



Surface Water Management Plan for the remediation of the Ex-Virginia Park Golf Club (Phase 2)

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## 1.0. Operating Boundary

The red line found within figure 1, — defines the operating boundary of all phases. The yellow line boundary in Figure 1 — defines the operating boundary of phase 2 in which these site plans relate to.



Figure 1: Virginia Park Operating Boundary

## 1.1. 1km Buffer Map

The outermost red line defines the 1km buffer zone. The innermost red line is the operating boundary as described in figure 1.

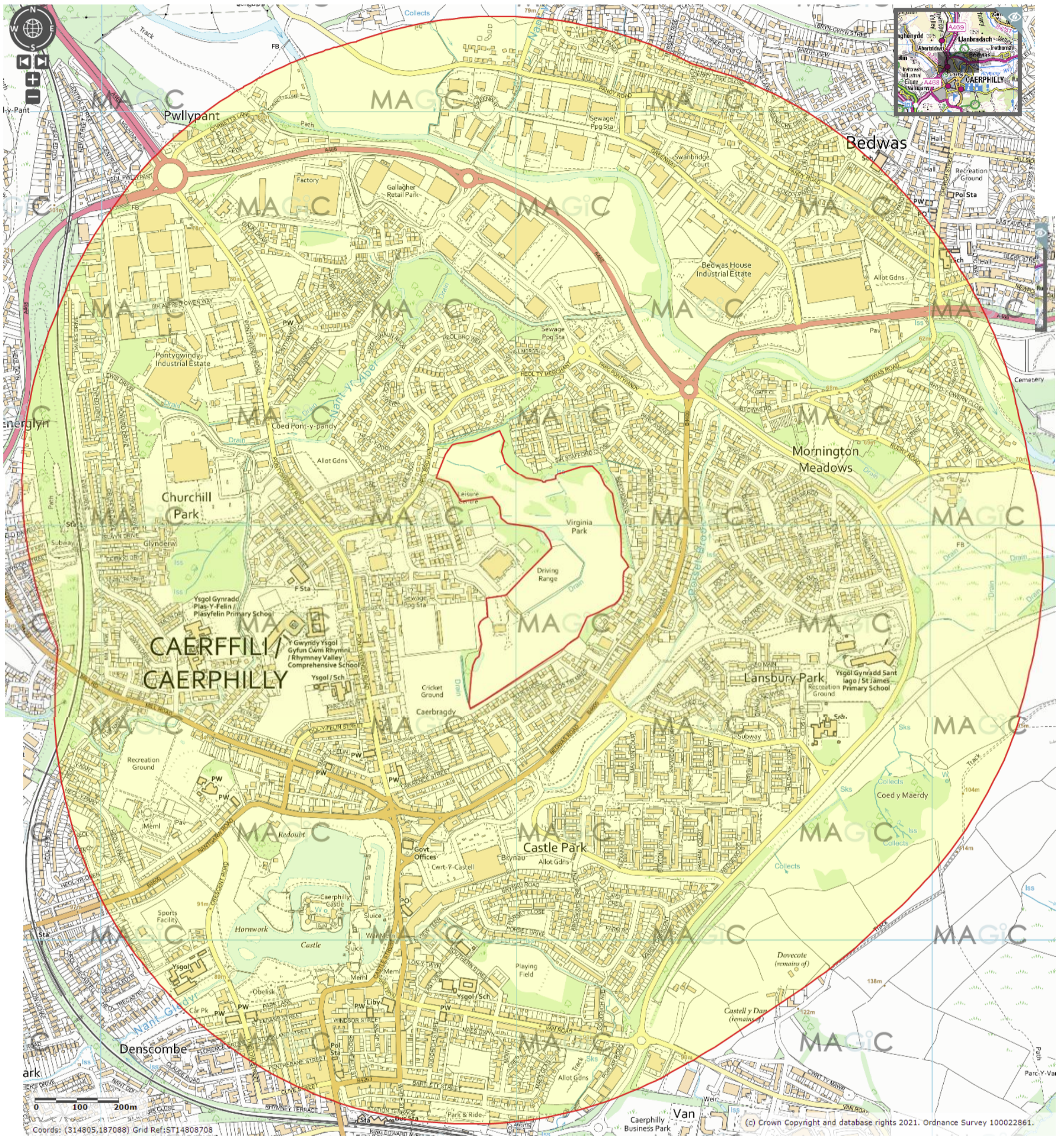
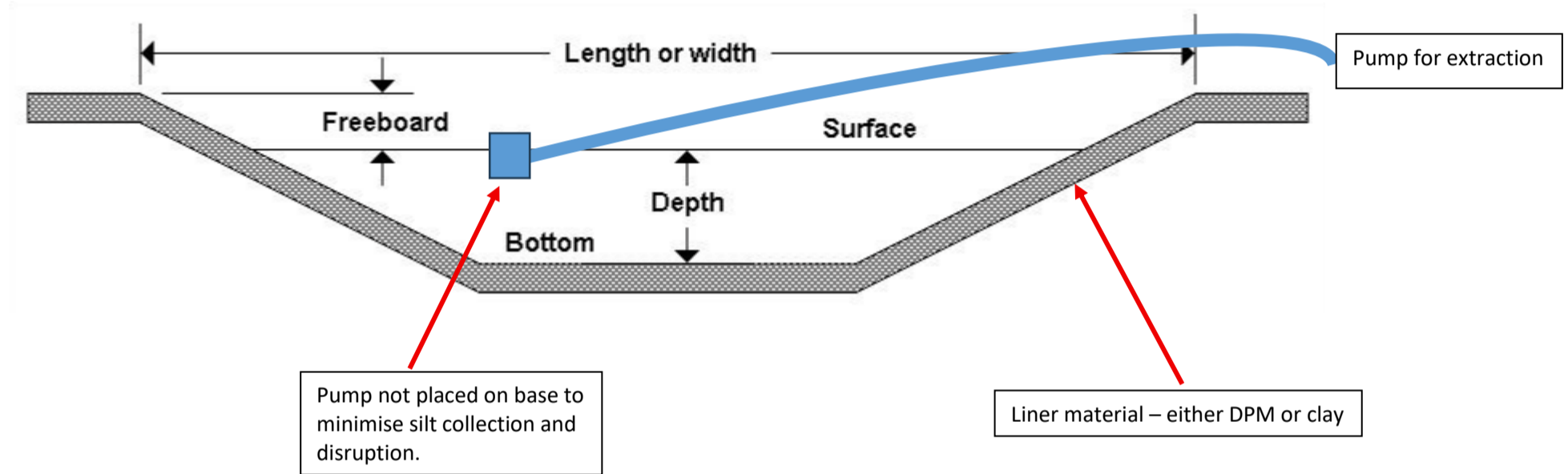


