H5 Site Condition Report

Anaerobic Digestion Facility- Talgarth

25th July 2025

Project No.: SOL_24_P060_GPB

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25th July 2025

H5 Site Condition Report

Anaerobic Digestion Facility - Talgarth

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1. INTRODUCTION

This H5 Site Condition Report has been prepared by Sol Environment Ltd on the behalf of GP Biotec Ltd in support of a "normal" permit variation application of their existing permit (EPR/AB3233DW/V008) for operations at their anaerobic digestion facility located at Great Porthamel Farm, Talgarth.

The anaerobic digestion facility operations are regulated through the main permit (EPR/AB3233DW/V008), and a Standard Rules (SR2010 No.17) permit (EPR/BB3099CG) which covers waste storage operations for incoming waste.

As part of the variation application, GP Biotec wishes to make the following changes:

- Consolidation of the areas and activities currently covered by the standard rules permit within the main Part A(1) installations permit (EPR/AB3233DW/V008);
- Inclusion of an existing area of land that contains the main digestate lagoon, as well as ancillary buildings and storage areas
- Add an additional Combined Heat and Power Plant (CHP) engine to the permit, allowing for 3 CHP's in total to be operated on site;
- Add two additional liquid waste pre-storage tanks;
- Include a new waste reception hall for future operation. This new reception hall will not increase the total permitted storage capacity at any one time but will allow for alternative storage options during times of maintenance/upgrades to the existing reception hall.

This document utilises information contained in previous Site Condition Reports (SCR) from 2014, and the updates made in 2021, submitted as part of permit application and variation packages to Natural Resources Wales (NRW). These reports relied on information supplied by the site and various third-party information sources (See Section 2) submitted as part of the planning and permitting application process. This update to the SCR (2025) is to reflect operational changes and the inclusion new storage areas within the permitted boundary and consolidates all previous versions of the SCR.

The GP Biotec site (*'the Site')* is located at Great Porthamel Farm, Talgarth, Brecon, Powys, LD3 0DL.

This document has been prepared in accordance with the EA's Guidance Document H5 Site Condition Reports Guidance and Templates (Version 5.0, dated October 2014). This report provides baseline information in relation to the site.

2. SITE DETAILS

The table below contains the basic site details, in the format of the H5 Site Condition Report template.

Table 2.1 - Site Details

Site Details	
Name of Applicant	GP Biotec Ltd
Activity Address	Great Porthamel Farm, Talgarth, Brecon, Powys, LD3 0DL
National Grid Reference	SO 16017 35022
OS Coordinates (X,Y)	316017,235022
Document Reference for the Report	SOL_24_P060_GPB – Site Condition Report, May 2025 "*H5 Site Condition Report – Anaerobic Digestion Facility, Talgarth*"
Additional Documentation	▪ Annex A – Site Location and Layout Plans ▪ Annex B – Groundsure Report 2023 (Additional Areas) ▪ Annex C - Groundsure Report 8th December 2021 (existing site) ▪ Annex D- Envirocheck Report 14th February 2011 (existing site) ▪ Annex E - Soil Reference Data Suite (existing site) ▪ Annex F - PAN-003557 Surrender Report ▪ Annex G - Conceptual Site Model

2.1 Site Location & Description

The location of the site is shown on Figure A1, Annex A, centred at approximate National Grid Reference SO 15970 35082. The site layout, including the additional areas of land to be included in the permit as part of this 2025 variation, is shown in Figure A2.

The site occupies the central area of the current Great Porthamel Farm located at Great Porthamel Farm, Talgarth, Brecon, Powys, LD3 0DL.

The total installation site area, including the proposed area for inclusion in the permit, is approximately 2.81 hectares.

There are two areas of site proposed for inclusion in the permit; the standard rules waste storage area is located approximately 380m to the west of the main site and currently comprises bunded hardstanding and storage tanks, and the area adjacent to the west of the existing site boundary which comprises the digestate lagoon and ancillary workshop buildings.

Please see figures below showing the existing site boundary, proposed permit boundary and site layout.

