

# Hirael Coastal Defence Scheme, Bangor, Gwynedd

Brif Gwilio Archeolegol / Archaeological Watching Brief



Ymddiriedolaeth Archeolegol Gwynedd  
Gwynedd Archaeological Trust

# HIRAEL COASTAL DEFENCE SCHEME, BANGOR, GWYNEDD

## Briff Gwyllo Archeolegol/ Archaeological Watching Brief

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## CRYNODEB ANHECHNEGOL

*Yn 2024, comisiynwyd Ymddiriedolaeth Archaeolegol Gwynedd gan Griffiths Civil Engineering and Construction i liniaru archaeolegol fel rhan o'r cynllun gwella amddiffynfeydd arfordirol yn Hiracl, Bangor, Gwynedd. Roedd y lliniaru'n cynnwys cofnod o'r amddiffynfa arfordirol bresennol a oedd yn cynnwys wal a phromenâd a oedd yn diogelu cae chwarae, ardal hamdden a'r cyffiniau lleol. Defnyddiwyd y cae chwarae yn yr Ail Ryfel Byd fel gwersyll milwrol/carcharor rhyfel, gyda strwythurau yn dal i fod yn bresennol tan y 1970au. Cafodd y silindrau gwrth-danciau a ddefnyddiwyd ar hyd y promenâd ac o fewn wal yr arfordir eu gosod ar ôl y rhyfel; Awgrymodd awyrluniau hanesyddol iddynt gael eu defnyddio i ddechrau ar hyd y blaendraeth yn y 1950au neu ddechrau'r 1960au ac yna eu symud i ffurfio rhan o'r promenâd a'r wal arfordirol yn yr 1980au. Cafodd y silindrau eu tynnu fel rhan o'r cynllun gwella ac roedd y lliniaru'n cynnwys cofnod yn y fan a'r lle a briff gwyllo dilynol yn ystod eu symud; Monitro gwaith cloddio hefyd, gyda'r canlyniadau'n cadarnhau bod y cae chwarae a'r ardal hamdden wedi'u sefydlu ar ddyddodion deunydd gwastraff – ni ddaethpwyd ar draws unrhyw dystiolaeth benodol o'r hen wersyll milwrol/carcharor rhyfel.*

## NON-TECHNICAL SUMMARY

*In 2024, Gwynedd Archaeological Trust was commissioned by Griffiths Civil Engineering and Construction to undertake archaeological mitigation as part of the coastal defence improvement scheme at Hiracl, Bangor, Gwynedd. The mitigation included a record of the existing coastal defence that included a wall and promenade that protected a playing field, recreational area and the local environs. The playing field had been used in the Second World War as a military/prisoner of war camp, with structures still present until the 1970s. The anti-tank cylinders used along the promenade and within the coastal wall were installed after the war; historic aerial photographs suggested they were initially used along the foreshore in the 1950s or early 1960s and then moved to form part of the promenade and coastal wall in the 1980s. The cylinders were removed as part of the improvement scheme and the mitigation included an in situ record and a subsequent watching brief during removal; excavation groundworks were also monitored, with the results confirming the playing field and recreational area were established on deposits of waste material – no specific evidence of the former military/prisoner of war camp were encountered.*

# 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) Trust was commissioned *Griffiths Civil Engineering and Construction* to undertake archaeological mitigation as part of a coastal defence improvement scheme at Hiraël, Bangor, Gwynedd (NGR SH5871872826; postcode: LL57 1DG; Figure 01). Hiraël is located at the northeastern end of Bangor within a low-lying basin. The improvement area consisted of a 300m long foreshore, a coastal wall with promenade, a playing field and a small grassed recreational area. Alongside is Beach Road and a densely populated area of residential and commercial properties. The existing coastal wall was built from stonework and *gabion* baskets, the promenade running alongside between two car parks (Beach Road car park west and car park east, respectively); former Second World War anti-tank cylinders had been positioned as a row between the promenade and the playing field, with further cylinders used within the coastal wall. The improvement works included the insertion of 15m long sheet piles (12m buried and 3m retained) and associated walling along the promenade, as well as rock armour on the seaward side (cf. Figures 02, 03 and 04). The archaeological mitigation included a pre-start record of the coastal wall and anti-tank cylinders, a watching brief during groundworks and a record of the improvement work after completion.

The Watching Brief was monitored by Gwynedd Archaeological Planning Services (GAPS) and undertaken in accordance with a GAPS approved written scheme of investigation (cf. [Appendix I](#)). In line with the regional Historic Environment Record (HER) requirements, the HER was contacted at the onset of the project to ensure that any data arising was formatted in a manner suitable for accession to the HER; the HER Event Primary Reference Number for this project was 46647.

The improvement works were undertaken in accordance with Natural Resources Wales Marine Licence CML2167; the archaeological mitigation was undertaken between May and November 2023, in accordance with the following guidance:

- Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2 (The Welsh Archaeological Trusts, 2022);
- Guidelines for digital archives (Royal Commission on Ancient and Historic Monuments of Wales, 2015).
- Management of Archaeological Projects (English Heritage, 1991);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015);

- Standard And Guidance for The Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2020);
- Standard for Archaeological Monitoring and Recording (Chartered Institute for Archaeologists, 2023); and
- Universal Guidance for Archaeological Monitoring and Recording (Chartered Institute for Archaeologists, 2023).

The key aims and objectives were to:

- establish and record the date and/or nature of any archaeological remains identified and assess their implications for understanding the historical development of the area, in conjunction with the known archaeological record, which includes Second World War activity, including the location of a former military/prisoner of war camp and repurposed anti-tank cylinders;
- to place the results in context (if applicable), with reference made to *A Research Framework for the Archaeology of Wales Version 03, Final Refresh Document* (March 2017);
- if no additional archaeological activity is identified, establish why this may be the case.

*Gwynedd Archaeological Trust is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).*

## **2 METHODOLOGY**

### **2.1 Introduction**

The coastal improvement works were completed in accordance with Natural Resources Wales Marine Licence CML2167.

The archaeological mitigation included recording of the coastal wall and Second World War anti-tank cylinders within the scheme area, both prior to and on completion of the improvement works, followed by a watching brief during groundworks; in support of this, a desk-based assessment was also undertaken.

## 2.2 Desk Based Assessment

The desk-based assessment used the following resources:

1. The regional Historic Environment Register (HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) was examined for information concerning the mitigation area and included examination of the 25-inch to 1-mile County Series Ordnance Survey maps (Anglesey and Caernarvonshire (sic) Sheets XIX.8, VI.8, XIX.12, VI.12 and VII.9; published: 1<sup>st</sup> edition 1889, 2<sup>nd</sup> edition 1900 and 3<sup>rd</sup> edition 1914), as well as secondary sources, including *Brython, 2021.*, *Hirael Flood Alleviation Scheme: Desk Based Assessment. Brython Report Number: B2004.DBA.01.01.*
2. Aerial photographs from Welsh Government, Cathays Park, Cardiff, CF10 NQ were examined for potential features. This included 1946 RAF and later oblique and vertical aerial photographs.

## 2.3 Archaeological Recording

The pre-start archaeological record was completed on the 30<sup>th</sup> of May 2023 and comprised a photographic and written record of the existing coastal defence sea wall and the anti-tank cylinders incorporated into the wall and the promenade. The photographic record was completed in RAW format using a Nikon D3100 digital SLR set to maximum resolution (4,608 x 3,072; 14.2 effective megapixels) and maintained using a photographic record proforma; a total of twenty-seven images were taken that were archived in TIFF format using *Nikon NX Studio* (archive reference: G2784\_001 to G2784\_027; cf. [Appendix II](#)). The written record was completed using GAT proformas.

## 2.4 Archaeological Watching Brief

The Watching Brief was undertaken between the 27<sup>th</sup> of June and the 15<sup>th</sup> of November 2023 and monitored the coastal defence improvement works undertaken by *Griffiths Civil Engineering and Construction*, which included:

- Establishment of a storage area, haul road and bank;
- Groundworks along Glandŵr Road;
- Establishment of a haul road and clay bund at the Beach Road car park west;
- Excavation of Trench A (to assist with the archaeological interpretation of the anti-tank cylinders);
- Excavation of Trench B (to assist with the archaeological interpretation of the anti-tank cylinders); and
- Removal of the anti-tank cylinders along the promenade.

All attendances and photographs were recorded using GAT pro-formas and included stratigraphic composition and depth. The photographic record was completed in RAW format using a Nikon D3100 digital SLR set to maximum resolution (4,608 x 3,072; 14.2 effective megapixels) and maintained using a photographic record proforma; a total of 140 images were taken that were archived in TIFF format using *Nikon NX Studio* (archive reference numbers G2784\_028 to G2784\_168; cf. [Appendix II](#) for the photographic metadata).

## 2.5 Data Management Plan

The fieldwork data has been used as the basis for the physical and digital dataset archives and used to compile the project report. The physical archive has been stored in a designated project folder and the location confirmed in the Trust project database; the digital dataset has been stored on a dedicated Trust server, with the location confirmed in the Trust project database via a specific hyperlink. There is no de-selected digital data.

External datasets for the regional HER and RCAHMW are as follows:

- HER: digital report (PDF format) and Event PRN summary (Microsoft Excel format); the report and dataset have been prepared in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 2); and
- RCAHMW: a digital report (PDF format) and digital archive dataset have been prepared in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset includes:
  - Photographic metadata (Microsoft Access);
  - Photographic archive (TIFF format);
  - Project Information form (Microsoft Excel);
  - File Information form (Microsoft Excel) – Microsoft Word report text final;
  - File Information form (Microsoft Excel) – Photographic metadata (general);
  - File Information form (Microsoft Excel) – Adobe PDF report final; and
  - File Information form (Microsoft Excel) - Photographic metadata (detail).

## 2.6 Selection Strategy

As defined in *Standard and guidance for the creation, compilation, transfer, and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020) section 3.3.1, a project specific selection strategy and data management plan should be prepared. In support of this, the Chartered Institute for Archaeologist (CIfA), have stated that it is “widely accepted that not all the records and materials collected or created during the course of an Archaeological Project require preservation in perpetuity. These records and materials constitute the Working Project Archive which will be subject to Selection, in order to establish what will be retained for long-term curation”. The aim of selection is to ensure that all the elements retained from the Working Project Archive for inclusion in the Archaeological Archive are appropriate to establish the significance of the project and support “future research, outreach, engagement, display and learning activities”. Selection should be “focused on selecting what is to be retained to support these future needs, rather than deciding what can be dispersed” and can be qualified by a selection strategy, which details the project-specific selection process, agreed by all parties (including client and/or landowner), which will be applied to a Working Project Archive prior to its transfer into curatorial care as the Archaeological Archive.

The selection strategy has taken into account:

- The aims and objectives of the project.
- The brief and/or Written Scheme of Investigation (WSI)).
- The Collecting Institution’s collection policy and/or deposition guidelines.
- Local and regional research frameworks.
- Relevant thematic or period specific research frameworks.
- The project’s Data Management Plan (DMP).
- Internal recording and reporting policies.
- Material-specific guidance documents.

The Selection Strategy is included in [Appendix IV](#).

## **3 RESULTS**

### **3.1 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

#### *3.1.1 Introduction*

A Cultural Heritage Desk-Based Assessment of the scheme has been completed by Brython Archaeology (Brython Archaeology, May 2021). The aim of the assessment was to identify any known archaeological or built heritage features within the site and to assess the potential for previously unrecorded remains. The assessment incorporated a study area of 1km buffered from the site boundary identifying all historic assets. The report stated that the development would have a negligible impact on any designated heritage assets, with the exception of the Smithy, Timber Yard and slipway identified at the current location of Beach Road car park east and the recreational area, as they would potentially be within the improvement scheme.

#### *3.1.2 Prehistoric*

The report stated that no assets dating to the Palaeolithic, Mesolithic or Iron Age have been identified within the assessment buffer, whilst the Neolithic was represented by a stone axe findspot at Siliwen within Bangor (PRN 32812) and structures and artefacts at Llandegai industrial Estate. Bronze Age sites include an early collared urn (PRN 1973) discovered at a garden Upper Garth Road in 1994, as well as multiple assets at Parc Bryn Cegin, including four earth ovens (PRN 31759, 31761, 31762, 31764), eight burnt mounds (PRN 31766, 31769, 31770, 31771, 31773, 31774, 31778, 31779), and a pit cluster (PRN 31756); in addition, bronze palstaves have been found at Llandegai (PRN 2317) and Maesgeirchen (PRN 2812).

#### *3.1.3 Roman*

Within the assessment buffer, Roman period assets include Pier Camp Hillfort (Scheduled Ancient Monument (CN 073; PRN 2299), the Roman road from Caer Llugwy to Bangor (PRN 17819), a Neolithic henge reused as a settlement enclosure at Llandegai Industrial Estate (PRN 2312) and a findspot of 235 blue and white annular beads and 19 red cylindrical beads (PRN 31785) within a small pit during at Parc Bryn Cegi.

#### *3.1.4 Medieval*

The assessment stated that the first recorded church at Bangor was a Celtic *clas*, established in 525AD and dedicated to St. Deiniol, whilst a curving gully or beam slot (PRN 74549) identified at Waterloo Street was dated 540-769AD. A coin hoard (PRN 2310) was discovered on Bangor High Street in 1894 that included thirteen Saxon and Arabic silver coins along with

a fragment of a silver bracelet and fragment of silver ingot; they were likely buried around 925-930AD. Two Saxon coins (PRN 2302) were also found near the cathedral in the Vicarage house garden in 1845 that were likely buried c.970AD. Excavations in the centre of Bangor prior to the construction of the Deiniol Centre identified an early medieval burial ground (PRN 2371) containing 76 graves; a ditch truncating the graves was dated to the 10<sup>th</sup> century, with the graves part of an earlier monastic settlement. Southwest of the coastal defences is the location of the medieval Dominican friary (PRN 2300), founded c.1250, destroyed by fire in 1282-3 and re-built c.1290 at a new site 350m to the southwest (PRN 3181); in 1898 walls and graves associated with the friary were identified in sewer trenches being excavated at the north end of Seiriol Road. Bangor Cathedral (Grade I Listed Building ref. 4027; PRN 2305), is located c.900m southwest of coastal defences. The earliest part of the building dates to the 12<sup>th</sup> century and it was almost entirely rebuilt in the 13<sup>th</sup> and 14<sup>th</sup> centuries, followed by extensive restoration in the late 19<sup>th</sup> century.

### 3.1.5 *Post-Medieval*

The assessment report lists several post-medieval sites within the buffer zone, including:

- Glandŵr terrace (PRN 102430-102436): seven mid-19<sup>th</sup> century three storey Grade II listed brick-built houses located immediately northwest of the proposed development. They are listed as they reflect the rise in middle class housing in Bangor during the mid-19th century, much of it due to the increase in maritime trade.
- Seiriol Road: located c.120m to the south, comprises two rows of terraced houses designed by architect Herbert L North and built in 1927 by Richard Owen which resulted from the work of the Bangor branch of the Christian Order in Politics, Economics and Citizenship (COPEC). All twenty houses are Grade II listed.
- The portico of the former Penrhyn Arms (Grade II listed ref. 4095; PRN 12123): located c.140m southeast of the coastal defences and a remnant of the Penrhyn Arms hotel built in 1799 but demolished in the late 1920s. It was the first home of the University College of North Wales between 1884 and 1926; it was demolished to allow the A5 to be re-routed.
- Cegin Viadauct (CN380; PRN 12143): located c.470m to the southwest of the coastal defences. It is a Scheduled Monument, believed to be the earliest example of a multi-arched railway bridge in the world. It was built between 1798 and 1800 to carry the Penrhyn quarry railroad.