Figure 2: Virginia Park 1km buffer zone and operating boundary

## 2.0. Drainage Systems

- 1.1 The site will manage the surface water encountered within the operational area of the ongoing works utilising a series of lined lagoons for containment and settlement. Please refer to Figure 1 below.
- 1.2 A series of catchment grips will be used to direct relevant flows into the holding lagoons to control the water flow. Once contained, the following options regarding disposal will be used:
  - a) The water will be reused for onsite for dust suppression purposes. Extraction will be via tractor and bowser or suitable site pumps.
  - b) The water will be discharged via a surface water discharge point to Porset Brook as agreed through an appropriate NRW surface water discharge permit (indicative discharge point has been detailed below in Figure 2). It is envisaged that the surface water discharge will provide discharge parameters that are required to be met which will determine if any additional treatment is required. Communication is ongoing with NRW regarding this and any agreements / standards to be met will be included in updated documents.
  - c) The water will be discharged through an appropriate trade effluent discharge consent as agreed with Dwr Cymru. Communication is ongoing with Dwr Cymru regarding this and any agreements / standards to be met will be included in updated documents
  - d) In the event that no permits are secured, the water will be tankered off site for disposal to a suitable licensed waste facility. This is the least sustainable option but if required will be done. An indicative location has been provided in Figure 2 below.
- 1.3 The surface water holding lagoons will be constructed and lined to ensure the containment is robust. This will entail either an impermeable membrane or a clay layer being placed on the surface of the lagoon. Levels will be monitored and managed accordingly to ensure they do not overtop and excess water will be managed in line with the above. Please see figure that shows indicative detail.
- 1.4 The dimensions of the primary lagoon will be circa 25m x 25m x 2m to allow sufficient storage capacity and settlement effectiveness prior to weir into a smaller lagoon of 10m x 10m x 2m for either tankering off site or discharge.