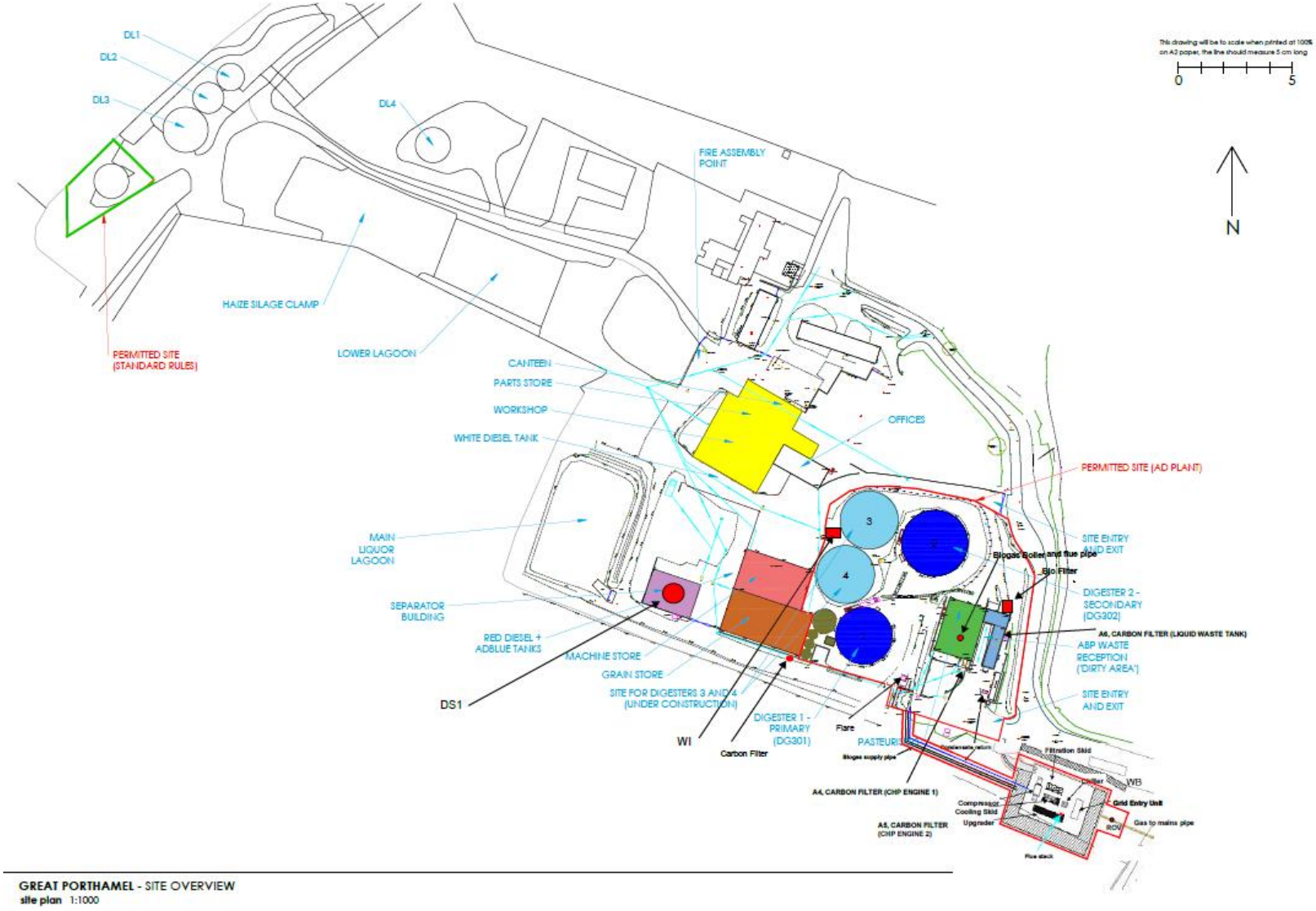
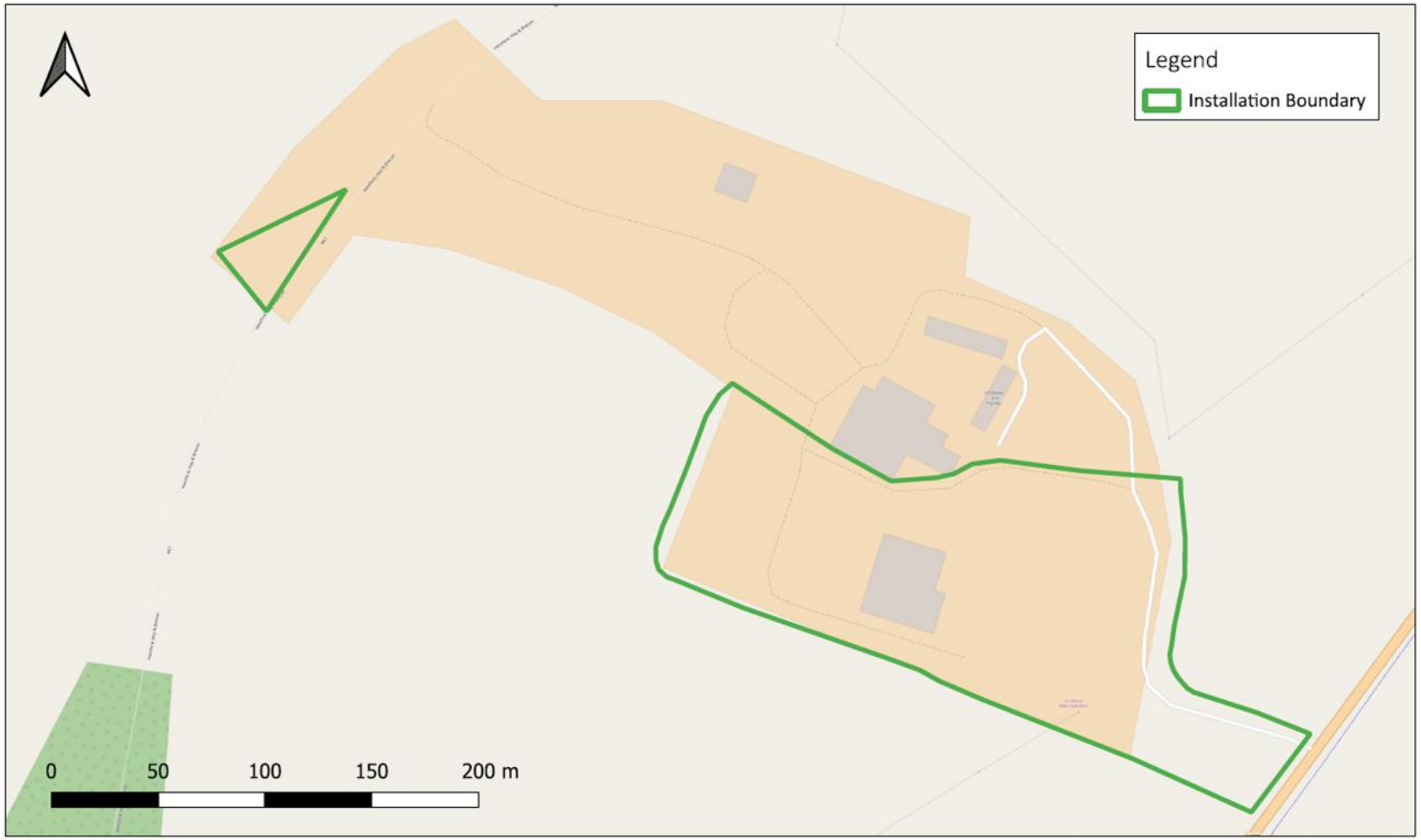


Figure 2.1 - Existing Site Boundary and Layout



Project Number: SOL_24_P060_GPB Doc Ref: Annex B_Site Plans Map Title: Installation Boundary Date: 15/01/2025 Drawn by: RM Checked by: SR	Site Address: GP Biotec Ltd - Anaerobic Digestion Facility Great Porthamel Brecon LD3 0DL	1. Do not scale off this drawing 2. All dimensions to be confirmed on site 3. This drawing is copyright of Sol Environment Ltd 4. This drawing is to be read in conjunction with relevant consultant drawings and specifications 5. QMS Reference: QMS_7.5.39_TEM - Template - GIS Drawing - Horizontal v1

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Figure 2.2 - Proposed Site Boundary

2.2 Context

The site is located in a mixed-use landscape, comprising of a blend of commercial, residential and recreational assets, as well as prominent ecological features. The facility is situated to the west of the A4078 road in an area of predominantly agricultural land. The wider surroundings primarily comprise agricultural land, with the village of Talgarth located approximately 1.9km south of the site. Table 2.2 below outlines the surrounding feature of the site.

Table 2.2 - Site Setting

Direction	Description
North	Immediate Vicinity: Farmland Within 500m: Farmland, Afon Llynffi (River Wye), Private Residential Dwelling Beyond 500m: Farmland, Lower Porthamel Campsite, Afon Llynffi
East	Immediate Vicinity: Farmland, A4078 Within 500m: Farmland, Forest edge Beyond 500m: Farmland, Residential dwellings, Forest
South	Immediate Vicinity: Farmland Within 500m: Farmland, fragmented woodland, A4078 Beyond 500m: Farmland, Talgarth village (inc residential and commercial properties)
West	Immediate Vicinity: Farmland Within 500m: Farmland, fragmented woodland, Afon Llynffi (River Wye) Beyond 500m: Farmland, Talgarth Welsh Water, corridor woodland fragments, Castell Bronllys

2.2.1 Nearby Sensitive Receptors

The nearest residential receptor to the site is a single residential property to the north along an unnamed road, located approximately 370m northeast of the site boundary. The table below details the nearest human receptors as of 2025.

