

Parc Solar Caenewydd, Swansea

Archaeological Field Surveys Overview Report

Development of National Significance in the Renewable Energy Sector
Full Re-Consultation before Applying for Planning Permission



Introduction

Heritage Archaeology Ltd has been appointed by Taiyo Power & Storage Limited (herein referred to as “the Applicant”) to undertake archaeological field surveys for a proposed Non-EIA¹ utility-scale solar and battery storage facility on land fronting the A484 and Swansea Road (B4560) at Gowerton, Swansea. It will deliver a host of landscape, biodiversity, soil and hydrological enhancements; including measures to strengthen habitat connectivity through this part of the valley, the creation of green buffer zones and public right of ways improvements. The development is called ‘Parc Solar Caenewydd’.

This draft archaeological field survey background statement is being published to accompany a pre-application consultation carried out under Articles 8 and 9 of the Development of National Significance (Procedure) (Wales) Order 2016.

The relevant advisor on archaeological matters is Glamorgan-Gwent Archaeological Trust (GGAT). They have advised that field surveys are required to understand the archaeological potential of the proposed development site. In consultation with GGAT, a series of surveys have therefore been undertaken, comprising a geophysical survey of the entire site area (as accessible and surveyable) and a targeted trenched evaluation based on the results of the geophysical survey in areas of greater potential within the site. The following should be read in conjunction with the Heritage desk-based assessment (Pegasus, 2023).

Written schemes of investigation

The intrusive and non-intrusive archaeological field surveys were undertaken in accordance with survey-specific Written Schemes of Investigation that were submitted to, and approved by, GGAT.

The field surveys were undertaken by specialist archaeological subconsultants, who are Registered Organisations with the Chartered Institute for Archaeologists.

Survey reports

The results of the surveys have been reported in stand-alone reports as follows:

- Wilkinson, D. 2023. Geophysical survey report for Parc Solar Caenewydd, Llewitha, Swansea. Magnitude Surveys, report reference MSSS1328
- Bond, J. 2023. Archaeological Field Evaluation: Parc Solar Caenewydd, Llewitha, Swansea. Archaeology Wales, report reference 2153

The geophysical survey team also provided a topographic survey of the site, provided separately to GGAT, which demonstrates that there are steeply sloping parts of the site which constrain their suitability for intrusive archaeological surveys. Parts of the site close to the Afon Llan were flooded and are not suitable for intrusive or non-intrusive archaeological survey. It was agreed with GGAT that only the areas suitable for magnetometer geophysical survey would be surveyed and subsequent consultation informed GGAT of the areas that were not suitable and that as a result those areas had not been surveyed.

¹ On 17 August 2022, Planning & Environmental Decision Wales adopted its Environmental Impact Assessment (EIA) Screening Direction. The Welsh Ministers direct that the development is not EIA development within the meaning of the Regulations

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The geophysical survey report identified areas with anomalies that are characteristic of former mineshafts. There is a strong correlation between the results of the geophysical survey and the documented coal mining entries discussed in the Coal Mining Risk Assessment (Hydrogeo, 2023, Phase 1 Geoenvironmental Report and Coal Mining Risk Assessment). Coal Authority data indicates 28 mine shafts and 13 adits within the site; these largely coincide with the geophysical anomalies interpreted as former mineshafts.

Consultation

Table 1, below, provides a record of the informal consultation undertaken with Glamorgan Gwent Archaeological Trust (GGAT), a prescribed consultee, in agreeing the scope and implementation of the archaeological field surveys.

Conclusion

A geophysical survey of the entire accessible and suitable site area was undertaken in July – September 2022. The survey identified two areas of potential enclosures in the northern part of the site. One of these areas was subsequently removed from the red line boundary for the development area. Anomalies indicative of historical agricultural activity were identified, some of which can be correlated to boundaries marked on historic mapping. Areas of former mineshafts, an aqueduct and mineral railway were also identified, corresponding to the results of the desk-based assessment. A number of anomalies classed as 'undetermined' were also plotted, the potential for an archaeological interpretation for these cannot be ruled out from the geophysical survey alone.

As a result of the geophysical survey a targeted programme of archaeological trenched evaluation was undertaken in November – December 2023. Thirty trenches were excavated within the site, targeting anomalies interpreted as 'archaeology possible', 'agricultural', and 'undetermined' by the geophysical survey. The evaluation revealed a site that has been extensively drained, particularly from the industrial period. Some of the features were identifiable as land drains of post medieval to modern date, some clearly correspond to post medieval and modern field boundaries. No finds or environmental evidence was obtained to date the remaining features but it is likely that they are also of post-medieval or modern date. One feature interpreted by the geophysical survey as a possible enclosure in the northern part of the site was removed from the red line boundary so not tested by trenching, the other feature identified as a possible enclosure was tested by trenching but was not present.