**Figure 1 – indicative drawing of the lined lagoon.**



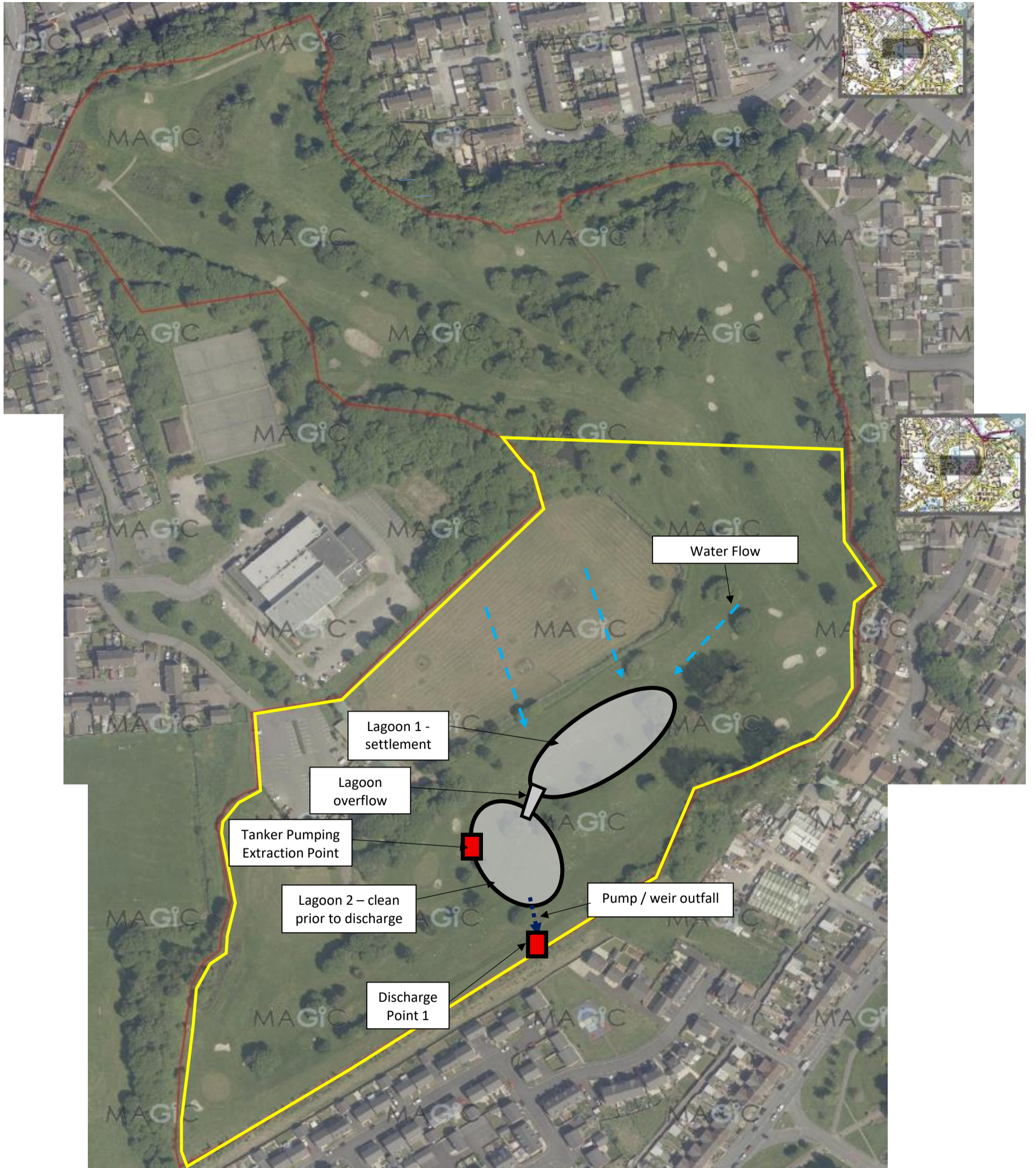


Figure 2: Water management – indicative discharge point to be used. Surface Water discharge permit for excess waters if encountered to be agreed with NRW.

## 3.0. Potential Receptors

Several potential receptors have been identified within the 1km site boundary.

### 3.1. Human Receptors

- Current and future site workers,
- Residential properties,
- Commercial Properties,
- Schools,
- Healthcare Facilities,
- Sports/leisure facilities.

### 3.2. Environmental Receptors


- SSSI's,
- Waters and aquatic ecosystems,
  - Ground Waters,
  - Surface Waters,
  - Waterways.
- Soils,
- Protected areas, i.e., SAC's.

### 3.3. Receptor Maps

Numerous residential properties are found within the 1km area surrounding the project boundary. Unless the building is clearly stated as a receptor, all buildings are assumed to be residential.



#### 3.3.1. Healthcare Facilities.

Includes; Dentists, Dr's Sub Branches, Dr's Surgeries, Hospitals, Opticians, Pharmacies. Key – 

