

Bioresources Information Request

Table commentaries

For the submissions:

Bioresources market development data request rev2 WSH.xlsx

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1 Background

1.1 Ofwat data request

This document is Welsh Water's commentary for the Bioresources RFI received from Ofwat on 17th December 2020 (See Appendix 1) with an updated template received on 12th January 2021. We have used the revised template for our submissions.

The data request sets out that the main purpose of the information request is for Ofwat to strengthen their understanding of how the market currently operates and identify potential blockers and opportunities. Key determinants of this are demand, capacity of sites and the cost of trading.

The data request aims to capture data on:

- Identifying current flows, i.e. where sludge is being produced and sent to;
- Forward looking information at site level; and
- Variable cost at site level.

Publication of information

The data request proposes that all other information other than worksheet '6. Site opex' will be published. We agree that the worksheets 1-5 can be published and that Worksheet '6. Site opex' is not to be published.

The information request is to complete six data tables which cover company data, transport data, total capacity, tradeable capacity, headroom capacity and site opex.

Table/Tab	Purpose	WSH approach to completion
Tab 1	Company data on total raw sludge transport costs and work done. This does not include disposal transport.	Total cost data is from APR table 4W line 11 for 2019-20. Total intersiting work done by pipeline, tanker and truck is from table 4R lines 31-33. Intersiting tonnage is reported using the data to calculate lines 4-6.
Tab 2	Transport data for the company's main sludge transport route for 2019-20 transport patterns.	Transport data is based on the APR data reported in table 4R of the APR to supply details on the principal and secondary destinations.
Tab 3	Total capacity data for each sludge treatment centre for 2020-21 to 2029-30.	Total capacity data is based on design information or calculated based on historical average performance. Any restrictions on the capacity are taken into account.
Tab 4	Tradeable capacity for each sludge treatment centre for 2020-21 to 2029-30.	Tradeable capacity is calculated as the total capacity less the headroom capacity. Other trading restrictions are considered.
Tab 5	Headroom capacity for each sludge treatment centre for 2020-21 to 2029-30.	A minimum headroom capacity of 10% is reserved. If there are any trading restrictions, additional capacity is allocated to the headroom.
Tab 6	Site opex by sludge treatment centre for 2019-20.	This tab reports opex by site. Costs are broken down into fixed, variable, energy and disposal costs.

The data has been requested to be submitted by **Thursday 21st January 2021**.

The submitted data has undergone an appropriate level of quality assurance to verify that the data submitted is accurate, and that any estimates are made within reasonable tolerances. Jacobs, our assurance partner, has been engaged to undertake this review and their assurance report is attached in Appendix 2. Appropriate internal checks have also been carried out in line with other regulatory data submissions. The historical data was subject to an appropriate level of audit at the time.

2 Table 1 – Company

This table collects information on your company's total raw sludge transport costs and work done. This table does not include disposal transport. Include any intersiting to other companies' sites. Values must be entered as a number or validation will fail.

2.1 Table 1

1. Company					
Company:	WSH				
Line	Description	Item reference	Unit	DPS	Value
1	Total cost of liquid intersiting by road including third-party costs 2019-20		£k	0	5987
2	Total cost of liquid intersiting by pipeline including third-party costs 2019-20		£k	0	0
3	Total cost of raw cake road transport including third-party costs 2019-20		£k	0	0
4	Total measure of intersiting work done by pipeline		ttds*km/year	0	3
5	Total measure of intersiting work done by tanker		ttds*km/year	0	284
6	Total measure of intersiting work done by truck		ttds*km/year	0	1973
7	Liquid intersiting tonnage by road 2019-20		ttds	0	11
8	Liquid intersiting tonnage by pipeline 2019-20		ttds	0	2
9	Raw cake intersiting tonnage by road 2019-20		ttds	0	41

2.2 Table 1 - Lines 1-3 Commentary

The total cost including any third-party costs such as outsourced transport contracts. The sum of these lines should be equal to APR table 4W line 11 plus any third-party costs. Please report for 2019-20.

The table provides the 2019-20 cost of liquid intersiting by road, pipeline and raw cake road transport including third party costs in 2019-20. The data reported is equal to the APR table 4W line 11.

The table reports the cost of intersiting alongside the amount of work done. The table reports the volumes of work done for pipeline and raw cake transport but does not report any costs. Intersiting undertaken by pipeline and raw cake road transport is between sludge treatment centres and is therefore included in sludge treatment and is not reported in the sludge transport costs in 4W. This approach follows RAG 4.08.

2.3 Table 1 - Line 4

Total work done in intersiting sludge operations by pipeline during the report year measured as the product of sludge mass (in tt ds) multiplied by distance conveyed (in km). Based on actual length of pipeline from sludge holding tanks to STC, not straight line distance. This measure should not include sludge transported between STWs via a gravity sewer, the operating costs of which are allocated to Network+.

These corresponds to PR19 table Bio1 line 9 for year 2019-20. However, please ensure that the figure you report here includes any work done by third parties, such as through outsourced transport contracts.

The data reported is from the APR table 4R line 31.

2.4 Table 1 - Line 5

Total work done in intersiting sludge operations carried out by road tanker during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to STC, not straight line distance. If actual road distances aren't available please estimate this road distance and state in comments if this is the case. Work done by other forms of transport of liquid sludge (eg tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty tankers.

These corresponds to PR19 table Bio1 line 9 for year 2019-20. However, please ensure that the figure you report here includes any work done by third parties, such as through outsourced transport contracts.

The data reported is from the APR table 4R line 32.

2.5 Table 1 - Line 6

Total work done in intersiting sludge operations carried out by truck during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to STC, not straight line distance. If actual road distances aren't available please estimate this road distance and state in comments if this is the case. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty trucks.

These corresponds to PR19 table Bio1 line 9 for year 2019-20. However, please ensure that the figure you report here includes any work done by third parties, such as through outsourced transport contracts.

The data reported is from the APR table 4R line 33.

2.6 Table 1 - Lines 7-9

The total dry tonnes intersited by each of the three transport modes in the year 2019-20, as used in calculating lines 4-6.

Lines 7-9 report the thousand tonnes of dry solids for liquid intersiting by road, pipe and raw cake by road for 2019-20. This data is used within the calculation of lines 4-6.

