

**PEMBROKE REFINERY-VALERO,  
RHOSCROWTHER, PEMBROKESHIRE:  
ARCHAEOLOGICAL EVALUATION  
2019  
(NGR SM 91418 02143)**



Prepared by DAT Archaeological Services

For: EPT / Valero



ymddiriedolaeth archaeolegol



**DYFED ARCHAEOLOGICAL TRUST**

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2019**

Gan / By  
Andrew Shobbrook

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**PEMBROKE REFINERY-VALERO, RHOSCROWTHER, PEMBROKESHIRE**  
**ARCHAEOLOGICAL EVALUATION 2019**

**SUMMARY**

*DAT Archaeological Services were commissioned by ETP / Valero to undertake an archaeological evaluation in September 2019 on land at the Pembroke Refinery-Valero, Rhoscrowther, Pembrokeshire (NGR SM 91418 02143). The development site lies within an area considered to be of high archaeological potential due to its close proximity to a number of Iron Age defended enclosures.*

*Over the course of the evaluation it was clear that the entire proposed development area had been levelled down to bedrock prior to the existing crushed stone surface being laid. No significant archaeological deposits or features were recorded.*

*The site area had previously been used as accommodation and compounds for the workers who built the refinery in the 1960s. It is clear that the area had been completely levelled down to bedrock prior for this. Any archaeological remains that may have originally been present would have been completely removed by this activity on the site. All finds found over the course of the evaluation proved to be of a modern date relating the initial construction of the refinery.*

**CRYNODEB**

*Comisiynwyd Gwasanaethau Archeolegol YAD gan EPT / Valero i ymgymryd gwerthusiad archeolegol ym mis Medi 2019 ar dir ym Mhurfa Valero Penfro, Rhoscrowther, Sir Benfro (SM 91418 02143). Mae'r safle datblygu yn gorwedd o fewn ardal yr ystyrir ei bod â photensial archeolegol uchel oherwydd ei bod yn agos at nifer o lociau amddiffynnol Oes Haearn.*

*Yn ystod y gwerthusiad, roedd yn amlwg bod yr holl ardal ddatblygu arfaethedig wedi'i lefelu i lawr i'r creigwely cyn i'r wyneb cerrig torf presennol gael ei osod. Ni chofnodwyd unrhyw ddyddodion na nodweddion archeolegol arwyddocaol.*

*Yn flaenorol, defnyddiwyd ardal y safle fel llety a chyfansoddion ar gyfer y gweithwyr a adeiladodd y purfa yn y 1960au. Mae'n amlwg bod yr ardal wedi'i lefelu i lawr i greigwely cyn hyn. Byddai unrhyw weddillion archeolegol a allai fod yn bresennol yn wreiddiol wedi cael eu symud yn llwyr gan y gweithgaredd hwn ar y safle. Profwyd bod yr holl ddarganfyddiadau a ddarganfuwyd yn ystod y gwerthusiad wedi dyddio o ddyddiad modern yn ymwneud ag adeiladu cychwynnol y purfa.*

## **1. INTRODUCTION**

### **1.1 Project Commission**

- 1.1.1 DAT Archaeological Services were commissioned by EPT / Valero Energy Ltd, to undertake an archaeological evaluation on the site of a proposed new workshop building and a laboratory on land located within the area of the existing Valero Refinery, Rhoscrowther, Pembrokeshire (centred on NGR SM 91418 02143; Figures 1 and 2).
- 1.1.2 At this stage the development proposals (Figure 3) are in the pre-application stage, and as part of initial consultation with Pembrokeshire County Council archaeological advice was provided by the archaeological advisors to the planning authority (Development Management section of Dyfed Archaeological Trust). This initial advice requested pre-determination evaluation of the site due to its high archaeological potential.
- 1.1.3 The site area is currently used as a car parking area with grassed areas present along its southern edge and located just inside the southern boundary of the Valero Refinery.
- 1.1.4 EDP provided a short heritage baseline report for the proposed development area which demonstrated that the area had a high archaeological potential, the site being located close to a number of Iron Age enclosure sites on the Rhoscrowther Peninsula. A number of Bronze Age barrows are present in the wider area. A potential Mesolithic flint working site lies to the southeast of the development area.
- 1.1.5 Following discussions with EDP it was proposed to open 5 trenches within the development area, each of 25m length (Figure 2). In the event a different trench arrangement had to be carried out due to other site constraints and the underlying ground conditions of the site (Figure 3).
- 1.1.6 The aim of the evaluation was to provide information on the character and significance of any below ground archaeological remains that may be present within the proposed development area.

### **1.2 Scope of Project**

- 1.2.1 A Written Scheme of Investigation (WSI) for the archaeological evaluation was prepared by DAT Archaeological Services prior to the commencement of works. This was approved by the local planning authority following advice from DAT-DM prior to the start of the works. The WSI outlined the following tasks for the project:
  - 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 establish the state of preservation, character, extent and date range for the targeted archaeological deposits;
  - To use the information to design future mitigation at the site which will enable any identified remains to be appropriately investigated and recorded where they will be affected by the proposed development;
  - Production of a report and an archive of the results.
- 1.2.2 The overall scheme of works was summarised as: *'The implementation of a scheme of archaeological evaluation using trial trenching in advance of the proposed development at the Valero Refinery site, Pembrokeshire.'*

*Trenches will be placed within the site area avoiding known services or drains, existing road lines, tarmac surfaced car parking areas and bunded areas. Further mitigation may be required where significant remains are identified, the scope of which would be determined following this stage of work. A report shall be prepared on the results of the evaluation and an archive created of all finds, records, photographs and plans created by this mitigation strategy.'*

- 1.2.3 The actual trench locations (Figure 3) were agreed with the archaeological advisor to the planning authority and archaeological consultant once on-site constraints and underlying ground conditions became evident.

### **1.3 Report Outline**

- 1.3.1 This report provides a summary and discussion of the archaeological evaluation and its results and puts those results within their regional and national context where possible.

### **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). DAT Archaeological Services – DAT-AS; Dyfed Archaeological Trust Development Management – DAT-DM; Scheduled Monument – SM; Written Scheme of Investigation – WSI; RCAHMW – Royal Commission on the Ancient and Historical Monuments of Wales.

### **1.5 Illustrations**

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

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<sup>1</sup> Held and managed by Dyfed Archaeological Trust, Corner House, 6 Carmarthen Street, Llandeilo SA19 6AE