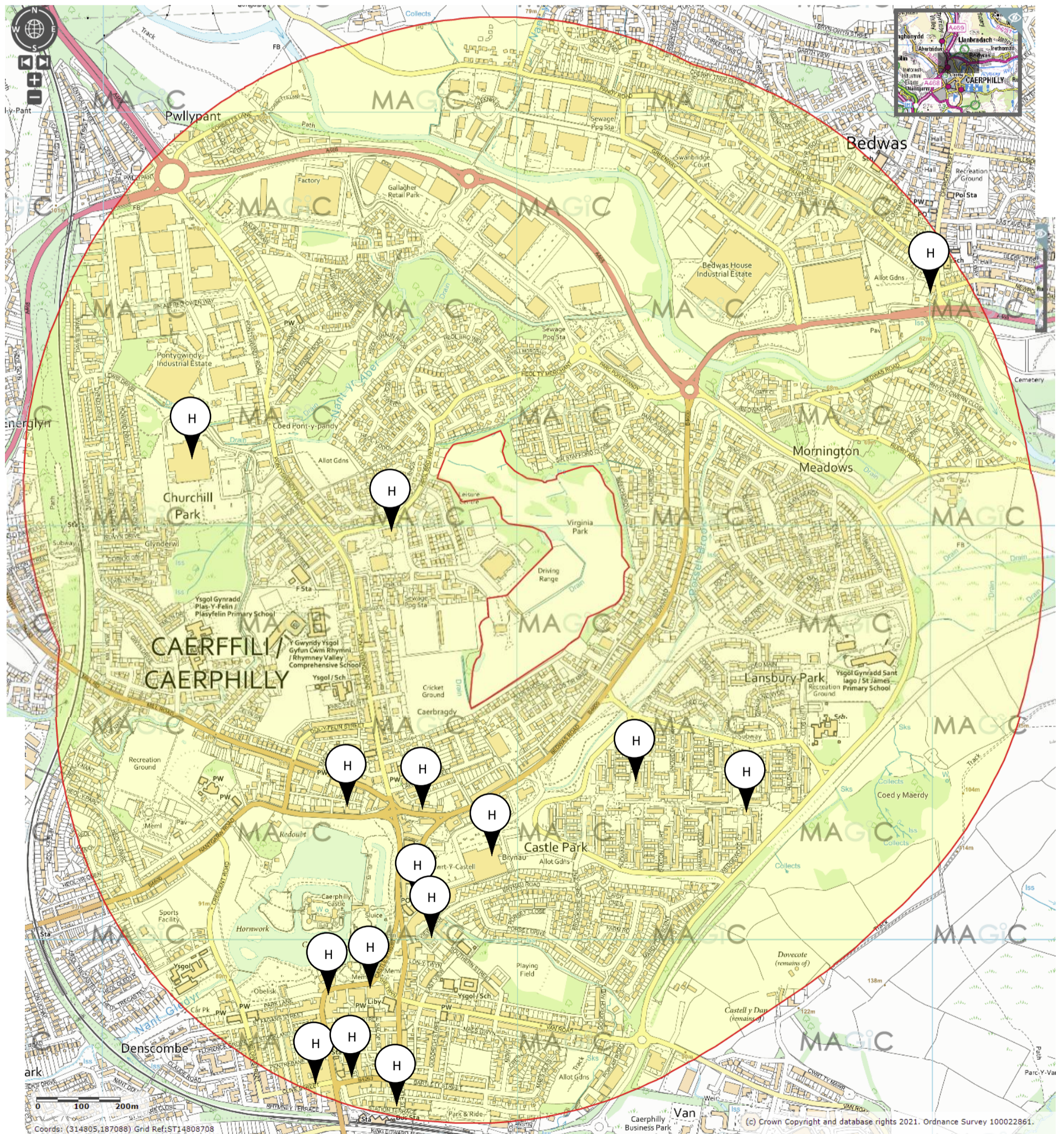


Figure 7: Healthcare receptors within 1km.



Schools	
Letter	Name
A	Bedwas Junior School
B	St James Primary School
C	St Helen's RC Primary School
D	The Twyn School & Nursery
E	Ysgol Gynradd Gymraeg y Castell
F	Ysgol Gymraeg Caerffili
G	Ysgol Gyfun Cwm Rhymni Y Gwyndy Campus
H	Plas-Y-Felin Primary School
I	Bedwas Infant School

### 3.3.3. Commercial/Retail parks, Public Open Space, Allotments, Leisure Centres, Sports Grounds, Cemeteries & Historic Designations.


Key - 



Figure 9: Identified receptors within 1km.

## Key table

Letter	Name
A	Allotments
B	LE5 – LDP protected informal open spaces.
C	Cemeteries
D	LE1 – LDP protected formal open spaces.
L	Leisure Centres / Community Centres
M	Historic Sites
P	Public Open Spaces/Recreational Grounds
S	Sports/Playing Fields.
I	Industrial Units
R	Retail Units

## 4.0. Protected Sites/Other Designations

The 'Lle.gov' map was consulted for the following protected site types. Those within 1km of the project boundary were recorded;

- National parks
- Areas of outstanding natural beauty (AONB)
- Sites of special scientific interest (SSSI's)
- Special areas of conservation
- Special protection areas
- Ramsar sites (wetlands)
- Marine conservation zones
- Ancient woodland
- Historic Landfills
- Sites of Importance for Nature Conservation

### 4.1. National Parks

No National Parks are located within 1km of the project boundary. Source: Lle.gov.wales

### 4.2. AONB

No AONB's are located within 1km of the project boundary. Source: Lle.gov.wales

### 4.3. SSSI's

No SSSI's are located within 1km of the Project Boundary. Source: Lle.gov.wales

### 4.4. Special Protection Areas

No SPA sites are located within 1km of the project boundary. Source: Lle.gov.wales

