



Craig y Perthi Solar Farm

Environmental Statement

Chapter 10: Summary of Effects and Mitigation

Prepared for



JBM Solar Projects 25 Limited

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10.0 SUMMARY OF EFFECTS AND MITIGATION

10.1 Introduction

- 10.1.1 This Environmental Statement (ES) has been prepared in support of Pre-Application Consultation for a DNS application to be made by JBM Solar Projects 25 to Planning and Environment Decisions Wales for the construction and operation of a solar farm, associated battery energy storage facility and associated infrastructure ('the Proposed Development'). The Proposed Development would be located to the east of Newport, on farmland that is not considered Best and Most Versatile agricultural land. However, the Proposed Development would allow sheep farming to continue in conjunction with the installed solar arrays.
- 10.1.2 The Proposed Development would be operational for a period of 40 years, after which it would be decommissioned and the Site returned to its previous agricultural use, unless planning permission is secured for continued operation.
- 10.1.3 The solar array would be capable of exporting approximately 99.9 MW of renewable electricity to the local electricity distribution network, which is equivalent to the demand of approximately 45,374 typical Welsh homes and result in an approximate saving of over 3,180,368 tonnes of CO₂ over the life of the development, compared with generation from fossil fuels.
- 10.1.4 The likely significant effects of the Proposed Development, as assessed and reported in ES Chapters 5.0 to 9.0, are summarised below.

10.2 Landscape and Visual

- 10.2.1 Locating the Proposed Development in medium to large and relatively contained regular fields within a gently sloping to flat, well-vegetated landscape, is deemed appropriate for solar development. The sensitive siting and location of the Proposed Development also minimises the wider impacts on landscape character, landscape relevant designations and nearby visual amenity receptors.
- 10.2.2 Existing field boundary vegetation would be protected and enhanced where practicable. The reens focussed within the flat landscape would be sensitivity managed and enhanced, to retain and improve the landscape pattern, as well as for nature conservation and biodiversity benefits. Hedgerow and tree infill planting to



- existing boundaries would also improve screening and promote the field pattern and regular landscape structure. In addition, the planting of new hedgerows, scattered tree and woodland planting would also provide additional screening and enclosure to the Proposed Development as well as nature conservation and biodiversity enhancements.
- 10.2.3 The existing vegetated landscape would also ensure that the Proposed Development would only have wider minimal effects on both landscape character and visual amenity receptors and their views during construction and de-commissioning, other than in the immediate vicinity of construction activity.
- 10.2.4 During the operational period, the Proposed Development would largely only be perceived in close proximity, from the settlement fringes of Bishton and from the PRow, minor roads and railway line that cross and border the Site. Elevated but distant views of the Proposed Development would also be possible from selected exposed and open locations as the landform rises broadly to the north.
- 10.2.5 Although visible, the Proposed Development would be viewed as a contained built element, within a regular and well-vegetated landscape which has already been influenced by infrastructure and development. The majority of effects on landscape character, landscape relevant designations and visual amenity receptors and their views will therefore be neutral largely because of the enclosure provided by the surrounding numerous lines of dense hedgerows and trees within the landscape and the screening vegetation focused on residential properties, settlements and transport corridors in the wider landscape.
- 10.2.6 With regard to the landscape character areas, the Proposed Development would directly affect the selected aspect areas, as defined by LANDMAP, but would not dramatically change the characteristics of the wider landscape or affect the integrity or setting of landscape relevant designations. The Proposed Development would be perceived in close proximity and from further afield to the north but would be viewed as a contained built element, within a well-vegetated landscape. The Proposed Development would integrate within the existing field pattern and would not be out of scale with the surrounding landscape. The enhanced management, maturing and reinforcement of the existing retained vegetation, with selected infill planting to



retained hedgerows and extensive proposed hedgerow, tree and woodland planting, would help to further integrate the Proposed Development into the landscape pattern.

10.2.7 Exposed views of the Proposed Development from visual amenity receptors would be limited and will be generally only from those receptors in close proximity or from more distant and elevated locations to the north as well as where there are gaps in the nearby enclosing vegetation.