- Dickies Boatyard (PRN 44420): The former site is located to the immediate northwest of the coastal defences next to Glandŵr terrace and which is now home to 'Y Bae' residential development. It was formerly the location of a ship building yard and slate works. Both were established in the mid-19th century and the slate works continued to operate until 1935 and Dickie's boatyard continued to operate until 2011. Map regression shows the presence of a smithy and timber yard in the area (PRN 102426), which is now the Beach Road car park, although not marked by name on all editions of the maps the buildings are present from 1889 to 1953; a slipway (PRN 102427) is present in the third edition 1920 ordnance survey maps.
- King George's field which lies immediately southwest of the proposed development was dedicated, like others all over the United Kingdom, to the memory of King George V following his death in 1936. During the Second World War, the site was used as a military camp for both British and American troops before being converted to a camp for Italian prisoners of war (PRN 102428). The layout of the camp can be seen in Figures 05 and 06

### 3.1.6 *Cartographic Evidence*

An examination of the 1<sup>st</sup> edition, 2<sup>nd</sup> edition and 3<sup>rd</sup> edition 25-inch to 1-mile County Series Ordnance Survey Anglesey and Caernarvonshire (sic) map sheets XIX.8, VI.8, XIX.12, VI.12 and VII.9 (published 1889, 1900 and edition 1914), shows the evolution of the coastal area over a twenty-five year period, prior to the establishment of King George's playing field and the full extent of Beach Road. The northwestern end of coastal area within the improvement scheme is characterised on the mapping by the slate works and boat yard (PRN 44420), with the smithy, timber yard and slipway at the southeastern end (PRN 102426 and PRN 102427). A noticeable difference between the 1<sup>st</sup> and 3<sup>rd</sup> editions is the expansion of the urban settlement south of Beach Road, with Orme Road established and expanding by the 2<sup>nd</sup> edition and Seiriol road outlined ready for development; by the 3<sup>rd</sup> edition, Orme Road has been completed. A pier has been added to the boat yard by the 2<sup>nd</sup> edition and by the third edition, the coastline to south has expanded seawards, either through natural or artificial reclamation (or a combination of both) forming what would become the location of the playing field twenty-two years later.

### 3.1.7 *Aerial photographs*

A total of seventeen aerial photographs were sourced from the Welsh Government, covering a sixty year period between 1940 and 2000:

- 1940 4029 Luftwaffe 159
- 1941 4029 Luftwaffe 304
- 1945 4534 RAF106GUK\_655 4033 (Figure 06)
- 1945 4545 RAF M2074 2031 part site
- 1945\_4034
- 1946\_bangor\_military\_camp\_hirael
- 1948 4859 RAF541\_63 080\_081
- 1950 5016 58RAF411 5036
- 1950 5016 58RAF411 5084
- 1963 6319 OS63\_72 031 (cf. Figure 07)
- 1966 6626 OS66\_104 134
- 1968 6847 RAF58\_8596 0012 pt 1
- 1971 7165 OS 71\_102 110
- 1986 8606 JAS 52\_86 0107
- 1997 WDA Dickies Boat Yard 51741 part site
- 1999 WDA Dickies Boat Yard F23\_1 part site
- 2000 Getmapping

Collectively, the aerial photographs show the development of the coastal area during the latter half of the 20<sup>th</sup> century. The RAF images from the 1940s show the full extent of Beach Road as well as King George's playing field, with the Second World War military/prisoner of war (POW) camp fully established on the playing field and including thirty-seven barrack buildings, as well as four smaller buildings, all looking onto a central marshalling yard (cf. Figure 06). The coastline is similar to the 3<sup>rd</sup> edition 25-inch to 1-mile Ordnance Survey map, with no obvious coastal defences visible, suggesting none were present. The RAF overhead image from the 1950 shows a similar layout at the military/POW camp, with no visible coastal defences, whilst an Ordnance Survey overhead image from thirteen years later shows the barrack buildings removed, the four smaller buildings retained and a football pitch established; more importantly, anti-tank cylinders can clearly be seen laid out along the coastline north of the playing field (cf. Figure 07). They appear to have been laid close together on their side, rather than upright, forming a loose irregular line for the majority except for the eastern end, where they form a

more deliberate line. As they appear so distinctive, they would have been visible on the earlier images, suggesting they were not present in the Second World War and were brought in as a form of coastal defence between 1950 and 1963; Ordnance Survey images from 1966 and 1971 show a similar arrangement, with what is now Beach Road car park east used as a playground. A collection of photographic images of the Hiraal area taken in 1976 shows the four smaller buildings still standing, constructed from red brick and with window openings and render (Stuart, G., 2021; cf. Figures 08 and 09). An overhead image from 1986 shows the construction of the promenade along the coastline; the sea defence wall is also visible. The promenade construction is mostly complete, with the northwestern end still being built; a site compound is located in what is now the Beach Road car park west. It is likely the anti-tank cylinders were moved from their previous location during this time to form a line separating the playing field from the promenade and it appears from the image that a stockpile of anti-tank cylinders is located within the compound, waiting to be used for the remainder of the promenade. The remaining military/POW camp buildings are no longer present, whilst Beach Road car park east has been established, minus the playground; the buildings and playground must have been demolished between the late 1970s and mid-1980s. The images from the late 1990s and 2000 show the promenade fully established, along with the addition of Beach Road pumping station at the northwestern end of the promenade, the football pitch clubhouse and Beach Road car park west; all these elements were present prior to the improvement works, the main difference between those images and present is the replacement of the boatyard with *Y Bae* development.

## 3.2 Archaeological Recording

### 3.2.1 Introduction

In advance of the watching brief, an archaeological record was completed of the Second World War anti-tank cylinders (PRN102429) and a section of the coastal wall; the record was undertaken on the 30<sup>th</sup> of May 2023.

### 3.2.2 Anti-Tank Cylinders

A total of 305 Second World War anti-tank cylinders were recorded along the promenade at Garth Road Bangor, centred on (NGR SH58727278; cf. Plates 1 to 4) with an additional four recorded next to the pumping station (NGR SH58657290; Plates 5 and 6) and another fifty within the coastal wall adjacent to Beach Road car park east (NGR SH58767269; cf. Plate 7 and 8); of the three sets of anti-tank cylinders, those at Beach Road car park east appear to have been originally established between 1950 and 1963, whilst the remainder were moved from their coastline position during the mid-1980s.

The anti-tank cylinders comprised a steel cylinder filled with a pebblestone aggregate mortar and rendered on the sides (Plate 9); present at the top central part of each cylinder was a hole measuring 8.5cm in diameter. The hole would have held a threaded steel pipe, which was still present in some of the cylinders (Plate 10); in addition, a cross indentation/stamp was also observed on top of all the cylinders (Plate 11). A removed and fully intact cylinder was present next to the pumping station that measured 1.06m in length and 0.59m in width (Plate 12); the steel inner structure core had a diameter of 0.53m and 1.0cm thick whilst the outer render was c.7 cm in thickness and formally fully covered the internal steel cylinder (Plate 9). The cross indentation/stamp was 11cm in width and height with each point being 3.0cm in width. The anti-tank cylinders at Beach Road car park east had been incorporated within the coastal wall along with *gabion* baskets; the cylinders had been mortared at the top and bottom to keep them in place and varied in size from 0.5m to 0.7m in length.

The anti-tank cylinders were originally a moveable form of anti-tank block; the aim of the central hole was to facilitate handling with a crowbar (<https://ukswwh.wordpress.com/2021/08/10/anti-tank-blocks/>). The *Field Engineering (All Arms): Military Training Pamphlet No. 30 – Part III: Obstacles*, issued in 1940 and revised in 1943 describes the inclusion of a countersunk metal eye for the attachment of steel wire rope in the top of the cylinder and a pair of iron cleats cast into the sides of the cylinder to limit how far the cylinder would roll if it was knocked over. The wire rope was intended to be used to attach cylinders together to stop them being swept aside by an oncoming vehicle. The pamphlet also recommended that cylinders were to be deployed

irregularly in five rows, spaced 5 ft (1.5m) from their centres, with bricks, kerbstones or other 'non-rolling' objects to stop the cylinders rolling any more than 3 ft (0.6m). The 1943 revision adds that the cylinders were to have been placed in "clumps" of three in rows of three or four, with one taller cylinder 3 ft (0.6m) high in each clump, along with two shorter cylinders, each 2 ft 6-inches high (0.45m). The construction of the cylinders is "a RE (Royal Engineers) responsibility, but other arms (regiments) will be required to place them in position". Each cylinder "requires four men to handle it. The 27 cylinders, required for a 30 ft gap can be placed in position in 20 minutes by a team of 8 men. Cylinders should be used on hard surfaces only, as a tank may push them into soft ground to such a depth that it can cross them. Bricks, stones, or other non-rolling objects should be scattered over the road surface to prevent the cylinders from rolling away if knocked over by a charging tank". Based on their design it appears unlikely they were intended to be used on the coastal foreshore; the high number of cylinders used along the foreshore suggest they would originally have covered a large area or been used in multiple locations.

### *3.2.3 Coastal Defence Wall*

An L-shaped section of the coastal defence wall was recorded near the entrance to Beach Road car park east and a slipway down to the foreshore. This section supported a small grassed recreational area between the foreshore and road. Evidence of phasing was apparent. The east-southeast facing elevation included a later addition of sub-rectangular stones with pointing; an earlier section at the base differed in construction style and bonding, with a 8.7m length built from dressed and undressed block and slab stones placed vertically, measuring 0.2m to 0.5m high x 0.15 to 0.20m in width (cf. Plate 13 to 14). The stones were bonded together in parts by mortar, including possible repair. Directly on top and situated between the modern top and vertical bottom section of stones a row of horizontal block slab stones were present. It was likely that the earlier phasing was associated with the former timber yard at this location on the 25-inch to 1-mile historic mapping; the later phasing would be associated with the establishment of the recreational area, most likely during the improvements to Beach Road in the 1930s.

The remaining 4m length of the wall running up to the shoreline in a northeast direction and turning and running in a west-northwest direction was made up of large rough worked block type stones placed horizontally and bonded together by mortar (Plate 15 and 16); they included large stones measuring up to 1.4m in length x 0.3m wide.

### **3.3 Archaeological Watching Brief**

#### **3.3.1 *Recreational Area***

The initial stage of the watching brief commenced on the 27 of June 2023 at the eastern end of the site within the recreational area (NGR SH58827263) next to Beach Road car park east to monitor a topsoil strip for a storage zone (Plate 17); the area measured c.45m long by 10m wide at the northwestern end tapering to about 5m wide at the southeast. The strip was undertaken using a 21-tonne tracked excavator and an 8-tonne forward tipping dump truck. The topsoil consisted of a light greyish brown sandy silt c.0.1 to 0.2m deep that sealed a deposit of mottled orangey yellow clay that was likely imported material used to create the recreational area and seal a modern drainage pipe. A deeper excavation on the northeastern side exposed a deposit of crushed slate, likely used to create a level area (Plate 18). The stripped area was sealed with geotextile membrane and topped with crushed stone.

Further groundworks were undertaken at this location between the 13<sup>th</sup> and 14<sup>th</sup> of November 2023 during the excavation of a 0.75m deep x 2.5m wide x 10m length trench required to expose and protect the drainage pipe (Plate 33). This excavation exposed similar deposits of imported material. The drainage pipe was protected using 0.2m wooden boards, metal mesh and concrete (Plate 34).

No evidence of the former timber yard was identified within the recreational area; the deposits encountered most likely part of the improvements to Beach Road in the 1930s as well as any subsequent activity.

#### **3.3.2 *Glandŵr Road***

At the northwestern end of the scheme along Glandŵr Road, service trench groundworks exposed twelve anti-tank cylinders aligned northwest-southeast, c.6m in length (Plates 19 and 20). The anti-tank cylinders had been covered by concrete and were positioned side by side, ranging in height from 0.25m at the southeastern end, to 0.65m at the northwestern end. The deposits within the northeast facing section comprised made ground, followed by a sub-base with a depth of 0.15m, a fine stone with a depth of 0.15m and a layer of larger stone with a depth of 0.3m.

A separate service trench was excavated in front of *Y Bae* housing development, aligned northeast-southwest; no anti-tank cylinders were present.

All the deposits within this area appeared to be made ground associated with the construction of *Y Bae* housing development. The anti-tank cylinders had been installed as a coastal flood defence, most likely prior to *Y Bae* development.

The anti-tank cylinders along Glandŵr Road were retained *in situ*.

### 3.3.3 *Haul Road and Clay Bund at Beach Road Car Park West*

A topsoil strip was undertaken at the northeastern end of the Beach Road car park west, to accommodate a clay bund and a haul road, with the latter continuing alongside the promenade road (Plates 21 and 22). The limit of excavation was 0.70m and beneath the topsoil were deposits of fragmented slate, concrete and tarmac and general mixed materials, with inclusions of broken brick, stones, plastic, rusty metal pieces and old electricity cables (Plates 23 to 28). The deposits were banded, suggesting they had been imported and established as sub-base material most likely during the promenade road installation.

### 3.3.4 *Anti-Tank Cylinders Promenade Road*

The anti-tank cylinders along the promenade road were removed as part of the works. Prior to removal, the route of the cylinders alongside was located using GPS (Figure 13) and two small trenches were excavated at opposing ends of the route to investigate how the cylinders had been installed and the associated deposits (cf. Figure 14; Plates 29 to 30). For the purposes of the survey and subsequent recording and interpretation, the cylinders were assigned numbers (1 to 305).

The cylinders had been positioned close together, as with those on Glandŵr Road. The tarmac surface of the promenade road butted the cylinders on the northeast side, with grass for the playing field to the southwest; both trenches were excavated on the southwest side of the cylinders. Some cylinders at the northwest end of the promenade were set in shallow concrete, however, towards the southeast there was only occasional concrete, and the cylinders appeared to be set directly into the ground with tarmac butting against the cylinders and fixing them in place.

- *Trench A*

Trench A was 3.4m long and was located on the southeast side of cylinders 17 to 21. The bases of two cylinders, 18 and 19, were exposed and showed that cylinder 18 was 0.6m deep, and cylinder 19 was 1.05m deep, with a diameter of 0.58m and the gap between them measured 0.08m.

