
Landscape and Visual Impact Assessment

**Five Fords Glasshouse, land west of Sesswick
Way, Marchwiel, LL13 0TF**

for

Low Carbon Farming 2 Ltd

08 July 2020



Client

Low Carbon Farming 2
Ltd.

**Five Fords Glasshouse,
Marchwiel, Wales**

Planning authority

Wrexham County
Borough Council
16 Lord Street
Wrexham
LL11 1LG

Document	Landscape and Visual Impact Assessment	
Version	3.0	
Date	08 July 2020	
Authors	Jo Wild BA (Hons) MA (Landscape Architecture)	
Reviewer	Etienne Swarts B.Compt (Hons) F Deg Sc ACIEEM	
Greenlight Environmental Consultancy Limited Diss Business Hub Hopper Way Diss Norfolk IP22 4GT www.greenlightco.co.uk		

Table of Contents

EXECUTIVE SUMMARY	
1 INTRODUCTION.....	7
2 METHODOLOGY	9
3 SITE CONTEXT	14
4 DESCRIPTION OF DEVELOPMENT	50
5 ASSESSMENT OF LANDSCAPE EFFECTS	55
6 ASSESSMENT OF VISUAL EFFECTS	60
7 CONCLUSIONS.....	81
 Appendix 1	Proposed layout
 Appendix 2	Assessment criteria
 Appendix 3	Methods for visualisations
 Appendix 4	Data sources

EXECUTIVE SUMMARY

- A Landscape and Visual Impact Assessment (“LVIA”) has been prepared in support of a planning application for the installation of a commercial glasshouse and associated infrastructure, at land west of Sesswick Way, Marchwiell, Wrexham LL13 0TF.
- The proposed development will be contained within a land parcel of approximately 39 hectares (“the site”), to the east of Five Fords Sewage Works. The proposed project is for the erection of two 8 hectare glasshouses standing at 8m high and will cover ground of 16 hectares. There will be a surrounding compact stone roadway around the perimeter of the glasshouse for construction and maintenance. The proposals include a packing house with staff welfare rooms and energy centre and irrigation room standing at 8m high. Other structures include five rain water reservoirs, CO² storage tank, DNO cabin, two hot water tanks and clean and brown water tanks. The scheme will be accessed via the Cefn Road to the north, at an existing access point to the sewage works. There are two field access points to the east on Sesswick Way.
- The proposed glasshouse is contained within one large arable field with a young arable crop (**Field 1**) with an additional reservoir in a field that lies to the west immediately adjacent the sewage works (**Field 2**). The field is accessed from the east on Sesswick Way from two locations. To the northwest accessed from the main entrance on Cefn Road is a very irregularly shaped field that follows the northern edge of the sewage works and the edge of the tree line along the course of the River Clywedog which lies on the southern edge of Cefn Road, this is referred to as **Field 3** in the report. The fields are enclosed by early mature to mature hedgerows of mainly hawthorn (*Crataegus spp.*) and hazel (*Corylus avellana*) with tree groups and copse containing mature willow (*Salix spp.*), ash (*Fraxinus excelsior*), oak (*Quercus spp.*), and sycamore (*Acer pseudoplatanus*) trees to the northern and southern boundaries. The River Clywedog had flowing water at the time of survey.
- The proposals are within a collection of fields 270m to the northeast of the small village of **Marchwiell (A)**. The hamlet edge of **Cross Lanes (B)** is 525m to the southeast. The **Wrexham Industrial Estate (C)** is 70m to the northeast and **Wrexham (D)** itself is 1km to the northwest. The surrounding landscape is rural to the south with many areas of small woodland and coverts. Water bodies and reservoirs dot the landscape and the River Clywedog lies directly to the north of **Field 1** and **3**.

- The topography within the site is of rising ground from the north to the south in the wide, open, and shallow river valley of the River Clywedog, set on a gentle undulating plateau landscape rising to hills in the west.
- There is a PRow that crosses the site from the north eastern corner to the south western corner (**Footpath 1**). Numerous PRows are found within the surrounding landscape.
- The site is within the 'Welsh Maelor' character type as assessed by Wrexham County 'Landscape Character Assessment ("LCA") in 2007. Nationally, the site is part of the **National Landscape Character Area 13** ("NLCA 13"), '**Deeside and Wrexham**'. The landscape is described as '*There is great contrast between the large, open estuary mouth, it's large skies and tidal ebb and flow, and the busy developed areas around Connah's Quay, Queensferry and Wrexham*' (NLCA 13: 3).
- The agricultural land classification is Grade 2 (Natural England Agricultural Land Classification for England and Wales website, date accessed 26 May 2020).
- There are some Grade II listed structures to the east, **Pum-rhyd (9)**, is the closest however no protected structures have a visual relationship with the site. There are no scheduled ancient monuments within 2km of the site.
- The assessment of the effects of the proposals on the larger landscape character found that there would be a **moderate** effect in the long-term on the landscape character, due to the intact nature of the landscape however the site relates to the industrial areas in the vicinity.
- For the site itself, the landscape effects on a limited number of receptors were found to be **moderate** due to the change of land use of an arable field. Important landscape elements such the hedgerows will be preserved and tree cover will be enhanced.
- With regard to the visual effects of the proposed development upon local receptors, the greatest effect is no further than 1km from the site boundaries to the west with immediate views affect to the east.
- Mitigation planting is proposed as follows:
 - Infill planting of hedgerows and tree lines on the eastern and western edges of **Field 1** whilst avoiding shading.
 - Tree group planting to the north of **Field 1**.
- Cumulative effects were assessed with respect to other developments in the study area. It is judged that there are **medium** cumulative landscape effects and **medium** cumulative visual effects with respect to the proposals.
- Three transport routes would experience a **slight** to **slight/moderate** visual effect.

- Nine properties and a settlement edge were judged to have a **slight** to **moderate** visual effect.
- One PRoW would experience a **substantial/moderate** visual effect, reduced to **moderate/slight** by mitigation planting. The effect is felt most where footpaths are within the site.
- Although the receiving landscape exhibits a positive character within rolling landform, strong vegetation on site and numerous woodlands and coverts, reduces the landscape and visual effects of the proposals. The current proposals would introduce new landscape elements. A landscaping scheme could retain and enhance the current natural elements on site. In relation to the scheme's opportunities and constraints, it is considered that the visual and landscape effects of the proposal are acceptable.

1 INTRODUCTION

- 1.1 Greenlight Environmental Consultancy Ltd. has been commissioned by Low Carbon Farming 2 Ltd. to carry out a LVIA for the development of land for a glasshouse and auxiliary facilities adjacent Five Fords Sewage Works, west of Sesswick Way, Marchwiel, Wales.
- 1.2 The site is situated to the west of the Sesswick Way, a single carriageway which links the **Wrexham Industrial Estate (C)** in the north to the A525 to the south of the site. The A525 lies 275m to the south of the site's main southern boundary. The site is bounded to the north by the course of the River Clywedog and to the north of this Cefn Road which links the Industrial Estate to the town of **Wrexham (D)** to the northwest. There are mainly hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*) hedgerows along the boundaries of the main site **Field 1**, with tree groups and copses to the north and south of mainly willow (*Salix spp.*). The site is bounded by Five Fords Sewage Works to the west. The county town is **Wrexham (D)**, is approximately 1km to the northwest. The site is currently in arable use with cereal crop at the time of survey.
- 1.3 The proposed project will utilise **Field 1** for two large glasshouses covering 16 hectares, standing at 8m in height. The glasshouse will have a lighting system to extend daylight growing hours and will be fitted with blackout blinds to reduce light pollution. The development will also include a packing house which also houses the staff welfare areas, and ten loading bays. The site will have on site storage for CO² in three tanks at 14m in length; oil tanks at 3m by 6m; heat storage tanks at 12.5m in height; water silos as part of the recycling of irrigation water at 5m in height; and three water reservoirs for run off capture on site which will stand up to 1m above ground level where necessary and occupy the eastern and southern edges of **Field 1** and the northern portion of **Field 2**. A utilities trench will run underground for approximately 465 m from the glasshouse development to the Five Fords.
- 1.4 The glasshouse will be constructed on concrete pile foundations with a compact stone track at 4m wide that will be retained for maintenance of the glasshouse. The ground within the glasshouse will be levelled and contain heating pipes. There will be a tarmacked surface from the northern access point from the Cefn Road, and this will extend to include subterranean loading bays adjacent the packing house. The visitor and staff car park will be constructed with compacted stone.

- 1.5 There is capacity for planting vegetative screening to the eastern and western boundaries, however this will be subject to shading restrictions. Possible planting to the northern edge of tree groups will further enclose the site.
- 1.6 This report provides a landscape and visual assessment of the site within the context of the surrounding area. It outlines the existing baseline situation for topography, vegetation cover and land uses, published landscape character studies, landscape and other relevant designations, and the current visibility of the site.
- 1.7 The existing baseline situation and the proposals for the development are then analysed against the assessed potential visual and landscape effects.
- 1.8 The approach to the report is in accordance with current guidance (see Section 2.1 below).

2 METHODOLOGY

2.1 Relevant guidance

2.1.1 This appraisal has been undertaken in accordance with best practice as outlined in the following publications:

- o Guidelines for Landscape and Visual Impact Assessment' (GLVIA3) – Landscape Institute and the Institute of Environmental Management and Assessment 2013.
- o An Approach to Landscape Character Assessment October 2014 Christine Tudor, Natural England
- o Landscape Character Assessment - Guidance for England and Scotland – Countryside Agency and Scottish Natural Heritage 2002.
- o Site and Context Analysis Guide: capturing the value of a site – Welsh Government March 2016
- o Photography and photomontage in landscape and visual impact assessment - Landscape Institute Advice Note 01/11 – 2011.

2.2 Methodology

2.2.1 The methodology used for this assessment is based on the guidance listed above.

2.2.2 A desktop review of published data, such as landscape character assessments, OS maps and landscape planning policies, has been carried out. This identified potential landscape and visual receptors that could be affected by the proposed glasshouse and auxiliary buildings. Field survey visit was carried out on the 25 May 2020 to confirm the findings of the desktop review. Photographs were taken at approximately 1.5m height, with a with a Nikon D7200 camera and Nikon DX AF-S NIKKOR 35mm 1:1.8G fixed lens, except where stated otherwise.

2.2.3 The structure of the report is as follows:

- (i) In Section 3, the existing situation, i.e. the baseline condition of the landscape is reviewed. This includes the topography, vegetation cover and land uses, published landscape character studies, landscape and other relevant designations, and the current visibility of the site.

- (ii) In Section 4 the proposals for the development are set out, including the proposed mitigation planting proposals.
- (iii) In Sections 5 and 6 respectively, the potential landscape and visual effects are assessed in detail (construction and operational phases) using the landscape and visual receptors identified in Section 3, by considering the interaction between them and the proposals for the development.
- (iv) Finally in Section 7, conclusions are drawn.

2.2.4 Zone of Theoretical Visibility (“ZTV”) mapping has been used to identify the worst-case scenario for potential locations from which the proposed development might be visible. It is important to note that such modelling cannot represent accurately small-scale landscape elements in the terrain. The terrain data is based on landform and vertical structures but does not incorporate weather conditions or the orientation of receptor, and thus does not provide a definitive mapping of actual visibility. The ZTV information is used in conjunction with other desktop study to inform further the understanding of the development in the larger landscape, and to focus the field surveys and the selection of viewpoints (please refer to the A3 Figures Volume under separate cover).

2.3 **Assessment of significance**

2.3.1 In this report, in accordance with the Landscape and Visual Impact Assessment Guidelines, 3rd edition (2013) the significance of effects is ascertained by cross-referencing the sensitivity of the baseline landscape or visual receptor and the magnitude of change as a result of the development. Whilst the methodology is designed to be robust and transparent, professional judgement must be applied to determine the significance of each effect.

2.3.2 Please see [Appendix 2](#) which sets out the criteria used to aid determination of landscape or visual effect. Only where the Landscape and Visual Impact Assessment forms part of an Environmental Impact Assessment (“EIA”), will the term ‘significant’ be used.

In the case of this scheme, pre application advice has not been sought from Wrexham County Borough Council. A proportionate LVIA has been prepared as part of the planning application. Photomontages for selected viewpoints is yet to be agreed, and these will be provided within the A3 Figures Volume under separate cover.

2.4 Limitations of the assessment

- 2.4.1 This assessment is based on views from publicly accessible locations. Where impact to private views is noted it has been estimated.
- 2.4.2 The viewpoints identified in this assessment are illustrative and represent the potential impact of the development from a range of receptors e.g. dwellings, commercial properties, rights of way, roads etc. This report does not necessarily identify all locations from where the site is potentially visible.
- 2.4.3 It is important to note that this assessment was carried out in late spring, and therefore the 'in leaf' vegetation considerably contributes to the enclosure of the development. 'In leaf' vegetation will contribute to screening, as it will do for approximately seven months of the year between April and November.

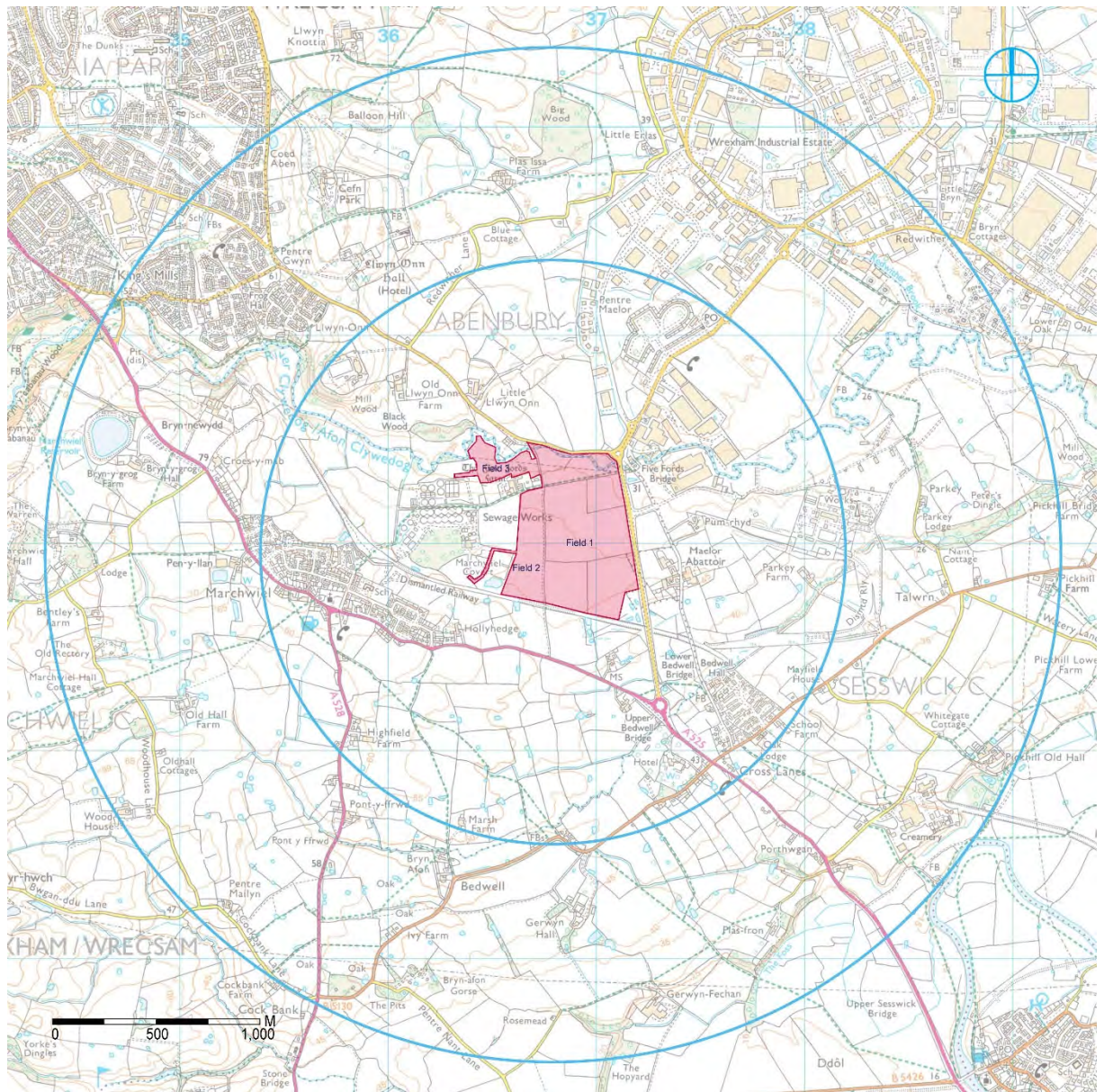


Figure 1: Map showing the location of the site. Site marked in red; and 1km and 2km from the centre of the site is indicated by the blue circles (OS Map provided by www.centremaps/live.com at scale 1:25,000)