## 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>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

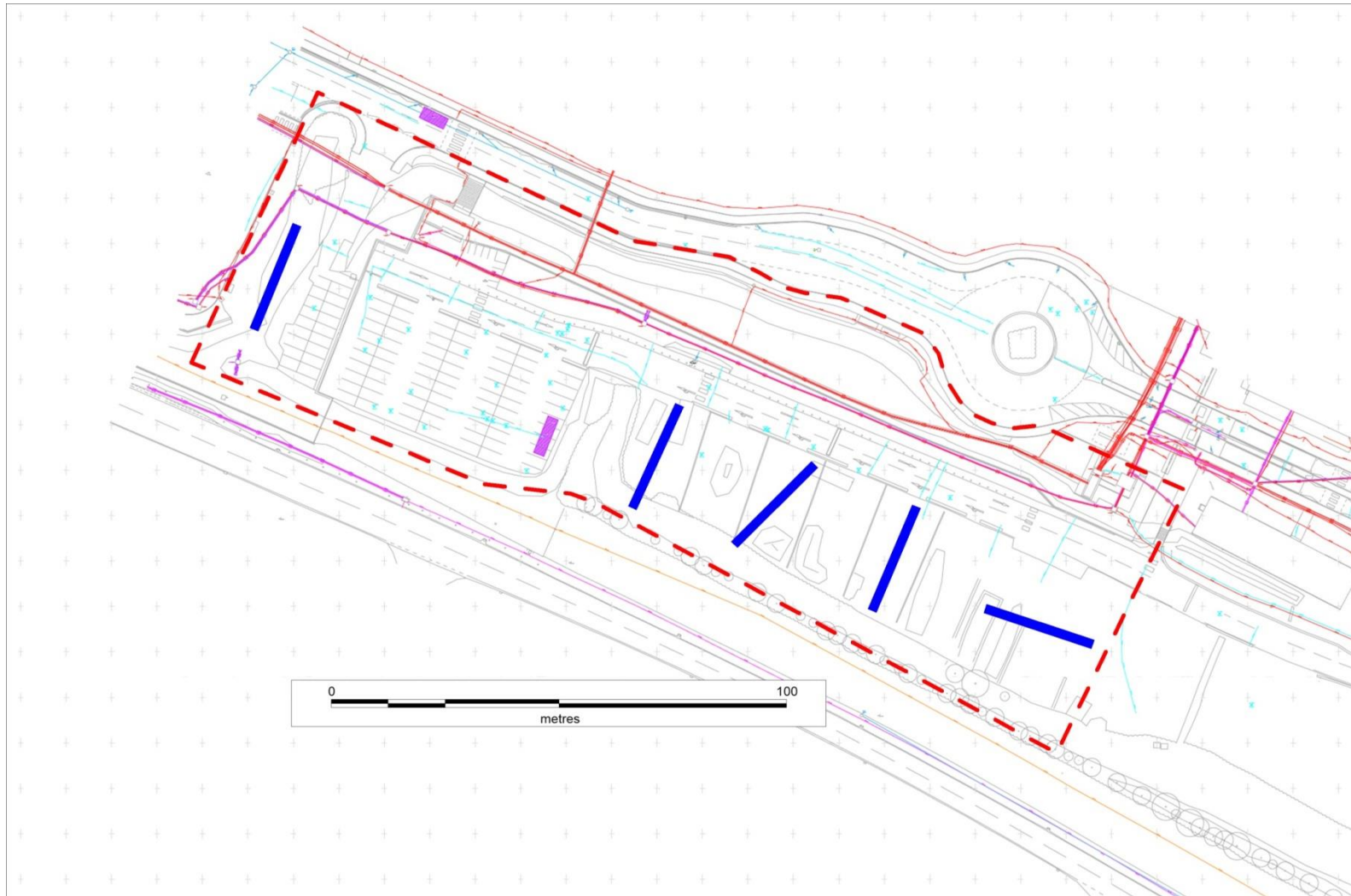




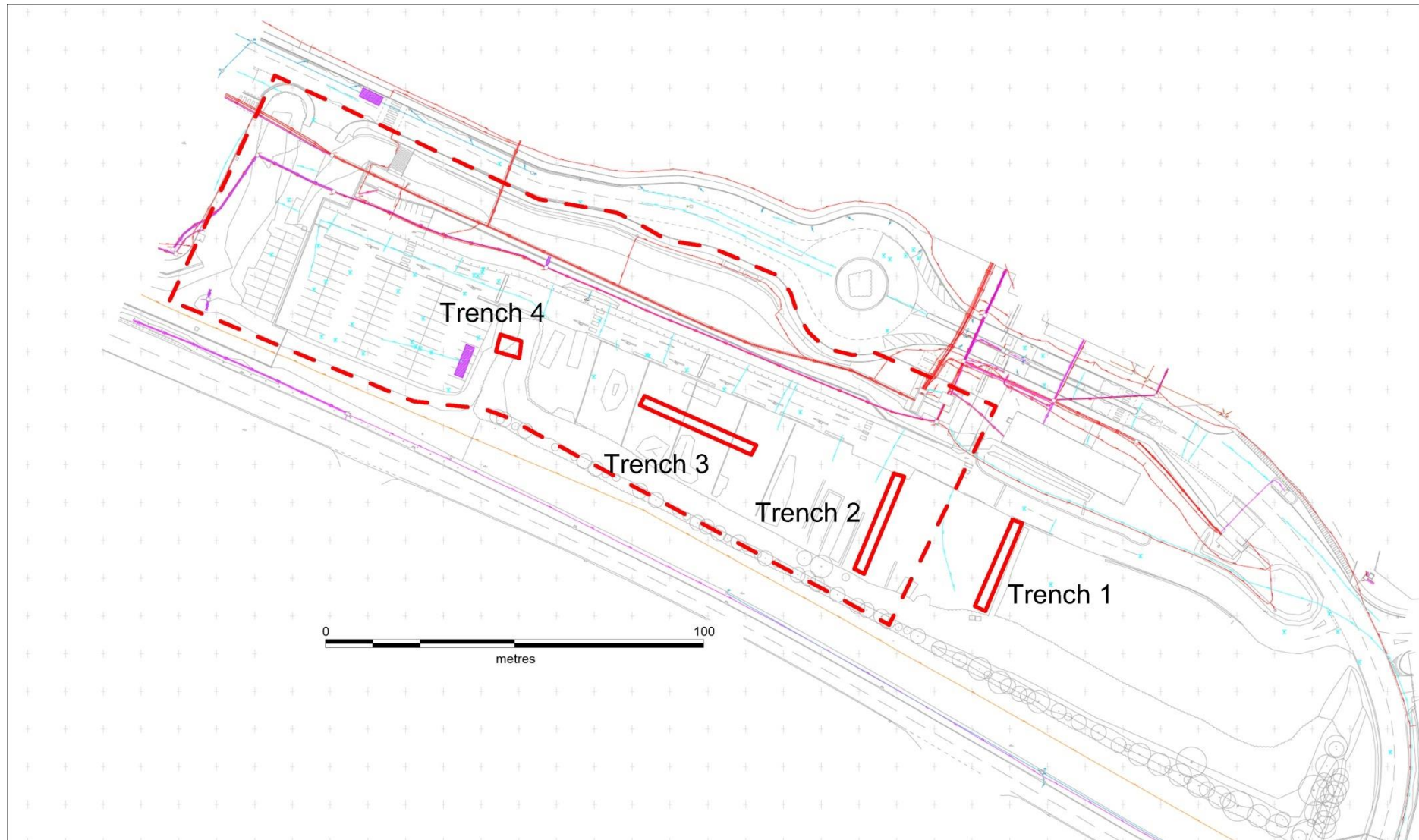
**Figure 1:** Location Map for the proposed Valero development, Pembrokeshire  
(development area highlighted in red)

Reproduced from the Ordnance Survey 1:50,000 scale Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed  
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**Figure 2:** Original proposed trench location plan overlaid on service / topographic survey of site area prepared by EPT, avoiding bunds, tarmacked areas and other known constraints



**Figure 3:** Actual trench location plan overlaid on service / topographic survey of site area prepared by EPT, once on-site constraints and the underlying ground conditions had been taken into account

