

# **BLUESTONE SKY DOME, BLUESTONE RESORT, PEMBROKESHIRE: ARCHAEOLOGICAL WATCHING BRIEF (SN 06710 12926)**



Prepared by Dyfed Archaeological Trust  
For: Bluestone Resorts Ltd



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# BLUESTONE SKY DOME, BLUESTONE RESORT, PEMBROKESHIRE: ARCHAEOLOGICAL WATCHING BRIEF 2018 (SN 06710 12926)

Gan / By

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**SUMMARY**

*DAT Archaeological Services were commissioned by Bluestone Resorts Ltd to undertake an archaeological watching brief during groundworks for the development of the Sky Dome at Bluestone Resort, Pembrokeshire. Between 2002 and 2005 the resort had previously been subjected to an extensive programme of assessment and archaeological evaluation, which included work directly to the north of the Sky Dome site. During these works trial trenching identified medieval and post-medieval archaeological remains.*

*In 2017 DAT Archaeological Services were commissioned to undertake a geophysical survey of the proposed Sky Dome site, but site conditions meant this was not possible due to uneven ground and remnant vegetation. It was agreed that a further Desk Based Assessment would be prepared to compile previous archaeological investigation and land-use information and determine the archaeological potential of the site area. The assessment determined that the proposed Sky Dome lies in an area of land which has been significantly disturbed by the process of planting and, harvesting and removal of willow for biomass fuel for most of the last decade. From this it was deemed appropriate that an archaeological watching brief would be an appropriate level of mitigation during groundworks for the new development.*

*The watching brief was conducted intensively along the northern boundary of the site, nearest to where medieval and post-medieval archaeology had been identified in previous evaluations near to Newton Farm. Intermittent site visits were made to observe the remainder of the groundworks associated with the site development.*

*The watching brief confirmed that the vast majority of the site area had been subject to significant disturbance from the former willow biomass fuel planting and harvesting process. An area of disturbance from past groundworks was revealed in the northeastern part of the site area. A large modern storm drain also passed through the site area running from the northwestern part of the site through the eastern boundary.*

*The site was overlain by topsoil below which a depth of subsoil was noted comprising reddish/pink clay with gravel and mixed with the underlying 'rab' (broken shale bedrock). It is believed this subsoil represented ground disturbed by the willow plantation and harvesting over the last decade. No significant archaeological remains were identified within the site area and no finds, other than modern debris was noted.*

*Despite the results of this watching brief it does not preclude the possibility that significant archaeological activity exists in the wider area, especially if these areas have not been previously disturbed.*

## **1 INTRODUCTION**

### **1.1 Project Commission**

- 1.1.1 DAT Archaeological services were commissioned by Bluestone Resorts Ltd to undertake an archaeological watching brief during groundworks for the development of the proposed Sky Dome at the Bluestone Resort, Canaston Woods, Pembrokeshire (Planning Application No. 17/0844/PA).
- 1.1.2 The Sky Dome is located on the southern side of Bluestone Resort (centred on NGR SN 06710 12926; Figure 1 and 2), within fields previously planted with willow for use as biomass fuel for the nearby "Blue Lagoon" swimming centre.
- 1.1.3 The resort has previously been subject to an extensive programme of assessment and archaeological evaluation between 2002 and 2005, including work in the area directly north of the Sky Dome site, adjacent to Newton Farm, where trial trench evaluation revealed medieval and post-medieval archaeological remains. These are likely to have been associated with earlier activity at Newton Farm.
- 1.1.4 Initially DAT Archaeological Services were commissioned to undertake a geophysical survey of the development site in 2017, as it was deemed this would be the quickest way to ascertain the presence or absence of archaeological remains. Unfortunately, due to unsuitable ground conditions it was not possible to conduct the survey. In lieu of being able to go forward with the geophysical survey an Archaeological Desk Based Review was prepared instead, detailing all the previous archaeological works in the vicinity and assessing the likelihood of archaeological survival within the Sky Dome area based on recent land use (Bell 2017; DAT Report No. 2017/57).
- 1.1.5 The desk-based assessment concluded that *'Consequently, it is determined that the area of the proposed Sky Dome at Bluestone lies in an area of land which has been significantly disturbed by the process of planting, harvesting and removal of willow for biomass fuel for most of the last decade. Previous archaeological works in the area suggest that the area has a relatively low archaeological potential. Archaeological remains were found close to Newton House Farm, but no significant archaeological remains were found within the fields to the east of the proposed Sky Dome area during fairly extensive evaluation of the site of the Blue Lagoon and fields east of this. There is perhaps still a moderate archaeological potential within the northeastern part of the proposed Sky Dome area closest to Newton Farm, but any remains that may have been present will have been disturbed to some extent by the willow plantation, harvesting and clearance.'* (Bell, 2017; DAT Report No. 2017/57).
- 1.1.6 Following the desk-based assessment, the Development Management section of Dyfed Archaeological Trust (DAT-DM) sent an archaeological advice letter to the planning Local Planning Authority in December 2017 recommending that the following condition be attached to planning permission:  
  
*No development shall take place until a qualified and competent archaeologist has submitted a written scheme of investigation (WSI) for approval in writing by the local planning authority. This WSI will describe the different stages of the work and demonstrate that it has been fully resourced and given adequate time. On behalf of the local planning authority, their archaeological advisors (DAT DM) will monitor all aspects of this work through to the final discharging of the condition. This work will not be deemed complete until all aspects of the WSI have been*



*addressed and the final report submitted and approved. Reason: to protect historic environment interests whilst enabling development*

- 1.1.7 Through discussions with DAT-DM it was agreed that an archaeological watching brief during groundworks for the Sky Dome development would be appropriate to mitigate against any disturbance to archaeological remains from the development.
- 1.1.8 The definition of archaeological watching brief, taken from the Chartered Institute for Archaeologists Standards and Guidance: for Archaeological Watching Briefs (CIfA S&G: AWB 2014) is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.
- 1.1.9 The purpose of a watching brief, as laid down in the CIfA S&G AWB is:
- to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works;
  - to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment.

## **1.2 Scope of Project**

- 1.2.1 A Written Specification of Investigation (WSI) for the watching brief was prepared by DAT Archaeological Services prior to the commencement of works. The specification outlined the tasks the watching brief would deliver as follows:
- Provision of a written scheme of investigation to outline the methodology for the works which DAT Archaeological Services will undertake;
  - To monitor ground works in order to identify the presence/absence of any archaeological deposits.
  - To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works.
  - To appropriately investigate and record any archaeological deposits to be affected by the ground works.
  - To produce an archive and report of any results.