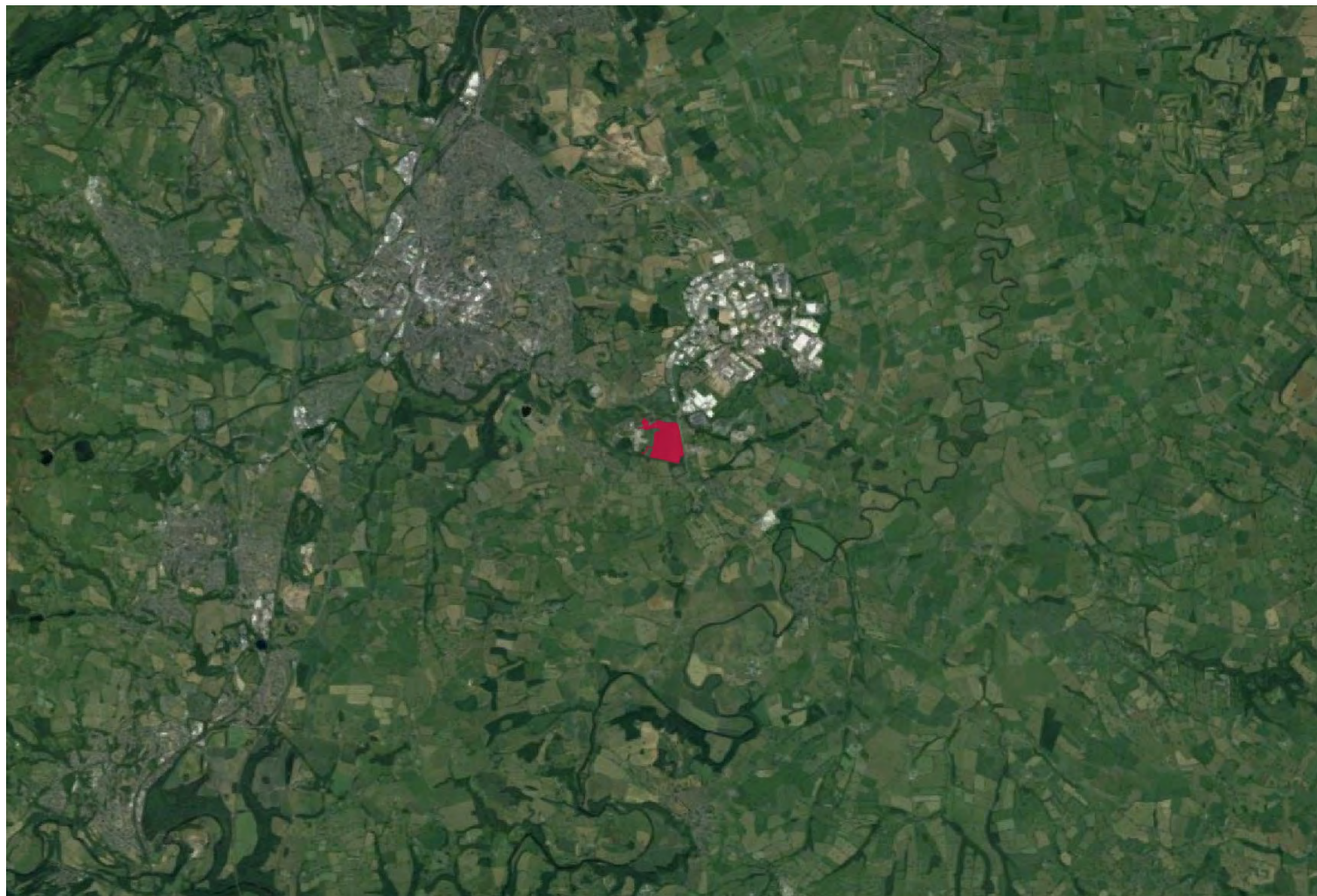


Figure 2: Satellite map showing the location of the site in red (based on Google map accessed April 2018).

3 SITE CONTEXT

3.1 Overview

3.1.1 This section sets out the context of the site within the surrounding area. It outlines the location, nearby settlements, topography, vegetation cover, existing rights of way, published landscape assessments, landscape and other relevant designations and planning policy, at national and local levels.

3.1.2 Annotated photographs are included throughout the report. The site context and location plan is included as Fig. 2 in section 3.2 'Location and Boundaries' below.

3.1.3 For all quoted distances from the site, unless otherwise stated, the measured distance is the approximate distance in kilometres from the closest boundary of the site to the closest boundary of the location being discussed, measured in a straight line.

3.2 Location and Boundaries

3.2.1 The glasshouse site is located in Wrexham County, northeast Wales at Grid Reference SJ 36865 48011 and the nearest postcode is LL13 0PA. The site is within farmland 270m northeast from the settlement edge of **Marchwiell (A)**. Additionally, the village of **Cross Lanes (B)** lies 525m to the southeast and **Wrexham Industrial Estate (C)** lies 70m to the northeast. The county town of **Wrexham (D)** is 1km to the northwest. Settlements are sparse to the south, the landscape to the northeast is industrial and urban to the northwest, however the landscape is well tree'd, with tree lines following water courses and developments are enclosed by tree planting. Woodland patches are frequent to the north and west including Big Wood and Marchwiell Covert. To the immediate site there are multiple structures within the sewage works to the western edge to the site, and the road network serving the industrial estate to the northeast lead to an industrial edge landscape setting to the site. Additionally, the tree'd water course to the north and sense of enclosure of tree copse to the south along the disused rail line reduce views substantially.

3.2.2 The site is located in a gently undulating wide, open valley landscape of the River Clywedog which is a tributary of River Dee to the east. It is a principally agricultural landscape with fields of varying sizes and irregular shapes defined by hedgerows and hedgerow trees. The gentle undulations of the landform and tree lined fields do allow some long views from some

high points in the landscape, however low-lying structures are not immediately obvious. The arable fields of the site are lined with mixed native species hedgerows. The site will utilise the established engineered entrance, suitable for heavy goods vehicles off Cefn Road and the bridge over the River Clywedog.

- 3.2.3 The site occupies 39 hectares and includes a small section of a southern field enclosure; an arable field to the west (**Field 2**); and an arable field to the northwest (**Field 3**); and the larger field enclosure off Sesswick Way (**Field 1**). The sewage works buildings lie to the west however there are no buildings on site, some maps show Five Fords Farm on the site, however this no longer exists. There are three reservoirs immediately to the southwest of the site and the arable fields are served by some unmade tracks. The large field enclosure (**Field 1**) is rectangular in shape, **Field 2** is rectangular, and **Field 3** boundaries follows the water course and tree copse on the southern edge creating an irregular shape. An additional area to the south for access is within a pasture field shaped by tree copse and enclosed ponds.
- 3.2.4 The northern boundary consists of a mature tree belt following the route of the River Clywedog. Species include hawthorn (*Crataegus spp.*), willow (*Salix viminalis*), oak (*Quercus spp.*), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*) (**Viewpoint a**), and there appears to be an area of Japanese knotweed (*Fallopia japonica*) on the northern bank outside of the site boundary. The tree groups create a natural screen to the north with little of the landscape beyond visible. There are three small arable fields (**Viewpoint c**) along the northern edge of the site including **Field 3** which is within the site itself (**Viewpoint b**). The fields are partially enclosed by tree lines. **Glanrafon Cottage (1)** and **Nos. 1 & 2 Cefn Road (2)** are located northeast of **Field 3** off Cefn Road. The site lies on the southern River Clywedog valley edge. Further to the north, a mixture of small to medium arable fields are on land that rises gradually on the northern valley side are towards Big Wood. There is a settlement gap between **Wrexham (D)** to the northwest and **Wrexham Industrial Estate (C)** to the northeast. Land to the north is locally designated as 'Green Barrier' (Wrexham Unitary Development Plan 1996 – 2011). Overhead powerlines head east to west along the northern boundary of the site.
- 3.2.5 The western boundary is enclosed by a partially defunct hawthorn hedgerow on the boundary of **Field 2** and the sewage works (**Viewpoints q**). The sewage works are on land higher than the site and the workings of the sewage plant are fully visible from the site and Sesswick Way to the east (**Viewpoint e**). The works are bounded by a woodland 'Marchwiell Covert' to the southwest and trees groups along the course of the river and Black Wood to the northwest

(Viewpoint f). Beyond the sewage works and land rises to the northern edge of the village of **Marchwiell (A)** and a large housing estate at Kings Mill on the south eastern edge of **Wrexham (D) (viewpoint f)**.

3.2.6 The eastern boundary is defined by a mixed species hedgerow including hawthorn, hazel, blackthorn (*Prunus spinosa*) and dogrose (*Rosa canina*). The hedgerow lies at the base of the embankment to Sesswick Way and is early mature (**Viewpoints h**). The hedgerow probably dates from the construction of the roadway which is built up to the north and enters a cutting to the south. Further to the southeast there is a mature hedgerow of mainly hawthorn and mature oak trees. The southeast boundary is with tree copse of early mature willow and cherry (*Prunus* spp.) The route of Sesswick Way passes through a cutting to the southeast and is banked to both sides with hedgerows on the crest of the banks (**Viewpoints v**). Beyond Sesswick Way are small arable fields and the route of Bedwell Road that is roughly parallel with Sesswick Way. The large site **Maelor Abattoir (10)** lies on both sides of Bedwell Road. There are two more industrial sites and a solar farm further east. The **Wrexham Industrial Estate (C)** boundary is 70m northeast of the site. The industrial estate is on rising ground however tree lines limit views to the northeast. Tree lines follow the course of the River Clywedog and smaller streams. Land falls away further to the east towards the course of the River Dee.

3.2.7 The southern boundary is defined by a disused railway line lined by mature trees on a raised embankment (**Viewpoint m**). Tree species include oak, hawthorn, elder goat willow (*Salix caprea*) and ash (*Fraxinus excelsior*). The raised tree line forms a natural screen. There are several small pasture fields to the south enclosed by the route of the A525, Bangor Road (**Viewpoint t**). The fields are divided by hedgerow with mature trees and a copse lies to the south around a series of ponds on the north western edge of the properties **Hollycroft** and **The Hollies (6)**. To the southwest is the settlement edge of **Marchwiell (A)** pasture fields and the route of **Footpath 1** lie between the settlement and the site. Further to the south the land is relatively level with a gentle fall towards the course of the River Dee.

3.2.8 The interior of **Field 1** is relatively level with a rise in landform to the south away from the river course. The field is defined to the west by a post and wire fence and the route of **Footpath 1**. The northern edge is relatively open to the arable field and the route of **Footpath 1** that is adjacent the boundary. An oak tree marks the north western corner of the site. The eastern boundary of the field is a well-established hedgerow, maturing to the south with mature oaks in some places. A small copse contains a mix of native species trees. The

southern boundary of **Field 1** is along the disused railway line. There are two oaks and a line of remnant hedgerow to the centre of the field.

3.2.9 **Field 2** contains a young cereal crop at the time of survey. The eastern boundary is with the route of **Footpath 1** and is lined by a hawthorn hedgerow. To the south the railway line forms the boundary, and to the west there is a defunct and gappy hedgerow of hawthorn. Reservoirs associated with the sewage works lie to the southwest and a solar array lies immediately to the west. A short boundary reaches into the sewage works and will probably accommodate pipelines. To the northwest is another solar array where the old farmhouse once stood. A concrete road leading into the sewage works forms the northern edge of **Field 2 (Viewpoint q)**.

3.2.10 **Field 3** is to the northwest and had a young cereal crop at the time of survey. On lower ground than the rest of the site, the field is bounded by the meandering course of the river to the north and solar arrays associated with the sewage works to the west and south. To the east is the access road to the sewage works and the site. There is a short boundary that reaches into the sewage works to the west where pipelines will be laid (**Viewpoint d**).

3.2.11 The access route from the north is a made asphalt surface. The route meets **Footpath 1** at the corner of **Fields 1** and **2** and continues south following a double track between the fields. A wide grass verge lies between the tracks and there is a mature sycamore on the route (**Viewpoint l**). The track continues under the railway embankment, whilst the route of the PRoW heads west along the southern boundary of **Field 2**.

3.2.12 The open wide valley landscape does allow some long views from high ground however the local changes in landform and characteristic heavily tree'd landscape creates intimate enclosed fields and properties. Apart from the formal road network that connects the industrial estate and large town of Wrexham, most roads are narrow and sunken and lined by hedgerows creating an intimate tranquil landscape away from major infrastructure.

3.2.13 The eastern extents of **Marchwiell (A)** lie to the southeast, approximately 270m from the site's western boundary where the property **Hollyhedge (5)** is located. The raised railway embankment lies between the site and the village. **Glanrafon Cottage (1)** is the nearest dwelling, 60m north of **Field 3**. **Pum-rhyd (9)**, is the closest protected structure and is grade II listed, 290m to the east of the **Field 1** enclosure. To the southeast is the hamlet of **Cross Lanes (B)**, the settlement is located south of the raised railway embankment 525m from the

site's boundary. The site lies close to **Wrexham Industrial Estate (C)** and industrial units are visible on rising ground to the northeast. Wrexham's south eastern suburb Kings Mill is 1km to the northwest on rising ground however Black Wood and Mill Wood lie between the settlement edge and the site. Between the site and **Wrexham (D)** are several large farmsteads including **Little Llwyn Onn (3)** 190m north and **Old Llwyn Onn Farm (4)**, 340m northwest of the site.

3.2.14 A proposed pipeline will link the site to the sewage works to acquire a recycled heat source. This can be installed discreetly within **Field 2** and **Field 3** on the western edge of the site.

3.2.15 Historically the site has been in agricultural use (British History Online, accessed 27 May 2020). The land is grade 2 agricultural land under the Agricultural Land Classification for England and Wales (Natural England Agricultural Land Classification website, date accessed 26 May 2020). Access to the site is via an existing access point for the sewage works at Cefn Road and two informal access points from Sesswick Way to the east. Only the access from Cefn Road will be used when the glasshouse is operational. A Public Right of Way ("PRoW") passes through the site. **Footpath 1** (Mar/30) follows the northern edge of the site and heads south along the wide track between **Fields 1** and **2** before joining the disused railway line and heading west to **Marchwiell (A)**.

3.2.16 The numerous woodland patches and coverts in the area lead to a heavily tree'd landscape. Many of the woodlands are described as semi-natural and ancient woodland included Big Wood; Mill Wood and Marchwiell Covert, and Black Wood is a restored ancient woodland.

3.2.17 The site falls within the National Landscape Character Area 13, Deeside, and Wrexham 2014 ("**NLCA 13**") and landscape character area 13a Welsh Maelor. The landscape is largely agricultural however influenced by the proximity to **Wrexham Industrial Estate (C)** and **Wrexham (D)** (NLCA 2014: 2-3).

3.2.18 The site is accessed from the A525 in the south which is an arterial route through northern Wales from Rhyl on the northwest coast of Wales to Newcastle under Lyme and the M6 in England. The site is 20km south of the M56 with links to Liverpool and Manchester in the north.

3.2.19 There is a network of Public Rights of Way ("PRoW") in the vicinity. A PRoW **Footpath 1** (Mar/39) is the closest PRoW passing through the site (**Viewpoint I**) from the northeast to the

southwest, and **Footpath 2** (Mar/26) to the southeast of the site are mapped however there are few PROWs in the near vicinity and little opportunity for a visual relationship with the site.