## **2. THE SITE**

### **2.1 Location, Topography and Geology**

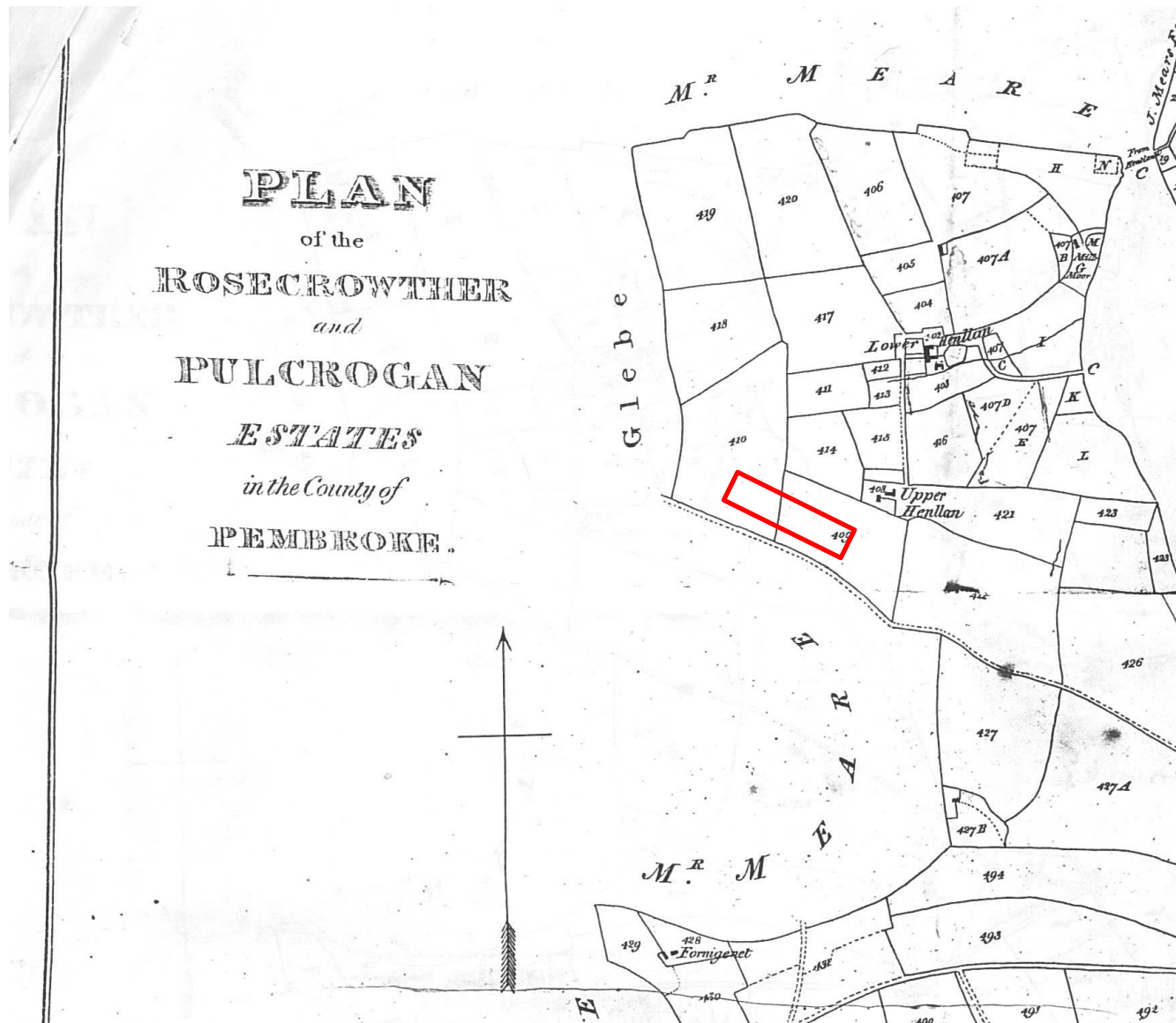
- 2.1.1 The proposed development is located within the south eastern edge of the Valero Energy Ltd Pembroke Refinery at Rhoscrowther, Pembrokeshire (centred on SN 91 2742).
- 2.1.2 The development area is situated within an existing car park which has been constructed using a mixture of tarmac and compressed rough gravel surfaces. The car park area is located just to the south of the main gate and just within the south eastern boundary of the Valero refinery.
- 2.1.3 The underlying solid geology of the site comprises Skrinkle Sandstone Formation – Sedimentary – sandstone (Source British Geology Survey).

### **2.2 Archaeological Potential**

- 2.2.1 The development area lies within an area considered to be of high archaeological potential due to the proximity of a number of prehistoric enclosures which are found to surround the development area. These include the West Popton fort (PRN 3220), West Pennar Rath (PRN 3227), Martins Haven Enclosure (PRN 3226) and the Cheveralton concentric enclosure (PRN 110477).
- 2.2.2 West Popton Fort (PRN 3220) is described as being a coastal edge promontory fort which is protected by tidal gullies to the north, east and west and to the south by two lines of rampart. The inner bank rises c.5m above the ditch and the outer c.4m. During recent visits no visible signs of an entranceway were observed and the site is described as being heavily overgrown with vegetation. West Popton fort lies 1.8km to the north west of the development area and is considered to be Iron Age in date.
- 2.2.3 West Pennar Rath (PRN 3227) is located 2.1km to the northeast of the development area and is described as being an oval defended enclosure measuring roughly 70m to 75m in diameter. During recent field visits it was noted that upstanding rampart remains only survived on the eastern and western sides of the enclosure with no upstanding remains surviving on its northern and southern edges. This enclosure is considered to be Iron Age in date.
- 2.2.4 Martins Haven (PRN 3226) lies 1.1km to the northeast of the development area and comprises of a small sub-circular promontory fort with an annexe attached to its north side. The enclosure measures roughly 45m in diameter occupying a blunt promontory at 0.30m above sea level and is considered to be Iron Age in date.
- 2.2.5 Cheveralton concentric enclosure (PRN 110477) is found 260m to the south of the development area and is described as a concentric antenna enclosure which is presumed to be either Iron Age or Romano British in date. This type of enclosure is considered to be of a rarity for the Angle Peninsula and is the most southerly known of its type to date, belonging to the Pembrokeshire group.
- 2.2.6 Also found within the nearby vicinity are a number of later sites dating to the medieval and post medieval period.
- 2.2.7 Rhoscrowther Parish Church (PRN 3240) is located within the small neighbouring hamlet of Rhoscrowther and is considered highly likely to have had an early medieval foundation date due to the churchyard being sub oval in plan. The present upstanding church building dates to the