The topsoil (Context 01) was a medium brown silty clay with frequent grit and gravel inclusions, and which measured 0.05m deep; below the topsoil was a mixed deposit (Context 02) of firm, greyish brown slightly clayey silt with a depth of 0.65m at the northwest of the trench and 0.48m at the southeast end of the trench. There were broken bricks, rusty tin cans, crisp packets, a crushed *Lucozade* can, a piece of polystyrene, a slate block/tile, broken earthenware pipe and loose cobbles at the base of the deposit. The crisp packets suggested late 20<sup>th</sup> century activity.

Below this at the northwest end of the trench was a deposit of cinders, ash (Context 07) with lumps of concreted material, occasional stone and a piece of cement (Figure 10; Plate 29).

- *Trench B*

Trench B was located towards the northwestern end of the promenade. The anti-tank cylinders measured 1.1m deep and 0.58m in diameter.

The topsoil (Context 09) was a medium brown silty clay with frequent grit and gravel inclusions. Below the topsoil, the ground level was built up at the southwestern side of the cylinders with a mid-brown silty clay deposit containing broken pottery sherds, bricks, stones, clinker, and broken glass (Context 02). Some modern concrete posts and wire were noted in the ground abutting the cylinders and the deposit was entirely made ground using waste and demolition materials (Figure 11; Plate 30).

The deposits seen within both the trenches comprised redeposited demolition debris. This would seem to suggest that the ground level was raised and levelled using redeposited material at the time the promenade was constructed in 1986, and the cylinders were used to create a boundary between the promenade and the playing fields.

A watching brief was maintained during the removal of the cylinders along the promenade road. At the northwestern end of the promenade, the cylinders were set into shallow concrete; at the southeastern end, very little concrete was observed, and the tarmac of the promenade held the cylinders in place (Plate 31). On the playing field side, a narrow topsoil strip was required to remove the cylinders; the deposits within the strip corresponded with those in Trenches A and B and within the deposits a concrete post and a broken cylinder were encountered.

A mechanical grab was used to lift the anti-tank cylinders, which were then stored next to Beach Road car park east. Once extracted, the cylinders were seen to be of varying lengths with a standard diameter of c.0.5m (Plate 32). During removal, a two pence coin dated to 1977 was recovered beneath one of the cylinders, indicating a terminus post quem.

## 4 CONCLUSION

Gwynedd Archaeological Trust was commissioned by *Griffiths Civil Engineering and Construction* to undertake archaeological mitigation as part of a coastal defence improvement scheme at Hiraël, Bangor, Gwynedd. The existing coastal defence included a shoreline wall and a promenade; incorporated into both were repurposed Second World War anti-tank cylinders. A pre-commencement record of the wall at the southeastern end of the scheme was undertaken, along with the promenade, with structural phasing visible in the wall suggesting the lower part may have been associated with the former timber yard present on historic mapping. No further evidence of the yard was encountered during the watching brief.

The anti-tank cylinders were originally a moveable form of anti-tank block designed to inhibit road access by being positioned in rows of clumps, with different cylinders of different heights in each clump. They were not intended to be used as coastal defences, so despite the presence of the military/prisoner of war camp on the playing field in the Second World War, it is unlikely they were used along coastline but were sourced from elsewhere after the war. The historic aerial photographs support this, with images from 1945 showing no cylinders present. It appears they were bought during the 1950s or early 1960s, as they are not present on a 1950 RAF image, but are on an Ordnance Survey image from 1963, strung along the coastline on their side. The promenade isn't present on these images and was a later addition in the 1980s; up to that point, the coastline was the natural foreshore, with defence limited to the elevated playing field and the coastline cylinders. An image from 1986 shows the promenade road being constructed, so it is assumed the main coastal wall was also built then; the cylinders were moved from the foreshore and incorporated into the promenade and the coastal wall; this image appears to show the construction compound works with cylinders stockpiled ready to be used. Both Beach Road car parks west and east were also established at this time, with Bangor pumping station subsequently built; cylinders were then also used to obstruct vehicle traffic from entering the promenade. In total of 305 cylinders were present along the promenade with an additional four situated at the end of the promenade and another fifty cylinders along the coastal wall; an additional twelve were also exposed along Glandŵr Road, bringing the total to 371.

The watching brief monitored the excavation of a haul road along the playing field, the removal of the anti-tank cylinders along the promenade and the excavation of the recreational area. The excavations confirmed the playing field and recreational area were established using deposits of slate waste and building debris; in the playing field, some of this could be related to former military/prisoner of war camp, which was still partly standing until the 1970's, but nothing definitive was found. No evidence of the foreshore or any earlier phasing was

identified. The removal of the cylinders confirmed they were set with concrete and/or tarmac, with associated deposits including late 20<sup>th</sup> century rubbish; a coin dated 1977 was found beneath a cylinder, reaffirming the timeline.

Overall, the results provided a valuable insight into both coastal defence improvements during the 20<sup>th</sup> century and the reuse of Second World War anti-tank defences.

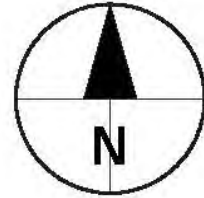
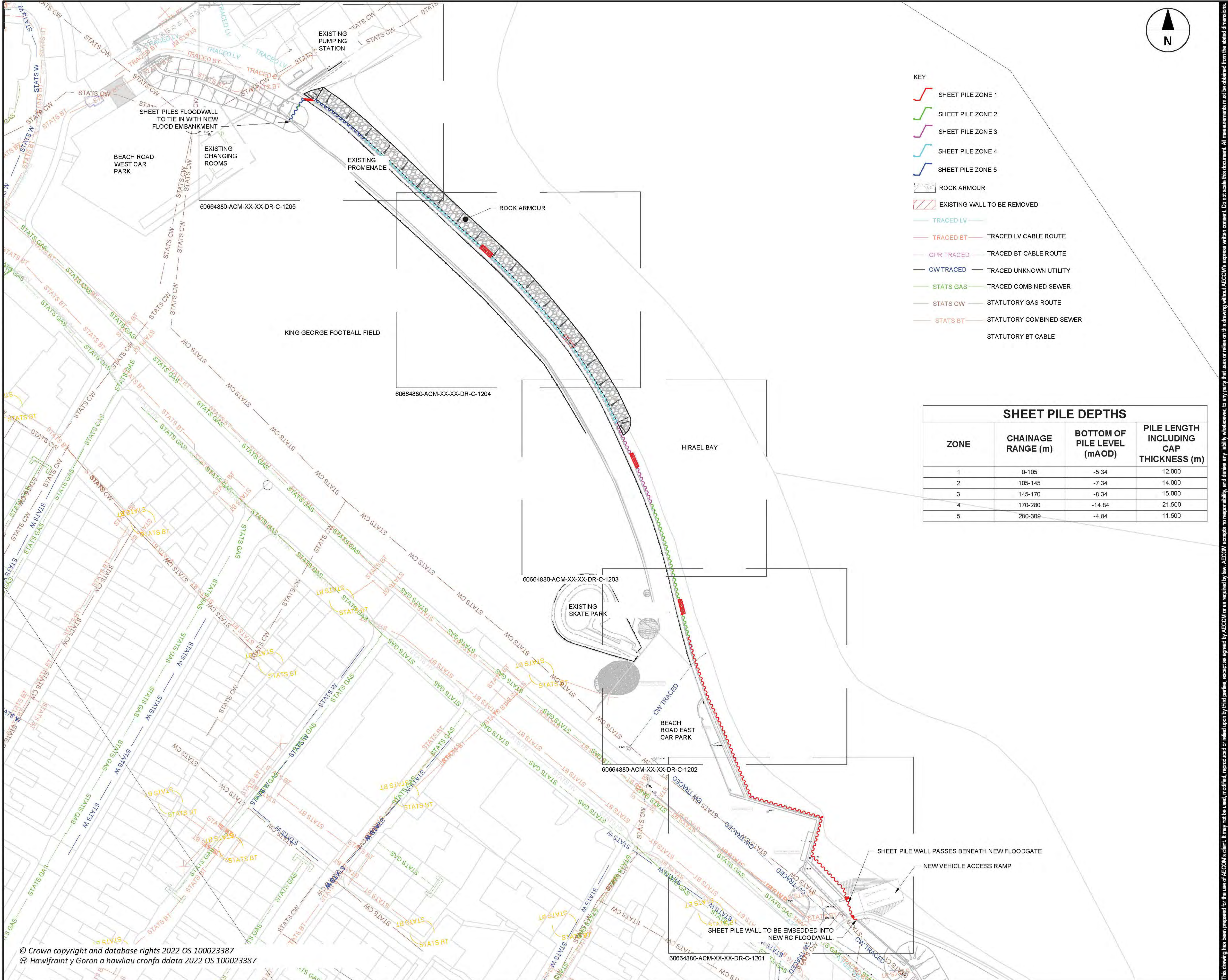
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## **5.1 Websites**

<https://ukswwh.wordpress.com/2021/08/10/anti-tank-blocks/> (Accessed on 31/05/2023)



- KEY
- SHEET PILE ZONE 1
  - SHEET PILE ZONE 2
  - SHEET PILE ZONE 3
  - SHEET PILE ZONE 4
  - SHEET PILE ZONE 5
  - ROCK ARMOUR
  - EXISTING WALL TO BE REMOVED
  - TRACED LV
  - TRACED BT
  - GPR TRACED
  - CW TRACED
  - STATS GAS
  - STATS CW
  - STATS BT
  - TRACED LV CABLE ROUTE
  - TRACED BT CABLE ROUTE
  - TRACED UNKNOWN UTILITY
  - TRACED COMBINED SEWER
  - STATUTORY GAS ROUTE
  - STATUTORY COMBINED SEWER
  - STATUTORY BT CABLE

SHEET PILE DEPTHS			
ZONE	CHAINAGE RANGE (m)	BOTTOM OF PILE LEVEL (mAOD)	PILE LENGTH INCLUDING CAP THICKNESS (m)
1	0-105	-5.34	12.000
2	105-145	-7.34	14.000
3	145-170	-8.34	15.000
4	170-280	-14.84	21.500
5	280-309	-4.84	11.500



PROJECT

HIRAE BAY FLOOD ALLEVIATION SCHEME

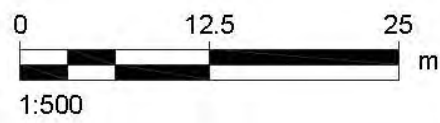
CLIENT

CYNGOR GWYNEDD COUNCIL  
Council Offices, Shirehall Street, Caernarfon LL55 1SH

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- FOR PROMENADE WALL LONGSECTION REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1211.
- FOR PROMENADE WALL CROSS SECTIONS AND TYPICAL DETAILS REFER TO DRAWINGS 60664880-ACM-XX-XX-DR-1221 TO 60664880-ACM-XX-XX-DR-C-1225.
- FOR PILE CAPPING BEAM DETAIL REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1231.



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ISSUE/REVISION

NO	DATE	DESCRIPTION
P01	24/11/2022	FIRST REVISION
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PROJECT NUMBER

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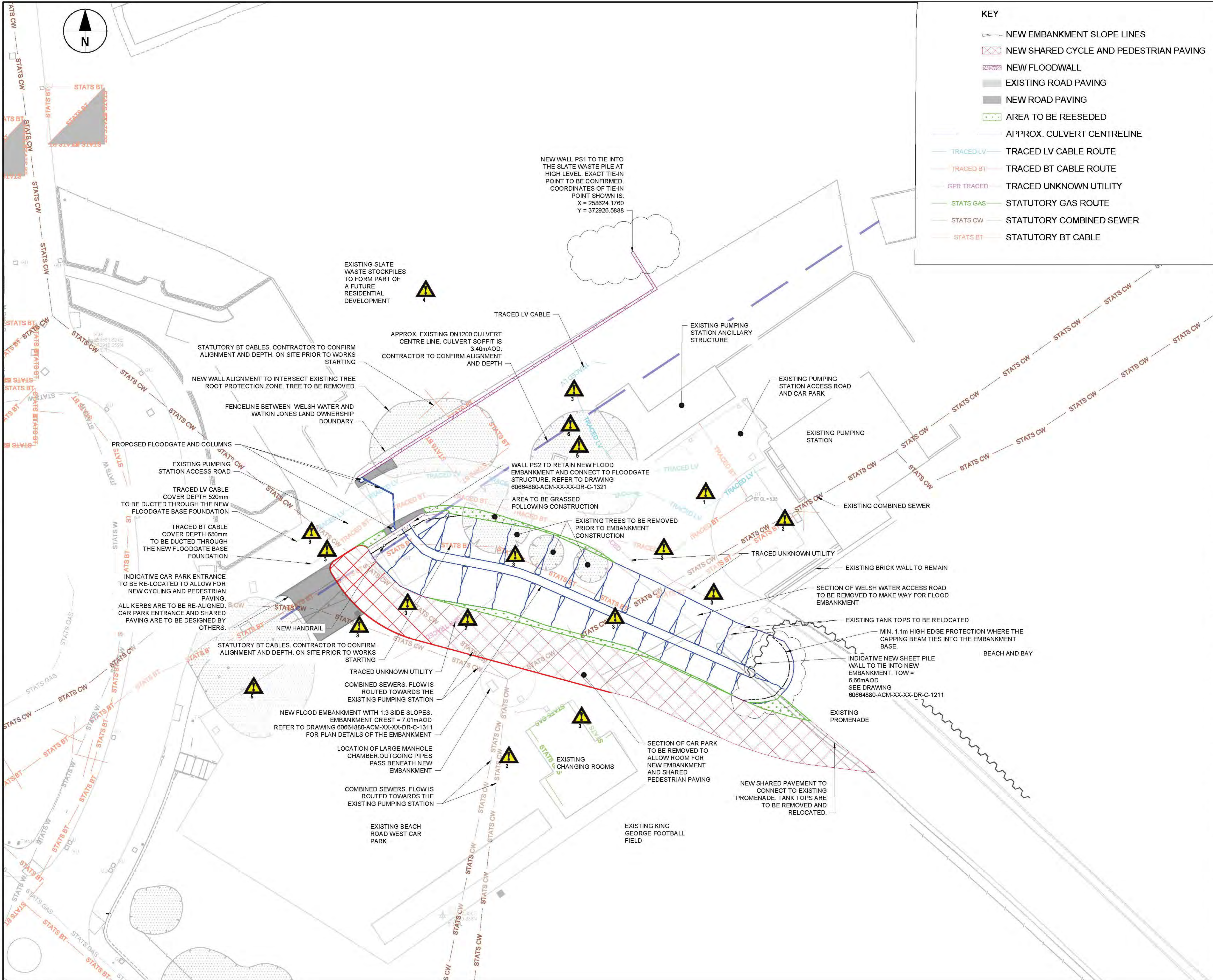
SHEET TITLE

PROMENADE OVERVIEW  
GENERAL ARRANGEMENT

SHEET NUMBER

60664880-ACM-XX-XX-DR-C-1200

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Approved: VC  
Checked: NM  
Designer: JH  
Project Management Initials:  
Last saved by: AMY.MISTRY(2022-12-05)  
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Last Plotted: 2022-12-05



KEY

NEW EMBANKMENT SLOPE LINES

NEW SHARED CYCLE AND PEDESTRIAN PAVING

NEW FLOODWALL

EXISTING ROAD PAVING

NEW ROAD PAVING

AREA TO BE REESEEDED

APPROX. CULVERT CENTRELINE

TRACED LV CABLE ROUTE

TRACED BT CABLE ROUTE

GPR TRACED

TRACED UNKNOWN UTILITY

STATUTORY GAS ROUTE

STATUTORY COMBINED SEWER

STATUTORY BT CABLE

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- FOR RC WALL PLAN REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1321.
- FOR FLOODGATE DETAILS REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1331.
- FOR DRAINAGE DETAILS REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1342.