3 Table 2 – Transport Data

3.1 Table 2 – Transport Data for 2019-20

Column	1	2	3	4	5	6	7	8
Description	Site	Indigenous production 2019-20	Principal destination for sludge during 2019-20	Percent of sludge going to principal destination in 2019-20	Main transport mode to principal destination during 2019-20	Secondary destination for sludge during 2019-20	Percent of sludge going to secondary destination in 2019-20	Main transport mode to secondary destination during 2019-20
Item reference								
Unit	Text	tds	Text	%	Text	Text	%	Text
DPS	N/A	0	N/A	0	N/A	N/A	0	N/A
1	ABBEYCYMHIR	5	Eign	46%	Road	Aberystwyth	31%	Road
2	Abbeystre	1	Treborrh	90%	Road	KINMEL BAY	10%	Road
3	ABENBURY	6	QUEENSFERRY	100%	Road			
4	ABER VILLAGE	8	GOWERTON	100%	Road			
5	ABERAERON	31	LLANINA	59%	Road	LAMPETER	34%	Road
6	ABERBAIDEN	49	LLANFOIST	100%	Road			
7	ABERCYCH	0	MERLINS BRIDGE	100%	Road			
8	ABERDARON	7	PORHMADOG	95%	Road	LLANGFNI	4%	Road
9	ABERERCH	3	PORHMADOG	81%	Road	LLANGFNI	19%	Road
10	ABERFFRAW	7	LLANGFNI	100%	Road			
11	Abergorlech	0	LAMPETER	100%	Road			
12	ABERGYNOLWYN	0	QUEENSFERRY	100%	Road			
13	ABERLLEFENNI	0	PORHMADOG	100%	Road			
14	Aberllynfi	1	BRECON	100%	Road			
15	ABERPORTH	30	LLANINA	94%	Road	Aberystwyth	3%	Road
16	ABERSOCH	60	PORHMADOG	80%	Road	LLANGFNI	14%	Road
17	ABERWHEELER	3	RUTHIN	65%	Road	KINMEL BAY	24%	Road
18	Aberystwyth	849	AFAN	69%	Road	FIVE FORDS	24%	Road
19	ADPAR	18	LLANINA	93%	Road	LAMPETER	7%	Road
20	AFAN	2563	Land	99%	Road	CARDIFF BAY	1%	Road
21	Alonwen SOS	0	PORHMADOG	100%	Road			
22	Alltwalis	0	Parc y Splott	100%	Road			
23	AMBLESTON	1	MERLINS BRIDGE	100%	Road			
24	AMLWCH	76	LLANGFNI	99%	Road	Treborrh	1%	Road
25	AMROTH	2	Parc y Splott	92%	Road	MERLINS BRIDGE	8%	Road
26	ANGLE	0	MERLINS BRIDGE	100%	Road			
27	BALA	35	FIVE FORDS	71%	Road	RUTHIN	29%	Road
28	Bancyselin	3	Parc y Splott	100%	Road			
29	Bangor on Dee	10	FIVE FORDS	100%	Road			
30	BARMOUTH OUTFALL	33	PORHMADOG	79%	Road	Treborrh	17%	Road
31	BEDGELERT	5	PORHMADOG	69%	Road	LLANGFNI	26%	Road
32	Benllech Outfall STW	33	LLANGFNI	52%	Road	Treborrh	48%	Road
33	BETHESDA	64	Treborrh	51%	Road	LLANGFNI	49%	Road
34	BETHLEHEM	0	Parc y Splott	58%	Road	LAMPETER	42%	Road
35	Betws GG	1	QUEENSFERRY	100%	Road			
36	Betws Garmon	0	Treborrh	100%	Road			
37	Betws y Coed	10	LLANGFNI	76%	Road	Treborrh	24%	Road
38	Betws yn Rhos	3	FIVE FORDS	89%	Road	KINMEL BAY	11%	Road
39	BEULAH (NR ABERPORTH)	2	LLANINA	36%	Road	Parc y Splott	33%	Road
40	Bishops Frome	6	Eign	100%	Road			
41	BISHOPSTON	53	GOWERTON	96%	Road	Llanelli	3%	Road
42	BLAENAU FFESTINIOG	18	PORHMADOG	86%	Road	LLANGFNI	9%	Road
43	BLAENFOS	1	MERLINS BRIDGE	58%	Road	LLANINA	42%	Road
44	Bodedem	13	LLANGFNI	100%	Road			
45	BODENHAM	10	Eign	100%	Road			
46	Bodffordd	5	LLANGFNI	100%	Road			
47	BODUAN	1	PORHMADOG	100%	Road			
48	BONCATH	0	LAMPETER	74%	Road	LLANINA	26%	Road
49	Bontuchel	1	RUTHIN	100%	Road			
50	BORTH	31	Aberystwyth	100%	Road			
51	BOTWNOG	3	PORHMADOG	98%	Road	Treborrh	2%	Road
52	BRECHFA	1	Parc y Splott	70%	Road	LAMPETER	30%	Road
53	BRECON	154	Eign	85%	Road	LLANFOIST	12%	Road
54	Bredenbury (Grendon)	0	Eign	100%	Road			
55	BREDWARDINE	0	Eign	100%	Road			
56	Broad Oak	1	Parc y Splott	100%	Road			
57	Broadstone	0	Monmouth	100%	Road			
58	BROCKHAMPTON CAPLAR	0	Eign	100%	Road			
59	Bromyard (New)	65	Eign	100%	Road			
60	Bronaber	0	PORHMADOG	100%	Road			
61	Bronnington	0	FIVE FORDS	100%	Road			
62	Bronydd	2	Parc y Splott	100%	Road			
63	Bryn Du/Rhosneigr	35	LLANGFNI	100%	Road			
64	Bryn Eglwys	0	FIVE FORDS	100%	Road			
65	Bryn Gwyn	0	Parc y Splott	100%	Road			
66	BRYNCIR	2	PORHMADOG	99%	Road	LLANGFNI	1%	Road
67	Bryncroes	0	PORHMADOG	100%	Road			
68	Bryngwran	6	LLANGFNI	100%	Road			
69	Brynmawr	62	LLANFOIST	98%	Road	Eign	2%	Road
70	Brynrefail	19	LLANGFNI	52%	Road	Treborrh	48%	Road
71	BRYNSIENCYN	9	LLANGFNI	100%	Road			
72	BUCKLEY TY GWYN	296	QUEENSFERRY	91%	Road	FIVE FORDS	9%	Road
73	Builth Road	7	Eign	100%	Road			
74	BUILTH WELLS	190	Eign	53%	Road	LLANFOIST	45%	Road
75	Burton	2	QUEENSFERRY	100%	Road			
76	Burton Ferry	1	MERLINS BRIDGE	100%	Road			
77	Bwlch	8	BRECON	80%	Road	LLANFOIST	20%	Road
78	BYLCHAU	0	RUTHIN	100%	Road			
79	Cae Rhos WwtW Brynteg Anglesey	0	LLANGFNI	100%	Road			
80	CAERFACHELL	0	MERLINS BRIDGE	100%	Road			
81	CAERNARFON	278	LLANGFNI	76%	Road	Treborrh	23%	Road
82	CAERWYS	19	RUTHIN	90%	Road	QUEENSFERRY	8%	Road
83	CAIO	0	LAMPETER	100%	Road			
84	CAMROSE	1	MERLINS BRIDGE	100%	Road			
85	CANON PYON	4	Eign	100%	Road			
86	Cantref Houses	1	Aberystwyth	100%	Road			
87	CAPEL BANGOR	0	Aberystwyth	100%	Road			
88	CAPEL CURIG	2	LLANGFNI	97%	Road	Treborrh	3%	Road
89	CAPEL GARMON	0	Treborrh	51%	Road	LLANGFNI	49%	Road
90	Capel Iwan	1	LLANINA	100%	Road			

91	CARDIFF BAY	15353	Land			100%	Road		
92	CARDIFF RHYDLAFAR (NR ST FAGANS)	0	CARDIFF BAY			100%	Road		
93	CARDIGAN	84	AFAN		CARDIFF BAY	93%	Road	7%	Road
94	CAREW	1	MERLINS BRIDGE		Parc y Splott	53%	Road	47%	Road
95	Carmel & Pantlyn	1	Parc y Splott		GOWERTON	85%	Road	15%	Road
96	CARROG	1	FIVE FORDS			100%	Road		
97	CARWAY	5	Parc y Splott		GOWERTON	72%	Road	25%	Road
98	CastleMorris	0	MERLINS BRIDGE			100%	Road		
99	Cefn Mawr	88	FIVE FORDS		KINMEL BAY	99%	Road	1%	Road
100	Cefnigorwydd	0	BRECON			100%	Road		
101	Ceinws	0	Treborth			100%	Road		
102	Cellan	1	LAMPETER			100%	Road		
103	CEMES BAY	24	LLANGFNI		PORTHMADOG	100%	Road	0%	Road
104	Cenarth 2 (Glanyrafo)	2	LLANINA		Parc y Splott	57%	Road	42%	Road
105	Cerriddrudion	3	FIVE FORDS		RUTHIN	100%	Road	0%	Road
106	CHESTER	2769	FIVE FORDS		Land	90%	Road	10%	Road
107	CHURTON	0	FIVE FORDS			100%	Road		
108	CHWLOG	6	PORTHMADOG		LLANGFNI	75%	Road	24%	Road
109	Cilcain	32	RUTHIN		QUEENSFERRY	53%	Road	44%	Road
110	CILFYNYDD	1428	CARDIFF BAY			100%	Pipeline		
111	CILGERRAN	10	LLANINA		Parc y Splott	81%	Road	8%	Road
112	Cilmerly	0	Eign			100%	Road		
113	Clycwm	0	Parc y Splott			100%	Road		
114	Clarach	2	Aberystwyth			100%	Road		
115	Clarbeston Road	2	MERLINS BRIDGE			100%	Road		
116	CLEHONGER	13	Eign			100%	Road		
117	CLOCAENOG	0	RUTHIN			100%	Road		
118	Clutton - Tattenhall	1	FIVE FORDS			100%	Road		
119	CLYNDERWEN	8	MERLINS BRIDGE		Parc y Splott	82%	Road	18%	Road
120	CLYRO	2	Eign			100%	Road		
121	Cog Moors	4947	CARDIFF BAY		AFAN	81%	Road	19%	Road
122	Commins Coch	1	QUEENSFERRY			100%	Road		
123	Connah's Quay	181	QUEENSFERRY		FIVE FORDS	95%	Road	5%	Road
124	Conwyl Elfed	2	Parc y Splott			100%	Road		
125	CORWEN	52	FIVE FORDS			100%	Road		
126	COSHESTON	2	MERLINS BRIDGE			100%	Road		
127	COSLECH	405	CARDIFF BAY		AFAN	66%	Road	34%	Road
128	COWBRIDGE	0	CARDIFF BAY			100%	Road		
129	CRABS CASTLE	0	Eign			100%	Road		
130	CREIGIAU	0	CARDIFF BAY			100%	Road		
131	CRIBYN	2	LAMPETER			100%	Road		
132	CRICCIETH	55	PORTHMADOG		LLANGFNI	97%	Road	3%	Road
133	CRICKHOWELL	27	LLANFOIST		BRECON	94%	Road	6%	Road
134	Croesgoch	1	MERLINS BRIDGE			100%	Road		
135	CROESOR 3	0	PORTHMADOG		LLANGFNI	60%	Road	40%	Road
136	CROSS ASH	0	Eign			100%	Road		
137	Cross Inn & Hebo	0	LAMPETER			100%	Road		
138	Crosshands	168	Llanelli		Parc y Splott	75%	Road	15%	Road
139	Crows Nest	0	FIVE FORDS			100%	Road		
140	CRUGYBAR	0	LAMPETER			100%	Road		
141	Crymch	3	LLANINA			100%	Road		
142	Cynant	54	GOWERTON		Llanelli	64%	Road	36%	Road
143	CYCKO'S ROW STW RAGLAN	0	Eign			100%	Road		
144	Cwrndu	0	LLANFOIST			100%	Road		
145	CWMDUAD	0	Parc y Splott			100%	Road		
146	Cwmgwili	1	MERLINS BRIDGE		GOWERTON	62%	Road	38%	Road
147	CWMGWIRACH	67	GOWERTON		Llanelli	76%	Road	20%	Road
148	Cwmifer	0	Parc y Splott			100%	Road		
149	CWMROY	0	Eign			100%	Road		
150	CWRT HENRI	1	Parc y Splott			100%	Road		
151	Cwrt Newydd	2	LAMPETER			100%	Road		
152	CYFFYLLIOG	1	RUTHIN			100%	Road		
153	CYNGHORDY	0	LAMPETER			100%	Road		
154	CYNON	1277	CARDIFF BAY			100%	Pipeline		
155	CYNWYD	5	FIVE FORDS		RUTHIN	81%	Road	19%	Road
156	DALE	1	MERLINS BRIDGE		Parc y Splott	89%	Road	11%	Road
157	DERWEN	1	FIVE FORDS			100%	Road		
158	Derwenlas STW	0	MERLINS BRIDGE			100%	Road		
159	DEVAUDEN	1	Monmouth			100%	Road		
160	DIHEWYD	1	LLANINA		GOWERTON	90%	Road	10%	Road
161	DILWYN	2	Eign			100%	Road		
162	Dinas	3	LLANINA		PORTHMADOG	80%	Road	10%	Road
163	Dinas Cross	4	MERLINS BRIDGE		LLANINA	48%	Road	24%	Road
164	DOLGELLAU	159	PORTHMADOG		Aberystwyth	68%	Road	27%	Road
165	DOLWYDELLEN	1	PORTHMADOG		LLANGFNI	79%	Road	19%	Road
166	Dolywern	0	FIVE FORDS			100%	Road		
167	DORMINGTON	1	Eign			100%	Road		
168	Dorstone (Oakland PL)	0	Eign			100%	Road		
169	Drefach Velindre	15	LLANINA		LAMPETER	79%	Road	16%	Road
170	Duffryn Isaf	0	CARDIFF BAY			100%	Road		
171	DYFFRYN ARDUDWY	8	PORTHMADOG			100%	Road		
172	DYSERTH	27	KINMEL BAY		FIVE FORDS	66%	Road	33%	Road
173	EARDISLEY	7	Eign			100%	Road		
174	EASTWICK	2	FIVE FORDS			100%	Road		
175	Eaton Bishop	1	Eign			100%	Road		
176	Edge	0	FIVE FORDS			100%	Road		
177	EDWYN RALPH	0	Eign			100%	Road		
178	EFALNEWYDD	3	PORTHMADOG		LLANGFNI	82%	Road	18%	Road
179	EGLWYSBACH	5	LLANGFNI		PORTHMADOG	84%	Road	13%	Road
180	Eglwyswen	82	KINMEL BAY		FIVE FORDS	63%	Road	31%	Road
181	Eign	4462	Land		CARDIFF BAY	98%	Road	1%	Road
182	Elan Valley (Hotel)	0	Eign			100%	Road		
183	Even Jobb	0	Eign			100%	Road		
184	Fairbourne WwTW	1	PORTHMADOG			100%	Road		
185	FARNDON	10	FIVE FORDS			100%	Road		
186	FELINDRE	1	GOWERTON			100%	Road		
187	FELINDRE FARCHOG	1	LLANINA			100%	Road		
188	Felingwm Uchaf	1	Parc y Splott			100%	Road		
189	Ferryside	7	Parc y Splott		Llanelli	99%	Road	1%	Road
190	Ferwig	1	LLANINA			100%	Road		
191	FFAIRFACH	47	Llanelli		Parc y Splott	59%	Road	38%	Road
192	Flammers	1	LAMPETER		Parc y Splott	87%	Road	13%	Road
193	FFOSTRASOL	0	LLANINA		Parc y Splott	64%	Road	36%	Road
194	FISHGUARD	54	MERLINS BRIDGE		LLANINA	40%	Road	33%	Road
195	FIVE FORDS	5750	Land			100%	Road		
196	FLINT	213	FIVE FORDS		KINMEL BAY	84%	Road	16%	Road
197	FOUR ROADS	2	Parc y Splott		Llanelli	91%	Road	9%	Road
198	Fourcrosses Glanyr Afon	0	Treborth			100%	Road		
199	FOWNHOPE	14	Eign			100%	Road		
200	Freshwater East	0	Parc y Splott		MERLINS BRIDGE	68%	Road	32%	Road

