Statement of Agricultural Benefit – Middle Woodstock Farm (1)

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 address:

Middle Woodstock Farm, Clarbeston Road, Woodstock, Pembrokeshire, SA63 4TG

Wastes to be applied:

Waste Code	Waste Description	Physical Form	Source
19 09 02	Sludge from water clarification	Liquid sludge	* Mr Daniel Aneurin Rhodri James, Mrs Carys Ellen James, Mr Gareth Rhodri James, and Mrs Sian James - EPR/DB3590ZP Middle Woodstock Lagoons, Middle Woodstock Farm, Clarbeston Road, Woodstock, Pembrokeshire, SA63 4TG
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Bolton Hill WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Preseli WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Bryngwyn WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Capel Dewi WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Cray WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Hirwaun WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Cefn Dryscoed WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Llechryd WTW

* This waste stream to be applied is from permitted temporary storage facility EPR/DB3590ZP Middle Woodstock Lagoons located at Middle Woodstock Farm. The producer of the waste in temporary storage in this permitted facility is Dwr Cymru Welsh Water and is a mix of liquid water clarification sludges from Bolton Hill, Preseli, Bryngwyn, Capel Dewi, Cray, Hirwaun, Cefn Dryscoed, Llechryd, Strata Florida & Bontgoch water treatment works.

The above wastes may be applied separately or in combination to a field. Spreading of liquid water clarification sludge is either from permitted temporary storage facility EPR/DB3590ZP Middle Woodstock Lagoons for this waste stream, or for the other waste streams they will be delivered and placed into temporary storage in nurse tanks before being spread.

Application:

- The fields will be spread in February – April 2026 prior to first cut silage and following silage cuts May – September 2026. Spreading of these grass fields will be split into up to 5 applications. Each individual application will not exceed 50t/ha in any one application to a field.
- 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.
- The fields aren't to be cut for at least 3 weeks following applications.
- 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 either to be spread from EPR/DB3590ZP Middle Woodstock Lagoons for this waste stream, or for the other waste streams they will be delivered and placed into temporary storage in nurse tanks before being spread.
- Spreading 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 nurse tanks do not have secondary containment, but are impermeable purpose built AW 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 tanks are only for temporary storage and are normally rarely in use other than just prior to or when spreading activity is being undertaken. In most cases the nurse tanks are unlikely to contain liquid overnight. The tank fills from the top via internal pipework with a 'swanneck' reducing chances off 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 positioned and lowered, then locked into position so the whole tank is on the ground.
- The locations of these nurse tanks for temporary storage are detailed on the attached field maps & within the LPD1 form. The nurse tanks will be completely empty before and after use for temporary storage of wastes under this deployment.
- The wastes may be applied separately or in combination to a field.
- The maximum application rates for each field listed in Table 1 apply to an individual waste being applied to a field and have been made on a field by field basis using The Nutrient Management Guide (RB209).
- 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.

Benefits from waste application:

- The analysis and nutrient content of the wastes are shown in the waste analysis attachments.
- The wastes are a source of nitrogen, phosphate, potassium, sulphur and organic matter. The wastes 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 160kg SO_3/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 3-14kg SO_3/ha.
- The addition of organic matter to the soil will help 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.

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:

The liquid water clarification sludges may be applied separately or in combination to a field. The recommended maximum application rates of each of the liquid water clarification sludges applied on their own to a field are shown in Table 1 and are listed below. The rates vary for fields depending on crop requirement, offtake, soil analysis and the nutrient content of the waste.

Rates of application (t/ha)	**Nitrogen kg/ha**		**Phosphate (P_2O_5) kg/ha**		**Potash (K_2O) kg/ha**		**Magnesium (MgO) kg/ha**		**Sulphur (SO_3) kg/ha**	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
EPR/DB3590ZP Middle Woodstock Lagoons - liquid sludge @ 250 t/ha	25	3	3	1	3	1	4	1	86	9
DCWW Bolton Hill WTW liquid sludge @ 200 t/ha	81	8	53	11	7	1	17	3	102	10
DCWW Preseli WTW liquid sludge @ 200 t/ha	56	6	54	11	5	1	9	2	82	8
DCWW Bryn Gwyn WTW liquid sludge @ 250 t/ha	41	4	21	4	4	1	18	4	55	5
DCWW Capel Dewi WTW liquid sludge @ 190 t/ha	49	5	51	10	4	1	17	3	52	5
DCWW Cray WTW liquid sludge @ 250 t/ha	39	4	7	1	1	0	4	1	137	14
DCWW Hirwaun WTW liquid sludge @ 200 t/ha	54	5	54	11	4	1	4	1	133	13
DCWW Cefn Dryscoed WTW liquid sludge @ 200 t/ha	55	6	53	11	4	1	4	1	81	8
DCWW Llechryd WTW liquid sludge @ 144 t/ha	43	4	56	11	3	1	6	1	35	3
Estimated Availability	10%		20%		20%		20%		10%	

