Total Potassium (K)	mg/kg	3875	4.65	193.77	kg K2O
Total Magnesium (Mg)	mg/kg	628	1.04	43.44	kg MgO
Total Sulphur (S)	mg/kg	415	1.04	43.23	kg SO3
Total Copper (Cu)	mg/kg	8.59	0.01	0.36	kg Cu
Total Zinc (Zn)	mg/kg	37.9	0.04	1.58	kg Zn
Total Sodium (Na)	mg/kg	314	0.42	17.64	kg Na2O
Total Calcium (Ca)	mg/kg	1054	1.05	43.92	kg Ca
Equivalent field application rate		——	1.00	41.67	tonnes or m3 / 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.

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SIMON JONES CONTRACT

DIGESTATE

DIGESTATE (Metric Units)

Sample Reference : WHOLE DIGESTATE

Sample Matrix : DIGESTATE

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

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

Laboratory References	
Report Number	48747
Sample Number	80549

Date Received	20-MAR-2019
Date Reported	25-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	5537
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	0.031
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.595
Total Chromium (Cr)	mg/kg	0.286
Total Arsenic (As)	mg/kg	<0.5
Oils,Fats and Grease	mg/kg	<200

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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.

BENEFIT STATEMENT

Optimal Biogas Ltd – Liquid digestate 48747/80548					
Determinand	**Nutrient content**		**Nutrient supplied**		
		Application rate (t/ha)		**18**	**40**
Total N	<0.5 %w/w			90	200
Nitrate N	-			-	-
Ammonium N	2 828 mg/kg			51	113
Total P	1 880 mg/kg			78	172
Total K	3 189 mg/kg			69	154
Total Mg	1 165 mg/kg			35	77
Total Cu	8.76 mg/kg			0.16	0.35
Total Zn	39.9 mg/kg			0.35	0.78
Total S	461 mg/kg			20.75	46.1
Total Pb	<0.5 mg/kg			0.01	0.02
Total Cd	0.028 mg/kg			0	0
Total Hg	<0.05 mg/kg			0	0
Total Ni	0.558 mg/kg			0.01	0.02
Total Cr	0.391 mg/kg			0.01	0.02
Total Na	262 mg/kg			4.72	10.48
Total Ca	946 mg/kg			17.03	37.84
Total As	<0.5 mg/kg			0.01	0.02
Organic matter LOI	-	**Oils, fats and grease**	<200 mg/kg		
Dry matter	-	**Total solids**	6.07 %		
Conductivity 1:6	198 µS/cm	**pH**	8.58		

Prepared by: 360 Environmental Ltd
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BENEFIT STATEMENT

Description:

EWC 19 06 06

Whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste

Benefits:

- The material will give a very useful supply of nitrogen that is approximately **56%** available so **can not** be spread in isolation during NVZ closed periods.
- When applied to stubbles in the autumn any N not used immediately by the plant will react chemically with organic matter to form stable organic N complexes.
- Phosphate supplied is approximately that of crop requirement or offtake.
- A higher amount of K is supplied, which remains below that removed by crop requirement/offtake.
- Sulphur content will help to supply a proportion of that required by a growing crop.
- Sodium content is below that which would cause crop or soil damage.
- The material has a very low conductivity and a slightly alkaline p*H* with low concentrations of heavy metals (PTEs).
- Fats, oils and grease content is very low and will not cause issues with the coating of soil particles or root hairs.
- Electrical conductivity (EC) is elevated and the dominant ions that contribute to electrical conductivity are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate.

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BENEFIT STATEMENT

Optimal Biogas Ltd – Whole digestate 48747/80549					
Determinand	**Nutrient content**		**Nutrient supplied**		
		Application rate (t/ha)		**28**	**40**
Total N	<0.6 %w/w			168	240
Nitrate N	-			-	-
Ammonium N	3 975 mg/kg			111	159
Total P	1 241 mg/kg			80	114
Total K	3 875 mg/kg			131	187
Total Mg	628 mg/kg			29	42
Total Cu	8.59 mg/kg			0.24	0.34
Total Zn	37.9 mg/kg			1.06	1.52
Total S	415 mg/kg			29.05	41.5
Total Pb	<0.5 mg/kg			0.01	0.02
Total Cd	0.031 mg/kg			0	0
Total Hg	<0.05 mg/kg			0	0
Total Ni	0.595 mg/kg			0.02	0.02
Total Cr	0.286 mg/kg			0.01	0.01
Total Na	314 mg/kg			8.79	12.56
Total Ca	1 054 mg/kg			29.51	42.16
Total As	<0.5 mg/kg			0.01	0.02
Organic matter LOI	-	**Oils, fats and grease**	<200 mg/kg		
Dry matter	-	**Total solids**	7.79 %		
Conductivity 1:6	5 537 µS/cm	**pH**	8.5		

Prepared by: 360 Environmental Ltd
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BENEFIT STATEMENT

Description:

EWC 19 06 06

Whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste

Benefits:

- The material will give a very useful supply of nitrogen that is approximately **35%** available so **can not** be spread in isolation during NVZ closed periods.
- When applied to stubbles in the autumn any N not used immediately by the plant will react chemically with organic matter to form stable organic N complexes.
- Phosphate supplied is approximately that of crop requirement or offtake.
- A higher amount of K is supplied, which remains below that removed by crop requirement/offtake.
- Sulphur content will help to supply a proportion of that required by a growing crop.
- Sodium content is below that which would cause crop or soil damage.
- The material has a very low conductivity and a slightly alkaline p*H* with low concentrations of heavy metals (PTEs).
- Fats, oils and grease content is very low and will not cause issues with the coating of soil particles or root hairs.
- Electrical conductivity (EC) is elevated and the dominant ions that contribute to electrical conductivity are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate.