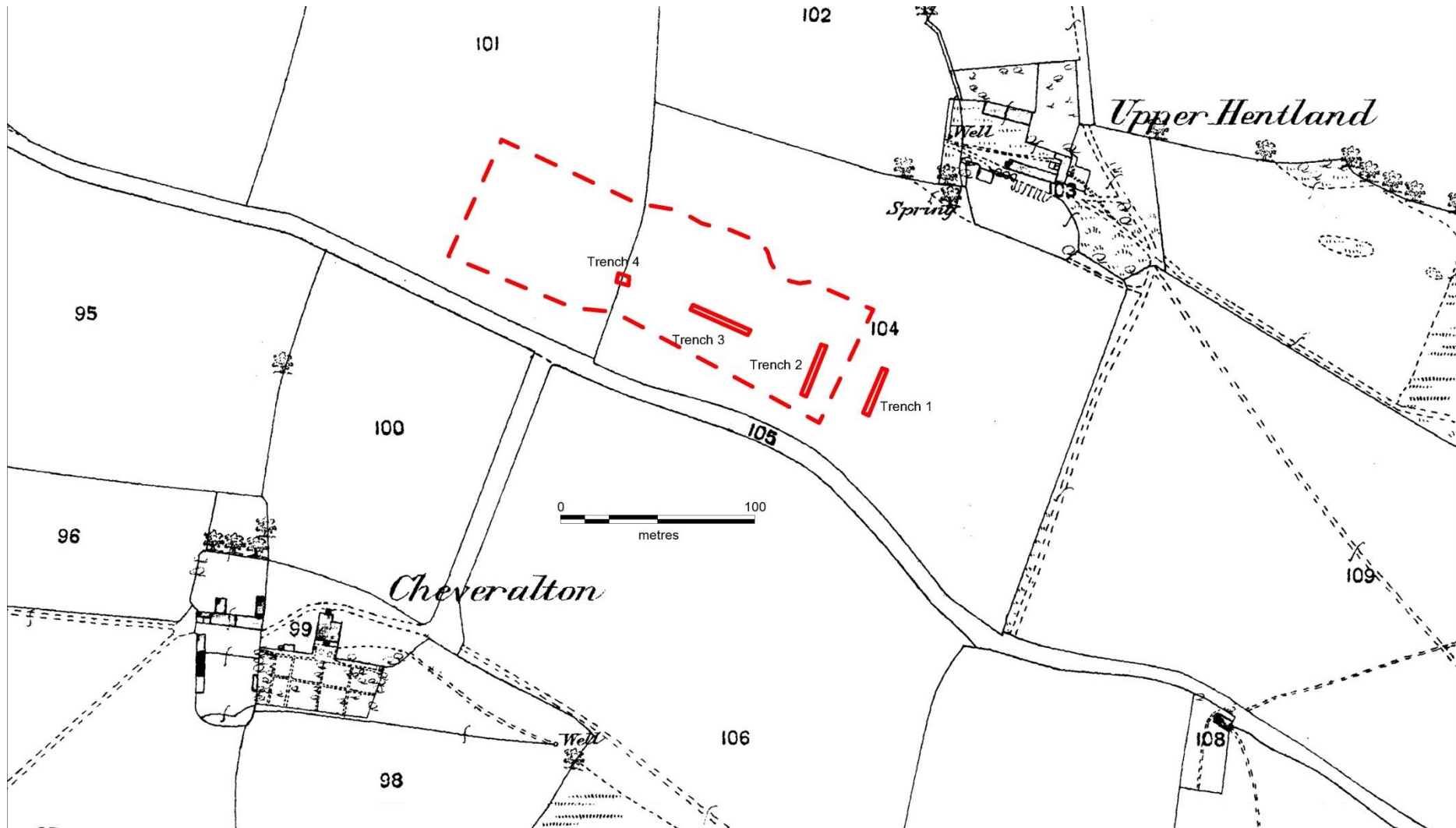
medieval period and is recorded as having very little renovation works undertaken during the 1900's with the core structural elements of the building being mainly medieval in date.

- 2.2.8 The disused farmstead of Lower Henllan (PRN 7746) which is present 425m to the north east of the development area is described as being historically the home of the White family of Tenby who lived at the house during the 16<sup>th</sup> and 17<sup>th</sup> centuries. Although the present upstanding remains date to the post medieval period it is considered likely that Lower Henllan farmstead may have earlier origins which could date back as far as the medieval period.
- 2.2.9 Other sites which surround the development area and display the rich array of archaeological diversity found on the Angle Peninsula include a possible prehistoric burnt mound site (PRN 3230), three separate flint working sites (PRN 3236, 3237, 3238) and place name evidence of Horse Stone Park (PRN 4508) which may indicate the presence of a previous Bronze Age standing stone.
- 2.2.10 Cartographic evidence depicting the development area exhibits little change from 1824 through to 1913 and it is observed that the agricultural field patterns and usage remains the same throughout this period.

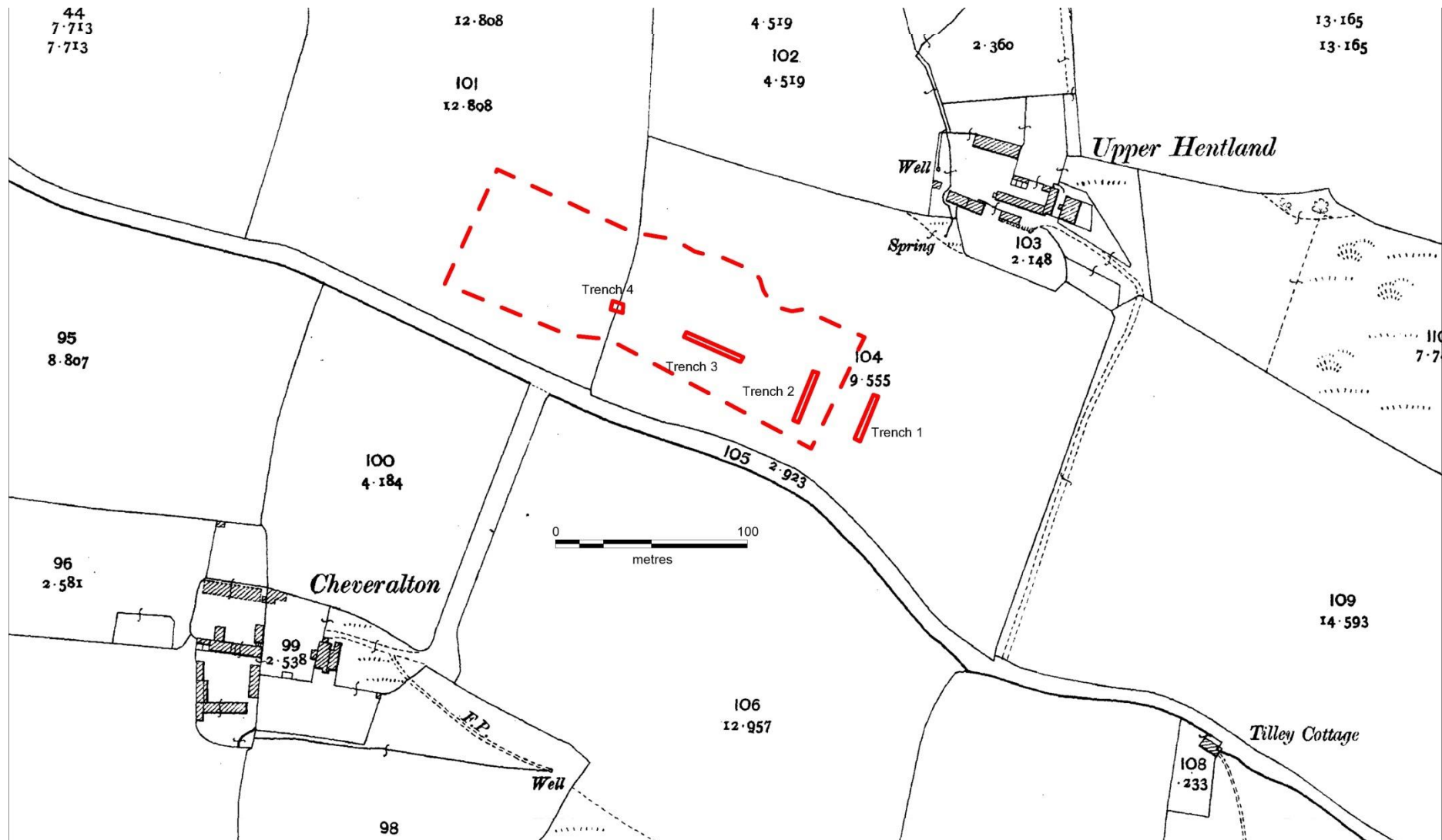


**Figure 4:** Approximate location of development site enclosed within green rectangle and superimposed over extract of 1824 estates map





**Figure 5:** Location of development area (red dotted line) and evaluation trenches (red rectangles) superimposed over extract of 1<sup>st</sup> edition 25" Ordnance Survey map (published in 1875).



