Archaeology Wales

Land at Michaelston-y-Fedw, Cardiff

Archaeological Watching Brief

By
Jennifer Muller BA MA

Report No. 1754

Archaeology Wales Limited
The Reading Room, Town Hall, Llanidloes, SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk
Web: arch-wales.co.uk

REGISTERED ORGANISATION CIfA

Archaeology Wales

Land at Michaelston-y-Fedw, Cardiff

Archaeological Watching Brief

Prepared For: EEW Eco Energy World Ltd

Edited by: Charley James-Martin	Authorised by: Rowena Hart
Signed:	Signed:
Position: Project Manager	Position: Regional Director
Date: 11/01/2019	Date: 11/01/2019

By
Jennifer Muller BA MA

Report No. 1754

January 2019

Archaeology Wales Limited
The Reading Room, Town Hall, Llanidloes, SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk
Web: arch-wales.co.uk

REGISTERED ORGANISATION CIfA

Contents

List of Figures

List of Plates

Appendices

Non-Technical Summary

This report results from work undertaken by Archaeology Wales Ltd (AW) for EEW Eco Energy World Ltd. on land at Michaelston-y-Fedw. It draws upon the results of an archaeological watching brief that took place to ensure the preservation by record of any archaeological remains encountered during groundworks associated with the installation of a ground mounted photovoltaic (solar electricity) plant. The site lies in both Cardiff and Newport Unitary Authority, centred on NGR ST 23579 83984. The planning application numbers are 14/00851/DCO and 14/0337, respectively.

The Historic Environment Record and National Monuments Record for Wales hold details for four recorded heritage sites within the site boundary. These include two prehistoric findspots and two post-medieval sites.

There are two Scheduled Monuments near to the development area but outside of the site boundary. A large standing stone dated to the Bronze Age is located near Druidstone House (Site 000025g, MM032) 0.8km to the south of the development site. Wentloog Castle Scheduled Monument (Site 00007g, MM131), a flat-topped mound, is located 1.6km to the south-east of the site.

No archaeological features were encountered during the works.

The watching brief complied with the Chartered Institute for Archaeologists Standards and Guidance for an Archaeological Watching Brief (2014).

1. Introduction

Location and scope of work

Archaeology Wales Ltd (AW) was commissioned by EEW Eco Energy World Ltd to undertake a Watching Brief on land which is centred on NGR ST 23450 83810, south-west of the village of Michaelston-y-Fedw, west of Newport and north-east of Cardiff. The work relates to the installation of a ground mounted photovoltaic (solar electricity) plant. The development comprises panels orientated on an east-west alignment, angled to face south. The site lies in both Cardiff and Newport Unitary Authority, and the planning application numbers are 14/00851/DCO and 14/0337, respectively.

Glamorgan-Gwent Archaeological Trust – Planning Division (GGAT-PD), acting as archaeological advisors to the local planning authority, stipulated that an archaeological watching brief be undertaken during all ground works associated with the development.

An approved Written Scheme of Investigation (WSI) was produced by AW in accordance with the Standard and Guidance for Archaeological Watching Briefs (CIfA, 2014) and was designed to provide an approved methodology of archaeological work to be implemented during the construction works. The WSI was approved by GGAT-PD prior to the commencement of the ground works.

Geophysical and evaluation work was previously undertaken encompassing the site development area and the extended area around it.

The watching brief was undertaken by Archaeology Wales in October and November 2016 under the supervision of Cassandra Davis and Susan Stratton. The project was managed by Rowena Hart.

Topography and Geology

The site lies approximately 70 metres above Ordnance Datum (OD) at its highest point and slopes down to the south-west to a low point of approximately 30 metres above OD.

The total site extends to some 45 hectares in total and was formerly under agricultural use, predominately arable. There are some small areas of woodland within the development site, and Fairwater Farm is located within the site boundary but does not form part of the site. The site is bounded to the south by the M4, to the west and north by fields and Began Road, and to the east by Druidstone Road and further fields. The surrounding area is primarily agricultural, including nurseries to the west of the site.

The underlying geology on site is a deposit of Raglan Mudstone Formation, a sedimentary bedrock comprised of mudstone and sandstone. It formed approximately 419 to 424 million years ago during the Silurian Period (NERC, 2017).

Archaeological and Historical Background

The site development area is surrounded by evidence of past activity and occupation at least to the prehistoric period. Within the site boundary, the evidence is limited to two findspots for prehistoric activity (HER and NMRW; WYG, 2014).