## **1.3 Report Outline**

- 1.3.1 This report describes the location of the development works, reviews the archaeological background, and provides a summary and discussion of the archaeological watching briefs and their results.

## 1.4 Abbreviations

- 1.4.1 Sites recorded on the Regional Historic Environment Record<sup>1</sup> (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Dyfed Archaeological Trust Development Management – DAT-DM; Scheduled Monument – SM; Written Scheme of Investigation – WSI; -Pembrokeshire Coast National Park Authority – PCNPA.

## 1.5 Illustrations

- 1.5.1 Printed map extracts are not necessarily produced to their original scale.

## 1.6 Timeline

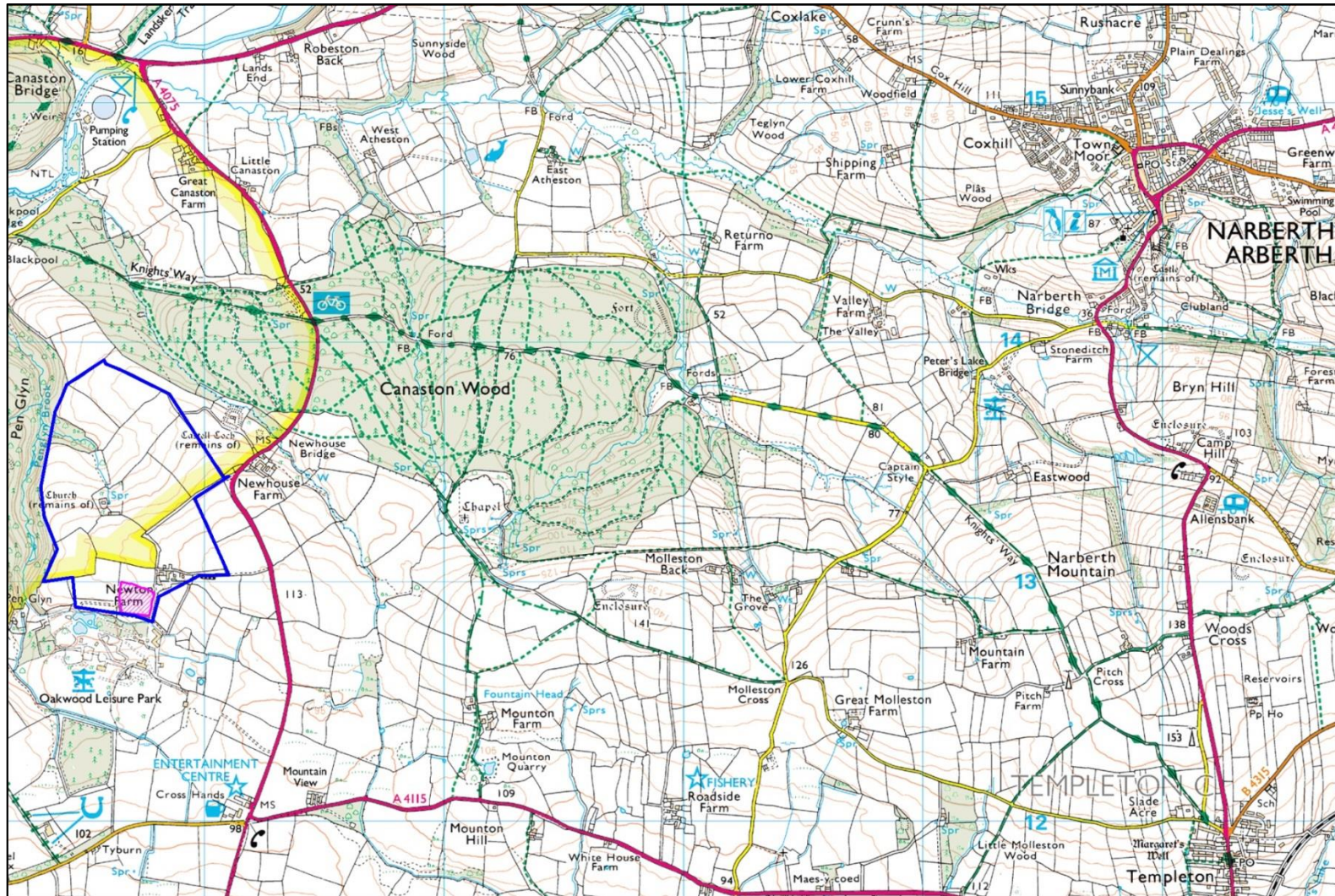
- 1.6.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

| Period                               | Approximate date                 |             |
|--------------------------------------|----------------------------------|-------------|
| Palaeolithic –                       | c.450,000 – 10,000 BC            | Prehistoric |
| Mesolithic –                         | c. 10,000 – 4400 BC              |             |
| Neolithic –                          | c.4400 – 2300 BC                 |             |
| Bronze Age –                         | c.2300 – 700 BC                  |             |
| Iron Age –                           | c.700 BC – AD 43                 |             |
| Roman (Romano-British) Period –      | AD 43 – c. AD 410                | Historic    |
| Post-Roman / Early Medieval Period – | c. AD 410 – AD 1086              |             |
| Medieval Period –                    | 1086 – 1536                      |             |
| Post-Medieval Period <sup>2</sup> –  | 1536 – 1750                      |             |
| Industrial Period –                  | 1750 – 1899                      |             |
| Modern –                             | 20 <sup>th</sup> century onwards |             |

**Table 1:** Archaeological and Historical Timeline for Wales.

<sup>1</sup> Held and managed by Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo SA19 6AF.