Application of wastes in combination:

When water clarification sludge from more than one site is applied to a field the maximum application rate will be set so that the total combined amount applied will not exceed 250 t/ha, the total nitrogen loading will be less than 250 kg/ha, and the amount of available nitrogen and total or available phosphate and potash (whichever is appropriate) will not exceed the fertiliser recommendation or the amount removed in crop offtake (as listed in Table 1), whichever is the greater.

The following example shows the maximum rate of application and nutrient content applied based on 50% EPR/DB3590ZP Middle Woodstock Lagoons liquid water clarification sludge and 50% Bolton Hill WTW liquid water clarification sludge being applied. (No more than 50t/ha of liquid water clarification sludge spread in a single application)

Example:

	Rate of application (t/ha)	**Nitrogen kg/ha**		**Phosphate (P_2O_5) kg/ha**		**Potash (K2O) kg/ha**		**Magnesium (MgO) kg/ha**		**Sulphur (SO3) kg/ha**	
		Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
EPR/DB3590ZP Middle Woodstock Lagoons liquid sludge	100	10	1	1	0	1	0	2	0	35	3
DCWW Bolton Hill WTW liquid sludge	100	40	4	27	5	3	1	8	2	51	5
TOTAL	**200**	**50**	**5**	**28**	**5**	**4**	**1**	**10**	**2**	**86**	**8**

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

Field Ref.	Soil Type	Spreadable Area (ha)	Previous Crop	Next Crop	Nitrogen: SNS	Nitrogen: N Required (kg/ha)	Phosphate: P Index	Phosphate: P_2O_5 Required (kg/ha)	Phosphate: Crop Use (Offtake) (kg/ha)	Potash: K Index	Potash: K_2O Required (kg/ha)	Potash: Crop Use (Offtake) (kg/ha)	Magnesium: Mg Index	Magnesium: MgO Required (kg/ha)
Mid Woodstock 1	Medium soils	0.80	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	2-	320	324	3	0
Mid Woodstock 2	Medium soils	2.30	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	2-	320	324	3	0
Mid Woodstock 3	Medium soils	1.40	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	1	360	324	2	0
Mid Woodstock 4	Medium soils	1.60	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	2-	320	324	2	0
Mid Woodstock 5	Medium soils	1.30	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	2-	320	324	2	0
Mid Woodstock 6	Medium soils	4.80	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	1	360	324	2	0
Mid Woodstock 7	Medium soils	3.20	Wholecrop spring barley	Grass 4 cuts silage	Moderate	310	2	90	92	1	360	324	2	0
Mid Woodstock 8	Medium soils	2.60	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	1	360	324	2	0
Mid Woodstock 9	Medium soils	1.80	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	2-	320	324	2	0
Mid Woodstock 10	Medium soils	3.20	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	1	360	324	2	0
Mid Woodstock 11	Medium soils	3.70	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	3	20	92	2+	200	324	2	0
Mid Woodstock 12	Medium soils	5.30	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	2+	200	324	2	0
Mid Woodstock 13/14	Medium soils	4.70	Wholecrop spring barley	Grass 4 cuts silage	Moderate	310	2	90	92	2-	320	324	2	0
Gwarcoed 16	Medium soils	1.70	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	1	120	92	2-	320	324	2	0
Gwarcoed 17	Medium soils	2.00	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	1	120	92	2-	320	324	2	0
Gwarcoed 19	Medium soils	2.20	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	2-	320	324	2	0
Gwarcoed 22	Medium soils	1.90	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	1	120	92	1	360	324	2	0
Gwarcoed 23	Medium soils	1.90	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	1	120	92	2-	320	324	2	0
Gwarcoed 24	Medium soils	2.30	Grass 3 cuts silage	Grass 4 cuts silage	Moderate	310	2	90	92	1	360	324	2	0
TOTAL		**48.70**												

Nutrient requirements based on:

Grass 4 cuts silage (23t FW/ha at 1st cut, 15t FW/ha at 2nd cut, 9t FW/ha at 3rd cut, 7t FW/ha at 4th cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake

Expected DM yields of grass 12-15t/ha, good growth class

	EPR/DB3590ZP Middle Woodstock Lagoons, Middle Woodstock Farm, Clarbeston Road, Woodstock, Pembrokeshire, SA63 4TG - liquid water clarification sludge						Dwr Cymru Welsh Water Bolton Hill WTW - liquid water clarification sludge						Dwr Cymru Welsh Water Preseli WTW - liquid water clarification sludge					
Field Ref.	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**3	*3	*3	*4	250	200	**8	*53	*7	*17	200	160	**6	*54	*5	*9	200	160
Mid Woodstock 2	**3	*3	*3	*4	250	575	**8	*53	*7	*17	200	460	**6	*54	*5	*9	200	460
Mid Woodstock 3	**3	*3	**1	*4	250	350	**8	*53	**1	*17	200	280	**6	*54	**1	*9	200	280
Mid Woodstock 4	**3	*3	*3	*4	250	400	**8	*53	*7	*17	200	320	**6	*54	*5	*9	200	320
Mid Woodstock 5	**3	*3	*3	*4	250	325	**8	*53	*7	*17	200	260	**6	*54	*5	*9	200	260
Mid Woodstock 6	**3	*3	**1	*4	250	1200	**8	*53	**1	*17	200	960	**6	*54	**1	*9	200	960
Mid Woodstock 7	**3	*3	**1	*4	250	800	**8	*53	**1	*17	200	640	**6	*54	**1	*9	200	640
Mid Woodstock 8	**3	*3	**1	*4	250	650	**8	*53	**1	*17	200	520	**6	*54	**1	*9	200	520
Mid Woodstock 9	**3	*3	*3	*4	250	450	**8	*53	*7	*17	200	360	**6	*54	*5	*9	200	360
Mid Woodstock 10	**3	*3	**1	*4	250	800	**8	*53	**1	*17	200	640	**6	*54	**1	*9	200	640
Mid Woodstock 11	**3	*3	*3	*4	250	925	**8	*53	*7	*17	200	740	**6	*54	*5	*9	200	740
Mid Woodstock 12	**3	*3	*3	*4	250	1325	**8	*53	*7	*17	200	1060	**6	*54	*5	*9	200	1060
Mid Woodstock 13/14	**3	*3	*3	*4	250	1175	**8	*53	*7	*17	200	940	**6	*54	*5	*9	200	940
Gwarcoed 16	**3	**1	*3	*4	250	425	**8	**11	*7	*17	200	340	**6	**11	*5	*9	200	340
Gwarcoed 17	**3	**1	*3	*4	250	500	**8	**11	*7	*17	200	400	**6	**11	*5	*9	200	400
Gwarcoed 19	**3	*3	*3	*4	250	550	**8	*53	*7	*17	200	440	**6	*54	*5	*9	200	440
Gwarcoed 22	**3	**1	**1	*4	250	475	**8	**11	**1	*17	200	380	**6	**11	**1	*9	200	380
Gwarcoed 23	**3	**1	*3	*4	250	475	**8	**11	*7	*17	200	380	**6	**11	*5	*9	200	380
Gwarcoed 24	**3	*3	**1	*4	250	575	**8	*53	**1	*17	200	460	**6	*54	**1	*9	200	460
TOTAL						**12175**						**9740**						**9740**

Field Ref.	Dwr Cymru Welsh Water Bryngwyn WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**4	*21	*4	*18	250	200
Mid Woodstock 2	**4	*21	*4	*18	250	575
Mid Woodstock 3	**4	*21	**1	*18	250	350
Mid Woodstock 4	**4	*21	*4	*18	250	400
Mid Woodstock 5	**4	*21	*4	*18	250	325
Mid Woodstock 6	**4	*21	**1	*18	250	1200
Mid Woodstock 7	**4	*21	**1	*18	250	800
Mid Woodstock 8	**4	*21	**1	*18	250	650
Mid Woodstock 9	**4	*21	*4	*18	250	450
Mid Woodstock 10	**4	*21	**1	*18	250	800
Mid Woodstock 11	**4	*21	*4	*18	250	925
Mid Woodstock 12	**4	*21	*4	*18	250	1325
Mid Woodstock 13/14	**4	*21	*4	*18	250	1175
Gwarcoed 16	**4	**4	*4	*18	250	425
Gwarcoed 17	**4	**4	*4	*18	250	500
Gwarcoed 19	**4	*21	*4	*18	250	550
Gwarcoed 22	**4	**4	**1	*18	250	475
Gwarcoed 23	**4	**4	*4	*18	250	475
Gwarcoed 24	**4	*21	**1	*18	250	575
TOTAL						**12175**