201	FRONCYSYLLE	4	FIVE FORDS	100%	Road			
202	Gaerwen	30	Treborth	79%	Road	QUEENSFERRY	15%	Road
203	GANOL	1597	FIVE FORDS	92%	Road	Land	8%	Road
204	GARNDOLBENMAEN	0	PORTHMADOG	100%	Road			
205	GARNSWILLT	640	AFAN	95%	Road	CARDIFF BAY	5%	Road
206	Garth	1	BUILTH WELLS	100%	Road			
207	Garway (No.3 Fairve)	0	Eign	100%	Road			
208	GELLILYDAN	2	PORTHMADOG	100%	Road			
209	GLANGRWYNEY	0	LLANFOIST	100%	Road			
210	Glasbury	1	BRECON	100%	Road			
211	GLOGUE	0	MERLINS BRIDGE	100%	Road			
212	GLYN CEIRIOG	1	FIVE FORDS	100%	Road			
213	GOODRICH	38	Eign	82%	Road	LLANFOIST	14%	Road
214	GORSGOCH	0	LAMPETER	100%	Road			
215	COWERTON	1683	AFAN	96%	Road	CARDIFF BAY	4%	Road
216	Goytre	10	LLANFOIST	100%	Road			
217	GRAIARRHYD	0	RUTHIN	100%	Road			
218	Graigfechan	1	RUTHIN	100%	Road			
219	GREENFIELD	220	QUEENSFERRY	95%	Road	FIVE FORDS	5%	Road
220	Greenfield Terrace	0	MERLINS BRIDGE	60%	Road	LAMPETER	40%	Road
221	GRESFORD	289	FIVE FORDS	100%	Road	QUEENSFERRY	0%	Road
222	GROES BRONALLT	2	RUTHIN	100%	Road			
223	GROESFFORDD	0	LLANGFNI	100%	Road			
224	GROSMONT	3	LLANFOIST	100%	Road			
225	GWALCHMAI	9	LLANGFNI	100%	Road			
226	GWYTHYRIN	0	Treborth	60%	Road	LLANGFNI	40%	Road
227	GYRN GOCH	0	PORTHMADOG	84%	Road	LLANGFNI	16%	Road
228	Harewood End (No.5)	0	Eign	100%	Road			
229	HAY-ON-WYE	46	Eign	100%	Road			
230	HENLLAN (NR DENBIGH)	4	KINMEL BAY	94%	Road	PORTHMADOG	5%	Road
231	HENLLAN (NR NEWCASTLE EMLYN)	3	LLANINA	33%	Road	KINMEL BAY	31%	Road
232	HENRYD	1	LLANGFNI	60%	Road	Treborth	40%	Road
233	HENTLAND (N OF MONMOUTH) PENCOED RISE	0	Eign	100%	Road			
234	HERBRANDSTON	2	MERLINS BRIDGE	93%	Road	Parc y Splott	7%	Road
235	HEREFORD RIVER VIEW	0	Eign	100%	Road			
236	HERMON	2	MERLINS BRIDGE	55%	Road	LLANINA	45%	Road
237	HESWALL	93	QUEENSFERRY	92%	Road	FIVE FORDS	8%	Road
238	HOLME LACY (WYELANDS)	1	Eign	100%	Road			
239	HOLT	5	FIVE FORDS	100%	Road			
240	HOLYHEAD	205	Treborth	82%	Road	LLANGFNI	18%	Road
241	HOOK	4	MERLINS BRIDGE	100%	Road			
242	HOPE	202	FIVE FORDS	99%	Road	QUEENSFERRY	1%	Road
243	How Caple (Crossways)	0	Eign	100%	Road			
244	HUNDLETON	0	Parc y Splott	100%	Road			
245	Ivington	0	Eign	100%	Road			
246	Johnston	4	MERLINS BRIDGE	87%	Road	Parc y Splott	13%	Road
247	Keeston	1	MERLINS BRIDGE	76%	Road	Parc y Splott	24%	Road
248	Kentchurch (Parkside)	0	Eign	100%	Road			
249	KIDWELLY	36	Parc y Splott	95%	Road	Llanelli	4%	Road
250	KILPECK	0	Eign	100%	Road			
251	KINGS CAPLE	1	Eign	100%	Road			
252	Kingsland	2	Eign	100%	Road			
253	Kingsstone & Madley	50	Eign	99%	Road	LLANFOIST	1%	Road
254	KINGTON	53	Eign	97%	Road	LLANFOIST	3%	Road
255	KINMEL BAY	1689	FIVE FORDS	85%	Road	Land	15%	Road
256	LAMPETER	82	AFAN	98%	Road	FIVE FORDS	2%	Road
257	LAMPHEY	1	MERLINS BRIDGE	100%	Road			
258	LANGDON	2	Parc y Splott	53%	Road	MERLINS BRIDGE	47%	Road
259	LAUGHARNE	14	Parc y Splott	100%	Road	MERLINS BRIDGE	0%	Road
260	LAMSTER	101	FIVE FORDS	100%	Road			
261	Leonminster (Worcester)	245	Eign	100%	Road	LLANFOIST	0%	Road
262	LETTERSTON WEST	12	MERLINS BRIDGE	100%	Road			
263	LITTLE DEWCHURCH	3	Eign	100%	Road			
264	LITTLE MILL	7	LLANFOIST	100%	Road			
265	Lixwm	10	QUEENSFERRY	83%	Road	FIVE FORDS	17%	Road
266	Llan - Llanbrynmair	1	LLANGFNI	64%	Road	PORTHMADOG	36%	Road
267	LLAN FFESTINIOG	7	PORTHMADOG	98%	Road	Treborth	2%	Road
268	LLAN PENMACHNO	3	PORTHMADOG	74%	Road	LLANGFNI	19%	Road
269	Llanaelhearn	2	PORTHMADOG	77%	Road	LLANGFNI	17%	Road
270	LLANAFAN	1	Aberystwyth	100%	Road			
271	Llanarmon DC	0	FIVE FORDS	100%	Road			
272	Llanarmon yn Ial	2	RUTHIN	100%	Road			
273	LLANARTH	0	LLANFOIST	100%	Road			
274	Llanasa	424	KINMEL BAY	59%	Road	FIVE FORDS	38%	Road
275	LLANBEDR (GWYNEDD)	25	PORTHMADOG	79%	Road	Treborth	11%	Road
276	LLANBEDR (POWYS)	1	LLANFOIST	100%	Road			
277	Llanbedr DC	1	QUEENSFERRY	75%	Road	RUTHIN	25%	Road
278	LLANBERIS	39	Treborth	99%	Road	LLANGFNI	1%	Road
279	LLANBOIDY	2	Parc y Splott	100%	Road			
280	Llancloudy	0	Eign	100%	Road			
281	LLANDDAROG	9	Parc y Splott	100%	Road			
282	LLANDDEUSANT	2	LLANGFNI	100%	Road			
283	LLANDDEW	0	Eign	100%	Road			
284	Llanddewi Brefi	0	LAMPETER	100%	Road			
285	Llanddewi Velfrey	1	Parc y Splott	100%	Road			
286	Llanddewi Ystraden	0	Eign	100%	Road			
287	Llandecwyn	0	PORTHMADOG	100%	Road			
288	Llandegai Trefelin	1	Treborth	71%	Road	LLANGFNI	29%	Road
289	LLANDOGO	0	LLANFOIST	88%	Road	Eign	12%	Road
290	LLANDOVERY	17	LAMPETER	90%	Road	Parc y Splott	10%	Road
291	Llandrillo	2	FIVE FORDS	100%	Road			
292	LLANDRINDOD WELLS	2	Eign	74%	Road	BUILTH WELLS	26%	Road
293	LLANDYRNOG	4	QUEENSFERRY	100%	Road			
294	Llandysul	25	LAMPETER	59%	Road	LLANINA	29%	Road
295	Llanedi	0	Parc y Splott	100%	Road			
296	LLANELIDAN	1	RUTHIN	100%	Road			
297	LLANELLEN	0	LLANFOIST	100%	Road			
298	Llanelli	1376	AFAN	94%	Road	CARDIFF BAY	6%	Road
299	LLANERCHYMEDD	13	LLANGFNI	100%	Road			
300	LLANFACHRAETH	4	LLANGFNI	99%	Road	Treborth	1%	Road