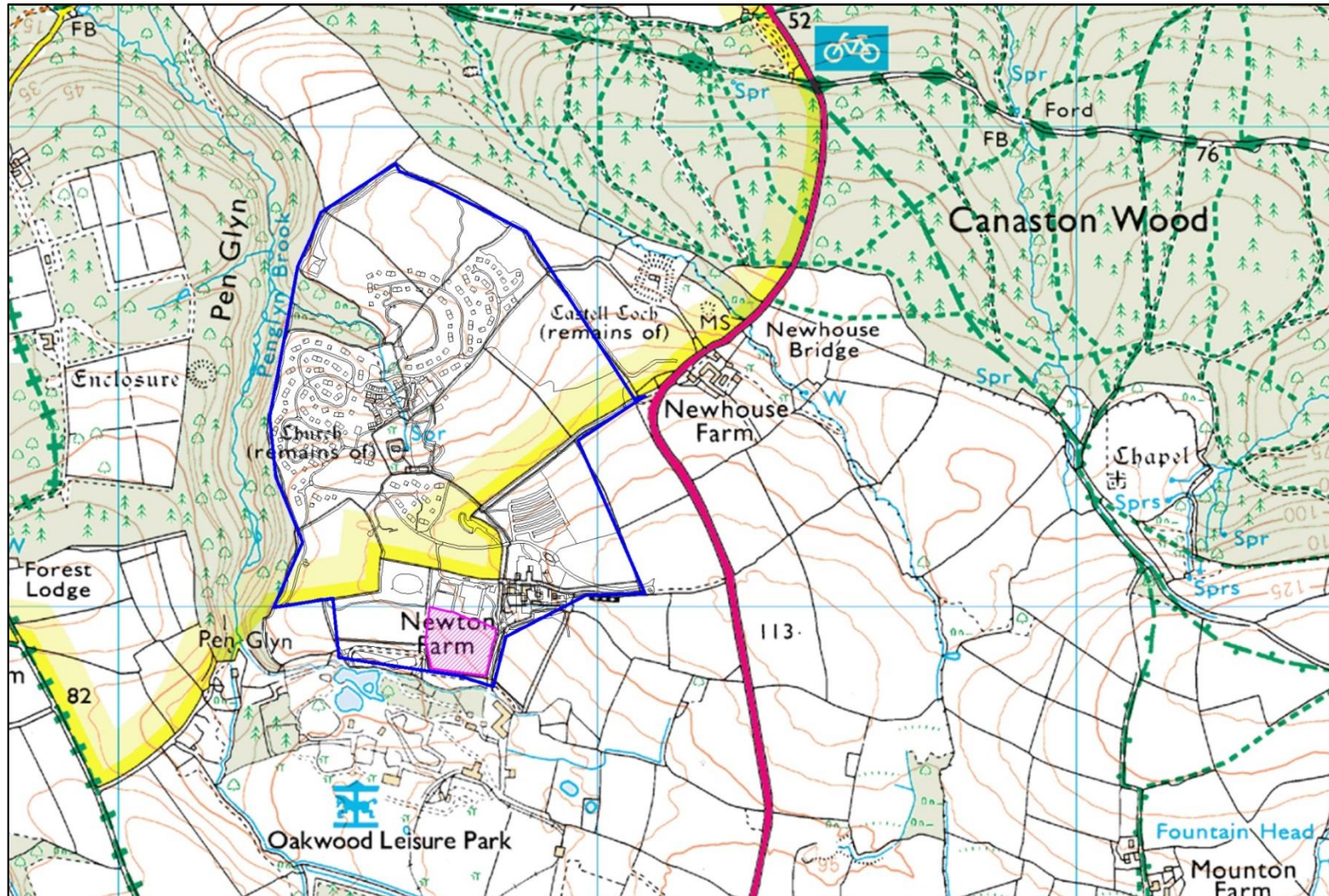
<sup>2</sup> The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust



**Figure 1:** Location map showing the location of Bluestone Resort (outlined in blue) and the development area within the resort (shaded pink). NB; the OS mapping does not depict the extent of the resort.

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**Figure 2:** Location map showing the location of Bluestone Resort (outlined in blue) and the development area within the resort (shaded pink) included within the yellow boundary of the Pembrokeshire Coast National Park.

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## **2 SITE DETAILS**

### **2.1 Location** (Bell 2017; DAT Report No. 2017/57)

- 2.2.1 Bluestone Resort is a holiday and activity center situated along the eastern fringe of Pen Glyn woods and is located approximately 4.7km south-west of the town of Narberth in south-eastern Pembrokeshire (Figure 1). The Oakwood Theme Park is situated immediately south of the resort and both are serviced by the A4075 road which runs to the east c.470m of the development area.
- 2.2.2 The Resort encompasses an area of approximately 59 hectares in size occupying the majority of land between Pen Glyn wood and Penglyn Brook to the west and the expansive Canaston Wood to the east. The northern extent of the resort is located within the Pembrokeshire Coast National Park (Figure 2). Bluestone resort comprises a large number of timber lodges located within the northern end of the resort which is serviced by a number of amenities including shops, restaurants and several activity centres including a large, undercover water activity venue located in the south-eastern end of the resort (Figure 3). A large artificial lake, fed by water diverted from the Pen Glyn Brook, has been created in the northern end of the resort as well as a large pond in the southern area which is situated immediately north-west of the development area (Figure 3). A number of footpaths and cycle routes weave through the resort and the neighbouring woods. Bluestone Resort has developed around the nucleus of the former Newton Farm which has since been subsumed into the resort. Newton Farm lies to the north-east of the proposed Sky Dome development area and is the likely to have medieval origins.
- 2.2.3 The development area for the proposed Sky Dome is located at the southern boundary of the resort and will encompass a field situated to the south and adjacent to an indoor activity centre (Figure 4).
- 2.2.4 The underlying solid geology is argillaceous rocks, sandstones and conglomerates of the Milford Haven Group. This is Sedimentary Bedrock formed approximately 407 to 423 million years ago during the Devonian and Silurian period (Source: British Geological Survey).

### **2.2 Archaeological Background**

- 2.2.1 A full and detailed Archaeological and Historical Background chapter was included in the Archaeological Desk Based Review (Bell 2017; DAT Report No. 2017/57). This was produced by DAT Services in lieu of being able to conduct a geophysical survey, only a summary of the findings is included here:
- 2.2.2 The proposed Sky Dome area has not been subject to any previous archaeological investigation, but the area directly to the north was evaluated in 2003/4 by Foundations Archaeology. This identified medieval and post-medieval remains within the eastern side of the field close to Newton Farm and presumably associated earlier pre-cursors to it. Evaluation in the fields to the east (including the area occupied by the Blue Lagoon) revealed no significant archaeological remains.
- 2.2.3 Trenches 9, 10, 13 and 14 of the 2003/4 evaluation by Foundations Archaeology were located within the area to the northeast of the Sky Dome and west of Newton Farm and all revealed archaeological remains. Trench 9 was located in the south-eastern corner of the evaluation area and yielded a possible wall base of probably early post-medieval date, a small medieval pit and a possible trackway. Pottery dating from the 12th

and 16th centuries was recovered from the fills of these features. An odd linear feature comprising a shallow ditch surrounded on either side by root holes was cautiously interpreted as being a ditched field boundary. However, this was acknowledged as not being in keeping with field boundaries in Pembrokeshire.