The results of the intrusive and non-intrusive surveys conclude that there is evidence for post medieval agricultural activity within the site and for later post medieval coal mining activity. This confirms and supports the conclusions of the desk-based assessment and helps to clarify the extent of coal mining disturbance within the site. Despite the proximity of the northern part of the site to two scheduled Roman marching camps, no evidence for Roman activity was identified within the site. The evidence indicates a site that has been improved by drainage for agricultural use and no evidence for activity within the site pre-dating the post medieval period has been identified within the site.

The results of the intrusive and non-intrusive surveys indicate that the site does not include any historic assets with archaeological interest of equivalent significance to a scheduled monument. An amendment to the red line boundary excluded a potential archaeological feature identified during the geophysical survey from the development footprint (a potential enclosure). Other features identified through the desk-based assessment and geophysical survey (for

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example the course of the Penclawdd Canal and tramway) are also excluded from the development footprint. No additional mitigation is proposed as a result of the surveys to date, but any other historic assets present within the site that warrant mitigation could be safeguarded through additional minor amendments to the layout and foundation design. This would be determined in response to the final design and layout and agreed through conclusion of the ongoing consultation with GGAT.

Table 1: Communications Log; Record of consultation with Rob Dunning GGAT,

Date	Message	Response
18/07/2022	<p>Email from Helena Kelly (Heritage Archaeology) – HK to Rob Dunning (GGAT) – RD</p> <p>Dear Rob</p> <p>I'm supporting on the geophysical survey at the Parc Solar Caenewydd project. You've previously discussed this with Liz at Pegasus who is still the main point of contact for the heritage work generally.</p> <p>It would be great to have a call to discuss this aspect of the work with you but I'm getting a busy tone on your landline number. I'd be grateful if you'd be able to let me know a good number to reach you on or please do call me on the number below.</p> <p>Many thanks Helena</p>	<p>Phone call between HK and RD -18/07/2022</p> <p>HK – Geophysics of all available and suitable land due to start this week, apologies for notice but WSI can be provided.</p> <p>RD- no problem with looking at the WSI but OK for that to be retrospective, happy that the survey area is inclusive of the entire site (subject to accessibility and being suitable for survey). Hopefully the survey will add to information on disturbance from coal mining in the area.</p>
22/07/2022	<p>Email from HK to RD</p> <p>Hi Rob</p> <p>Many thanks for your time on the phone earlier this week- apologies I had thought this had sent [Geophysics WSI] but it looks like it didn't, please let me know if you have any difficulty with the file size? The team made good progress last week, as soon as their report is ready I will forward that to you. In the meantime please do not hesitate to get back to me with any comments on the attached.</p> <p>Kind regards</p>	<p><i>WSI submitted, no comments received. On the basis of the previous conversation (recorded above) it was taken that the WSI was therefore acceptable to GGAT</i></p>

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Date	Message	Response
04/10/2022	<p>Helena</p> <p>Email from RD to Pegasus (replying to email from AR to RD, 28/09/2022)</p> <p>Dear Archie,</p> <p>Many thanks for the email and USB drive, the contents of which have been forwarded on to me. With regards to the ongoing scope of works, an archaeological field evaluation is appropriate and would be our pre-determination recommendation to the LPA. The exact scope and methodology of the evaluation would need to be set out in an agreed WSI and take into account the geophysical survey results/proposed development plans.</p> <p>Also, just to confirm that neither the geophysics report, or the Heritage Desk-based Assessment, are suitable for deposition into the HER as they do not conform to the Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs).</p> <p>Regards, Rob</p>	<p>Email – HK to RD 04/10/2022</p> <p>Dear Rob Many thanks for the response below. It would be great to have a call to discuss the scope of the field evaluation, please could you let me know if there is a time this week that works for you? And thank you, all noted - the geophysics report is in draft and I will ensure that the final version includes the bilingual summary and meets the guidance, suitable for deposition with the HER. Many thanks Helena</p> <p>-----</p> <p>Phone call between RD and HK- 05/10/2022</p> <p>Rob called to discuss the results of the preliminary geophysics report. He welcomed the intention to complete further geophysical survey, as those areas become available.</p> <p>RD has reviewed the geophysics interim results and considers that some trenched evaluation would be useful for the possible enclosures, and also to confirm some of the agricultural features. He would like some of the undetermined features testing but welcomed the proposal to confirm through the local knowledge of the tenant farmer whether any of the anomalies relate to known agricultural activities.</p> <p>RD asked about the mining activity, accepting the need to avoid trenching in areas of potential shafts etc. He welcomed the proposal to compare the results of the geophysics with desk-based sources and come back with more information on this.</p>