Evidence of Roman activity lies south and east of the development site, including a probable Roman road (Margary RR60b) running east-west; a potential Roman fort to the north of the Roman road and east of the development site (PRN 02496g); and findspots containing a copper alloy object (PRN 07668g) and a Roman pilum (javelin) (WYG, 2014).

The only site identified within the area of early medieval date has been a metal-working site immediately to the south of the site boundary and north of the M4 (PRN 04048s, E000068). There are also two post-medieval structures within the site boundary (WYG, 2014).

Two Scheduled Monuments lie within 1.5 kilometres of the site, both to the southeast: a large standing stone dated to the Bronze Age is located near Druidstone House (PRN 00002g, MM032), and the medieval Wentloog Castle Scheduled Monument (PRN 00007g, MM131), a flat-topped mound, is located within the grounds of the adjacent Wentloog Castle Hotel.

For a complete report of the area, please refer to the desk based assessment undertaken by WYG (WYG, 2014), which centred on the proposed development area.

A geophysical survey was also conducted on a larger area and the results can also be found in the same report (Fry, 2014). A cropmark of a sub-rectangular enclosure on the eastern boundary of the study area was covered by the survey, and it was decided to exclude this area from the development site (WYG, 2014). Furthermore, the geophysical survey determined that that any other identified archaeological assets were either of negligible value, or the impacts upon them were considered sufficiently minor, that further recording was not warranted.

2. Methodology

A watching brief complying with the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for an Archaeological Watching Brief* (2014) was undertaken during all intrusive ground work on the site.

The excavation comprised an area of approximately 45 hectares with a maximum depth of 1.20 metres and was carried out using a mechanical excavator. The entire process was monitored by a suitably trained archaeologist. Sections and plans of the excavation were photographed using a 12MP digital camera. All the deposits encountered were recorded by means of a continuous context numbering system and recorded on pro-forma context sheets. All features and deposits are described in accordance with CIfA conventions. A register of all contexts and photographs was also made.

3. Watching Brief Results

There was a straightforward, general stratigraphy throughout the site. The basal deposit reached was a very compact clay (103=202=302=402) ranging from 0.20 – 0.80 metres in depth throughout the area (Plates 1-3). The colour varied across the site from bright red/orange to alluvium, which is deep blue/grey (Plates 2 and 3). The alluvium was formed by inundation of the River Severn regularly over time, and is widespread throughout the Gwent Levels (SELRC, 2017). Directly overlying this across the entire site was a moderately loose, pink/brown silty subsoil (101=201=301=401) that contained rare, small sub-rounded stones (Plate 4). This deposit had a depth that varied between 0.05 metres and 0.40 metres. This was then overlain by topsoil (100=200=300=400), with a maximum depth of 0.30 metres (Plate 5).

A thin deposit of grey, silty sand was visible at the north end of the site (102), overlying the natural (103, Plate 6). This varied in depth between 0.05 metres to 0.40 metres. There were numerous ceramic land drains crossing the site (104-113, 303-310, 403-407, 410-413) (Plates 7 and 8), as well as a modern water pipe (414-415), concrete sewer system structure (408-409) (Plate 9) and a modern road base (114-115) (Plate 10).

4. Finds

No artefacts were recovered from any of the contexts recorded during the course of the excavation.

5. Conclusion

No archaeological features or deposits were identified during the watching brief aside from the modern land drains, concrete sewer system, water pipes and road base. Therefore, the proposed development will likely have little to no impact on the archaeological record.

6. Bibliography

CADW (2017) Historic Wales, http://historicwales.gov.uk (accessed 03/10/17).

CIfA (2014) *Standard and Guidance for an Archaeological Watching Brief* (Unpublished Guidance accessible at www.archaeologists.net).

Fry, G. (2014) *Michaelston-y-Fedw, Newport Geophysical Survey Report Produced for WYG Planning and Environment*.

Margary, ID, 1957, *Roman roads in Britain*, vol 2, London

NERC (2016) British Geological Survey Maps (accessed at www.bgs.ac.uk).

Severn Estuary Levels Research Committee (SELRC) (2017) *The Changing Estuary through Time*, http://www.selrc.org.uk (accessed 03/10/17).

WYG (2014) *EEW Eco Energy World. Michaelston-y-Fedw Solar Farm, Newport: Archaeology and Heritage Desk-Based Assessment & Geophysical Survey*.