10.2.8 The growth of the proposed landscape mitigation measures, as shown in the Illustrative Landscape Masterplan, including selected infill planting of the existing retained boundaries, would help to restrict even further potential views of the Proposed Development, particularly for those receptors in close proximity, over time.

10.3 Ecology

10.3.1 The assessment site comprises arable and managed grassland habitats enclosed by species poor hedgerows, some with trees. Reens and ditches are associated with field boundaries in the southern area which is part of the Gwent Levels – Redwick and Llandeenny SSSI.

10.3.2 Species specific surveys have been completed for great crested newt (eDNA), common dormouse, water vole, aquatic invertebrates, shrill carder bee and aquatic plants.

10.3.3 Adverse effects are predicted for a number of valued receptors from unmitigated construction and operational phase impacts including statutory sites, non-statutory sites, priority habitats, protected and notable species.

10.3.4 By adopting the following secondary mitigation, significant adverse effect can be avoided with predicted positive outcomes for interest features of Gwent Levels - Redwick and Llandeenny SSSI, amphibians, bats, otter, fish, reptiles, invertebrates and aquatic plants:

- i) Exclusion zones to boundary features protected by a suitable fence. Damping down during dry periods.
- ii) No night works.
- iii) Restoration of construction areas following completion of development.
- iv) HDD employed for passage under boundary features.



- v) Adoption of a ditch management plan.
- vi) Hedgerow management in winter months.
- vii) Creation of Shrill Carder bee habitat.

10.3.5 Residual effects are not likely to be significant.

10.4 Ornithology

- 10.4.1 Assuming all mitigation (embedded and secondary) is implemented as detailed in the LEMP, adverse residual impacts on the ornithological interest of the application area will be limited to the displacement of breeding and wintering lapwing and wintering snipe.
- 10.4.2 Overall, the positive, long-term impacts of proactive habitat creation and management for wildlife including reed management are considered to be significant beneficial for birds at the local level and will benefit a number of Section 7 species including Amber and Red-listed birds of conservation concern. The Proposed Development may result an enhancement of grassland botanical diversity that could result in a significant beneficial effect to birds at a Local level.
- 10.4.3 The ornithological assessment has shown that a suite of bird species utilize the site throughout the year, both for breeding and winter foraging, shelter and roosting. This includes some species associated with statutory nature conservation sites and species of conservation concern.
- 10.4.4 The assessment concludes that the application area does not form a core area for any SPA/Ramsar species, with no significant numbers of any individual species identified.
- 10.4.5 The construction of the arrays will not impact on the integrity of the nearby SSSIs. Although snipe have been recorded occasionally using single field compartments, the residual effect upon the Seven Estuary SSSI is not considered to be significant.
- 10.4.6 The majority of ornithological interest on the application site is of site or local value and the Proposed Development would not result in significant effects.
- 10.4.7 A number of land management proposals associated with the development can result in positive impacts for both wintering and breeding species.



10.5 Cultural Heritage

- 10.5.1 The implementation of a programme of archaeological investigation would reduce the magnitude of impact on buried archaeological remains from up to Medium down to Negligible. The consequent level of effect would therefore be Negligible Adverse or Minor Adverse which is not significant in EIA terms. The effect would remain permanent.
- 10.5.2 The implementation of the programme of examination of the deposit sequence within the former wetlands of the Gwent Levels would reduce the magnitude of impact on deposits of palaeoenvironmental interest from Low to Negligible. The consequent level of effect would therefore be Negligible Adverse or Minor Adverse, which is not significant in EIA terms. The effect would remain permanent.
- 10.5.3 The assessment of effects on aspects of cultural heritage presented within this chapter of the ES has identified one significant adverse effect. This is in relation to Historic Landscape Character Area (HLCA) 009 Green Moor which is a defined area of historic landscape in the southern part of the Site, and which represents the northern edge of the former wetlands known as the Gwent Levels. This flat land to the north of the South Wales Main Line railway was previously back-fen, i.e., that part of the former wetlands closest to the solid ground, which rises to the north.
- 10.5.4 Although the Site incorporates part of the Gwent Levels, that part of HLCA009 Green Moor within the Site is outside the registered Gwent Levels Landscape of Outstanding Historic Interest and is separated from the registered historic landscape by the substantial developments at the Llanwern Steelworks and the Gwent Europark, the latter including large wind turbines as well as substantial commercial buildings. Nonetheless, the part of HLCA009 Green Moor within the Site makes some contribution to the overall significance of the registered historic landscape as a reasonably well-preserved area of former back-fen. The assessed Moderate Adverse effect on HLCA009 Green Moor would be time-limited and fully reversible.
- 10.5.5 Other adverse effects on aspects of cultural heritage are Minor or Negligible and are not significant in EIA terms. Where possible and appropriate, impacts have been avoided or reduced through embedded mitigation within the scheme design or through proposed programmes of further investigation.