### 4.5. Special Areas of Conservation

No SACs sites are located within 1km of the project boundary. Source: Lle.gov.wales

### 4.6. Source Protection Zones

No SPZ sites are located within 1km of the project boundary. Source: NRW Interactive Map

### 4.7. Ramsar Sites

No Ramsar Sites are located within 1km of the project boundary. Source: Lle.gov.wales

### 4.8. Marine conservation zones

No MCZ sites are located within 1km of the project boundary. Source: Lle.gov.wales

## 4.9. Ancient Woodlands

Multiple woodlands have been found within 1km of the project boundary. Source: Lle.gov.wales

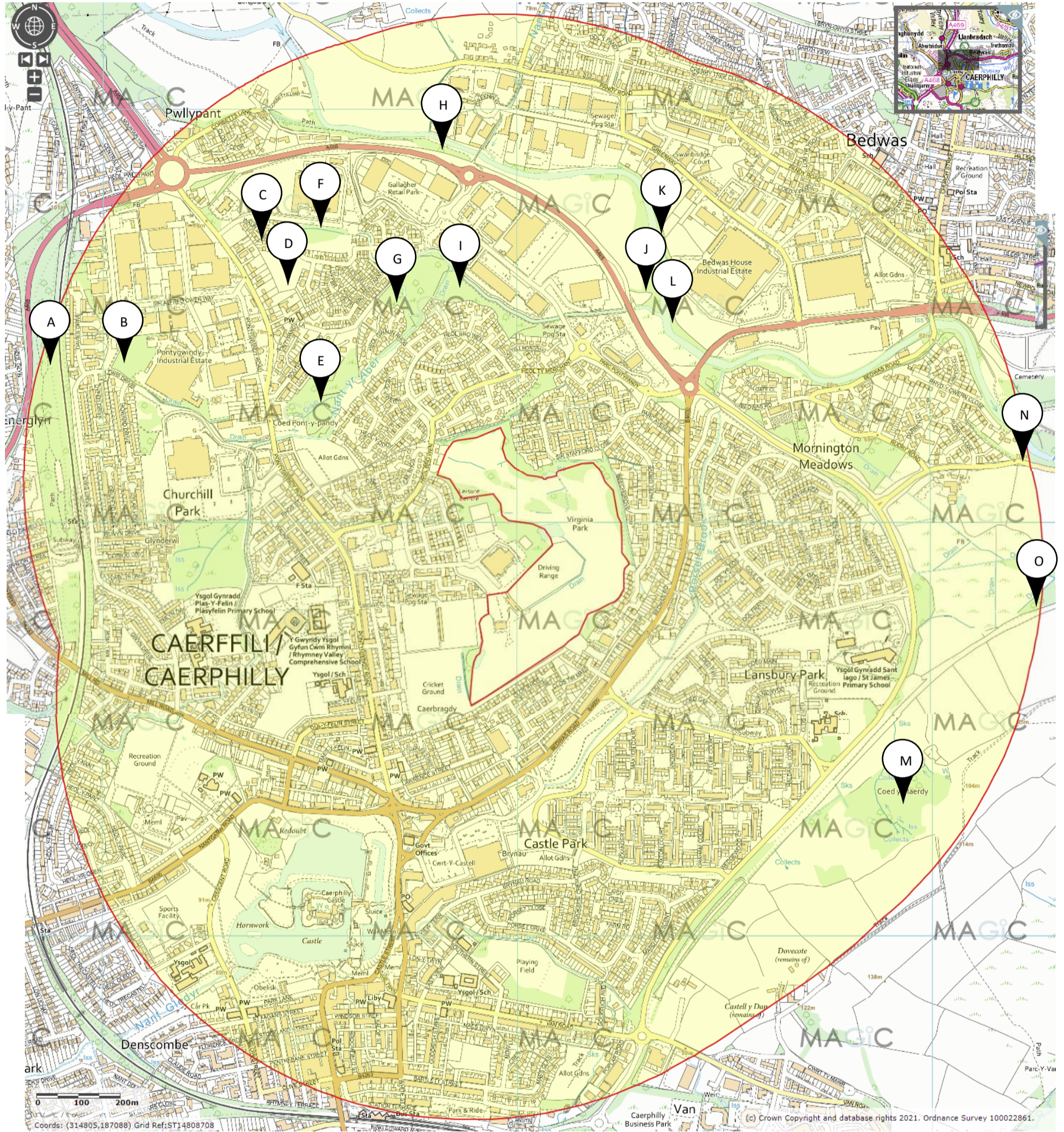


Figure 10: Ancient Woodlands

## Ancient Woodlands within 1km of the project boundary

Letter	Lle Unique ID	Category Name
A	17885	Ancient semi natural woodland
B	17886	Ancient semi natural woodland
C	48488	Ancient woodland site of unknown category
D	48487	Ancient woodland site of unknown category
E	15763	Ancient semi natural woodland
F	17888	Ancient semi natural woodland
G	17887	Ancient semi natural woodland
H	17890	Ancient semi natural woodland
I	15764	Ancient semi natural woodland
J	15765	Ancient semi natural woodland
K	11874	Ancient semi natural woodland
L	11873	Ancient semi natural woodland
M	8424	Ancient semi natural woodland
N	15762	Ancient semi natural woodland
O	15761	Ancient semi natural woodland