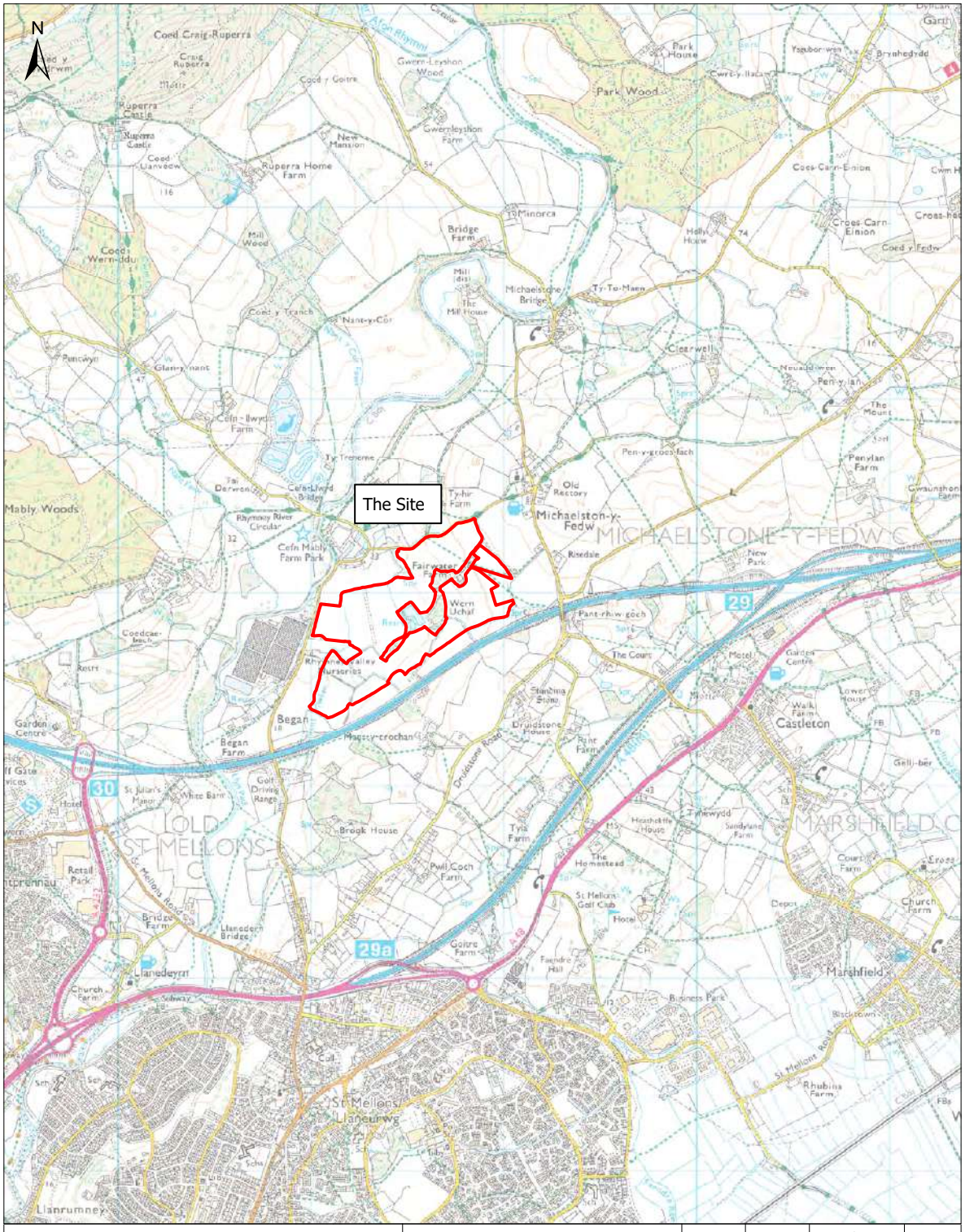


Figure 1. Location map of the site

Provided by WYG

ARCHAEOLOGY WALES
Revealing the past, informing the future

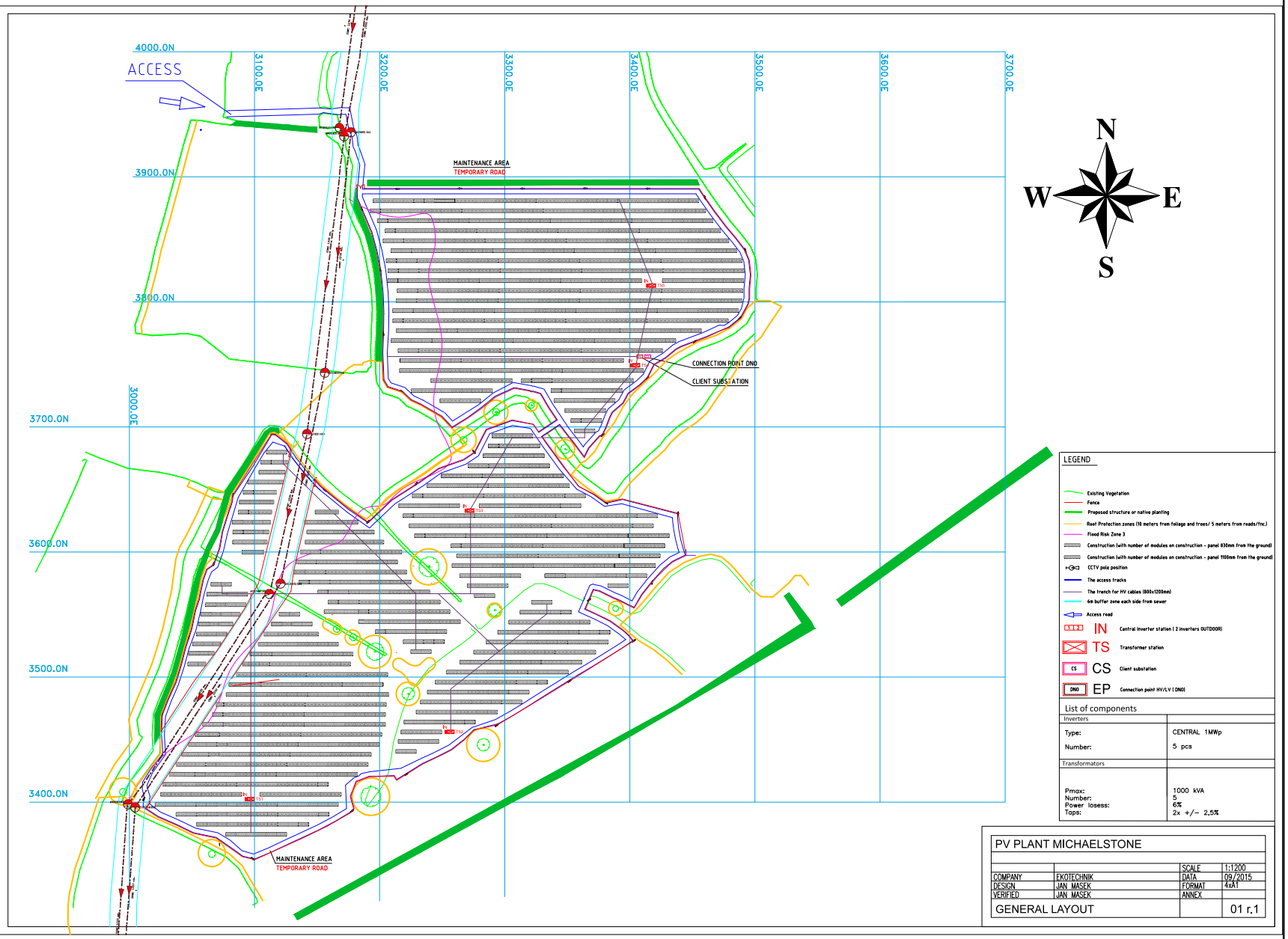


Figure 2. Location map of the excavation

ARCHAEOLOGY WALES
Revealing the past, informing the future

Plate 1. West facing section showing full range of deposits

Plate 2. Northwest facing section showing basal deposit colour variation

Plate 3. East facing section showing basal deposit colour variation

Plate 4. South facing section showing subsoil

Plate 5. West facing section showing topsoil

Plate 6. South facing section showing dark grey deposit (102)

Plate 7. North facing section showing land drain (112-113)

Plate 8. South facing section showing land drain (300-302, 305-306)

Plate 9. South facing section showing concrete structure (403, 408)

Plate 10. North facing section showing road/trackway (114-115)