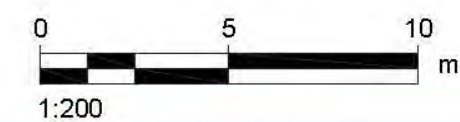
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  - INCOMPLETE TRACED UNKNOWN UTILITY
  - TRACED UTILITIES
  - UNSTABLE SLATE WASTE
  - WORKS WITHIN A TREE ROOT PROTECTION ZONE
  - EXISTING WATER CULVERT BENEATH ACCESS ROAD
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- DECOMMISSIONING / DEMOLITION
- WORKING WITHIN TIDAL CONDITIONS

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ISSUE/REVISION

P02	05/12/2022	SECOND REVISION
P01	20/09/2022	FIRST REVISION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

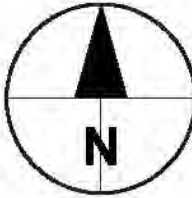
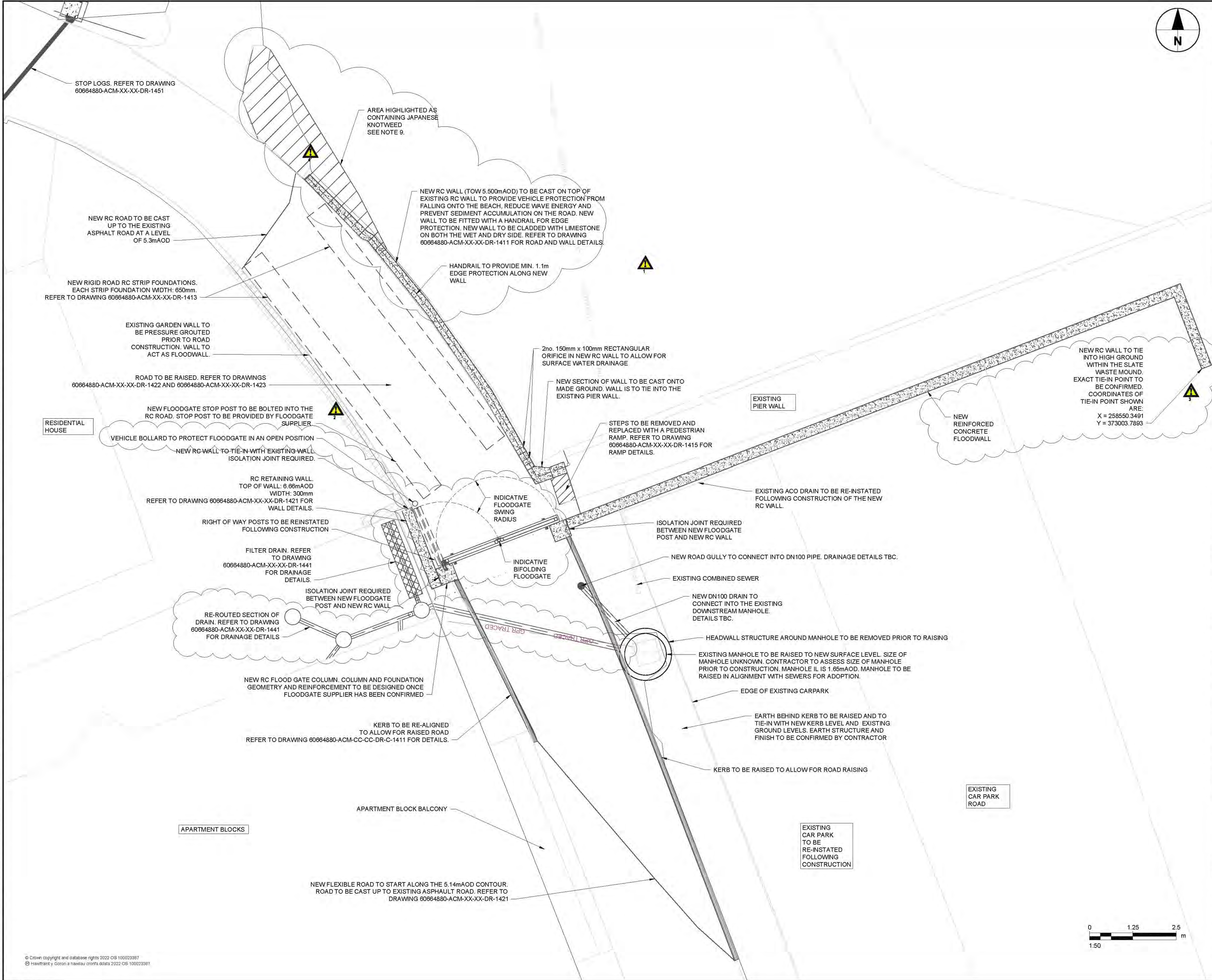
60664880

SHEET TITLE

PUMPING STATION  
GENERAL ARRANGEMENT

SHEET NUMBER

60664880-ACM-XX-XX-DR-C-1301



**AECOM**

PROJECT

## HIRAEL BAY FLOOD ALLEVIATION SCHEME

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GLANDWR ROAD  
GENERAL ARRANGEMENT

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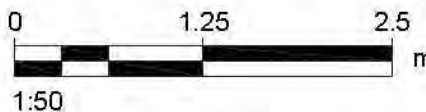






Figure 05: Reproduction of an RAF oblique aerial photograph taken in 1945 showing the military camp on site of King George's playing field. Source: RCAHMW.



Figure 06: Reproduction of an RAF aerial photograph taken in 1945 (Sortie No. 1945 4534 RAF106GUK\_655 4033), showing the Second World War military camp located at King George's playing field, Hirael. Source: courtesy Welsh Government.



Figure 07: Reproduction of an Ordnance Survey aerial photograph taken in 1963 (Sortie No. 1963 6319 OS63\_72 031), showing the Second World War military camp located at King George's playing field, Hirael showing anti-tank cylinders laid out along the coastline. Source: courtesy Welsh Government.



Figure 08: Reproduction of a photographic image from 1976 showing remains of old barrack buildings still standing next to modern garage.  
Source: Stuart, G., 2021.



Figure 09: Reproduction of a photographic image from 1976 showing remains of old barrack buildings still standing. Source: Stuart, G., 2021.

NW  
5.85

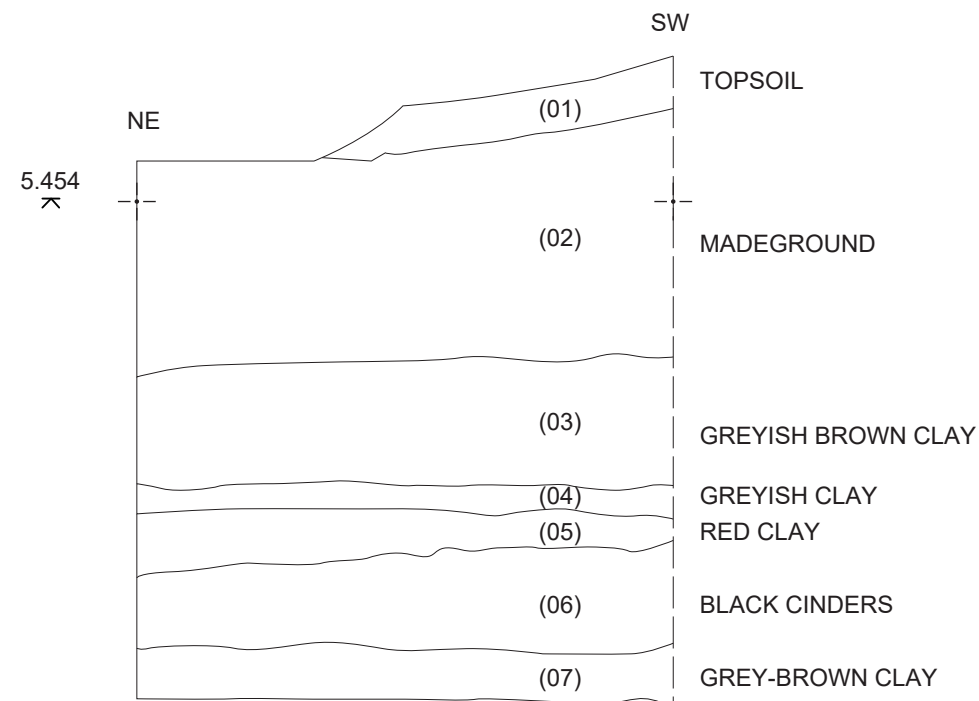
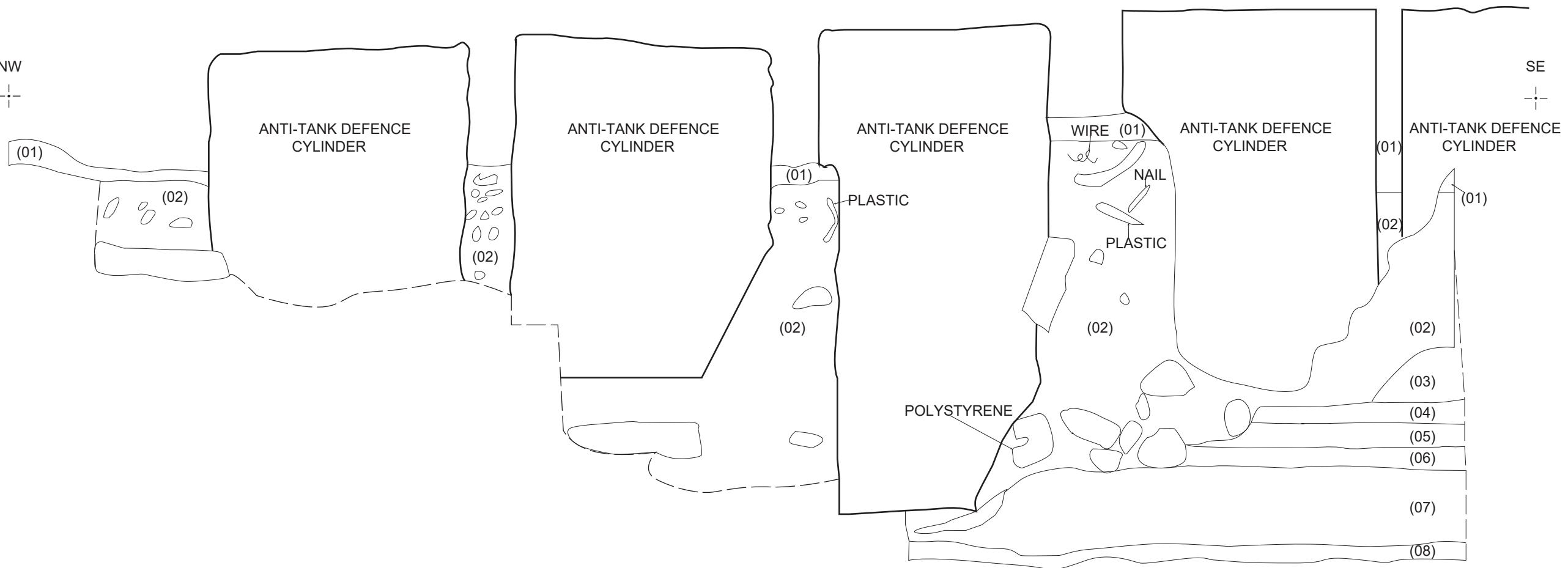


Figure 10:  
Southwest facing section  
of Trench A  
Scale: 1:10@A3.

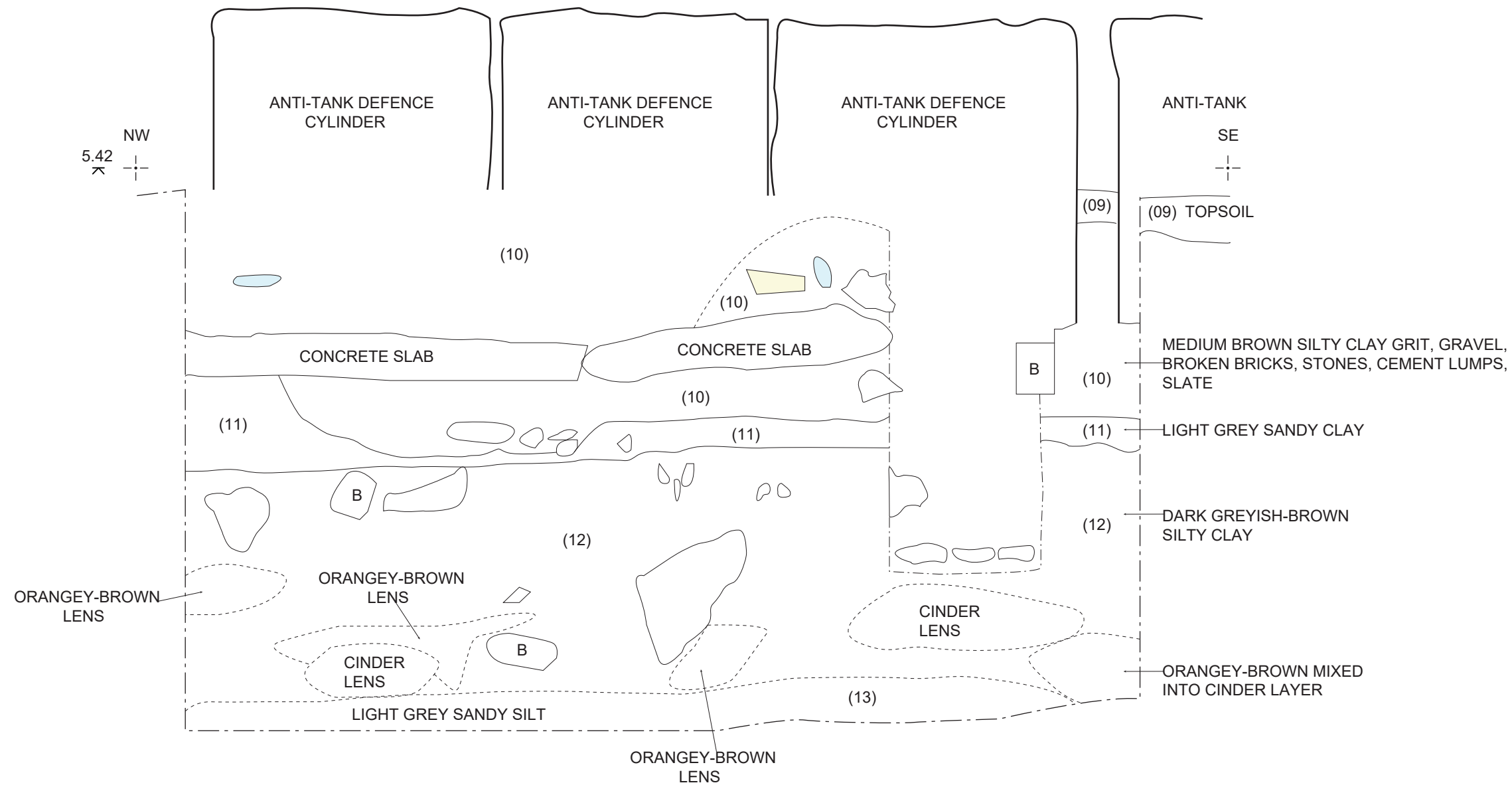


Figure 11: Southwest facing section of Trench B.