Table 2.3 – Nearby Human Receptors

Receptor Name	Distance from Site
Unnamed Road, Residential Property	370m NE
Lower Porthamel	630m N
Unnamed Road, Farmhouse	990m E
Unnamed Road	660m S
Bryn Derwen	720m S
Park Ave	770m S
Woodland's Avenue	850m S
Kings Drive	910m S
Queens Ave	1km S
Bronllys Road	1km SW
Riverside International Caravan Park	980m SW
Unnamed Road, off A479	890m SW
Hay Road	980m W
A479	780m NW
A438	690m NW
A479	890m NW

Due to the proximity of the nearest residents, the site could be considered to be of a low sensitivity as there are no other residential properties within 500m of the site. Nearby, approximately 740m south, there is the village of Talgarth, and approximately 1.3km to the west is the village of Bronllys, which are the two most populated areas in closest to the site.

3. CONDITION OF LAND AT PERMIT ISSUE

3.1 Environmental Setting

Desk-based research of the local geology, hydrogeology and surface waters has been carried out in order to establish the potential for migration of contamination onto or away from the Site, and to assess the surface water and groundwater sensitivity of the site area. Information was obtained from a number of sources, namely:

- Environment Agency Flood Risk Map;
- Geological maps produced by the British Geological Survey (BGS) and the BGS Geology of Britain Viewer (http://maps.bgs.ac.uk/geologyviewer);
- MAGIC (http://magic.defra.gov.uk);
- BGS Borehole Record Viewer (http://www.bgs.ac.uk/data/boreholescans/home.html);
- SOL_23_P063_GPB Site Condition Report, Sol Environment Ltd, October 2023 ;
- Groundsure Report 8th December 2010;
- Groundsure Report 26th October 2023;
- Envriocheck Report 14th February 2011.

3.1.1 Geology

According to the BGS Geology of Britain Viewer and BGS 1:50,000 Solid and Drift map of the area, the site, including the proposed additional area, is directly underlain by superficial Glacial Till Deposits which comprise of brown and grey sandy gravelly diamicton. The superficial deposits are subsequently further underlain by the Bedrock Geology of the Raglan Mudstone.

The BGS Lexicon of Named Rock Units describes the Raglan Mudstone as '*Red mudstones and silty mudstones with calcretes and sandstones*.'

An intrusive geotechnical investigation of the main site was undertaken prior to construction by Terra Firma Ltd in March 2011. The report showed the geology directly beneath the site to comprise the following:

- Firm, stiff and very stiff red brown slightly sandy clay with many gravels, cobbles, and sandstone lithorelicts. Typically encountered at 0 – 9.8m below ground level (bgl). The clay was further underlain by the following natural strata;
- Probable sandstone/mudstone bedrock. Typically encountered at 10m below ground level (bgl).
- No contamination was evident.

The site is located in an area which is not affected by coal mining activity. There is a no hazard potential for compressible ground subsidence and very low hazard potential for landslip subsidence.

Radon Potential

According to data issued by the National Radiological Protection Board (NRPB) in 2002 (now the Health Protection Agency), the land is located in an area where 1% - 3% of residential properties are above the

action level for Radon as set by the NRPB. No radon protection measures are considered necessary by the BGS.

3.1.2 Hydrogeology

The hydrogeological characteristic of the geological groups identified is summarised below:

- Glacial Till – Secondary Undifferentiated – rocks layers or drift deposits where it is not possible to attribute either Category A or B to a rock type. In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- Raglan Mudstone – Secondary A Aquifer – Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally the water-bearing parts of the former non-aquifers.

No overlying drift deposits are present on site.

The site is not located in a Groundwater Source Protection Zone (SPZs).

There are no groundwater abstractions on site. However, there is one historical and one active groundwater abstraction within 2km of the Site. The active abstraction is located approximately 1813m west of the site for 'Drinking, cooking, sanitary washing (small garden) – Commercial / industrial / public services. The historical abstraction is licensed to Mr. M Jones for 'General Farming and Domestic' and is located approximately 1.26km to the east of the site and linked to the wider operations of Great Porthamel Farm.

Groundwater in the vicinity is likely to flow in a westerly to southwesterly direction, towards the Afon Llynfi.

The hydrogeology in the proposed additional area is as above.

The site is considered to be situated in an area of low to moderate sensitivity with respect to groundwater resources due to the underlying Secondary A Aquifer. This sensitivity is mitigated somewhat by the absence of any groundwater abstraction (sensitive or otherwise) within 1km of the site and that the site is not situated in a groundwater source protection zone.

3.1.2.1 Surface Water

There are no surface water features located on site.

The nearest surface watercourse is the Afon Llynfi, located approximately 248m northwest of the proposed additional area and 400m northwest of the main site at its closest point. The closest River Quality data for the Afon Llynfi was taken approximately 500m north of the site. The results show that the river was classified as Grade B (Good) for chemical and biological quality in 2009. The flow of the Afon Llynfi at this point is reported to be less than 2.5 cumecs.

There are no surface water abstractions on site. However, there are five licensed surface water abstractions within 2km of the site, the details of which are shown in **Table 3.1** below. The closest of these is licensed to Mr P C Gunning and is located 1.34km to the southwest of the site from River Dulas at Bronllys for spray irrigation.

Table 3.1 - Surface Water Abstractions within 2km of the Site

Operator	Distance and Direction	Location	Purpose

Mr P C Gunning	1339m South-West	River Dulas At Bronllys	Business Parks: Make-Up or Top Up Water Business Parks: Spray Irrigation – Direct
-	1155m South	Easting 314190, Northing 235050	Drinking, cooking, sanitary washing (small garden) – Commercial / industrial / public services
-	1360m South	Easting 315570, Northing 233674	Hydro-electric power generation.
-	1533m South	Easting 315573, Northing 233676	Milling and waterpower other than electricity.

The Natural Resources Wales Flood Map for Planning indicates that the site, including the proposed additional areas, is predominantly situated within Flood Zone 1 (considered an area of low probability with regards to flooding (the chance of flooding each year is estimated at <0.1% (1 in 1000) or less)).

The access road adjacent to the location of the biogas upgrading plant is located in a Flood Zone 3 for surface water and small watercourses (chance of flooding between 0.1% and 1% (between 1 in 1000 and 1 in 100).

Anecdotal evidence from the Applicant suggests, during periods of heavy or prolonged rain, parts of the site are prone to flooding, mostly due to uneven ground creating pools of water, but this flooding is rarely significant. Please see the flood map provided in Figure 3.1 below.

Figure 3.1 - Flood Risk

3.1.3 Designated Sites

The Environment Agency's 'Risk assessments for specific activities: environmental permits' guidance and 'Air emissions risk assessment for your environmental permit' guidance (which Natural Resources Wales H1 guidance links to) state that the potential impacts of the site should be assessed for the following habitat sites within 10km of the Installation:

- Special Areas of Conservations (SAC's and candidate (cSACs) designated under the EC Habitats Directive;
- Special Protection Areas (SPAs) and potential SPAs designated under the EC Birds Directive.
- Ramsar Sites designated under the Convention of Wetlands of International Importance.

It is also stated that within 2km of the Source:

- Sites of Special Scientific Interest (SSSI) established by the 1981 Wildlife and Countryside Act;
- National Nature Reserves (NNR);
- Local Nature Reserves;
- Local Wildlife sites;
- Ancient Woodland.

