Agricultural Benefit Statement

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1. Permit Details and Appropriate Technical Expertise

The following benefit statement has been written by Richard Street on behalf of Agrispread Ltd. (permit no. FB3606GC/A001).

Relevant Qualifications & Experience include:

- FACTs Qualified – Basis registration no. R/FE/5689
- 8 Years' experience of waste to land recycling operations
- Land spreading of non-farm wastes course (3 day course – May 2010)
- BSc. (Hons) Environmental Management (University of Central Lancashire)

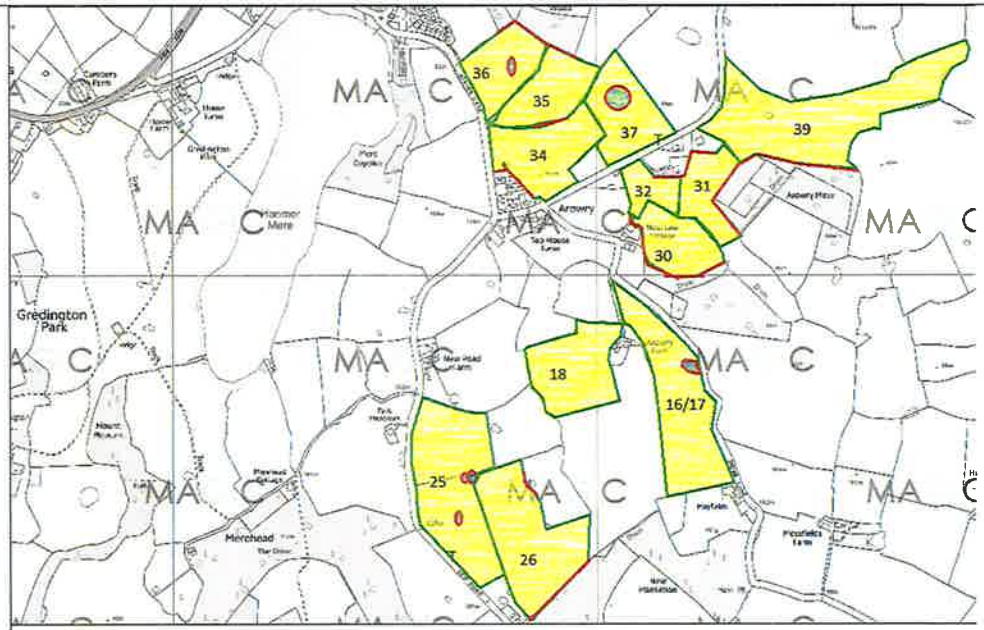
2. Land Details

The following benefit statement proposes to spread up to 10 wastes to land. The land details are listed in Table 1, and the site map can be found in Figure 1.

Table 1: Farm and Land Details

Farm Name	Brook House Farm
Farm Address and Postcode	Hanmer, Whitchurch, SY13 3EG
Land Address and Nearest Postcode	Hanmer, Whitchurch, SY13 3EG
Total Area to be Spread (hectares)	50

Up to $30m^3$ of waste will be stored in each mobile storage tank at the land to be spread, with no more than $120m^3$ in total being stored on site. This is suitable storage and the storage tank locations with be situated in appropriate locations. The storage locations are marked on the site map in Figures 1a and 1b, which are at the following grid reference locations: SJ 4613639311 and SJ4562938358.



