Proposed Five Fords Solar Array, Five Fords, Wrexham.

Landscape and Visual Impact Assessment

August 2014

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Author	Checked	Issue	Date
JB	PW	Draft V1	29.08.14
JB	PW	ISSUED V1	12.09.14

1.0 Introduction

1.1 Tirlun Barr Associates were appointed in August 2014 by Caulmert Ltd, acting on behalf of Dwr Cymru Welsh Water, to undertake a Landscape and Visual Impact Assessment (LVIA) of the proposed construction of a 9.ha. solar array on land at Five Fords Wastewater Treatment Works at Five Fords, Wrexham.

1.2 The assessment was undertaken by Mrs. Julie Barr BA, Dip LA CMLI, a Fully Chartered Landscape Architect with over 25 years' experience and Principal of Tirlun Barr Associates

1.3 Mrs. Barr holds Part I-IV of the Landscape Institute Professional Examinations and has practiced primarily in Wales and the North West of England for over 25 years and has extensive knowledge of the area surrounding the proposed development site.

1.4 The assessment of the landscape and visual impact of the proposed development has involved both desk and field analysis of both the existing site and the proposed development characteristics, together with a study of the baseline landscape, its' context, features, and character of the area in which the development is proposed.

1.5 This report assesses any landscape and visual impact that the proposed development may have upon the surrounding landscape which includes any nearby settlements, employment areas, public footpaths and upon both nearby and distant identified receptors with particular reference to sensitive and major viewpoints, any protected or recognised landscapes, properties, transport corridors, and areas which are publicly accessible such as public rights of way and areas of open space.

1.6 Details of the proposed development are contained within the report (Refer to Figure 2 of the appendices - Proposed Layout).

1.7 The study methodology is described within Section 3 of the report, whilst a description of the site and surrounding area and baseline condition is included within Sections 4 & 5.

1.8 An appraisal of the predicted visual and landscape impact of the proposed development is included within Section 6.

1.9 Section 7 describes proposed mitigation measures, and the conclusions of the Landscape and Visual Assessments are contained within Section 8.

1.10 Report figures are contained within the Appendices at the rear of this document.

2.0 Purpose and scope of the report

2.1 The Landscape and Visual Impact Assessments were undertaken in August 2014 following an understanding of the proposal and its content; together with re-familiarisation with the site context.

2.2 The assessments were undertaken by a Chartered Landscape Architect, and involved both desk top and field analysis at a time of full leaf cover.

2.3 Seasonal difference and the prevailing weather conditions (which were dry and bright at the time of the survey) were taken into account when assessing the potential impact which is recorded within Chapter 6.

2.4 Existing vegetation, structures and features have been plotted from desktop analysis, Ordnance Survey datum provided by Welsh Water under licence, historical data and site observation; as well as aerial photography where access was unavailable.

2.5 The proposed solar array development is located on land immediately to the north and east of the existing Wastewater Treatment Works, which is located approximately 3.5 km south east of Wrexham Town Centre and close to the southern fringe of Wrexham Industrial Estate.

2.6 Given the relatively small scale of the proposal and the existing landscape context of the site, which contains no designated landscapes or sensitive receptors, the report methodology is based upon standard guidelines advocated by the Landscape Institute and Institute of Environmental Assessment – Guidelines for Landscape and Visual Impact Assessment (Third Edition published in 2013).

2.7 Photographs of the proposed site and wider area are contained within the appendices to this report (Refer to Figure 3).

2.8 The assessment considers the likely landscape and visual impact of the proposed development upon the surrounding area, and describes its potential impact from major viewpoints, publicly accessible areas, including areas of public open space and public rights of way, and any areas of open countryside or common land designated under the CROW Act.

2.9 Baseline information regarding the site it's context, features, and characteristics have been ascertained from field survey and desk top study.

2.10 The details of the proposed solar array are shown on Tirlun Barr Drawing –Proposed Layout Drawing Reference: 14/09/01 Issue 4, which is reproduced as Figure 2 of the appendices.

3.0 Methodology

3.1 The assessment is based upon guidance contained within 'Guidelines for Landscape and Visual Impact Assessment' published by The Landscape Institute and Institute of Environmental Management and Assessment (Third Edition 2013).

3.2 The assessment has involved both desktop and field research, and has involved visits to the site and surrounding area to establish the existing landscape context and level of predicted impact and where deemed appropriate or necessary, the assessment methodology has been shaped by the baseline findings.

3.3 The assessment has used Ordnance Survey datum mapping and height datum for the surrounding area, supplied under licence for the project by the client, and a detailed topographical survey of the proposed site, prepared to ordnance datum.

3.4 The assessment of the proposed development has been considered as a new feature in an existing landscape. Therefore, the evaluation assesses and compares the current visibility of the existing site as part of the baseline condition and also the level of impact that the proposed development may or may not create upon individual receptors and the immediate and wider landscape.

3.5 In line with guidance, the assessment considers the likely impact of the scheme on Day 1 following completion and then at Year 15 after completion; in addition, potential construction impacts, long term operational impacts and the effect of the proposed mitigation measures are also assessed..

Visual impact

3.6 Visual impact is definable as a function of the sensitivity of the affected landscape and types of view (and views) together with the magnitude of change that they will experience.

3.7 The likely visual impact of the proposed development has been assessed and categorised according to the following **Visual Impact Assessment** scale:

Substantial adverse Impact: where the scheme would cause significant change in the existing view, in areas of or to receptors of high or medium sensitivity and number, which would experience a moderate intrusion or change in character, or high magnitude change in an area of low sensitivity.

Moderate adverse Impact: where the scheme would cause a noticeable change in the existing view, in areas of or to receptors of high or medium sensitivity/number which would experience a moderate intrusion or change in character, or high magnitude change in an area of low sensitivity.

Slight adverse Impact: where the scheme would cause a perceptible change in the existing view, in areas of or to receptors of medium or low sensitivity high sensitivity/low number which would experience localised damage or loss to specific landscape elements/features, or minor intrusion over a more widespread area.

Neutral Impact: no discernible difference.

Slight Benefit: where the scheme would create a beneficial improvement in the existing view to a low number of receptors of medium or low sensitivity that would experience enhancement of the existing landscape, or contribution to specific landscape features.

Moderate benefit: where the scheme would assist in improving a poor or fragmented landscape, where certain detracting features can be improved or lost and cause an improvement in the existing view.

Substantial benefit: where the scheme would improve a degraded or damaged landscape, where detracting features can be improved or lost and cause a significant improvement in the existing view.

3.8 Under Landscape Institute and Environmental Assessment Guidelines people (or receptors) at their place of work, or people travelling through or past an affected area in cars or trains etc are the least sensitive of receptors, whose attention may be focused on their work or activity and who therefore may be potentially less susceptible to changes in the view.

The most sensitive receptors include:

(i) Outdoor recreational facilities (including Public Rights of Way), whose attention or interest may be focused on the landscape such as from an AONB, Listed Buildings, Historic Landscape Area, Park or Garden of Historic Interest, CROW areas or long distance trails, etc.

(ii) Communities where the development results in changes in the landscape setting or valued views enjoyed by the community.

(iii) Occupiers of residential properties with views affected by the development.

Degree of magnitude

3.9 The magnitude or degree of the effect has been categorised as follows:

Negligible - Where the development or work or activity associated with the development is not discernible.
Low – Where only a small or minor component is visible or where the distance is such that only a part is discernible or appreciable, and consequently there is little effect upon the scene and which might be missed by casual observation.
Medium Low – The proposals constitute a visible and recognisable new element to the scene and may be readily noticed as a new element.
Medium High – The proposals form a significant and immediately apparent part of the view which affects and alters the character of the area.
High – Where the proposals become a dominant feature of the view and to a degree by which other elements are affected changing overall character.

3.10 Standard assessment methodology advocates as 1km radius for the site visual assessment, and this has been reviewed on site and felt to be appropriate in this instance as the site and existing landscape are well contained by existing landscape features such as vegetation and topography, and the scale and nature of the proposed development is small and related to existing industrial development within the area.