Appendix 1: Context Register

No.	*Type*	*Description*
100	Deposit	Topsoil
101	Deposit	Subsoil
102	Deposit	Grey deposit
103	Deposit	Natural
104	Cut	Cut of land drain
105	Fill	Fill of [104]
106	Cut	Cut of land drain
107	Fill	Fill of [106]
108	Cut	Cut of land drain
109	Fill	Fill of [108]
110	Cut	Cut of land drain
111	Fill	Fill of [110]
112	Cut	Cut of land drain
113	Fill	Fill of [112]
114	Cut	Cut of land drain
115	Fill	Fill of [114]
200	Deposit	Topsoil
201	Deposit	Subsoil
202	Deposit	Natural
300	Deposit	Topsoil
301	Deposit	Subsoil
302	Deposit	Natural
303	Cut	Cut of land drain
304	Fill	Fill of [303]
305	Cut	Cut of land drain
306	Fill	Fill of [305]
307	Cut	Cut of land drain
308	Fill	Fill of [307]
309	Cut	Cut of land drain
310	Fill	Fill of [309]
400	Deposit	Topsoil
401	Deposit	Subsoil
402	Deposit	Natural
403	Cut	Cut of land drain
404	Fill	Fill of [403]
405	Deposit	Gravel deposit
406	Cut	Cut of land drain
407	Fill	Fill of [406]

408	Cut	Cut of concrete structure
409	Structure	Convex concrete pipes
410	Cut	Cut of land drain
411	Fill	Fill of [410]
412	Cut	Cut of land drain
413	Fill	Fill of land drain
414	Cut	Cut of modern water pipe
415	Fill	Fill of [414]
416	Deposit	Infill of [408], redeposit

ARCHAEOLOGY WALES
Revealing the past, informing the future

Archaeology Wales Ltd
Rhos Helyg, Cwm Belan, Llanidloes, Powys SY18 6QF
T: 01686 440371
E: info@arch-wales.co.uk
www.arch-wales.co.uk

SPECIFICATION FOR AN ARCHAEOLOGICAL WATCHING BRIEF AT

Michaelston-y-Fedw, Cardiff

Prepared for:

EEW Eco Energy World Ltd

November 2015

Archaeology Wales Limited

Rhos Helyg, Cwm Belan, Llanidloes,

Powys, SY18 6QF

Tel: +44 (0) 1686 440371

Email: rowena@arch-wales.co.uk

Contents Page

Summary

This Specification details the methodology for an archaeological watching brief to be undertaken during the ground works associated with the installation of a ground mounted photovoltaic (solar electricity) plant at Michaelston-y-Fedw. The area lies in both Cardiff and Newport Unitary Authority centred on NGR ST 23579 83984. The planning application numbers are 14/00851/DCO and 14/0337 respectively.

The objective of the watching brief is to safeguard the potential archaeological resource through observation and recording during the course of the intrusive ground works associated with the ground investigation scheme.

This Specification document has been prepared by Rowena Hart (Project Manager) of Archaeology Wales Limited for EEW Eco Energy World Ltd.

Specification

1. Planning Background

EEW Eco Energy World Ltd submitted a planning application for the installation of a ground mounted photovoltaic (solar electricity) plant at Michaelston-y-Fedw. The site (see attached plan) lies in both Cardiff and Newport Unitary Authorities and as such has two relevant planning application numbers; 14/00851/DCO and 14/0337 respectively. The application was inspected by Glamorgan Gwent Archaeological Trust – Curatorial Division (GGAT-CD) and they advised that an archaeological condition be placed on the work:

> Condition 02: No development shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority.
>
> *Reason*: To identify and record any features of archaeological interest discovered during the works, in order to mitigate the impact of the works on the archaeological resource.

2. Archaeological background

A desk based assessment was undertaken by WYG (WYG 2014) centred on the proposed development area. A detailed archaeological background was included and should be referenced for a comprehensive account. A geophysical survey was conducted on a larger area and the results can also be found in WYG 2014.

3. Specification objectives

This specification document sets out a program of works to ensure that the archaeological watching brief will meet the standard required by *The Chartered*

Institute for Archaeologist's Standard and Guidance For Archaeological Watching Briefs.

The objective of the watching brief is to safeguard the potential archaeological resource through observation and recording during the course of the intrusive ground works associated with the ground investigation scheme.

A written report will be compiled following the fieldwork and an archive of all collected data will be produced and deposited with an appropriate receiving institution.

4. Timetable of works

4.1. Fieldwork

The fieldwork will be undertaken at the convenience of the client and to coincide with the main site contractor's programme. Archaeology Wales will update Glamorgan-Gwent Archaeological Trust - Curatorial Division (GGAT-CD) once a start date has been agreed.

4.2. Report delivery

The watching brief report will be submitted to EEW Eco Energy World Ltd and to Glamorgan Gwent Archaeological Trust Curatorial Division (advisors to the Local Planning Authority, henceforth GGAT-CD) within three months of the completion of the fieldwork. A copy of the report will also be sent to the regional HER.