**Figure 6:** Location of development area (red dotted line) and evaluation trenches (red rectangles) superimposed over extract of 2nd edition 25" Ordnance Survey map (published in 1905).



### **3. ARCHAEOLOGICAL EVALUATION METHODOLOGY**

#### **3.1 Fieldwork Methodology**

- 3.1.1 To ascertain the significance and state of preservation of archaeological features within the proposed development area, a phase of trial trench evaluation was implemented.
- 3.1.2 A tracked 360° mechanical excavator fitted with a flat bladed grading bucket was used to open the trenches under archaeological supervision. All non-archaeologically significant overburden was removed, and the trench was excavated down onto archaeological levels or undisturbed natural ground, whichever was reached first.
- 3.1.3 Following machine excavation, the trench was appropriately cleaned to best determine the presence or absence of archaeological remains.
- 3.1.4 All deposits were recorded in accordance with DAT Archaeological Services Recording System. Trench plans and sections were recorded by means of measured sketches and GPS survey. A photographic record was maintained using digital cameras.
- 3.1.5 Upon arrival at the development area it was observed that much of the development area contained redundant machinery, parked vehicles and waste materials. Therefore the original proposed trenches were relocated to avoid the obstructions as well as known service routes and large oil pipeline along the southwestern boundary. In the event the total number of trenches excavated was reduced from 5 to 4 due to the discovery that the footprint of the development had been previously landscaped, removing the potential for archaeology.
- 3.1.6 The archaeological evaluation was undertaken on the 9<sup>th</sup> and 10<sup>th</sup> of September 2019.
- 3.1.7 Trench 1 was located just to the southeast of the development area measuring 24.5m long by 1.6m wide and was placed on a northeast by southwest orientation. Trench 2 was located in the southeastern part of the proposed development area measuring 27m long by 1.6m wide and was aligned northwest to southeast. Trench 3 was situated within the east of centre part of the development area measuring 31.7m long by 1.6m wide and placed on a northwest to southeast orientation. Finally Trench 4 was sited at the mid northwestern end of the development area measuring 5.66m long by 3.6m wide and orientated northwest to southeast. (Figure 3)

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

- 3.2.1 The WSI stated that an archive would be prepared if it met the requirements of the Dyfed Archaeological Trust archive retention policy (2018). In this case, due to the negative archaeological results, the project does not meet the requirements and as such this report forms the archive for the project.
- 3.2.2 The results of the fieldwork have been assessed in local, regional and wider contexts. The report includes a desk-based research element to ensure that the site is placed within its wider archaeological context.

#### **4. EVALUATION RESULTS (Figure 3)**

- 4.1 All numbers within the text within square brackets [] refer to the unique context number given to all individual deposits using the open-ended numbering system in accordance with the DAT Archaeological Services' Recording Manual<sup>3</sup>.
- 4.2 The four separate trenches excavated over the course of the evaluation did not target any previous known features or anomalies, therefore each individual trench was positioned in an arrangement which was designed to avoid services, above ground obstacles and obtain the maximum amount of coverage possible within the development footprint. The trench locations were recorded using a Trimble GPS system.
- 4.3 Trench 1 (Photos 1, 2 & 3) was eventually located just southeast of the proposed development area and measured around 24.5m long by 1.6m wide and 0.30m deep. The misplacement of the trench outside of the site area was due to other constraints preventing trenches further northwest and the identical ground conditions across most of that part of the car park area. The trench was orientated on a northeast by southwest alignment and was located within an area of car park hard standing. The natural geology was revealed at roughly 0.30m below existing ground level and was formed of a light reddish sandstone bedrock [102] which showed signs of being previously landscaped flat particularly within the central area of the trench were the remains of possible bulldozer tracks or machine wheel ruts were visible (Photo 2). Overlying the bedrock was a thin layer of geotextile membrane [101] which in turn was overlain by a mixed crushed stone hardcore [100] measuring roughly 0.30m in depth and containing inclusions of occasional small pieces of crushed brick and some modern plastic debris.
- 4.4 Trench 2 (Photo 4) was located within the southeastern part of the development footprint measuring 27m long by 1.6m wide and 0.30m maximum in depth. The trench was orientated northeast to southwest and was positioned within an area of car park hard standing. The natural geology was revealed at between 0.30m and 0.20m below the existing ground level formed of light red sandstone [202] which showed signs of previous mechanical landscaping (Photo 4). A layer of geotextile membrane [201] was found overlying the bedrock which in turn was overlain by a layer of crushed stone hard core [202] which contained rare small pieces of plastic with some occasional fragments of crushed brick. This deposit varied between 0.30m and 0.20m deep.
- 4.5 Trench 3 (Photos 5, 6 & 7) was placed within the east of centre part of the development area on a northwest to southeast orientation measuring 31.7m long by 1.6m wide and 0.30m deep. The light red sandstone bedrock [304] was exposed which displayed signs of being heavily truncated by mechanical landscaping. The remains of a redundant service run [302] was identified cut into the natural bedrock and running centrally parallel along the length of the trench for around 25m and on a northwest to southeast orientation (Photo 6). The uppermost fill viewed within the service run comprised of a mixed brick/rubble backfill [303] which was firmly compacted and contained small fragments of modern concrete. The service run was not excavated. Overlying the bedrock and service trench was a layer of geotextile membrane [301] which in turn was overlain by a layer of crushed stone hardcore [300] which measured on average between 0.22m and 0.30m deep.

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<sup>3</sup> Dyfed Archaeological Trust Field Services use the Recording Manual developed by English Heritage Centre for Archaeology. A copy will be available for inspection if required.

- 4.6 Trench 4 (Photo 8 & 9) was located upon a grass covered ridge that protruded northeast into the car park. During the initial excavation of Trench 4 an iron service pipe was encountered, and it was decided that the trench should be moved slightly to the northeast to avoid it. The final dimensions for Trench 4 were 5.68m in length by 3.6m wide and 0.90m deep. Sequentially the earliest deposit revealed within the base of the trench comprised of light reddish brown silty clay [402] which contained frequent fragments of small sub angular stones and some small fragments of brick, plastic and concrete. This deposit was first viewed at 0.90m below existing ground level and is considered to be the remains of modern landscaping. Overlying deposit [402] was a mixed deposit of moderately compacted light to mid brown silty clay [401] which contained frequent inclusions of small sub angular stones and a piece of denim fabric (Photo 9). This deposit measured 0.70m in depth and is considered to be the remains of modern landscaping. A dark brown silty clay topsoil [400] overlay the trench which measured 0.20m in depth and contained occasional finds of plastic and frequent small sub angular stones.