3.11 Therefore given the sites landscape context, the methodology and survey extent recommended by the Landscape Institute of 1km radius is considered appropriate in this instance

3.12 Above 1km the clarity, form, and detail of all proposed developments becomes less clear and distinguishable as receptor distance increases whereby atmospheric conditions begin to affect visibility, and this is demonstrated within Figure 3 (Photographs of the site and surrounding area).

3.13 The Landscape and Visual Impact Assessment site work was undertaken in August 2014, and although a full deciduous leaf canopy was present existing knowledge and detailed experience of the site area and similar solar development project content has enabled due account of potential visibility being recognised within the assessment reporting.

3.14 Due cognisance of leaf canopy presence, and the prevailing weather and light conditions at the time of survey were also taken into account when assessing potential impacts.

3.15 Existing vegetation, structures and features have been plotted from desktop analysis, Ordnance Survey datum and site observation as well as aerial photography where access was unavailable.

3.16 Visual Impact Tables have been prepared for the study area to include main receptors, including residential areas, the Industrial estate site, publicly accessible areas such as playing fields and footpaths etc, which are contained within Appendix 6.

3.17 The visual assessment did not involve visiting the interior of individual properties or entering private land, although wherever possible views close to residential properties have been ascertained and predicted.

Landscape Impact

3.18 The **Landscape Assessment Methodology** is assessed and categorised in much the same manner as the Visual Assessment and categorised according to the following scale:

Substantial adverse Impact: where the scheme would result in effects that are at complete odds with the existing landform, land use, scale and pattern of the landscape, and cause permanent degradation and diminishing of the quality, and integrity of the landscape features elements and their setting, or cause a very high quality landscape to be permanently destroyed and overall quality reduced.

High/moderate adverse Impact: where the scheme would result in effects which would be substantially damaging to a high quality landscape, vary greatly with the existing landscape and would contribute to its degradation or cannot be fully mitigated against and may cumulatively amount to a substantial adverse effect.

Moderate adverse Impact: whereby the scheme would be out of scale with the existing landscape, or at odds with the local landscape pattern and landform and will result in an adverse impact upon a recognised landscape.

Slight adverse Impact: Where a proposal would not readily fit with the overall landform or landscape scale, and would affect a landscape of recognised landscape character

Neutral Impact: no discernible difference or whereby the proposal would complement the scale landform and pattern of the landscape and would not impact upon the existing landscape quality.

Slight Benefit: where the scheme would create a beneficial improvement that would involve enhancement of the existing landscape quality and character, or contribute to specific and appropriate landscape features. The pattern, landform and scale of the landscape are respected.

Moderate benefit: where the scheme would assist in improving a poor or fragmented landscape, where certain detracting features can be improved or lost.

3.19 The capacity of a landscape to accept change can be either beneficial or adverse, with the lower the sensitivity the greater the capacity to absorb change in general.

3.20 Landscape quality and its value are based upon an evaluation of its components and the value and contribution that they create to form the landscape character of the area and whether the identified landscape elements or features can be replaced or substituted.

3.21 Landscape quality is assessed by considering planning policy, designations and subjective assessment of the quality by experienced practitioners.

3.22 The Landscape and Visual Impact Assessments are reported within Chapter 6.

4.0 Site Context and Baseline Condition

The existing site and landscape context.

4.1 The site of the proposed solar array is located on land within Welsh Water ownership to the north and east of the existing Five Fords Wastewater Treatment works site, approximately 4km southeast of Wrexham Town Centre and at the southern fringe of Wrexham Industrial Estate.

4.2 The proposed site comprises two areas; firstly existing unused land within the existing treatment works security boundary and extending onto land fronting the Treatment Works access road, (labelled and referred to as Areas A & B), and secondly an existing field located immediately east of the existing works, (referred to and labelled as Area C) as indicated on Figure 2 of the appendices.

4.3 Marchwiel village is located just over 1.0km to the south west which comprises a linear village development set on a minor ridge, at approximately 65m AOD, overlooking the River Clywedog floodplain and Wrexham Industrial Estate beyond.

4.4 The River Clywedog meanders in a west to east direction as a tributary of the River Dee some 100m to the north of the proposed solar array.

4.5 The existing Five Fords WwTW is located immediately contiguous, south and west of the proposed development area and the National Grid Reference for the proposed development is SJ369482.

4.6 The area generally was historically associated with agriculture and originally comprised small fields for stock grazing with extensive oak woodland on fertile alluvial soils associated with the adjacent River Clywedog, although modern farming practices have led to increased field sizes, arable crop production and loss of hedgerows.

4.7 Historically the River Clywedog formed an important focus in the area and records indicate that the population grew dramatically as the industrial revolution drew workers to the Wrexham area to serve the rapidly developing coalmines, lead mines, limestone quarries, ironworks and lead smelting works.

4.8 The demand for food to feed the increasing workforce meant that the fertile Clywedog floodplains, which had traditionally provided pasture, were replaced with corn mills and areas of hedgerow and woodland were cleared for growing crops and then subsequently developed for industrial useage leading to the landscape which is present today.

4.9 The landscape immediately around the proposed site extent is typical of a hinterland landscape in this historic context, with development along the river Clywedog being focused towards the Town Centre and area of industry.

4.10 The landscape context is dominated by the large scale industrial development of Wrexham Industrial Estate, located some 300m to the north, the recent and large scale southern access road into the industrial estate located some 0.3km to the east, and the urban area of Wrexham some 1.8km to the northwest.

4.11 The area immediately surrounding the proposed solar panel array is influenced visually by the presence of the existing wastewater treatment works appearance and movement useage, it's existing large scale and well used concrete access road, and the presence of security fencing and gates which already detract from the earlier agricultural character.

4.12 The landscape fabric to the east, south and southwest of the proposed site is largely open pastoral land with large blocks of woodland, whilst in the immediate vicinity of the proposed development the fields are noticeably larger and more open whereby original field boundaries have been removed or are newly establishing from earlier development.

4.13 The topography of the area is generally all low lying with field A at approximately 33m AOD falling towards the River Clywedog and with Field B and C at circa 35m AOD forming part of the former river flood plain before falling eastwards towards the River Dee over 3km distant.

4.14 A minor ridge exists at 65m AOD along which lies the village of Marchwiel, whilst the Wrexham Industrial Estate is located on land that rises steadily in a northerly direction to over 90m AOD.

4.15 Marchwiel is a small linear village and the nearest notable residential settlement to the proposed site and at 1.1km distant is generally outside the 1km study area, although some properties are within the study area and are consequently reported within the assessment.

4.16 The suburbs of Wrexham at Kings Mill and Pentre Gwyn are some 1.6km distant to the northwest and are likewise outside the study area extent.

4.17 The nearest residential properties are existing dwellings located beyond the River Clwywedog along Cefn Road approximately 400m distant.

4.18 In addition there are a few houses at the northern end of Bedwell Road at Five Five Fords Bridge at circa 0.7km distant.

4.19 A dismantled railway (formerly the 1895 Wrexham to Ellesmere Line) lies approximately 0.2km south of the proposed southern site extent and comprises an elevated length of former track bed, enclosed in self-seeded and unmanaged vegetation, which is used informally as a dog exercise and walking route and which forms part of the diverted public footpath network Footpath FP337 as indicated within Figure 4 of the appendices

4.20 It connects with Footpath FP347 which runs through to Marchwiel crossing the former railway westwards, whilst eastwards it continues along the line of the existing Five Fords WwTW access road towards Five Fords Bridge and Bedwell Road.

4.21 The landscape of the surrounding area is complex, with the evident large scale industrial estate to the north and north east, the suburbs of Wrexham evident to the north west whilst, the area to the south is more pastoral with several woodland copses in the area.

4.22 Black Wood, Mill Wood and other areas of woodland are scattered in the landscape and, in addition, there are other significant areas of woodland associated with the linear and riparian habitat of the River Clywedog and the former railway line which provide distinct landscape features.

4.23 The general area to the south of the proposed development contains further woodland in the form of the abundant field trees of mature Oak and Ash which, together with scattered hedgerow and hedgerow trees, provide distinct landscape features

4.24 The landscape fabric of the proposed solar array provision comprises overgrown ruderal vegetation within Area A and more managed open grassland within Area B, and Area C was under cultivation for Maize at the time of the assessment.