10.6 Hydrology and Flood Risk

- 10.6.1 The Site is currently agricultural land, which is understood to be a mix of pasture and arable uses. Current land practices are to leave fields bare after harvest which can negatively impact the local waterbodies. The proposed cable route will follow existing roads, predominantly adopted highways.
- 10.6.2 The topography of the site varies, which in turn determines its hydrological landscape. The northern and western parts slope steeply down to the lower lying and flatter southern and eastern areas.
- 10.6.3 There are three principal watercourses local to the site. The Monks Ditch flows to the west of the site. The Waltwood Brook flows through part of the western portion of the site. The Wilcrick Brook flows through the eastern portion of the site. In addition, the lower lying parts of the site fall within the Caldicot and Wentlooge Levels Internal Drainage District (IDD), which is characterised by a network of watercourses and reens. It also houses the Gwent Levels – Redwick and Llandevenny SSSI.
- 10.6.4 To the south (downstream) of the site are two rail lines, which are elevated above local ground levels. The principal watercourses flow through culverts beneath these features, which influences their flow regime.
- 10.6.5 The Water Framework Directive classifies the Monk's Ditch as having an overall Moderate status. The other watercourses, particularly the reen network, do not have similar monitoring data available. However, their conditions are likely to be impacted by the local land management and agricultural practices.
- 10.6.6 NRW Reen and Ditch Habitat Surveys undertaken on Main Rivers and IDD viewed reens within the SSSI have been referred to, to inform the assessment. The surveys identify if reens are favourable or unfavourable based on the presence of submerged vascular plants. The survey results show that the IDD reens were favourable in 2011, with two failing in 2017. One Main River survey failed in 2011 but had improved in 2017.
- 10.6.7 The Development Advice Map (DAM) Zones classify low-lying parts of the site to be in within Zone C1 - Areas of the floodplain which are developed and served by significant infrastructure, including flood defences (s). This classification includes the risk of tidal flooding and flooding from watercourses.

- 10.6.8 The geology beneath the site is varied but likely to be impermeable across the site. Groundwater levels are likely to be close to the surface in the lower lying parts of the site.
- 10.6.9 The embedded mitigation includes measures to manage rainwater at source, allowing it to percolate into the ground as per the existing site. Measures include using permeable access tracks and directing runoff from containerised infrastructure to gravel beds.
- 10.6.10 Good construction and operational precautions will manage the risk of soil compaction, spills and pollution incidents (which are likely to be very low frequency given the site use and activities).
- 10.6.11 The significance of the effect construction on pollution is therefore considered to be Minor to Moderate Adverse.
- 10.6.12 The Site performs a flood risk function by storing water upstream of the railway line. The significance of the effect of construction on local flood risk is therefore considered to be Minor to Moderate Adverse.
- 10.6.13 During operation, the cessation of intensive agricultural activities will have beneficial effects in terms of runoff rates and water quality. The establishment of a healthy soil ecosystem is therefore assessed as having a moderate to minor beneficial impact to both water quality and flood risk.
- 10.6.14 The panels themselves will be raised above the predicted flood level inclusive of climate change, where relevant. No vulnerable infrastructure or construction compound will be located in areas of flood risk. The significance of change in relation to flood risk is there assessed as negligible.
- 10.6.15 During construction, secondary mitigation would include preparing soil for seeding through tilling where soil has become compacted.
- 10.6.16 Given the overall benefits of the Proposed Development during operation, no further mitigation is required.