Information from the Multi Agency Geographic Information for the Countryside (MAGIC) website (http://magic.defra.gov.uk/) has been used to obtain the below information.

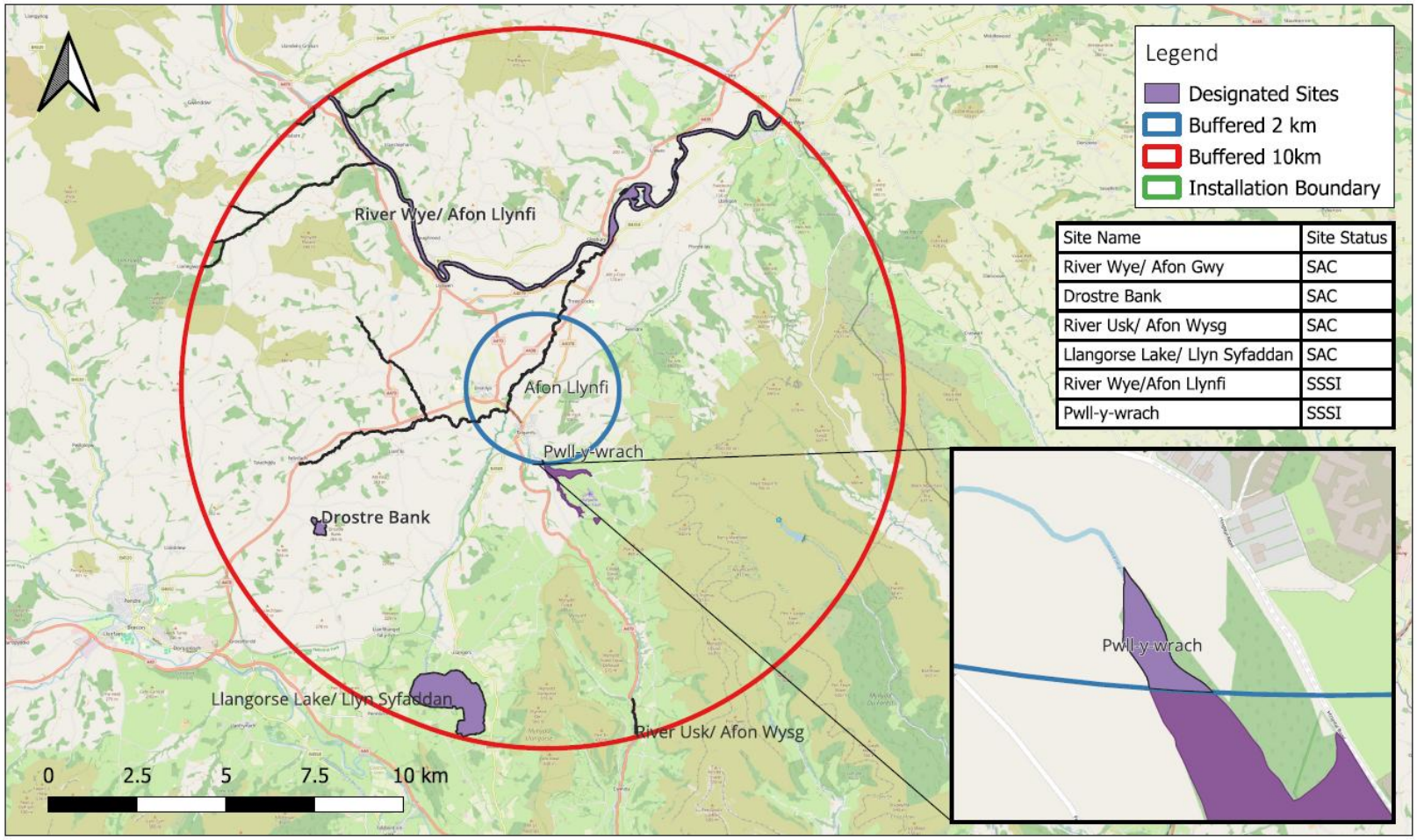
The habitat receptor designations and locations relevant to the assessment, and correct as of 2023, are shown in Table 3.2 below:

Table 3.2 Designated Sites

Receptor	Habitat Designation	Approx. Location (Relative to Site)
Unnamed Wood	Ancient Semi Natural woodland	219 m S
Afon Gwy	SAC	248 m N
Afon Llynfi	SSSI	248 m NW
Unnamed Wood	Ancient Semi Natural woodland	282 m S
Unnamed Wood	Ancient Semi Natural woodland	328 m NW
Unnamed Wood	Ancient Semi Natural woodland	426 m SE
Unnamed Wood	Ancient Semi Natural woodland	481 m W
Unnamed Wood	Ancient Semi Natural woodland	920 m E
Unnamed Wood	Ancient Semi Natural woodland	921 m E
Unnamed Wood	Plantation on Ancient woodland Site	953 m E
Unnamed Wood	Plantation on Ancient woodland Site	958 m E
Unnamed Wood	Ancient Semi Natural woodland	1019 m SE
Unnamed Wood	Restored Ancient woodland	1039 m SE
Unnamed Wood	Ancient Semi Natural woodland	1063 m E
Unnamed Wood	Ancient Semi Natural woodland	1078 m N
Unnamed Wood	Plantation on Ancient woodland Site	1080 m E

Unnamed Wood	Plantation on Ancient woodland Site	1083 m E
Unnamed Wood	Ancient Semi Natural woodland	1096 m E
Unnamed Wood	Restored Ancient woodland	1148 m E
Unnamed Wood	Ancient woodland	1164 m E
Unnamed Wood	Plantation on Ancient woodland Site	1202 m SE
Unnamed Wood	Ancient Semi Natural woodland	1206 m NW
Unnamed Wood	Ancient Semi Natural woodland	1266 m N
Unnamed Wood	Ancient Semi Natural woodland	1385 m NW
Unnamed Wood	Ancient Semi Natural woodland	1390 m SE
Unnamed Wood	Ancient woodland	1401 m E
Unnamed Wood	Restored Ancient woodland	1485 m E
Unnamed Wood	Ancient Semi Natural woodland	1514 m SE
Unnamed Wood	Plantation on Ancient woodland Site	1555 m E
Unnamed Wood	Restored Ancient woodland	1558 m W
Unnamed Wood	Restored Ancient woodland	1570 m SE
Unnamed Wood	Ancient Semi Natural woodland	1612 m NE
Unnamed Wood	Restored Ancient woodland	1641 m E
Unnamed Wood	Restored Ancient woodland	1679 m SE
Unnamed Wood	Restored Ancient woodland	1260 m SE
Unnamed Wood	Ancient Semi Natural woodland	1292 m SE
Unnamed Wood	Restored Ancient woodland	1299 m SE
Unnamed Wood	Plantation on Ancient woodland Site	1681 m SE
Unnamed Wood	Plantation on Ancient woodland Site	1682 m SE
Unnamed Wood	Ancient Semi Natural woodland	1686 m E
Unnamed Wood	Ancient Semi Natural woodland	1742 m S
Unnamed Wood	Restored Ancient woodland	1766 m SE
Unnamed Wood	Restored Ancient woodland	1767 m W
Unnamed Wood	Ancient Semi Natural woodland	1775 m SE
Unnamed Wood	Ancient Semi Natural woodland	1786 m SE
Unnamed Wood	Plantation on Ancient woodland Site	1790 m E
Unnamed Wood	Plantation on Ancient woodland Site	1792 m E
Unnamed Wood	Restored Ancient woodland	1812 m SE
Unnamed Wood	Ancient Semi Natural woodland	1815 m SE
Unnamed Wood	Plantation on Ancient woodland Site	1818 m W
Unnamed Wood	Restored Ancient woodland	1835 m SE
Unnamed Wood	Restored Ancient woodland	1879 m W
Unnamed Wood	Restored Ancient woodland	1880 m W
Unnamed Wood	Ancient Semi Natural woodland	1886 m SE
Unnamed Wood	Ancient Semi Natural woodland	1897 m N