4.25 The area of the proposed solar array is bounded by well-established mature vegetation to the north and east including the riparian vegetation of the adjacent river Clywedog, and

newly establishing hedgerows in the east.

4.26 Immediately to the south and west and forming the site boundary to area C is the existing wastewater treatment works with the dense vegetation and screening provided by the presence of Marchwiel covert and the former railway line linear vegetation providing an identifiable sense of enclosure.

4.27 Beyond the proposed site to the east at circa 0.6km distant is the recently completed southern access to the industrial estate, comprising a single 7.4m wide carriageway with an additional 1m wide hard strip verge on either side which links the A525 west of Cross Lanes in the south to a new roundabout at Five Fords Bridge (the junction of Cefn Road and Bridge Road) via a new bridge over the River Clywedog.

4.28 The road is largely on a 1.5-2.0m embankment, rising by over 2 metres where it crosses the River Clywedog and provides a notable visual intrusion due to the presence of moving elements in an otherwise largely static landscape.

4.29 Photographs of the site and surrounding landscape context are contained within Figure 3 of the appendices whilst a site Landscape Context Plan is contained within Figure 4.

Landscape policy

4.30 The extant Development Plan for the site and surrounding area is the 'Wrexham Unitary Development Plan' (UDP) 1996-2011 which was adopted in February 2005 and which will be replaced by the Wrexham Local development Plan in due course.

4.31 Within this planning framework the proposed site of the solar array is not subject to any statutory protective landscape designation.

4.32 The former railway line is outlined within Policy T10 of the UDP as a proposed long distance recreational route linking Overton to Wrexham at Abenbury Road and then on to other local networks in the area, but the definitive timescale and progress of this Policy is not stated.

4.33 With regard to landscape assessment and future landscape protection, Natural Resources Wales (formerly CCW) have been undertaking a landscape qualitative assessment for the whole of Wales entitled LANDMAP which includes the county of Wrexham, in order to contribute to future mandatory policy.

4.34 The site and surrounding area has been assessed as part of this Landscape assessment and the site is just physically within the border of the Landmap Landscape Character Area 13a – Welsh Maelor Area, and close to Character Area 11 Wrexham Industrial Estate Area - displaying characteristics of both landscapes which, obviously, have transitional rather than precise boundaries and which was adopted in 2004.

4.35 The **Character area 13a - Welsh Maelor Landscape Area** is described and summarised as follows:

'This lowland rural area is similar to the English Maelor and Dee Terraces and to the Cheshire and North Shropshire Plain beyond the Wrexham boundary. However it is geographically and historically separated from the English Maelor by the River Dee, and former administrative boundaries, and is currently more affected by proximity to urban areas.'

- 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 semi natural habitat, especially in Clywedog Valley
- Affected by urban pressures and economic changes to farming

4.36 The **Character area 11 – Wrexham Industrial Estate Area** is described and summarised as follows:

'The industrial development dominates the landscape with the underlying physical landscape covered over or altered to a significant extent.

- Extensive area of mixed manufacturing and business uses
- Located on site of WW II munitions depot, formerly farmland
- Visible from afar, many of the buildings dwarfing the human scale
- Very valuable species rich grassland and wetland habitats
- Major focus for employment separate from Wrexham town

4.37 Within the Landmap detailed assessment coverage for the area of the proposed solar array, the area is located within the following Landmap and the proposed site is located within the following Landmap areas:

- **Visual and Sensory** Aspect Area Maelor south of Wrexham - (Code WRXHMVS052),
- **Landscape habitats** Aspect Area Llay Grassland (Code WRXHMHO41)
- **Geological landscape** Aspect Area Cross Lanes (Code WRXHMGLO79)
- **Cultural Landscape** Aspect Area Maelor Gymraeg (North) (Code WRXHMCL013)
- **Historical** Aspect Area Eyton (Code WRXHMHL020)

4.38 The Landscape and Visual Summary Description of the Aspect area follows a 2003 assessment by CCW and was assessed before the present expansion of the waste water treatment works and the construction of the new southern access road into the industrial estate, and is cited as follows:

"An attractive archetypal rolling farmland landscape with elements if estate farming and a pleasant mix of small to medium field patterns and woodland blocks and copses. The areas feels relatively settled and safe with a low proportion of out of scale or modern development. The areas borders the southern and eastern areas of Wrexham yet Wrexham's influence us rapidly lost and the area feels quite separate from it. The area occupies a gently rolling and undulating landscape bordered by the River Dee Valley to the south and east and Wrexham to the north. Visually and physically the area feels more closely associated with the English landscape of north Shropshire and Cheshire than the typical or archetypal welsh landscape. The aspect is the transition zone and border between England and Wales again a visually similar (sic) to Cheshire and Shropshire plain, but uncommon landscape for Wales. Evidence of earlier cultures can be seen on pasture – ridge and furrow, moated site etc. not often associated with Wales."

4.39 In the field it would appear that the landscape character is more akin to the adjacent Wrexham Industrial Estate description reflecting the level of development in the immediate and surrounding area.



Plate 1 Aerial photograph of the site area context

4.40 There are no other designated or protected landscapes within the study area, or visual envelope of the proposed development site extent.

5.0 Description of the proposed development

5.1 Details of the proposed development are shown within Figure 2 of the appendices and are based upon Caulmert Drawing 2084.PLG.04 - Proposed Section, and Tirlun Barr Associates - Proposed Site Layout Drawing reference:14/09/LP/01 Issue 4 comprising the following proposed elements:

- 9.7 hectares of new solar panels orientated to face due south
- Perimeter security fencing of circa 2.4m height, constructed of dark green coloured Weldmesh type fencing and with three strands of barbed wire above, with matching gated access for national utilities security compliance
- 1245m length of stockproof fencing for animal grazing measures
- 5no GRP Metering Kiosks circa 2.5m x 3.0m x 2.5m high
- 5no GRP Inverter Kiosks, circa 2.5m x 4.0m x 2.5m in height
- 6no 5m high security camera posts

5.2 The structures are to be positioned as indicated within Figure 2 Proposed Site Layout between or around 30-36m AOD contour height in parallel 9m spaced rows of panels some maximum 2.9m AOD on galvanized frames.

5.3 In visual terms the largest and most visible elements of the system are the arrays of solar modules. (Solar modules are solid state semiconductor devices with no moving parts. They convert light directly into DC electricity silently and without emissions.)

5.4 The solar cells are made from silicon, which is treated to become a semiconductor – essentially a large light-sensitive diode.

5.5 The front surface of the solar modules is toughened glass with an anti-reflective coating to maximise the light captured by the solar cells. From the front, the modules look predominantly black in appearance, though from close-up a grid of silver contacts is visible.

5.6 It is understood that the solar panels are designed to absorb, not reflect, irradiation and hence are responsible for only limited levels of either glint or glare and are less reflective than glass-houses for example.

5.7 Glint may be produced as a direct reflection of the sun in the surface of the PV solar panel, but will be substantially reduced by the anti-reflective coating that the modules incorporate to maximise the light capture of the solar cells and the angle of the panels at 30º.

5.8 Glare is a continuous source of brightness, relative to diffused lighting which is not a direct reflection of the sun, but a reflection of the bright sky around the sun. Glare is significantly less intense than glint; Solar Panel systems are designed to avoid adverse effects from reflected light and thus to conform to the Air Navigation Order 2009.

5.9 Modules are framed with anodised aluminum, and are mounted as sub-arrays on frames of anodised aluminum and hot-dipped galvanised steel which are approximately 4m wide and 2.9m high with the base of each panel being approximately 0.8m above ground level.

5.10 A Module consist of a length of panels supported by a support brace which is driven into the ground and which is removable after the life of the panels (which is currently approximately 25 years lifespan)

5.11 Access to the proposed area of development will be from Cefn Road, via the existing

treatment works access road.

5.12 All areas within the fenced development perimeter will respect the existing field patterns and will remain as grazed pasture with hedgerow boundaries which are likely to support sheep for grazing management.