301	LLANFACHRETH	1	LLANGFNI	100%	Road			
302	Llanfaes	55	LLANGFNI	73%	Road	Treborth	27%	Road
303	LLANFAETHLU	3	LLANGFNI	91%	Road	Treborth	9%	Road
304	LLANFAGLAN	78	Treborth	100%	Road	LLANGFNI	0%	Road
305	Llanfair Clydogau	1	LAMPETER	100%	Road			
306	Llanfair DC	3	RUTHIN	77%	Road	LLANGFNI	23%	Road
307	Llanfair TH	4	FIVE FORDS	76%	Road	LLANGFNI	21%	Road
308	LLANFAIRFECHAN	44	LLANGFNI	62%	Road	Treborth	38%	Road
309	Llanfairpwll	56	LLANGFNI	90%	Road	Treborth	10%	Road
310	Llanfarian	6	Aberystwyth	100%	Road			
311	LLANFECELL	9	LLANGFNI	98%	Road	Treborth	2%	Road
312	Llanfangleysarth	3	LLANINA	47%	Road	LAMPETER	46%	Road
313	Llanfihangel GM	0	KINMEL BAY	100%	Road			
314	Llanfihangel Nant Bryn	1	Treborth	100%	Road			
315	LLANFOIST	516	CARDIFF BAY	86%	Road	AFAN	14%	Road
316	Llanfrohen	1	PORTHMADOG	81%	Road	LLANGFNI	19%	Road
317	Llanfynydd	2	LLANINA	59%	Road	Parc y Splott	41%	Road
318	LLANFYNYDD (NR LLANDEILO)	0	Parc y Splott	100%	Road			
319	LLANGADOG	11	Parc y Splott	44%	Road	LAMPETER	40%	Road
320	Llangallo	5	LLANGFNI	100%	Road			
321	Llangarron (3 Garron)	0	Eign	100%	Road			
322	Llangarron Herberts Hill	0	Eign	100%	Road			
323	LLANGFNI	395	FIVE FORDS	85%	Road	Land	15%	Road
324	LLANGEITHO	1	LAMPETER	100%	Road			
325	LLANGENNECH	40	GOWERTON	87%	Road	Parc y Splott	7%	Road
326	LLANGERNYW	1	KINMEL BAY	51%	Road	FIVE FORDS	49%	Road
327	Llangod	19	LLANGFNI	58%	Road	Treborth	42%	Road
328	LLANGOLLEN	70	FIVE FORDS	100%	Road			
329	Llangranog	2	LLANINA	100%	Road			
330	Llangwm	7	MERLINS BRIDGE	94%	Road	Parc y Splott	6%	Road
331	Llangybi (Lampeter)	1	LAMPETER	87%	Road	Parc y Splott	13%	Road
332	Llangybi (North West)	1	PORTHMADOG	82%	Road	LLANGFNI	18%	Road
333	Llangybi (Usk)	0	LLANFOIST	100%	Road			
334	Llangynderyn	3	Parc y Splott	86%	Road	GOWERTON	9%	Road
335	LLANIESTYN	0	PORTHMADOG	100%	Road			
336	LLANILAR	6	Aberystwyth	90%	Road	LAMPETER	8%	Road
337	LLANINA	254	AFAN	89%	Road	CARDIFF BAY	6%	Road
338	Llanishen	0	Monmouth	100%	Road			
339	LLANLLYFNI	41	LLANGFNI	46%	Road	Treborth	45%	Road
340	LLANMADOC	7	GOWERTON	74%	Road	Llanelli	13%	Road
341	LLANNANT	264	Llanelli	69%	Road	GOWERTON	30%	Road
342	LLANNON	5	Parc y Splott	83%	Road	GOWERTON	17%	Road
343	LLANNOR	1	PORTHMADOG	100%	Road			
344	Llanpumpsaint	6	Parc y Splott	100%	Road			
345	LLANRHIDIAN	1	GOWERTON	100%	Road			
346	LLANRHYSTUD	21	Aberystwyth	78%	Road	LLANINA	22%	Road
347	LLANRUG	32	LLANGFNI	56%	Road	Treborth	44%	Road
348	LLANRWST	57	Treborth	50%	Road	LLANGFNI	48%	Road
349	LLANSANT	2	Parc y Splott	87%	Road	Llanelli	13%	Road
350	Llanstephan	4	Parc y Splott	100%	Road			
351	Llanswel	1	LAMPETER	50%	Road	Parc y Splott	50%	Road
352	LLANTWIT MAJOR	113	GOWERTON	81%	Road	Llanelli	18%	Road
353	LLANUWCHLLYN	1	RUTHIN	100%	Road			
354	Llanwarne (Monkton P)	0	Eign	100%	Road			
355	Llanybri	2	Parc y Splott	100%	Road			
356	LLANYBYDDER	24	LAMPETER	98%	Road	LLANINA	2%	Road
357	LLANYCHAER	0	MERLINS BRIDGE	100%	Road			
358	Llanychan	10	RUTHIN	81%	Road	QUEENSFERRY	19%	Road
359	LLANYNYS	0	RUTHIN	100%	Road			
360	LLANYRE	0	Treborth	100%	Road			
361	Llanystumdwy	4	PORTHMADOG	99%	Road	LLANGFNI	1%	Road
362	LLECHRYD	8	LLANINA	82%	Road	LAMPETER	7%	Road
363	LLETTY BRONGU (NR MAESTEG)	403	Penybont	100%	Pipeline			
364	Llidiart Annie	0	FIVE FORDS	100%	Road			
365	LLITHFAEN	4	PORTHMADOG	93%	Road	LLANGFNI	7%	Road
366	Llwyncelyn	4	LLANINA	73%	Road	LAMPETER	22%	Road
367	LLYNFAES	0	LLANGFNI	100%	Road			
368	Llyswen (Village)	3	BRECON	100%	Road			
369	Longtown	0	Eign	100%	Road			
370	Lower Cleeve Ross (New)	323	Eign	77%	Road	LLANFOIST	22%	Road
371	LUSTON & YARPOLE	9	Eign	100%	Road			
372	LYDBROOK	36	Eign	93%	Road	LLANFOIST	5%	Road
373	LYONSHALL	7	Eign	100%	Road			
374	MACHYNLLETH	48	Aberystwyth	92%	Road	QUEENSFERRY	5%	Road
375	MAENCLUCHOG	1	MERLINS BRIDGE	98%	Road	LLANINA	2%	Road
376	MAENTWROG	1	PORTHMADOG	100%	Road			
377	Maes Hwylfa Llanrhaeadr	1	QUEENSFERRY	56%	Road	RUTHIN	44%	Road
378	Malltraeth	7	LLANGFNI	100%	Road			
379	Malpas	5	FIVE FORDS	100%	Road			
380	MANMOEL	0	Eign	100%	Road			
381	MARLOES	0	MERLINS BRIDGE	100%	Road			
382	MATHRY	6	MERLINS BRIDGE	100%	Road			
383	MEIDRIM	1	Parc y Splott	100%	Road			
384	MERLINS BRIDGE	384	AFAN	95%	Road	CARDIFF BAY	5%	Road
385	MILFORD HAVEN	52	MERLINS BRIDGE	96%	Road	Parc y Splott	4%	Road
386	MOCCAS	1	Eign	100%	Road			
387	MOLD	459	QUEENSFERRY	91%	Road	FIVE FORDS	9%	Road
388	Monkhide	0	Eign	100%	Road			
389	Monmouth	154	CARDIFF BAY	95%	Road	AFAN	5%	Road
390	Mordiford (Pentaloe)	0	Eign	100%	Road			
391	Mordiford (Sulton)	1	Eign	100%	Road			
392	MORETON-ON-LUGG	53	Eign	100%	Road			
393	Morfa Bychan Www	17	PORTHMADOG	87%	Road	LLANGFNI	10%	Road
394	MOSTYN	56	QUEENSFERRY	90%	Road	FIVE FORDS	10%	Road
395	Moylegrove	0	LLANINA	100%	Road			
396	Much Cowame (Moorend)	0	Eign	100%	Road			
397	MUCH DEWCHURCH	5	Eign	100%	Road			
398	MYDDFAI	0	Parc y Splott	100%	Road			
399	Mydrolin	1	LLANINA	73%	Road	LAMPETER	21%	Road
400	MNYTHO	6	PORTHMADOG	88%	Road	LLANGFNI	11%	Road

