Statement of Agricultural Benefit – Homelands Farm, Little Welsh Wood & Summerhill 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:

Homelands Farm, Portfield Gate, Haverfordwest, Pembrokeshire, SA62 3LG
Little Welsh Wood, Robeston West, Milford Haven, Pembrokeshire, SA73 3TL
Summerhill Farm, Dreenhill, Haverfordwest, Pembrokeshire, SA62 3AA

Wastes to be applied:

Waste Code	Waste Description	Physical Form	Waste Producer
19 09 02	Sludge from water clarification	Sludge cake (stackable)	Dwr Cymru Welsh Water Bolton Hill WTW
19 09 02	Sludge from water clarification	Sludge cake (stackable)	Dwr Cymru Welsh Water Preseli WTW
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 01	Natural sludge (produced prior to a water treatment works through additional filtration/ settlement of raw water following primary filtration and screening)	Liquid sludge	Dwr Cymru Welsh Water Canaston Bridge Pumping Station

Application:

- Fields Homelands 3 and Robeston West 1, 2 & 3 will be spread in September 2025 prior to cultivations and grass being planted with either sludge cake, or liquid sludge (for liquid sludge this is one application up to 50t/ha). The fields may then be spread again with sludge cake, or liquid sludge in March – April 2026 prior to first cut silage, or following first cut silage May – June 2026, or immediately following second cut silage July – August 2026. Spreading of these fields may be split into up to 5 separate applications for liquid sludge & the total of all applications will not exceed the max application rate for each field as listed in table 1. For liquid sludge 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) and individual applications will be at least 3 weeks apart. For sludge cake, spreading may be split into up to 3 separate applications.
- Field Homelands 1 will be spread in September 2025 prior to cultivations and grass being planted with liquid sludge (this is one application up to 50t/ha). The field may then be spread again with liquid sludge in March – April 2026 prior to first cut silage, or following first cut silage May – June 2026, or immediately following second cut silage July – August 2026. Spreading of this field may be split into up to 5 separate applications with liquid sludge & the total of all applications will not exceed the max application rate for the field as listed in table 1. Each liquid sludge individual application will not exceed 50t/ha in any one application to the field (or the maximum application rate given in Table 1 where lower) and individual applications will be at least 3 weeks apart.
- Field Summerhill 1 will be spread with either sludge cake, or liquid sludge in March – April 2026 prior to first cut silage, or following first cut silage May – August 2026 in advance of periods of grazing. Spreading of this field may be split into up to 5 separate applications for liquid sludge & the total of all applications will not exceed the max application rate for the field as listed in table 1. For liquid sludge each individual application will not exceed 50t/ha in any one application to the field (or the maximum application rate given in Table 1 where lower) and individual applications will be at least 3 weeks apart. For sludge cake, spreading may be split into up to 3 separate applications.
- Fields Homelands 2, 4 & 5 will be spread in August – September 2026 (and before expiry of deployment) prior to cultivations and grass being planted with either an application of sludge cake, or liquid sludge (for liquid sludge this is one application up to 50t/ha).
- 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 will be discharged into temporary storage nurse tanks ('holding tanks') prior to spreading. Liquid sludge is spread from a nurse tank 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.
- Should the ground or weather conditions mean it's unsuitable for spreading then temporary storage of liquid sludge in nurse tanks may be required. These potential locations are detailed on the attached field maps & within the LPD1 form.
- 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 tanks 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 tanks fill 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 tanks to be completely emptied to the bottom. The tanks are sealed with roof to prevent rainwater entering the tank and for safety, and can be vented if required. A hydraulic lifting axle in the middle allows the tanks to positioned and lowered, then locked into position so the whole tank is on the ground.
- The nurse tanks will be completely empty before use. Only liquid sludge as specified in this deployment will be stored in the nurse tanks.
- For liquid sludge each individual application will not exceed 50t/ha in any one application to a field.
- The stackable water clarification sludge cakes are delivered to the spreading fields and stockpiled in temporary field heaps prior to spreading. Spreading of the sludge cakes is undertaken with rear discharge muck spreaders.
- The maximum application rates for each field are 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).
- **Waste will not be stored or spread in combination (i.e. only one waste stream per 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 60-120kg SO_3/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 1-20kg 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 haven't received any applications of organic manures within the previous 12 months.