5. Fieldwork

5.1. Scope of development

An archaeological watching brief will be undertaken during all intrusive ground works. The ground works include but are not limited to:

- Site clearance/levelling
- Top soil stripping
- Erection of a dark green 2.4m high chain link fence around the site perimeter;
- Construction of inverter stations;
- Installation of the grid connection cable from the site;
- Construction of a connection point building;
- Construction of drainage swales
- Sections of hedgerow planting to the north, south east along the M4 and reinforcement planting along the western boundary.
- All other intrusive ground works

5.2. Methodology and contingency

All intrusive groundwork will be subject to an archaeological watching brief conducted to meet the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Watching Briefs* (4th ed. 2008).

The site archaeologist undertaking the watching brief must be afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundwork shall not be undertaken without the presence of the site archaeologist. The site archaeologist will record finds and less significant archaeological deposits and features without significant delay to the work program.

Where significant or complex archaeological deposits or features are encountered there will be a requirement for those areas to be fenced off and highlighted to all contractors employed on the site. Machines or contractors shall not enter this area until archaeological recording has been completed. If significant archaeological features are revealed during the work a meeting between the client, their agent, main contractor, GGAT-CD and Archaeology Wales should be called at the earliest convenience.

To comply with professional guidelines, a contingency for a maximum of three days' uninterrupted access to each such area and for a team of up to two further archaeologists to be employed should be provided. Contingency costs will be agreed in advance before any extension to the programme commences and will follow a site meeting between Archaeology Wales, the client (of their agent) and GGAT Curatorial Division.

5.3. Recording

Archaeological recording will be undertaken to best current professional practice. Archaeological deposits, features and structures will be recorded by means of a continuous context numbering system. Where necessary site drawings will be made at a suitable scale usually 1:20 in plan, and 1:10 in section. All significant contexts will be photographed in digital at a minimum of 12mp.

5.4. Finds

The professional standards set in the Chartered Institute for Archaeologists' *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2001) will form the basis of finds collection, processing and recording.

All manner of finds regardless of category and date will be retained.

Finds recovered that are regarded as Treasure under *The Treasure Act 1996* will be reported to HM Coroner for the local area.

5.5. Environmental sampling strategy

Deposits with a significant potential for the preservation of palaeoenvironmental material will be sampled, by means of the most appropriate method (bulk, column etc). Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental archaeologist. All environmental sampling and recording and will follow English Heritage's *Guidelines for Environmental Archaeology* (2002).

5.6. Human remains

In the event that human remains are encountered, their nature and extent will be established and the coroner informed. All human remains will be left *in situ* and protected during backfilling. Where preservation *in situ* is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work. Human remains will be excavated in accordance with the Chartered Institute for Archaeologist's *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains: Technical Paper Number 13* (1993).

A meeting with GGAT Curatorial, the client (or their agent) and AW will be called if the human remains uncovered are of such complexity or significance that the contingency arrangement (3.1 above) would not be of sufficient scope.

5.7. Specialist advisers

In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	Specialist
Flint	Kate Pitt (AW)/ Dr Amelia Pannett (Cadw)
Animal bone	Richard Madgwick (Cardiff University)
CBM, heat affected clay, Daub etc.	Rachael Hall (APS)
Clay pipe	Charlotte James-Martin (Freelance)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Richard Madgwick (Cardiff University)

Metalwork	Kevin Leahy (University of Leicester)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University)
IA/Roman pottery	Jane Timby (Freelance)/ Phil Mills (Freelance)
Roman Pottery	Peter Webster (Freelance)/ Rowena Hart (Archaeology Wales)
Post Roman pottery	Stephen Clarke (Monmouthshire Archaeology)
Charcoal (wood ID)	John Carrot (Freelance)
Waterlogged wood	Nigel Nayling (University of Wales – Lampeter)
Molluscs and pollen	Dr James Rackham
Charred and waterlogged plant remains	Wendy Carruthers (Freelance)

5.7.1. Specialist reports

Specialist finds and palaeoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

6. Monitoring

AW will make its fieldwork available for monitoring by the client (and their appointed agents) and the Local Planning Authority. In both instances advance notice should be given. All site attendants should follow Health and Safety requirements. If site visit reports are made AW would be grateful to receive copies.

7. Post-fieldwork programme

7.1. Archive assessment

7.1.1. Site archive

An archive of archaeological site records will be prepared in accordance with *Management of Archaeological Projects* (English Heritage, 1991) Appendix 3.

