Agricultural Benefit Statement

For the application of beneficial wastes to fields at:

Noyadd Farm, Rhayader, Powys. LD6 5HH

12th June 2026

1 Person with appropriate technical expertise and permit details

This benefit statement has been compiled by Esther Koroma (Environmental Consultant) who has the following qualifications and experience:

- BSc. (Hons) in Chemistry
- I have several years' experience working as a Quality Control analyst for different sectors including the water and agricultural industries.
- 4+ years' experience working as an Environmental Consultant.
- FACTS Qualified Advisor (No. FE/ 7273)

Verified by Dawn Loos: Lead Consultant at 4R Group. FACTS Qualified Advisor (No. FE/7676)

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:	Noyadd Farm, Rhayader, Powys. LD6 5HH	
Stockpile grid reference:	NA	
Area of the receiving land:	36.54 ha	
Quantity to be stored at any one time:	Stackable: N/A	Non-Stackable: NA
Total maximum quantity to be spread:	8,800 t	
Location map document reference:	**Location map:** NF_01	

3 What is the waste to be spread?

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

Waste	***EWC Code***	***Description***	***Waste Producer***	***Additional Information***
1.	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Elan Valley	Non-stackable ferric liquid sludge
2.	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Talybont	Non-stackable ferric liquid sludge
3.	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Llyswen	Non-stackable alum liquid sludge

4 Operational details

4.1 Cropping details

Table 3. Cropping details

Current crop including projected yield if known:	Refer to Tables 6-8
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 6-8
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). Spreading activities will also comply with The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. Targeted periods of spreading on grass fields include early spring (late February), after each cut of silage, dependent on crop growth and weather conditions, and prior to grazing through summer and autumn (October) prior to deployment expiry. No more than 50t/ha will be spread on a field in any 3-week period in accordance with CoGAP, and no more than 250t/ha will be spread within any 12-month period.

4.2 Waste storage

Table 4. Waste storage

How is the waste to be stored? *e.g., mobile tank, field heap, spread on delivery*	The wastes will be spread on delivery.
Where is the waste to be stored prior to spreading?	NA
Why were these storage locations chosen?	NA

4.3 Waste application

Table 5. Waste application

How is the waste to be spread and why is it to be spread that way?	DCWW liquid sludge will be surface applied using trailing shoe as this is readily available to the farmer.
How do you plan to incorporate the waste following application?	There is no requirement for further incorporation of the waste on grass fields due to low ammonia content and minimal odour.
With liquid wastes is there any mole draining or sub-soiling planned? *Are there land drains in the field?*	No Yes
Other relevant operational information:	All fields have a soil pH of above 5 and therefore can receive application of the ferric based sludges, DCWW Elan Valley and DCWW Talybont. DCWW Llyswen is limited to fields of pH 6 and above due to being alum based (applicable to fields 38 and 40).

Table 6. DCWW Elan Valley

						N			P_2O_5				K_2O				Mg				
Field Ref	**Total Area**	**Spread 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**
29	4.40	4.00	Grass	Grass	6.8	M	220	0.9	1	95	65	94.5	1	180	228	2.7	3	0	2.7	142	568
31	2.00	1.70	Grass	Grass	6.4	M	220	0.9	1	95	65	94.5	2+	120	228	3*	2	0	2.7	142	241.4
33	4.50	2.00	Grass	Grass	6.4	M	220	0.9	1	95	65	94.5	2+	120	228	3*	2	0	2.7	142	284
34	4.70	4.30	Grass	Grass	6.1	M	220	0.9	1	95	65	94.5	2+	120	228	3*	2	0	2.7	142	610.6
35	4.00	3.60	Grass	Grass	6.1	M	220	0.3	2	65	65	65.2*	2+	120	228	0.9*	2	0	0.9	49	176.4
36	2.40	2.00	Grass	Grass	6	M	220	0.9	1	95	65	94.5	2-	170	228	3*	2	0	2.7	142	284
37	3.70	2.90	Grass	Grass	6	M	220	0.9	1	95	65	94.5	2+	120	228	3*	2	0	2.7	142	411.8
38	4.40	3.70	Grass	Grass	5.9	M	220	0.9	1	95	65	94.5	2+	120	228	3*	2	0	2.7	142	525.4
39	5.04	4.24	Grass	Grass	6.4	M	220	0.9	0	125	65	94.5	1	180	228	2.7	2	0	2.7	142	602.08
40	1.46	1.00	Grass	Grass	5.9	M	220	0.9	1	95	65	94.5	2-	170	228	3*	2	0	2.7	142	142
41	8.70	7.10	Grass	Grass	6.1	M	220	0.9	1	95	65	94.5	2+	120	228	3*	3	0	2.7	142	1008.2
Ha	**45.30**	**36.54**																			**4854**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2026)