### 4.10. Nitrate Vulnerable Zones

No NVZ sites are located within 1km of the project boundary. Source: Lle.gov.wales

## 4.11. Historic Landfills

Source: Lle.gov.wales

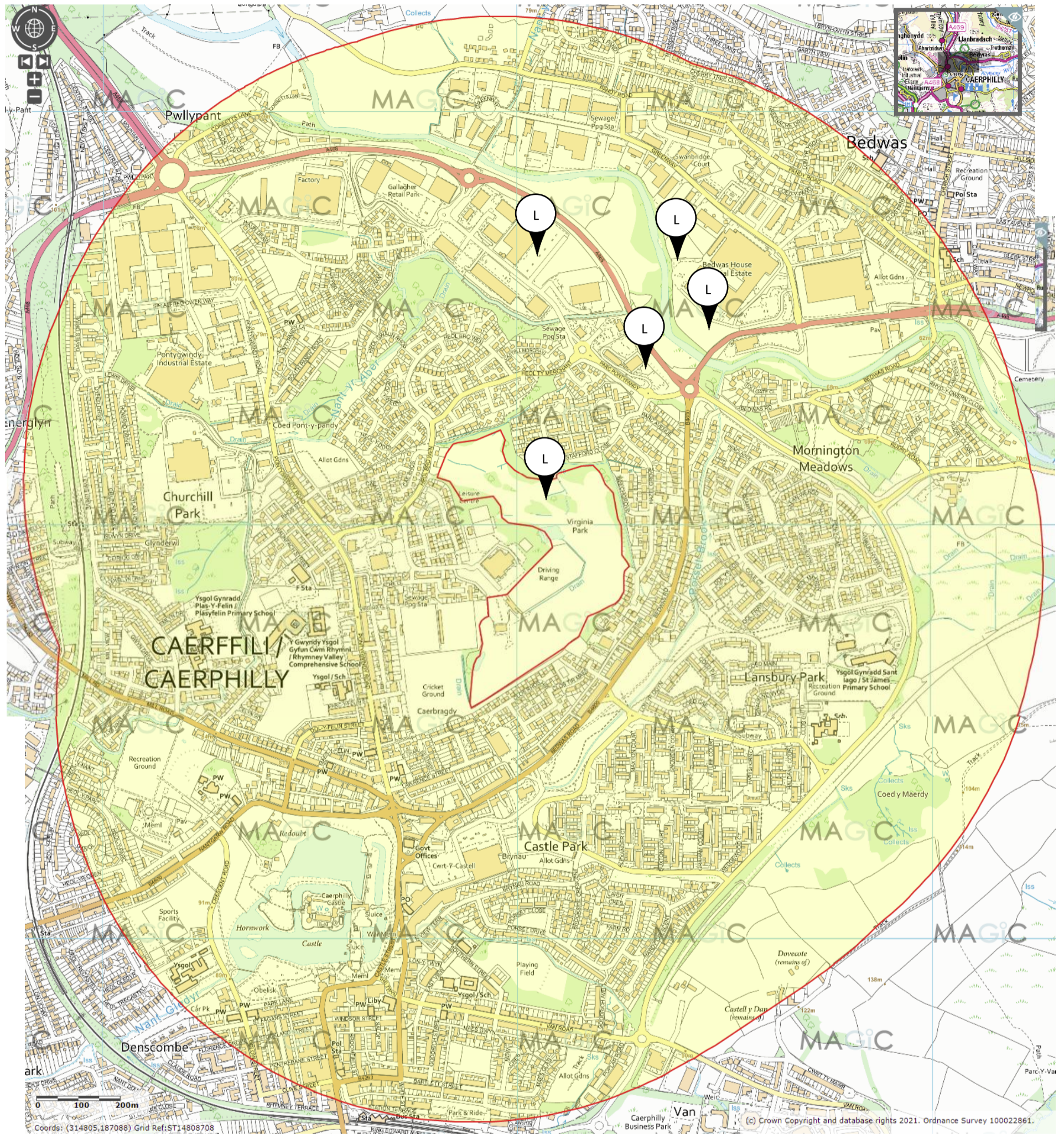


Figure 11: Historic Landfills within 1km.

## 4.12. Sites of Importance for Nature Conservation (SINC)

A number of SINC's or Local Wildlife Habitats are located within the vicinity of 1km of the site boundary.

