AGRICULTURAL BENEFIT CERTIFICATE

Client: **A D Thomas, Thomas Contractors, Gwyns Barn, Leighton, Welshpool, SY21 8LL**

Report No: **ADT 21-20**

Site: **Littl Bank House Farm**

Soil analysis (Appendix 1) and SNS status for the fields show that N, P and most K index levels require further nutrient to give a yield response. As shown in the attached waste analysis (Appendix 2) and the details following, these wastes provide N, P and K and some other nutrients. Crop requirement has been determined using RB209.

Background

This land is run on an arable/grass rotation as part of a mixed farming enterprise. These Fields have had no other wastes applied in the last 12 months.

Benefits

The following wastes each confer an agricultural benefit in their own right and if applied to the proposed land would benefit the crops and reduce the need to apply inorganic fertilisers. An average availability for 'N' of 25% has been used in the knowledge that this will vary according to timing and conditions prevailing.

P indices

P indices on some fields are at index 2 or below. On these fields 100% of the Phosphate applied is assumed available. Application rates on these fields have been reduced compared to those on low index fields. 2 cut silage is expected to yield 38t/ha removing 65kg/ha Phosphate and W. Wheat 9t/ha removing 76kg/ha Phosphate.

Proposed application rates for each waste are detailed on the following tables giving details of N, P2O5, K2O. These rates do not exceed maximum allowances, and PTE levels are below the annual average allowance as indicated in COGAP Soil. If any of the wastes are mixed during the application process, the spreading rate of the mix will not exceed the lowest individual waste maximum application rate.

This waste will be injected or surface spread between crops/grazings. Applications will not exceed application limits. Applications will most likely be made in Late Feb/March, Late May/June and late July/August or according to seasonal requirements.

The total area for the site is :- 47.78 Hectares

Signed:  Date: 5th February 2020

Paul Hodson. Agronomist
12 Years relevant experience
FACTS Qualified FE/861

Protection of the Environment

Site: **Littl Bank House Farm**

Date: 5th February 2020

The application of this waste will take place by injection or surface spreading. Weather conditions will be assessed prior to application. There will be no noise issues related to this activity, as the only plant running will be a delivery lorry and tractor. The analysis shows that there are no harmful elements present in the waste in quantities that would detriment the soil structure or chemical properties. The activity will not cause any adverse affect to the countryside.

All waste will be applied in accordance with risk assessements as detailed for the site and in accordance with The Codes of Good Agriculture practice for the Protection of Soil, Air and Water.

Having studied all the attached supporting information I can confirm that:

- The sampling and analysis is appropriate for the wastes concerned, and is less than 12 months old at the time of application. (Ref: Laboratory Guidance)
- The results of the analysis indicate that there are no significant potentially harmful substances or characteristics of the waste that would cause significant pollution to the environment.
- The sampling and analysis is appropriate for the soil concerned and is less than 4 years old. (Ref: ADAS SOIL SAMPLING METHOLOGY)
- The soils are deficient in the nutrients required by the proposed cropping.
- The waste will provide the nutrients or improvement to the soil structure as claimed, at the rate that has been applied for and for the planned crops.
- The activity will be carried out without harm to the environment or human health by reference to the pollution risk assessment.

We are satisfied that based on the information supplied by A D Thomas. and a detailed assessement that the above is true and accurate to the best of our knowledge.

Signed:  Date: 5th February 2020

Paul Hodson. Agronomist
12 Years relevant experience
FACTS Qualified FE/861

Redwing Landbase Ltd
Parton House Gardens, Parton
Castle Douglas, DG7 3NB

Certificate of Agriculture Benefit

Date: 5th February 2020

Report No: ADT 21-20

Reference: Littl Bank House Farm

Source: Soil Analysis, Cropping Plans, RB209

Description: **SUMMARY OF SOILS, CROPPING AND NUTRIENT REQUIREMENT**

Field Details

WASTE CONTRIBUTION TO CROP FERTILISER NEEDS

FIELD	SOIL TYPE	Grid Ref.		N	P_2O_5	K_20	MgO
LBHF 2	ZL	SO 26786 91958	Index/SNS	Moderate	2	2+	4
Area (ha)	11.33	**pH**	5.5				
	Spring Barley into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	65	180	0
LBHF 3	ZL	SO 26778 91790	Index/SNS	Moderate	2	2-	3
Area (ha)	2.83	**pH**	5.5				
	Winter Barley into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	65	230	0
LBHF 4	SZL	SO 26908 91754	Index/SNS	Moderate	0	2-	3
Area (ha)	1.68	**pH**	5.8				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	125	230	0
LBHF 6	SZL	SO 25810 90967	Index/SNS	Moderate	0	1	3
Area (ha)	3.64	**pH**	6.1				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	125	270	0
LBHF 7	SZL	SO 27166 91555	Index/SNS	Moderate	2	2+	4
Area (ha)	2.02	**pH**	5.7				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	65	180	0
LBHF 8	SZL	SO 27348 91504	Index/SNS	Moderate	1	2+	4
Area (ha)	4.85	**pH**	5.4				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	95	180	0
LBHF 11	SZL	SO 27147 91353	Index/SNS	Moderate	2	2-	4
Area (ha)	2.83	**pH**	5.6				
	2 cut Silage into Winter Wheat						
Crop Requirements Kg/ha (RB209)				270	65	230	0
LBHF 12	ZL	SO 27272 91279	Index/SNS	Moderate	1	1	4
Area (ha)	3.23	**pH**	6.1				
	Winter Barley into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	95	270	0
LBHF 13	SZL	SO 24976 90857	Index/SNS	Moderate	2	2+	3
Area (ha)	2.83	**pH**	6.3				
	Winter Wheat into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	65	180	0