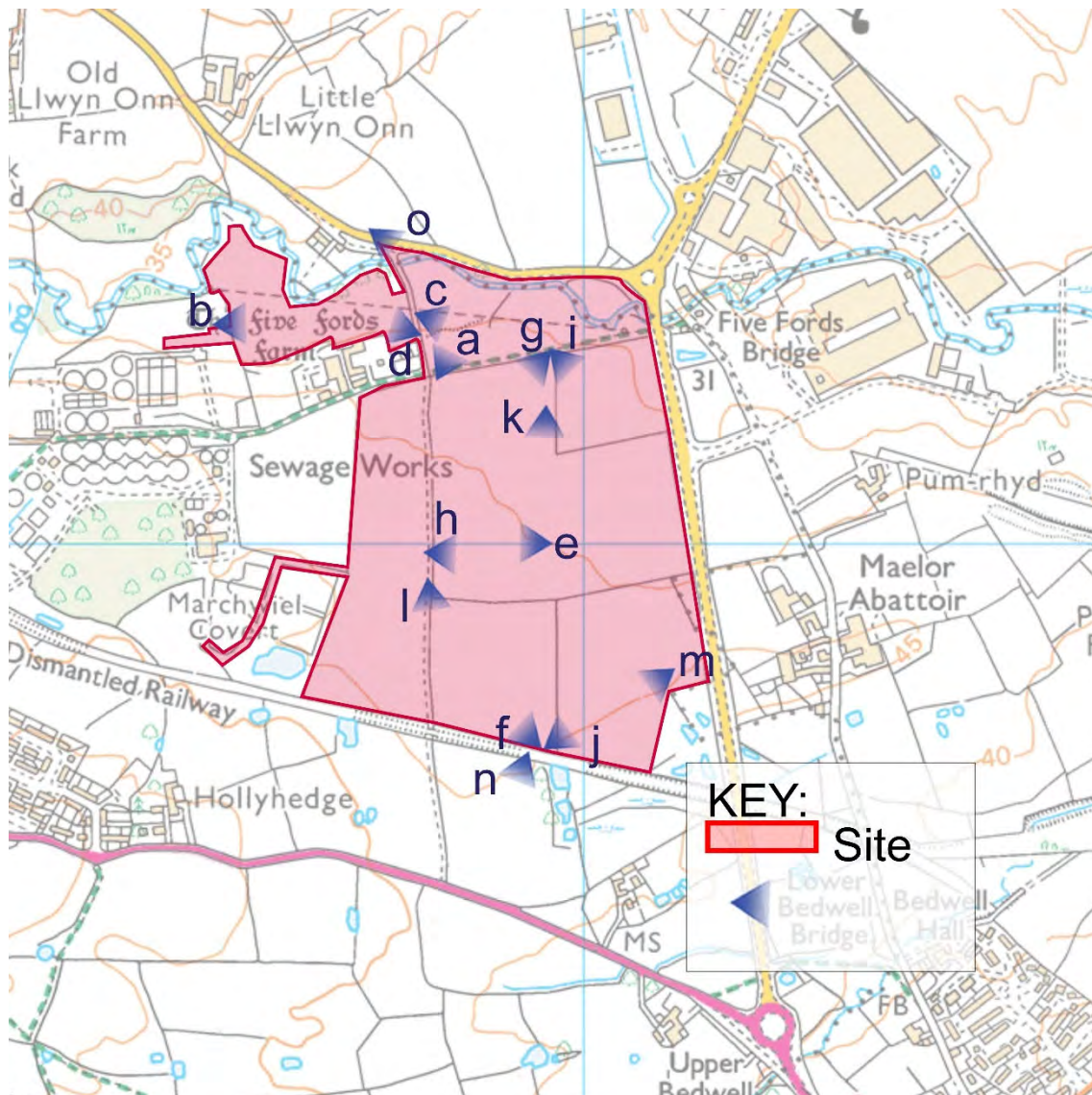


Figure 3: Map showing the location of viewpoints of photographs internal to the site in the next section, and 1km and 2km from the centre of the site is indicated by the blue circle (Extract of OS Map provided by www.centremapslive.com at scale 1:25,000)



Viewpoint a: View of the northern edge of the larger field area along the course of River Clywedog. The meandering river is lined by trees mainly willow, with some dense hawthorn and mature oak providing a natural screen to the interior of the site. Rooflines at the edge of the industrial estate to the northeast can be seen.

Looking: NE 45	Approximate elevation: 38m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.36



Viewpoint b: View to the east from the access road looking at the tree cover along the River Clywedog. There is a deep landscape buffer to the north of **Field 1** containing two small arable fields and tree lines.

Looking: E 90°	Approximate elevation: 36m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.55



Viewpoint c: View to the northeast of the northern boundary vegetation of **Field 3**. Powerlines cross the northern edge of the boundary. The vegetation following the course of River Clywedog screens properties on Cefn Road.

Looking: NE 53°	Approximate elevation: 38m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.00



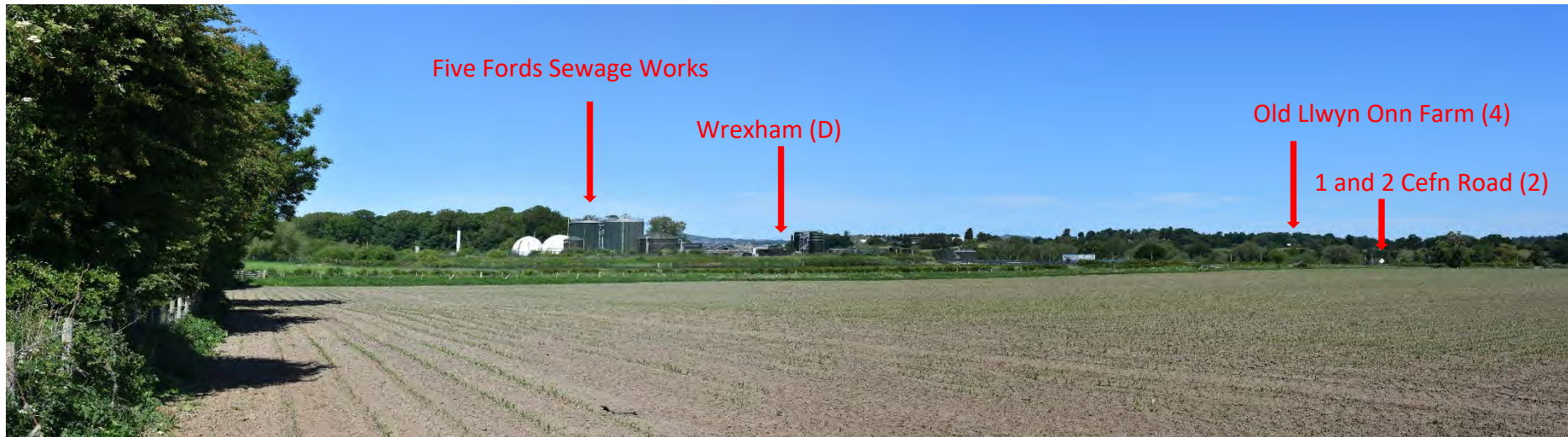
Viewpoint d: View west from the access road of **Field 3**. Very little can be seen beyond the northern edge of the wider site area of properties on Cefn Road and on rising ground beyond the site.

Looking: W 281°	Approximate elevation: 38m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.56



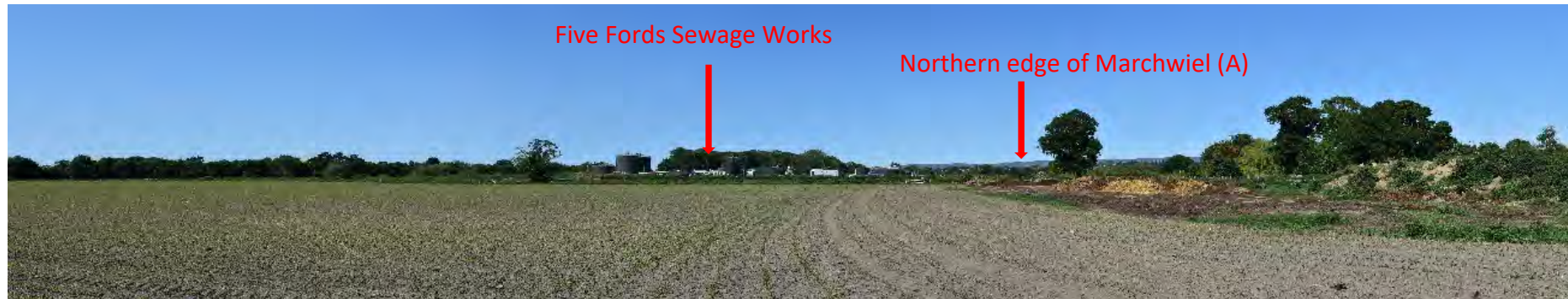
Viewpoint e: View west from the eastern boundary across **Field 1** to **Field 2**. **Five Fords Sewage Works (11)** is clearly visible against a backdrop of Marchwiel Covert and the tree's landscape beyond the site.

Looking: W 267°	Approximate elevation: 37m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.06



Viewpoint f: View to the northwest from the southern boundary. The sewage works dominate the view however even with vegetation in leaf there are glimpsed views of some properties on higher ground. From this location some parts of **Wrexham (D)** are visible on high ground over 2km from the southern edge of the site.

Looking: NW 306°	Approximate elevation: 45m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.01



Viewpoint g: View to the southwest from the north edge of **Field 1**. Distant hills are visible from some location on the eastern edge of the site. Properties on the northern edge of **Marchwiell (A)** are on rising ground and can be seen from some locations on the eastern edge of the site. Although no views of the site could be found at ground level there are likely to be some partial views from first floor vantage points.

Looking: WSW 255°	Approximate elevation: 34m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.21



Viewpoint h: View to the east from the route of **Footpath 1**. The eastern boundary follows the route of Sesswick way. The road is on an embankment to the northeast and lit by overhead lights. Sesswick Way links the industrial estate to the south. The estate is wooded and Bedwell Road further to the east is tree lined reducing views beyond to the east.

Looking: E 98°	Approximate elevation: 40m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.39



Viewpoint i: View to the southeast of the hawthorn hedgerow on the eastern boundary of **Field 1**. The tree'd landscape to the east and falling ground reduces the views. Land rises within the site to the south.

Looking: SE 145°	Approximate elevation: 34m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.17



Viewpoint j: View to the northeast of the copse and mature hawthorn hedgerow and occasional trees on the south eastern boundary of the site. The wooded covert to the southeast screens most of the site from views beyond the boundary. Tree lines dominate the horizons, screening largely built up areas.

Looking: NNE 20°	Approximate elevation: 45m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.01



Viewpoint k: View to the south of the disused railway embankment that marks the southern boundary of the site. The railway line is overgrown with trees some sections on raised banks to the southeast levelling out towards the west. Horizons in the local landscape are well tree'd reducing distant views. Ground rises to the south across the site.

Looking: S 177°	Approximate elevation: 34m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.17



Viewpoint I: View to the south along the route of **Footpath 1**. Views into **Field 1** and **Field 2** are open for users of the PRoW and the character of the site will change from that of an open arable field to built elements in **Field 1**.

Looking: S 171°	Approximate elevation: 42m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.35



Viewpoint m: View to the southwest from the south eastern boundary. From this location, the property **Hollyhedge (5)** on the eastern edge of **Marchwiell (A)** can be seen. There are few windows on the eastern elevation of the dwelling and likely to be only glimpsed views of the site. Tree lines dominate the horizons, reducing long views although distant hills are visible from the eastern edge of the site.

Looking: S 171°	Approximate elevation: 42m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.35



Viewpoint n: View to the south over the pasture field beyond the railway line. The field to the south is edged by hedgerows and there are frequent hedgerow trees, usually oak species.

Looking: SSW 200°	Approximate elevation: 46m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.50



Viewpoint o: View to the existing entrance to the site from Cefn Road. The wooded northern boundary reduces visibility within the site. The road access is used informally by walkers to join **Footpath 1**. The made access road will not require further improvements to accommodate heavy goods vehicles.

Looking: SSE 142°	Approximate elevation: 35m	Approximate distance to site: 14m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 11.54

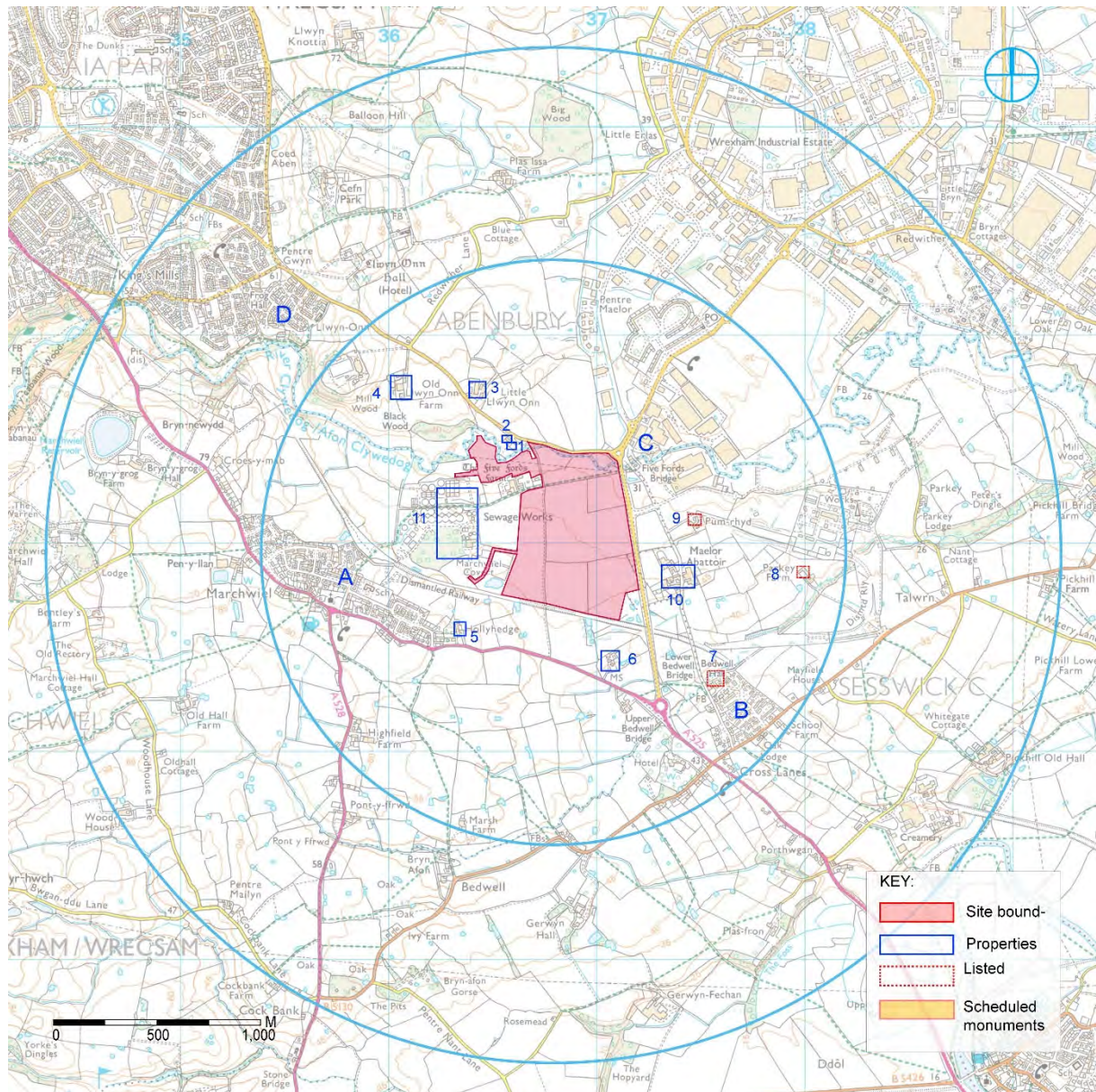


Figure 4: Map showing the location of settlements and properties. Blue circles indicate 1km and 2km from the centre of the site. Noted properties indicated in blue, each numbered. Settlements are denoted by letter. (OS Map provided by www.centremaps/live.com at scale 1:25,000)

3.3 Settlement

Distances in this section are approximate. Properties and settlements have been mapped and approximate distances measured from the closest boundary of the site, to the closest development boundary of the village, town, group of properties or property in a straight line unless otherwise stated. The ZTV 'with obstructions' mapping analysis (please refer to the A3 Figures Volume under separate cover) has been used to select those properties beyond 1km of the site. Site analysis and visit has been used to select those properties likely to have a visual

relationship with the site, however these are limited because of the well vegetated boundaries to field margins and properties and the number of well wooded coverts. The main settlements around the site are marked for completeness. Figure 4 (above) shows the locations of the settlements (marked with letters), and the dwellings, other properties, or groups thereof (marked with numbers). Dwellings and settlements within the study area include:

- 3.3.1 **Glanrafon Cottage (1)** building line is 60m north of the site's **Field 3**. The dwelling is set within a large garden and there are mature tree lines along the River Clywedog between the site and the property. The cottage windows are orientated to the southeast and the site, however there are tree lines which screen views and the property is barely visible from the **Field 1** and there are some intervisibility from **Field 3**. Views are likely to be more open when vegetation is not in leaf.
- 3.3.2 To the west of **Glanrafon Cottage (1)** are the cottages **Nos. 1 & 2 Cefn Road (2)**, 90m to the north of the **Field 3**. The cottages are orientated to the northeast and again the rear gardens are enclosed by vegetation along the banks of the River Clywedog. There were no views of the cottages from **Field 3** which is the closest part of the site however the cottages can be glimpsed from the southern boundary. The orientation of the living areas is likely to be to the southwest away from the site.
- 3.3.3 **Little Llwyn Onn (3)** lies 190m to the north on the Cefn Road. The farmhouse is orientated to the southwest and on rising ground. There are no views of the farmhouse from the site due the copse Black Wood.
- 3.3.4 **Old Llywn Onn Farm (4)** lies 340m to the northwest of the site. There appears to be two farmhouses which are bounded by agricultural buildings to the south. The dwellings are orientated to the east and southeast towards the site and are on rising ground. There are unlikely to be clear views from the farm due to Black Wood and the farm buildings screening the site. However, one dwelling is visible from the southern edge of the site (**Viewpoint f**).
- 3.3.5 **Hollyhedge (5)** is on the eastern edge of **Marchwiell (A)**. The property is set within a mature garden and lies 285m southwest of the site. Pasture fields lie between the property and the site and the tree lined disused railway also screens the site. There are some views of the property from the south eastern edge of the site (**Viewpoint m**).
- 3.3.6 **Hollycroft and The Hollies (6)**, lie within a complex of farm buildings 170m south of **Field 1**. The properties are beyond the tree lined disused railway line. The dwellings appear to be orientated

to the southeast and southwest and set in mature gardens. The copse surrounding a series of ponds lie to the northwest of the properties and another copse beyond the railway line to the northeast.