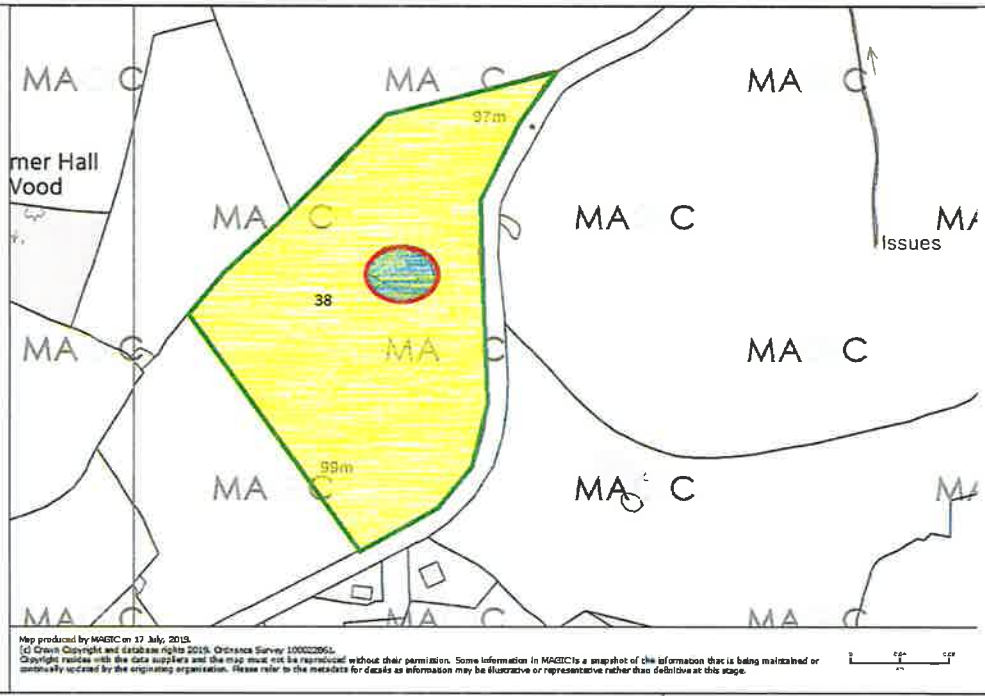
Site Address: Hanmer, Whitchurch, SY13 3EG ***Landowner:*** Brian Jones

Environmental Risks:
Ponds inside fields 25,26,16/17,37 and 36 – 10m buffer zone from all watercourses and ponds
Woodland bordering field 26,30,31,39,36,and 35 – 10m buffer zone
Housing bordering fields 34,32,31 10m buffer zone
Watercourses bordering fields 26,35 10m buffer zone

Key

Boundary –
No Spread Zone –
Watercourse/ditch –
Transfer Tank / Storage Lagoon - T
Pond –
Footpath –
SSSI/SPA/SAC-

Figure 1a: Site map for the land at BrookHouse Farm including the fields to spread, receptors, storage (T), and spreading control measures



Site Address: Hanmer, Whitchurch, SY13 3EG
Landowner: Brian Jones

Environmental Risks:
Pond inside the field– 10m buffer zone from all watercourses and ponds

Key

Boundary –
No Spread Zone –
Watercourse/ditch –
Transfer Tank / Storage Lagoon - T
Pond –
Footpath –
SSSI/SPA/SAC-

Figure 1b: Site map for the land at BrookHouse Farm including the fields to spread, receptors, storage (T), and spreading control measures

3. Waste Details

The wastes generally arise from food and beverage manufacturers and are primarily sludge from on-site effluent treatment plants, and materials unsuitable for consumption and processing. The waste details are displayed in Table 2.

Table 2: Waste Details

Waste Producer	EWC Code	Waste Description
Secanim	02 02 04	Sludges from on-site ETP from abattoirs, poultry preparation plants, rendering plants or fish preparation plants only
P Z Cussons	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only
Croda Goole (Forward Environmental)	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only
Rowan Foods	02 03 05	Sludges from on-site ETP
Maelor Foods	02 02 01	Sludges from washing and cleaning
Nimbus Foods	02 05 01	
English Provender	02 03 01	Sludge from washing, cleaning, peeling, centrifuging and separation
Croda Widnes	02 03 05	Sludges from on-site ETP
Authentic Food Company	02 03 05	Sludges from on-site ETP
Kelloggs (Kellogs)	02 03 05	Sludges from on-site ETP

The wastes have been analysed by NRM laboratories for nitrogen, phosphorous, potash and PTE's, and individual waste analyses are attached in Appendix D.