Scale: 1:10@A3.

Key	
	Brick
	Stones
	Slate
	Concrete

Date: 14/03/2023  
Author: MSL  
Office: GAT  
Drawing: G2649/  
Section and plan of  
[18]

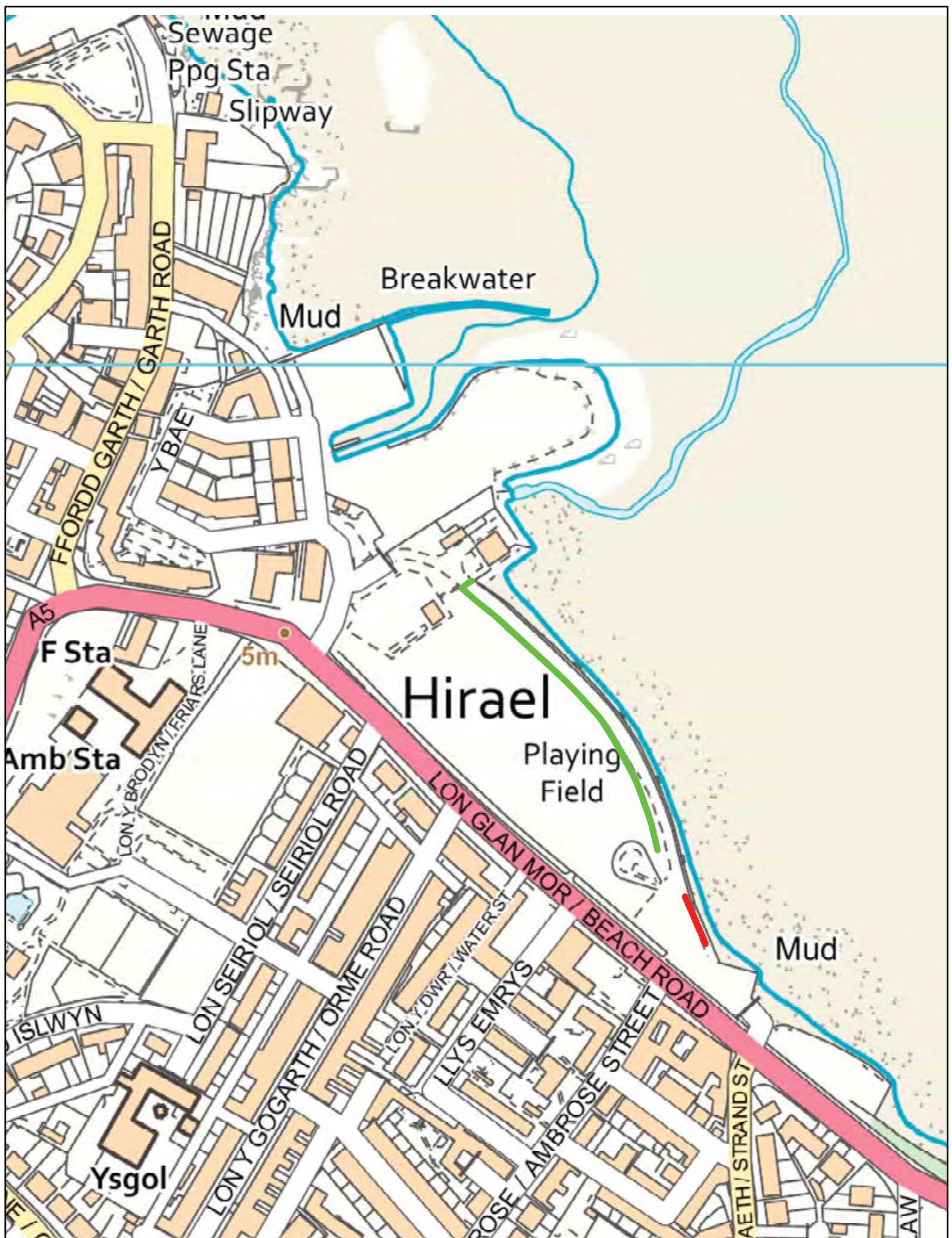


Figure 12: GPS survey showing alignment of the anti-tank cylinders along the promenade (Green) and built into existing coastal defence wall (Red). Scale: 1: 2500@A4.

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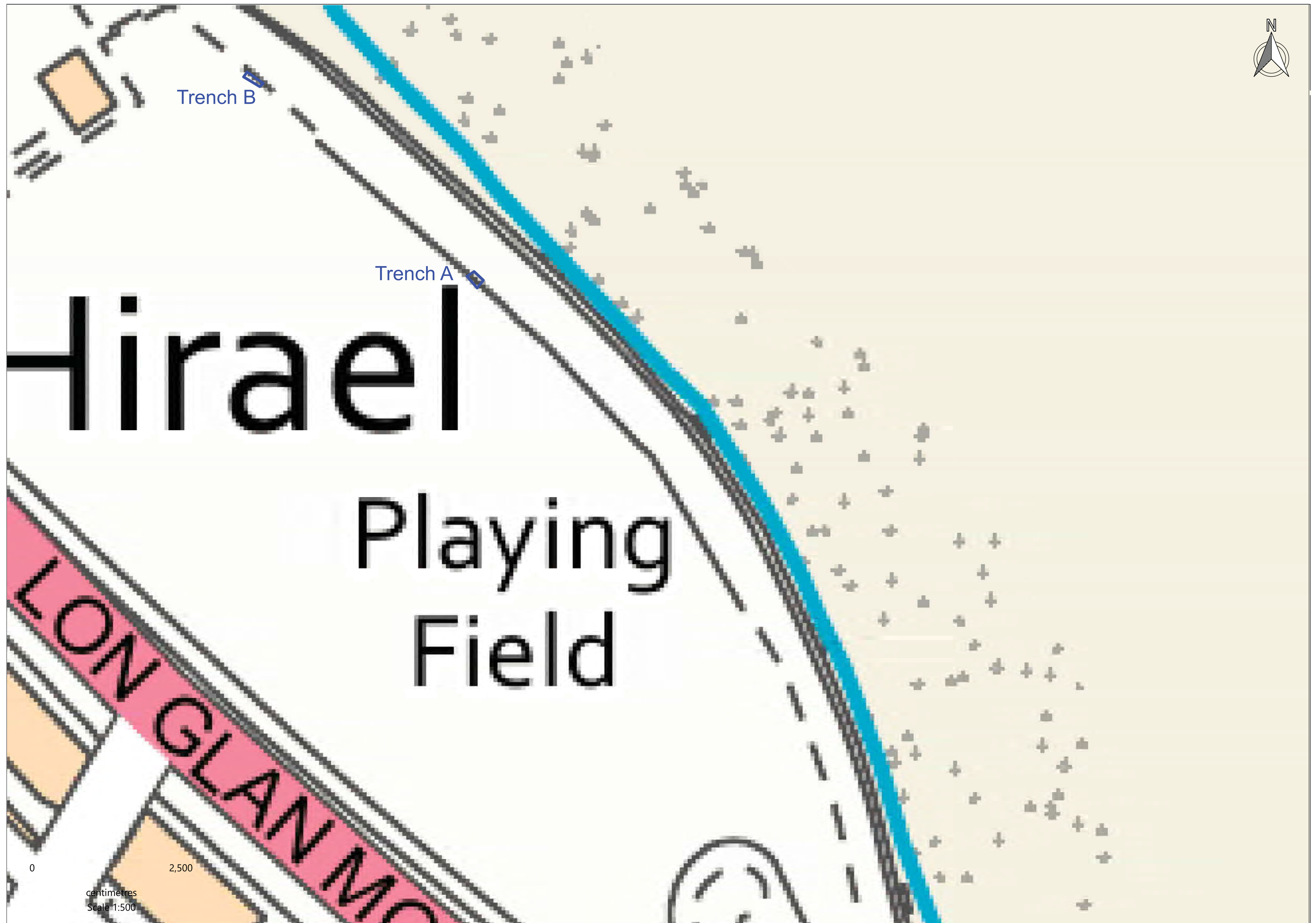


Figure 13: GPS survey showing the location of Trenches A and B. Scale 1: 500@A3. © Crown copyright and database rights 2023 OS 100020577. Contains National Statistics data. © Crown copyright and database right 2023.



Figure 14: Reproduction of the First Edition 25" Ordnance Survey Map of the area (Anglesey and Caernarvonshire (sic) Sheets XIX.8, VI.8, XIX.12, VI.12 and VII.9; published:1890) showing the coastal improvement area. Scale 1:3000@A4.

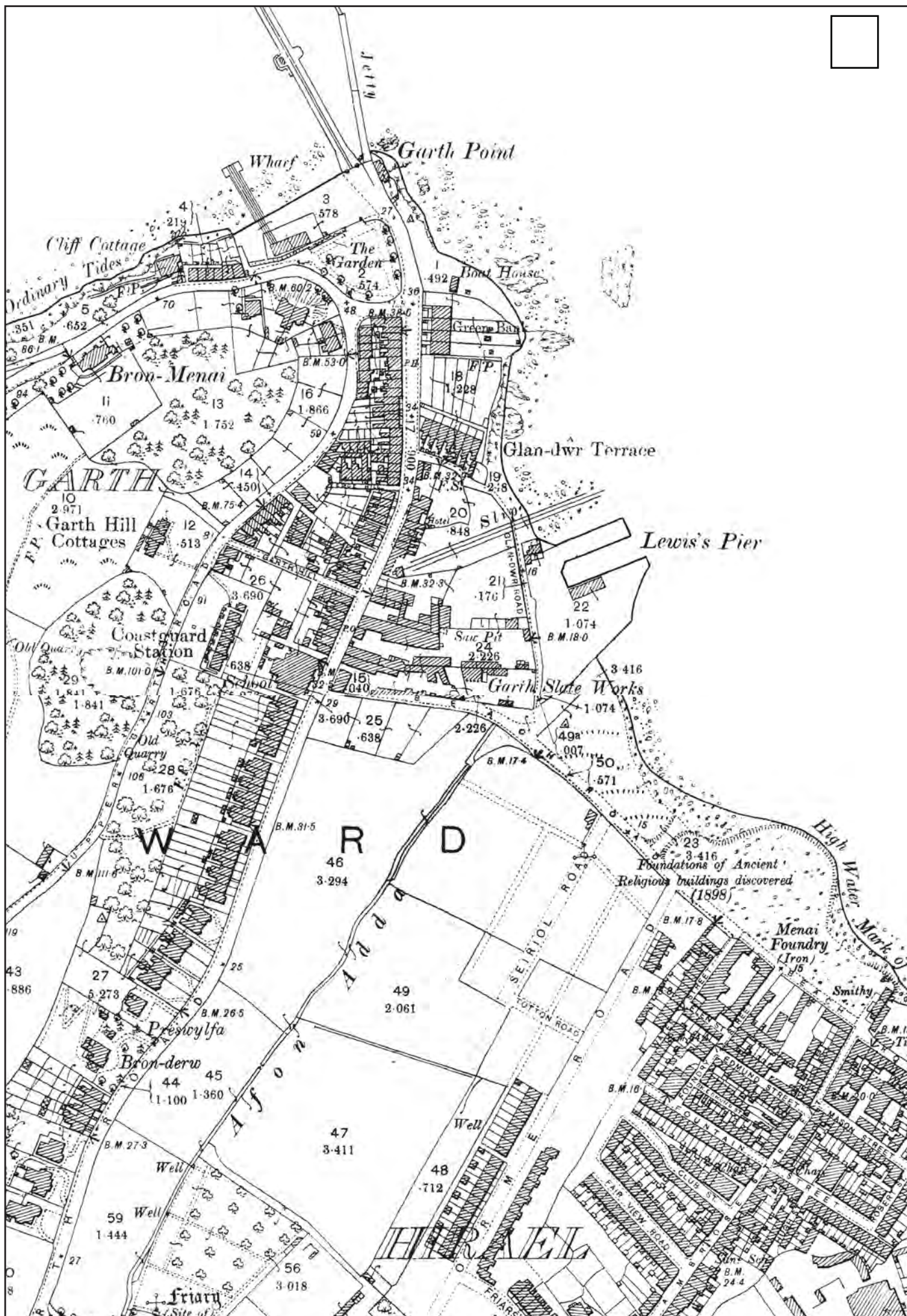


Figure 15: Reproduction of the Second Edition 25" Ordnance Survey Map of the area (Anglesey and Caernarvonshire (sic) Sheets XIX.8, VI.8, XIX.12, VI.12 and VII.9; published:1900) showing the coastal improvement area. Scale 1:3000@A4.



Figure 14: Reproduction of the Third Edition 25" Ordnance Survey Map of the area (Anglesey and Caernarvonshire (sic) Sheets XIX.8, VI.8, XIX.12, VI.12 and VII.9; published: 1914) showing the coastal improvement area. Scale 1:3000@A4.



Plate 1: View of cast pebblestone concrete Second World War anti-tank cylinders along promenade; view from the south-southeast. Scale: 1x1m (archive reference: G2784\_001).



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Plate 6: Four partly buried Second World War anti-tank cylinders at the end of the promenade next to pumping station, aligning with cylinders along promenade; view from the north. Scale: 1x1 m (archive reference: G2784\_020).



Plate 7: Close-up view of Second World War anti-tank cylinders reused within the coastal defence wall, along with stone filled gabion baskets; view from the east-northeast. Scale: 1 x1m (archive reference: G2784\_019).



Plate 8: General view of second World War anti-tank cylinders within the coastal defence wall, along with stone filled gabion baskets; view from the north (archive reference: G2784\_020).



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Plate 10: Close-up view of Second World War anti-tank cylinder showing interior steel tube with thread still in-situ; view from the northeast (archive reference: G2784\_025).



Plate 11: Close-up view of cross indentation/stamp cast atop of several Second World War anti-tank cylinders; view from the south. Scale: 1x1m (archive reference: G2784\_009).



Plate 12: Second World War anti-tank cylinder along the promenade, with one example removed; view from the northeast. Scale: 1x1m (archive reference: G2784\_010).



Plate 13: View of coastal defence wall below the recreational area and next to the slipway, showing structural phasing; view from the east-southeast. Scale: 1x1m (archive reference: G2784\_022).



Plate 14: Close-up view of stone phasing within the coastal defence wall below the recreational area and next to the slipway; view from the east-southeast. Scale: 1x1m (archive reference: G2784\_023).