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T372

Please quote above code for all enquiries

SIMON JONES CONTRACT

LEACHATE

LEACHATE

Sample Reference :

LEACHATE

Sample Matrix : LEACHATE

Laboratory References	
Report Number	48743
Sample Number	80544

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

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	0.140	%
Conductivity 1:6	198	uS/cm
Total Nitrogen	<0.04	% w/w
Ammonium Nitrogen	<50	mg/kg
Total Phosphorus (P)	17.8	mg/kg
Total Potassium (K)	133	mg/kg
Total Magnesium (Mg)	21.6	mg/kg
Total Copper (Cu)	<0.2	mg/kg
Total Zinc (Zn)	1.60	mg/kg
Total Sulphur (S)	15.7	mg/kg

Released by J Doyle Date 22/03/19

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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Sample Reference :

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Sample Matrix : LEACHATE

Laboratory References	
Report Number	48743
Sample Number	80544

Date Received	20-MAR-2019
Date Reported	22-MAR-2019

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)	79.5	mg/kg
Total Lead (Pb)	<0.5	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)	0.23	mg/kg
Total Sodium (Na)	29.6	mg/kg
pH 1:6 [Fresh]	6.68	
Total Arsenic (As)	<0.5	mg/kg
Oils,Fats and Grease	<200	mg/kg

Released by ..... *J Doyle* ..... Date ..... *22/03/19* .....

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

BENEFIT STATEMENT

Optimal Biogas Ltd – Leachate 48743/80544					
Determinand	**Nutrient content**		**Nutrient supplied**		
		Application rate (t/ha)			**250**
Total N	<0.04 %w/w				100
Nitrate N	-				-
Ammonium N	<50 mg/kg				13
Total P	17.8 mg/kg				10
Total K	133 mg/kg				40
Total Mg	21.6 mg/kg				9
Total Cu	<0.2 mg/kg				0.05
Total Zn	1.6 mg/kg				0.4
Total S	15.7 mg/kg				
Total Pb	<0.5 mg/kg				0.13
Total Cd	<0.01 mg/kg				0
Total Hg	<0.05 mg/kg				0.01
Total Ni	<0.2 mg/kg				0.05
Total Cr	0.23 mg/kg				0.06
Total Na	29.6 mg/kg				
Total Ca	79.5 mg/kg				19.88
Total As	<0.5 mg/kg				0.13
Organic matter LOI	-	**Oils, fats and grease**	<200 mg/kg		
Dry matter	-	**Total solids**	0.14 %		
Conductivity 1:6	198 µS/cm	**pH**	8.6		

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BENEFIT STATEMENT

Description:

EWC 19 06 06

Whole digestate and fibre digestate from anaerobic treatment of source segregated biodegradable waste

Benefits:

- The material will give a very useful supply of nitrogen that is approximately **35%** available so **can not** be spread in isolation during NVZ closed periods.
- When applied to stubbles in the autumn any N not used immediately by the plant will react chemically with organic matter to form stable organic N complexes.
- Phosphate supplied is approximately that of crop requirement or offtake.
- A higher amount of K is supplied, which remains below that removed by crop requirement/offtake.
- Sulphur content will help to supply a proportion of that required by a growing crop.
- Sodium content is below that which would cause crop or soil damage.
- The material has a very low conductivity and a slightly alkaline p*H* with low concentrations of heavy metals (PTEs).
- Fats, oils and grease content is very low and will not cause issues with the coating of soil particles or root hairs.
- Electrical conductivity (EC) is elevated and the dominant ions that contribute to electrical conductivity are NH_4, Na, Ca, Mg, K, Cl, sulphate and bicarbonate.

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LANDSPREADING DEPLOYMENT APPLICATION

Appendix 3 - Soil analyses

Prepared for: SJ Contractors

August 2019

Distributor

CLYNDERWEN & CARDIGANSHIRE FARMERS
THE STORES
CLYNDERWEN
PEMBS
SA66 7NW

Customer

E JONES
HENDRE
TREGUAN
LLANGEFRI
LL70 6HT

Soil Results Summary

Date Received 17/07/2019
Date Reported 19/07/2019

Order Number	Field Reference	mg/litre			Index			pH
		P	K	Mg	P	K	Mg	
E330729/01	1	12	102	91	1.4	1.6	2.8	5.5
E330729/02	2	19	118	107	2.3	1.9	3.0	5.2
E330729/03	3	10	108	120	1.1	1.7	3.2	5.3
E330729/04	4	12	119	104	1.4	1.9	3.0	5.1
E330729/05	5	19	198	193	2.3	2.6	4.2	5.3
E330729/06	6	14	142	138	1.7	2.1	3.4	5.0
E330729/07	7	11	109	85	1.2	1.8	2.6	5.2
E330729/08	8	14	88	116	1.7	1.4	3.2	5.4
E330729/09	9	12	140	145	1.4	2.1	3.5	5.0
E330729/10	10	10	117	147	1.1	1.9	3.6	5.2

Index Values are taken from the AHDB Nutrient Management Guide (RB209) published May 2017

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Distributor

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THE STORES
CLYNDERWEN
PEMBS
SA66 7NW

Customer

E JONES
HENDRE
TREGUAN
LLANGEFRI
LL70 6HT

Soil Results Summary

Date Received 17/07/2019
Date Reported 19/07/2019

Order Number	Field Reference	mg/litre			Index			pH
		P	K	Mg	P	K	Mg	
E330730/01	11	10	123	153	1.1	2.0	3.6	5.0
E330730/02	12	13	92	125	1.5	1.5	3.3	5.3

Index Values are taken from the AHDB Nutrient Management Guide (RB209) published May 2017

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