Nutrients supplied by this application:

The maximum application rates of each of the DCWW liquid water clarification sludges, water clarification sludge cakes, and liquid natural sludge applied on their own to a field are shown in Table 1 and are listed below:

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
DCWW Bolton Hill WTW sludge cake @ 24 t/ha	48	5	29	6	2	0	4	1	48	5
DCWW Bolton Hill WTW sludge cake @ 32 t/ha	63	6	39	8	3	1	6	1	64	6
DCWW Bolton Hill WTW sludge cake @ 53 t/ha	105	11	65	13	5	1	10	2	106	11
DCWW Preseli WTW sludge cake @ 67 t/ha	107	11	17	3	2	0	6	1	196	20
DCWW Bolton Hill WTW liquid sludge @ 50 t/ha	20	2	13	3	2	0	4	1	26	3
DCWW Bolton Hill WTW liquid sludge @ 150 t/ha	61	6	40	8	5	1	12	2	77	8
DCWW Bolton Hill WTW liquid sludge @ 250 t/ha	101	10	66	13	9	2	21	4	128	13
DCWW Preseli WTW liquid sludge @ 50 t/ha	15	1	2	0	0	0	1	0	29	3
DCWW Preseli WTW liquid sludge @ 250 t/ha	74	7	11	2	1	0	4	1	147	15
DCWW Bryngwyn WTW liquid sludge @ 50 t/ha	8	1	4	1	1	0	4	1	11	1
DCWW Bryngwyn WTW liquid sludge @ 250 t/ha	41	4	21	4	4	1	18	4	55	5
DCWW Capel Dewi WTW liquid sludge @ 50 t/ha	19	2	11	2	3	1	13	3	19	2
DCWW Capel Dewi WTW liquid sludge @ 172 t/ha	65	6	39	8	10	2	45	9	65	6
DCWW Capel Dewi WTW liquid sludge @ 250 t/ha	94	9	57	11	15	3	65	13	94	9
DCWW Canaston Bridge PS natural sludge @ 37 t/ha	59	6	30	6	9	2	117	23	33	3
DCWW Canaston Bridge PS natural sludge @ 48 t/ha	77	8	39	8	12	2	151	30	43	4
DCWW Canaston Bridge PS natural sludge @ 50 t/ha	80	8	41	8	13	3	158	32	45	4
Estimated Availability	10%		20%		20%		20%		10%	

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

					Nitrogen		Phosphate			Potash			Magnesium	
Field Ref.	**Soil Type**	**Spreadable Area (ha)**	**Previous Crop**	**Next Crop**	**SNS**	**N Required (kg/ha)**	**P Index**	**P_2O_5 Required (kg/ha)**	**Crop Use (Offtake) (kg/ha)**	**K Index**	**K_2O Required (kg/ha)**	**Crop Use (Offtake) (kg/ha)**	**Mg Index**	**MgO Required (kg/ha)**
Homelands Farm														
Homelands 1	Medium soils	3.10	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Homelands 2	Medium soils	3.80	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Homelands 3	Medium soils	2.90	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	3	0
Homelands 4	Medium soils	6.20	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Homelands 5	Medium soils	4.30	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
Little Welsh Wood														
Robeston West 1	Medium soils	8.30	Winter wheat	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Robeston West 2	Medium soils	7.60	Potatoes	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	2	0
Robeston West 3	Medium soils	2.40	Potatoes	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Summerhill Farm														
Summerhill 1	Medium soils	5.40	Grass 1 cut silage & grazing	Grass 1 cut silage & grazing	Moderate	190	2	40	39	2+	120	138	2	0
TOTAL		**44.00**												

Nutrient requirements based on:

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

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

Expected DM yields of grass 9-12t/ha, good growth class

	Dwr Cymru Welsh Water Bolton Hill WTW - water clarification sludge cake						Dwr Cymru Welsh Water Preseli WTW - water clarification sludge cake						Dwr Cymru Welsh Water Bolton Hill 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**
Homelands Farm																		
Homelands 1					0	0					0	0					0	0
Homelands 2	**5	*29	*2	*4	24	91	**11	*17	*2	*6	67	255	**2	*13	*2	*4	50	190
Homelands 3	**11	*65	*5	*10	53	154	**11	*17	*2	*6	67	194	**10	*66	*9	*21	250	725
Homelands 4	**5	*29	**0	*4	24	149	**11	*17	**0	*6	67	415	**2	*13	**0	*4	50	310
Homelands 5	**5	*29	**0	*4	24	103	**11	*17	**0	*6	67	288	**2	*13	**0	*4	50	215
Little Welsh Wood																		
Robeston West 1	**11	*65	*5	*10	53	440	**11	*17	*2	*6	67	556	**10	*66	*9	*21	250	2075
Robeston West 2	**11	*65	*5	*10	53	403	**11	*17	*2	*6	67	509	**10	*66	*9	*21	250	1900
Robeston West 3	**11	*65	**1	*10	53	127	**11	*17	**0	*6	67	161	**10	*66	**2	*21	250	600
Summerhill Farm																		
Summerhill 1	**6	*39	*3	*6	32	173	**11	*17	*2	*6	67	362	**6	*40	*5	*12	150	810
TOTAL						**1640**						**2740**						**6825**

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

	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
Homelands Farm						
Homelands 1					0	0
Homelands 2	**1	*2	*0	*1	50	190
Homelands 3	**7	*11	*1	*4	250	725
Homelands 4	**1	*2	**0	*1	50	310
Homelands 5	**1	*2	**0	*1	50	215
Little Welsh Wood						
Robeston West 1	**7	*11	*1	*4	250	2075
Robeston West 2	**7	*11	*1	*4	250	1900
Robeston West 3	**7	*11	**0	*4	250	600
Summerhill Farm						
Summerhill 1	**7	*11	*1	*4	250	1350
TOTAL						**7365**

