

Statement of Agricultural Benefit

– Gotrel Farm & Ty Gwyn Farm



Applicant: Mr Daniel James and Mrs Carys James (Stepside Agricultural Contractors)

Permit: SR2010 No4: mobile plant for land-spreading

Permit number: EPR/AB3891CX

Agricultural benefit statement is prepared by:

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This agricultural benefit statement has been prepared based on information provided by Stepside Agricultural Contractors. It is made on the understanding that all information provided is correct and representative of the fields to which the material is to be applied and of the waste material to be applied.

Farm addresses:

Gotrel Farm, Ferwig Road, Cardigan, Ceredigion, SA43 1PJ

Ty Gwyn Farm, Ferwig, Cardigan, Ceredigion, SA43 1PL

Wastes to be applied:

Waste Code	Waste Description	Physical Form	Waste Producer
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid sludge	Volac/Sensient, Felinfach

Application:

- Field Ty Gwyn 22 will be spread prior to first cut silage / in advance of periods of grazing May – September 2026.
- All the other fields will be spread prior to first cut silage / following silage cuts May – September 2026. This may be split into up to 3 applications & the total of all applications will not exceed the maximum application rate for each field as listed in table 1. Each individual application will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower).
- Spreading of the waste will be carried out in accordance with the Code of Good Agricultural Practice, The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 and in accordance with the requirements of the deployment and Environmental Permitting Regulations.
- NRW will be informed at least 48 hours prior to any spreading commencing and no spreading will occur within 48 hours of forecasted heavy rainfall.
- The liquid sludge is delivered by HGV road tankers which are discharged into a nurse tank ('holding tank'), or the option of an above ground slurry tank store at Gotrel farmyard for the Gotrel fields prior to spreading. The above ground slurry tank store will be completely empty before use and no other materials will be added to the store whilst in use. The nurse tanks are also to be completely empty before use and no other materials are to be added in the nurse tanks whilst in use. The liquid sludge is spread from a nurse tank, or the slurry tank store onto the deployed fields at the required timings as stated above. This is done by either umbilical method with the liquid delivered to tractor in deployed fields pumped through hose and spread by dribble bar applicator mounted onto the back of the tractor, or a tractor and vacuum tanker with dribble bar applicator. The dribble bar applicator places the liquid in bands onto the surface of the ground. This spread method is effective in limiting odour generation & nutrient losses associated with higher trajectory spread methods such as splash plate. Spreading is undertaken with the use of flow meters to ensure correct rates are applied.
- The above ground slurry storage tank is a Gascoigne (PermaStore) coated steel purpose built slurry storage tank with open top. A minimum 30cm freeboard will be maintained at all times. The tank has pipework so that it's filled from the top and emptied from the bottom with shut off valves to pipework. The tank may be used for temporary storage in advance of spreading.

- The nurse tanks do not have secondary containment, but are impermeable purpose built AW Trailers alloy nurse tanks featuring internal bracing, an anti-corrosive interior coating, designated fill and empty valves that can be shut by gate valves. These valves can be locked off in the event of temporary overnight temporary storage if the tank contains liquid to ensure secure temporary storage. The tank fills from the top via internal pipework with a 'swanneck' reducing chances of any spills when decoupling connecting pipes after filling. The empty valve allows the tank to be completely emptied to the bottom. The tank is sealed with roof to prevent odour, rainwater entering the tank and for safety, and can be vented if required. A hydraulic lifting axle in the middle allows the tank to be positioned and lowered, then locked into position so the whole tank is on the ground.
- Liquid sludge may be temporarily stored in the Gotrel Farm above ground slurry tank store at the farmyard for future application when conditions are suitable and there is requirement. Should the ground or weather conditions mean it's unsuitable for spreading then temporary storage in nurse tanks may also be required. These potential locations are detailed on the attached maps & within the LPD1 form.
- The maximum application rate in Table 1 for each field will be split into multiple applications where it's over 50t/ha. Each individual application will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower).

Benefits from waste application:

- The analysis and nutrient content of the waste are shown in the waste analysis attachments.
- The waste is a source of nitrogen, phosphate, potassium, sulphur, sodium, calcium and organic matter. The waste can be beneficially used to replace a proportion of bagged mineral fertiliser.
- The risk of sulphur deficiency has been estimated as 'High' based on the soil texture and expected winter rainfall (RB209). The crop requirements are 60-120kg SO₃/ha. The amount of available sulphur supplied by the waste at the proposed maximum application rates is 1-3kg SO₃/ha.
- The addition of sodium will improve the palatability of grass and is important in the diet for livestock health.
- The recommended maximum application rates are shown in Table 1 and have been made on a field by field basis using The Nutrient Management Guide (RB209).

Materials applied in previous 12 months:

The fields within this deployment application have received the rates (t/ha) of materials as in 'Table 4 - Previous Land Treatment' within the previous 12 months.

It's considered that the nutrients applied from these applications were for the requirements of the previous crops before the material within this deployment is applied for the next crops.