Unnamed Wood	Ancient Semi Natural woodland	1945 m S
Pyll-y-Wrach	SSSI	2000 m S
Drostre Bank	SAC	7292 m SW
Llangorse Lake	SAC	8430 m SW



Site Name	Site Status
River Wye/ Afon Gwy	SAC
Drostre Bank	SAC
River Usk/ Afon Wysg	SAC
Llangorse Lake/ Llyn Syfaddan	SAC
River Wye/Afon Llynfi	SSSI
Pwll-y-wrach	SSSI

Project Number: SOL_24_P060_GPB Doc Ref: Annex B_Site Plans Map Title: Sensitive Ecological Receptors Date: 15/01/2025 Drawn by: RM Checked by: SR	Site Address: GP Biotec Ltd - Anaerobic Digestion Facility Great Porthamel Brecon LD3 0DL	1. Do not scale off this drawing 2. All dimensions to be confirmed on site 3. This drawing is copyright of Sol Environment Ltd 4. This drawing is to be read in conjunction with relevant consultant drawings and specifications 5. QMS Reference: QMS_7.5.39_TEM - Template - GIS Drawing - Horizontal v1

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Figure 3.2 Designated Sites

The site is not located within a nitrate vulnerable zone.

The site is not located within an Air Quality Management Area.

Due to the nature of the proposed Installation and that there are no direct releases of emissions from the process, beyond the relatively minor emissions from the CHP engines, it is the conclusion of this assessment that the proposed operations are not likely to have any significant effect on the surrounding environment.

3.2 Pollution History

3.2.1 Environmental Database Records

The following information has been obtained from a search of a publicly available database of environmental information (Envirocheck data sheets, produced by Landmark Ltd for the main site application in 2011, Groundsure for the addition of the biogas upgrading plant in 2021 and for the proposed additional area in 2023).

The databases contain records of information from public registers held by environmental regulatory authorities and can be used to assess the site's sensitivity, the potential for neighbouring activities to pose a risk to the site and to determine whether specific records of pollution relate to the subject site.

3.2.2 Pollution Incidents

Main site as in 2014

There have been no records of pollution incidents relating to the site.

There is one recorded pollution incident to Controlled Waters within a 1km radius of the site, located downstream of Castel Bridge (approximately 1km south-west) and relating to the overflow of milk/creamery wastes into an unknown area. The incident was recorded as a Category 2 – Significant Incident.

There have been no entries in the Substantiated Pollution Incident Register relating to the site or within 2km of the site.

The above incident is not considered to have had any impact on the subject site.

Biogas upgrading plant area as in 2021

There are no entries in the Substantiated Pollution Incident Register relating to the site. There has been one within 1km (approximately 147km northeast) which was recorded as a Category 4 (no impact) to air and land.

The above incident is not considered to have had any impact on the subject site.

Increase in permitted area as of 2025

There are no entries in the Substantiated Pollution Incident Register. However, there have been two reported within 500m of the site. An unidentified pollutant was recorded approximately 301m north as a Category 2 (Significant) to Water. Another unidentified pollutant was recorded approximately 393m northeast as a Category 2 (Significant) to water and land and as a Category 4 (no impact) to air.

The above incident is not considered to have had any impact on the subject site.

3.2.3 Prosecutions

Main site as in 2014

There are no records of prosecutions relating to authorised processes or to controlled waters taken against the study site or within 1km of the site.

Biogas upgrading plant area as in 2021

Information not available in the Groundsure 2021 report.

Increase in permitted area as of 2025

Information not available in the Groundsure 2023 report.

3.2.4 Licensed Waste Management Facilities

Main site as in 2014

There are no other waste management facilities within 2km of the site.

Biogas upgrading plant area as in 2021

There are no other waste management facilities within 500m of the site.

Increase in permitted area as of 2025

There are no other waste management facilities within 500m of the site.

3.2.5 Discharge Consents

Main site as in 2014

There are no water discharge consents, revoked or current, associated with the site.

There are two current discharge consents located within a 1km search radius of the Site. The nearest of which is located 899m to the southwest of the site for 'discharge of storm sewage overflow' into a freshwater stream.

Biogas upgrading plant area as in 2021

There are no water discharge consents, revoked or current, associated with the site nor within 500m.

Increase in permitted area as of 2025

There are no water discharge consents, revoked or current, associated with the site nor within 500m.

3.2.6 Authorised or Permitted Processes

Main site as in 2014

There are no other Part A(1), Part A(2) and Part B Environmental Permits to operate an installation as defined by the Environmental Permitting Regulations 2013 process at the site or within a 1km search radius of the site.

Biogas upgrading plant area as in 2021

The information above for the main site in 2014 remains the same in 2021.

Increase in permitted area as of 2025

The information above for the main site in 2014 remains the same in 2023.

3.2.7 Historical Land Uses

Available historic maps for the site have been obtained and reviewed to determine if there is the potential for contamination to be present on site associated with the site's historical uses.

The historical maps are presented within Annex B of this report (and include those from the original Envirocheck report in 2011 for the existing main site, and those from the Groundsure 2021 and 2023 reports for the biogas upgrading area and proposed permitted areas respectively) and a summary of the historical development of the site and surroundings is included below.

Main site as in 2014

The land use chronology shown on the historical plans shows the main site to have been in agricultural use since the earliest available map dated 1887. The maps do not show significant changes to the site or immediate surroundings up to the most recent edition (dated 2010).

The maps indicate that the site has remained as agricultural land since the late 1880's. Based on the information provided from the historical maps, there is considered to be a low potential for contamination to be present on site relating to its historical use.

Biogas upgrading plant area as in 2021

The land use chronology shown on the historical plans shows the biogas upgrading area to have been in agricultural use since the earliest map dated 1887. The maps do not show any changes to the site or immediate surroundings up to the most recent edition (dated 2021).

The maps indicate that the area has remained as agricultural land since the late 1880's. Based on the information provided from the historical maps, there is a low potential for contamination to be present on site relating to its historical use.