3.3.7 **Bedwell Hall (7)** is 560m to the southeast within the settlement of **Cross Lanes (B)**. The grade II listed dwelling is within a housing estate that combines new dwellings and renovated farm buildings associated with the hall. The settlement is enclosed by tree lines along a tributary of the River Clywedog.

3.3.8 **Parkey Farm (8)** is a small farmstead 750m east of the site. The farmhouse is grade II listed. The farm is directly to the east of **Maelor Abattoir (10)**, a complex of buildings and the tree lined Bedwell Road.

3.3.9 **Pum-rhyd (9)**, is a grade II farmhouse 290m east of the site. The farm complex is surrounded by mature hedgerows and trees and is not visible from the site. The well tree'd Bedwell Road lies between the site and the property.

3.3.10 **Maelor Abattoir (10)**, is 130m to the east of the site. The abattoir consists of numerous buildings and spans across Bedwell Road. The premises consists of several businesses. Some of the buildings are visible from the site.

3.3.11 **Five Fords Sewage Works (11)** is in an elevated position directly west of the site. Most of the structures at the works are visible from the site.

3.3.12 **Marchwiell (A)** village is 270m southwest of the site. The small village has expanded during the 20th century. The village lies on a lowland ridgeline on ground rising to the west. A broad tree belt along the railway line and Marchwiell Covert woodland lies between the site and the proposals.

3.3.13 **Cross Lanes (B)** is a small hamlet 525m to the southeast and is small mainly 20th century-built hamlet developed to the south of **Bedwell Hall (7)**.

3.3.14 **Wrexham Industrial Estate (C)** is 70m to the northeast at the roundabout at Sesswick Way and Cefn Road. The industrial estate is entered via Bridge Road South, that serves the prison 'HMP Berwyn' and a small housing estate. The industrial estate is bounded by the well tree'd course of the River Clywedog to the south and remnant hedgerows and trees around the different units.

3.3.15 **Wrexham (D)** is the large county town to the northwest where the suburb King's Mill comes within 1km of the site. Rooftops are visible from site due to the rising ground the suburb is situated on (**Viewpoint f**). Black Wood and woodland along the course of the River Clywedog lie between the site and the suburb.

3.3.16 There are several listed structures within 2km of the site, situated within the town and hamlets. There are numerous small to large farmsteads within the surrounding landscape.

3.4 **Topography**

3.4.1 The topography of the immediate area of the site is a gently undulating, wide open valley of the River Clywedog. Land rises to the west and low-lying hills. To the east and south ground gently falls towards the route of the River Dee.

3.4.2 The geology of the site is Salop Formation – mudstone, sandstone, and conglomerate. The superficial deposits are recorded as Till Devensian – diamicton to the southern portion of the site and River Terrace deposits (undifferentiated) – sand and gravel to the north along the course of the river (British Geological Survey website, accessed 26 May 2020).

3.4.3 The overall rise in elevation over the application site is approximately 13m from the north to the south at approximately 34m Above Ordnance Datum ("AOD") at the north eastern edge to the southern boundary approximately 47m AOD. The site also rises from the east to the west by 6m.

3.5 **Water and drainage**

3.5.1 The River Clywedog lies on the northern edge of the site. The water course was free flowing at the time of survey. Several ponds and reservoirs lie to the west and south of the site. The site is on land that has a low probability of flooding, with some areas subject to surface flooding. The water course to the north has potential to flood cited as High which means that each year, this area has a chance of flooding of greater than 1 in 30 (3.3%) (Natural Resources Wales website, date accessed 26 May 2020).

Existing rights of way and access land

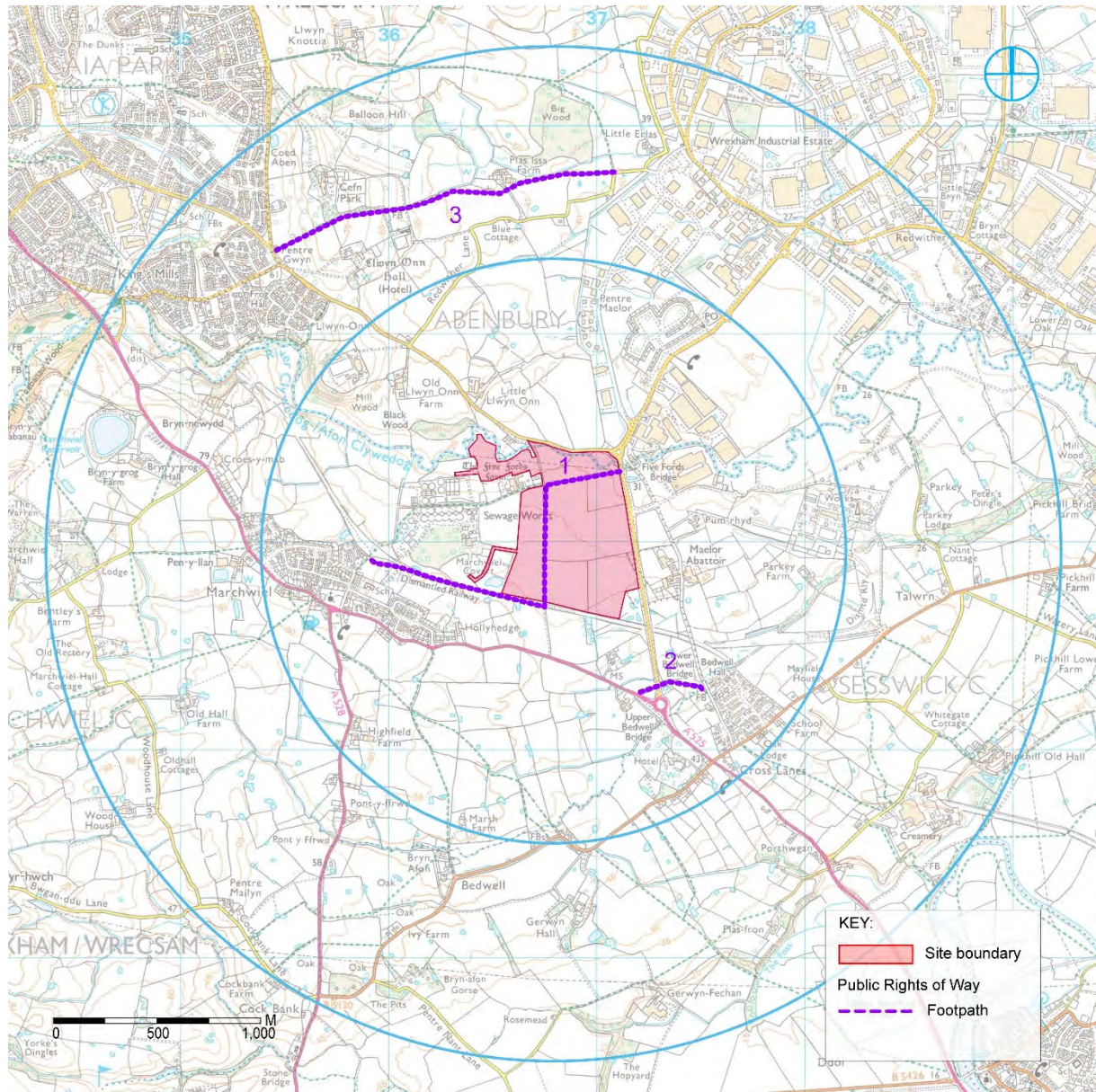


Figure 5: Map showing the locations of public rights of way of relevance to the site. (OS Map provided by www.centremaps/live.com at scale 1:25,000)

3.5.2 Public Rights of Way (“PRoW”) have been mapped and approximate distances given within 1km and 2km of the site where relevant. Figure 5 shows the locations of PRoWs.

3.5.3 In general, the use of the PRoWs will vary according to their proximity to a settlement, and then according to the size of that settlement, such that the footpaths closest to the largest settlements will be those most frequently used. Most footpaths appeared well used in this location.

- 3.5.4 **Footpath 1** is the closest PRow and comes within the site. The footpath leaves Sesswick Way adjacent the roundabout to the northeast of the site and follows the field boundary to the track between **Field 1** and **Field 2**. The footpath heads south to the disused railway line where the route enters the wooded route to the west. The PRow heads west to the south of the sewage works emerging at the recreation ground at **Marchwiell (A)** 685m from the site. On the day of survey, the entrance to the site from Cefn Road was used informally to access **Footpath 1**. There is a paved roadside footpath along Cefn Road that almost reaches the settlement edge of **Wrexham (A)**. The section of footpath along the northern edge of **Field 1** appeared rarely used. The PRow has been re-routed and some older maps show the route around the northern edge of the sewage works and then heading south to **Marchwiell (A)**.
- 3.5.5 **Footpath 2** lies to the southeast east of the site. The short PRow leaves Bangor Road and passes through a small field north of the roundabout crossing Sesswick Way and heading east along a short track to Bedwell Road.
- 3.5.6 **Footpath 3** lies on high ground to the north. The PRow leaves King's Mill on Cefn Road 1.3km northwest of the site and heads east along tree lined fields to **Wrexham Industrial Estate (C)** 1.4km north of the site. The route of the PRow is on high ground however the landform and tree lined fields does not allow mid distance view to the south and the site.
- 3.5.7 There are numerous PRows within the surrounding landscape however due to the tree'd landscape these are not considered to have a visual or landscape relationship with the site.

3.6 Landscape and other designations

The site is not within any local, national, or international landscape designations. The local designation 'green barrier' lies to the north. A Special Landscape Area ("SLA") lies 1.2km to the east.

3.6.1 Sites of Special Scientific Interest ("SSSI")

There is one SSSI within 2km of the site:

- River Dee SSSI lies 1km to the southeast.

3.6.2 National Nature Reserves ("NNR")

There are no NNRs within 2km of the site.

3.6.3 Local Nature Reserves ("LNRs")

There are no statutory protected LNRs located within 2km of the site.

3.6.4 Green Belt

The site is not located in Green Belt.

3.6.5 Areas of Outstanding Natural Beauty ("AONB")

The site is not within an AONB.

3.6.6 Listed buildings

There are some listed buildings or structures, all of which are Grade II listed within 2km of the site boundaries. Structures closest to the site considered likely to have a landscape or visual relationship with the site include:

1. **Bedwell Hall (7)**, 260m to the northeast, list entry no. 18057, National Grid Reference SJ 37576 47326;
2. **Parkey Farm (8)**, 260m to the northeast, list entry no. 18062, National Grid Reference SJ 37980 47868;
3. **Pum-rhyd (9)**, 130m to the north, list entry no. 18058, National Grid Reference SJ 37479 48120.

3.6.7 Cadw Scheduled Ancient Monuments

There are no Cadw Scheduled Ancient Monuments within the 2km study area however several landmarks are noted as National Monuments for Wales.

3.6.8 Conservation areas

There is one Conservation Area within 2km of the site, Marchwiel Conservation Area is 765m to the west.

3.6.9 Registered Parks and Gardens

There are no registered park and garden within 2km of the site.

3.6.10 Historical information

The site field boundaries have changed in the last 100 years, the field appeared to have been subdivided into several smaller fields (British History Online, website accessed 26 April 2018). .

The development of the sewage works has industrialised the western edge and the creation of Sesswick Way has changed the nature of eastern boundary from a rural lane at Bedwell Road to a suburbanised road network supporting transport from the industrial estate. The extents of the surrounding villages have expanded and there has been substantial development at **Wrexham Industrial Estate (C)** and the town of **Wrexham (D)**.

3.7 Published Landscape Character Assessments/ Landscape Effects

3.7.1 National Landscape Character Areas

3.7.2 The site is located within the **National Landscape Character Area Profile: 13 Deeside and Wrexham ("NLCA 13")**. The landscape of NLCA 13 is described as *'a border area, extending from the mouth of the Dee along the coast as far as Point of Ayr, and inland as far south as the Ceiriog Valley. It includes several settlements and centres of population, the principal being the towns of Chirk, Wrexham'* (NLCA 13: 2). Additionally, *'The Wrexham area similarly industrialised early on, taking advantage of its resources of coal, iron-ore, clay, and limestone, as well as free-flowing streams to turn industrial water-wheels. In recent years, the area as a whole has become an economic hub of the Welsh and regional English economy'* (NLCA 13: 2). However, the countryside is an important element of the landscape character.

3.7.3 Key characteristics of local distinctiveness are :

- *'Lowland, foothills and levels - sloping down to the lower Dee and Dee Estuary. Carboniferous Coal Measures interspersed with outcrops of Millstone Grit, Holywell shales and Cefn-y-Fedw sandstones. Glacial till, fluvio-glacial and river terrace drift overlay in parts of the valley floor, giving rise to localised gentle landform variation.*
- *A single large river, the Dee, traverses the area. The Dee opens out into a broad estuary with tidal sand and mud flats. A number of minor rivers dissect the landscape, for example, the Alyn and Eitha, and associated streams.*
- *A broad flat flood plain adjacent the Dee estuary*
- *Narrow incised wooded tributary valleys – many running down from the west*
- *Mixed pasture and some arable – and farm woodland cover*
- *Archaeology - variety of historic sites indicate the former strategic importance of the coastal route and the turbulent history of the Marchlands, including Offa's Dyke and Wat's Dyke. Late Medieval parklands and ecclesiastical / funerary sites.*
- *Urban settlements - a strongly settled character is apparent in the central and southern parts of the area, with the relatively large, almost linked settlements of Holywell-Connah's Quay-Mold-Wrexham-Ruabon.*

- *An industrial character - evident in the line of coalesced settlements at Connah's Quay and Holywell, associated both with the Chester to Holyhead railway line, mining and large-scale power generation and industrial plants. Include landmark scale structures such as Broughton aircraft factory, Shotton Steel works and Connah's Quay power station. Industry tends to dwarf historic settlement and features e.g. Flint and its castle.*
- *Small settlements – outside urban areas, compact villages associated with landed estates and isolated farmsteads, or coalesced ribbon developments and encroachment upon commons, which are the legacy of the former coal and lead mining industries.*
- *Culturally many connections to Chester and Merseyside' (NLCA 13: 3).*

3.7.4 Landscape Character Assessment (County level)

3.7.5 Wrexham County Borough Council places the site in the Landscape Character Area of 'Welsh Maelor 13a' of the Wrexham LANDMAP Supplementary Planning Guidance (2007) ("WLSPG").