	Dwr Cymru Welsh Water Bryngwyn 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
Homelands Farm						
Homelands 1	**4	*21	*4	*18	250	775
Homelands 2	**1	*4	*1	*4	50	190
Homelands 3	**4	*21	*4	*18	250	725
Homelands 4	**1	*4	**0	*4	50	310
Homelands 5	**1	*4	**0	*4	50	215
Little Welsh Wood						
Robeston West 1	**4	*21	*4	*18	250	2075
Robeston West 2	**4	*21	*4	*18	250	1900
Robeston West 3	**4	*21	**1	*18	250	600
Summerhill Farm						
Summerhill 1	**4	*21	*4	*18	250	1350
TOTAL						**8140**

	Dwr Cymru Welsh Water Capel Dewi 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
Homelands Farm						
Homelands 1	**9	*57	*15	*65	250	775
Homelands 2	**2	*11	*3	*13	50	190
Homelands 3	**9	*57	*15	*65	250	725
Homelands 4	**2	*11	**1	*13	50	310
Homelands 5	**2	*11	**1	*13	50	215
Little Welsh Wood						
Robeston West 1	**9	*57	*15	*65	250	2075
Robeston West 2	**9	*57	*15	*65	250	1900
Robeston West 3	**9	*57	**3	*65	250	600
Summerhill Farm						
Summerhill 1	**6	*39	*10	*45	172	929
TOTAL						**7719**

	Dwr Cymru Welsh Water, Canaston Bridge Pumping Station - natural 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
Homelands Farm						
Homelands 1	**8	*41	*13	*158	50	155
Homelands 2	**6	*30	*9	*117	37	141
Homelands 3	**8	*41	*13	*158	50	145
Homelands 4	**6	*30	**2	*117	37	229
Homelands 5	**6	*30	**2	*117	37	159
Little Welsh Wood						
Robeston West 1	**8	*41	*13	*158	50	415
Robeston West 2	**8	*41	*13	*158	50	380
Robeston West 3	**8	*41	**3	*158	50	120
Summerhill Farm						
Summerhill 1	**8	*39	*12	*151	48	259
TOTAL						**2003**

* 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 DCWW 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 and do not contain physical contaminants. At Canaston Bridge pumping station the raw water abstracted from the river has been screened and filtered before being pumped into the holding tank on site. The liquid in the tank will be agitated to thoroughly mix it and the liquid sludge will then be removed from site via vacuum tankers to be taken to the deployment area to be spread.
- The liquid sludge to be removed from the holding tank at Dwr Cymru / Welsh Water Canaston Bridge Pumping Station is natural sludge produced through additional filtration/ settlement of raw water from the river following primary filtration and screening and coagulants haven't been used.
- Dwr Cymru Welsh Water Bolton Hill & Preseli water treatment works use aluminium-based coagulants to condition the water. The water clarification sludges from these sites will only be spread on fields with a soil pH of 6.0 or above.
- Dwr Cymru Welsh Water Bryngwyn & Capel Dewi water treatment works use iron-based coagulants to condition the water. The water clarification sludges from these sites will only be spread on fields with a soil pH of 5.5 or above.
- The pH of the receiving soils ranges from pH 5.7 to 7.0. All fields apart from field Homelands 1 are above pH 6.0. No Bolton Hill or Preseli water clarification sludge cakes or liquid sludges will be spread on field Homelands 1.
- Soils have been sampled to 7.5cm for permanent grass fields, and to 15cm depth for temporary grass & arable 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 Canaston Bridge pumping station liquid sludge contains fairly high levels of magnesium (up to 158kg total MgO/ha applied at 50t/ha application rate). 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 Homelands Farm and Little Welsh Wood fields are in a cropping rotation with arable. The addition of magnesium will help maintain levels over a rotation period. The receiving soils have magnesium indexes of 2 or 3. Application of liquid sludge at up to 50t/ha is unlikely to reduce potassium availability at these levels which can be seen in soils where the magnesium index is 5 or above.

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 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 for liquid sludges and with rear discharge muck spreaders for sludge cake, with no spreading areas enforced as per maps.
- Little Welsh Wood fields Robeston West 2 & 3 are located in the Pembrokeshire Coast National Park.
- Scheduled monument - Burnt Mound 160m E of Woodsend is approximately 80 metres at the nearest point from field Robeston West 1.
- Scheduled monument – Roman Castle is approximately 50 metres at the nearest point from field Summerhill 1.
- All handling of the wastes will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- The Dwr Cymru Welsh Water liquid water clarification sludges, water clarification sludge cakes and liquid natural sludge 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. The water clarification sludge cakes will be stockpiled in field heaps prior to being spread.
- 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. 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 public rights of way in field Robeston West 3.
- 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:** 04/08/2025