Increase in permitted area as of 2025

Waste Storage Area (Standard Rules Area)

Historical mapping from 1888 indicates that the site area proposed for inclusion within the permitted boundary as part of this variation, was located at the junction of an Old Tramway and adjacent to the east to cuttings associated with the Cambrian Railway. By 1973 the tramway and railway had been removed and the site was occupied by open agricultural land. No further significant changes had been recorded to the site up to the most recent map (2023). However, it is noted that the site has been operated by GP Biotech under a Standard Rules Permit since 2019 for waste storage activities, with site infrastructure comprising hardstanding, tanks and associated sealed drainage system.

Based on the information shown on the historical mapping for this new permitted area, there is a potential for contamination present on site in relation to historical use, namely old tramways and railway.

Lagoon Area

Historical mapping in the area of the lagoon shows that the site has remained as agricultural land since the earliest map in 1887. The construction of the lagoon and the other buildings in this area are not present on historical mapping. Based on the information provided from the historical maps, there is a low potential for contamination to be present on site relating to its historical use.

3.2.8 Site Reconnaissance

Visual/Olfactory Evidence of Existing Contamination

All areas of the site were subject to visual inspections at the time of original construction, at the time of the 2014 ASCR document and at the time of the E24a Surrender Report (2022). No structural integrity/pollution pathways were identified.

In 2014, the inspection was carried out by the ASCR authors in conjunction with the management of GP Biotec for the purposes of inspecting and assessing the following:

- Physical condition of hardstanding;
- Condition and adequacy of containment bunds;
- Condition and adequacy of underground drainage and containment systems.

There was no evidence of any contamination or hydrocarbon/pollutant staining noted during the site assessment.

There is no visual or olfactory evidence on site of existing contamination.

The following basic designs have been incorporated into the design of the plant:

- All aspects of the site are operated on sealed impermeable floor slabs which as a minimum comprise of reinforced concrete which is at least 250mm thickness. The concrete slabs provide a completely impermeable barrier to ensure that the underlying geology and controlled waters are protected.
- All storage tanks, process pipelines and equipment are installed above ground.
- There are no underground structures, pipelines, or transfer ducts.
- All storage tanks are equipped with secondary containment bunds that have been designed to comply with EA best practice guidelines as defined by PPG2 – Above Ground Storage Tanks.
- All storage tanks are fitted with level gauges, alarms and hardwired into the plant online (SCADA) monitoring system.

The construction of the plant foundations and tanks is very significant and on their own provide significant protection to the environment. The construction of the site has been confirmed as follows:

Primary and secondary digestion tanks:

- Site excavated to bedrock base, overlain by;
- Compacted sub-base, overlain by;
- Concrete blinding, overlain by;
- Impermeable geo-membrane liner, overlain by;

- 60 mm layer of impermeable thermal insulation, overlain by;
- Impermeable 'Visqueen' liner, overlain by;
- A 250mm steel reinforced concrete base, upon which the tank walls were constructed complete with proprietary leak detection system;
- A liner was welded on up the sides of the tanks which had also insulation around the walls; and
- A viol drain system was then fixed around the tanks to protect the liner and allow free drainage to flow down outside of the liner.

All other areas of the site have been constructed upon:

- Site excavated to bedrock base, overlain by;
- Compacted sub-base, overlain by;
- Concrete blinding, overlain by;
- Impermeable geo-membrane liner, overlain by;
- 250mm steel reinforced concrete base.

Biogas upgrading plant area as in 2021

A site reconnaissance was not conducted at the time of inclusion within the SCR due to the area being of agricultural use prior to the installation of the biogas upgrading plant. The biogas upgrading area is constructed upon:

- Compacted hardcore, overlain by;
- Biogas upgrading plant is on concrete bases (and will connect process water to sealed drainage);
- Gravel finish.

All aspects of the GP Biotec operation are subject to a strict maintenance schedule.

All installation of the site drainages and collection tanks have been in accordance with Environment Agency requirements.

Due to the construction and the nature of the Installation, the operations on site do not introduce any sub surface or potentially polluting activities to the site.

Increase in permitted area as of 2025

The proposed additional area was regulated by NRW under SR2010 No.17 since operations for waste storage began in 2019. In order to include this area within the main site permit GP Biotech will surrender the SR permit, with work done to begin this process in 2022. As part of this surrender, operators have undertaken visual inspections of infrastructure to provide evidence to NRW of the low risk nature of the site surrender. The infrastructure of the waste storage area, namely concrete panel bunding walls and concrete pad area was noted to be in very good condition at this time, therefore posing no risk of pollution, and allowing NRW agreement that the surrender of the site was low risk.

The proposed additional area of the digestate lagoon has been subject to inspection. Visual evidence of the lagoon lining was evident showing the construction of the lagoon to have been in line with approved standards.

3.3 Evidence of Historic Contamination

Previous Site Investigation – Main Site as in 2014

A baseline intrusive site investigation was undertaken by Terra Firma in February 2010 in order to obtain baseline environmental data and ascertain the geotechnical conditions of the site. The laboratory chemical test results undertaken demonstrate sulphate contents varying between 200 and 300mg/kg and pH values varying between 7.66 and 8.39.

A summary of the chemical analysis is shown in Annex E.

There have been no other previous site investigations carried out on site.

Biogas upgrading plant area as in 2021

The area of site housing the biogas upgrading plant prior to construction was a small area of bare ground on the edge of an agricultural field. Historically, this area was undeveloped agricultural land, as such there is considered to be a low potential for contamination to be present on site relating to its historical use and therefore baseline intrusive site investigation data was not obtained in 2021. Reference data for the main site in 2014 was considered to be representative of this area.

Increase in permitted areas as of 2025

The proposed areas for inclusion within the permitted boundary have not been subject to intrusive ground investigation. Despite previous usage as part of an old tramway in the late 1890's, and current usage as a waste storage area, the potential for contamination is considered to be low and baseline data obtained for the main site will be utilised as representative for the whole permitted area. This is due to the regulation of the site under Standard Rules SR2010 No.17, ensuring that all waste storage operations have been undertaken in such a manner as to prevent environmental pollution. This includes the installation of impermeable concrete hardstanding, appropriate tanks and bunding and a sealed drainage system.

Upon surrender of the SR permit in 2022, NRW agreed that no intrusive ground investigation was required due to the low potential for contamination during the lifetime of the SR permit.

3.4 Supporting Information

Figures detailing the location, boundary and layouts of the Installation are shown in Annex A.

The Groundsure 2023 report for the additional permitted areas identifying the environmental setting and pollution incidents are reproduced in Annex B.

The Groundsure 2021 for the biogas upgrading plant area, identifying the environmental setting and pollution incidents are reproduced in Annex C.

Information from the Envirocheck environmental database (provided by Landmark Information Group 2011) for the main existing site is in Annex D.

Summary of Chemical Analysis taken place on the soils on site (main site as at 2011) carried out by Laboratory Testing Services Ltd is reproduced in Annex E. This comprises the baseline ground condition for the site.