To avoid the need for multiple deployments when a range of wastes are available, it is necessary to include them all to accommodate such variables as the amount of material produced by the waste producer and the timing of application

Due to the coding of the Secanim and Maelor Foods waste stream (02 02 04 and 02 02 01 respectively), a visual inspection was made to determine if analysis for fats, oil and grease (FOGs) was required. It was deemed not necessary. The waste will be closely monitored during the spreading of this site, and so the requirement for FOGs analysis will be reviewed periodically. The Secanim waste is not expected to contain Selenium, Arsenic, Molybdenum and Fluoride, and so has not been tested for such elements.

4. Operational Details

The wastes will be delivered to the site by road tanker and off-loaded into the mobile storage tanks. It is intended to spread the wastes by sub-soil injection to reduce the risk of environmental incidents, such as run-off and odour issues; to minimise disbenefit to the growing crop, such as through smothering or leaf scorch; and to provide nutrients to the root zone. Typically, wastes will be applied by deep-leg injector. However, a shallow injector or surface application may be used dependant on soil/weather conditions at the time of application. In drought conditions, wastes with low odour potential and low risk of smothering crop leaf may be surface applied, and will provide additional benefit through irrigation.

It is intended to spread the wastes to grass fields as a split when the leaf is short or after silage cuts, and to arable fields before seedbed preparation. For this application, the wastes are expected to be applied to all fields May or July 2020. However, this may change due to farmer requirements and weather conditions.

5. Fields and Crop Requirement

The sludges will be applied to all fields and so the crop requirements for all fields, as well as the field sizes and grid references, are displayed in Table 3. Fertiliser requirements are based on figures from the RB209 (9th edition). The magnesium recommendation for all fields is 0 kg/ha.

Table 3: Field Details and Crop Requirements (* denotes crop offtake)

Field	Size	Grid Reference	Current Crop	Next Crop	Soil type	SNS	Expected Yield	Nitrogen	Phosphate	Potash
	ha						t/ha	kg/ha	kg/ha	kg/ha
34	3	SJ 45877 39282	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	0 64	180
35	2.7	SJ 45887 39440	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	95	180
37	3	SJ 46073 39385	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	20 64	120
38	5.9	SJ 46189 39507	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	20 64	120
36	2.7	SJ 45776 39493	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	65	180
31	3	SJ 46249 39200	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	65	180
20	2	SJ 46185 39075	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	0 64	120

29	1.7	SJ 45925 39067	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	20 64	0 228
18	3	SJ 45934 38779	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	65	170
25	6	SJ 45643 38479	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	95	200
16/17	5	SJ 46195 38708	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	65	180
26	5	SJ 45824 38386	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	20 64	105
39	7	SJ 46495 39354	Grass	2 Cut silage and grazing	Medium Loam	Moderate	38	250	20 64	120
Total	**50.0**									

6. NVZ Compliance

The site falls partially within an NVZ designated area, which is illustrated in Figure 2. The majority of wastes do not apply for the closed periods as they contain low percentages of available nitrogen. The application rates of the wastes will comply with crop requirement as no more than crop offtake of all nutrients will be applied to fields. In order to aid the landowner or farmer with their recording requirements, a post-notification of nutrients applied will be provided after spreading.

Application rates are limited to a maximum of 250 kg total N/ha, and any other organic waste or manure applications have been accounted for. Previous nutrients applied to the fields within the last 12 months are listed in Table 4. The nutrients in Table 4 are total applied, and the availability of each can be taken from the standard figures in the RB209 (9th edition, section 2).