- 2.2.4 A second, small medieval pit was revealed in Trench 10 located along the centre of the eastern side of the evaluation area. In addition to the pit, a small assemblage of medieval and post medieval pottery was recovered from the eastern end of the trench. The report considers this assemblage to be of significance owing to the scarcity of artefactual evidence from the other trenches during this phase of evaluation. Furthermore, it is suggested that this assemblage may have been representative of a midden or similar feature which may have been within the vicinity and disturbed by modern ploughing.
- 2.2.5 The proposed Sky Dome area was previously densely planted with willow for use as biomass fuel for the resort. The willow was planted in lines and regularly cut and harvested. The field was cleared of willow sometime before the geophysical survey was attempted on 20th of July 2017. Ground conditions were unsuitable due to remnants of tree stumps and vegetation debris across the area. The area was visited again on 23rd of August 2017 following clearance and levelling, which had involved the removal of the remaining willow stumps and roots and it is estimated that these works will have disturbed the entire area to a depth of around 0.30m. Archaeology in the area evaluated to the north by Foundations Archaeology was found at a depth of between 0.24m and 0.36m.
- 2.2.6 It was concluded that the area of the proposed Sky Dome at Bluestone lies in an area of land which has been significantly disturbed by planting, harvesting and removal of willow for biomass fuel for most of the last decade. There is perhaps still a moderate archaeological potential within the northeastern part of the proposed Sky Dome area closest to Newton Farm, but any remains that may have been present will have been disturbed to some extent by the willow plantation.
- 2.2.7 A construction access route is planned for the Sky Dome development, which will run to the east of the development site, around the southern side of the Blue Lagoon to join with the main entranceway into the site east of the Blue Lagoon. This access road will pass through land which was significantly landscaped when the Blue Lagoon was built as has been confirmed through consultation of numerous aerial photographs taken of the development in 2007 and 2008 as supplied by the Bluestone Resort (Photo 1 shows an example of these photos and Photo 2 is annotated to show the site area and rough location of proposed construction access, Figure 3).



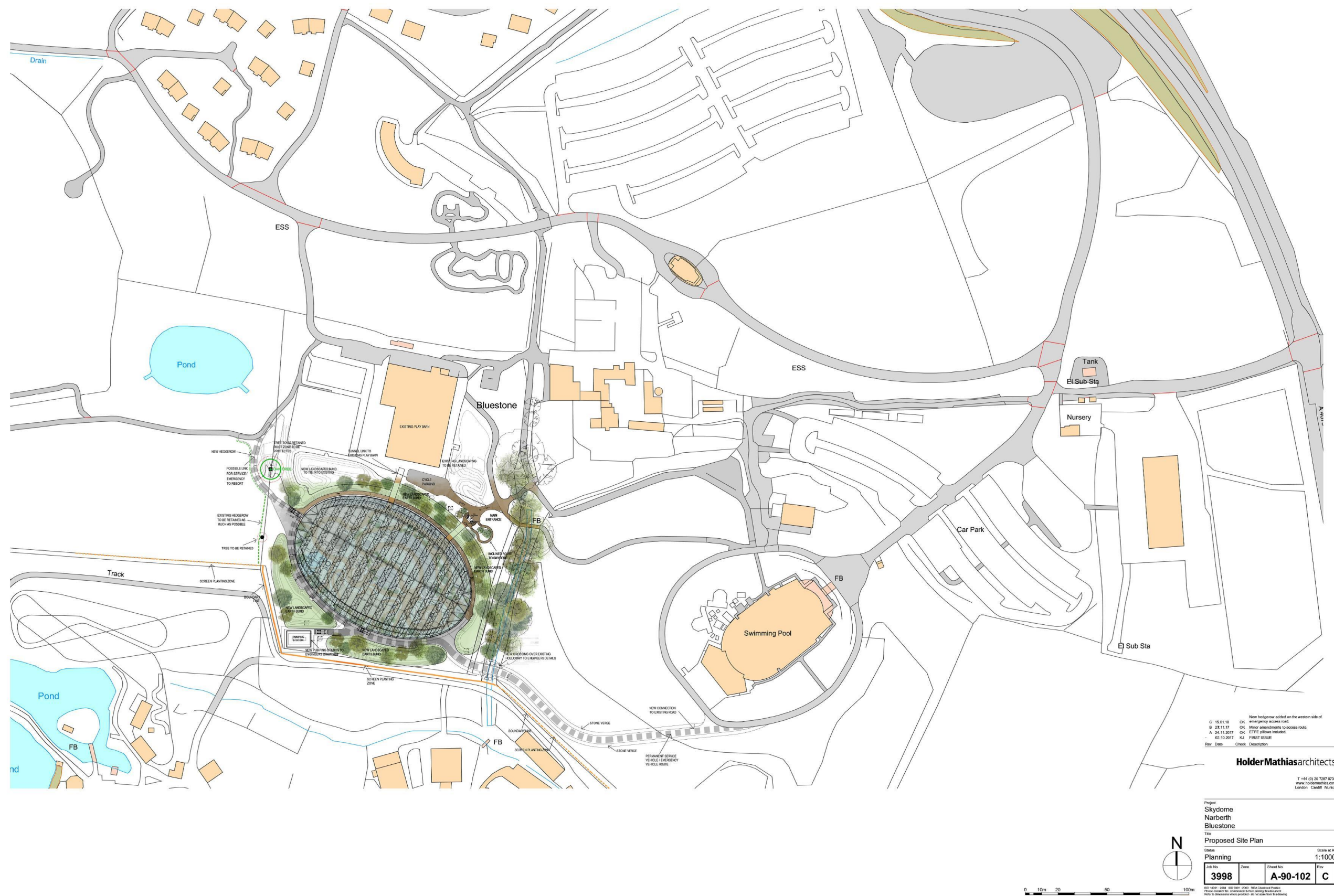


**Photo 1:** Aerial photograph of the Bluestone resort in march 2007 looking roughly northwest, with area of Blue lagoon during construction and widespread landscaping works evident (Photo supplied by Bluestone Resort Ltd)



**Photo 2:** As above, but with area of Sky Dome (red) and approximation of construction access (blue) annotated (Photo supplied by Bluestone Resort Ltd)





**Figure 3:** The proposed plans for the Sky Dome at Bluestone Resort including construction access route (Copyright Holder Mathias Architects).