3.7.6 Landscape Summary:

- *'Undulating, mainly pastoral lowland farmland*
- *Well-managed hedges with hedgerow trees and small woodlands*
- *Historic designed estates influence a large proportion of this area*
- *Field ponds abundant on areas with clay soils*
- *Historic settlement pattern with remnants of medieval ridge and furrow*
- *Erddig estate important for tourism, recreation, nature conservation and heritage*
- *Wat's Dyke runs north-south through area*
- *Patches of valuable seminatural habitats, especially in*
- *Clywedog valley*
- *Affected by urban pressures and economic changes to farming' (WLSPG 2007).*

3.7.7 Visual character:

- *'Good views to the hills and over the Dee Valley from higher ground*
- *Undulating estate farmland with mosaic of farmland and trees (N. and S. areas) and undulating*

- *open farmland in the central area*
- *Designed parks and gardens*
- *Generally, an abundance of well managed hedgerows and hedgerow trees*
- *Traditional red brick farmsteadings but many barns now converted to residential uses*
- *Tranquillity and landscape quality affected by A483 and pylons to west' (WLSPG 2007).*

3.7.8 Landscape sensitivity: *'The traditional Welsh Maelor landscape is very vulnerable to continuing development and recreational pressures, to economic changes which threaten traditional farming, and from land use practices and development which do not take historical landscape features into account' (WLSPG 2007).*

3.7.9 Management guidance relevant to the site:

3.7.10 Conserve rural character:

- *'Promote replacement planting of hedgerow trees, particularly oaks and ash to ensure perpetuation of*
- *characteristic landscape*
- *The area is particularly sensitive to the 'suburbanisation' of farm steadings - resist*
- *The character of rural villages and their settings are particularly sensitive to new development*
- *Encourage Village Design statements by local residents*
- *for Horsiculture are to conserve traditional field boundaries and avoid the proliferation of fences, structures and buildings within the countryside, where this would erode character' (WLSPG 2007).*

3.7.11 Conserve and manage ponds and other aquatic and wetland habitats:

- *'Maintain integrity of landforms, including glacial and fluvial landforms, and assess new exposures*
- *Maintain high pond density, restore and enhance ponds. Protect species associated with ponds, eg bats, newts, water vole, lesser silver diving beetle*
- *Enhance river bank habitats and minimise hard bank engineering; such as canalisation and retaining walls; protect otters and water voles*

- *Refer to River and Pond Habitat Action Plans and Otter Species Action Plan of Wrexham Biodiversity Action Plan*
- *Restrict drainage in wetland sites' (WLSPG 2007).*

3.7.12 Manage farmland for nature conservation:

- *'Diversify general agricultural land and enhance and extend hedgerows*
- *Develop green networks to link fragmented habitats and species*
- *Maintain arable headlands and wide field margins*
- *Enhance and extend orchards and preserve historic fruit varieties' (WLSPG 2007).*

3.8 **Planning Policy Wales 2018**

3.8.1 Renewable and low energy carbon: *'Planning authorities should facilitate all forms of renewable and low carbon energy development. In doing so, planning authorities should seek to ensure their area's full potential for renewable and low carbon energy generation is maximised and renewable energy targets are achieved' (PPW 2018: 91).*

3.8.2 Characteristics of local landscapes: *'Planning authorities should provide for the conservation and, where appropriate, enhancement of local landscapes. This may include policies for landscape features, characteristics and qualities of local significance, and the designation of Special Landscape Areas (SLAs). Planning authorities should state which features, characteristics or qualities require extra protection, and explain how the policy or designation will achieve this protection. LANDMAP and any associated landscape character assessments (including the register of historic landscapes in Wales) should be used to inform local landscape policies and SPG, and to help identify or revise SLAs' (PPW 2018: 133).*

3.9 **Wrexham County Borough Council Wrexham Unitary Development Plan 1996 – 2011, adopted 2005 (UDP 2015)**

3.9.1 Policy GDP1 All new development should:

- a) 'Ensure that built development in its scale, design and layout, and in its use of materials and landscaping, accords with the character of the site and makes a positive contribution to the appearance of the nearby locality.*
- b) Take account of personal and community safety and security in the design and layout of development and public / private spaces.*

- c) Make the best use of design techniques, siting and orientation in order to conserve energy and water resources.*
- d) Ensure safe and convenient pedestrian and vehicular access to and from development sites, both on site and in the nearby locality.*
- e) Ensure that built development is located where it has convenient access to public transport facilities and is well related to pedestrian and cycle routes wherever possible.*
- f) Ensure the safety and amenity of the public and safeguard the environment from the adverse effects of pollution of water, land or air, hazards from industry and quarrying, and associated noise, odour or vibration arising from development.*
- g) Secure public services (e.g. gas, water, electricity) to development at minimum public cost.*
- h) Safeguard sites and areas of nature conservation and wildlife interest, and to provide new habitats where there is an unavoidable loss of existing habitats and areas of wildlife interest.*
- i) Ensure that development does not result in, or is subject to, flooding, soil erosion, landslides or contamination, either on or off the site.*
- j) Have regard to the need to safeguard those areas that possess a strong Welsh cultural and/or linguistic identity from development that could harm this identity.*
- k) Secure the development of sustainable communities, through the promotion of the economic, social and environmental well-being of the area' (UDP 2015: 14).*

3.9.2 Policy EC2 Agricultural : *'Development on agricultural land of grades 1, 2 or 3a will only be permitted if it does not lead to the irreversible loss of that land' (UDP 2015: 18).*

3.9.3 Policy EC3 Agricultural Buildings: *'The construction of new agricultural buildings will be permitted unless the development is materially detrimental in terms of its impact on the environment or surrounding landscape. The development should form part of an existing farm complex and take advantage of topography and other landscape features for screening. Isolated buildings will only be permitted in exceptional circumstances where there is an essential agricultural need, and no reasonable alternative location for the development' (UDP 2015: 18).*

3.9.4 Policy EC4 Hedgerows, Trees and Woodland: *'The construction of new agricultural buildings will be permitted unless the development is materially detrimental in terms of its impact on the*

environment or surrounding landscape. The development should form part of an existing farm complex and take advantage of topography and other landscape features for screening. Isolated buildings will only be permitted in exceptional circumstances where there is an essential agricultural need, and no reasonable alternative location for the development’ (UDP 2015: 18).

3.9.5 EC7 Conservation areas: *‘Within, and in close proximity to, conservation areas, the priority will be to preserve and/or enhance those buildings, structures, streets, trees, open spaces, archeological remains, views, and other elements which contribute to the unique character of the area. New buildings and alterations or additions to existing buildings in conservation areas, whether listed as of special architectural or historic interest or not, must reflect the design and character of the area as a whole and the form, scale, detailing and materials of existing buildings’ (UDP 2015: 21).*

3.9.6 Although the proposals introduce new horticultural buildings into the agricultural landscape, the proposals do sit comfortably next to the sewage works, where the glasshouses will make use of heat generated as a by-product. The site is close to transport links and the industrial estate is just to the northeast. There is capacity on site to improve the hedgerows and tree cover and provide some screening to footpath users.

3.10 **Summary of site context**

3.10.1 The proposed site for the glasshouses is arable fields accessed from Cefn Road to the north at an established entrance. The site is southeast of the large town of **Wrexham (D)** and northeast of the small village of **Marchwiel (A)**. There is little landscape relationship between residential settlements and the site which relates to the industrial area to the northeast.

3.10.2 The site is made up of small arable fields and a medium sized arable field enclosure with mixed species hedgerows and tree lines to most boundaries. However, the eastern boundary site vegetation is below the road and is open to the east.

3.10.3 The topography within the site is rising to the south from the north and the water course.

3.10.4 The closest PRow is within the site (**Footpath 1**). There are numerous PRowS in the wider landscape.

3.10.5 Nearby **Listed buildings** are **Bedwell Hall (7)** and **Parkey Farm (8)**, and **Pum-rhyd (9)**, however there is no landscape relationship with the site. There are no **Scheduled Ancient Monuments** within 2km of the site (Historic Wales).

3.10.6 Published Landscape Character Assessments include the National Landscape Character

Assessment by Natural Resources Wales, which places the proposed site in NLCA 13: Deeside and Wrexham. The character of the landscape of the study area was assessed in the Wrexham County Borough Council's LCA (2007), the site is located within 'Welsh Maelor' character area (Landmap).

4 DESCRIPTION OF DEVELOPMENT

- 4.1 The proposed approximate 39-hectare development will consist of two glasshouses packing shed, numerous materials storage and three water reservoirs.
- 4.2 The development will consist of two, 8 hectare glasshouses, comprised of structural steelwork and high specification glass designed for maximum light transmission and covering a total of 16 hectares of land, each having a maximum gutter height of 7m and gable apex height of 8m, inclusive of the 30cm high concrete perimeter foundations. Internally, the buildings will contain a steel support post mounted on pre-cast concrete pile and a 5m wide reinforced concrete path running centrally along the length of the glasshouse. Other features of the glasshouse buildings include matte aluminium growing gutters, installed at approximately 4m intervals across the width of the buildings and a 5m wide stone access road around the outside perimeter of the glasshouse for construction purposes, to be retained during operations for maintenance.
- 4.3 As the glasshouses will be lit internally for between 12-16 hours a day for 75-100 days per year, blackout blinds will be fitted to ensure light pollution is kept to a minimum. Green waste produced from plants grown in the glasshouse will be collected and sent off site for pulping and used as fertiliser. The ground within the glasshouse will be laser levelled before construction to prepare for the laying of ground cover and heating pipes.
- 4.4 The packing and welfare building, located to the north of the glasshouse building, will cover an area of approximately 0.6 ha and comprise elements including the packing area, canteen/toilets, irrigation, storage rooms and site offices. The building will be 8 m high and clad externally with a mix of profiled and flat panel coated steel cladding, with an architectural grey finish to blend into the existing skyline when viewed from distance. The floor will be concrete slab and the packing area will include three loading docks with external ramps to loading bays.
- 4.5 Vehicles will enter and leave the site from the Cefn Road via an existing access point directly to the north of the site. The road layout is already engineered to accept heavy goods vehicles. All areas on site to be used by HGVs will be concrete, including the access road, turning area and ten HGV loading bays adjacent to the packhouse, which will be sunk 0.95 m below ground level. A staff and visitor parking area will be surfaced with compacted stone hardstanding
- 4.6 Ground source heat pumps will be located in the energy centre, connected to the nearby sewage treatment works through underground closed-loop high-density polyethylene (HDPE)

pipes. In addition to the heat pumps, gas combined heat and power (CHP) units will be installed to provide supplementary high temperature water for heating, carbon dioxide and electricity, with air inlet and outlets located on the roof to provide air flow for the CHP. Conventional gas boilers will be installed purely for redundancy purposes.

- 4.7 For maintenance and safety purposes, five electrical transformers surrounded by palisade fencing and six dry air coolers will be located outside the energy centre building. Two insulated vertical heat store tanks will be located adjacent to the energy centre building, mounted on reinforced concrete base. These tanks will have an above ground side height of 10m, a 12.5 m apex height and a 25 m diameter. Five water silos will also be installed adjacent to the energy centre and be mounted on concrete tiles. The silos will have an 11 m diameter and be 6 m high with a flat roof.
- 4.8 Currently the adjacent water treatment works is venting CO₂ into the atmosphere as a waste product. This CO₂ will be captured and transferred via an HDPE pipe buried underground to the glasshouse. Three stainless steel vacuum CO₂ tanks, 14 m length and 2.5 m diameter, will be installed externally near the energy centre building, with buried mains pipes supplying CO₂ to growing gutters within the glasshouses.
- 4.9 An on-site substation for the supply of electricity to the project, approximately 3m in height, 10m in length and 3m in width, will be installed externally near the energy centre building. The Distribution Network Operator (DNO) will install an on-site substation for the supply of electricity to the project. The substation design will be dependent on the specific requirements of the DNO, but will typically be dark green GRP construction, approximately 3.5m in height, 7.5m in length and 3m in width.
- 4.10 Irrigation of crops in the glasshouse will comprise a closed system, requiring external supply of mains water only as emergency back-up when the normal working system is off-line. The system comprises two main elements, described as follows:
- Fall pipes will be attached to the gutters at each gable end (north and south), channelling rainwater from the glasshouse roof to buried drainage pipes. This water will supply lined storage reservoirs adjacent to the glasshouse and is then pumped back to the irrigation room upon demand. The reservoirs will be sized to meet not only the glasshouse irrigation requirements but also have adequate spare attenuation capacity

at all times to meet a 1 in 100 storm event. Depending on the local water table, the reservoirs may be raised up to approximately 1 m in height.

- Internal condensation will be captured via internal gutters on the roof and side walls. In addition, water not absorbed by the plant will be collected at either end of the growing gutters will be collected and pumped to “brown” water silos, before being fed to the irrigation room for filtration and UV treatment. The treated water will be blended with reservoir water and stored in clean water silos. Upon irrigation demand the plant nutrients are added in the irrigation room before being gifted back to the plants via the growing gutters; the process is repeated in a loop. A maximum of 5no. water storage silos with approximately 6 m height and 11 m diameter will be installed adjacent to the energy centre buildings. A small amount of external mains water supply is used for the washing of produce prior to packing.

- 4.11 The proposed heat exchanger building will be located within the Five Fords WwTW site. The utilities trench will run underground for approximately 465m from the glasshouse development to the Five Fords WwTW, the underground closed-loop high-density polyethylene (HDPE) pipes will connect the ground source heat pumps located in the energy centre to the proposed heat exchanger building (see below). The utilities trench will incorporate the following elements:

Trench 2 m depth, 4.2 m width

- 2no. 630 mm HDPE pipes with 500 mm between them to prevent thermal transfer;
- 1no. 33 kV 300 mm private electricity cable from energy centre to heat exchanger building transformer;
- 1no. 150 mm ducted private fibre communications cable.

Coming off the utilities trench to the north includes:

- 1 no. 33 kV 300 mm ducted mains electricity connection from the electricity network to site boundary;
- 1 no. 300 mm steel gas pipe from intermediate gas pipeline to site.

- 4.12 The proposed heat exchanger building will be located within the Five Fords WwTW site and is unrelated to the undertaking of Welsh Water. The mono pitch steel framed building will be 19.4 m in length, 14.4 m in width, with eaves height 6 m on the low side and 8 m on the high side, with a mono pitch of 7.5°. The eaves will have galvanised steel box gutters with PVC downpipes. A roller shutter door will be located on the long side, with an adjacent steel personnel door. Adjacent to the heat exchanger building will be a small outdoor electrical

transformer and an underground cesspit to collect any water used in cleaning the heat exchangers.

4.13 Situated to the southeast of the Five Fords WwTW facility will be:

- A CO₂ recovery plant measuring 6 m x 12 m and 6.35 m in height;
- 2no. air coolers situated at ground level either side of the recovery plant measuring 8.8m in length, 1.47m in width and 1.32m in height;
- A small gas booster of 1.4 x 2 x 1.6m in height.

4.14 Access to the site will be required for project vehicles during the proposed daily operational hours of 0600 to 1800 on weekdays and occasional weekend work 0600 to 1500. Approximately one hundred and fifty members of staff will be employed at the facility, of which around one hundred and twenty five will be employed in the glasshouse and twenty five in the packhouse and offices; all staff will travel to and from work daily from the local area and no on-site living accommodation will be required in relation to the development.

4.15 It should be noted that final equipment suppliers and contractors for the project have yet to be selected. Whilst some variation in the equipment may be necessary we do not envisage significant variation in the presented elevations and footprints.

4.16 The proposed project will retain all boundary vegetation and provides opportunities for enhancement of the native hedgerows and trees to some boundaries.

Mitigation

4.17 Mitigation is defined as the 'measures proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects), including landscape and visual effects' (GLVIA3: 41).

Proposals for new landscape planting:

4.18 Infill hedgerow planting is recommended along the western boundary to create and reinforce screening. Additionally, it is recommended that hedgerow and tree planting is carried out along the western edge of **Field 1** and eastern edge of **Field 2** to reduce the visual effect on PRow users. The boundary with Sesswick Way hedgerow could be grown to the winter height of 4m to reduce the visual effect of the proposals on road users. Additionally, hedgerow trees will filter views of the glasshouse beyond. Dense tree planting on the northern boundary will also reduce the effect of changes for views from the north and reduce possible winter views.