Table 4: Previous Nutrients Applied

Field	Waste Applied	Month Applied	Application Rate	Nitrogen	Phosphate	Potash
			t/ha	kg/ha	kg/ha	kg/ha
39	FYM	July	8	18	9.6	28.2
26	FYM	July	8	18	9.6	28.2
16/17	FYM	July	8	18	9.6	28.2
25	FYM	July	8	18	9.6	28.2
18	FYM	July	8	18	9.6	28.2
29	FYM	July	8	18	9.6	28.2
20	FYM	July	8	18	9.6	28.2
31	FYM	July	8	18	9.6	28.2
36	FYM	July	8	18	9.6	28.2
38	FYM	July	8	18	9.6	28.2
37	FYM	July	8	18	9.6	28.2
35	FYM	July	8	18	9.6	28.2
34	FYM	July	8	18	9.6	28.2

7. Benefits of The Operation

The wastes will be used to provide plant nutrients that will replace a percentage of the fertiliser that the farmer would normally apply to their crop. The wastes will also provide benefit through the addition of organic matter and trace elements. The applied nutrients provided by the wastes may be subject to change: determined by analysis of individual samples during the agreed 12 month deployment period. The sludge is regularly analysed and application rates will be adjusted according to changes in analysis and volumes arising.

A summary of the wastes and the proposed application rates are listed in Table 5.

Table 5: Summary of Waste Nutrients and Application Rate

Waste	Application Rate	Nitrogen		Phosphate		Potash	
	t/ha	(total)	(available) 30%	(total)	(available) 50%	(total)	(available) 90%

Secanim	160	144	43.2	64	32	38.4	34.56
Rowan Foods	80	80	24	64	32	8	5.76
P Z Cussons	208	249.6	74.88	8.32	4.16	8.32	7.488
Nimbus Foods	250	125	37.5	53	26.5	20	18
Maelor Foods	36	122.4	36.72	63.36	31.68	8.28	7.45
Kelloggs Waste	33	248.64	74.59	53.76	26.88	29.76	26.78
English Provender	142	142	42.6	63.9	31.95	14.2	12.78
Croda Goole-Forward Environment	47	94	28.2	62.9	31.49	10.34	9.3
Croda Widnes	250	100	30	32.5	16.25	15	13.5
Authentic Food Company	36	115.2	34.56	62.28	31.14	6.12	5.508

Wastes will be applied on an individual basis and applications, which are established for each waste when applied in isolation, will be carefully managed and monitored to ensure that nutrients are applied at or below crop requirement/offtake values. It may however be necessary to apply the wastes as a mix such as during storage during adverse weather. In this case, the waste with the highest nutrient, PTE or other limiting factor is used as the maximum application rate, and thus wastes will be applied at the lowest individual application rate. Application rates will be adjusted by variation in tractor speed and or pump speed.

Nitrogen

The waste analysis shows that the ammoniacal and nitrate nitrogen in the majority of wastes is relatively low; indicating that only a small proportion of nitrogen will be available immediately. The remaining total nitrogen applied will become available to the crop through mineralisation throughout following seasons. The rate of nitrogen release will be affected by several factors including climate, timing and method of application, and soil type.

Phosphorus

Applications of wastes are limited to ensure that phosphate is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil P reserves.

Potash

The wastes applied will supply up to 38.4kg/ha of potash, which will not meet crop offtake for most fields, but it will allow the landowner/farmer to considerably reduce the amount of chemical fertiliser required to meet the crop need. Applications of wastes are limited to ensure that potash is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil reserves.

Organic Matter

The wastes will also provide a small increase in soil organic matter. This can help to improve soil structure and water, and nutrient holding capacity.

pH

English Provender has a pH of 4.51, Kelloggs 4.47,Nimbus 4.61, pz cussons 4.45 and Rowan foods 4.02 which are slightly acidic. These waste streams will not be spread on field 25. The receiving soils have a pH ranging from 5.5 to 6.8 and will buffer the waste pH with not detrimental effect anticipated. The soils at Brook Farm are mainly classified on soil scapes as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. These soil types are at a much lower of risk to the effect of pH than other soils such as Non-calcareous sandy soils.

Soils

Additionally, full soil analysis of the proposed fields to be spread has been attached in Appendix C, and a summary table has been included in Table 6.