The site archive (including artefacts and samples) will be deposited with an appropriate receiving organisation, in compliance with the ICON and IFA Guidelines (*Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation (2007*). The legal landowners consent will be gained for deposition of finds. Copies of the report and archive index will be deposited with the *National Monuments Record*, RCAHMW, Aberystwyth and the *Regional HER*.

In addition, an archive of records made during the post-fieldwork phase will be prepared to the specifications in *Management of Archaeological Projects*, (English Heritage, 1991) Appendix 6.

7.1.2. Analysis

Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken. This will result in the following inclusions in the final report:

- Non-technical summary
- Location plan showing the area/s covered by the watching brief, all artefacts, structures and features found
- Plan and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- Written description and interpretation of all deposits identified, including their character, function, potential dating and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate.
- An indication of the potential of archaeological deposits which have not been disturbed by the development
- A statement of the local, regional and national context of the remains
- A detailed archive list at the rear listing all contexts recorded, all samples finds and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

7.2. Reports and archive deposition

7.2.1. Report to client

A report, comprising a synthesis of data gathered, will be submitted upon completion of the watching brief, together with inclusion of supporting evidence in appendices as appropriate, together with photographs and illustrations.

7.2.2. Additional reports

After an appropriate period has elapsed, copies of the report will be deposited with the relevant county Historical Environment Record, the National Monuments Record and, if appropriate, Cadw, English Heritage or Historic Scotland.

7.2.3. Summary reports for publication

Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

7.2.4. Notification of important remains

Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to the

relevant national archaeological agency (Cadw, English Heritage or Historic Scotland).

7.2.5. Archive deposition

The research archive will, whenever appropriate, be deposited with a suitable receiving institution, usually the relevant Local Authority museums service. The site archive will be deposited with an appropriate institution.

7.2.6. Finds deposition

The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal land owners.

A copy of the archive index will be deposited with the National Monuments Record, RCAHMW, Aberystwyth.

8. Staff

The project will be managed by Rowena Hart (AW Project Manager) and the fieldwork undertaken by Simon Reames or Louis Stafford. Any alteration to staffing before or during the work will be brought to the attention of GGAT Curatorial and the client.

Additional Considerations

9. Health and Safety

9.1. Risk assessment

Prior to the commencement of work AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with *The Management of Health and Safety Regulations* 1992. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

9.2. Other guidelines

AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual *Health and Safety in Field Archaeology (2002)*.

10. Insurance

AW is fully insured for this type of work, and holds Insurance through its affiliated membership of the Council for British Archaeology. Full details of these and other relevant policies can be supplied on request.

11. Quality Control

11.1. Professional standards

AW works to the standards and guidance provided by the *Chartered Institute for Archaeologists*. AW fully recognise and endorse the Chartered Institute for Archaeologists' *Code of Conduct*, *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* and the *Standard and Guidance for archaeological watching briefs* currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