The Surrender Report - PAN-003557 for the area of proposed inclusion within the permitted boundary is in Annex F.

A Conceptual Model is shown in Annex G.

4. PERMITTED ACTIVITIES

4.1 Activities Undertaken at the Installation

4.1.1 Existing Activities

The Anaerobic Digestion plant processes the following key waste types:

- Energy Crops: Comprising Maize and Beet generally grown on Great Porthamel Farm;
- Liquid and Slurry Wastes: Comprising Blood and Manure / Cowshed Slurries; and
- Biodegradable Solid Wastes: Comprising food, agricultural and abattoir wastes.

In 2014, GP Biotec varied their existing EPR permit (EPR/AB3233DW) under The Environmental Permitting (England and Wales) Regulations 2013 (as amended) due to changes to the Industrial Emissions Directive (IED) requiring that the anaerobic digestion activities on site now be considered a Section 5.4 Part A(1)(b)(i) activity.

In 2021, the permit was again varied to include a biogas upgrading plant and standby biogas boiler, increasing the permitted installation boundary.

This variation, in 2025, consolidates all anaerobic digestion activities, including waste storage, under one permit (rather than one bespoke Installation permit, one Standard Rules Permit and one exemption and updates site infrastructure to increase operational efficiency (2 x pre-storage tanks, additional CHP engine and additional waste storage building).

Throughout these variations, the main process has remained largely unchanged, as described in the following sections.

4.1.2 Description of the Process

A summary description of the key stages of the operation is described below.

- *Waste Reception / Pre-Processing*: ABP wastes are accepted into the 'dirty' reception area and discharged directly into the enclosed 60m^3 reception hopper or into the 60m^3 liquid waste tanks dependent on waste type (solid, liquid etc).

  The liquid waste tanks and reception hoppers are fitted with activated carbon odour treatment plant and kept under negative pressure to ensure that there is no discharge of odours.

  All non-ABP wastes will be unloaded in the non-ABP reception area ('clean area') at the lower (western portion of the site).

  The reception hoppers and liquid storage are fitted with macerating blades and 'stirring agitator' to enable the discharge and pumping of the waste feedstocks to the primary digestion tanks.

- *Primary and Secondary Digestion*: The feedstocks are pumped directly into the primary digestion tanks where it is retained for a total period of approximately 64 days. During this process the temperature is maintained at a mesophillic range (35 - 40ºC).

  The fermentation process produces a methane-rich biogas, condensate and solid digestate. The digestate is transferred between the two tanks via a cutting screen to ensure that the digestate achieves the ABPR requirements of 12mm.

All biogas formed within the digester collects in the airspace in the very top of the tanks and is subsequently pumped through gas treatment measures (condensate pit and dry carbon filter) which remove excess condensate through gas drying.

The biogas is then collected in the integrated gas store at the top of the tanks and is subsequently transported to the biogas upgrade plant, CHP units or biogas boiler. Condensate removed from the gas is fed back into the digesters.

- *Batch Pasteurisation*: All post digested material is batch pasteurised prior to discharge from site for landspreading. Batch pasteurisation takes place within two sealed 10m^3 batch pasteurisation tanks where it is heated in accordance with the time / temperature requirements (1 hour at 70ºC) stipulated by the ABP Directive.

  Once pasteurised, the digestate is stored in 4 storage tanks (3 x 100m^3, 1 x 550m^3) for 4 weeks before being transferred directly off site or to a covered 4000m^3 lagoon, prior to use for landspreading.

- *CHP Units*: Biogas produced onsite is utilised to produce heat and power for the facility onsite within the CHP units.

- *Biogas Upgrading Plant*: The biogas upgrading plant will remove moisture and contaminants from the biogas, compress it and use membrane technology to separate methane from carbon dioxide. This will result in the production of biomethane which is injected into the National Gas Grid and carbon dioxide which is vented to atmosphere.

- *Biogas boiler*: the biogas boiler is used as standby combustion plant to provide heat for the anaerobic digestion process in the event one of the engines is offline.

The proposed increase in the permitted area does not inherently change the description of the process. The primary purpose of the storage area is to store processed anaerobic digestate prior to it being spread to land but is also used as a backup area for pre -treatment of blending solids and liquid wastes prior to being fed into the AD plant. The digestate lagoon, to be brought within the permitted boundary, will continue to hold up to 4000m^3 of liquid digestate as currently.

4.1.3 Substances Used at the Installation

The following table outlines the potentially hazardous substances that may present onsite.

Table 4.1 - Chemical and Hazardous Materials Summary

Material	Nature of storage	Location	Fate
Lubrication Oils	Internal Bunded oil tank < 2m^3 Double skinned tanks stored internally and designed in accordance with EA PPG2 Oil Storage Tanks.	Internal	Used within Gas engine. All oils disposed off site
Ferric Oxide	Internal enclosed tanks	Internal – within Reception Building	100% injected into AD reactor tanks, used or Hydrogen Sulphide Removal
Liquid propane gas	12-tonne steel tank	Top yard – within secondary containment	Entry to gas grid
Activated Carbon	3 x stainless steel tanks each containing 1100 l of activated carbon	Biogas upgrading plant	Waste, recycled (when spent)

Odorant (Neat Blend Mercaptan)	GA50 Schmidt Container	GEU – bunded container	Entry to gas grid
Compressor Oil	Compressor bund housing	Biogas upgrading plant	Waste, disposed of off-site
Red Diesel		West of Machine Store	Use in onsite machinery
AdBlue		West of Machine Store	Use in onsite machinery

4.1.4 Waste Storage

The Anaerobic digestion facility accepts a variety of wastes as outlined in

Table 4.2 below.

Table 4.2 EWC codes accepted at the facility

Waste Code	Description
02	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 03	plant tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	waste from forestry
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 02 99	wastes not otherwise specified – [lairage waste – soiled animal bedding]
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging, and separation
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 04	wastes from sugar processing
02 04 01	soil from cleaning and washing beet
02 04 03	sludges from on-site effluent treatment
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment

02 06	wastes from the baking and confectionary industry
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment

All waste is stored within dedicated areas. All waste vessels are clearly identified, sealed, and stored internally within a secured area protected by secondary containment.

All pasteurised digestate is collected and stored in one of 3 x 100m^3 and 1 x 550m^3 glass coated steel tanks.

Under general operating conditions, the storage of digestate is not considered to present a significant ground contamination.

The system has been designed such that all process and chemical tanks are located with secondary containment bunds and fitted with level gauges and alarms. The system is fully automated and will operate continuously. The plant is fully integrated into the SCADA control and PLC systems.

The main waste stream associated with the biogas upgrading plant is considered to comprise spent activated carbon. Maintenance consumables is catered for by the existing waste management arrangements at the facility. Spent membranes from the biogas upgrader are removed from site and disposed of off-site. The membranes typically need to be replaced every 5 – 10 years. Compressor oil filters and oil are disposed of by a suitable waste contractor.

All waste is stored in situ (i.e., within the plant that generates it) until such time as maintenance activities require its removal and replacement.