Table 6: Summary of soil pH and major nutrients for the fields to be spread

Field	Soil pH	Phosphate		Potash		Magnesium	
		mg/l	Index	mg/l	Index	mg/l	Index
39	6.8	26.8	3	197	2+	201	4
26	5.9	31.2	3	72.9	1	99.9	2
16/17	6.2	21.6	2	88.6	1	16	3
25	5.5	12.2	1	52.8	0	100	2
18	5.9	17	2	147	2-	124	3
29	6.6	40.2	3	487	4	247	4
20	5.9	59.8	4	205	2+	125	3
31	6.4	19.2	2	203	2+	223	4
36	6.4	15.8	2	82.6	1	180	4
38	6.6	29.2	3	237	2+	145	3
37	6.5	32	3	201	2+	169	3
35	6.2	13	1	62	1	112	3
34	6.4	46.4	4	234	2+	207	4

The soils were sampled in July 2019 in accordance with the sampling procedures described in the RB209 (9th Edition). Analysis was carried out by NRM laboratories for pH, major plant nutrients, and potentially toxic elements (PTEs) described in the Sludge (Use in Agriculture) Regulations.

Soils were found to be Medium Loam soil type categorised in accordance with RB209 (9th edition) as mineral soils for crop recommendations.

Soil pH ranges from 5.5 and 6.8, and is generally at or around the target value, and shouldn't affect crop performance. Soil P index's range from 1 to 4, and the soils are generally at or above the guideline target index of 2. Soil K levels ranged from index 0 to 4 and are generally at or below the target index level of 2-. The magnesium index for all fields was satisfactory. PTE concentrations for all fields is low and within the typical range of uncontaminated soil.

8. Potential Negative Impacts

There are no known or expected elevated levels of PTEs within the wastes.

Site Hazards

Hazards have been identified on the site plan in Figure 1, and relevant control measures and buffer zones have been identified. Operations are to be carried out in accordance with the company generic risk assessment for landspreading, which will reduce the impacts of the operation on the receiving soil.

Odour and Noise Control

The wastes have the potential to cause odour, however storage will be sited away from dwellings, and it is unlikely to cause nuisance odour issues. Additionally, application of sludge via an umbilical cord sub soil injection system will minimise the risk of odour. The operation will be carried out in accordance within normal agricultural hours to minimise the risk of odour and noise complaints.

Storage Tanks

Storage tanks are inspected daily by the operator and wherever possible left empty at the end of the working day. Storage tanks will not be sited within 10m of watercourses or at the top of a steep embankment. Signage on the tanks identifies the company and activity, and has emergency contact details. Anticipated location of storage tanks are shown in Figure 1, but locations may vary slightly due to unforeseen operational requirements.

9. Sensitive Receptors

There are a number of properties within 500m of the fields proposed to be spread. Odour and noise will be controlled, as detailed in section 8, in order to minimise the disruption caused to residents.

There are no footpaths or tracks crossing the fields to be spread, and no boreholes, wells or springs have been identified within the spreading area.

The site is within 500m of a number of statutory designated environmentally sensitive area as defined by Magic Maps (magic.gov.uk). These are Hanmer Mere SSSI and Llyn Bedydd SSSI, and site specific risk assessments are attached in Appendix B.

10. Contingency Planning

To cover machinery breakdown, replacement machinery is available or can be hired from suppliers and mobile mechanics are available to attend sites. All machinery is regularly serviced.

There is sufficient trained staff to maintain sickness and holiday cover.

Spreading operations will not be carried out when there are adverse weather conditions that are likely to interfere with the operation. These conditions include; heavy rain, or during periods of heavy snow or frozen ground as defined in the Code of Good Agricultural Practice (COGAP).

Continuing Competence Certificate

This certificate confirms that

Richard George Street

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 23/01/2019

LS Land Spreading

Expiry Date: 23/01/2021

Verification date: 21/01/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 22940

Certificate No.: 5138263

Date of Issue: 23/01/2019

CIWM Executive Director

The Chartered Institution of Wastes Management

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