**Photo 1:** Trench 1, viewing southwest.





**Photo 2:** Trench 1 viewing east, oblique view of section and wheel/track ruts within central area of trench.



**Photo 3:** Trench 1, view of southeast facing section through crushed stone surface.





**Photo 4:** View of Trench 2, viewing southwest.



**Photo 5:** View of Trench 3, viewing northwest.





**Photo 6:** Detailed view of service run cut in Trench 3



**Photo 7:** View of GPS recording in Trench 3, viewing east.





**Photo 8:** View of Trench 4, viewing northwest.



**Photo 9:** South west facing section in trench 4 with denim fabric visible in bottom left corner of picture.

## **5 CONCLUSIONS**

- 5.1 The trial trench evaluation undertaken within the proposed development site on land at the Pembroke Refinery-Valero has demonstrated that almost the entire development area has been previously subject to large scale landscaping during the recent past and that no original pre landscaping levels remain.
- 5.2 During the evaluation the onsite machine driver William John informed the archaeologist that the evaluation area was formerly the site used to house on-site construction workers who built the first refinery at Rhoscrowther in the 1960's (pers. comm.). He remembers significant works being undertaken prior to the accommodation being built and remembered that the area had been connected to services.
- 5.3 The results of Trenches 1, 2 and 3 indicate that the site area was landscaped down to bedrock prior to accommodation being built. Subsequently the area was covered in a geotextile membrane and crushed stone/hardcore laid down across the area presumably to form hard-standing for the accommodation. Following the removal of the workers compound and accommodation block's after the construction of the refinery it is assumed that this area would then have changed use and has since been used as a car park and HGV holding area until the present day.
- 5.4 The service run recorded within Trench 3 is considered to be the remains of either a foul water drain or an electrical service very likely to have been associated with the 1960s accommodation blocks or workers compound.
- 5.5 The location of Trench 4 on both the 1<sup>st</sup> and 2<sup>nd</sup> ordnance survey maps (Figure 5 & 6) shows it was clearly positioned over a northeast to southwest aligned field boundary which is also represented on the 1824 estate map (Figure 4). During the excavation of the trench no remains of this boundary were revealed. What was apparent was a substantial depth of made ground, containing modern material (including clothing). This part of the site is terraced above the lower part of the area where trenches 1, 2 and 3 were located. This change in ground level can be clearly seen in Photo 10. Presumably this landscaped terracing was undertaken after the refinery had been built and workers compound removed.
- 5.6 The evidence from the trenches confirms that the entirety of the proposed development area (and the land further southeast within which Trench 1 was excavated) was significantly levelled for the workers' accommodation and compound area in the 1960s. This is further evidenced when looking at the ground level of the adjacent road and fields to the southwest, which lie at some 2m above the level of the car park within the Pembroke Refinery area.
- 5.7 The archaeological evaluation did not reveal any archaeological features associated with the surrounding Iron Age activity within any of the separate evaluation trenches. The only finds recorded (but not retained) were fragments of late 20<sup>th</sup> century plastic, fabric, brick and electrical wiring.
- 5.8 Due to the past landscaping at the site, which was extensive, the archaeological potential within the proposed development site, including all of the area to the southwest as far as the main access road, is negligible. Any remains that may have existed would have been completely removed during the deep levelling works undertaken in the 1960s, including deeper rock cut features.





**Photo 10:** View east of Trench 3 from Trench 4,  
with Trenches 1 and 2 in background.

## **6. SOURCES**

### **Publications**

Brown, D.H., 2011. *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*. Chartered Institute for Archaeologists.

### **Cartographic sources**

Estate sales document dated 1824 for the Rhoscrowther and Pulcrochan estates

Parish tithe map of Rhoscrowther 1839

1<sup>st</sup> edition 1875 ordnance survey map of Pembrokeshire

2<sup>nd</sup> edition 1905 ordnance survey map of Pembrokeshire

### **Personal communication**

William John, Machine driver/grounds man at Pembroke Refinery-Valero

### **Database**

Dyfed Archaeological Trust Historic Environment Record.

### **Websites**

British Geological Survey mapping portal. Available at:  
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed 30 Sept, 2019]

## 7. PROJECT ARCHIVE

ERN: 118119

30 x digital photographs; Film Number 117989

1x photo catalogue

14 x contexts

Context No	Description
100	Crushed stone compacted surface for car park. Contains small fragments of brick, measures 0.30m in depth and overlies terram layer [101]
101	Terram layer, overlies [102]
102	Light red sandstone bedrock
200	Crushed stone compacted service for car park. Contains small fragments of brick, measures between 0.20m and 0.30m in depth. Overlies terram layer [201]
201	Terram layer, overlies [202]
202	Light red sandstone bedrock
300	Crushed stone compacted service for car park. Contains small fragments of brick, measures 0.30m in depth and overlies terram layer [101]
301	Terram layer, overlies [302]
302	Cut for service run, measures 25m long by 0.60m wide. Filled with [303], cuts bedrock [304]
303	Mixed brick/rubble backfill which was firmly compacted and contained small fragments of modern concrete. Fill of service run [302]
304	Light red sandstone bedrock. Cut by service run [302]
400	Dark brown topsoil containing frequent small sub angular stones. Overlies deposit [401].
401	Light to mid brown silty clay (landscaping deposit). Overlies [402]
402	Light reddish silty clay (Landscaping deposit). Underlies [402]

## **APPENDIX I:**

### **PEMBROKE REFINERY – VALERO 2019, PEMBROKESHIRE: WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL EVALUATION**

#### **1 INTRODUCTION**

- 1.1 This Written Scheme of Investigation (WSI or specification) has been prepared by DAT Archaeological Services (the contracting arm of Dyfed Archaeological Trust) to provide a methodology for archaeological trial trenching within the area of a proposed new workshop building and a laboratory within the area of the existing Valero Refinery, Pembrokeshire. The site covers an area of around 1.3ha and is centred on NGR SM 91418 02143 covering a car parking area southeast of the refinery site near Rhoscrowther (Figures 1 and 2).
- 1.2 The works have been commissioned by Valero, through their archaeological consultants Environmental Dimension Partnership Ltd (EDP). The works are being undertaken in advance of a planning application being submitted for the works and following advice from the archaeological advisor to the planning authority / archaeological consultant.
- 1.3 EDP provided a short historic baseline for the proposed development area which demonstrates that the area has a high archaeological potential, the site being located close to a number of Iron Age enclosure sites on the Rhoscrowther Peninsula. A number of Bronze Age barrows are present in the wider area. A potential Mesolithic flint working site lies to the southeast of the development area.
- 1.4 The site area is presently a mix of car parking, grassed areas and roadways lying within the boundary of the Valero Refinery. No site hazards or constraints have been made known to DAT Archaeological Services at this stage, other than as the site lies within the Valero boundary there are security issues and site inductions to be undertaken prior to working on-site. It is noted that overhead power cables run along the southwestern side of the site area.
- 1.5 It is proposed to open 5 trenches within the area, each of 25m length. There is presently nothing to target these trenches on archaeologically, and so a random layout is proposed (Figure 3).
- 1.6 The aim of the evaluation is to provide information on the character and significance of any below ground archaeological remains that may be present within the development area. Should any significant archaeological deposits be revealed, then a programme of further mitigation can be formulated and potentially implemented prior to development commencing.
- 1.7 This written scheme of investigation (WSI) details the methodology of the evaluation which will be undertaken by DAT Archaeological Services and has been prepared in accordance with the Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Archaeological Field Evaluation (CIfA 2014). A copy should be sent to the archaeological advisors to the planning authority, Dyfed Archaeological Trust – Development Management.
- 1.8 DAT Archaeological Services has considerable experience of this type of project and always operates to best professional practice. DAT

Archaeological Services has its own Health and Safety Policy, and are covered by appropriate Employer's Liability and Public Liability Insurances.

- 1.9 Dyfed Archaeological Trust is a CIFA Registered Archaeological Organisation.
- 1.10 All permanent DAT Archaeological Services staff are CSCS<sup>4</sup> certified to work on construction sites.