One area proposed for inclusion within the permit boundary as part of the 2025 variation, will be utilised for waste storage. This continues operations which have previously been permitted under SR 20190 No.17 (EPR/BB3099CG). The waste storage area will be primarily used for storage of final anaerobic digestate prior to leaving the site but will also be utilised as a backup area for mixing and blending of solids and liquids wastes prior to digestion to the feed system on the installation AD plant.

Digestate produced by the plant is accredited to PAS110 and as such is not considered waste. Therefore, there is no waste storage proposed in the lagoon area to be included within the permit boundary.

4.1.5 Drainage Systems

All aspects of the operating site are constructed on a sealed concrete hardstanding as described in the original application.

All surface water falling on to the ABP reception area is routed to the Anaerobic Digestion Tanks for disposal. There is no potential for cross contamination from the ‘dirty area’.

The biogas upgrading plant is housed on concrete bases surrounded by compacted hardcore and benefits from sealed drainage for process effluent (condensate). This process water drainage is recirculated to the Anaerobic Digestion Tanks.

Clean uncontaminated surface water drains to ground. There are no surface water drains or direct releases to controlled waters emanating on the site.

The proposed area for inclusion within the permit boundary (2025) is an existing waste storage facility located on a concrete base surrounded by concrete panels and earth/clay bunding, with a sealed drainage system with a gradual sloping gradient into an effluent capture pit.

All liquids and rainwater in this area is captured and pumped directly into the liquid storage tank and/or directly up to the installation AD site to aid dry matter control.

Hardstanding

All internal and external processing areas are constructed with impermeable concrete hardstanding which has been designed in accordance with the load bearing requirements of the processing equipment and vehicles used at the facility. Typically, all non-structural concrete areas comprise of a reinforced concrete hardstanding of at least 200 - 250mm thickness.

Tanks and Bunds

All tanks are installed with secondary containment and designed to comply with the Environment Agency Pollution Prevention Guidelines Note 2 'Above Ground Oil Tanks'.

Please see Annex A4 for the drainage layout of the site.

4.1.6 Potential for Fugitive Releases to Soil, Groundwater and Surface Water

Main site as in 2014

The materials and substances used in the activities on site are not considered to have potential to cause ground or groundwater contamination under general storage or operating procedures.

Furthermore:

- There are no drains within the building interior. Any materials spilt within the main building are retained and treated accordingly. No materials are able to leave the process area if spilled;
- All tanks are located away from vehicle manoeuvring areas and within secondary containment bunds;
- All processing activities associated with the operation are enclosed within the main building.

The site operates a comprehensive maintenance and management system .

The management system includes quarterly visual inspections of:

- All tanks and hard surfaced areas to detect any signs of deterioration, leaks, or spillage. Any corrective action required is reported to and implemented by the Site Manager; and
- Equipment in all process areas as part of the company's planned/predictive maintenance programme.

Site management will operate an environmental management system which is designed to meet the requirements of the Environmental Permitting Regulations, associated pollution prevention guidance.

Based on this assessment, the potential for the operations on site to impact soil and groundwater underlying the installation is considered to be low.

Biogas upgrading plant area as in 2021

The biogas upgrading plant and biogas boiler have been designed to ensure that there are no fugitive emissions from the site. The biogas upgrading activity will not result in any fugitive releases of process emissions, dust, or odour under normal operating conditions.

There is the potential for fugitive emissions to air from the plant items, as a result of minor leaks.

The inherent design of the pipework and the biogas upgrader is such that the opportunity for fugitive emissions has been virtually eliminated. Further to this, the Leak Detection and Repair Plan (LDAR) and maintenance regime is in place for the pipework and the biogas upgrader ensures that the potential for such fugitive emissions is kept low.

The odorant is inherently highly odorous and even a minor fugitive release has the potential to cause widespread odour. However, it is stored and handled in very small quantities, in sealed containers, at the biomethane to grid plant. Its injection into the biomethane is automatically controlled by a fully enclosed system inside the GEU which is purpose-designed and subject to a comprehensive inspection and maintenance regime in order to prevent fugitive releases.

All handing of the odorant is subject to stringent procedures which is noted in the Odour Management Plan (OMP) for the installation (to be reviewed and updated) and operatives are trained in the necessary measures to prevent fugitive releases.

The principal potential sources of fugitive emissions to surface water, sewer and groundwater are the storage and handling of chemicals and maintenance sundries associated with the biomethane to grid plant. Appropriate containment measures are in place, including procedural controls and the provision of spill kits. Potential sources of fugitive emissions for the biogas upgrader include leaks of effluent from the chiller and condensate separator, oil from the compressor and effluent from the coalescer.

The inherent design of the above listed plant items is such that the opportunity for fugitive emissions has been virtually eliminated, plus the likelihood of occurrence of leaks is minimised by the maintenance regime that has been put in place. The presence of the concrete hardstanding underneath the plant items and the fact that the drainage system is sealed will prevent any fugitive emissions that occur from reaching the environment. Also, the compressor is located in a compressor bund housing. The capacity of the housing is greater than 110% of the capacity of the compressor.

Increase in permitted areas as of 2025

The proposed permitted areas have been designed to ensure that there will be no fugitive emissions to soil, groundwater, or surface water from the site.

The inherent design of concrete bunded area, pipework, and sealed drainage system at the storage facility is such that the opportunity for fugitive emissions of this type will be virtually eliminated. The sealed steel panelled storage tank will ensure there are no fugitive release from the storage of liquid wastes, alongside the secondary containment.

The digestate lagoon is appropriately engineered and lined to ensure no fugitive releases to ground from storage of digestate. The lagoon will be covered to minimise fugitive emissions of odour, methane and ammonia.

The site operators undertake daily and weekly checks site checks as part of the overall GP Biotec AD management system and on site monitoring and have a Leak Detection and Repair Programme (LDAR) in place in accordance with Appropriate Measures for permitted facilities.

The site checklists include, primary and secondary containment, visual inspections for cracks, leaks and damage to infrastructure.

The waste storage site concrete panel bunding walls and concrete pad area are existing and upon inspection are in very good condition with no visible damage or weak areas, therefore no posing a risk of pollution through seepage or damage to the infrastructure.

As with the biogas upgrading plant, odour has the highest potential for fugitive release, both during waste transfer and external storage of solid wastes.

Again, as part of the site operations daily checks, an odour assessment is undertaken of the site and local areas. Odour monitoring records form an important part of the site checks and management of odour incidents. No odours associated with the waste storage facility have been reported previously under the preceding permit, and odour related issues are closely associated with the spreading of digestate not on site storage. The site also operates an odour control system which also mitigates any potential sources of odour release.

Based on this assessment, the potential for the operations on site to impact soil and groundwater underlying the installation is considered to remain low.

4.2 Non-permitted activities undertaken at the Installation

Not applicable

4.3 Plan showing activity layout

Refer to **Annex A – Site Plans**

4.4 Environmental Risk Assessment

See document *SOL_24_P060_GPB – Environmental and Climate Change Risk Assessment* for details.