Nutrients supplied by this application:

Rates of application (t/ha)	Nitrogen kg/ha		Phosphate (P ₂ O ₅) kg/ha		Potash (K ₂ O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO ₃) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
Volac/Sensient liquid sludge @ 33 t/ha	36	7	40	24	42	34	5	0	7	1
Volac/Sensient liquid sludge @ 50 t/ha	55	11	60	36	64	51	8	1	10	2
Volac/Sensient liquid sludge @ 66 t/ha	73	15	79	48	84	67	10	1	13	3
Estimated Availability	20%		60%		80%		10%		20%	

Table 1: Field, Soil & Cropping Details, Fertiliser Recommendations and Application Rates

Field Ref.	Soil Type	Spreadable Area (ha)	Previous Crop	Next Crop	Nitrogen		Phosphate			Potash			Magnesium	
					SNS	N Required (kg/ha)	P Index	P ₂ O ₅ Required (kg/ha)	Crop Use (Offtake) (kg/ha)	K Index	K ₂ O Required (kg/ha)	Crop Use (Offtake) (kg/ha)	Mg Index	MgO Required (kg/ha)
Gotrel Farm														
Gotrel 1	Medium soils	2.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
Gotrel 2	Medium soils	3.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	4	0
Gotrel 3	Medium soils	2.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
Gotrel 4	Medium soils	4.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	0	370	282	3	0
Gotrel 5	Medium soils	2.50	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
Gotrel 6	Medium soils	4.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
Gotrel 7	Medium soils	3.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
Ty Gwyn Farm														
Ty Gwyn 15	Medium soils	3.80	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Ty Gwyn 16	Medium soils	3.10	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Ty Gwyn 17	Medium soils	2.50	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Ty Gwyn 18/19	Medium soils	4.60	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	0	370	282	2	0
Ty Gwyn 20/21	Medium soils	8.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Ty Gwyn 22	Medium soils	5.70	Grass 1 cut silage + grazing	Grass 1 cut silage + grazing	Moderate	190	2	40	39	2-	140	138	2	0
TOTAL		50.00												

Nutrient requirements based on:

Grass 3 cuts silage (23t FW/ha at 1st cut, 15t FW/ha at 2nd cut, 9t FW/ha at 3rd cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake
 Grass 1 cuts silage (23t FW/ha at 1st cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake + grazing
 Expected DM yields of grass 9-12t/ha, good growth class

Volac/Sensient, Felinfach - liquid sludge						
Field Ref.	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Gotrel Farm						
Gotrel 1	**15	*79	**67	*10	66	158
Gotrel 2	**15	*79	**67	*10	66	211
Gotrel 3	**15	*79	**67	*10	66	145
Gotrel 4	**15	*79	**67	*10	66	264
Gotrel 5	**15	*79	**67	*10	66	165
Gotrel 6	**15	*79	**67	*10	66	290
Gotrel 7	**15	*79	**67	*10	66	224
Ty Gwyn Farm						
Ty Gwyn 15	**11	*60	**51	*8	50	190
Ty Gwyn 16	**11	*60	**51	*8	50	155
Ty Gwyn 17	**11	*60	**51	*8	50	125
Ty Gwyn 18/19	**15	*79	**67	*10	66	304
Ty Gwyn 20/21	**11	*60	*64	*8	50	410
Ty Gwyn 22	**7	*40	*42	*5	33	188
TOTAL						2829

* Total nutrient content of waste used on P, K or Mg index 2 or above

** Available nutrient content of waste used on P, K or Mg index 0 or 1

The assumed availability of total nutrients in the Volac/Sensient liquid sludge are N 20%, P₂O₅ 60%, K₂O 80%, MgO 10%, SO₃ 20%

Potential negative impacts from this application and mitigation measures planned:

Waste composition & receiving soils

- Potentially Toxic Elements: The supplied concentrations at the proposed application rates are all significantly lower than the maximum permissible levels detailed in the Sludge (Use in Agriculture) Regulations for biosolids applied to agricultural land, which is believed to be a suitable comparison for wastes applied to agricultural land.
- Physical contaminants: The waste is produced by managed processes. The waste does not contain physical contaminants.
- The liquid sludge is from an on-site effluent treatment plant and is negative for salmonella and e-coli levels are very low (far lower than in cattle slurry, animal manures, other materials such as treated sewage sludges etc.). As in line with guidance and as a precaution the fields will not be cut or grazed for at least 3 weeks following applications.
- BOD: The BOD of the Volac / Sensient liquid sludge is low and below the range for cattle slurry (10-20,000 mg/l). Consequently, the environmental risks applying the waste will be less than that of the material mentioned. To mitigate the pollution risk to watercourses the waste will not be applied at a rate greater than 50 t/ha in a single application (or the maximum application rate given in Table 1 where lower). The proposed method of application, no-spread zones and precautions as stated in this document should be sufficient to minimise the pollution risk to manageable levels.
- Soils have been sampled to 7.5cm depth for permanent grass fields & to 15cm depth for temporary grass fields with a 'half cheese' corer soil sampler walking a 'W' pattern across each field collecting approx. 25 sub samples per field.
- Receiving soils have been analysed and are suitable for application at the proposed application rates.
- The pH of the receiving soils ranges from pH 5.9 to 6.6.
- The liquid sludge has high readily available nitrogen (over 30% RAN). Spreading is in line with good practice and regulations with the liquid sludge spread with a low trajectory precision dribble bar applicator which places the liquid sludge in bands on the surface of the ground. This method of application minimises contact with the air reducing ammonia volatilization. The fields are spread into the growing grass crops. The fields are all in a nitrate vulnerable zone (areas designated as being at risk from agricultural nitrate pollution) which applies across Wales. The closed period for spreading organic manures with high readily available nitrogen (Volac / Sensient liquid sludge) on the grass fields is 15th October – 15th January under The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. The stated spreading timings in this deployment are from May to September for the grass fields when there is crop nutrient requirements and not in the closed periods. The liquid sludge applies far less than the crop requirements for nitrogen with the balance required to grow the crops applied as fertiliser by the farmer.
- The Gotrel Farm fields have a soil magnesium index of 3 or 4. The magnesium applied by the waste is less than what is likely to be removed by the crops so there should be no increase to soil magnesium levels. The amount of magnesium being applied is unlikely to have any noticeable difference on soil structure. The liquid sludge also applies greater levels of calcium which will help soil aggregation and structure, and the fields are all in grass cropping.
- Grass is not responsive to magnesium however herbage levels should be maintained to prevent 'Grass Staggers' in lactating animals. Potassium applications can reduce magnesium uptake resulting in 'Staggers'. The receiving soils for these fields have magnesium indexes of 2 - 4 and so the risk is low.
- On the other hand, high magnesium soils can reduce potassium availability. Application of liquid sludge at the proposed application rates with little magnesium being applied and potassium also being applied in the sludge (plus the balance of crop requirements for potassium applied as manufactured fertiliser by the farmer) is unlikely to reduce potassium availability.
- Some fields have a soil phosphate index of 3 based on soil analysis undertaken in January or February 2024, which is above target P index of 2 for grassland soils. Application rates for Ty Gwyn Farm fields Ty Gwyn 15, 16, 17 & 20/21 have been set so that phosphate applied by the liquid sludge is no more than 60 kg/ha of total phosphate for the next crops for these fields so there's some rundown of phosphate in the soils this year through crop offtake. Gotrel Farm fields Gotrel 1-3 received only 44kg/ha total phosphate last year and fields Gotrel 4-7 received no applications of phosphate last year so there was rundown of phosphate for these soils. The liquid sludges are providing many benefits through application of other nutrients, trace elements and some organic matter. The soil phosphate levels of these fields will be monitored by the farms through regular soil analysis with the aim to run down the phosphate in the soil to target P index 2 over a number of years should future soil analysis indicate the fields are still above target P index 2 and run down is required.

Operations

The fields in this deployment have been designated as 'medium risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones. On the basis of 'medium risk' the proposed operation will be subject to the generic risk assessment for deploying mobile plant under a SR2010 No.4. The potential risks associated with the application of waste on this deployment have been identified as;

- Potential run-off after application: The waste will be applied following the Code of Good Agricultural Practice. The maximum application rate for each field where over 50t/ha will be split into multiple applications and will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower). The fields will be spread using precision spreading dribble bar equipment with no spreading areas enforced as per maps.
- All handling of the waste will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- Odour may potentially be emitted from the spreading of the waste – to mitigate odour generation all handling of waste will be done in accordance to current regulations and relevant mitigation strategies will be adopted. Waste will be spread with low trajectory dribble bar applicator. This is an efficient method to prevent odour transmission & nutrient losses associated with higher trajectory spread methods such as splash plate. If any odour complaints are received, further odour mitigation methods will be implemented in accordance with the site-specific odour management plan.
- Spillages: all spillages will be reported immediately to NRW.
No waste will be spread within 10m of any ditch, pond or surface water, within 50m of any spring, well, borehole, or reservoir that supplies water for human consumption or farm dairies.
- Waste will be spread on delivery (or securely stored as stated above). Operators will aim to empty spreading equipment before the end of each working day to avoid overnight storage of waste in machinery.
- Regular servicing of all machinery is conducted and spreading equipment is annually calibrated. To prevent waste being held in faulty machinery replacement spreading equipment will be available.
- Spreading machinery will travel over the field in a direction which will most easily allow the machinery to turn within the boundaries of the field. Any spreading equipment will be turned off prior to turning at the end of each run.
- Machinery turns will be routed to avoid rutting and wheel slip. The turns will not be executed on any buffer strips.
- There will be sufficient trained staff available to ensure that the operation continues throughout operational hours (i.e. there will be sufficient cover for illness, holiday etc.).
- Rights of way have been marked on the spread risk maps. There are no public rights of way in the fields to be spread under this application.
- Weather conditions will be monitored prior to spreading with wind speed and direction assessed.
- Consideration for the public and local residential receptors will be taken into account.

Signed: Robert Tucker

Date: 09/04/2026