5.13 Existing security fencing will be utilised as a secure boundary and where new proposed fencing forms an external face it will planted on the external face with a native hedge as indicated on the Proposed Site Layout.

5.14 The proposed development also include other local landscape and ecological mitigation by the creation of native planting and seeding to reflect the local landscape fabric with the aim of screening and integrating the development in the immediate and longer term and the existing Bat Barn will be retained (with preserved access routes) in accordance with Ecological objectives. (refer to the ecological report provided separately).

5.15 10no small kiosks form part of the proposals which are to be located as indicated within Figure 2.

5.16 No new overhead connection infrastructure will be required as part of the proposal and it is considered that the land can easily be restored to agricultural use with no permanent effects if and when required.

5.17 Soft landscape mitigation proposals are described further within Section 7 - Mitigation.

6.0 Landscape and Visual Impact Assessment

6.1 A landscape and visual impact assessment of the existing site was undertaken in August 2014 by a fully chartered Landscape Architect with extensive knowledge of this area of Wales and the Borders and with over 20 years post chartered experience.

6.2 The assessment drew upon earlier assessments carried out, in the general locality, in 2008, 2009 and 2012, and the prevailing weather enabled the assessment to be undertaken in bright and dry conditions with good visibility.

6.3 The landscape assessment is reported first and the visual assessment is reported thereafter.

6.4 The overall assessment considers the landscape and visual impact of the development proposals upon the surrounding area, and describes the impact from major viewpoints and publicly accessible areas, including areas of public open space and public rights of way

6.5 Few areas of openly accessible countryside exist and no common land with access under the CROW Act has been identified.

6.6 The assessment of the proposed development has been considered as a new feature in the landscape and, therefore, the evaluation assesses and compares the current scene, including the land use and presence of existing development such as the new Wrexham Industrial Estate Access Road South in the area, as a baseline condition.

Landscape Assessment

Landscape Context

6.7 The existing wider landscape (where undisturbed) is typical of much of the Wrexham Maelor Area landscape type identified by the Landmap study, comprising relatively level river plain land with numerous established copses, mature field trees and field boundary vegetation.

6.8 Vegetation comprises mainly deciduous woodland of predominantly Oak, Ash, Sycamore, remnant Elm, Hazel and Holly.

6.9 The landscape character descriptions were made before the construction of the Wrexham Industrial Estate Access Road South, which on completion has now altered the character of the immediate area, from largely rural to a more developed Industrial estate hinterland, through the creation of a large scale recently man-made feature introducing frequent movement in an otherwise largely static landscape.

6.10 The site area is also on the periphery of Wrexham Industrial Estate Landscape Character Area and the regional town and infrastructure of Wrexham are visible from site area, as is the existing Wastewater Treatment Works and associated infrastructure.

6.11 The CCW Assessment of landscape types acknowledges the presence and visibility of existing large scale structures within the immediate landscape, including the Five Fords Wastewater Treatment Works and these, together with Clutton's Abbatoir development and the recent Wrexham Industrial Estate Access Road South construction, has consolidated this character as more akin to the Wrexham Industrial Estate Landmap Character zone 11.

6.12 The area of landscape immediately surrounding the proposed development site is partially

more open and fragmented than that of the wider pastoral and smaller scale land identified to the distant south and southwest, as many of the field boundaries and field and hedgerow trees have been removed for large scale farming activities, and the immediate presence of the wastewater treatment works which has led to a locally denigrated landscape.

6.13 The Wrexham Industrial Estate Access Road South meets the Industrial Estate internal road network at a new roundabout north of the River Clywedog, which is lit by high level lighting columns. This highway lighting, together with existing lighting emissions generated by the Industrial Estate and associated signage and vehicles will consolidate the developed landscape character.

6.14 Activity is now centered along the main access routes to the industrial estate which include the new Wrexham Industrial Estate Access Road South, whereby moving vehicles are evident in the largely static landscape and whereby high sided vehicles (circa 4.5m height) are particularly noticeable until the associated highway planting established further.

6.15 The linear riparian vegetation associated with the River Clywedog is a notable linear landscape feature which visually defines the River Corridor landscape and which restricts longer views of the proposed solar site from more distant viewpoints.

Predicted landscape impact proposals

6.16 It is predicted that due to its small scale and its limited visual influence (described later) the proposed solar array will not involve the loss or denigration of any existing landscape feature.

6.17 The overall landscape landform scale and context will be unaffected by the proposal as the development utilises the existing landform and access, and it will not appear evidently incongruous or dominating within the wider landscape fabric.

6.18 As the surrounding landscape is a well wooded, it has the ability to visually absorb and contain the proposed development without an expansive wider landscape influence, and the presence of developed land use immediately adjacent means that the landscape impact will be limited in extent and there will be no change in overall character.

6.19 Furthermore, the addition of the proposed and recent new hedgerow and tree planting will contribute to overall biodiversity potential through habitat provision and linkage to wider habitat areas.

6.20 The planting provision will seek to integrate the development, whilst providing a partial degree of screening, wider ecological benefits (reported separately) and the reinstatement of a vernacular landscape feature of historic origin.

6.21 As stated within Section 2, the degree of magnitude and sensitivity is primarily the ability of the landscape to accept the type, scale, extent and duration of the changes advocated.

6.22 The assessment has considered the baseline landscape type and quality together and the ability of the landscape to absorb the proposed change and assessed the cumulative impact of the new proposals upon the landscape.

6.23 The baseline landscape quality recognises the presence of the new Wrexham Industrial Estate Access Road South in the overall scene and, therefore, the impact potential is lessened from that of a totally despoiled landscape.

Conclusion of Landscape Impact

6.24 The landscape impact of the proposed development is considered to be **slightly adverse or neutral*** at **Day 1** and also at **Year 15,** as post construction mitigation establishes, reinstating the original field boundaries as a landscape feature and reducing potential visibility, and restoring an accepted feature in the overall landscape.* It will only exert a slightly adverse impact when vegetation is leafless and when periods of any identified reflectivity occur which is not predicted to be often and hence normal landscape impact will remain as neutral.

6.25 Although it is an attractive landscape, it is not a designated or protected landscape, and it must be recognised that there is already a significant degree of impact as a result of the presence of the Wrexham Industrial Estate Access Road South and the visible influence of existing large scale structures, lighting and movement within the Industrial Estate itself thereby reducing the overall degree of change and resultant significance of the proposals.

6.26 The proposed development will not affect any existing landscape features or introduce a new landscape feature into the area and the associated mitigation works will replicate an indigenous landscape feature in the form of native hedgerows with hedgerow trees which exist in the landscape character area at present but which are missing from the immediate locality through historic land management practices and the development is temporary whereby the land can be wholly reinstated at the end of its lifespan.

Visual Impact Assessment

6.27 This section assesses the Visual Impact of the existing site as a baseline condition and then compares it with anticipated impact on Day 1 of completion of the proposed development, and at 15 years after completion, in line with the adopted assessment methodology.

6.28 The majority of photograph and receptor viewpoints referred to within the assessment, are contained within Appendix 3 of the appendices and which have been taken using a standard 50mm SLR focal length camera to represent the naked eye.

6.29 The lens and photographs provide an image that is extremely close to how the eye perceives a subject and a natural depth of field to replicate what is normally perceived and demonstrates the contents of the view and its immediate setting.

6.30 The lens has two high-refraction lens elements and optics, helping eliminate astigmatism and suppressing astigmatic differences.

6.31 The zone of visual influence for the proposed scheme has been ascertained from detailed field study and confirms that predominantly, views towards the proposed development are likely to be gained from the south and east; from the former railway line where vegetation permits, and with an opportunity for longer distance but less dominant views, for users of the Industrial Estate Access Road on embankment landscape mitigation works until planting mitigation associated with the road and earlier treatment works expansion establish further.

6.32 Views from the west are predominantly from the existing Public footpath reference PF337; this footpath follows the line of the former railway line running west along the existing site works boundary before turning north and continuing parallel with the proposed site along its southern boundary approximately 120m distant.