Expected Grazing yield of 9-12t/ha.

Crop use based on Grass totalling 38t/ha yield where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2026).

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 142 t/ha is 30.1 kg/ha

Total N supplied at an application rate of 49 t/ha is 10.4 kg/ha

Table 7. DCWW Talybont

						N			P_2O_5				K_2O				Mg				
Field Ref	**Total Area**	**Spread 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**
29	4.40	4.00	Grass	Grass	6.8	M	220	1.5	1	95	65	51.6	1	180	228	5.1	3	0	4	250	1000
31	2.00	1.70	Grass	Grass	6.4	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	2	0	4	250	425
33	4.50	2.00	Grass	Grass	6.4	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	2	0	4	250	500
34	4.70	4.30	Grass	Grass	6.1	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	2	0	4	250	1075
35	4.00	3.60	Grass	Grass	6.1	M	220	1	2	65	65	64.8*	2+	120	228	3.6*	2	0	2.5	157	565.2
36	2.40	2.00	Grass	Grass	6	M	220	1.5	1	95	65	51.6	2-	170	228	5.7*	2	0	4	250	500
37	3.70	2.90	Grass	Grass	6	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	2	0	4	250	725
38	4.40	3.70	Grass	Grass	5.9	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	2	0	4	250	925
39	5.04	4.24	Grass	Grass	6.4	M	220	1.5	0	125	65	51.6	1	180	228	5.7	2	0	4	250	1060
40	1.46	1.00	Grass	Grass	5.9	M	220	1.5	1	95	65	51.6	2-	170	228	5.7*	2	0	4	250	250
41	8.70	7.10	Grass	Grass	6.1	M	220	1.5	1	95	65	51.6	2+	120	228	5.7*	3	0	4	250	1775
Ha	**45.30**	**36.54**																			**8800**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2026).

Expected Grazing yield of 9-12t/ha.

Crop use based on Grass totalling 38t/ha yield where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2026).

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 250 t/ha is 91.2 kg/ha

Total N supplied at an application rate of 157 t/ha is 57.3 kg/ha

Table 8. DCWW Llyswen

						N			P_2O_5				K_2O				Mg				
Field Ref	**Total Area**	**Spread 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**
29	4.40	4.00	Grass	Grass	6.8	M	220	2	1	95	65	33.3	1	180	228	12.8	3	0	13.1	250	1000
31	2.00	1.70	Grass	Grass	6.4	M	220	2	1	95	65	33.3	2+	120	228	14.2*	2	0	13.1	250	425
33	4.50	2.00	Grass	Grass	6.4	M	220	2	1	95	65	33.3	2+	120	228	14.2*	2	0	13.1	250	500
34	4.70	4.30	Grass	Grass	6.1	M	220	2	1	95	65	33.3	2+	120	228	14.2*	2	0	13.1	250	1075
35	4.00	3.60	Grass	Grass	6.1	M	220	1.9	2	65	65	65*	2+	120	228	13.9*	2	0	12.7	244	878.4
36	2.40	2.00	Grass	Grass	6	M	220	2	1	95	65	33.3	2-	170	228	14.2*	2	0	13.1	250	500
37	3.70	2.90	Grass	Grass	6	M	220	2	1	95	65	33.3	2+	120	228	14.2*	2	0	13.1	250	725
38	4.40	3.70	Grass	Grass	5.9	M	220	0	1	95	65	0	2+	120	228	0	2	0	0	0	0
39	5.04	4.24	Grass	Grass	6.4	M	220	2	0	125	65	33.3	1	180	228	14.2*	2	0	13.1	250	1060
40	1.46	1.00	Grass	Grass	5.9	M	220	0	1	95	65	0	2-	170	228	0	2	0	0	0	0
41	8.70	7.10	Grass	Grass	6.1	M	220	2	1	95	65	33.3	2+	120	228	14.2*	3	0	13.1	250	1775
Ha	**45.30**	**36.54**																			**7938**