401	NANNERCH	0	QUEENSFERRY	100%	Road		
402	NANT GWYNANT	0	Treborh	55%	Road	LLANGFNFI	45% Road
403	NANT PERIS	0	LLANGFNFI	100%	Road		
404	NANTERNIS	2	LLANINA	100%	Road		
405	Nantgaredig (Pontargothi)	4	Parc y Splott	100%	Road		
406	Nantmor	0	PORTHMADOG	100%	Road		
407	NARBERTH WEST	9	MERLINS BRIDGE	83%	Road	Parc y Splott	17% Road
408	Nebo	1	LLANINA	97%	Road	Treborh	3% Road
409	Nefyn	41	PORTHMADOG	73%	Road	Treborh	23% Road
410	NESTON	258	QUEENSFERRY	92%	Road	FIVE FORDS	8% Road
411	NEW RADNOR	3	Eign	100%	Road		
412	Newborough	21	LLANGFNFI	59%	Road	Treborh	41% Road
413	NEWCHAPEL	0	LAMPETER	100%	Road		
414	NEWGALE	14	MERLINS BRIDGE	100%	Road		
415	Newland	274	Monmouth	96%	Road	LLANFOIST	4% Road
416	Newport	1	Parc y Splott	68%	Road	Eign	32% Road
417	NEWPORT (DYFED)	13	LLANINA	97%	Road	LAMPETER	3% Road
418	Newport Nash	4521	CARDIFF BAY	93%	Road	AFAN	6% Road
419	NEYLAND	30	MERLINS BRIDGE	97%	Road	Monmouth	3% Road
420	Normansheath	4	FIVE FORDS	83%	Road	QUEENSFERRY	17% Road
421	NORTHOP	15	QUEENSFERRY	88%	Road	FIVE FORDS	10% Road
422	Norton (Old)	4	Eign	100%	Road		
423	OCLE PYCHARD	0	Eign	100%	Road		
424	OLD RADNOR	0	Eign	100%	Road		
425	Orcop (Copywell Esta)	0	Eign	100%	Road		
426	Overton (Gower)	13	GOWERTON	94%	Road	Llanelli	6% Road
427	OVERTON (NR WREXHAM)	13	FIVE FORDS	100%	Road		
428	OXWICH	3	GOWERTON	81%	Road	Llanelli	19% Road
429	Painscastle	1	Llanelli	100%	Road		
430	Pandy (Llanfihangel Crucorney)	5	LLANFOIST	75%	Road	Eign	25% Road
431	PANDY TUDUR	1	LLANGFNFI	59%	Road	Treborh	41% Road
432	PANDYR CAPEL	0	RUTHIN	100%	Road		
433	Pant Glas	0	Treborh	100%	Road		
434	Panteg	0	MERLINS BRIDGE	100%	Road		
435	PANTYRATHRO	1	Parc y Splott	96%	Road	Llanelli	4% Road
436	Parc y Splott	582	AFAN	93%	Road	CARDIFF BAY	7% Road
437	PEMBREY	35	Llanelli	86%	Road	Parc y Splott	13% Road
438	PEMBRIDGE	7	Eign	100%	Road		
439	PEMBROKE DOCK	582	AFAN	92%	Road	CARDIFF BAY	8% Road
440	PENCADER	15	LAMPETER	67%	Road	Parc y Splott	22% Road
441	PENCAENEWYDD	0	PORTHMADOG	100%	Road		
442	PENCOMBE	2	Eign	100%	Road		
443	PENDINE	11	Parc y Splott	82%	Road	MERLINS BRIDGE	18% Road
444	Peniel	0	RUTHIN	100%	Road		
445	Penisanwaun	5	LLANGFNFI	53%	Road	Treborh	47% Road
446	Penley	2	FIVE FORDS	100%	Road		
447	PENMAENMAWR	45	Treborh	74%	Road	LLANGFNFI	20% Road
448	PENNANT	1	LAMPETER	51%	Road	Aberystwyth	41% Road
449	PENRHOS (W OF PWLLHELI)	2	PORTHMADOG	100%	Road		
450	PENRHOS CAMP	4	PORTHMADOG	98%	Road	LLANGFNFI	2% Road
451	PENRHYNDEUDRAETH	29	PORTHMADOG	86%	Road	LLANGFNFI	14% Road
452	PENTRAETH	14	LLANGFNFI	100%	Road		
453	Pentrecwt	2	LLANINA	73%	Road	Parc y Splott	18% Road
454	Pentrefelin	2	PORTHMADOG	35%	Road	LLANGFNFI	32% Road
455	PENTREFELIN DWYFOR	1	PORTHMADOG	100%	Road		
456	PENTREFOELAS	3	Treborh	49%	Road	LLANGFNFI	32% Road
457	PENTREUCHAF	1	PORTHMADOG	100%	Road		
458	Penybont	0	BUILT WELLS	100%	Road		
459	Penybont	2513	AFAN	91%	Road	CARDIFF BAY	9% Road
460	PETERCHURCH	14	Eign	96%	Road	BRECON	4% Road
461	Pipe & Lyde	0	Eign	100%	Road		
462	PISTYLL	1	PORTHMADOG	100%	Road		
463	PONTERWYD	0	Aberystwyth	100%	Road		
464	PONTFADOG	1	FIVE FORDS	52%	Road	PORTHMADOG	48% Road
465	PONTHIR	1841	Newport Nash	100%	Pipeline		
466	PONTLLYFNI	4	PORTHMADOG	60%	Road	LLANGFNFI	23% Road
467	Pontneddfechan	1	GOWERTON	78%	Road	Parc y Splott	22% Road
468	Ponthydeuair	1	LAMPETER	53%	Road	LLANINA	25% Road
469	Ponthydyfendigaid	3	LAMPETER	88%	Road	Aberystwyth	12% Road
470	PONTRILAS	12	Eign	68%	Road	LLANFOIST	32% Road
471	PONTYATES	53	Llanelli	51%	Road	Parc y Splott	41% Road
472	PONTYBEREM	199	Parc y Splott	47%	Road	Llanelli	47% Road
473	PORTHGAIR	5	MERLINS BRIDGE	91%	Road	Parc y Splott	9% Road
474	PORTHMADOG	251	FIVE FORDS	88%	Road	Land	12% Road
475	PRENTEG	4	PORTHMADOG	76%	Road	LLANGFNFI	24% Road
476	PRESTEIGNE	32	Eign	100%	Road		
477	PRESTON WYNNE	0	Eign	100%	Road		
478	PRESTON-ON-WYE	0	Eign	100%	Road		
479	Pumpsaint	0	LAMPETER	100%	Road		
480	PUNCHESTON	1	MERLINS BRIDGE	96%	Road	Parc y Splott	4% Road
481	Pwllglas	1	PORTHMADOG	100%	Road		
482	PWLLHELI	71	PORTHMADOG	89%	Road	LLANGFNFI	9% Road
483	QUEENSFERRY	2013	Land	70%	Road	FIVE FORDS	30% Road
484	RAGLAN	6	Monmouth	53%	Road	LLANFOIST	34% Road
485	RED ROSES	0	Parc y Splott	100%	Road		
486	RESOLVEN	27	Llanelli	56%	Road	GOWERTON	44% Road
487	Reynalton West	0	GOWERTON	100%	Road		
488	Reynoldston	4	GOWERTON	87%	Road	Parc y Splott	13% Road
489	RHANDIRMWYN	0	LAMPETER	91%	Road	Parc y Splott	9% Road
490	RHAYADER	1	BUILT WELLS	100%	Road		
491	Rhiw	1	PORTHMADOG	100%	Road		
492	RHIVLAS	14	Treborh	52%	Road	LLANGFNFI	48% Road
493	Rhiwsaeson	427	COSLECH	100%	Pipeline		
494	Rhosesmor	10	QUEENSFERRY	100%	Road		
495	Rhosfawr	0	PORTHMADOG	100%	Road		
496	RHOSLAN	0	PORTHMADOG	100%	Road		
497	RHUDDLAN	162	KINMEL BAY	60%	Road	FIVE FORDS	37% Road
498	RHYD	0	PORTHMADOG	100%	Road		
499	Rhyd Ddu	1	LLANGFNFI	54%	Road	Treborh	46% Road
500	Rhydfeilin	5	Aberystwyth	58%	Road	LLANINA	32% Road