6.33 The footpath then continues to meet the existing Treatment works site access road before turning east towards the new Industrial estate access and onward to Bedwell Road at Five

Fords roundabout some 0.9km distant

6.34 All views from the north, south and west are restricted by existing topography and the presence of well established existing vegetation including the vegetation associated with the River Clywedog, the disused railway line, linear bands of hedging with hedgerow trees and the large woodland copse of Marchwiel Covert.

6.35 The predicted views are therefore likely to be very limited and following section describes the predicted visual implications of the proposed development in more detail.

Visual impact of the existing site

6.36 The predicted visibility of the proposed solar array has been compared against the visibility of the existing site area to ascertain any overall increase in extent and type of predicted visual impact.

6.37 Where it is identified that the proposed development would affect the current view the likely impact of the changed view is assessed and categorised as defined within Chapter 2.

6.38 The proposed site area is presently visible as distant farmland from the newly constructed Wrexham Industrial Estate Access Road South, whilst travelling in both directions (North and South) for a distance of approximately 450m and 180m respectively and this is where the majority of receptors may experience a distant view of the proposed development until the proposed soft landscape mitigation planting carried out as part of the road improvement works both within the highway boundary and as 'off site planting mitigation' within the surrounding fields, including hedges and hedgerow trees along field boundaries.

6.39 It is predicted that the proposed site development will not form an obvious feature within the area due to its dark recessive appearance limited height and distance of receptors in the area, however, in the unlikely event that reflection should occur the development would be evident and a focal point but for very short periods of time only.

6.40 Other views of the proposed road are restricted to a few localised areas and include:

- Footpath reference PF 337 When travelling westwards for a length of approximately 450m from Bedwell Road direction towards the proposed site with the existing Waste Water treatments works as a backdrop.
- Footpath reference PF 337 When travelling both north and south for a length of approximately 450 metres parallel with the proposed site from a distance of circa 150m
- A 150m length of Footpath (reference FP 337) from a distance of approximately 10m from along the former railway line where dense and unmanaged trackside vegetation will permit when walking in both easterly and westerly directions.
- Partial views from the Wastewater Treatment Works, albeit with the existing infrastructure in the foreground and from a distance of approximately 300m.

6.41 It is predicted that views will not be available from Cefn Road or the roundabout entrance into the Industrial Estate due to the Industrial Estate Access Road being on a 2m high embankment rising to cross the River Clywedog and thereby forming an effective visual barrier further screened by the presence of established riparian vegetation following the River Clywedog.

6.42 Elsewhere it is predicted that views of the proposed development will be contained by

topography, distance, the depth of existing partially evergreen vegetation along the railway line and its embankment, (which in places is some 2 metres higher than the site) and the abundance of hedgerows and hedgerow trees.

6.43 It should be noted that the existing vegetation is predominantly deciduous, but within the woodland areas and the former railway (which includes the Public Footpath) there are stands of Bramble, Holly and Ivy which are non deciduous and which create a more solid and year round screen.

6.44 From field observation it is predicted that there will be no views of the proposed solar array from populated areas such as Marchwiel or from Pentre Maelor, Cross Lanes or Cefn on the outskirts of Wrexham

Visual Impact Assessment of the Proposed Development.

6.45 The main predicted impact relating to the proposed access is the change in land use and any change in landscape character that may or may not be created, together with any increase in visibility extent.

6.46 The proposed solar array is not anticipated to be of a sufficient scale and content to appear as a visual detractor and will be largely non evident to the majority of receptors located over 0.6km+ distant

6.47 Furthermore the proposed development will not be lit, and will support only low additional traffic movements and will therefore be a relatively static element perceived as part of the adjacent Wastewater Treatment Works operation.

6.48 Figure 6 Visual Impact Tables (within the appendices) provides details of the existing receptors and their predicted level of visual impact.

6.49 It is estimated that **no new** receptors or locations will experience a view of the development on completion and any impact will only relate to existing receptors that will be affected and which include:

- A length of the disused railway line of approximately 100m in Winter months when walking in both directions heavily filtered by existing vegetation (both evergreen and deciduous) and existing Wastewater treatment apparatus on site
- Users of PF337 for a length of approximately 400m when travelling in both directions
- Users of the Wrexham Industrial Estate Access Road travelling in both directions for circa 300m southbound and 450m north bound – a distant and non-dominant view available until mitigation planting establishes
- A temporary circa 50m length of Bedwell Road when travelling northwards which will be unavailable once the vegetation associated with the construction of the Wrexham Industrial Estate Access Road South is established

6.50 For these receptors the impact will be greatest in winter months but will not form a dominant feature of the landscape or view, or be immediately apparent and will therefore constitute **slight impact** on **Day 1** reducing to **no discernible impact** at **year 15**.

6.51 For users of the Footpath reference PF 337, views of Area C will be more open in closer proximity with views the development evident from between 50m to 200m distant albeit behind a hedge planted as mitigation, and whereby the level of detail and clarity will correspondingly reduce with distance.

6.52 For receptors of this area of development the magnitude of the proposal will be slight to moderate as the landuse change from agricultural to developed will be evident although the immediate views will also include the existing large scale water treatment works as a backdrop.

6.53 Views of Areas A and B are obscured from view by the enclosure of the existing works including apparatus and fencing and hence the largest part of the proposed development will not be visible.

6.54 Mitigation hedge planting proposed as part of the scheme will increase the traditional landscape in this area including both the potential capacity for the landscape to absorb the development in addition to the potential for screening for receptors to the south and east.

6.55 **Overall** therefore, the visual impact of the proposed small area of development is predicted to generate a very limited zone of visual influence impacting upon a low receptor number, and to a low degree of magnitude, and therefore the impact will be **slightly adverse** on **Day 1** of opening reducing to a neutral impact at **Year 15.**

Construction Impacts

6.56 The visual impact of the scheme will initially relate to the fencing and delivery of apparatus, whereby moving machinery will be evident which will be similar in nature to the daily access and maintenance operations associated with the existing adjacent works.

6.57 It is estimated that the construction period will last approximately 4 months.

6.58 The most evident impact will be for users of the Wrexham Industrial Estate Access Road South and, FP 337 who will discern the increased movement in passing the site and in closest proximity to the works. However, these impacts will be both temporary and short term.

7.0 Mitigation

7.1 In developing the proposed layout of the proposed development, a number of factors have been investigated to 'design out' and avoid adverse landscape and visual impact wherever possible, and to help assimilate the proposals into their setting and the wider landscape character which reduces the need for subsequent post completion mitigation requirements by avoiding adverse impact.

7.3 The relatively small scale of the proposal and the selection of the proposed development area has meant the development is unlikely to require substantial post construction mitigation to avoid adverse visual impact.

7.3 However in preparing the proposal consideration of the following was an integral part of the design process:

- The overall layout has been kept to the minimum footprint achievable.
- The layout has respected existing field boundaries and vegetation extents and has sought to retain and strengthen them
- Existing natural hedgerow boundaries will be reinforced by additional native planting, in the form of a native hedgerow and hedgerow trees running parallel with the proposed route
- Structures such as the proposed kiosks are of a scale, colour and position on site selected to reduce adverse impact
- The proposed planting species have been selected to assist the net biodiversity gain of the site, as well as screening potential and to strengthen links with wider wildlife corridors and this approach has been developed from the outset with the ecological consultant for the project. All species already exist within the immediate and wider area.
- Plant species selected for the development will therefore be indigenous to the area and will aid landscape integration in the long term
- Construction materials selected for use are already present in the immediate area

7.4 Soft Landscape Mitigation proposals are shown within Figure 4 of the appendices.

8.0 Summary and conclusion

8.1 A landscape and visual impact assessment of the proposed solar array site has been undertaken in accordance with established methodology advocated by the Landscape Institute and Institute of Environmental Assessment, which has involved both background research and fieldwork in clear conditions by a practioner with extensive knowledge of the area.

8.2 The proposed solar array would be located within a landscape type which is capable of absorbing the development without wider adverse landscape impact and although attractive the landscape has no formal protective designation.

8.3 The proposal has been assessed in its context, and it is predicted that the development will not necessitate any significant changing of levels, loss or creation of incongruous features, introduction of new landscape features or alteration of landscape type and, hence, there will be no adverse or permanent landscape change.