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## **APPENDIX I**

### **Gwynedd Archaeological Trust Written Scheme of Investigation**

# HIRAEAL COASTAL DEFENCE SCHEME (G2784)

## WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL MITIGATION

Historic Environment Record Event Primary Reference Number  
46647

*Prepared for*




*Griffiths Civil Engineering and Construction*

*May 2023*



Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

**FOR INTERNAL QUALITY MANAGEMENT PURPOSES ONLY**

Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author	Michael Lynes		26/05/2023
Reviewed by	Document Reviewer	John Roberts		26/05/2023
Approved by	Principal Archaeologist	John Roberts		26/05/2023

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue
01	Edits: confirmation of extent of watching brief.	Paragraph 3.1	GAPS Approval

## **FOR COMPLETION BY FIELDWORK STAFF ONLY**

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name

Signature

Date

# HIRAEAL COASTAL DEFENCE SCHEME (G2784)

## PROJECT DESIGN FOR ARCHAEOLOGICAL MITIGATION

Prepared for *Griffiths Civil Engineering and Construction*, May 2023

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# 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by *Griffiths Civil Engineering and Construction* to prepare a written scheme of investigation (WSI) for an archaeological mitigation during a coastal defense scheme at Hiracl, Bangor, Gwynedd (NGR SH5871872826; postcode: LL57 1DG; [Figure 01](#)). Hiracl is located northeast of Bangor within a low-lying basin with a catchment area which includes most of the city of Bangor. The area consists of a 550m length foreshore, a narrow-cobbled beach, and a recreational waterfront open space in the form of a playing field. Immediately behind Beach Road is a densely populated area of residential and commercial properties. The area is at risk of flooding from sea and surface water beach levels. The existing defenses provide coastal erosion and tidal flooding protection in the form of Gambian baskets located along the promenade, however, over recent years they have become into poor state of repair and need replacing. The proposed scheme will include the insertion of 15m long sheet piles (12m buried and 3m retained) with the addition of rock armor immediately seawards of the existing promenade and pumping station (total length approx. 300m) ([Figure 02](#), [03](#), [04](#)). The archaeological mitigation will include a watching brief for all areas of excavations on the foreshore and archaeological recording of the coastal wall along with re-utilised WWII anti-invasion cylinders within the coastal wall (before scheme commencement, and after scheme completion). Site works will commence on the foreshore in June 2023. The works are being undertaken in accordance with Natural Resources Wales Marine Licence CML2167 (cf. [Appendix I](#)).

The archaeological mitigation will be undertaken in accordance with the following guidance:

- Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2 (The Welsh Archaeological Trusts, 2022);
- Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists, 2020);
- Standard And Guidance for The Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2020);
- Management of Archaeological Projects (English Heritage, 1991);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015); and
- Guidelines for digital archives (Royal Commission on Ancient and Historic Monuments of Wales, 2015).

*Gwynedd Archaeological Trust is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).*

## 1.1 Aims and Objectives

The key aims and objectives are to:

- establish and record the date and/or nature of any archaeological remains identified and assess their implications for understanding the historical development of the area, in conjunction with the known archaeological record, which includes WWII activity in the form of Anti-tank Defences that line the entire playing field, the walkway, and even within the outer wall;
- to place the results in context (if applicable), with reference made to *A Research Framework for the Archaeology of Wales Version 03, Final Refresh Document* (March 2017);
- if no additional archaeological activity is identified, establish why this may be the case.

## **1.2 Monitoring Arrangements**

The coastal defence scheme is being undertaken in accordance with a Marine Licence issued by Natural Resources Wales (ref. CML2167; cf. Appendix I). In addition, Gwynedd Archaeological Planning Service (ref. D3456) have also requested a watching brief, under specific conditions relating to archaeological mitigation, including a watching brief for all areas of excavations on the foreshore, and archaeological recording of the coastal defence wall including the WWII anti-tank defence structures within the scheme area (before scheme commencement, and after scheme completion) with results supported by sufficient desk-based research to aid interpretation of any archaeological evidence encountered.

The content of this WSI and all subsequent reporting by GAT must be approved by Natural Resources Wales and Gwynedd Archaeological Planning Service prior to final issue, and both parties must be kept informed of the project timetable and subsequent progress and findings. This will allow time to arrange monitoring visits and attend site meetings (if required) and enable discussion about the need or otherwise for further works (if required) as features of potential archaeological significance are encountered.

### 1.3 Historic Environment Record

In line with the GAT Environment Record (HER) requirements, the HER will be contacted at the onset of the project to ensure that any data arising is formatted in a manner suitable for accession to the HER and follows the guidance set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (The Welsh Archaeological Trusts, 2018). In line with this guidance, all submitted reporting will need to include the equivalent of a non-technical summary in Welsh and English at the front of the report combined with short bilingual summaries of the principal Historic Assets recorded during the event. These requirements are mandatory. The GAT HER enquiry number for this project is **GATHER1865** and the event Primary Reference Number (PRN) is **46647**.

The GAT HER will also be responsible for supplying PRNs for any new identified and recorded assets.

## **2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

A Cultural Heritage Desk-Based Assessment of the scheme has been completed by Brython Archaeology (Brython Archaeology, May 2021). This aim of the assessment was to identify any known archaeological or built heritage features within the site and to assess the potential for previously unrecorded remains. The assessment stated that the development will have a negligible impact on any designated heritage assets, with the exception of the Smithy, Timber Yard and slipway identified at the current location of the Beach Road car park and small park to the east would potentially be within the development area. Options 3 and 4 could potentially impact on buried archaeology during the construction of the coastal and flood defence walls. The assessment incorporated a study area of 1km buffered from the site boundary identifying all historic assets within the study area ([Figure 05](#)).

The report stated that no Historic Environment Record assets dating to the Palaeolithic, Mesolithic or Iron Age have been identified within the study area, whilst evidence for the Neolithic period represented by the findspot of a stone axe from Siliwen (PRN 32812) was discovered within a 500m buffer and a wide variety of Neolithic structures and artefacts further afield at Llandegai industrial Estate during the 1960s.

### **2.1 Prehistoric**

Within 500m of the scheme, Bronze Age sites include an early Bronze Age collared urn (PRN 1973) discovered at a garden Upper Garth Road in 1994. Further afield the evidence of Bronze Age activity is extensive with multiple features discovered at Parc Bryn Cegin (NGR SH 59199 70576). These include four earth ovens (PRN 31759, 31761, 31762, 31764), eight burnt mounds (PRN 31766, 31769, 31770, 31771, 31773, 31774, 31778, 31779), and a pit cluster (PRN 31756). In addition, bronze palstaves, one from Llandegai (PRN 2317) and one from Maesgeirchen (PRN 2812) are additional evidence of frequent Bronze Age activity within the local.

### **2.2 Roman and Romano British period (43 -450 AD)**

The Roman and Romano British period (43-450 AD) are represented by Pier Camp Hillfort (also known as Roman Camp) which is a Scheduled Ancient Monument (CN 073, PRN 2299), is attributed to the Roman period and is located within the 1km buffer of the development scheme. Other sites include the Roman road from Caer Llugwy to Bangor (PRN 17819) which could be located within 500m of the proposed development area, but it is unclear as the projected line terminates at Port Penrhyn. During the 1960s and 2000 excavations at Llandegai

Industrial Estate discovered Romano-British activity. A Neolithic henge identified during the 1960s had been re-used as an enclosure for a Romano-British settlement which included two roundhouses and a number of possible four post structures (PRN 2312). In addition, 235 blue and white annular beads and 19 red cylindrical beads (PRN 31785) dating to the Roman period were discovered within a small pit during the Parc Bryn Cegin excavations in the 2000s.

### **2.3 Early Medieval & Medieval (450AD – 1547AD)**

For the early medieval period the report lists that no early medieval sites are recorded within 500m of the proposed development.

As described in the Brython Cultural Heritage Desk-Based Assessment the first recorded church at Bangor was a Celtic class which was established in 525AD and dedicated to St. Deiniol Circa. 546AD. No evidence of the earliest church has been identified but other sites dating to the early medieval period are recorded within in the HER. A curving gully or beam slot (PRN 74549) identified at Waterloo Street provided a C14 radiocarbon date of 540-769AD. A coin hoard (PRN 2310) was discovered on Bangor High Street in 1894. The hoard contained a total of 13 Saxon and Arabic silver coins along with a fragment of a silver bracelet and fragment of silver ingot. The date of the coins suggest that they were buried around 925-930AD. Two Saxon coins (PRN 2302) were also found near the cathedral in the Vicarage house garden in 1845, contemporary reports suggest that other similar coins had been found previously at the same site. It is likely that the coins were buried around 970AD.

Excavations in the centre of Bangor prior to the construction of the Deiniol Centre identified an early medieval burial ground (PRN 2371) containing 76 graves. A ditch and other features which had truncated some of the graves were dated to the 10th century which means that the graves themselves were earlier. It is likely that the graves were within the early monastic enclosure of Bangor.

Approximately 120m southwest of the proposed development is the location of the medieval Dominican friary (PRN 2300). The date which the friary was established is not known but it is first referenced in 1251, it is generally thought that it was founded around 1250 and destroyed by fire during the Edwardian conflict in 1282-3. The friary was re-built around 1290 at a new site to the south west, it has been suggested that flooding may have been one of the reasons for relocation (GAT, 1991). In 1898-9 walls and graves were identified in sewer trenches being excavated at the north end of Seiriol Road. The later friary (PRN 3181) was built approximately 350m south west of the first and is within 500m of the proposed development.

Within 500m of the proposed development is the alleged site of a castle (PRN 2301). It is said that Hugh d'Avarches, Earl of Chester built a castle at Bangor in the 11th century but the exact location is not known, a castle built at this time would have been a motte. The site recorded on the HER is on Bangor Mountain at a location which Pennant recorded in the late 18th century, the site was later described as 'entirely imaginary' by W. J. Hemp. It is possible that such a castle may have been located at Roman Camp (PRN 2299) but no evidence of a castle has been identified at the site.

Bangor Cathedral, which is a Grade I Listed Building (PRN 2305, ID 4027), is located approximately 900m south west of the proposed development. The cathedral has some of the oldest surviving cathedral foundations in Britain. The earliest part of the building, a fragmentary apse, is no longer visible but belongs to the church built by Bishop David (1120 – 1139). Bangor was burnt in 1211 and the cathedral was almost entirely rebuilt in the 13th and 14th centuries (Coflein, 2020). The building was extensively restored between 1870 and 1880 by Sir G. G. Scott.

Given the proximity of the Dominican Friary it is possible that associated features could be present within the development area. It is also possible that other previously unrecorded medieval archaeology could be present (Brython Archaeology, May 2021).

## **2.4 Post-Medieval and Modern (1547 AD – Present)**

The Brython Cultural Heritage Desk-Based Assessment report lists several post-medieval sites within the 500m buffer zone. These include:

- Glandŵr terrace, immediately north west of the proposed development, is a terrace of seven mid-19th century 3 storey brick-built houses which are all listed at Grade II. They are listed as they reflect the rise in middle class housing in Bangor during the mid-19th century, much of it due to the increase in maritime trade.
- Seiriol Road, which lies approximately 120m to the south, comprises two rows of terraced houses which resulted from the work of the Bangor branch of the Christian Order in Politics, Economics and Citizenship (COPEC). The houses were designed by architect Herbert L North and built in 1927 by Richard Owen, all 20 houses in the terraces are listed at Grade II.

- The portico of the former Penrhyn Arms, which is a Grade II Listed Building (PRN 12123, ID 4095), is located approximately 140m southeast of the development. The Penrhyn Arms was a hotel built in 1799 but demolished in the late 1920s, it was the first home of the University College of North Wales between 1884 and 1926. It was demolished to allow the A5 to be re-routed.
- Approximately 470m to the southwest is the Cegin Viaduct, which is a Scheduled Ancient Monument (PRN 12143, CN 380). It is believed to be the earliest example of a multi-arched railway bridge in the world. It was built between 1798 and 1800 to carry the Penrhyn quarry railroad.
- The former Dickies boatyard site which is now home to 'Y Bae' residential development was the location of a ship building yard and slate works. Both were established in the mid-19th century and the slate works continued to operate until 1935 and Dickie's boatyard continued to operate on the shipyard until 2011.
- Map regression shows the presence of a smithy and timber yard in the area which is now the Beach Road car park, although not marked by name on all editions of the maps the buildings are present from 1889 to 1953.
- King George's field (or St. George's Field) which lies immediately south west of the proposed development was dedicated, like others all over the UK, to the memory of King George V following his death in 1936. During the second World War the site was used as a military camp for both British and American troops before being converted to a camp for Italian prisoners of war. The layout of the camp can be seen on the 1953 Ordnance Survey map.

### **3 METHODOLOGY**

#### **3.1 Introduction**

The archaeological mitigation will include archaeological recording of the coastal wall and WWII anti-tank structures within the scheme area (before scheme commencement, and after scheme completion). A watching brief will be undertaken for all areas of excavations with the exception of groundworks on the north-western area (Glandwr Rd). Site works will commence in June 2023 and will be undertaken by Griffiths Civil Engineering and Construction. The works are being undertaken in accordance with Natural Resources Wales Marine Licence CML2167.

## **3.2 Archaeological Recording**

Ground level photographs taken prior to the start of the watching brief and on completion, the photographic record will be maintained in RAW format using a digital SLR set to maximum resolution (Nikon D5100; resolution: 4,928 x 3,264 [16.2 effective megapixels]) and photographic metadata table will be completed and included in the report. Photographic images will be archived in TIFF format; the archive numbering system will start from G2784\_001. Photographic images will be archived in TIFF format using Adobe Photoshop.

### 3.3 Archaeological Watching Brief

The archaeological watching brief will be undertaken during the construction works for the coastal defence improvement works. The watching brief will be undertaken on an intensive basis and will be undertaken during all excavations on the foreshore. *The project archaeologist(s) will be afforded sufficient time and opportunity to investigate any archaeological activity, or suspected archaeological activity, encountered. It is recommended that a toothless bucket is used whenever possible during the groundworks.* Site works will commence on the foreshore in June 2023. *All tidal working will be under the supervision of the main contractor and all those working in / entering the tidal environment will be required to undergo a site induction and adhere to the safe working policies / practices of the main contractor at all times.*

The following watching brief methodology will be applied:

- All attendances and photographs will be recorded using GAT pro-formas (cf. Appendices [II](#) and [III](#)). The records will include depositional depths and composition as far as the limit of excavation. Any subsurface features encountered will be recorded on GAT pro-formas with detailed notations and will be recorded photographically with an appropriate scale, located via GPS and a measured survey completed, either hand drawn or using a Trimble R8 GPS unit;
- Photographic images will be taken using a digital SLR camera set to maximum resolution in RAW format; a photographic record will be maintained on site using GAT pro-formas and digitised in *Microsoft Access* as part of the fieldwork archive and dissemination process. Photographic images will be archived in TIFF format using Adobe Photoshop; the archive numbering system will use an alphanumeric prefix (G2784) and will follow on from the numbering sequence used for the coastal wall / anti-tank defences photographic supplementary recording. Where practical, a photographic ID board will be used to record site code, image orientation and any relevant context numbers; scale bars of appropriate size and quantity will be used, both for general images and for individual features/feature groups.
- Any archaeological features/deposits/structures encountered will be manually cleaned and examined to determine extent, function, date and relationship to adjacent activity. The following excavation strategy will generally apply: 50% sample of each sub-circular feature, 25% sample of each linear feature (terminal ends and intersection points with other features will be prioritised). However, if discrete features are identified, these will be 100% excavated. Any features that comprise a spread of material rather than a cut

feature, will be completed in quadrants (if fully extant) or 100% excavated if present as a discrete spread. The former quarry, will be recorded using photography and a survey of its outline (if identifiable) using the Trimble R8 GPS unit;

- Any required sections and plans to be drawn at a minimum 1:10 scale using GAT A4, A3 or A2 pro-forma permatrace (whichever is appropriate to the size/scale of the drawing); section datums will be recorded.