501	RHYDLEWIS	0	LLANINA	100%	Road			
502	Rhydlyn	3	LLANGFNI	100%	Road			
503	Rhydyclafdy	3	PORTHMADOG	83%	Road	LLANGFNI		17% Road
504	Rhydymwyn	6	QUEENSFERRY	93%	Road	FIVE FORDS		7% Road
505	Rockfield	0	Monmouth	100%	Road			
506	Rosemarket	1	MERLINS BRIDGE	80%	Road	Parc y Splott		20% Road
507	ROWEN	3	LLANGFNI	65%	Road	Treborth		35% Road
508	Ruardean	14	Eign	95%	Road	LLANFOIST		5% Road
509	Ruardean (Woodside)	1	Eign	100%	Road			
510	RUTHIN	97	QUEENSFERRY	55%	Road	FIVE FORDS		45% Road
511	SAUGHTON	2	QUEENSFERRY	71%	Road	FIVE FORDS		29% Road
512	SALEM	1	Parc y Splott	100%	Road			
513	Sam Council Houses	0	PORTHMADOG	100%	Road			
514	Sam Meilleyrn	1	PORTHMADOG	84%	Road	LLANGFNI		16% Road
515	SARON	0	RUTHIN	100%	Road			
516	SEION 1	3	LLANGFNI	61%	Road	Treborth		39% Road
517	SEION 2	0	PORTHMADOG	100%	Road			
518	Sennybridge (Army CA)	1	BRECON	100%	Road			
519	Shobdon Airfield	13	Eign	100%	Road			
520	SOLVA	6	MERLINS BRIDGE	99%	Road	LLANINA		1% Road
521	Southgate	25	GOWERTON	92%	Road	Llanelli		8% Road
522	SPARRINGTON	0	Eign	100%	Road			
523	SPITAL	3	MERLINS BRIDGE	100%	Road			
524	ST ASAPH	65	KINMEL BAY	55%	Road	FIVE FORDS		40% Road
525	ST JULIANS	0	Eign	100%	Road			
526	ST NICHOLAS (NR BOLVILSTON)	0	MERLINS BRIDGE	100%	Road			
527	St Owens Cross	0	Eign	100%	Road			
528	ST WEONARDS	0	Eign	100%	Road			
529	SLBriavels	3	Monmouth	100%	Road			
530	SLClears	20	Parc y Splott	95%	Road	MERLINS BRIDGE		3% Road
531	SL Davids	6	MERLINS BRIDGE	96%	Road	Parc y Splott		4% Road
532	SL Florence	2	Parc y Splott	89%	Road	MERLINS BRIDGE		11% Road
533	St Ishmaels	0	MERLINS BRIDGE	100%	Road			
534	St Nicholas	0	MERLINS BRIDGE	76%	Road	Eign		24% Road
535	STACKPOLE	1	MERLINS BRIDGE	55%	Road	Parc y Splott		45% Road
536	Stanford Bishop	0	Eign	100%	Road			
537	STAUNTON-ON-WYE	2	Eign	100%	Road			
538	Stoke Lacy (Westbury)	1	Eign	100%	Road			
539	Stretton Grandison	0	Eign	100%	Road			
540	SWANSEA BAY	2955	AFAN	100%	Road	CARDIFF BAY		0% Road
541	Tal Lon	0	PORTHMADOG	100%	Road			
542	Tal y Bont (Conwy)	8	LLANGFNI	58%	Road	Treborth		24% Road
543	TALGARREG	0	Parc y Splott	100%	Road			
544	TALGARTH	25	BRECON	93%	Road	LLANFOIST		7% Road
545	TALLEY	2	Parc y Splott	66%	Road	LAMPETER		34% Road
546	Talsam	1	LAMPETER	100%	Road			
547	TALSARNAU	2	PORTHMADOG	100%	Road			
548	Talybont (Dyfed)	6	Aberystwyth	100%	Road			
549	Talybont Bangor	4	Treborth	64%	Road	LLANGFNI		36% Road
550	Talybont on Usk	1	BRECON	100%	Road			
551	Tan Lan	0	LLANGFNI	100%	Road			
552	Tanygroes STW	0	LLANINA	100%	Road			
553	TARRINGTON	6	Eign	100%	Road			
554	TATTENHALL	23	FIVE FORDS	99%	Road	QUEENSFERRY		1% Road
555	TAVERNSPITE	1	Parc y Splott	71%	Road	MERLINS BRIDGE		29% Road
556	Templeton	7	GOWERTON	42%	Road	MERLINS BRIDGE		39% Road
557	TENBY	210	Parc y Splott	83%	Road	MERLINS BRIDGE		15% Road
558	The Bryn	0	Eign	94%	Road	LLANFOIST		6% Road
559	TIERS CROSS	0	MERLINS BRIDGE	100%	Road			
560	TILSTON	3	FIVE FORDS	100%	Road			
561	TINTERN	4	LLANFOIST	100%	Road			
562	Titley	1	Eign	100%	Road			
563	TRAWSFYNYDD (FRONGALED)	4	PORTHMADOG	100%	Road			
564	TREBANOS	311	Llanelli	84%	Road	GOWERTON		14% Road
565	Treborth	1329	FIVE FORDS	54%	Road	Land		46% Road
566	TREFFGARNE	0	MERLINS BRIDGE	100%	Road			
567	TREFNANT	20	KINMEL BAY	62%	Road	FIVE FORDS		38% Road
568	Trefor Gwydir Mawr Sea View	1	PORTHMADOG	100%	Road			
569	Trefor North-West	9	LLANGFNI	57%	Road	Treborth		25% Road
570	TREFRIW	0	PORTHMADOG	78%	Road	KINMEL BAY		22% Road
571	TREGARON	9	LAMPETER	100%	Road			
572	TREGARTH	25	LLANGFNI	55%	Road	Treborth		45% Road
573	Trelawnyd	7	FIVE FORDS	70%	Road	KINMEL BAY		17% Road
574	TRELECH	1	Parc y Splott	75%	Road	LLANINA		25% Road
575	TRELECH IN OF CHEPSTOW	0	Monmouth	100%	Road			
576	Tremeirchion	2	FIVE FORDS	80%	Road	KINMEL BAY		20% Road
577	TREUDDYN	15	QUEENSFERRY	95%	Road	FIVE FORDS		5% Road
578	Trevine	2	MERLINS BRIDGE	96%	Road	Parc y Splott		4% Road
579	TRIMSARAN	41	Parc y Splott	73%	Road	GOWERTON		21% Road
580	TUDWELILOG	4	PORTHMADOG	100%	Road			
581	TWYNLLANAN	0	LAMPETER	100%	Road			
582	Tyn y Groes	3	LLANGFNI	75%	Road	Treborth		13% Road
583	TYWYN	14	PORTHMADOG	87%	Road	LLANGFNI		13% Road
584	Upton Bishop (Birfle)	1	Eign	58%	Road	Monmouth		42% Road
585	USK	8	LLANFOIST	94%	Road	Monmouth		3% Road
586	UZMASTON	0	MERLINS BRIDGE	100%	Road			
587	Walton East	0	Parc y Splott	67%	Road	MERLINS BRIDGE		33% Road
588	Walton West	5	MERLINS BRIDGE	93%	Road	Parc y Splott		7% Road
589	Waterslon Works	0	MERLINS BRIDGE	100%	Road			
590	WALNFAWR	16	LLANGFNI	53%	Road	Treborth		47% Road
591	WEOBLEY	20	Eign	100%	Road			
592	West Aberthaw	0	CARDIFF BAY	100%	Road			
593	WESTON BEGGARD	0	Eign	100%	Road			
594	Whitchurch	319	FIVE FORDS	100%	Road			
595	WHITFORD	0	KINMEL BAY	100%	Road			
596	WHITLAND	18	Parc y Splott	95%	Road	MERLINS BRIDGE		5% Road
597	WICK	1	GOWERTON	100%	Road			
598	Wells castle	2	MERLINS BRIDGE	93%	Road	Parc y Splott		7% Road
599	Woolhope (Village)	2	Eign	100%	Road			
600	Worms bridge	0	Eign	100%	Road			
601	Y FFOR	5	PORTHMADOG	86%	Road	LLANGFNI		14% Road
602	YNYS	0	PORTHMADOG	100%	Road			
603	YSBYTY IFAN	1	LLANGFNI	96%	Road	Treborth		4% Road
604	YSTRADGYNLAIS	162	Llanelli	86%	Road	GOWERTON		13% Road

3.2 Table 2 – Commentary

This table collects information on your company's main sludge transport routes. Please populate from actual 2019-20 transport patterns. This table collects the immediate destination from each site and not the final destination. So if a WWTW transports to a dewatering site which then transports to a sludge treatment centre, the WWTW's destination in this table is the dewatering site.

It is important that the names of the sites in columns 1, 2 and 5 are identical to those in the 2019-20 Market Information. To assist with this, please manually copy your company's sites from the Dropdowns tab into column 1. The table will highlight non-matching names red.

3.3 Table 2 - Column 1

The originating site. All your company's wastewater treatment sites and STCs should be included here.

This column lists our 604 wastewater treatment sites and STCs in line with our bioresources market information for 2019-20.

3.4 Table 2 - Column 2

Indigenous production during 2019-20. This may be copied from the Market Information in the Dropdowns sheet.

This column reports the 2019-20 indigenous sludge from the bioresources market information. The total indigenous sludge is equal the total sludge produced reported in the APR line 4R.25- Total sewage sludge produced.

3.5 Table 2 - Columns 3, 6

The site which received the most and second-most sludge from this site in 2019-20. Enter 'Land', 'Incineration' or 'Other' if sludge is not sent to another site. If it is exported to another WaSC, enter the site name. The site name must match its name in the market information.