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<sup>4</sup> Construction Skills Certification Scheme.

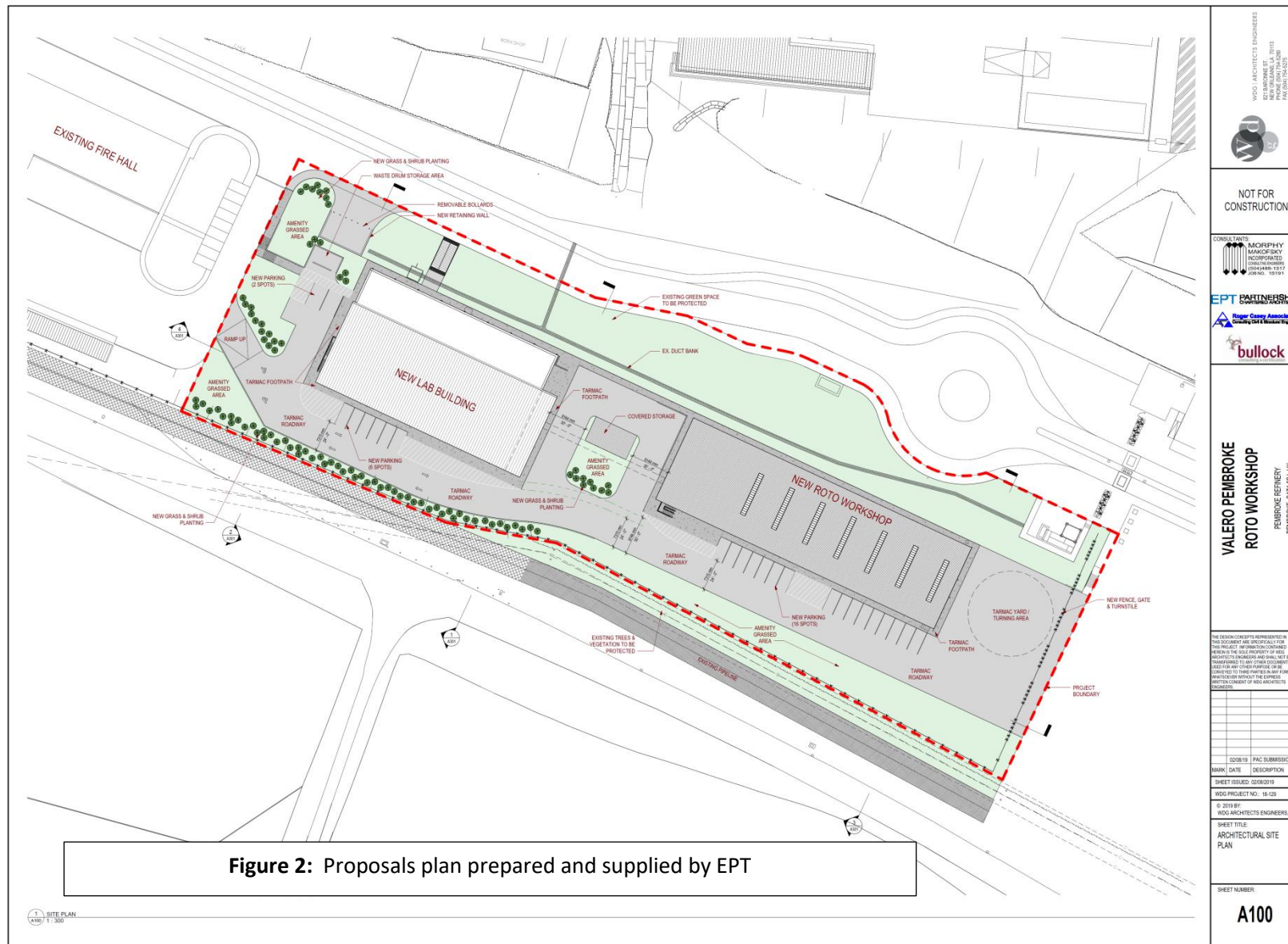


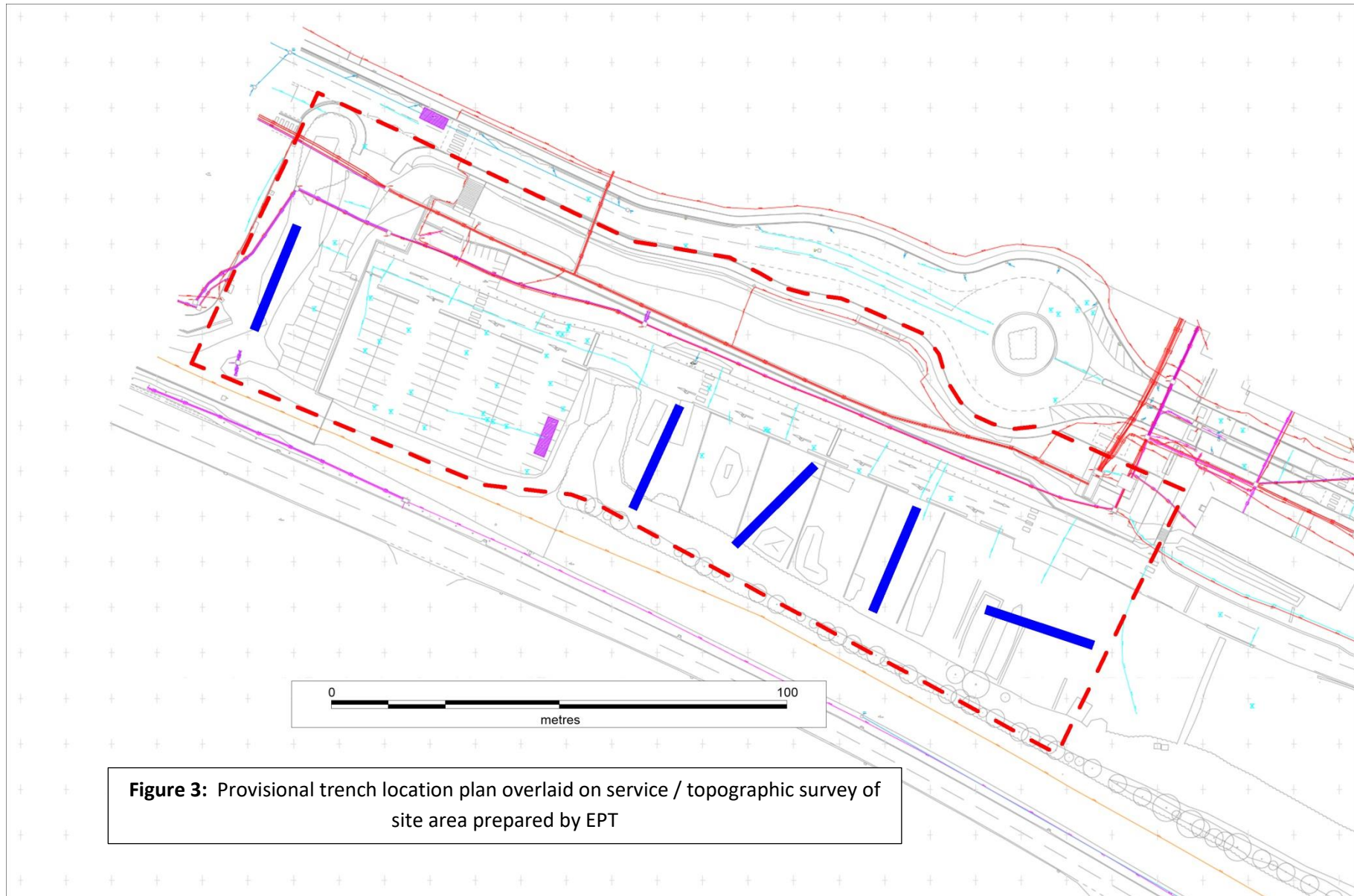


**Figure 1:** Location Map for the proposed Valero development, Pembrokeshire  
(development area highlighted in red)

Reproduced from the Ordnance Survey 1:50,000 scale Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust, Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AE. Licence No 100020930