8.4 The scheme will not impact upon any key landscape characteristics identified in the Landmap survey of the surrounding landscape, and the landscape sensitivity is readily able to absorb the changes proposed, as similar man made components are already present immediately adjacent to the proposed development.

8.5 Mitigation measures such as planting parallel with the proposed security fencing form part of the proposals and these have been incorporated for screening the fencing as well as strengthening landscape features which are notably absent in the area.

8.6 It is considered that given the low number of potential receptors, the mitigation measures proposed to further reduce immediate views, the short term landscape impact will be slightly adverse or neutral and the long term impact of the proposals upon the landscape will be neutral.

8.7 The visual impact assessment of the proposed development has concluded that a very small number of receptors will experience a slight adverse impact on Day 1 where a change in landuse may be evident and which will reduce to a neutral impact at Year 15, when the mitigation works have established and the development has become an accepted feature in the wider developed area.

8.8 The potential overall increase in adverse landscape and visual impact is tempered by the presence of the adjacent large scale structures of waste water treatment works which provides effective screening whilst also providing a dominant landscape feature which influences the existing landscape character and quality, thus enabling the proposed development to be assimilated and absorbed effectively.

APPENDICES

List of Figures

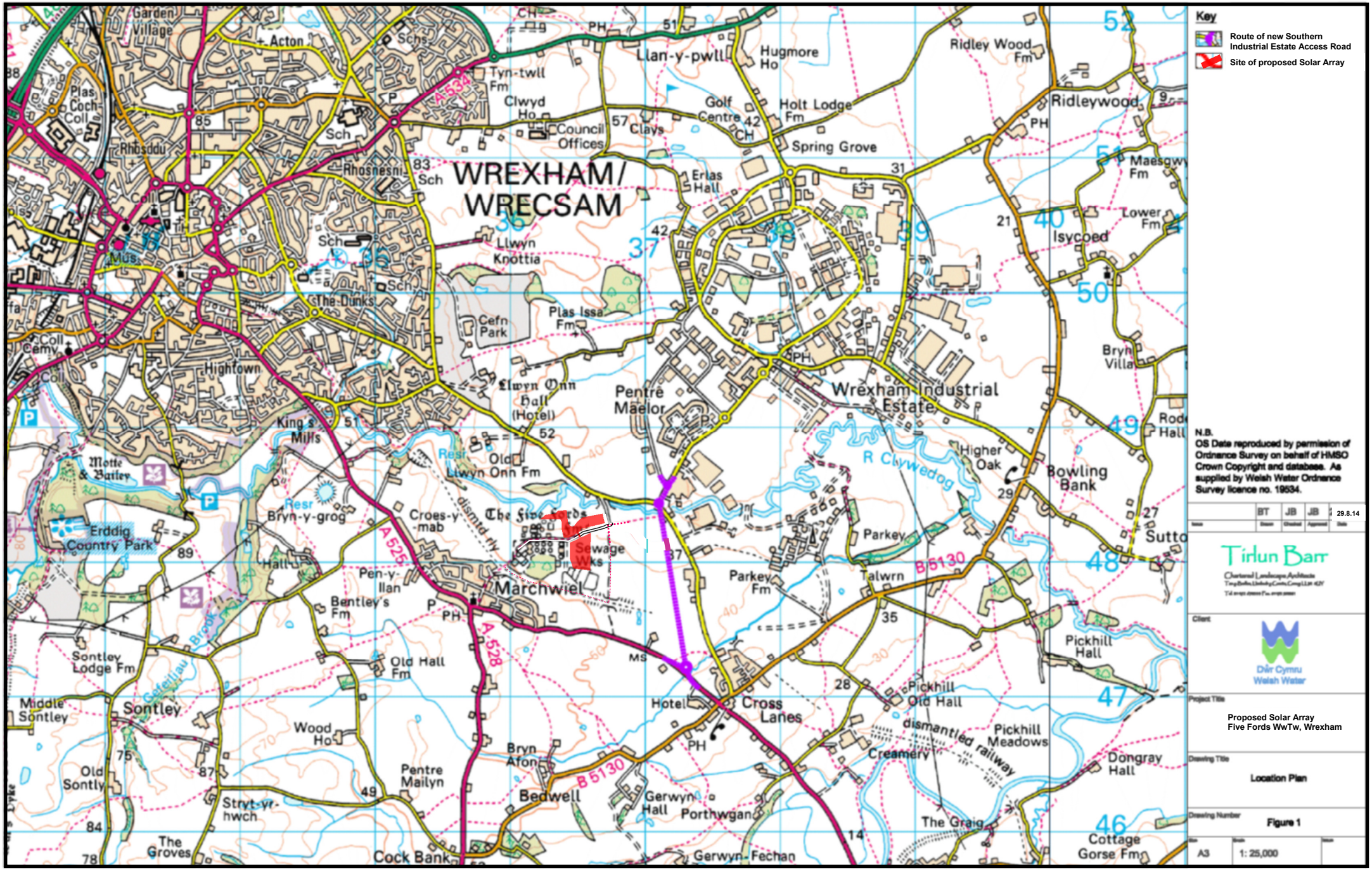
Figure 1 *Site location plan*

Figure 2 *Proposed Layout Plan*

Figure 3 *Photographs of the site and surrounding area (Sheets 1-9)*

Figure 4 *Landscape Context Plan showing photograph location points*

Figure 5 *Visual Impact Tables*


WREXHAM/
WRECSAM
Marchwiel
Bedwell
Sontley
Middle Sontley
Cross Lanes
Hotel
Wrexham Industrial Estate
Pentre Maelor
Llwyn Onn Hall (Hotel)
Old Llwyn Onn Fm
Plas Issa Fm
Cefn Park
Llwyn Knottia
Erlas Hall
Spring Grove
Holt Lodge Fm
Golf Centre
Council Offices
Llan-y-pwll
Hugmore Ho
Ridley Wood Fm
Ridleywood
Isycoed
Maesgwyn Fm
Lower Fm
Bryn Villa
Bowling Bank
Higher Oak
R Clywedog
Parkey
Parkey Fm
Talwrn
Pickhill Hall
Pickhill Old Hall
Pickhill Meadows
Creamery
dismantled railway
Dongray Hall
The Graig
Cottage Gorse Fm
Gerwyn Hall
Porthwgan
Gerwyn-Fechan
Cock Bank
The Groves
Stryt-yr-hwch
Pentre Mailyn
Bryn Afon
Wood Ho
Old Sontley
Sontley Lodge Fm
Old Hall Fm
Bentley's Fm
Pen-y-llan
Croes-y-mab
Bryn-y-grog
Old Hall
Erddig Country Park
Motte & Bailey
King's Mills
Hightown
Coll Cemy
The Dunks
Rhosddu
Rhosnesni
Plas Coch Coll
Garden Village
Acton
Tyn-twll Fm
Clwyd Ho
Clays
Sewage Wks
The Five Fords
A525
A528
B5130
A534
Key
Route of new Southern Industrial Estate Access Road
Site of proposed Solar Array
N.B.
OS Data reproduced by permission of Ordnance Survey on behalf of HMSO Crown Copyright and database. As supplied by Welsh Water Ordnance Survey licence no. 19534.
BT JB JB 29.8.14
Drawn Checked Approved Date
Tirlun Barr
Chartered Landscape Architects
Client
Dŵr Cymru Welsh Water
Project Title
Proposed Solar Array
Five Fords WwTw, Wrexham
Drawing Title
Location Plan
Drawing Number
Figure 1
Size
A3
Scale
1: 25,000
Issue

DCWW Five Fords Solar Array- Proposed Planting Schedule				
Species	**Size**	**Form**	**Mix%**	**Specification/Notes**
Native Scrub Belt- To be planted in staggered rows at 1no/m²				
Crataegus monogyna	450-600mm	Br	60%	1+2
Ilex aquifolium	450-600mm	Ctr	5%	Minimum 3 Breaks in lower third
Prunus spinosa	250-400mm	Rtr	30%	root trainer
Sambucus nigra	450-600mm	Br	5%	1+1 (cut back by a third before planting)

DCWW Five Fords Solar Array- Proposed Planting Schedule				
Species	**Size**	**Form**	**Mix%**	**Specification/Notes**
Native Hedgerow Mix- To be planted in a double staggered row at 5/lin.m 450mm apart				
Corylus avellana	450-600mm	Br	10%	1+2
Crataegus monogyna	450-600mm	Br	65%	1+2
Ilex aquifolium	450-600mm	Ctr	5%	Minimum 3 Breaks in lower third
Prunus spinosa	250-400mm	Rtr	10%	root trainer
Rosa canina	450-600mm	Br	5%	1+1 (cut back to one third)
Viburnum opulus	450-600mm	Br	5%	Minimum 3 Breaks in lower third
Br Bare rooted				
Ctr Container grown				
Rtr Root trainer				
Rb Rootballed				
Seeding Proposals				
Land beneath Solar Panels to be sown with a Herb Rich Grassland mix, **Emorsgate EM2** - Standard General Purpose Meadow Mixture or similar approved.				