Columns 3 and 6 report the principal and secondary destination sites which receive the most and second-most sludge respectively from the initial site in 2019-20. This data is from our tankering reporting used to report lines 4 to 6 in worksheet '1. Company'. Some sites have a combination of Land and STC as destinations, this is either as a result of decommissioning a site part way through the reporting year and the destination changing from Land to an STC, or the requirement to be retreated at a separate STC before been released to Agriculture during the reporting year.

3.6 Table 2 - Columns 4, 7

The percent of sludge by weight which went to the principal and secondary destinations for this site.

Columns 4 and 7 report the percentage of sludge that goes to the principal and secondary destination. The percentage sludge transported to different sites is based on the percentage of all sludge leaving the site. Where a site receives sludges direct into sewage treatment centres it is assumed everything mixes homogeneously therefore the percentage going to principle and secondary destination is representative of the percentage split of indigenous sludge.

3.7 Table 2 - Columns 5,8

Whether the sludge was transported by road, pipeline, or other mode.

Columns 5 and 8 report whether sludge was transported by road, pipeline or other mode.

4 Table 3 – Total Capacity

4.1 Table 3 – Total Capacity per sludge treatment centre

Column	1	2	3	4	5	6	7	8	9	10	11
Description	Site	Total capacity 2020-2021	Total capacity 2021-2022	Total capacity 2022-2023	Total capacity 2023-2024	Total capacity 2024-2025	Total capacity 2025-2026	Total capacity 2026-2027	Total capacity 2027-2028	Total capacity 2028-2029	Total capacity 2029-2030
Item reference											
Unit	Text	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS
DPs	N/A	0	0	0	0	0	0	0	0	0	0
1	Aberystwyth	1508	1508	1508	1508	1508	1508	1508	1508	1508	1508
2	Afan	15274	15274	15083	14892	14701	18138	18138	17947	17756	17565
3	Cardiff Bay	30070	30070	29717	29363	29009	33608	33608	33254	32901	32547
4	CARDIGAN	693	693	693	693	693	693	693	693	693	693
5	CHESTER	2990	2990	2990	2990	2990	2990	2990	2990	2990	2990
6	Cog Moors	5236	20075	20075	20075	20075	20075	20075	20075	20075	20075
7	COSLECH	721	721	721	721	721	721	721	721	721	721
8	Eign	6834	6834	6834	6834	6834	6834	6834	6834	6834	6834
9	Five Fords	19345	19345	19345	19345	19345	19592	19376	19161	18946	18731
10	GANOL	2946	2946	2946	2946	2946	2946	2946	2946	2946	2946
11	GARNSWLLT	2510	2510	2510	2510	2510	2510	2510	2510	2510	2510
12	GOWERTON	4679	4679	4679	4679	4679	4679	4679	4679	4679	4679
13	KINMEL BAY	2437	2437	2437	2437	2437	2437	2437	2437	2437	2437
14	LAMPETER	2724	2724	2724	2724	2724	2724	2724	2724	2724	2724
15	Llanelli	3807	3807	3807	3807	3807	3807	3807	3807	3807	3807
16	LLANFOIST	2054	2054	2054	2054	2054	2054	2054	2054	2054	2054
17	LLANGFNFI	2224	2224	2224	2224	2224	2224	2224	2224	2224	2224
18	LLANINA	2686	2686	2686	2686	2686	2686	2686	2686	2686	2686
19	MERLINS BRIDGE	3930	3930	3930	3930	3930	3930	3930	3930	3930	3930
20	Monmouth	1333	1333	1333	1333	1333	1333	1333	1333	1333	1333
21	Newport Nash	11548	11548	11548	11548	11548	11548	11548	11548	11548	11548
22	Parc y Splott	4584	4584	4584	4584	4584	4584	4584	4584	4584	4584
23	PEMBROKE DOCK	1077	1077	1077	1077	1077	1077	1077	1077	1077	1077
24	PENYBONT	4735	4735	4735	4735	4735	4735	4735	4735	4735	4735
25	PORTHMADOG	2107	2107	2107	2107	2107	2107	2107	2107	2107	2107
26	QUEENSFERRY	1816	1816	1816	1816	1816	1816	1816	1816	1816	1816
27	SWANSEA BAY	8420	8420	8420	8420	8420	8420	8420	8420	8420	8420
28	Treborth	2843	2843	2843	2843	2843	2843	2843	2843	2843	2843

4.2 Table 3 – Commentary

This table collects information on your current and forecast capacity at each bioresources site. Capacity is in tonnes dry solids input to the site in any form (liquid or cake). Include dewatering sites and sludge treatment centres only.

Advanced Anaerobic Digestion (AAD) Sites

Three of our sites are AAD; Cardiff Bay, Afan and Five Fords. We are currently commissioning a fourth AAD site, Cogmoors. Total capacity is based on the lower of either the design capacity or the maximum throughput at the minimum hydraulic retention time.

Adjustments are made to the maximum capacity to reflect operational restrictions. The first restriction is the build-up of grit. Digesters are designed with 95% availability which has been confirmed by testing under normal operational conditions. It has been seen that this volume is available for the first 2 years of service, after which time grit build up in the digesters reduces the digester availability by 1% per annum. Our forecasts of capacity data take into account the potential build-up of grit in all of our four ADD sites, reducing the capacity availability.

The current capacity at Cardiff and Afan is reduced by 15% and 20% respectively due to the build-up of grit in the digester. The capacity data for Cardiff and Afan increases in 2025-26 as we have assumed the digestors will be cleaned and the grit removed.

Capacity at Five Fords is currently restricted by the capacity of the Liquor Treatment Plant. It has been assumed that this will be resolved by 2025/26 which results in an increase in capacity. Capacity decreases by 1% per annum from 2025-26 due to grit build up.

Capacity increases at Cogmoors in 2021-22 when the sludge treatment centre is due to be commissioned.

Other sludge treatment centres

Detailed design capacity information on our other sludge treatment centres is limited. The capacities are calculated for the sludge treatment centre, in particular the capacity of the centrifuges to dewater sludge. Centrifuge performance data is available from our technical maintenance visits. The capacity is calculated by multiplying the historical average performance of the centrifuge by the design specification of 16 hours a day, 5 days a week. Other limitations such as feed pump size/cake pump size, pipe restrictions, cake skip availability, treatment works available to process centrate may further reduce the capacity.

5 Table 4 – Tradable Capacity

5.1 Table 4 - Tradeable capacity by sludge treatment centre

Column	1	2	3	4	5	6	7	8	9	10	11
Description	Site	Tradeable capacity 2020-2021	Tradeable capacity 2021-2022	Tradeable capacity 2022-2023	Tradeable capacity 2023-2024	Tradeable capacity 2024-2025	Tradeable capacity 2025-2026	Tradeable capacity 2026-2027	Tradeable capacity 2027-2028	Tradeable capacity 2028-2029	Tradeable capacity 2029-2030
Item reference											
Unit	Text	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS
DPS	N/A	0	0	0	0	0	0	0	0	0	0
1	Floating capacity - Afan, C	0	7429	6652	5875	5097	13145	12695	11700	10703	9706
2	Aberystwyth	0	0	0	0	0	0	0	0	0	0
3	CARDIGAN	0	0	0	0	0	0	0	0	0	0
4	CHESTER	0	0	0	0	0	0	0	0	0	0
5	COSLECH	0	0	0	0	0	0	0	0	0	0
6	Eign	0	0	0	0	0	0	0	0	0	0
7	GANOL	0	0	0	0	0	0	0	0	0	0
8	GARNSWLLT	0	0	0	0	0	0	0	0	0	0
9	GOWERTON	950	950	950	950	950	950	950	950	950	950
10	KINMEL BAY	0	0	0	0	0	0	0	0	0	0
11	LAMPETER	0	0	0	0	0	0	0	0	0	0
12	Llanelli	327	327	327	327	327	327	327	327	327	327
13	LLANFOIST	729	729	729	729	729	729	729	729	729	729
14	LLANGFNI	0	0	0	0	0	0	0	0	0	0
15	LLANINA	1543	1543	1543	1543	1543	1543	1543	1543	1543	1543
16	MERLINS BRIDGE	0	0	0	0	0	0	0	0	0	0
17	Monmouth	0	0	0	0	0	0	0	0	0	0
18	Newport Nash	371	371	371	371	371	371	371	371	371	371
19	Parc y Splott	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111
20	PEMBROKE DOCK	0	0	0	0	0	0	0	0	0	0
21	PENYBONT	0	0	0	0	0	0	0	0	0	0
22	PORThMADOG	0	0	0	0	0	0	0	0	0	0
23	QUEENSFERRY	0	0	0	0	0	0	0	0	0	0
24	SWANSEA BAY	0	0	0	0	0	0	0	0	0	0
25	Treborth	454	454	454	454	454	454	454	454	454	454

5.2 Table 4 – Commentary

This table collects information on your current and forecast headroom at each bioresources site. Capacity is in tonnes dry solids input to the site in any form (liquid or cake). Include dewatering sites and sludge treatment centres only.

Advanced Anaerobic Digestion (AAD) Sites

The tradeable capacity is calculated as the total capacity less the current required capacity and the headroom capacity. The required capacity is based on the indigenous sludge for 2019/20 from APR table 4R line 23- Total sewage sludge produced, treated by incumbents and import weighbridge data. We have assumed an increase in the required capacity for growth of 0.3% per year between 2020 and 2030, following our PR19 forecasts. Headroom is calculated as 10% of the required annual capacity for planned and reactive maintenance and downtime.

We have included our four AAD sites (Afan, Cardiff Bay, Five Fords and Cogmoors) as floating capacity. Tradeable capacity for 2020-21 is zero whilst we finalise the commissioning of Cogmoors.