### **3 WATCHING BRIEF METHODOLOGY**

#### **3.1 Fieldwork Methodology**

- 3.1.1 The archaeological watching brief was undertaken during groundworks in preparation for the development of the Sky Dome.
- 3.1.2 This watching brief was undertaken in accordance with the relevant CIfA Standard and Guidance for an Archaeological Watching Brief (2014). The Written Scheme of Investigation outlined the archaeological works proposed and provided a detailed methodology for the watching brief. This was approved by the Development Management section of Dyfed Archaeological Trust prior to the commencement of the works.
- 3.1.3 Recording of all archaeological features or deposits conformed to best current professional practice and was carried out in accordance with the Recording Manual<sup>3</sup> used by DAT Archaeological Services.

#### **3.2 Post-Fieldwork Reporting and Archiving**

- 3.2.1 All data recovered during the fieldwork will be collated into a site archive structured in accordance with specifications in *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (Brown 2007), and the procedures recommended by the National Monuments Record, Aberystwyth.
- 3.2.2 The results of the fieldwork have been assessed in local, regional and wider contexts.
- 3.2.3 The report includes a desk-based research element to ensure that the site is placed within its wider archaeological context.

#### **3.3 Timetabling of Fieldwork**

- 3.3.1 Site visits were undertaken on 16<sup>th</sup>, 17<sup>th</sup> and 19<sup>th</sup> April and 2<sup>nd</sup> May 2018. The first two visits concentrated on the northeastern part of the site area nearest to Newton Farm.
- 3.3.2 The final site visit was undertaken at the end of the site topsoil strip when the full area of the Sky Dome site had been exposed and the perimeter trench for the structure had been excavated.

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<sup>3</sup> DAT Archaeological Services has adopted the Recording Manual developed by English Heritage Centre for Archaeology.

## 4 RESULTS

- 4.1 The watching brief started in the northeastern corner part of the Sky Dome development area nearest where medieval and post medieval archaeology had been identified in a previous evaluation near to Newton Farm. Prior to the current groundworks a significantly large soil bond was present here as part of previous landscaping of the resort. This was removed down to ground level (as agreed) before the archaeological watching brief commenced (Photo 3).



**Photo 3:** View east along the northern part following the removal of the soil bond (visible in the background).

- 4.2 It was apparent that the ground beneath the soil bund had been significantly disturbed through previous works, prior to the bund being formed. The material exposed was very loose and consisted of a red/pink clay approximately 0.30m – 0.50m deep with frequent inclusions of rubble and stones. This possibly represented material used for landscaping.
- 4.3 Beneath this landscaping material two parallel strips of buried topsoil were observed (Photos 4 and 5). These were approximately 5m wide and ran east to west across the stripped area in the northeastern part of the site. The buried topsoil was very shallow, at only c.0.05m thick and it contained no artefacts. It is assumed that these strips represent remnant topsoil that had accumulated in trackways or machine stripped areas of the site which were slightly deeper than the land either side. They were definitely modern in date and associated with previous groundworks for other phases of development at the Bluestone site.
- 4.4 The underlying natural geology consisted of a very compacted pink clay and stone and as well as broken shale 'rab'.





**Photo 4:** Example of strip of buried topsoil observed in northern part of development area, viewing west-northwest



**Photo 5:** Example of strip of buried topsoil observed in northern part of development area, viewing west-northwest

- 4.5 It was agreed with the site contractors that a trial trench would be excavated to the south of this initial stripped area to determine the depth of the topsoil and the extent of disturbance from the former willow crop. This trench was excavated to a depth of approximately 0.55m and



revealed an upper silty brown topsoil layer of 0.50m overlying a compacted natural red/pink clay (Photos 6 and 7).

- 4.6 Across the remainder of the site an intermittent watching brief was conducted (Photos 8 and 9). The works involved both the removal of the roughly 0.50m deep topsoil and also around a further 0.50m of subsoil/natural geology to reach formation depth for the Sky Dome structure (Photo 10). The topsoil contained numerous roots and quite a lot of broken up 'rab'.
- 4.7 The final visit to the site was undertaken following completion of the site strip and the excavation of a perimeter trench around the oval footprint of the Sky Dome, required for the piling rig (Photos 11 and 12). At this stage it was evident that a large drain had crossed through the site from the northwestern edge towards the eastern edge of the site. This had been installed some years ago and had to be diverted around the footprint of the Sky Dome (Photo 13).
- 4.8 The perimeter trench was excavated around 1m below the stripped level across the site. This enabled a clearer idea of the underlying geology which was formed of bands of red clays, 'rab' and some areas of more solid sandstone or limestone bedrock.
- 4.9 Overall no significant archaeological remains were revealed within the site area. It was evident that a considerable depth of ground had been disturbed through former agricultural practices across the site. No artefacts were noted within the topsoil, excluding modern detritus which was not retained.



**Photo 6:** Excavation of evaluation trench showing topsoil containing broken 'rab' overlying natural clays





**Photo 7:** East facing section of evaluation trench showing topsoil containing disturbed 'rab' overlying natural clays.



**Photo 8:** View southwest across Sky Dome area towards Oakwood showing exposed natural geology, comprising pink clay and 'rab'





**Photo 9:** View southwest across southern edge of Sky Dome area showing exposed natural geology, comprising pink clay and 'rab'



**Photo 10:** View southwest across southern edge of Sky Dome area showing exposed natural geology, comprising pink clay and 'rab'





**Photo 11:** View east across the northern part of the Sky Dome footprint, showing the remains of the former diverted drainage pipe



**Photo 12:** Stitched photographs of the excavated footprint of the 'Dome' showing the underlying natural geology. View southwest.



**Photo 13:** Stitched photographs of the excavated footprint of the 'Dome' showing the underlying natural geology. View north..