Should dateable artefacts, human remains and/or ecofacts be recovered, an **interim fieldwork report** will be submitted summarising the results of the mitigation, along with recommendations for a post-excavation assessment and analysis (in line with the MAP2 process). *Additional time, resourcing and costs will be required to undertake any post-excavation programme of works.*

### 3.4 Human Remains

Whilst human remains are not expected, if any human remains are identified that cannot be preserved in situ, any excavation will take place under appropriate regulations and with due regard for health and safety issues. In order to excavate human remains, a Ministry of Justice licence is required under Section 25 of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial. In accordance with the Ministry of Justice licence, recovered remains will be reburied once the investigation and/or assessment/analysis are complete.

Non-fragmented skeletal remains will be excavated using wooden tools and collected and stored in polyethylene bags (with appropriate references for context, grave number, et al) and placed in a lidded cardboard archive box (note: separate boxes for each grave) and stored in a suitable manner within GAT premises. If significant quantities of human remains are encountered, a human osteologist should be contacted and appointed to advise the team during the fieldwork. The osteologist will be an external appointment: Dr. Genevieve Tellier | Tel: 01286 238827 | email: [northwalesosteology@outlook.com](mailto:northwalesosteology@outlook.com) who will assist in devising the excavation, recording and sampling strategy for features containing human remains. The osteologist should also help to ensure that adequate post-excavation processing of human remains is carried out so that the material is in a fit state for assessment during the post-excavation stage. For inhumations, this will involve washing, drying, marking and packing.

If human remains are recovered that are deemed suitable for further assessment/analysis, this will be completed in accordance with the osteologist's requirements and with *Human Bones from Archaeological Sites Guidelines for producing assessment documents and analytical reports* (Chartered Institute for Archaeologists, 2017).

If human remains are recovered that are deemed suitable for further assessment/analysis, this will be completed in accordance with the osteologist's requirements and with *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (Historic England, 2018).

### **3.5 Ecofacts**

Should any archaeological features and/or sealed deposits be identified that are deemed suitable for assessment and analysis, bulk ecofact samples will be taken by the GAT Project Archaeologist team using 10 litre sampling buckets. The deposits will be assessed and analysed for plant species and charcoal, with the results used to inform agrarian practices and wood fuel use, as well as possibly dating. Initial assessment would be completed by the GAT Project Archaeologist team using wet sieving, with the subsequent species identification assessment completed by an ecofact specialist (Jackaline Robertson | AOC Archaeology | telephone: 0208 843 7380). Any deposits deemed suitable for dating will be submitted to a laboratory specialising in radiocarbon dating (e.g., SUERC).

*Any ecofact assessment/analysis proposals will require additional resourcing and cost and will only be undertaken further to agreement with GAPS and the client.*

Any ecofact samples taken from human burials will be recovered in accordance with the appointed osteologist's guidance.

### 3.6 Artefacts

There are known findspots within the local area and any diagnostic artefacts recovered during the watching brief will be retained for further examination and identification. Pottery sherds of 19<sup>th</sup> and 20<sup>th</sup> century date will be examined on-site and the context from which they were retrieved noted but the sherds will not be retained. The artefacts will be treated according to guidelines issued by the UK Institute of Conservation, in particular the advice provided within *First Aid for Finds* (Watkinson and Neal 2001).

Any waterlogged artefacts (e.g. wood or leather) that are to be recovered for post-excavation assessment and analysis will be processed in accordance with *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage, 2011) and specifically in accordance with Brunning and Watson (2010) for waterlogged wood and Historic England (2012) for waterlogged leather. In such cases an external specialist will be contacted to agree an appropriate sampling and recovery strategy via Lucy Whittingham Project Manager (post-excavation), AOC Archaeology, telephone: 0208 843 7380. All finds are the property of the landowner; however, it is Trust policy to recommend that all finds are donated to an appropriate museum (in this case Storiol, Ffordd Gwynedd, Bangor, Gwynedd, LL57 1DT), where they can receive specialist treatment and study. Access to finds must be granted to the Trust for a reasonable period to allow for analysis and for study and publication as necessary. Trust staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants used by the Trust, including National Museums and Galleries of Wales at Cardiff.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown, on whose behalf the Portable Antiquities Scheme acts as advisor on technical matters and may be the recipient body for the objects.

The Treasure Valuation Committee, based at the British Museum, and informed by the Portable Antiquities Scheme, will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it. When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled.

GAT will contact the landowner (via *Conwy County Borough Council*) for agreement regarding the transfer of artefacts, initially to GAT and subsequently to the relevant museum (Conwy

Archive Service, Conwy Culture Centre, Town Ditch Road, Conwy, LL32 8NU). A GAT produced pro-forma will be issued to the landowner where they are given the option to donate the finds or to record that they want them returning to them once analysis and assessment has been completed. Artefacts to be donated will then be transferred to Conwy Archive Service.

The works will be undertaken in accordance with the scheme specific Protocol for Archaeological Discoveries prepared by CCBC (cf. [Appendix V](#)). The protocol is a requirement of Marine Licence CML 2167.

### 3.7 Working Project Archive

Following the completion of the fieldwork, a working project archive will be created based on following task list;

1. Pro-formas: all cross referenced and complete;
2. Photographic Metadata: completed in *Microsoft Access* and cross-referenced with all pro-formas;
3. Survey data: downloaded using a Computer Aided Design package;
4. Sections (if relevant): all cross referenced and complete;
5. Plans (if relevant): all cross referenced and complete;
6. Artefacts (if relevant): quantified and identified; register completed;
7. Ecofacts (if relevant): quantified and register completed;
8. Context register (if relevant): quantified and register completed.

All relevant site archive data will be added to a digital project register specific to this project, which will be prepared in *Microsoft Excel*.

The site archive data will then be processed, final illustrations will be compiled, and a report will be produced which will detail and synthesise the results.

### **3.8 Data Management Plan**

The physical archive will be stored in a designated project folder and the location confirmed in the Trust project database; the digital dataset will be stored on a dedicated Trust server, with the location confirmed in the Trust project database via a specific hyperlink. External datasets for the HER and RCAHMW are as defined in the dissemination strategy below. De-selected digital data will be confirmed in an updated Selection Strategy document appended to the final report.

### 3.9 Reporting

Should extensive archaeology, including dateable artefacts, human remains and/or ecofacts be recovered, an **interim report** will be submitted first summarising the results of the mitigation and providing recommendations for post-excavation assessment and analysis in line with the Historic England MAP2 process. Further to the completion of the post-excavation assessment and analysis, a **final report** will be prepared that will include the following:

1. Non-technical summary (Welsh and English);
2. Introduction;
3. Background;
4. Methodology;
5. Results;
6. Conclusion;
7. List of sources consulted;
8. Figures; to include
  - a. General location plan;
  - b. Detailed location plans specific to targeted area – to each include location of archaeological features (if applicable);
  - c. Plans and sections of archaeological features (if applicable).
  - d. Artefacts (if applicable)
9. Appendix I – approved GAT written scheme of investigation
10. Appendix II – photographic register
11. Appendix III – GAT selection strategy
12. Appendix IV - context register
13. Appendix V – drawing register (if applicable)
14. Appendix VI - artefact register (if applicable)
15. Appendix VII – ecofact register (if applicable)
16. Appendix VIII – specialist reporting (as applicable dependent on results)

The schedule for reporting will be determined by the scale and complexity of any archaeology encountered (or lack thereof), but a fieldwork or interim report will provisionally be submitted within one month of fieldwork completion. All parties will subsequently be informed in of the expected submission date for the final report and archive.

### 3.10 Dissemination

On final approval, the following dissemination and archiving of the report and digital dataset will apply:

- A digital report(s) will be provided to the client and GAPS (draft report then final report);
- A digital report will be provided to the regional Historic Environment Record; this will be submitted within one month of final report completion, along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1); and
- A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales within one month of final report completion and will include the pointcloud survey data and the GAT archive data; the dataset will be compiled in accordance with the *RCAHMW Guidelines for Digital Archives Version 1* and include:
  - GAT Photographic metadata (Microsoft Access);
  - GAT Photographic archive (TIFF format);
  - GAT Project Information form (Excel);
  - File Information form (Excel) – Microsoft Word report text final (GAT watching brief report);
  - File Information form (Excel) – GAT Photographic metadata;
  - File Information form (Excel) – Adobe PDF report final (GAT watching brief report); and
  - File Information form (Excel) – GAT Photographic metadata (detail).

### 3.11 Selection Strategy

As defined in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020) section 3.3.1, a project specific selection strategy and data management plan should be prepared. In support of this, the Chartered Institute for Archaeologist (CIfA), have stated that it is “widely accepted that not all the records and materials collected or created during the course of an Archaeological Project require preservation in perpetuity. These records and materials constitute the Working Project Archive which will be subject to Selection, in order to establish what will be retained for long-term curation”. The aim of selection is to ensure that all the elements retained from the Working Project Archive for inclusion in the Archaeological Archive are appropriate to establish the significance of the project and support “future research, outreach, engagement, display and learning activities”. Selection should be “focused on selecting what is to be retained to support these future needs, rather than deciding what can be dispersed” and can be qualified by a selection strategy, which details the project-specific selection process, agreed by all parties (including GAPS, client and/or landowner), which will be applied to a Working Project Archive prior to its transfer into curatorial care as the Archaeological Archive. The selection strategy will be summarised in [Appendix IV](#) and finalised for the final report; the strategy will take into account:

- The aims and objectives of the project.
- The brief and/or Written Scheme of Investigation (WSI)).
- The Collecting Institution’s collection policy and/or deposition guidelines.
- Local and regional research frameworks.
- Relevant thematic or period specific research frameworks.
- The project’s Data Management Plan (DMP).
- Internal recording and reporting policies.
- Material-specific guidance documents.

## 4 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section with attendances on-site undertaken by a GAT Project Archaeologist, although recourse to additional Project Archaeologist(s) will be sought if required.

The Project Archaeologist(s) will be responsible for following:

- All archaeological watching brief duties on site;
- On-site liaison with *Griffiths Civil Engineering and Construction*
- GAPS liaison, with regular updates;
- specialist liaison (if relevant);
- completing all on site pro-formas and the fieldwork archive itemised above, including the digital project register;
- for submitting a draft final report (or interim report) for project manager review and approval, to then be submitted as per the arrangements defined above;
- sourcing Primary Reference Numbers (PRN) from the GAT HER for any new features identified;
- completing an event summary and creating or updating PRN data, dependent on results;
- GAT HER and RCAHMW archive submission.

## **5 HEALTH AND SAFETY**

The GAT Project Archaeologist(s) will be CSCS certified. Any hazards, risks and recommended risk mitigation will be identified prior to the start of work in a site-specific risk assessment, copies of which will be supplied to the client and sub-contractor prior to the beginning of fieldwork. All GAT staff will be issued with required personal safety equipment, including high visibility jacket, steel toe-capped boots and hard hat. All GAT fieldwork is undertaken in accordance with the Trust's Health and Safety Manual, Policy and Handbook (prepared by Ellis Whittam) and both the Welsh Government's and GAT's guidelines on Covid-19.

*All tidal working will be under the supervision of the main contractor and all those working in / entering the tidal environment will be required to undergo a site induction and adhere to the safe working policies / practices of the main contractor at all times.*

## **6 SOCIAL MEDIA**

One of the key aims in the GAT mission statement is to improve the understanding, conservation and promotion of the historic environment in our area and inform and educate the wider public. To help achieve this, GAT maintains an active social media presence and seeks all opportunities to promote our projects and results. With permission, GAT would like the opportunity to promote our work on this scheme through our social media platforms. This could include social media postings during our attendance on-site as well as any postings to highlight results. In all instances, approval will be sought from client prior to any postings.

## **7 INSURANCE**

### **7.1 Public/Products Liability**

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability

INSURER Aviva Insurance Limited

POLICY TYPE Public Liability

POLICY NUMBER 24765101CHC/UN/000375

EXPIRY DATE 21/06/2023

### **7.2 Employers Liability**

Limit of Indemnity- £10,000,000 any one occurrence.

The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.