11.2. Project tracking

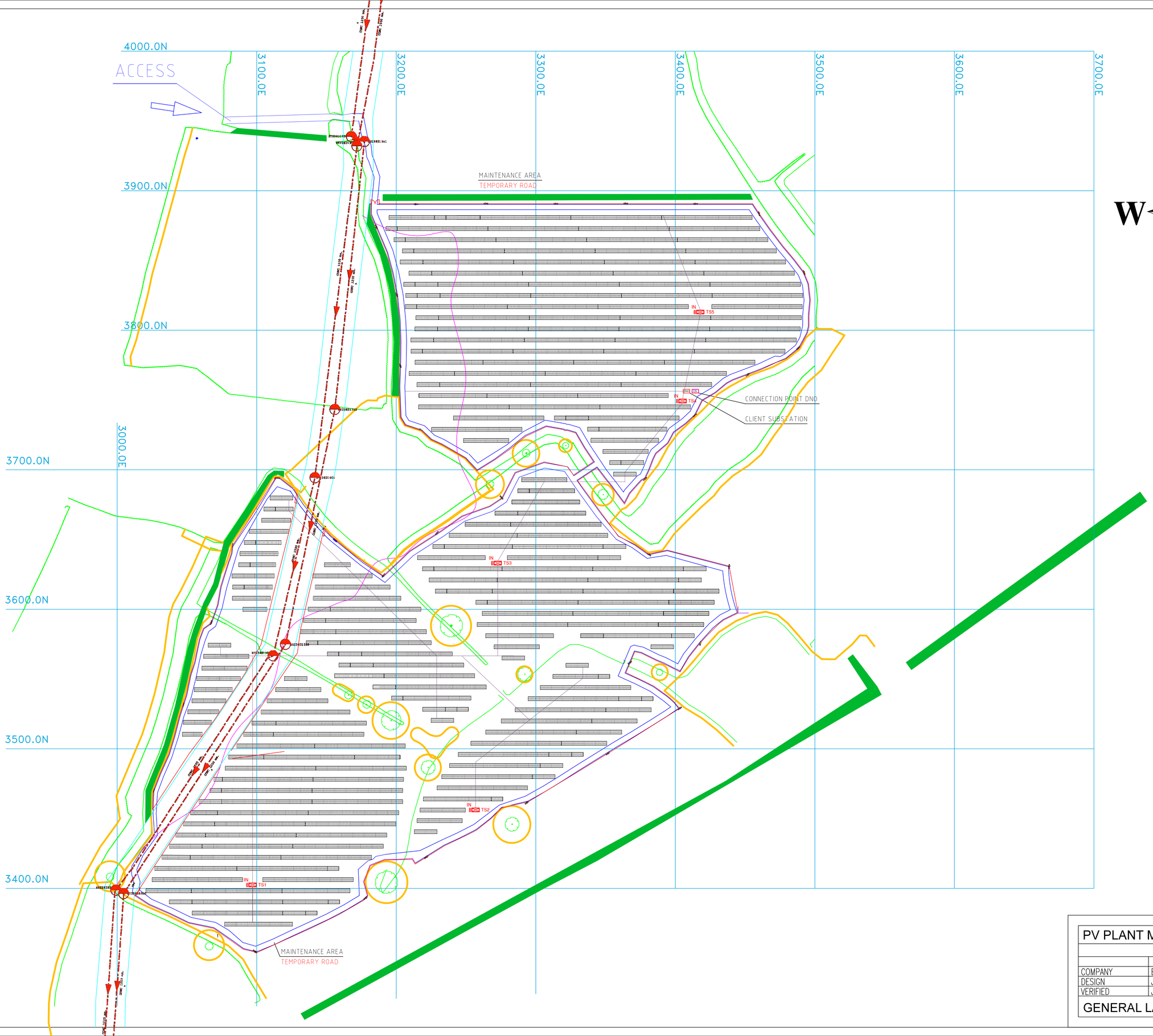
The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

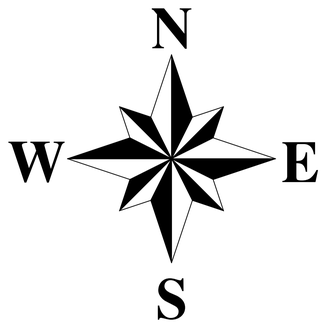
12. Arbitration

Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' *Arbitration Scheme for the Institute for Archaeologists* applying at the date of the agreement.

13. References

WYG, 2014, *EEW Eco Energy World. Michaelston-y-Fedw Solar Farm, Newport: Archaeology and Heritage Desk-Based Assessment & Geophysical Survey*





LEGEND

- Existing Vegetation
- Fence
- Proposed structure or native planting
- Root Protection zones (10 meters from foliage and trees/ 5 meters from roads/fnc.)
- Flood Risk Zone 3
- Construction (with number of modules on construction - panel 830mm from the ground)
- Construction (with number of modules on construction - panel 1100mm from the ground)
- CCTV pole position
- The access tracks
- The trench for HV cables (800x1200mm)
- 6m buffer zone each side from sewer
- Access road
- IN — Central Inverter station (2 inverters OUTDOOR)
- TS — Transformer station
- CS — Client substation
- EP — Connection point HV/LV (DNO)

List of components

Inverters	
Type:	CENTRAL 1MWp
Number:	5 pcs
Transformators	
Pmax:	1000 kVA
Number:	5
Power losess:	6%
Taps:	2x +/– 2,5%

PV PLANT MICHAELSTONE			
		SCALE	1:1200
COMPANY	EKOTECHNIK	DATA	09/2015
DESIGN	JAN MASEK	FORMAT	4xA1
VERIFIED	JAN MASEK	ANNEX	
GENERAL LAYOUT			01 r.1

Archaeology Wales

Archaeology Wales Limited
The Reading Room, Town Hall, Great Oak Street,
Llanidloes, Powys SY18 6BN
Tel: +44 (0) 1686 440371
Email: admin@arch-wales.co.uk

Company Directors: Mark Houliston MIFA & Jill Houliston
Company Registered No. 7440770 (England & Wales).
Registered off ce: Morgan Gri ths LLP, Cross Chambers,
9 High Street, Newtown, Powys, SY16 2NY