## **5 CONCLUSIONS**

- 5.1 The archaeological watching brief undertaken during groundworks for the proposed Sky Dome at Bluestone, Canaston Wood, Pembrokeshire confirmed that the site area had been subject to previous disturbance. Much of this came from the planting, harvesting and clearance of a willow crop used for biomass fuel. The process had significantly broken up the top of the natural geology underlying a relatively deep topsoil. This would have come from root damage, the process of planting the willow stands and their subsequent harvest and most recently when the remains of the plants were completely pulled up prior to development.
- 5.2 The watching brief identified an area of former groundworks in the northeastern part of the Sky Dome area, which had been identified as having the highest archaeological potential. It is likely that the groundworks were undertaken when the adjacent activity centre had been built. It was evident that topsoil had been previously stripped, with differences in the natural geology observed and areas of very mixed subsoils containing topsoil, clay and 'rab'.
- 5.3 A large drainage pipe was also present crossing the area from the northwest to the eastern boundary of the site. The size of pipe suggests a storm drain, again presumably installed when surrounding buildings and car parking areas for the Bluestone resort were constructed. The pipe was diverted to the north of the Sky Dome footprint.
- 5.4 The results of the watching brief have demonstrated that the groundworks associated with the development did not appear to have had any impact upon any significant archaeological remains or deposits. It is possible that any such remains had been removed by previous activities, although the lack of any finds (other than modern detritus) suggests that perhaps the area was devoid of archaeology. The medieval and post-medieval activity identified during previous evaluation to the north of the Sky Dome site some years ago, is probably concentrated around the farm and there was no evidence for it extending further to the south.

## **6 SOURCES**

### **6.1 Published**

Bell, M. 2017 *Bluestone Sky Dome, Bluestone Resort, Pembrokeshire: Archaeological Desk Based Review*. Dyfed Archaeological Trust Report No. 2017/57

Brown, D H, 2007 *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*. Institute of Field Archaeologists

### **6.2 Database**

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Corner House, Llandeilo, Carmarthenshire, SA19 6AE

RCAHMW Coflein Database: -<http://www.coflein.gov.uk/>

Cof Cymru - National Historic Assets of Wales: -  
<http://cadw.gov.wales/historicenvironment/recordsv1/cof-cymru/?lang=en>

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

British Geological Survey:

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

### **6.3 Cartographic**

Ordnance Survey Map, 2001, 1:25 000

Ordnance Survey Map, 2003, 1:50 000

**APPENDIX I: WRITTEN SCHEME OF INVESTIGATION**  
(illustrations are not reproduced,)

**BLUESTONE SKY DOME, BLUESTONE RESORT, PEMBROKESHIRE**  
**WRITTEN SCHEME OF INVESTIGATION FOR**  
**AN ARCHAEOLOGICAL WATCHING BRIEF**

**1 INTRODUCTION**

- 1.1 Planning application No. 17/0844/PA has been submitted to Pembrokeshire County Council for the "construction of a covered leisure facility, with associated landscaping and infrastructure works, on land at Bluestone National Park Resort" to be called the Sky Dome. The Sky Dome is located on the southern side of the Bluestone resort within fields previously planted with willow for use as biomass fuel for the nearby "Blue Lagoon" swimming centre (centred on SN 06710 12926; Figures 1, 2 & 3).
- 1.2 The resort has been subject to an extensive programme of assessment and archaeological evaluation undertaken between 2002 and 2005, including work in the area directly north of the Sky Dome site, adjacent to Newton farm, where trial trench evaluation revealed medieval and post-medieval archaeological remains. These are likely to have been associated with earlier activity at Newton Farm.
- 1.3 In advance of determination of the planning application in 2017, the Development Management section of Dyfed Archaeological Trust (DAT-DM), in their capacity as archaeological advisors to the planning authority, requested that archaeological works were undertaken at the site to better ascertain the archaeological potential of the Sky Dome area.
- 1.4 DAT Archaeological Services were commissioned to undertake a geophysical survey of the area, following their recommendation that this would be the best and quickest way to ascertain the presence or absence of any archaeological remains. Unfortunately it was not possible to carry out the survey due to the ground conditions, which were very uneven with the remains of stumps from the former willow plantation across the area. Once it was realised that the area had been significantly disturbed from the former willow plantation and its partial removal, it was determined that an archaeological desk-based assessment should be prepared to detail all previous archaeological works in the vicinity and assess the likelihood of archaeological survival within the Sky Dome area.
- 1.5 The desk-based assessment concluded that *'Consequently, it is determined that the area of the proposed Sky Dome at Bluestone lies in an area of land which has been significantly disturbed by the process of planting, harvesting and removal of willow for biomass fuel for most of the last decade. Previous archaeological works in the area suggest that the area has a relatively low archaeological potential. Archaeological remains were found .... close to Newton House Farm, but no significant archaeological remains were found within the fields to the east of the proposed Sky Dome area during fairly extensive evaluation of the site of the Blue Lagoon and fields east of this. There is perhaps still a moderate archaeological potential within the northeastern part of the proposed Sky Dome area closest to Newton Farm, but any remains that may have been present will have been disturbed to some extent by the willow plantation, harvesting and clearance.'* (Bell, Menna 2017, Bluestone Sky Dome, Bluestone Resort, Pembrokeshire: Archaeological Desk Based Review, DAT Report No. 2017/57).

- 1.6 Following the desk-based assessment, the Development Management section of Dyfed Archaeological Trust sent an archaeological advice letter to the planning LPA in December 2017 recommending that the following condition be attached to planning permission:

*No development shall take place until a qualified and competent archaeologist has submitted a written scheme of investigation (WSI) for approval in writing by the local planning authority. This WSI will describe the different stages of the work and demonstrate that it has been fully resourced and given adequate time. On behalf of the local planning authority, their archaeological advisors (DAT DM) will monitor all aspects of this work through to the final discharging of the condition. This work will not be deemed complete until all aspects of the WSI have been addressed and the final report submitted and approved. Reason: to protect historic environment interests whilst enabling development*

- 1.7 Through discussions with DAT-DM it has been agreed that an archaeological watching brief during groundworks for the development will be appropriate to mitigate against any disturbance to archaeological remains from the development.