Date	Message	Response
09/11/2022	<p>Email from HK to RD</p> <p>Dear Rob</p> <p>Further to the email below (email of 04/10/2022), and our subsequent telephone call (05/10/2022) my client has been liaising with the landowners to try and secure access for trenched evaluation, while I have been looking at the most suitable areas to target. I've attached a draft WSI from Archaeology Wales proposing trenching in the more level fields to the north of the site, the rationale for the layout is (a plan showing the area IDs is included below):</p> <ul style="list-style-type: none"> • Trenches target the anomalies identified by the geophysical survey – the possible enclosure in Area 15 is targeted. The possible enclosure in Area 13 could be avoided by the array, but trenches are proposed in the vicinity of the feature. Trenches also target some of the undetermined features and some of the agricultural features • Trenches avoid a series of stone field drains (confirmed by the landowner/ occupier) in Areas 8 and 12 • Trenches avoid the areas of coal workings shown on historic mapping, the Coal Authority mapping, and picked up in the geophysical survey in Areas 4, 5, 6, 7, 9 and 10. • Trenches avoid the more steeply sloping parts of the site to the north of the A484 (Area 16) and north of the Afon Llan (Area 20) • Trenches are not proposed in Areas 23 and 24 where the archaeological potential relates to modern industrial features (the former mining tramway and aqueduct), which are plotted on historic maps and geophysics • Trenches target the more level land, particularly in Area 1, 2 and 3 (which are the closest available fields to the Roman camps). 	<p>RD commented that the applicant providing an outline WSI giving context for the trenching proposal and a trench plan was a good way forward to agree a targeted programme of trenching</p> <p>Phone call between RD and HK - 10/11/2022</p> <p>RD called to discuss the WSI for the proposed trench evaluation. Worked through bullet points in HK previous email:</p> <ul style="list-style-type: none"> • <i>Trenches target the anomalies identified by the geophysical survey – the possible enclosure in Area 15 is targeted. The possible enclosure in Area 13 could be avoided by the array, but trenches are proposed in the vicinity of the feature. Trenches also target some of the undetermined features and some of the agricultural features; RD requested further confirmation that the enclosure is avoided. HK will add an image showing the revised red line boundary to the WSI, RD was otherwise happy with the proposals for Areas 13 and 15</i> • <i>Trenches avoid a series of stone field drains (confirmed by the landowner/ occupier) in Areas 8 and 12. RD felt that some of the geophysical survey anomalies may not be explained by the background check confirming field drains in these fields but would accept avoidance of these areas if similar anomalies could be included in the sample elsewhere on the site.</i> • <i>Trenches avoid the areas of coal workings shown on historic mapping, the Coal Authority mapping, and picked up in the geophysical survey in Areas 4, 5, 6, 7, 9 and 10. RD accepted these were higher risk areas and was happy with the rationale to avoid them but asked for that to be included in the WSI. HK will add this to the WSI</i> • <i>Trenches avoid the more steeply sloping parts of the site to the north of the A484 (Area 16) and north of the Afon Llan (Area 20): RD accepted this, but would be pleased to know if the service in Area 16 is confirmed and asked if similar anomalies to those detected in Area 20 could be included in the sample elsewhere on the site</i>

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Date	Message	Response
	<p>We would be able to start in Areas 1, 2 and 3 on Monday 14th November – I realise this is short notice but would be grateful if you could let me know whether your review of the WSI would be achievable for that date?</p> <p>The geophysical survey is also due to recommence and I've attached the updated WSI for that, showing the additional survey areas, as requested.</p> <p>Please do not hesitate to get back to me with any comments or queries on the above or attached.</p> <p>Kind regards Helena</p>	<ul style="list-style-type: none"> • <i>Trenches are not proposed in Areas 23 and 24 where the archaeological potential relates to modern industrial features (the former mining tramway and aqueduct), which are plotted on historic maps and geophysics: <u>RD was happy with this approach.</u></i> • <i>Trenches target the more level land, particularly in Area 1, 2 and 3 (which are the closest available fields to the Roman camps): <u>RD was happy with the rationale for targeting these fields and suggested that this may be a good area to use to pick up some of the anomalies that he would still like to see tested</u></i> <p>HK asked RD about timescales; RD was happy with the WSI in general and would be able to approve it once the above amendments are made. RD asked whether trenching would be proposed in the areas to be surveyed next week – HK said that the results would be looked at and a second phase of trenching proposed as necessary</p>
15/11/2022	<p>Email from HK to RD</p> <p>Hi Rob Please find the updated WSI attached, combining the information sent through yesterday. We are still hoping for a start this week, if the attached is acceptable. Many thanks Helena</p>	<p>Email from RD to HK – 15/11/2022</p> <p>Dear Helena, Thanks for the amendments, which all make sense. As discussed, I think it important to note that this is very likely only the first phase of evaluation works. If you could keep me updated with regards to progress that would be great, and we can arrange a site visit when appropriate. Regards, Rob</p>
21-23/11/2022	<p>Archaeology Wales Ltd liaised directly with GGAT to inform of start of works and progress, phone calls and emails to RD</p>	<p>Email from RD to AW 23/11/2022</p> <p>Dear Rowena, That is a good question. Ideally yes, we would look to make a visit, but if they are (unsurprisingly) full of water then I don't think there would be much benefit. I certainly don't think they need to be pumped out. Maybe we could see how the west side goes, if it is a bit more dry then I'll make a visit?</p>