Source: <http://caerphilly.opus3.co.uk/ldf/maps/ldp-proposals-map#x=316355.99515694&y=188050.0912992&scale=5000&226>

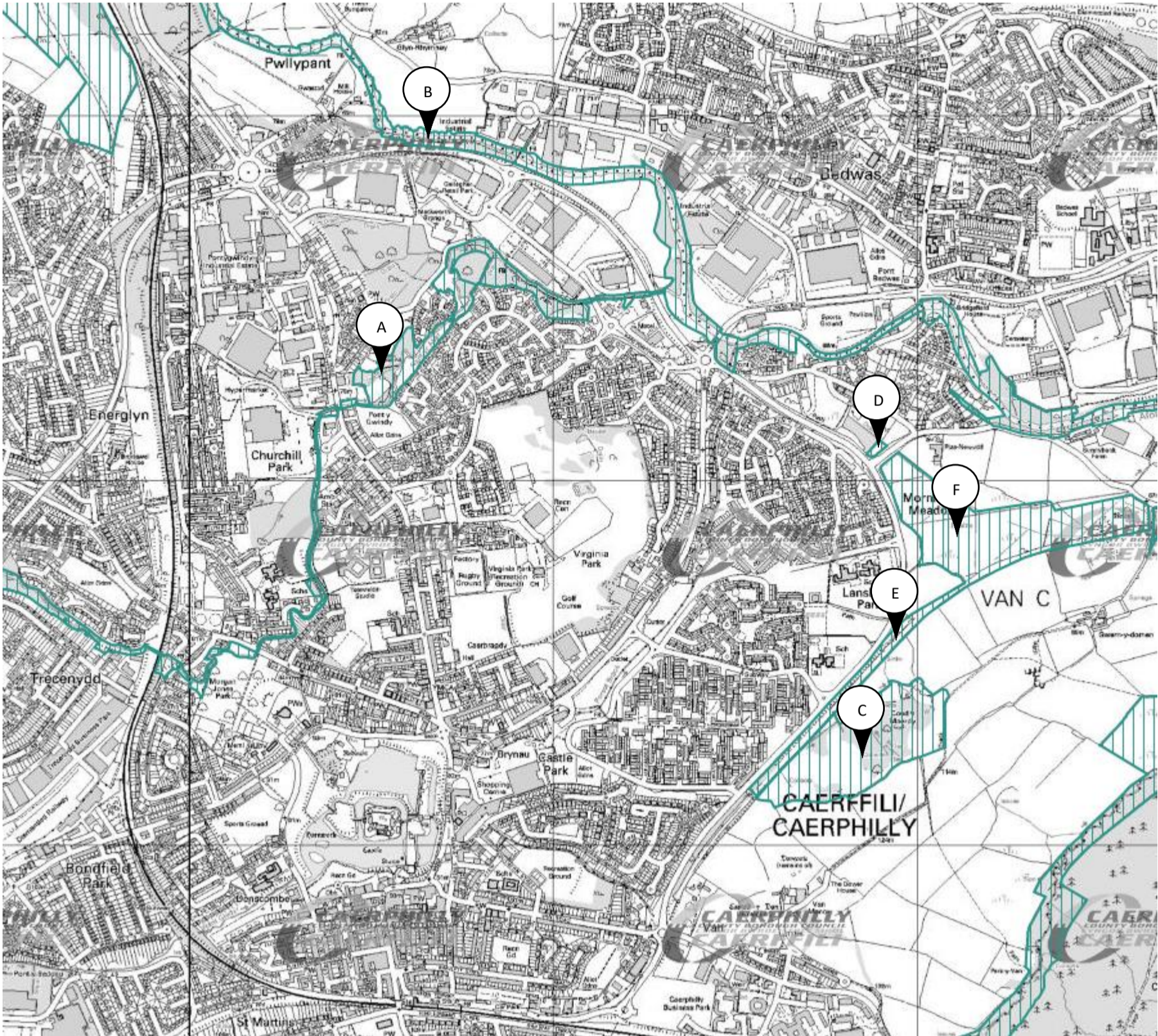


Figure 12: SINC's

## Sites of Importance for Nature Conservation

Letter	Designation ID	Name
A	NH 3.156	Nant yr Aber River
B	NH 3.1	River Rhymney
C	NH 3.168	Coed y Maerdy, East of Caerphilly
D	NH 3.170	Caerphilly/ Machen Disused Railway, East of Trethomas
E	NH 3.170	Caerphilly/ Machen Disused Railway, East of Trethomas
F	NH 3.170	Caerphilly/ Machen Disused Railway, East of Trethomas

## 4.13. Watercourses, springs, wells & boreholes.

The site is bordered by the unnamed water courses along the northern and eastern boundary. As per the bespoke permit for land and groundwater remediation, no permitted activities are to take place;

- Within 10 metres of any watercourse.
- Within 50 metres of any spring or well, or any borehole not used to supply water for domestic or food production purposes; and
- Within 50m of any well spring or borehole used for the supply of water for human consumption. This must include private water supplies.