**Summary Archaeological and Historical Background (Bell 2017)**

- 1.8 The proposed Sky Dome area has not been subject to any previous archaeological investigation, but the area directly to the north was evaluated in 2003/4 by Foundations Archaeology. This identified medieval and post-medieval remains within the eastern side of the field close to Newton Farm and presumably associated earlier pre-cursors to it. Evaluation in the fields to the east (including the area occupied by the Blue Lagoon) revealed no significant archaeological remains.
- 1.9 Trenches 9, 10, 13 and 14 of the 2003/4 evaluation by Foundations Archaeology were located within the area to the northeast of the Sky Dome and west of Newton Farm and all revealed archaeological remains. Trench 9 was located in the south-eastern corner of the evaluation area and yielded a possible wall base of probably early post-medieval date, a small medieval pit and a possible trackway. Pottery dating from the 12th and 16th centuries was recovered from the fills of these features. An odd linear feature comprising a shallow ditch surrounded on either side by root holes was cautiously interpreted as being a ditched field boundary. However, this was acknowledged as not being in keeping with field boundaries in Pembrokeshire.
- 1.10 A second, small medieval pit was revealed in Trench 10 located along the centre of the eastern side of the evaluation area. In addition to the pit, a small assemblage of medieval and post medieval pottery was recovered from the eastern end of the trench. The report considers this assemblage to be of significance owing to the scarcity of artefactual evidence from the other trenches during this phase of evaluation. Furthermore, it is suggested that this assemblage may have been representative of a midden or similar feature which may have been within the vicinity and disturbed by modern ploughing.
- 1.11 The proposed Sky Dome area was previously densely planted with willow for use as biomass fuel for the resort. The willow was planted in lines and regularly cut and harvested. The field was cleared of willow sometime before the geophysical survey was attempted on 20th of July 2017. Ground conditions were unsuitable due to remnants of tree stumps and vegetation debris across the area. The area was visited again on 23rd of August 2017 following clearance and levelling, which had involved the

removal of the remaining willow stumps and roots and it is estimated that these works will have disturbed the entire area to a depth of around 0.30m. Archaeology in the area evaluated to the north by Foundations Archaeology was found at a depth of between 0.24m and 0.36m.

- 1.12 It was concluded that the area of the proposed Sky Dome at Bluestone lies in an area of land which has been significantly disturbed by planting, harvesting and removal of willow for biomass fuel for most of the last decade. There is perhaps still a moderate archaeological potential within the northeastern part of the proposed Sky Dome area closest to Newton Farm, but any remains that may have been present will have been disturbed to some extent by the willow plantation.
- 1.13 A construction access route is planned for the Sky Dome development, which will run to the east of the development site, around the southern side of the Blue Lagoon to join with the main entranceway into the site east of the Blue Lagoon. This access road will pass through land which was significantly landscaped when the Blue Lagoon was built as has been confirmed through consultation of numerous aerial photographs taken of the development in 2007 and 2008 as supplied by the Bluestone Resort (Photo 1 shows an example of these photos and Photo 2 is annotated to show the site area and rough location of proposed construction access, Figure 3).
- 1.14 This Written Scheme of Investigation (WSI or specification) has been prepared by DAT Archaeological Services (the contracting arm of Dyfed Archaeological Trust) for an archaeological watching brief to be undertaken during groundworks at the works at the site where there is a potential that archaeological remains could be exposed, damaged or destroyed by the works.
- 1.15 This WSI details the methodology of the evaluation which will be undertaken and has been prepared in accordance with the *Standard and Guidance for An Archaeological Watching Brief* (CIfA<sup>4</sup> 2014).
- 1.16 DAT Archaeological Services are a Registered Organisation with the Chartered Institute for Archaeologists (CIfA) and is managed by a Member of the CIfA (MCIfA level).

## **2. WATCHING BRIEF**

- 2.1 The definition of archaeological watching brief, taken from the Chartered Institute for Archaeologists Standards and Guidance: for Archaeological Watching Briefs (CIfA S&G: AWB 2014) is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.
- 2.2 The purpose of a watching brief, as laid down in the CIfA S&G AWB is:
  - to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works;*
  - to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in*

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<sup>4</sup> Chartered Institute for Archaeologists.

*question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment.*

- 2.3 This document provides a scheme of works for: ***The implementation of an archaeological watching brief during groundworks for the proposed Sky Dome at Bluestone Resort, Pembrokeshire. A report will be prepared on results of the watching brief and an archive created of all finds, records, photographs and plans created. Further mitigation may possibly need to be implemented where significant archaeological remains are identified by the watching brief.***
- 2.4 The following tasks will be completed:
- Provision of a written scheme of investigation to outline the methodology for the intrusive trial trench evaluation which DAT Archaeological Services will undertake (this document);
  - To monitor ground works in order to identify the presence/absence of any archaeological deposits.
  - To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works.
  - To appropriately investigate and record any archaeological deposits to be affected by the ground works.
  - To produce an archive and report of any results.

### **3 ARCHAEOLOGICAL WATCHING BRIEF METHODOLOGY**

- 3.1 A watching brief will be maintained during groundworks at the proposed Sky Dome development site within the Bluestone Resort, where there is the potential for archaeological; remains to be exposed, damaged or destroyed. Ideally groundworks will commence in the northeastern part of the development area, where the archaeological potential is considered highest. If it is apparent that the previous willow plantation, harvesting and its removal has significantly disturbed the ground and removed any archaeological remains, then the watching brief may become gradually more intermittent (occasional visits to check on progress) as the works move away from the area of higher archaeological significance. As noted above, it is considered that the areas of the proposed construction access that will run through the land to the east of the Sky Dome development area will not require a watching brief to be carried out.
- 3.2 The archaeologist will monitor the groundworks and aim to identify any archaeological remains that may be present. They will have the authority to halt groundworks in areas where archaeological remains are identified until they have been further investigated and recorded. Areas of archaeological interest will be demarcated and made known to site contractors.
- 3.3 It is essential coordination between the site contractor's and archaeologist is established at the outset to avoid any potential disturbance to archaeology without an archaeologist being present, or unnecessary visits to the site when works are being carried out that do not require the presence of an archaeologist.
- 3.4 Adequate time must be made available to the visiting archaeologist to ensure that appropriate recording can be undertaken of any archaeological features or deposits exposed during the geotechnical works.