Field Ref.	Dwr Cymru Welsh Water Capel Dewi WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**5	*51	*4	*17	190	152
Mid Woodstock 2	**5	*51	*4	*17	190	437
Mid Woodstock 3	**5	*51	**1	*17	190	266
Mid Woodstock 4	**5	*51	*4	*17	190	304
Mid Woodstock 5	**5	*51	*4	*17	190	247
Mid Woodstock 6	**5	*51	**1	*17	190	912
Mid Woodstock 7	**5	*51	**1	*17	190	608
Mid Woodstock 8	**5	*51	**1	*17	190	494
Mid Woodstock 9	**5	*51	*4	*17	190	342
Mid Woodstock 10	**5	*51	**1	*17	190	608
Mid Woodstock 11	**5	*51	*4	*17	190	703
Mid Woodstock 12	**5	*51	*4	*17	190	1007
Mid Woodstock 13/14	**5	*51	*4	*17	190	893
Gwarcoed 16	**5	**10	*4	*17	190	323
Gwarcoed 17	**5	**10	*4	*17	190	380
Gwarcoed 19	**5	*51	*4	*17	190	418
Gwarcoed 22	**5	**10	**1	*17	190	361
Gwarcoed 23	**5	**10	*4	*17	190	361
Gwarcoed 24	**5	*51	**1	*17	190	437
TOTAL						**9253**

Field Ref.	Dwr Cymru Welsh Water Cray WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**4	*7	*1	*4	250	200
Mid Woodstock 2	**4	*7	*1	*4	250	575
Mid Woodstock 3	**4	*7	**0	*4	250	350
Mid Woodstock 4	**4	*7	*1	*4	250	400
Mid Woodstock 5	**4	*7	*1	*4	250	325
Mid Woodstock 6	**4	*7	**0	*4	250	1200
Mid Woodstock 7	**4	*7	**0	*4	250	800
Mid Woodstock 8	**4	*7	**0	*4	250	650
Mid Woodstock 9	**4	*7	*1	*4	250	450
Mid Woodstock 10	**4	*7	**0	*4	250	800
Mid Woodstock 11	**4	*7	*1	*4	250	925
Mid Woodstock 12	**4	*7	*1	*4	250	1325
Mid Woodstock 13/14	**4	*7	*1	*4	250	1175
Gwarcoed 16	**4	**1	*1	*4	250	425
Gwarcoed 17	**4	**1	*1	*4	250	500
Gwarcoed 19	**4	*7	*1	*4	250	550
Gwarcoed 22	**4	**1	**0	*4	250	475
Gwarcoed 23	**4	**1	*1	*4	250	475
Gwarcoed 24	**4	*7	**0	*4	250	575
TOTAL						**12175**

Field Ref.	Dwr Cymru Welsh Water Hirwaun WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**5	*54	*4	*4	200	160
Mid Woodstock 2	**5	*54	*4	*4	200	460
Mid Woodstock 3	**5	*54	**1	*4	200	280
Mid Woodstock 4	**5	*54	*4	*4	200	320
Mid Woodstock 5	**5	*54	*4	*4	200	260
Mid Woodstock 6	**5	*54	**1	*4	200	960
Mid Woodstock 7	**5	*54	**1	*4	200	640
Mid Woodstock 8	**5	*54	**1	*4	200	520
Mid Woodstock 9	**5	*54	*4	*4	200	360
Mid Woodstock 10	**5	*54	**1	*4	200	640
Mid Woodstock 11	**5	*54	*4	*4	200	740
Mid Woodstock 12	**5	*54	*4	*4	200	1060
Mid Woodstock 13/14	**5	*54	*4	*4	200	940
Gwarcoed 16	**5	**11	*4	*4	200	340
Gwarcoed 17	**5	**11	*4	*4	200	400
Gwarcoed 19	**5	*54	*4	*4	200	440
Gwarcoed 22	**5	**11	**1	*4	200	380
Gwarcoed 23	**5	**11	*4	*4	200	380
Gwarcoed 24	**5	*54	**1	*4	200	460
TOTAL						**9740**

Field Ref.	Dwr Cymru Welsh Water Cefn Dryscoed WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**6	*53	*4	*4	200	160
Mid Woodstock 2	**6	*53	*4	*4	200	460
Mid Woodstock 3	**6	*53	**1	*4	200	280
Mid Woodstock 4	**6	*53	*4	*4	200	320
Mid Woodstock 5	**6	*53	*4	*4	200	260
Mid Woodstock 6	**6	*53	**1	*4	200	960
Mid Woodstock 7	**6	*53	**1	*4	200	640
Mid Woodstock 8	**6	*53	**1	*4	200	520
Mid Woodstock 9	**6	*53	*4	*4	200	360
Mid Woodstock 10	**6	*53	**1	*4	200	640
Mid Woodstock 11	**6	*53	*4	*4	200	740
Mid Woodstock 12	**6	*53	*4	*4	200	1060
Mid Woodstock 13/14	**6	*53	*4	*4	200	940
Gwarcoed 16	**6	**11	*4	*4	200	340
Gwarcoed 17	**6	**11	*4	*4	200	400
Gwarcoed 19	**6	*53	*4	*4	200	440
Gwarcoed 22	**6	**11	**1	*4	200	380
Gwarcoed 23	**6	**11	*4	*4	200	380
Gwarcoed 24	**6	*53	**1	*4	200	460
TOTAL						**9740**