AREA A

AREA B

AREA C

Existing Bat Barn to be retained

Existing trees to remain

Proposed 1m wide native hedgerow outside proposed fence

Proposed 1m wide native hedgerow outside proposed fence

Proposed native shrub belt

Existing tree to remain

Existing native Hedgerow to be retained and strengthened

Existing Five Fords Waste Water Treatment Works

Marchwiel Covert

Route of Public Footpath

Water Treatment Works

ESS's

SM

Sluices

Pond

Ponds

ETL

Cottage

Issues

Key

- Proposed south facing solar panel general arrangement
- Existing security fencing to remain (2.3m + 3 rows of barbed wire)
- Proposed security fencing 2.4m high Weldmesh with 3 strands of barbed wire above (2.8m total height) in dark green with matching posts
- Proposed 1.2m high stockproof fencing with additional single barbed wire strand to base
- Proposed security fencing 2m high Weldmesh in dark green with matching posts
- Proposed native hedgerow
- Proposed native shrub belt
- Existing native vegetation
- Existing native hedgerow
- Route of existing gas pipeline with 6m wide easement
- Route of existing public footpath (ref FP337)
- Area proposed to be managed as longer grassland to provide wildlife cover
- Proposed 2.5m x 3m x2.5m high GRP Metering Kiosk
- Proposed 2.5m x 4m x2.5m high GRP Inverter Kiosk
- Proposed Security Camera on 5m high post

N

Issue	Drawn	Checked	Approved	Date
Issue 4	JB	PW	JB	09/09/14

Tírlun Barr

Dŵr Cymru Welsh Water

Project Title

Five Fords Solar Array, Wrexham

Drawing Title

Proposed Layout 14/09/LP/01

Drawing Number Figure 2

Size	Scale	Issue
A1	1:1250	



Plate 1– Photograph taken from the A541 approach8ign Marchwiel looking towards the proposed site
Distance from site : Circa 0.5 km Visibility : Bright Height circa 53m AOD Date 05/08/14



Plate 2– Photograph taken from the pavement along the A541 looking towards the proposed site
Distance from site : Circa 0.6 km Visibility : Bright Height circa 52m AOD Date 05/08/14

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.
August 2014

FIGURE 3

Site Photographs Sheet 1



Plate 3– Photograph taken from adjacent to St Deiniols school looking north east towards the proposed site

Distance from site : Circa 0.7km Visibility : Bright Height circa 60m AOD Date 05/08/14



Plate 4– Photograph taken from the route of Public Footpath 337 looking north west towards the proposed solar array

Distance from site : Circa 400m Visibility : Bright Height circa 50m AOD Date 05/8/14

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 2



Plate 5– Photograph taken from the route of Footpath PF337 looking towards the proposed site with e field of maize between the site and receptors

Distance from site : Circa 200m Visibility : Bright Height circa 100m AOD Date 05/08/14



Plate 6– Photograph taken from the roundabout of the new Southern Access Road entrance looking west towards the proposed solar array location

Distance from site : Circa 0.5km Visibility : Bright Height circa 40m AOD Date 05/08/14
NB Plate reduced in size for printing

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 3

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.



Plate 7– Photograph taken from the layby of the southern access road into the industrial estate looking directly towards the proposed site

Distance from site : Circa 0.5km Visibility : Bright Height circa 45m AOD Date 05/08/14



Plate 8– Photograph taken from the existing Tetrapak entrance looking over the southern industrial estate access road looking west towards the proposed site

Distance from site : Circa 0.6km Visibility : Bright Height circa 430 m AOD Date 05/08/14

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 4



Plate 9– Photograph taken from the layby entrance to Llwyn Onn Treatment Works looking south towards the proposed sit09
Distance from site : Circa 1.0km Visibility : Bright Height circa 55 m AOD Date 05/08/14



Plate 10– Photograph taken from within the site looking north west over Area A

Distance from site : Circa 0.0km Visibility : Bright Height circa 45m AOD Date 105/08/14

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 5

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.



Plate 11– Photograph taken from within the existing site looking north over Area A

Distance from site : Circa 0m Visibility : Bright Height circa 45 m AOD Date 05/08/14



Plate 12– Photograph taken from within the existing site looking south towards Area B

Distance from site : Circa 0.m Visibility : Bright Height circa 45 m AOD Date 05/08/14

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 6



Plate 13– Photograph taken from within the existing works looking south east towards Area C

Distance from site : Circa 100m Visibility : Bright Height circa 48 m AOD Date 05/08/14
NB Photo size reduced to facilitate printing



Plate 14– Photograph taken from within the proposed Area C looking south

Distance from site : Circa 0m Visibility : Bright Height circa 48 m AOD Date 05/08/14

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 7



Plate 15– Photograph taken from the proposed and existing site access route looking north west over Area C with Area B to the right of the plate

Distance from site : Circa 100m Visibility : Bright Height circa 45 m AOD Date 05/08/14



Plate 16– Photograph taken from the junction of the existing site access route with Footpath FP337 looking south west towards the proposed site with Area B to the right of the plate

Distance from site : Circa 120m Visibility : Bright Height circa 45 m AOD Date 05/08/14



All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 8



Plate 17—Photograph taken from Public Footpath PF337 looking west towards the proposed solar array site with Area B to the right of the plate beyond the hedgerow.

Distance from site : Circa 75m Visibility : Bright Height circa 45 m AOD Date 08/05/14



Plate 18– Photograph taken from the existing access road looking south west over the Solar Array proposed Area C

Distance from site : 10m Visibility : Bright Height circa 45m AOD Date 05/08/14
NB plate reduced in size for printing

All photographs taken with a Standard 50mm lens and assembled using Photoshop unless indicated otherwise.