Five Fords in North Wales has seen a significant reduction in TDS during COVID due to the permanent closing of many large food factories. For the purposes of this return we have included this in tradeable capacity on the basis this table will be reviewed annually and if this demand returns in future years, we would then reduce available tradeable capacity accordingly. This approach is taken for any significant closing or opening of large commercial businesses within a given catchment.

Other Sludge Treatment Centres

The tradeable capacity for our other sludge treatment centres is calculated as the total capacity less the current required capacity and headroom capacity. The current required capacity is calculated using the peak monthly demand over a period of 5 years. We have assumed an increase in the required capacity for growth of 0.3% per year between 2020 and 2030 following our PR19 forecasts. Headroom is calculated as 10% of the required annual capacity for planned and reactive maintenance and downtime.

A number of our sites have restrictions and therefore we are unable to undertake trading. The table below provides a brief explanation of the restrictions on trading.

Table 1: Trading Restrictions

Site	Restriction on Trading
CARDIGAN	No liquid sludge reception facility on site
GANOL	No liquid sludge reception facility on site
GARNSWLLT	No liquid sludge reception facility on site
LAMPETER	Centrate return restrictions, no tradeable capacity
LLANGFNI	Centrate return restrictions, no tradeable capacity
MERLINSBRIDGE	Centrate return restrictions, no tradeable capacity
Parc y Splott	Centrate return restrictions, tradeable capacity reduced by 50%
PEMBROKE DOCK	No liquid sludge reception facility on site
PEN-Y-BONT (MERTHYR MAWR)	No liquid sludge reception facility on site
PORTHMADOG	Centrate return restrictions, no tradeable capacity
SWANSEA BAY	No liquid sludge reception facility on site

A number of our sites are also at full capacity already and therefore have no spare capacity available for trading. These sites are:

- Aberystwyth
- CHESTER
- COSLECH
- Eign
- KINMEL BAY
- Monmouth
- QUEENSFERRY

6 Table 5 – Headroom Capacity

6.1 Table 5 - Headroom capacity by sludge treatment centre

Column	1	2	3	4	5	6	7	8	9	10	11
Description	Site	Headroom capacity 2020-2021	Headroom capacity 2021-2022	Headroom capacity 2022-2023	Headroom capacity 2023-2024	Headroom capacity 2024-2025	Headroom capacity 2025-2026	Headroom capacity 2026-2027	Headroom capacity 2027-2028	Headroom capacity 2028-2029	Headroom capacity 2029-2030
Item reference											
Unit	Text	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS	tDS
DPS	N/A	0	0	0	0	0	0	0	0	0	0
1	Floating capacity - Afan, C	0	7030	7052	7073	7094	7115	7137	7158	7179	7201
2	Aberystwyth	52	52	52	52	52	52	52	52	52	52
3	CARDIGAN	390	390	390	390	390	390	390	390	390	390
4	CHESTER	0	0	0	0	0	0	0	0	0	0
5	COSLECH	0	0	0	0	0	0	0	0	0	0
6	Eign	0	0	0	0	0	0	0	0	0	0
7	GANOL	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
8	GARNSWLLT	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
9	GOWERTON	339	339	339	339	339	339	339	339	339	339
10	KINMEL BAY	0	0	0	0	0	0	0	0	0	0
11	LAMPETER	0	0	0	0	0	0	0	0	0	0
12	Llanelli	316	316	316	316	316	316	316	316	316	316
13	LLANFOIST	120	120	120	120	120	120	120	120	120	120
14	LLANGFNFI	0	0	0	0	0	0	0	0	0	0
15	LLANINA	104	104	104	104	104	104	104	104	104	104
16	MERLINS BRIDGE	0	0	0	0	0	0	0	0	0	0
17	Monmouth	0	0	0	0	0	0	0	0	0	0
18	Newport Nash	1016	1016	1016	1016	1016	1016	1016	1016	1016	1016
19	Parc y Splott	215	215	215	215	215	215	215	215	215	215
20	PEMBROKE DOCK	134	134	134	134	134	134	134	134	134	134
21	PENYBONT	61	61	61	61	61	61	61	61	61	61
22	PORTHMADOG	0	0	0	0	0	0	0	0	0	0
23	QUEENSFERRY	0	0	0	0	0	0	0	0	0	0
24	SWANSEA BAY	4189	4189	4189	4189	4189	4189	4189	4189	4189	4189
25	Treborth	217	217	217	217	217	217	217	217	217	217

6.2 Table 5 – Commentary

This table collects information on your current and forecast headroom at each bioresources site. Capacity is in tonnes dry solids input to the site in any form (liquid or cake). Include dewatering sites and sludge treatment centres only.

Advanced Anaerobic Sites

The minimum headroom reserved for maintenance, reactive breakdown and peak demand period is 10% of the required annual capacity for planned and reactive maintenance and downtime. The required capacity is based on the indigenous sludge for 2019/20 from table 4R line 23- Total sewage sludge produced, treated by incumbents and import weighbridge data. We have assumed an increase in the required capacity for growth of 0.3% per year between 2020 and 2030 following our PR19 forecasts.

We have included our four AAD sites (Afan, Cardiff Bay, Five Fords and Cogmoors) as floating headroom capacity.

Other Sludge Treatment Centres

The minimum headroom reserved for maintenance, reactive breakdown and peak demand period is 10% of the required annual capacity. The current required capacity is calculated using the peak monthly demand over a period of 5 years. We have assumed an increase in the required capacity for growth of 0.3% per year between 2020 and 2030 following our PR19 forecasts. Table 1 outlines that a number of sites have restrictions on trading. If a site has restrictions on trading, then the remaining capacity has been allocated to headroom.

Appendix 1 – Data request from Ofwat

From: Alex Whitmarsh <Alex.Whitmarsh@ofwat.gov.uk>
Sent: Thursday, December 17, 2020 4:54 pm
Cc: Hanif Jetha; Alexander, Zac
Subject: Bioresources information request - due 21 January 2021

***** External Mail *****

Dear stakeholder,

Many thanks for your engagement to date in our review of the bioresources market. In order to progress our work, we are issuing an information request to all sewerage companies. This email sets out what information we need from you, why we are requesting that information and our intention to publish some of this information.

Information request

As part of our work, we want to strengthen our understanding of how the market currently operates, and identify potential blockers and opportunities. Key determinants of this are the demand, capacity of sites and the costs of trading.

We have aimed to make use of existing data. However, there are still some gaps. The particular gaps we are facing relate to:

1. identifying current flows, i.e. where sludge is being produced and sent to;
2. forward looking information at site level; and
3. variable cost at site level.

This information request relates to these areas.

Our information request is set out in the attached spreadsheet. Please populate this. As noted in the spreadsheet, please do not alter its layout - this is important so we can process the information effectively.

If you have any questions in relation to this information request, please email: me, Hanif.Jetha@ofwat.gov.uk and Zac.Alexander@jacobs.com

Publication of non-confidential information

We assume that some companies may not wish their site-level opex costs to be published at this time (i.e. worksheet '6. Site opex'). However, we assume that all the other information being provided in response to this request is not confidential and can be published. We therefore propose publishing all the information we receive except for site-level opex costs. If you disagree with this proposal, please let us know when you respond and provide reasons why you consider any of the information we propose publishing to be confidential.

Please can you send your response to Hanif and me by **COP 21 January 2021**.

Many thanks in advance and kind regards,

Alex

Appendix 2 – Third party quality assurance

Letter of Assurance

For the attention of Eleri Rees, Strategy and Regulation Director

Ofwat Bioresources market development data request assurance letter

To the Directors

Dear Eleri,

On 17 December 2020 Ofwat issued a request for information to waste water companies for data about the bioresources market. In this request Ofwat asked for information on the current sludge flows i.e. where sludge is being produced and sent to; forward looking information at site level; operating costs for raw sludge transport by type of transport; and direct operating costs for sludge treatment at a bioresources site level. Companies are required to submit the data to Ofwat by 21 January 2021.

Ofwat has asked for this information in order to help it strengthen its understanding of how the market currently operates and to identify potential blockers and opportunities. It believes the key determinants of this are the demand, capacity of sites and the costs of trading.

The request for information consists of six tables, and requires companies to provide both actual and forecast data on:-

- company intersiting of sludge,
- transport of sludge,
- total capacity,
- tradeable capacity,
- headroom capacity; and
- bioresources site opex.

You asked us to provide technical assurance of your submission. We note that under the current Covid-19 restrictions our face to face assurance has been undertaken remotely using Microsoft Teams. Some information was provided and reviewed by our team in advance of the meetings. This offline review mainly related to the sludge activity-based data for intersiting information, sludge transport and individual site capacity data.

The face to face reviews of the data took place on the 14th and 18th January 2021.

This letter summarises our assurance work. It is supported by separate detailed assurance feedback.

Scope of work

You asked us to check the robustness and accuracy of the reporting processes and to review, where applicable, the consistency of data with your APR and Regulatory Accounts.

Our assurance of your submission is risk and sampled based and designed to support your own first and second line assurance activity. Some, but not all, of this data and/or the supporting processes has been subject to previous external assurance either by Jacobs, as your non-financial assurers, or by your financial assurers KPMG.

Findings

Over the course of our assurance we identified no material issues. We provided separate detailed feedback to your team highlighting non-material issues and recommended actions..

Conclusions

Overall, we conclude that:

- the Company has followed Ofwat's guidance in preparing this information and/or provided suitable documentation explaining the nature of each deviation, how data has been derived, and why this deviation is necessary.
- the statements of numerical data are, where applicable, consistent with our previous APR audits of the supporting information, which is appropriately robust.

Yours sincerely

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