Grass = 2 cut silage with aftermath grazing

Nutrient requirement based on values for grass with 2 cuts of silage with aftermath grazing (target DM yield 9-12t/ha) described in RB209 (2026).

Expected Grazing yield of 9-12t/ha.

Crop use based on Grass totalling 38t/ha yield where 1.7kg/t P_2O_5 and 6.0kg/t K_2O removed in offtake (RB209, 2026).

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 250 t/ha is 127.8 kg/ha

Total N supplied at an application rate of 244 t/ha is 124.7 kg/ha

5 Compliance with NVZ regulations

Table 9. 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 ☒

If yes, please indicate the appropriate period:

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

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

*Waste is low in RAN

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>Refer to Tables 6-8</td></tr>
<tr><td>Previous applications:</td><td>Refer to LPD1 Supplement_Previous spreading (2026)</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 6-8 above. General soil type(s) for the fields to be registered are:

Table 10. 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 sandy 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**) show the soils to have ample background concentrations of Mg (i.e., ADAS Index of 2-3). However, grazing fields such as these could benefit from Mg applications to aid in reducing the risk of hypomagnesaemia in grazing livestock.

6.2 Waste characterisation

Full characterisation of the waste with total and available nutrients at the recommended rates for the waste is supplied in **4.1 Waste Interpretations _Noyadd farm 2026.** This information is further summarised against the nutrient requirements for proposed crops in Tables 6-8 above.

The limiting factor for the DCWW Elan Valley is the P content. For fields with a P Index of 0 and 1, the proposed application rate for Elan Valley aims to match the phosphate crop recommendation as per RB209. Phosphate will be applied in excess of the crop offtake to allow for building up soil reserves in addition to meeting the crop requirement.

The limiting factors for DCWW Talybont and DCWW Llyswen wastes is the maximum tonnage permissible to spread for any waste per hectare (250 tons) and P content.

Please note, DCWW report all their analysis on a dry matter basis, including the liquid treatment sludges, unless otherwise stated.

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 6-8 are based on the crop requirement and soil analysis.

Clean water treatment sludges contain significant amounts of 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. Some fields may also require liming to raise pH.

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 **4.1 Waste Interpretations_ Noyadd farm 2026.**

7.2 *Other waste characteristics*

The pH of the wastes' ranges from 5.7 to 6.7.

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 ≥ 5.9 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. Liquid wastes will be surface spread, applied using trailing shoe.
2. 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.
3. 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.
4. Where SSSI designated sites border fields, they will be protected by a 20m non-spreading buffer zone. A 35m non-spreading area will be applied on field 36 adjacent to The River Wye SAC/SSSI.
5. Fields with a historical record of flooding no spreading between October and April. This is applicable to field 29 and 36 in this deployment.
6. Fields 34 and 37 border heritage sites as indicated on the spreading maps. 10m no-spread buffers have been applied to where these areas border spreading areas in order to prevent waste introduction to these protected areas.

8 Sensitive human and environmental receptors

Please refer to site specific risk assessment (**7. SSRA_Noyadd (2026)**). Locations of sensitive receptors are shown in **NF_01 Map**. Prevailing winds are south-westerly.

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

Mitigation measures to safeguard site-specific high and moderate likelihood of emission detection by sensitive receptors are shown in **7. SSRA_Noyadd (2026)**. 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

1. Replacement spreading machinery will be available to prevent waste being retained in faulty machinery.
2. Hire vehicles will be used if required. All machinery will be fully serviced.
3. 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.*).
4. In adverse weather, storage is available until ground/weather conditions become favourable for land application.
5. 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.