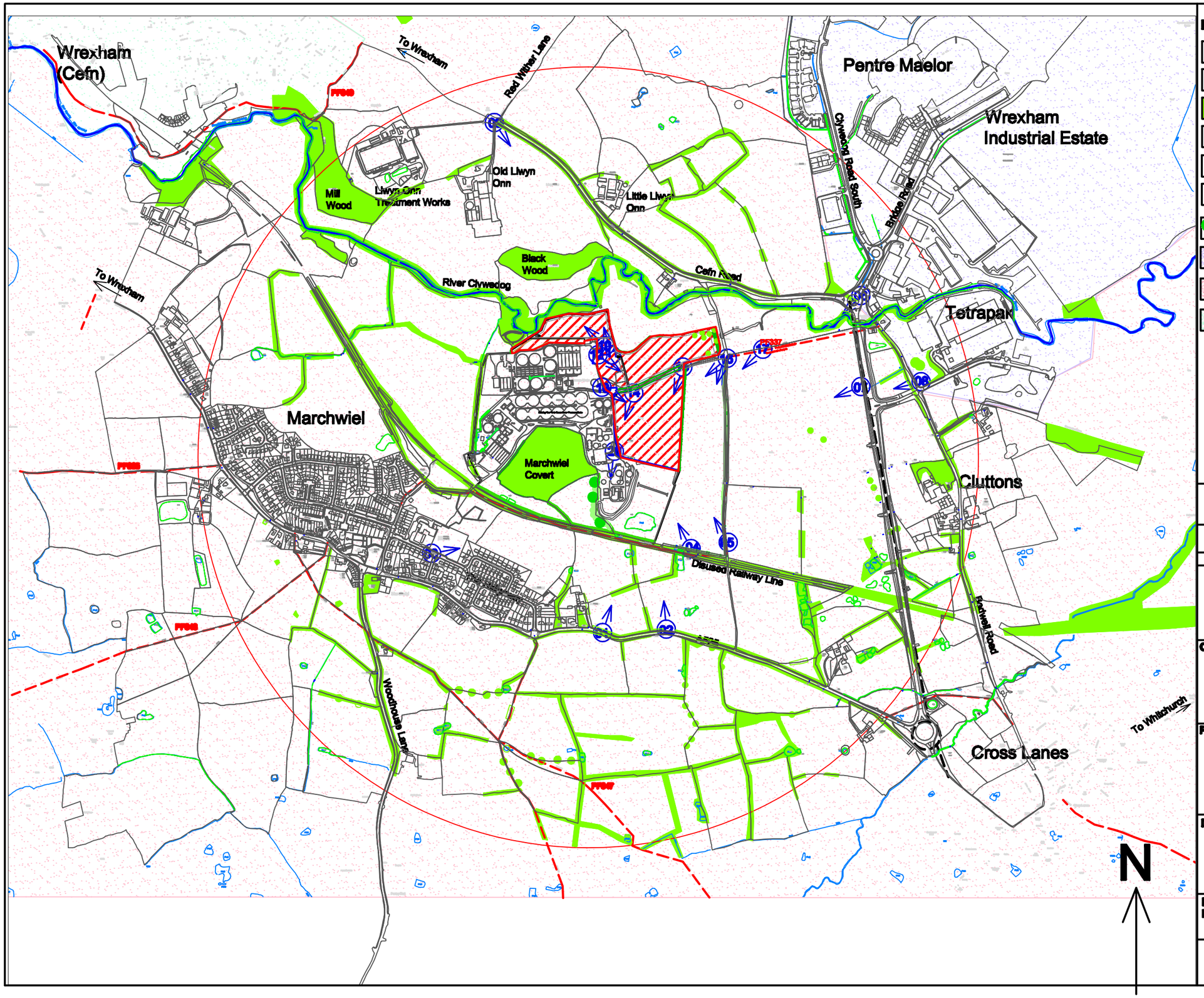
Tirlun Barr Associates

Five Fords Solar Array, LVIA.

August 2014

FIGURE 3

Site Photographs Sheet 9



Key

- Proposed site location
- River Clywedog
- Significant areas of vegetation (within 15m zone)
- Public footpaths and rights of way (reference No. as shown)
- 15m site radius
- Photograph location points (refer to figure 3 for photographs of the proposed site and landscape context)
- Proposed native hedgerow with hedgerow trees
- Landscape character area 11- Wrexham Industrial Estate area
- Landscape character area 10a- Welsh Maelor landscape area
- Landscape character area 10- Wrexham Town

Final	PW	JB	JB	08-09-14
Issue	Drawn	Checked	Approved	Date

Tirlun Barr
Chartered Landscape Architects

Client: Dŵr Cymru Welsh Water

Project Title: Five Fords Solar Array, Wrexham

Drawing Title: Landscape and Visual Impact Assessment : Landscape Context

Drawing Number: Figure 4

Size	Scale	Issue
A3	1 : 10 000	Final

Proposed Solar Array Five Fords WwTW, Wrexham

FIGURE 5

PREDICTED VISUAL IMPACT (Day 1) and after MITIGATION (Year 15)

Location	Viewpoint reference	Description/notes	Distance (At closest point)	Magnitude	Sensitivity of receptor	Nature of impact				Impact Year 1	Impact Year 15 with mitigation
						st	lt	r	ir		
World heritage sites		None									
Designated landscapes		None									
	-										
Historic Landscape areas	-	None									
Long distance routes		None									
Settlements	**Marchwiel**	Linear village centred along a minor ridge to the west of the proposed site area. Village and proposed road physically and visually separated	0.8km	Low	High					n	n
Public Footpaths	-	PF 347 Footpath to south of Marchwiel	0.9m	Low	High					n	n
	-	PF 348Footpath to south west of Marchwiel	1.0km	Low	High					n	n
		PF 337 Footpath along former railway line to south of proposed site and contiguous with the proposed development for a length of circa 350m Lengths immediately adjacent to proposed development.	100m	High	High					ma for affected length only all other areas no change	sla for affected length only all other areas no change as vegetation screens between receptor and site establishes
Other access public areas		**Marchwiel St Deiniols Primary School Playing fields.** No view	0.6km	Low	High					n	n

Proposed Solar Array Five Fords WwTW, Wrexham **FIGURE 5**

PREDICTED VISUAL IMPACT (Day 1) and after MITIGATION (Year 15)

		Marchwiel nature reserve area No view	1.4km	Low	High					n	n
Transport routes	Plate ,	**A525** Views of the site are not available and are restricted by existing vegetation and topography and limited opportunities exist to glimpse towards the proposed site from the pavement to the east of Marchwiel through existing dense vegetation	600-800m	Low	Low					n	n
	Plate	**Bedwell Road** Views towards the proposed road are limited by the new Industrial estate access road on embankment with associated mitigation planting glimpses may be available until vegetation establishes	700m at closest point	Low	Low					sla	n
Cefn Road		**Cefn Road** No views available due to relative topography and the presence of existing riparian vegetation vegetation alongside the River Clywedog and by the new Southern access road bridge crossing on embankment	150m	Low	Low					n	n
Clywedog Road South		**Clywedog Road South** No views from this road located within the industrial estate as existing vegetation and relative topography prevents views	550m	Low	Low					n	n
Southern industrial estate access road	-	**New by pass** - This new route will passes east of the proposed site by circa 500m distant. Views towards the site will be negligible due to small scale of development and distance of receptors in both	0.5km	low	Low					ma	sla

Proposed Solar Array Five Fords WwTW, Wrexham **FIGURE 5**

PREDICTED VISUAL IMPACT (Day 1) and after MITIGATION (Year 15)

		directions of travel . Mitigation associated with the road and proposed scheme will reinstate the hedgerow landscape feature. Views also incorporate the existing industrial estate development and treatment works and similar character landscape elements									
I**ndividual named properties**											
Holly hedge on A528		No view	0.4km	moderate	High					n	n
Pentre maelor	-	No views from this area of housing	700m	Low	High					n	n
Old Llywn Onn	-	No views existing vegetation prevents views	550m	Low	High					n	n
Little Llwyn Onn	-	Potential views screened by existing vegetation and orientation no predicted views	400m	low	High					n	n
Tyddyn Daniel	-	No existing or predicted views	750m	low	High					n	n
Cartref	-	No existing or predicted views	800m	low	High					n	n
Parkey Farm	-	No existing or predicted views due to southern access road raised levels and vegetation	1.1km	Low	High					n	n
Properties at Cross Lanes	-	No existing or proposed views due to juxtaposition levels, the construction of the Southern Industrial Estate Link Road and existing vegetation	1.20m	Low	high					n	n
Cefn Road		No views due to juxtaposition of development and dense vegetation between	250m	low	high						

Proposed Solar Array Five Fords WwTW, Wrexham **FIGURE 5**

PREDICTED VISUAL IMPACT (Day 1) and after MITIGATION (Year 15)

Businesses											
Industrial estate southern extent	-	View limited by the presence of the new Southern Access Road to the Industrial Estate including the elevated bridge over the River Clywedog and established riparian vegetation.	400m	Low	Low					n	n
Cluttons/Maelor Abbatoir	-	Partial filtered view from rear of existing sheds only in Winter which will be screened in the future by the proposed by pass	750m	low	Low					n	n

Impacts Key:

Impact

sa = Substantial adverse impact

ma = Moderate adverse impact

sla = Slight adverse impact

n = Neutral impact

sba= Slight beneficial impact

mb = Moderate beneficial impact

sb = substantial beneficial impact

Nature of impact

st = short term

lt = long term

r = reversible

Ir = irreversible

Magnitude and sensitivity

N = Negligible

L = Low

ML= Medium low

MH = Medium high

H = High