The inner red line of the buffer zone indicates the closest aspect of the unnamed watercourse to the project. The out red line indicates the extent of a 10m buffer zone around the watercourse where the buffer zone. No permitted activities will occur in these areas.

No boreholes are located within 50m of the site boundary. Source: British Geological Survey

No wells are located within 50m of the site boundary. Source: British Geological Survey



Figure 13: Watercourses and Springs

## 4.13.1. Water courses

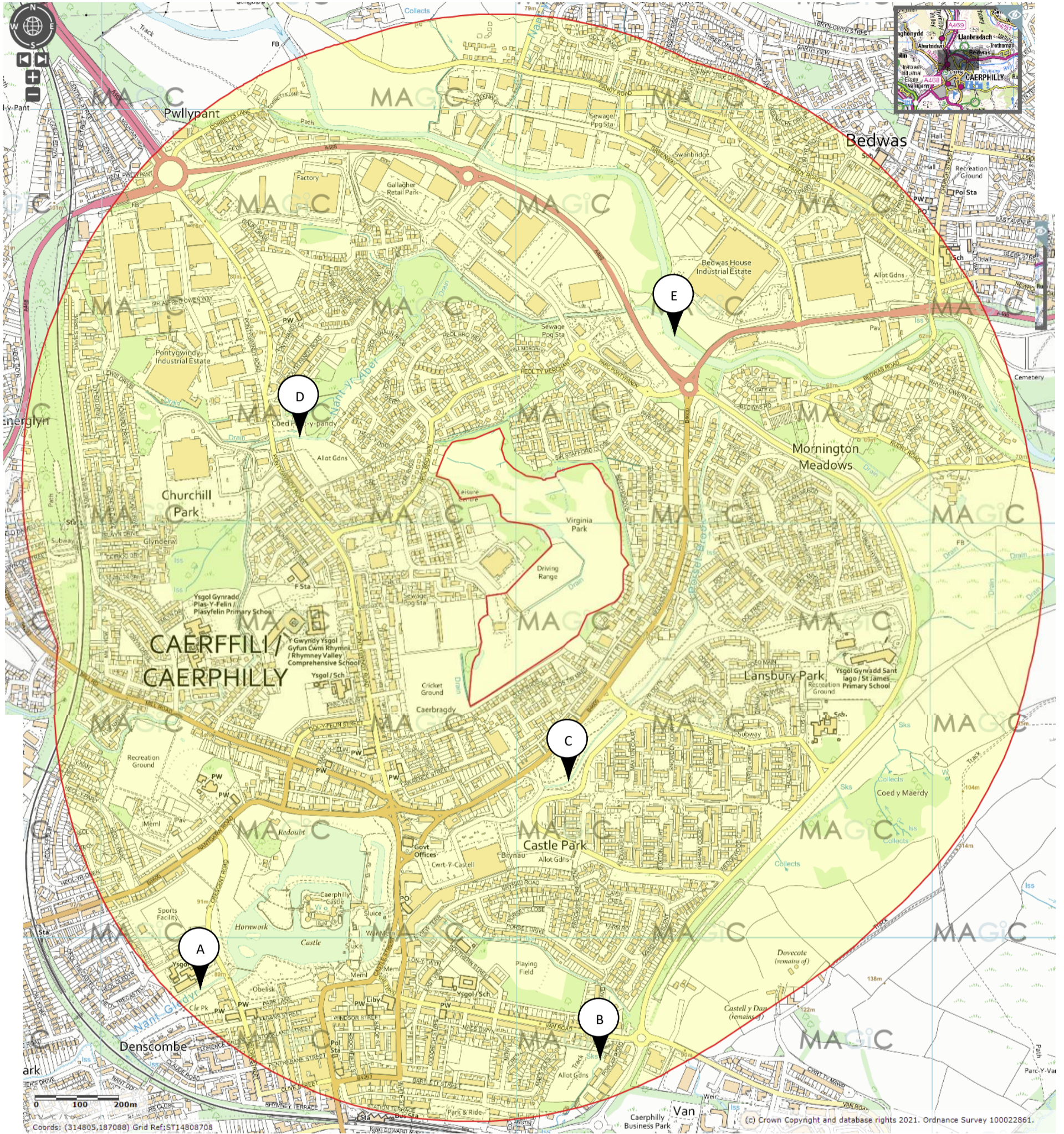


Figure 14: Watercourses within 1km.

## **Watercourses**

<b>Letter</b>	<b>Name:</b>	<b>Tributary of</b>
A	Nant Gledyr	Porset Brook Via Caerphilly Castle Moat
B	Nant y Calch	Porset Brook
C	Porset Brook	Afon Rhymni
D	Nant Yr Aber	Afon Rhymni
E	Afon Rhymni	Severn Estuary