WASTE CONTRIBUTION TO CROP FERTILISER NEEDS

FIELD	SOIL TYPE	Grid Ref.		N	P_2O_5	K_20	MgO
LBHF 14	SZL	SO 24722 90649	Index/SNS	Moderate	1	2-	3
Area (ha)	3.64	**pH**	5.9				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	95	230	0
LBHF 16	SZL	SO 24436 90619	Index/SNS	Moderate	0	2+	3
Area (ha)	3.64	**pH**	6.2				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	125	180	0
LBHF 17	SZL	SO 24179 90576	Index/SNS	Moderate	0	3	4
Area (ha)	5.26	**pH**	5.3				
	2 cut Silage into 2 cut Silage						
Crop Requirements Kg/ha (RB209)				270	125	70	0

L = Loam S = Sand Z = Silt C = Clay

Date: 5th February 2020

Report No: 83306 / 90954

Ref/Waste: Minsterley 2020

Source: Minsterley Creamery

Description: Liquid Waste

WASTE	Minsterley 2020		**N**	**P_2O_5**	**K_20**	**MgO**
Application Rate t/ha		166				
TOTAL NUTRIENTS APPLIED			249	104	51	19
% Available to following crop			25	50	90	50
NUTRIENT BENEFIT TO CROPS			62	52	46	10
Balance of fertiliser required						
FIELD	LBHF 4		208	73	184	0
	LBHF 6		208	73	224	0
	LBHF 8		208	43	134	0
	LBHF 12		208	43	224	0
	LBHF 14		208	43	184	0
	LBHF 16		208	73	134	0
	LBHF 17		208	73	24	0

This Waste is a useful source of Nutrient. The waste does not contain significant levels of pte's or other harmful agents.

We consider that when applied to agricultural land in accordance with crop and soil requirement as above, and subject to compliance with the requirements of the Environment Permitting Regulations and COGAP guidance; this material will result in benefit to agriculture.

Report by:-

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Paul Hodson M.Sc. MBIAC
Redwing Landbase Ltd.
FACTS No. FE/861

Date: 5th February 2020

Report No: 83307 / 90955

Ref/Waste: Sidoli 2020

Source: D Sidoli

Description: Effluent

WASTE	Sidoli 2020		**N**	**P_2O_5**	**K_20**	**MgO**
Application Rate t/ha		227				
TOTAL NUTRIENTS APPLIED			250	134	17	10
% Available to following crop			25	50	90	50
NUTRIENT BENEFIT TO CROPS			62	67	15	5
Balance of fertiliser required						
FIELD	LBHF 4		208	58	215	0
	LBHF 6		208	58	255	0
	LBHF 8		208	28	165	0
	LBHF 12		208	28	255	0
	LBHF 14		208	28	215	0
	LBHF 16		208	58	165	0
	LBHF 17		208	58	55	0

This Waste is a useful source of Nutrient. The waste does not contain significant levels of pte's or other harmful agents.

We consider that when applied to agricultural land in accordance with crop and soil requirement as above, and subject to compliance with the requirements of the Environment Permitting Regulations and COGAP guidance; this material will result in benefit to agriculture.

Report by:-

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Paul Hodson M.Sc. MBIAC
Redwing Landbase Ltd.
FACTS No. FE/861

Date: 5th February 2020

Report No: 83306 / 90954

Ref/Waste: Minsterley 2020b

Source: Minsterley Creamery

Description: Liquid Waste

WASTE	nsterley 2020b		**N**	**P_2O_5**	**K_20**	**MgO**
Application Rate t/ha		100				
TOTAL NUTRIENTS APPLIED			150	63	31	11
% Available to following crop			25	100	90	50
NUTRIENT BENEFIT TO CROPS			38	63	28	6
Balance of fertiliser required						
FIELD	LBHF 2		233	2	152	0
	LBHF 3		233	2	202	0
	LBHF 7		233	2	152	0
	LBHF 11		233	2	202	0
	LBHF 13		233	2	152	0

This Waste is a useful source of Nutrient. The waste does not contain significant levels of pte's or other harmful agents.

We consider that when applied to agricultural land in accordance with crop and soil requirement as above, and subject to compliance with the requirements of the Environment Permitting Regulations and COGAP guidance; this material will result in benefit to agriculture.

Report by:-

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Paul Hodson M.Sc. MBIAC
Redwing Landbase Ltd.
FACTS No. FE/861

Date: 5th February 2020

Report No: 83307 / 90955

Ref/Waste: Sidoli 2020b

Source: D Sidoli

Description: Effluent

WASTE	Sidoli 2020b		**N**	**P_2O_5**	**K_20**	**MgO**
Application Rate t/ha		110				
TOTAL NUTRIENTS APPLIED			121	65	8	5
% Available to following crop			25	100	90	50
NUTRIENT BENEFIT TO CROPS			30	65	7	2
Balance of fertiliser required						
FIELD	LBHF 2		240	0	173	0
	LBHF 3		240	0	223	0
	LBHF 7		240	0	173	0
	LBHF 11		240	0	223	0
	LBHF 13		240	0	173	0

This Waste is a useful source of Nutrient. The waste does not contain significant levels of pte's or other harmful agents.

We consider that when applied to agricultural land in accordance with crop and soil requirement as above, and subject to compliance with the requirements of the Environment Permitting Regulations and COGAP guidance; this material will result in benefit to agriculture.

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