- 4.19 The species composition for hedgerows is recommended to reflect species within existing hedgerows, including hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*) and dog-rose (*Rosa canina*). Plants should be double staggered with no fewer than eight plants per linear metre and be grown to minimum 4m winter height.
- 4.20 Proposed tree species on eastern and western boundaries of the site and eastern boundary of **Field 2** should include oak (*Quercus robur*) and field maple (*Acer campestre*) where shading is not an issue.
- 4.21 Tree species to the north should include oak, willow (*Salix viminalis*), white willow (*Salix alba*) and some hawthorn.

5 **ASSESSMENT OF LANDSCAPE EFFECTS**

5.1 **Overview**

5.1.1 In an assessment of **landscape effects**, the effects of the development are assessed on the landscape as a resource in its own right (GLVIA3: 70). They consist of the key characteristics of the landscape which contribute to its character; any individual elements or features and specific aesthetic or perceptual aspects of the landscape (*Ibid.*: 86).

5.1.2 This section describes first the landscape effects on the wider landscape character (section 5.2), and then the effect any change the proposed development will have on the nature of the landscape of the site and its environs (section 5.3). By combining the understanding of the landscape baseline situation with the details of the proposed change, i.e. the development, the significance of the landscape effects can be assessed. In particular, the landscape is assessed according to its sensitivity to change, the proposed development is assessed according to the magnitude of change imposed on the landscape by it, and then the effects upon the landscape can be determined. Therefore, in the case of a development of a glasshouse, the **landscape effects** are the likely results the proposal might have on the existing fabric and character of the landscape.

5.2 **Assessment of Landscape Effects on Wider Landscape Character**

5.2.1 The proposals lie in in the **NLCA 13: Deeside and Wrexham** as previously described. On the basis of the study area being representative of the NLCA, it is considered that the overall sensitivity of the landscape character type is **medium** (see Appendix 2). The area exhibits a positive character. It is open in places with views shortened by the numerous wooded coverts and small woodlands, however feelings of remoteness are reduced by the audible sound of traffic on Sesswick Way and noise emanating from the sewage works. The site is located on low ground, however visibility to adjacent landscapes is intermittent, depending on tree groups and landform shortening the vista. The hedgerows and ditches are valuable ecological features however the arable fields are a monoculture.

5.2.2 The Landscape Character Assessment ("LCA") was prepared for Wrexham County Borough Council. The report places the site within the 'Welsh Maelor' landscape area. The landscape sensitivity within the character area is considered high due to the development and recreational pressure on the landscape. The key sensitivities are historic landscape features which will not

be affected by the proposals. In regard to the proposal there would be the introduction of new elements of large glasshouses and packing shed, however these would relate well to the existing sewage works and industrial area in the immediate landscape. However, the industrial components in the landscape are well screened allowing only filtered views of warehouses, a landscape practice that should also be utilised on site. The proposals are not uncharacteristic of new landscape structures that modern farm practices introduce to rural landscapes. The landscape character sensitivity is **medium** due to the landscape assessment reduced by the location adjacent existing industrial complexes that can accommodate change and the contributing landscape elements of woodland and landform. No setting of listed structures is considered to be affected by the proposals.

5.2.3 The operational elements of the proposed glasshouse would represent a change to the landscape character from that of an arable field to built landscape elements set in a managed landscape. The proposals would introduce new landscape elements but there will be little loss of landscape elements on the boundaries. Boundary vegetation can also be improved and enhanced in mitigation planting.

5.2.4 In considering the magnitude of change brought about by the proposed development, there would be new elements introduced into the landscape, resulting in a change in land cover as well as change in land use. However, there is no substantial change in landform or overall pattern of the landscape. The proposals are considered to be long-term in duration and will introduce structures in a landscape that is open in places, although these structures are consistent with agricultural land use. It is therefore judged that there would be an introduction of new landscape elements however there is a medium change to the receiving landscape. There would be a **medium** magnitude of change to the receiving landscape character, due to the introduction of planting to the eastern edge; the nature of the proposals will not be a conspicuous feature within an agricultural setting.

5.2.5 As a result of **medium** sensitivity and **medium** magnitude of change there would be a long-term, **moderate** effect on the local landscape character.

5.3 **Assessment of Landscape Effects on the Site and its Environs: Operational Stage**

5.3.1 The individual elements which are found in the immediate surroundings of the site, and which are all judged to be intact, are:

- (i) Gently undulating valley landscape;

- (ii) Small water courses;
- (iii) Coverts and woodland;
- (iv) Hedgerows and trees on boundaries;
- (v) Medium to large, open arable fields.

5.3.2 There are several landscape receptors upon which there would be **no landscape effect** caused by the proposed development at site scale:

- Topography: undulating ground;
- Water courses
- Woodlands;
- Hedgerows and trees.

5.3.3 The landscape receptors that would be affected by the proposed development at site scale are:

- The larger arable field (**Field 1**) development to built form;
- The field will become more enclosed with some new elements within a managed landscape;
- Some disruption to hedgerows and ditches implementing the pipeline.

5.3.4 These landscape receptors identified in 5.3.3 above relate to the site itself, and its immediate surroundings, and are within 1km radius of the site boundaries.

5.3.5 The landscape elements identified above (in sections 5.3.1, 5.3.2 and 5.3.3) are judged to be representative of the wider landscape character and type of the area; the wider landscape elements are in good condition, however there are currently large distracting, manmade structures within the landscape. On this basis, they are considered to be of **medium** sensitivity.

5.3.6 The long-term change to the fabric of the site is the alteration in the overall use of an arable field and the introduction of new landscape elements, namely two glasshouses and packing shed within a field enclosure. Although this affects the land cover and land use of the site, it does not change the landform or larger field pattern within the wider landscape. The glasshouse development would introduce moderate new elements into the landscape at close scale and owing to further enclosure of the site, they would be a moderate change at site level only. It is therefore judged that the proposal does introduce some new elements into the landscape, however these will mainly be contained within boundary vegetative screening and therefore the overall magnitude of change for the site itself is considered to be **medium**. The pipeline will follow a route to the west that can avoid mature trees. Any removal of hedgerow plants within

the site can be replaced and will mature within seven years. The riparian landscape along the northern edge of the site will not be disturbed and screening and biodiversity can be increased to the northern edge of the field enclosure without shading issues.

- 5.3.7 The **medium** magnitude nature of the operational effects on the **medium** sensitivity of the landscape elements, would therefore be a **moderate** effect on the immediate landscape.

5.4 **Assessment of Landscape Effects on the Site and its Environs: Construction Stage**

- 5.4.1 During construction of the glasshouse development, expected to be of medium duration, the potential area from where the development would be visible would be increased to the existing and operational zone of visual influence. Delivery lorries and other plant and equipment may be visible from the immediate area. Given the existing context and the temporary nature of the construction phase, it is considered that the effect during construction would be **medium** for landscape receptors.
- 5.4.2 The landscape receptors that would be affected by the proposed development at site scale are the same as those discussed in para. 5.3.3 above, being the larger arable field and enclosure to the north.
- 5.4.3 Both the development and construction area fit within the field pattern and boundary hedgerows. The existing access from Cefn Road will be used and will not cause disruption.
- 5.4.4 The construction of the proposed glasshouse would take place within an arable field, which in landscape terms considered to have **medium** sensitivity to change. The impact of these changes would mean that the magnitude would be considered to be **medium**.
- 5.4.5 The nature of the construction effects of the proposed glasshouse development on the fabric of the site's landscape would be **moderate**.

Cumulative Landscape Effects

- 5.4.6 Consideration has been given to the potential cumulative landscape effects of the proposed glasshouse development. For the purposes of this assessment, this assessment has been limited to other major developments which could be considered as having cumulative effects within the 1km study area on the landscape character.

5.4.7 The effect of the construction of the proposed development on the landscape receptors will be affected by variables such as distance to site, however there would be no effect on the landscape elements and receptors identified in paras. 5.3.1 and 5.3.2 above.

5.4.8 There is no relationship between the site and the settlement edge of **Marchwiell (A)**, and the relationship is limited to **Wrexham (D)** to the northwest and does not extend further than the King's Mill. Agricultural sheds and industrial/business parks are present, creating a varied landscape. Other proposals within the planning system are limited, however there is no landscape relationship that would create a cumulative effect on the landscape.

5.4.9 In regards to the landscape relationship to the sewage works, the addition of the proposals adjacent the sewage works, Sesswick Way and the industrial area to the northeast will increase the connectivity of the light industrial landscape.

5.4.10 Given the connectivity, the cumulative effects on the character area would be considered **medium**.

6 **ASSESSMENT OF VISUAL EFFECTS**

6.1 **Overview**

6.1.1 In this section, **visual effects** are considered by assessing both the views which specific receptors are likely to see and the general visual amenity experienced by people. These are then considered in conjunction with the baseline situation and the proposals for the development to enable the assessment of likely significant visual effects (GLVIA3: 98).

6.1.2 Thus, the section describes the visual effect of the development where there are views towards the site, and any factors that limit or prevent views. The desktop studies and field surveys have identified viewpoints regarded as representative of the range of views and receptors from around the site. The selected viewpoints are not intended to cover every possible view, but rather are representative of a range of receptor types e.g. residents, walkers and road users from various directions and distances from the site boundary. Some viewpoints were selected from which the ZTV indicated that there would be a view of the site, however, at a number of these locations, no views of the site were possible. This illustrates the conservative nature of the ZTV process, as it does not include the screening effects of smaller trees and hedgerows. Conversely, it is possible that some views which are not highlighted by the ZTV mapping analysis become clear during the field study, these are discussed if relevant below. The ZTV analysis is located in the A3 Figures Volume submitted under separate cover.

6.1.3 A visual analysis from the representative viewpoints has been carried out to determine how the proposed development might influence the visual amenity of the surrounding landscape. The assessment was carried out as part of the site survey, with the photographic assessment recording the character of the view and the existing visibility of the site.

6.1.4 The site survey and photographic assessment were undertaken on a bright sunny day, on the 25 May 2020. The locations of the representative viewpoints are shown at Figure 3 and 6.

Assessment of visual effects on the site and its environs: Operational stage

6.2 **Transport routes**

6.2.1 The site is located off Cefn Road, a single carriageway to the north that links Wrexham to the industrial estate, however the entrance is already able to accommodate heavy goods vehicles. Views into the site from the road are brief and the whole of the site is not visible from the road

(Viewpoint o) due to the deep vegetation screening along the river course. The receptors using Cefn Road would generally be commuters and local journeys and therefore have a **low** sensitivity to change. The magnitude of change is judged to be **low** given the extent of the visibility of the site and the speed at which the cars travel past the site. The visual effect is therefore considered **slight**.

6.2.2 **Viewpoints x and y** show the site's eastern boundary from Sesswick Way. The elevated nature of the road to the northeast section allow open views into the site. Vehicles move quickly to the north and south and occupants will be focused on the road. Heading north the site comes into view where the road leaves the cutting **(Viewpoint w)**. The site is exposed beyond the cutting. Views are likely to be more open in winter and spring when hedgerows are not in leaf. Approaching from the north the site is in view from leaving the roundabout at Cefn Road and Sesswick Way **(Viewpoint y)**. The receptors using the Sesswick Way would generally be commuters, haulage vehicles from the industrial estate and local journeys and therefore have a **low** sensitivity to change. The magnitude of change is judged to be **medium** given the extent of the visibility of the site and the speed at which the cars travel past the site. The visual effect is therefore considered **slight/moderate**. Mitigation in the form of tree planting on the eastern boundary of the site, will filter views of changes on site reducing the magnitude of change to **low**, therefore over time the visual effect will be reduced to **slight**.

6.2.3 Views from the A525 Bangor Road to the south are limited by the raised disused railway embankment **(Viewpoint t)**.

6.2.4 Views are possible from the northeast on high ground on Bridge Road South **(Viewpoint z)**. Views become quickly obscured over 400m from the site. Road users would generally be commuters, haulage vehicles from the industrial estate and local journeys and therefore have a **low** sensitivity to change. The magnitude of change is judged to be **medium** given the extent of the visibility of the site and the speed at which the cars travel past the site. The visual effect is therefore considered **slight/moderate**. Mitigation in the form of tree planting on the eastern boundary of the site, will filter views of changes on site reducing the magnitude of change to **low**, therefore over time the visual effect will be reduced to **slight**.

6.2.5 No views could be gained from rural lanes at high points in the landscape due to the landform, woodlands and tree lined field enclosures.

6.2.6 It is not possible to see the site from ground level on roads to the northwest within **Wrexham (B)** or elsewhere in the landscape.

6.3 Settlements, residential and commercial properties

6.3.1 The numbers after the properties (in the text) refer to Figure 4 showing their locations in the study area. Please refer to Figure 1 for the locations of the viewpoints below.

6.3.2 **Glanrafon Cottage (1)** is not fully visible from the site due to surrounding trees on the boundary of the property and intervening fields. There are upper storey windows that may overlook the site when vegetation is not in leaf. However, it is unlikely that the whole of the site is in view and only parts of the built structures in **Field 1** will be seen. The visual receptors would have a **medium** sensitivity to change due to receptors views from secondary window that are limited. The magnitude of change is judged to be **medium**, as change is visible to the receptors. The visual effect is therefore judged to be **moderate**. Mitigation in the form of tree planting on the northern edge of the field enclosure will screen changes on site, reducing the magnitude of change to **negligible**, therefore over time the visual effect will be reduced to **slight**.

6.3.3 **Nos 1 and 2 Cefn Road (2)** are semi-detached properties. The building is visible from parts of Field 1 (**Viewpoint f**) although the screening of the trees along the water course does restrict views of the complete site. The cottages are orientated to the southwest and views will be obtuse if possible. The visual receptors would have a **medium** sensitivity to change due to receptors views from secondary window that are limited. The magnitude of change is judged to be **low**, as change is barely visible to the receptors. The visual effect is therefore judged to be **slight/moderate**. Mitigation in the form of tree planting on the northern edge of the field enclosure will screen changes on site, reducing the magnitude of change to **negligible**, therefore over time the visual effect will be reduced to **slight**.

6.3.4 **Little Llwyn Onn (3)** is north of the site and consists of large barns and a dwelling on the southern edge. Although the property is in an elevated position, the dwelling could not be seen from within the site due to intervening vegetation. There are windows orientated towards the site and when vegetation is not in leaf views may be possible (**Viewpoint f**). Any possible views will be in the context of the sewage works in the view. The visual receptors would have a **low** sensitivity to change due to the limitation of the view. The magnitude of change is judged to be **low**, the proposals will be not be clearly visible. The visual effect is therefore judged to be **slight**. Mitigation in the form of tree planting on the northern edge of the field enclosure will screen

changes on site in winter, reducing the magnitude of change to **negligible**, therefore over time the visual effect will be reduced to **effectively no change**.

6.3.5 **Old Llwyn Onn Farm (4)** lies to the northwest and largely screened by Black Wood. One of the dwellings within the property is visible from the southern boundary of the site but not from the northern edge (**Viewpoint f**). It is a partial and narrow view of the site however the proposals will be new elements in the landscape. The visual receptors would have a **medium** sensitivity from secondary views from upper storey windows. The magnitude of change is judged to be **low**, although the proposals will be visible, these are partial views within the context of the existing sewage works. The visual effect is therefore judged to be **slight**. Mitigation in the form of tree planting is unlikely to have an effect on these elevated views. Farm buildings at Old Llwyn Onn are visible from site, however there is no dwelling at the farm complex to the west of **Old Llwyn Onn Farm**.

6.3.6 **Hollyhedge (5)** lies to the southwest on Bangor Road on the eastern edge of **Marchwiell (A)**. It is a well enclosed site however there are views of the dwelling from the eastern edge of **Field 1 (Viewpoint m)**. Parts of the proposals may be visible however there are few windows on the eastern elevation however, visual receptors would have a **medium** sensitivity from secondary views from upper storey windows. The magnitude of change is judged to be **low**, although the proposals will be visible, these are partial narrow views. The visual effect is therefore judged to be **slight**. Mitigation in the form of tree planting is unlikely to have an effect on these elevated views.

6.3.7 **Hollycroft and The Hollies (6)**, are to the southeast of the site. The railway precludes views of the main site.

6.3.8 **Bedwell Hall (7), Parkey farm (8) and Pum-rhyd (9)** are all grade II listed however the protected buildings do not have a visual relationship to the site due to intervening tree lined fields and lanes.

6.3.9 **Maelor Abattoir (10)** is a collection of business units to the east of the site on Bedwell Road. Some of the warehouses are visible from **Field 1 (Viewpoint h)**. The visual receptors would have a **low** sensitivity due to be engaged in work. The magnitude of change is judged to be **low**, although the proposals will be visible, partial views in the context of the sewage works. The visual effect is therefore judged to be **slight**.