- 3.5 Features containing deposits of environmental significance will be sampled. The samples will be retained in stable conditions until analysis can be arranged.
- 3.6 All deposits will be recorded by archaeological context record sheet, scale drawing, photography and site notebooks. All individual deposits will be numbered using the open-ended numbering system in accordance with a recognised system, such as the DAT Archaeological Services' Recording Manual. Significant deposits will be recorded by scale drawing (no less than 1:20); drawn plans will be related to Ordnance Datum and, where possible, known boundaries. A digital photographic record will be maintained as a minimum using a high resolution camera, with photographic information recorded for all photographs taken.
- 3.7 All archaeologically significant artefacts, ecofacts and samples will be retained and, where possible, related to the contexts from which they derived. Sensitive materials will be stored in appropriately stable conditions. Finds will be temporarily stored by DAT Archaeological Services in stable conditions. All finds, except those deemed to be Treasure, will remain the property of the landowner, but it is assumed that permission will have been given by the landowner for these to be stored as part of the archive in a suitable repository (ownership will still be with the landowner).
- 3.8 Under the 1996 Treasure Act, "treasure" can be summarised as:
- Any object other than a coin containing at least 10% gold or silver and at least 300 years old;
  - Any prehistoric assemblage of base metal;
  - Coins found together which contain 10% gold or silver (but no single coins) and groups of at least 10 coins of other metals, provided they are at least 300 years old;
  - Any object found associated with treasure except unworked natural objects; and
  - Any object which would have been Treasure Trove before the 1996 Act but not covered above.
- 3.9 In the event that unforeseen archaeological discoveries are made during the development, or where unexpected archaeological remains of high significance are exposed, the appointed archaeological contractor will have the power to halt any ground works and shall inform the client and Development Management – Dyfed Archaeological Trust, and prepare a written statement with plan detailing the archaeological evidence. Following assessment of the archaeological remains by all parties, if required, a contingency scheme for salvage excavation of affected archaeological features may need to be implemented. This event would need to be covered by contingency financial arrangements within the project budgets.
- 3.9 In the unlikely event of the discovery of human remains (including cist graves) they will, at this evaluation stage, be left *in situ*. If removal is necessary it will only take place following the granting of all permissions in writing by the relevant authorities and at a later stage of any necessary archaeological works (a burial licence granted from the Ministry of Justice).

#### **4 POST-FIELDWORK REPORTING AND ARCHIVING**

- 4.1 All data recovered during the watching brief will be collated into a site archive structured in accordance with the specifications in *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (Brown 2011), and the procedures recommended by the National Monuments Record, Aberystwyth. The *National Standards for Wales for Collecting and Depositing Archaeological Archives* produced by the Federation of Museums and Art Galleries of Wales will also be adhered to. Digital archives will be collated using the Royal Commission on the Ancient and Historical Monuments of Wales systems (2015) and deposited with the RCAHMW.
- 4.2 The results of the fieldwork will be assessed in local, regional and wider contexts. The results are likely to be incorporated into the report on further archaeological works undertaken at the site, rather than in a single standalone report at this stage.
- 4.3 The report will include a desk-based assessment element (summarised from the existing reports) to place the site into its wider context within the area.
- 4.4 The project archive, including all significant artefacts and ecofacts (excepting those which may be deemed to be Treasure) will be deposited with an appropriate body following agreement with the landowner.
- 4.5 DAT Archaeological Services will arrange for the deposition of any significant finds recovered from the site works, based on the DAT Finds Retention Policy 2018. Significant finds will be deposited with an appropriate museum in Pembrokeshire. A digital archive will be prepared of all site records and photographs which will be deposited with the Royal Commission on the Ancient and Historical Monuments of Wales (paper records will not be kept).
- 4.6 A summary of the final project results, excluding any confidential information, may be prepared for wider dissemination (e.g. Archaeology in Wales and special interest and period-specific journals).
- 4.7 A digital copy and two bound copies of the final report will be produced for the client. Digital copies of the report will be supplied to Dyfed Archaeological Trust - Development Management and the regional Historic Environment Record.

#### **5 STAFF**

- 6.1 The project will be managed by James Meek (MCIfA).
- 6.2 The on-site works will be undertaken by an experienced archaeologist from DAT Archaeological Services with CSCS cards.

#### **6 MONITORING**

- 6.1 The archaeological watching brief may need to be monitored by the archaeological advisor to the planning authority, Dyfed Archaeological Trust – Development Management. They should be given notice of the start date for the works in order that they are aware that there may be a requirement for them to visit the site in the event of significant discoveries being made, or merely as a monitoring exercise.



## **7 HEALTH AND SAFETY**

- 7.1 All DAT Archaeological Services staff are CSCS registered.
- 7.2 DAT Archaeological Services will carry out a health and safety risk assessment to ensure that all potential risks are minimised.
- 7.3 All relevant health and safety regulations must be followed.
- 7.4 All site inductions, H&S procedures and site rules of the site contractor will be made known to DAT Archaeological Services staff prior to them commencing work on-site.
- 7.5 Safety helmets, safety boots and high visibility vests are to be used by all site personnel as necessary. The site contractors will make all archaeological staff aware of any other PPE that may be required and provide them. Archaeological staff must not enter any area where there is a considered to be a health and safety risk that has not or is not being appropriately mitigated against.
- 7.6 DAT Archaeological Services staff must ensure that their presence on site is communicated to all relevant site staff, especially machine operators.

**BLUESTONE SKY DOME, BLUESTONE RESORT,  
PEMBROKESHIRE:  
ARCHAEOLOGICAL WATCHING BRIEF 2018  
(SN 06710 12926)**

**RHIF YR ADRODDIAD / REPORT NUMBER 112144  
RHIF Y PROSIECT / PROJECT RECORD NO. 2018-24**

**Tachwedd 2018  
November 2018**

Paratowyd yr adroddiad hwn gan / This report has been prepared by

**Charlie Enright**

Swydd / Position: **Archaeologist DAT Archaeological Services**



Llofnod / Signature ..... Dyddiad / Date 29/06/18

*Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith*  
This report has been checked and approved by

**James Meek**

*ar ran Ymddiriedolaeth Archaeolegol Dyfed Cyf.*  
on behalf of Dyfed Archaeological Trust Ltd.

Swydd / Position: **Head of DAT Archaeological Services**



Llofnod / Signature ..... Dyddiad / Date 02/11/18

*Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau  
sydd gennych ar gynnwys neu strwythur yr adroddiad hwn*

As part of our desire to provide a quality service we would welcome any  
comments you may have on the content or presentation of this report