## **2 AIM AND OBJECTIVES OF THE PROJECT**

2.1 This document provides a scheme of works for:

***The implementation of a scheme of archaeological evaluation using trial trenching in advance of the proposed development at the Valero Refinery site, Pembrokeshire. Trenches will be placed within the site area avoiding known services or drains, existing road lines, tarmac surfaced car parking areas and bunded areas. Further mitigation may be required where significant remains are identified, the scope of which would be determined following this stage of work. A report shall be prepared on the results of the evaluation and an archive created of all finds, records, photographs and plans created by this mitigation strategy.***

2.2 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 establish the state of preservation, character, extent and date range for any archaeological deposits identified through trial trenching;
- To use the information to enable design solutions to avoid archaeology from being disturbed and preserve it in-situ; or where this is not possible mitigation could be designed to ensure that any identified remains can be appropriately investigated and recorded where they will be affected by the proposed development (preservation through record);
- Production of a report on and an archive of the results.

## **3 PROPOSED ARCHAEOLOGICAL EVALUATION SCHEME**

3.1 It is proposed that five trial trenches are opened within the proposed development area. The provisional trench plan (Figure 3) locates the trenches to target areas of the site where there are no tarmac surfaces, road lines, services, drains or bonds of material. From knowledge of the site area and aerial photographic searches, the trenches should be located in areas of the site where crushed stone surfaces are present and one area of grass to the west. The trenches will determine the presence or absence of archaeology and provide further information on their date, character, state of preservation and significance if present.

3.2 Trenches will be 25m in length and roughly 1.6m – 2.0m in width (depending upon the bucket width). Potentially trenches may be slightly extended or widened if archaeology is present to assist with determining extents.

3.3 The trenches will be excavated using a mechanical excavator fitted with a flat bladed bucket. Arisings will be stored adjacent to the trench (at a safe distance). Trenches will be excavated to remove all non-archaeologically significant overburden, down onto either archaeological levels or the underlying natural undisturbed ground surface.

3.4 Following machine excavation, the trenches will be appropriately hand cleaned to prove the presence, or absence, of archaeological features and to determine their significance. The excavation of the minimum number of archaeological features needed to elucidate the character, distribution, extent, date and importance of the archaeological remains will be undertaken.

- 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 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 photographic record will be maintained using high resolution digital photography.
- 3.7 All archaeologically significant artefacts, ecofacts and samples will be retained and, where possible, related to the contexts from which they derived. Sensitive material will be stored in appropriately stable conditions. Finds will be temporarily stored by DAT Archaeological Services in stable conditions.
- 3.8 All finds, except those deemed to be Treasure<sup>5</sup>, will remain the property of the landowner, but it is assumed that permission has 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).
- 3.9 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.
- 3.10 In the event of the discovery of human remains 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 (the Coroner must be informed and a burial licence granted from the Ministry of Justice). In the event that human remains are identified that are under threat of disturbance from site activity (for example compression from backfilling) then it is possible that the remains may have to be removed from site to ensure their safety.

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

- 4.1 An archive will be prepared if it meets the requirements of the Dyfed Archaeological Trust archive retention policy (2018). If it does, then 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

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<sup>5</sup> If any material deemed to be Treasure is found, the Coroner must be informed

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 RCAHMS.

- 4.2 The results of the evaluation will be assessed in local, regional and wider contexts.
- 4.3 The results will be used to inform subsequent design of the proposed development so that they will not impact upon any archaeological remains or that mitigation can be implemented before such remains are disturbed.
- 4.4 The report will include a summary desk-based assessment element to place the site into its wider context within the area.
- 4.5 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. Finds recovered from the site will be retained or discarded in line with the Dyfed Archaeological Trust Archive Disposal Policy.
- 4.6 DAT Archaeological Services will arrange for the deposition of finds, and ascertain the costs of storage and deposition, with an approved body before the project commences and inform the curator of the arrangement which has been made. It is likely that any digital archive will be deposited with the Royal Commission on the Ancient and Historical Monuments of Wales.
- 4.7 A summary of the project results, excluding any confidential information, may be prepared for wider dissemination (e.g. Archaeology in Wales and special interest and period-specific journals).
- 4.8 The report will be prepared to follow the *Standard and Guidance for Archaeological Field Evaluations* (CIfA 2014).
- 4.9 Digital copies in pdf format will be supplied to the client and archaeological consultant and also supplied to Dyfed Archaeological Trust Development Management section and the Historic Environment Record.

## **5 STAFF**

- 5.1 The project will be managed by James Meek MCIfA, Project Manager DAT Archaeological Services.
- 5.2 The on-site works will be undertaken by experienced members of DAT Archaeological Services staff.

## **6 MONITORING**

- 6.1 The fieldwork may need to be monitored by Dyfed Archaeological Trust Development Management in their capacity as archaeological advisors to the planning authority, who should be provided access to the site at any time during the evaluation works. It may be necessary to arrange monitoring visits and this should be confirmed prior to the start of any fieldwork and inductions arranged if necessary.
- 6.2 The archaeological consultant will need access to the site to monitor the works on behalf of the client.

- 6.3 The Head of DAT Archaeological Services may also monitor the on-site works intermittently.

## **7 HEALTH AND SAFETY**

- 7.1 All permanent members of DAT Archaeological Services staff are CSCS<sup>6</sup> 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, H&S constraints and site rules of the client or any on-site contractor will be made known to DAT Archaeological Services staff at the start of the works. All site staff will require security checks and site inductions before commencing work.
- 7.5 Trenches will be fenced by the site contactors Trant, who will be appointed directly by Valero. Trant will provide machines and operators of the required standards and certification. A site supervisor will also be present to observe the works and check on site safety.
- 7.5 Service information has been provided to DAT Archaeological Services prior to the start of the evaluation works. Trenches have been located to avoid known services and drains (Figure 2).
- 7.7 Safety helmets, high visibility vests and boots are to be used by all site personnel as necessary. The developer must make DAT Archaeological Services aware of any other PPE<sup>7</sup> that may be required prior to the start of the works.
- 7.8 DAT Archaeological Services staff must ensure that their presence on site is communicated to all relevant site staff, especially the machine operator. The archaeologist observing the excavation of trenches by machine will establish a safe working procedure with the machine operator at the start of work.

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<sup>6</sup> Construction Skills Certification Scheme (Health and Safety Tested)

<sup>7</sup> Personal Protection Equipment

# **PEMBROKE REFINERY-VALERO, RHOSCROWTHER, PEMBROKESHIRE: ARCHAEOLOGICAL EVALUATION 2019**

RHIF YR ADRODDIAD / REPORT NUMBER: 2019-41

RHIF Y PROSIECT / EVENT RECORD NO. 118119

**Hydref 2019**  
**October 2019**

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

**Andrew Shobbrook**

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

Llofnod / Signature ..... Dyddiad / Date 04/10/2019

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 04/10/2019

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