6.3.10 **Five Fords Sewage Works (11)** is directly on the western boundary. Workers in and around the sewage works will have immediately views of the glasshouses that will be at least 100m to the east from most working areas of the site (**Viewpoint e**). The visual receptors would have a **low** sensitivity due to be engaged in work. The magnitude of change is judged to be **high**, the proposals will be fully visible although in the context of the sewage works. The visual effect is therefore judged to be **moderate/slight**. Mitigation in the form of tree planting on the western edge of the **Field 1** will filter views of the changes on site, reducing the magnitude of change to **medium**, therefore over time the visual effect will be reduced to **slight/moderate**.

6.3.11 **Marchwiell (A)** lies to the southwest of the site however despite the close proximity, the intervening vegetation along the railway embankment and at Marchwiell Covert preclude any visual relationship from the main part of the settlement (**Viewpoint t**). Some properties to the north of the settlement centre are slightly visible from the site's northern edge however no views could be found at ground level (**Viewpoint g**). These views may be more open when vegetation is not in leaf. The visual receptors would have a **medium** sensitivity due to the likelihood that these are secondary views from first floor windows and over 1.4km from the site at this point. The magnitude of change is judged to be **medium**, the proposals will be not be fully visible and will be in the context of the sewage works and industrial estate. The visual effect is therefore judged to be **moderate**. Mitigation in the form of tree planting on the western edge of the **Field 1** will filter views of the changes on site, reducing the magnitude of change to **low**, due to the distant therefore over time the visual effect will be reduced to **slight/moderate**.

6.3.12 The hamlet **Cross Lanes (B)** is to the southeast beyond the railway embankment and does not have a visual relationship with the site.

6.3.13 **Wrexham Industrial Estate (C)** is visible from the site in places, however no windows appear to overlook the site from warehouses, and if views are possible that will be in the context of the sewage works.

6.3.14 **Wrexham (D)** is partially visible from parts of the site, generally from along the eastern and southern boundaries rooflines are visible at King's Mill suburb. Although not views could be found from ground level within the estate, it is likely that there will be glimpsed views from first floor windows (**Viewpoint f**). These views will be over 1km and partial due to tree cover, becoming more open when vegetation is not in leaf. The visual receptors would have a **medium** sensitivity due to the likelihood that these are secondary views from first floor windows. The

magnitude of change is judged to be **medium**, the proposals will be not be fully visible and in the context of the sewage works and industrial estate. The visual effect is therefore judged to be **moderate**. Mitigation in the form of tree planting on the western edge of the **Field 1** will filter views of the changes on site, reducing the magnitude of change to **low**, therefore over time the visual effect will be reduced to **slight/moderate**.

6.3.15 Other properties were considered unlikely to be affected by the proposals due to woodland screening or being orientated away from the site.

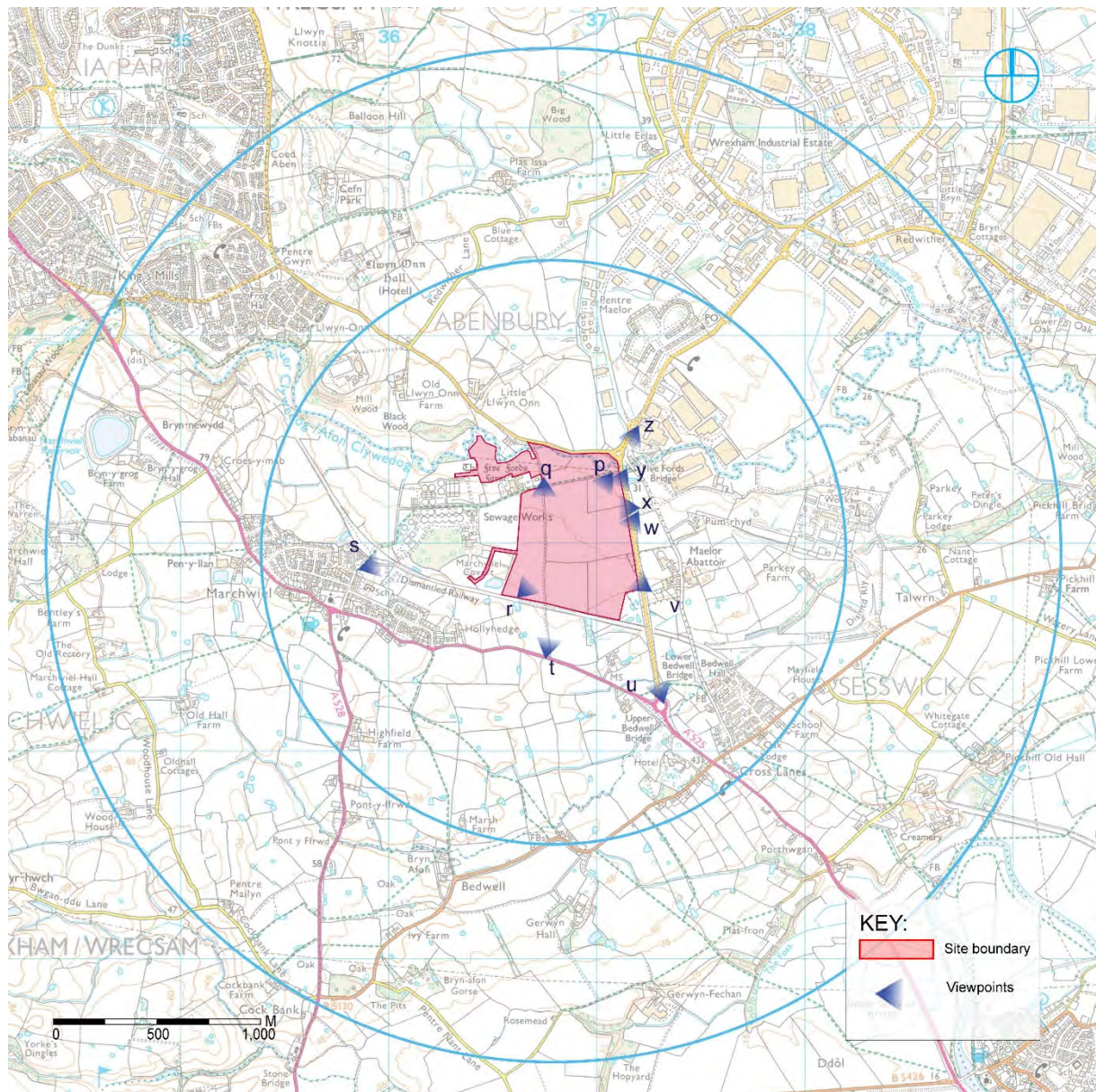


Figure 6: Map showing the location of viewpoints of photographs external to the site throughout the report, and 1km and 2km from the centre of the site is indicated by the blue circle (Extract of OS Map provided by www.centremaps/live.com at scale 1:25,000)



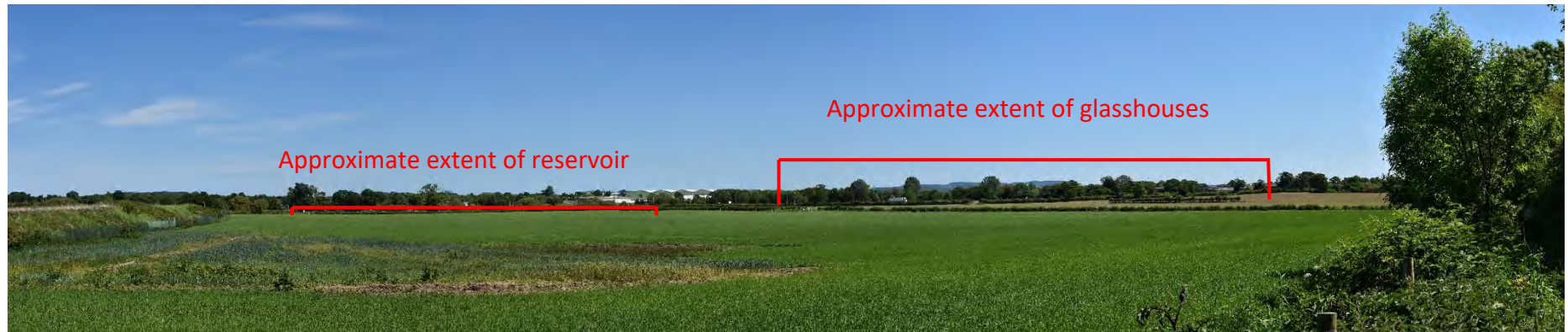
Viewpoint p: View towards the site from **Footpath 1** as the PRoW enters the field north of **Field 1** from Sesswick Way. The site will be fully visible from this location. Mitigation planting of tree groups along the northern boundary will mitigate the visual effect to some extent. This part of the footpath appeared rarely used due to the busy nature of Sesswick Way.

Looking: SSW 214°	Approximate elevation: 35m	Approximate distance to site: 100m	Estimated field of View: 70°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 10.13



Viewpoint q: View from the access road to the sewage works within the site. Some tree planting to the north of **Field 1** and along the western boundary will reduce the effect of the changes on site to some extent however the glasshouses will be a change to the visual amenity of views to **Footpath 1** users. The third reservoir located in **Field 2** will be visible however lagoons are common in the areas. Workers at the sewage works will experience the changes on site.

Looking: SSE 157°	Approximate elevation: 38m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.07



Viewpoint r: View from **Footpath 1** approaching from the west emerging from the tree cover along the disused railway line. The glasshouse will be visible from this open field site. The footpath enters a tree lined path heading east before again emerging onto the track between **Field 1** and **Field 2**. Mitigation in the form of tree and hedgerow planting to the west of **Field 1** will reduce the visual effect over time.

Looking: NE 50°	Approximate elevation: 47m	Approximate distance to site: -	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.33



Viewpoint s: View of the site from the settlement edge of **Marchwiel (A)** where **Footpath 1** leaves the settlement and heads east along the disused railway line. No Views of the site could be found from ground level within the village.

Looking: E 82°	Approximate elevation: 58m	Approximate distance to site: 720m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.46



Viewpoint t: View of the site from Bangor Road (A525) where there is an existing access onto the pasture fields to the south of the site. There are no views into the main part of the site from the road.

Looking: N 355°	Approximate elevation: 48m	Approximate distance to site: 270m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.18



Viewpoint u: View from the roundabout to the southeast of the site at the junction of Bangor Road and Sesswick Way. **Footpath 3** crosses Sesswick Way in the foreground. Tree and hedgerows preclude any views of the site.

Looking: WNW 332°	Approximate elevation: 44m	Approximate distance to site: 440m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.52



Viewpoint v: View of the from site from the cutting on Sesswick Way, the site becomes fully visible on the north eastern boundary however road users will only become aware of changes on site once pass the cutting.

Looking: NW 300°	Approximate elevation: 46m	Approximate distance to site: 28m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 13.22



Viewpoint w: Views from sliproad to Bedwell Road looking southwest. The site will be fully visible from the sliproad and Sesswick Way due to the elevated position. The glasshouses will be lying on lower ground which will reduce the visual effect.

Looking: SSW 205°	Approximate elevation: 34m	Approximate distance to site: 78m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 13.22



Viewpoint x: View to the northwest from the sliproad to Bedwell Road. The glasshouses will be fully visible from the roadside although lying on lower ground which will mitigate the changes to visual amenity.

Looking: NW 286°	Approximate elevation: 34m	Approximate distance to site: 44m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 13.22



Viewpoint y: View of **Field 1** from Sesswick Way looking southwest , heading south along the roadway. The new glasshouses within **Field 1** will be clearly visible.

Looking: SW 214°	Approximate elevation: 34m	Approximate distance to site: 94m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 13.26



Viewpoint z: View of the site from Bridge Road South, views are partial and quickly disappear 400m from the site as the road curves and enters the industrial estate.

Looking: SSW 194°	Approximate elevation: 34m	Approximate distance to site: 270m	Estimated field of View: 80°
Focal length: 50mm	Camera height: 1500mm	Date: 25.05.2020	Time: 12.13

6.4 **Public Rights of Way, other paths, and public open spaces**

6.4.1 There are a number of PRoW within the study zone. Views from a representative sample have been included in this and previous sections. Please refer to Figure 5 for the locations of the identified footpaths and Figure 3 and 6 for the locations of the images shown below.

6.4.2 There are no PRoW within 2km of the site is considered a strategic recreational footpath although the 'Clywedog Trail' starts 2km to the northwest of the site at Wrexham and heads west, and there are well used routes connecting with the network of footpaths within the surrounding area.

6.4.3 **Footpath 1** is the closest PRoW and passes through the site (**Viewpoint p**). The footpath enters the arable field north of **Field 1**. The footpath heads west to the access road into the site at the northwest corner of **Field 1 (Viewpoint q)**. This is further illustrated by Viewpoint A in the A3 Figures Volume under separate cover. As the PRoW heads south between **Field 1** and **Field 2** with full views of the proposed glasshouses in **Field 1**. As the PRoW moves south towards the railway line there are continuous views from the open field (**Viewpoint h**) until the PRoW moves beyond tree lines along the disused railway line. There is an open view of the reservoir within **Field 2** as well. There is another open view from the southwest corner of **Field 2 (Viewpoint r)**. This is further illustrated by Viewpoint C in the A3 Figures Volume under separate cover. The visual receptors are considered to have **high** sensitivity to change, as walkers are engaged in an activity where the landscape quality is important. The PRoW is well used although the northern route from Sesswick way appears less used and walkers utilise the access from Cefn Road instead. The magnitude of change is judged to be **medium**, as the change is major within the context of existing open fields, however the views are of a short duration and within the context of a working, rural landscape. The visual effect is therefore judged to be **substantial/moderate** adjacent the site. Mitigation planting will create more enclosure on the site boundaries, reducing the magnitude of change to **low**, therefore over time the visual effect will be reduced to **moderate/slight**. The effect on **Footpath 1** quickly reduces as the footpath moves away from the site boundaries.

6.4.4 **Footpath 2** links lies to the southeast of the site and there are no views to the site (**Viewpoint u**).

6.4.5 **Footpath 3** is to the north and although it is on elevated ground the landform and tree lined field and road preclude any views of the site.

6.4.6 Views could not be found from other PRoWs due to the enclosing vegetation.

6.5 Other Visual Receptors

6.5.1 Consideration has been given to the potential for views to occur from heritage-related locations toward the site, including listed buildings and Scheduled Monuments. There is no visual relationship to the Marchwiel Conservation Area no other heritage-related structures are considered to have visual relationships with the site.

6.6 Summary of Identified Visual Issues

6.6.1 The extent of visibility of the proposed site is limited principally to:

Transport routes

slight to slight/moderate:

- Cefn Road; **slight**
- Sesswick way **slight/moderate**, reducing to **slight** with mitigation planting;
- Bridge Road South **slight/moderate**, reducing to **slight** with mitigation planting.

Settlements, residential and commercial properties

slight to moderate/slight:

- Glanrafon Cottages (1), **moderate**, reducing to **slight** with mitigation planting;
- Nos 1 and 2 Cefn Road (2), **slight/moderate**, reducing to **slight** with mitigation planting;
- Little Llywn Onn (3), **slight** reducing to **effectively no change** with mitigation planting;
- Old Llywn Onn Farm (4), Hollyhedge (5), Maelor Abattoir (10) **slight**;
- Five Fords Sewage Works (11) **moderate/slight**, reducing to **slight/moderate** with mitigation planting;
- Marchwiel (A) and Wrexham (D) **moderate**, reducing to **slight/moderate** with mitigation planting;.

Public Rights of Way

substantial/moderate:

- Footpath 1 (in parts) **substantial/moderate** reducing to **moderate/slight** with mitigation planting.

6.7 Conclusions: Visual Effects – Operational phase

- 6.7.1 The greatest effect on visual amenity is likely to be experienced within 1km to the west; 175m to the east; 270m to the northeast however views to the south are limited as revealed by the site survey. Further views are limited by tree lines, hedgerows, and landform to the north and east.
- 6.7.2 Transport route receptors are subject to a **slight to slight/moderate** visual effect.
- 6.7.3 There are seven dwellings which is judged as experiencing some change to visual amenity however this is based on when vegetation is not in leaf. Two industrial properties especially Five Fords Sewage Works will experience the changes on to a **moderate/slight** effect. Some settlement edge properties in **Marchwiell (A)** and **Wrexham (D)** are affected to a **moderate** extent.
- 6.7.4 One PRoW that passes through the site will experience a **substantial/moderate** effect for short sections of path, however this generally can be mitigated to some extent by the planting of the trees to boundaries of **Field 1** to **moderate/slight** and less, and these are views of a short duration.
- 6.7.5 Beyond these receptors, the site is shielded from views by the treelines and landform or viewed in the larger context of the sewage works, and therefore there are no further notable effects to transport routes, residential, or Public Rights of Way receptors.