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Date	Message	Response
		<p>Regards, Rob</p>
07/12/2022	<p>Email from HK to RD</p> <p>Hi Rob I've tried calling but couldn't get through so please find attached and below an update on the field surveys at Parc Solar Caenewydd.</p> <p><u>Geophysics</u> The survey has been completed for the available areas of the site. The report on that is being finalised but I've attached the preliminary greyscale. At least some of the additional features correspond with field boundaries on historic mapping, some are interpreted as probably drainage. None have been categorised as probable or possible archaeology (so more of the agricultural and undetermined that we've had elsewhere).</p> <p><u>Trenched evaluation</u> I know you have had updates from Charley and Rowena, but just to reiterate; the trenches in Areas 1-3 have been completed. I have attached a summary sheet for the completed trenches. I understand that it was agreed that these trenches could be backfilled. Most of the features relate to the geophysics and in turn the historic mapping, so the trenches have been helpful in confirming results there. We moved on to Areas 13-15 but had some issues with access, while those were being resolved the AW team demobilised but we hope to get them back there on 12th December. As we have previously discussed, the site is restricted by topography and we asked Magnitude to provide their topo data, I have also attached that plan. This supports the previously provided rationale for not including trenching in the more steeply sloping southern and northern-most parts of the site. The geophysics couldn't be completed in the field adjacent to the Afon Llan as there was standing water. It would be helpful to have a call to discuss next steps, particularly as we head towards the Christmas break. Let me know if setting up a</p>	<p>Phone call between RD to HK – 07/12/2022</p> <p>RD – Happy for the trenching to re-start on Monday (12/12/2022).</p> <p>RD – results to date not showing anything particularly sensitive but would like to wait for the report and any sampling to be confirmed to discuss in more detail. However, looking unlikely that there is anything that would require avoidance and mitigation can be through design or record where/ if needed.</p> <p>RD will liaise directly with AW again to discuss any monitoring visit and backfilling.</p> <p>Large site, so discuss again when results of the geophysics and trenching are available after Christmas to see whether any further phases of trenching are needed or whether a whole site mitigation strategy can be discussed.</p>

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Date	Message	Response
	<p>teams meeting would help, or please do give me a call whenever is convenient for you.</p> <p>Many thanks Helena</p>	
<p>12-21/12/2022</p>	<p>Archaeology Wales Ltd liaised directly with GGAT to inform of start of works and progress, phone calls and email to RD</p>	<p>Email from RD to AW 15/12/2022</p> <p>Dear Charley, Thanks for the update and I would think you could backfill them when you are ready.</p> <p>Regards, Rob</p>
<p>17/02/2023</p>	<p>Hi Rob, I hope you're well?</p> <p>Further to correspondence before Christmas, please find below a link to the report on the trenched evaluation at Parc Solar Caenewydd and the updated geophysical survey report. If you have any problem with this, please let me know and I will see if there is another way to get them over to you. These are being provided as drafts for informal consultation, for your review.</p> <p>It would be great once you have had chance to review to have a talk through the results. I'd be very grateful if you could let me know when you have time for a call to talk through.</p> <p>Kind regards Helena</p>	<p>Phone call between RD and HK – 24/02/2022</p> <p>RD – Trenched evaluation report, confirms not much archaeology on the site and mirrors what was seen in the trenches. Can relate most of the linears back to the historic mapping. Confirms no sites of national significance in the areas sampled.</p> <p>HK – we have trenched the parts of the site with the greatest potential in terms of topography and proximity to the Roman activity to the north.</p> <p>RD – agreed that this it is likely that we have enough information on the archaeological potential of the site now, but still queries some of the additional 'undetermined - strong' anomalies in the additional areas of geophysical survey. However, agrees that additional trenches may not be needed, depending on foundation design and detailed layout. Happy to wait to see the final design and discuss again.</p>