

Backstop Improvement Condition Extension Report

This document has been submitted to explain and evidence the need for an extension to the 12-month Backstop Improvement Condition, which has been issued to Dŵr Cymru as part of the Review of Permits process, and the subsequent investment programme of works.

WwTW Name	AMBLESTON STW
Permit Number	BG0001101
Catchment	West Cleddau
Water Body	Spittal Brook - headwaters to conf with W. Cleddau
Can the site meet the total phosphorus backstop limit now	No
Explanation	<ul style="list-style-type: none"> • No phosphorus removal processes currently installed on site. • Current long-term performance 5.3 mg/l average • Peaks of above 9 occur during the summer
Can the site meet the backstop in 12 months	No
Explanation	<ul style="list-style-type: none"> • Current on-site assets cannot be optimised further, nor can the site host a dosing unit with the current assets on site. A full reconfiguration is required. • The site is an integral Rotating Biological Contactor (RBC) site with no settlement tanks. • The impact of the current asset set up is: <ul style="list-style-type: none"> ○ There is no adequate location on site to dose iron, with suitable turbulence to garner the optimum mixing, ○ There is no settlement stage on site meaning the effluent would not have the required reaction time with the dosed iron ○ There is no Tertiary Solids Removal (TSR) • Achieving the Backstop limits is therefore not possible as the current on site biological process could not host dosing • Investment and increased footprint required to adequately address the backstop limit. • A hybrid NBS is being progressed for this site, requirement for the scheme to mature
Primary Extension Category	Land Purchase required
Secondary Extension Category	NBS / Hybrid solution to be progressed
Headline category of solution	Hybrid: Ferric dosing with reedbed to provide further tertiary removal
Details of proposed solution	<ul style="list-style-type: none"> • Chemical dosing (ferric and alkalinity), combined with storage kiosk, safety shower and bunded area • Modular Reed bed to provide tertiary removal • Increased Sludge Holding capacity

- Automated de-sludge (to be confirmed at detailed design stage)

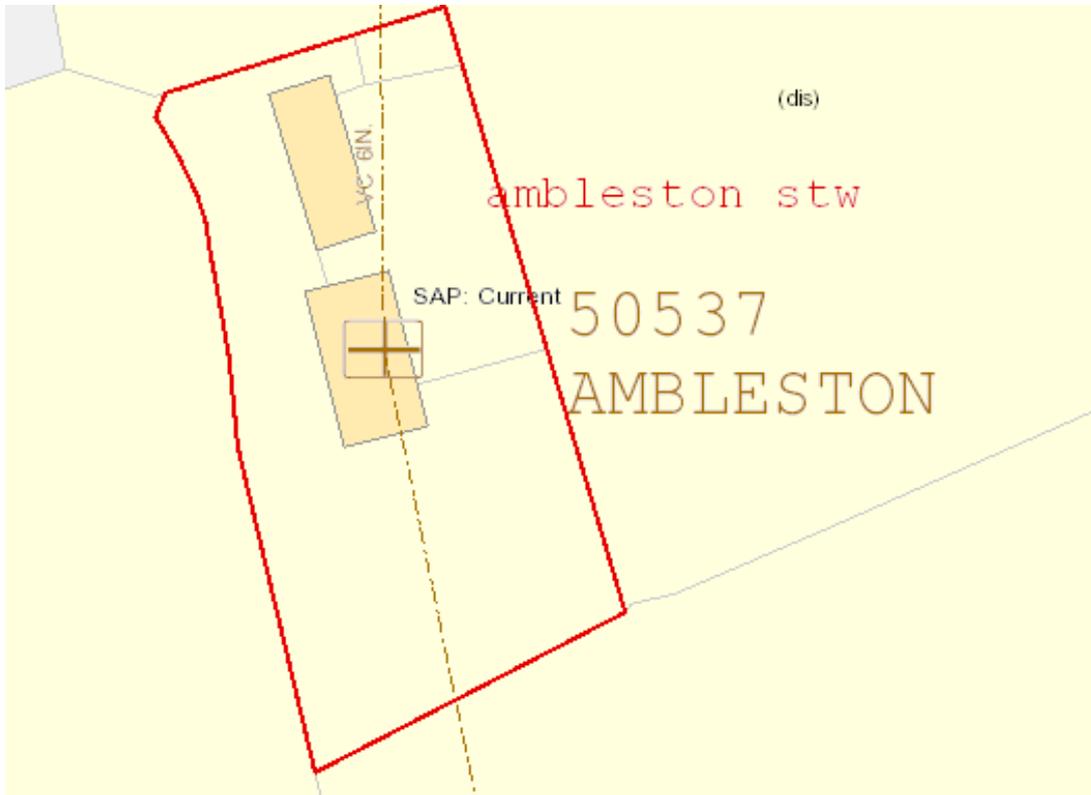
Land purchase required	Yes
Planning required	Yes
Protected Area surveys & Ecology approvals	Yes
NBS Candidate	Yes (hybrid)
Partnership / Multi sector scheme candidate	No

Proposed timeline of scheme completion	36 months
Date requested on extended permit Improvement Condition	28 th January 2028
Date submitted to NRW	17/04/2024
DCWW Senior Signature	<i>K. Harrell</i>
NRW Senior Signature	

Appendix

Appendix 1

Photo of on site asset and space and areal image of WwTW, with 'redline boundary' of DCWW's existing landholding. Demonstrating there is no further room to expand without further land purchase.



Appendix 2 Raw Sample Data

	BOD ATU	Ammoniacal Nitrogen	Suspended solids	Ortho phosphate	Total Phosphorus
	mg/L	mg/L	mg/L	mg/L	mg/L
Date	Result Val	Result Val	Result Val	Result Val	Result Val
25/Jan/23 11:12				4.68	4.75
26/Jan/23 14:00	6	1.31	9	5.13	5.2
06/Feb/23 13:30	8	3.87	8	8.95	8.81
24/Mar/23 08:31				2.49	2.74
19/May/23 08:47				10.42	9.8
08/Jun/23 12:02	9	8.3	15	10.32	9.58
20/Jun/23 11:49				10.24	9.9
03/Jul/23 10:47	8	0.8	8	9.7	9.14
27/Jul/23 11:36	9	1.35	5	1.24	1.44
28/Jul/23 09:39				1.68	1.78
03/Aug/23 10:45	6	1.17	8	6.03	5.91
07/Aug/23 11:19	8	0.66	7	6.01	6.08
14/Aug/23 09:48				4.08	4.61
06/Sep/23 10:57	8	0.4	5	10.46	9.92
02/Oct/23 12:01	6	0.71	11	1.1	1.48
10/Oct/23 09:45			6	5.01	5.4
25/Oct/23 13:21	8	0.4	5	1.36	1.51
06/Nov/23 12:35		0.4	7	1.39	1.59
13/Nov/23 09:19				0.82	1.08
05/Dec/23 10:17				0.51	0.61
03/Jan/24 09:38				0.4	0.49
15/Mar/24 11:30				2.15	2.43