6.8 Assessment and Conclusions of Visual Effects on the Site: Construction Stage

- 6.8.1 The construction of the glasshouse development would take place on an arable field site, off Sesswick Way. The visual effects of construction activity during this phase would be temporary, however the activity would be highly visible.
- 6.8.2 Transport lorries and equipment may be visible above the boundaries to the east. Some visual effects will be experienced from the west including some properties where visual effects have been identified.
- 6.8.3 Vehicular movement to and from the site would be confined to Cefn Road and maybe the unmade track within the site.

6.8.4 Given the existing context and the temporary nature of the effects, it is considered that the visual effect of the construction stage of the proposed development would produce **moderate** visual effects.

6.9 Cumulative Visual Effects

6.9.1 Consideration has been given to the potential cumulative visual effects of the proposed glasshouse development. There are no current planning applications for development within the vicinity of the proposals. The proposals, if given permission, would not have a cumulative effect.

6.9.2 Cumulative visual effect according to the GLVIA guidance requires two tests. The first is whether there is static combined visibility, either in combination (visible in the same view) or in succession (visible by turning the head), and the second whether there is sequential visibility (views in motion), either frequently (appearing regularly and in short time lapses) or occasionally sequential (longer time lapses, greater distances or slow moving receptors) [GLVIA: 131].

6.9.3 With respect to cumulative visual effect, PRow **Footpath 1** will only be affected over a short section of path within the site therefore the cumulative visual effect is not considered to more than **medium** due to the short duration of the views.

7 CONCLUSIONS

- 7.1 Based on an assessment of the landscape character area of the application site and its surroundings, and using the Wrexham County Borough Council's 'Landscape Character Assessment', and national classification and field study, the area is judged as able to accommodate the proposed change. The area is judged as having **medium** sensitivity to change, due to its intact landscape condition and there being no local or national designations.
- 7.2 The landscape effects of the proposed development on the wider character area are limited by the existing mature and frequent vegetation and landform. These factors limit the effects of the proposals, maintaining the varied character of the area. However, the glasshouse would introduce permanent new elements at a public location into the landscape, resulting in a change in land cover and land use.
- 7.3 It is therefore judged that there would be a **medium** magnitude of change to the receiving landscape character under a 1km radius from the site boundaries. This judgement is based on the change in land cover and the boundary vegetation that will be retained and enhanced. The introduction of notable elements into the landscape will not alter the balance of the wider landscape character that already exhibits light industrial nature, the magnitude of change will be **medium**. The result is therefore considered to be a **moderate** effect on the landscape character in the long-term.
- 7.4 Many of the landscape elements and receptors identified in Section 5.3 are considered to be unaffected by the proposals.
- 7.5 The landscape elements identified at site scale and its immediate environs, and considered affected by the proposed development are limited to the change in land cover and use from arable field to horticultural built elements, with little loss of hedgerows or trees. Given the condition of the landscape elements identified, these landscape receptors are judged as having a **medium** sensitivity to change. The overall magnitude of change as a result of the development at the site scale is considered to be **medium**. Therefore, for these landscape receptors the effect is **moderate**.
- 7.6 Currently there are no other proposals within the vicinity of the site awaiting permission however due the cumulative effect in addition to the sewage works it is judged that there would be **medium** cumulative landscape effects caused by the proposal.

- 7.7 The greatest effect on visual amenity is likely to be experienced immediately adjacent to the site. Any more distant views of the proposals beyond this are likely to be limited, and if experienced would be assimilated into the wider landscape. It is therefore considered that there is little potential for the development to result in any significant effects on visual receptors at distances of over 1km from the site of the surrounding area.
- 7.8 The proposed mitigation planting is designed to mitigate the visual effects of the proposals, with a secondary benefit of strengthening the biodiversity of the area. The proposals are as follows:
- To create new tree lines to the west and east and along the northern boundary;
 - To introduce an eastern hedgerow to **Field 1** and plant a tree line of locally occurring native species.
- 7.9 The extent of sensitivity of visual receptors is **low to high** and the magnitude of change is **low to high**, and are limited to the immediate area and to the west of the proposed site:

Transport routes

slight to slight/moderate: three transport routes fall into this category, reduced by mitigation planting.

Settlements, residential and commercial properties

slight to moderate: nine identified properties or groups thereof fall into this category, the effect in some cases reduced with mitigation planting.

Public Rights of Way and open public spaces

substantial/moderate: one identified PRoW falls into this category, the effect in some cases reduced with mitigation planting and the effect is for short durations only.

- 7.10 The cumulative visual effects were assessed in relation to the proposals and planning applications. Due to no local planning applications of substance there will be **a medium cumulative visual effect**.
- 7.11 The new and existing landscape features within the site will benefit from an agreed programme of management, which would help to ensure their long-term viability within the

landscape. The proposed tree lines, new hedgerows and infill hedgerow planting will provide a beneficial effect for biodiversity and wildlife.

- 7.12 The site is within a landscape that exerts a positive character and that is in good landscape condition. However, the landscape is a working rural landscape with large areas of industrial buildings and the sewage works that the proposals will sit comfortably in. The visual effect of changes on site are barely felt beyond 1km to the west. Mitigation in the form of hedgerow and tree planting reinforcement will mitigate some changes to visual amenity. The proposals will provide horticultural opportunities in a rural location without having an impact on the wider rural landscape.

Appendix 1

Appendix 2

Assessment Criteria

In accordance with the Landscape and Visual Impact Assessment Guidelines, 3rd edition (2013) the significance of effects is ascertained with the aid of cross-referencing the sensitivity of the baseline landscape or visual receptor and the magnitude of change as a result of the development.

Sensitivity of Landscape Character

The sensitivity of landscape character is a measure of a landscape's capacity to accommodate change. It varies depending on factors such as the scale and form of the landscape, landscape pattern, sense of enclosure, sense of tranquillity and remoteness, the settlement pattern and transport network etc. We used our professional judgement to determine the sensitivity of the character areas, based on relevant regional and local landscape character studies.

Table 1 Levels of sensitivity for landscape character

Low	Areas that exhibit a neutral or negative character. May have a strong sense of enclosure that reduces visual sensitivity, are likely to be already affected by man-made elements, have reduced tranquillity, are likely to have little inter-visibility with adjacent landscapes and exhibit a low density of sensitive landscape elements. Includes detractors such as power-lines, industrial derelict or inappropriate built forms with no aesthetic value or evidence of strategic planning. There is a lack of mature vegetation cover and no landscape designations apply
Medium	Areas that exhibit a positive character. May have some sense of enclosure, or be affected by some man-made elements, or have little inter-visibility with adjacent landscapes and exhibit a moderate density of sensitive landscape elements. There is a reasonable distribution of semi-natural vegetation, trees and shrub cover and the overall view of the area is pleasant. Local landscape designations of cultural and historic value may be present.

High	Areas that exhibit a strong positive, character. May be open or exposed with a remote character and an absence of man-made elements. They are often highly visible from adjacent landscapes and exhibit a high density of sensitive landscape elements. Includes landscapes highly valued for their scenic quality, e.g. nationally designated areas such as National Parks, AONB.
-------------	--

Sensitivity of landscape elements

The sensitivity of an individual landscape element reflects factors such as its quality, value, contribution to landscape character and the degree to which the particular element can be replaced. We used our professional judgement to determine the magnitude of direct physical impacts on individual existing landscape elements as follows:

Table 2 Levels of sensitivity for landscape elements

Low	Landscape elements in below average or poor condition which detract from landscape character, such as obtrusive man-made structures such as power lines or large areas of hard standing.
Medium	Landscape elements in good condition but with no statutory protection. Locally distinctive but commonplace features.
High	Landscape elements with statutory protection, which are unique or scarce, for example ancient woodland or feature parkland trees, national trails, or cycle routes.

Table 3 Criteria for magnitude of change for landscape character and landscape elements

Negligible	No notable introduction of new elements into the landscape or change to the scale, landform, land cover or pattern of landscape. The proposals would be apparent as a landscape feature without being conspicuous. In addition, the proposals are short to medium term in duration and reversible.
-------------------	--

Low	Introduction of minor new elements into the landscape or some minor change to the scale, landform, land cover or pattern of landscape. In addition, the proposals are medium to long term in duration and reversible
Medium	Introduction of some notable elements into the landscape or some notable change to the scale, landform, land cover or pattern of landscape. The balance of the landscape characteristics is not altered but the proposals would be a conspicuous feature of the make-up of the character area. In addition, the proposals are medium to long term in duration and reversible or permanent.
High	Introduction of major elements into the landscape or some major change to the scale, landform, land cover or pattern of landscape. The proposals would be a prominent feature in the make-up of the character area. In addition, the proposals are long term to indefinite in duration and permanent.

Sensitivity of Visual Receptors

We used representative viewpoints in the assessment to represent different visual receptor groups at various distances and directions from the site. Generally speaking, residential receptors, recreational users of Public Rights of Way or people at recognised vantage points have a higher sensitivity to change than people travelling along roads or conducting their daily business e.g. at their place of work.

Table 4 Levels of sensitivity for visual receptors

Low	Includes people at place of work e.g. industrial and commercial premises, public rights of way with low levels of use and road users engaged in commuting or commercial travel and people engaged in outdoor sporting activities.
Medium	Includes non-strategic footpaths or other rights of way, secondary or oblique views from residences, and people travelling through the landscape on roads and trains engaged in tourism or journeys of a recreational nature.

High	Includes principal views by occupiers of residential properties and users of strategic recreational footpaths or other rights of way. Important landscape features with physical, cultural, or historic attributes. Views from beauty spots and picnic areas.
-------------	---

Table 5 Criteria for magnitude of change for visual receptors

Negligible	No notable change in the view. In addition, the proposals are short to medium term in duration and reversible.
Low	Some change in the view that is not prominent / few visual receptors affected. Proposals would be visible but not eye-catching or noticeably distinct. In addition, the proposals are medium to long term in duration and reversible.
Medium	Some change in the view that is clearly visible and forms an important but not defining element in the view. The proposals would be conspicuous and form a noticeably distinct feature. In addition, the proposals are medium to long term in duration and reversible or permanent.
High	Major change in the view that has a defining influence on the overall view / many visual receptors affected. A fundamental change in the view with proposals being dominant. In addition, the proposals are long term to indefinite in duration and permanent.

Significance of Effect

The significance of the landscape and visual effects is determined by considering the sensitivity of the landscape element, landscape character or view in conjunction with the magnitude of change. The significance of effects is described as substantial, moderate, or slight, as guided by the matrix in Table 6 below. Those effects identified as being of substantial, substantial/moderate, and moderate may be regarded as having the greatest significance.

Significance of effect may be affected by factors such as the potential for weather conditions to restrict views, the principal aspect of the viewpoint/viewer, the proportion of a view affected, or the

potential for the development to attract the eye or become the focal point in the view to the detriment/benefit of competing visual elements.

Visual effects may be either adverse or beneficial in nature, and relate to the individual perceptions of the assessor. If no material effect is experienced, this may be seen as being neutral.

The term 'significant'

The term 'significant' is specifically used when considering developments with the greatest effect on the environment. These developments are considered as set out in the European Parliament Directive 2011/92/EU and require an Environmental Impact Assessment ("EIA"). Where it has been agreed with the LPA that the development does not require an EIA, or where the Landscape and Visual Impact Assessment is being submitted as a stand-alone document, this term will not be used.

Table 6 Visual and Landscape Assessment Matrix

	Magnitude of change (grey shading shows greatest effect)			
Sensitivity	Negligible	Low	Medium	High
High	Slight/Moderate	Moderate/Slight	Substantial/Moderate	Substantial
Medium	Slight	Slight/Moderate	Moderate	Substantial/Moderate
Low	Effectively no change	Slight	Slight/Moderate	Moderate/Slight

Duration of effects

For the purposes of this assessment the following time scales have been used:

Short term: 0 to 10 years;

Medium Term: 10 to 25 years;

Long term: 25 to 50 years;

Indefinite: more than 50 years and permanent.

Appendix 3

Methods for Visualisations

Introduction

The panoramic photography methodology conforms to the latest Landscape Institute (LI) Advice Note 01/11 for Photography and photomontage in landscape and visual impact assessment. This document outlines the process by which all panoramic images have been produced.

Data Collection

The viewpoints for panoramic photography are selected by a Landscape Architect, and agreed with the appropriate local authority prior to submission. Consideration to safety and legal access is also given when electing the viewpoint positions for the panoramic photography. The team conducting the site-work consists of both a photographer and a surveyor who will be responsible for the entire process from image capture to final panoramic photography. When collecting visual data, relevant control points within the photo are surveyed to a high level of accuracy to ensure that the proposed development accurately correlates to the photo.

Equipment

The camera equipment used is detailed at 2.2.2 in the report. Relevant camera settings such as focal point are also noted in the document. These settings are selected in accordance with the LI guidance, and are set for the conditions at the time of the photo. When appropriate, surveying equipment is used to establish the position of the photo.

Image Processing

Each panoramic image is produced by the stitching together of a number of individual photographs using industry standard software. The images are then individually checked to ensure both that the original photographic quality is maintained and that the resulting image is clear and realistically stitched together. An overlap of 30% is applied for each image. Final images are saved as .jpg format.

Presentation

Industry standard drafting software is used to produce the final deliverable drawing. Both existing and proposed images are shown at the same size and scale, with all required details displayed in the title block of the drawing.

APPENDIX 4

Data sources:

Accessed between 22.05.2020 and 29.05.2020

An Approach to Landscape Character Assessment:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/396192/landscape-character-assessment.pdf

Bing maps: <https://www.bing.com/maps>

Biodiversity 2020:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

British History Online: <http://www.british-history.ac.uk/os-1-to-10560/suffolk/033/se> and
<http://www.british-history.ac.uk/os-1-to-10560/suffolk/033/ne>

British Geological Survey: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

British Standards: BS5837:12 Trees in relation to design, Demolition and Construction –
Recommendations BSI Standards Ltd April 2012

English Heritage listed buildings entries: <http://list.english-heritage.org.uk/results.aspx>

Environment Agency Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/summary?easting=584979&northing=269946>

Google earth

Historic Wales: <http://historicwales.gov.uk/>

Landmap Wales CCW Interactive maps: <https://naturalresources.wales/evidence-and-data/maps/wales-environmental-information/?lang=en>

Landscape Institute and the Institute of Environmental Management and Assessment, 2013.
Guidelines for Landscape and Visual Impact Assessment. Abingdon, Oxon: Routledge

Landscape Institute website: *Photography and photomontage in landscape and visual impact assessment* -Landscape Institute Advice Note 01/11 – 2011

Magic Map: <http://www.magic.gov.uk/MagicMap.aspx>

National Planning Policy Framework: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

Natural Resources Wales:

NLCA Profile: 13 Deeside and Wrexham

<https://cdn.naturalresources.wales/media/682570/nlca13-deeside-and-wrexham-description.pdf?mode=pad&rnd=131550580270000000>

Flooding: <https://naturalresources.wales/flooding/managing-flood-risk/flood-risk-map-guidance/High-risk-of-flooding-from-rivers-and-sea/?lang=en>

Agricultural Land Classification Map England and Wales:

<http://publications.naturalengland.org.uk/publication/6172638548328448?category=5954148537204736>

Welsh Government:

Site and context analysis guide: Capturing the value of a site (2016):

<https://gov.wales/sites/default/files/publications/2018-09/site-context-analysis-guide.pdf>

Technical Advice Note 24: The Historic Environment (2017):

<https://gov.wales/sites/default/files/publications/2018-09/tan24-historic-environment.pdf>

Wrexham County Borough Council:

The Unitary Development Plan (UDP) 1996 – 2011:

http://www.wrexham.gov.uk/english/planning_portal/plan_policy/wxm_udp.htm

Design: <https://gov.wales/technical-advice-note-tan-12-design>

Historic Environment: <https://gov.wales/technical-advice-note-tan-24-historic-environment>