10.7 Cumulative Effects

- 10.7.1 With respect to cumulative landscape and visual effects, the addition of the Proposed Development, in combination with other renewable energy schemes in the study area would not create a solar landscape or dramatically change the views from surrounding visual amenity receptors into a view dominated by solar schemes.
- 10.7.2 In terms of effects on landscape and views, the addition of the Proposed Development, in combination with other renewable energy schemes in the study area would not create a solar landscape or dramatically change the views from surrounding visual amenity receptors into a view dominated by numerous solar schemes. Even when perceived with other consented and under determination industrial and housing developments, largely focussed on and associated with the surrounding settlement fringes, will not create a landscape or views dominated by development.
- 10.7.3 It is unlikely that any of the cumulative development identified would lead to any adverse cumulative effects on ecology, given that either no significant effects were identified for those schemes where ecological assessment was undertaken, or no objections were raised for the schemes where specific ecology assessment was omitted. Whilst it is recognised that a number of developments with non-significant effects could cumulatively give rise to significant effects, this is considered unlikely given the physical separation between these schemes and the enhancement measures that many of these schemes included.
- 10.7.4 In terms of local bird populations and their supporting habitats, it is unlikely that any of the cumulative developments would lead to an adverse cumulative effect in relation to ornithology as there is no overall loss in breeding bird habitat as a result of these developments. The majority of the cumulative developments do not impact upon ornithologically sensitive areas, there is a displacement of breeding bird habitat associated with the Rush Wall Solar Farm development in a similar way to the Proposed Development. However, the combined total (Rush Wall Solar Farm and the Proposed Development) would result in 38 ha of land managed specifically for breeding lapwing, which would likely provide a large positive benefit for local lapwing populations.



- 10.7.5 With respect to cultural heritage, there are two cumulative developments, both solar farm developments, within the vicinity of the Proposed Development. These are the Rush Wall Solar Farm and the solar farm element of the Magor Net Zero project. The greatest contribution to any cumulative effects on the Gwent Levels Landscape of Outstanding Historic Interest would come from the Rush Wall Solar Farm and the solar farm element of the Magor Net Zero project as they are located wholly within the registered historic landscape whereas the Proposed Development is wholly outside the registered area.
- 10.7.6 Regarding hydrology and flood risk, the fundamental aims of PPW and TAN15 is to ensure that development sites manage flood risks within their area and mitigate impacts to third parties. As a result, there is limited opportunity for cumulative impacts.
- 10.7.7 The impacts from the Proposed Development would be negligible, or minor to moderate beneficial. It is therefore likely that the two identified schemes would also deliver similar benefits. Therefore, the impacts on third parties would likewise be negligible or minor beneficial.
- 10.7.8 Given the assessment of cumulative effects, reported in the technical chapters of this ES and summarised above, it is unlikely that the Proposed Development would lead to significant cumulative effects when considered with other cumulative developments.

10.8 Conclusion

- 10.8.1 The ES provides a detailed description of the construction, operation and decommissioning of the Proposed Development and provides an assessment of likely significant effects which could arise in relation to the following topics:
- i) Landscape and Visual.
 - ii) Ecology.
 - iii) Ornithology.
 - iv) Cultural Heritage.
 - v) Surface Water and Flood Risk.



10.8.2 The ES has assessed and evaluated the potential significant, direct, indirect, cumulative and in-combination environmental effects of the Proposed Development. Where adverse effects have been identified, measures envisaged to prevent, reduce, and if appropriate offset these effects have been described.

10.8.3 A range of mitigation and enhancement measures are proposed which would ensure any adverse environmental effects from the Proposed Development are minimised. Several of the measures proposed would result in positive environmental effects including a substantial gain in the biodiversity value of the Site.