Field Ref.	Dwr Cymru Welsh Water Llechryd WTW - liquid water clarification sludge					
	N Applied - Waste (kg/ha)	P_2O_5 Applied - Waste (kg/ha)	K_2O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Mid Woodstock 1	**4	*56	*3	*6	144	115
Mid Woodstock 2	**4	*56	*3	*6	144	331
Mid Woodstock 3	**4	*56	**1	*6	144	202
Mid Woodstock 4	**4	*56	*3	*6	144	230
Mid Woodstock 5	**4	*56	*3	*6	144	187
Mid Woodstock 6	**4	*56	**1	*6	144	691
Mid Woodstock 7	**4	*56	**1	*6	144	461
Mid Woodstock 8	**4	*56	**1	*6	144	374
Mid Woodstock 9	**4	*56	*3	*6	144	259
Mid Woodstock 10	**4	*56	**1	*6	144	461
Mid Woodstock 11	**4	*56	*3	*6	144	533
Mid Woodstock 12	**4	*56	*3	*6	144	763
Mid Woodstock 13/14	**4	*56	*3	*6	144	677
Gwarcoed 16	**4	**11	*3	*6	144	245
Gwarcoed 17	**4	**11	*3	*6	144	288
Gwarcoed 19	**4	*56	*3	*6	144	317
Gwarcoed 22	**4	**11	**1	*6	144	274
Gwarcoed 23	**4	**11	*3	*6	144	274
Gwarcoed 24	**4	*56	**1	*6	144	331
TOTAL						**7013**

* 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 water clarification sludges are N 10%, P_2O_5 20%, K_2O 20%, MgO 20%, SO_3 10%

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 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 wastes are produced by managed processes. The wastes do not contain physical contaminants.
- Dwr Cymru Welsh Water Cray, Hirwaun, Bryngwyn, Capel Dewi and Llechryd water treatment works use iron-based coagulants to condition the water. The liquid sludges will only be spread on fields with a soil pH of 5.5 or above.
- Dwr Cymru Welsh Water Bolton Hill, Cefn Dryscoed & Preseli water treatment works use aluminium-based coagulants to condition the water. The liquid sludges will only be spread on fields with a soil pH of 6.0 or above.
- The liquid water clarification sludge from EPR/DB3590ZP Middle Woodstock Lagoons contains a mix of Dwr Cymru Welsh Water liquid water clarification sludges from water treatment works using iron-based & aluminium-based coagulants to condition the water. As such, the liquid sludge will only be spread on fields with a soil pH of 6.0 or above.
- The pH of the receiving soils ranges from pH 6.1 to 6.9.
- 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.
- Fields Mid Woodstock 1 & 2 have a soil magnesium index of 3. The magnesium applied by the wastes is less than is likely to be removed by the grass crops so there should be no increase to soil magnesium levels with greater crop offtake than that applied. The amount of magnesium being applied is unlikely to have any noticeable difference on soil 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 have magnesium indices of 2 and 3 and so the risk is low.
- On the other hand, high magnesium soils can reduce potassium availability. Application of liquid sludges at the proposed application rates with potassium also being applied in the sludges and the balance of crop requirements applied as manufactured fertiliser is very unlikely to reduce potassium availability which can be seen in soils where the magnesium index is 5 or above.

Operations

The fields in this deployment have been designated as 'high risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones as some fields are within 500m of Afon Cleddau Dwyreiniol / Eastern Cleddau River SSSI & Afonydd Cleddau / Cleddau Rivers SAC. On the basis of 'high risk' the proposed operation will be subject to a site-specific 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 wastes will be applied following the Code of Good Agricultural Practice. The maximum application rate for each field over 50t/ha where spread with liquid sludges will be split into multiple applications and will not exceed 50t/ha in any one application to a field. The fields will be spread using precision spreading dribble bar equipment with no spreading areas enforced as per maps.
- All handling of the wastes will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- The liquid water clarification sludges are considered to have no noticeable odour.
- 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.

- Liquid sludges will be spread on delivery or temporarily 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.
- 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:** 22/01/2026