INSURER Aviva Insurance Limited

POLICY TYPE Employers Liability

POLICY NUMBER 24765101 CHC / UN/000375

EXPIRY DATE 21/06/2023

### **7.3 Professional Indemnity**

Limit of Indemnity- £5,000,000 in respect of each and every claim

INSURER Hiscox Insurance Company Limited

POLICY TYPE Professional Indemnity

POLICY NUMBER 9446015

EXPIRY DATE 22/07/2023

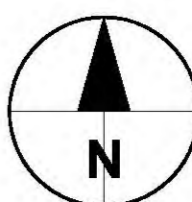
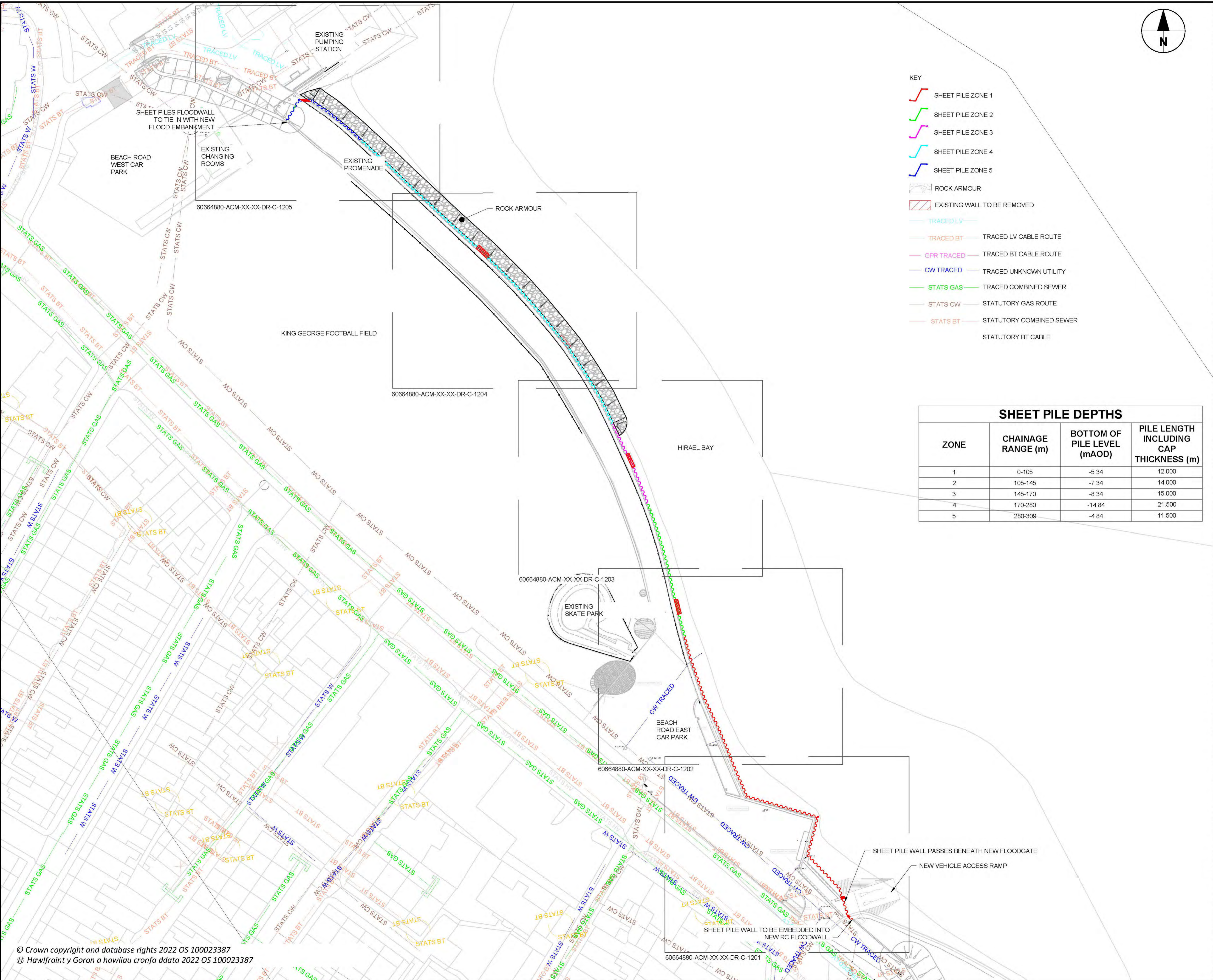
## 8 SOURCES CONSULTED

1. A Research Framework for the Archaeology of Wales, Current Research Framework Documents 2017 (<https://archaeoleg.org.uk/documents2017.html>)
2. Brunning, R and Watson, J 2010, Waterlogged Wood: Guidelines on the Recording, Sampling, Conservation and Curation of Waterlogged Wood (3rd edition)
3. Brython, 2021., Hiraef Flood Alleviation Scheme: Desk Based Assessment. Brython Report Number: B2004.DBA.01.01
4. Chartered Institute for Archaeologists, 2020, Standard and Guidance for Archaeological Watching Brief
5. Chartered Institute for Archaeologists, 2020, Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives
6. Chartered Institute for Archaeologists, 2020, Updated Guidelines to the Standards for Recording Human Remains
7. English Heritage, 1991, Management of Archaeological Projects
8. English Heritage, 2011, Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation
9. English Heritage, 2015, Management of Research Projects in the Historic Environment (MoRPHE)
10. Historic England, 2012, Waterlogged Organic Artefacts Guidelines on their Recovery, Analysis and Conservation
11. Historic England, 2018, The Role of the Human Osteologist in an Archaeological Fieldwork Project
12. Natural Resources Wales, 2022, Marine Licence: Licence Number CML2167
13. Royal Commission on Ancient and Historic Monuments of Wales, 2015, Guidelines for digital archives
14. The Welsh Archaeological Trusts, 2022, Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2
15. Watkinson, D and Neal, V, 2001, First aid for finds (3rd edition)

## **FIGURE 01**

**Reproduction of ACOM Job No. 60664880. Sheet No: 60664880-ACM-XX-XX-DR-C-1200. *Site Location & Study Area*. Scale: as shown.**

ISO A1 594mm x 841mm  
Approved: VC  
Checked: NM  
Designer: JH  
Project Management Initials: DWG  
Last saved by: JAMES HEWITSON (2022-11-24) Last Plotted: 2022-11-25  
Filename: \\UKLDS2PFLN001\NA\AECOM\NET\COM\LOCAL\LEEDS\CD\PROJECTS\60664880-HIRAE\_BAY\_FAS\900\_CAD\_GIS\910\_CAD\20 SHEETS\60664880-HIRAE\_BAY\_FAS\900\_CAD\_GIS\910\_CAD\20 PROMENADE GENERAL ARRANGEMENT DWG



- KEY
- SHEET PILE ZONE 1
  - SHEET PILE ZONE 2
  - SHEET PILE ZONE 3
  - SHEET PILE ZONE 4
  - SHEET PILE ZONE 5
  - ROCK ARMOUR
  - EXISTING WALL TO BE REMOVED
  - TRACED LV
  - TRACED BT
  - GPR TRACED
  - CW TRACED
  - STATS GAS
  - STATS CW
  - STATS BT
  - TRACED LV CABLE ROUTE
  - TRACED BT CABLE ROUTE
  - TRACED UNKNOWN UTILITY
  - TRACED COMBINED SEWER
  - STATUTORY GAS ROUTE
  - STATUTORY COMBINED SEWER
  - STATUTORY BT CABLE

SHEET PILE DEPTHS			
ZONE	CHAINAGE RANGE (m)	BOTTOM OF PILE LEVEL (mAOD)	PILE LENGTH INCLUDING CAP THICKNESS (m)
1	0-105	-5.34	12.000
2	105-145	-7.34	14.000
3	145-170	-8.34	15.000
4	170-280	-14.84	21.500
5	280-309	-4.84	11.500



PROJECT

## HIRAE BAY FLOOD ALLEVIATION SCHEME

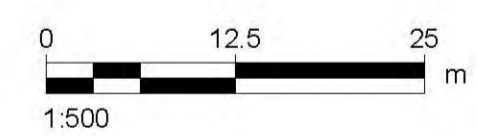
CLIENT

CYNGOR GWYNEDD COUNCIL  
Council Offices, Shirehall Street, Caernarfon  
LL55 1SH

CONSULTANT

AECOM  
2 City Walk,  
Leeds, LS11 9AR  
+44(0)-113-301-8400 tel.  
www.aecom.com

- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
- FOR ZONAL GENERAL ARRANGEMENTS REFER TO DRAWINGS 60664880-ACM-XX-XX-DR-C-1201 TO 60664880-ACM-XX-XX-DR-C-1205
- FOR PROMENADE WALL LONGSECTION REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1211.
- FOR PROMENADE WALL CROSS SECTIONS AND TYPICAL DETAILS REFER TO DRAWINGS 60664880-ACM-XX-XX-DR-1221 TO 60664880-ACM-XX-XX-DR-C-1225.
- FOR PILE CAPPING BEAM DETAIL REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1231.



FOR TENDER

ISSUE/REVISION		
P01	24/11/2022	FIRST REVISION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60664880

SHEET TITLE

PROMENADE OVERVIEW  
GENERAL ARRANGEMENT

SHEET NUMBER

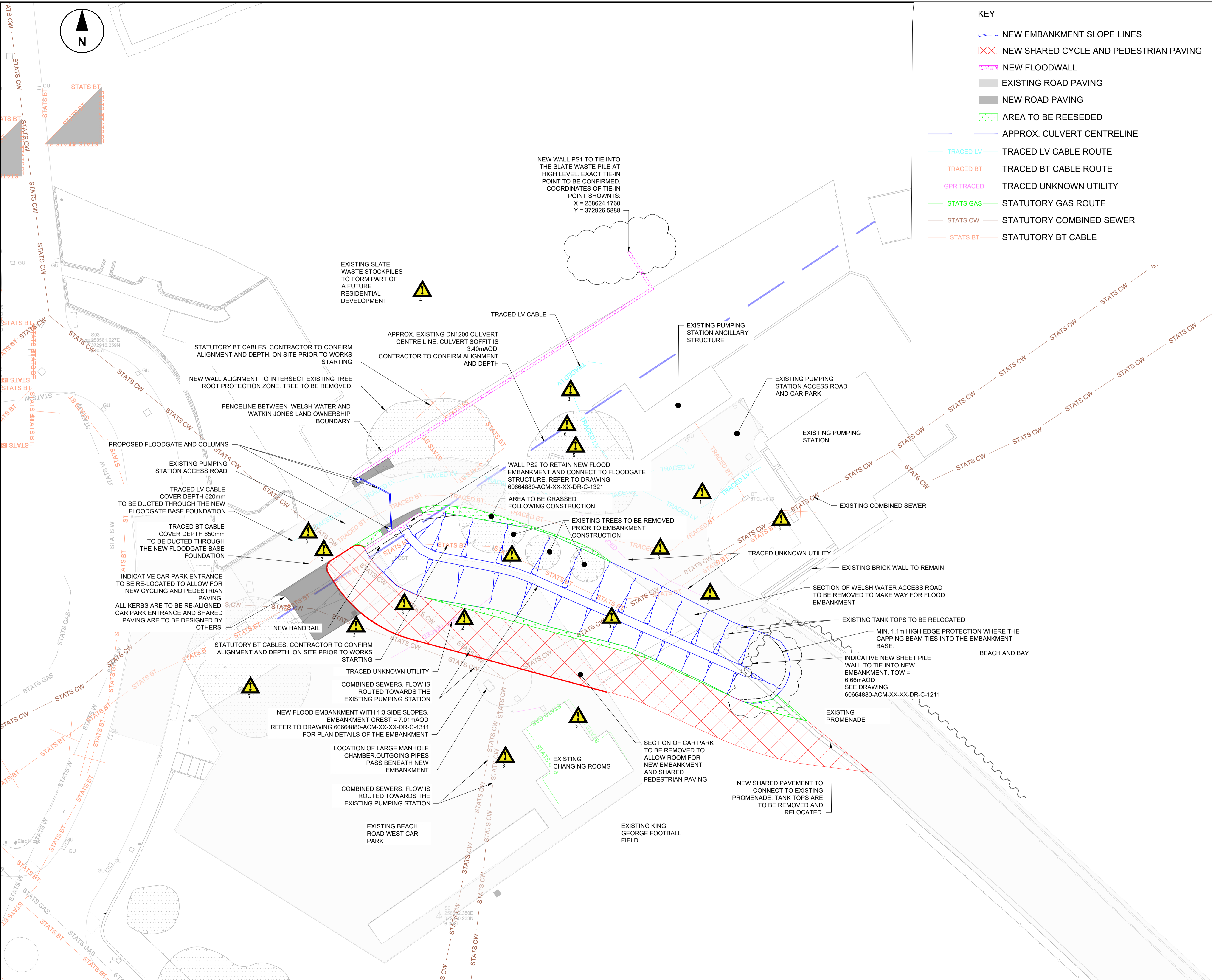
60664880-ACM-XX-XX-DR-C-1200

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Hawlfraint y Goron a hawliau cronfa ddata 2022 OS 100023387

## **FIGURE 02**

**Reproduction of ACOM Job No. 60664880. Sheet No: 60664880-ACM-XX-XX-DR-C-1301. Pumping Station General Arrangement. Scale: as shown.**

ISO A1 594mm x 841mm  
Approved: VC  
Checked: NM  
Designer: JH  
Project Management Initials:  
Last saved by: AMY.MISTRY(2022-12-05)  
Filename: L:\DCS\PROJECTS\CI\6064880\_HIRAEL\_BAY\_FAS1900\_CAD\_QIS910\_CAD\20 SHEETS\6064880-ACM-XX-XX-DR-C-1301 PUMPING STATION GENERAL ARRANGEMENT V2\_RECOVER001.DWG  
Last Plotted: 2022-12-05  
This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. All measurements must be obtained from the stated dimensions.



**KEY**

- NEW EMBANKMENT SLOPE LINES
- NEW SHARED CYCLE AND PEDESTRIAN PAVING
- NEW FLOODWALL
- EXISTING ROAD PAVING
- NEW ROAD PAVING
- AREA TO BE REESEEDED
- APPROX. CULVERT CENTRELINE
- TRACED LV CABLE ROUTE
- TRACED BT CABLE ROUTE
- TRACED UNKNOWN UTILITY
- STATUTORY GAS ROUTE
- STATUTORY COMBINED SEWER
- STATUTORY BT CABLE

# AECOM

**PROJECT**

## HIRAEL BAY FLOOD ALLEVIATION SCHEME

**CLIENT**

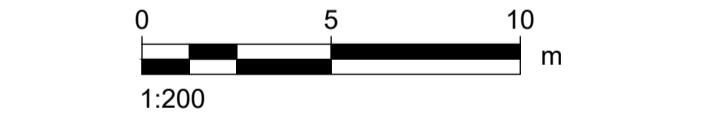
CYNGOR GWYNEDD COUNCIL  
Council Offices, Shirehall Street, Caernarfon LL55 1SH

**CONSULTANT**

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2 City Walk,  
Leeds, LS11 9AR  
+44(0)-113-301-8400 tel.  
www.aecom.com

- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
- ALIGNMENT AND DEPTH OF ALL SERVICES TO BE CONFIRMED ON SITE PRIOR TO WORK STARTING
- ALL TREES LOCATED WITHIN THE WORKS ZONE ARE REQUIRED TO BE SURVEYED IN ACCORDANCE WITH CORRECT ENVIRONMENTAL PRACTICE PRIOR TO CONSTRUCTION WORKS STARTING. ALL OTHER TREES ARE TO BE PROTECTED DURING THE WORKS.
- FOR EMBANKMENT PLAN REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1311.
- FOR RC WALL PLAN REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1321.
- FOR FLOODGATE DETAILS REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1331.
- FOR DRAINAGE DETAILS REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1342.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
IN ADDITION TO THE HAZARDS / RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:	
CONSTRUCTION	
1. WORKING WITHIN UPPER LIMIT OF TIDAL RANGE	
2. INCOMPLETE TRACED UNKNOWN UTILITY	
3. TRACED UTILITIES	
4. UNSTABLE SLATE WASTE	
5. WORKS WITHIN A TREE ROOT PROTECTION ZONE	
6. EXISTING WATER CULVERT BENEATH ACCESS ROAD	
MAINTENANCE / CLEANING / OPERATION	
1. WORKING WITHIN TIDAL CONDITIONS	
DECOMMISSIONING / DEMOLITION	
1. WORKING WITHIN TIDAL CONDITIONS	
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.	



FOR TENDER

ISSUE/REVISION		
P02	05/12/2022	SECOND REVISION
P01	20/09/2022	FIRST REVISION
I/R	DATE	DESCRIPTION

**PROJECT NUMBER**

60664880

**SHEET TITLE**

PUMPING STATION GENERAL ARRANGEMENT

**SHEET NUMBER**

60664880-ACM-XX-XX-DR-C-1301

## **FIGURE 03**

**Reproduction of ACOM Job No. 60664880. Sheet No: 60664880-ACM-XX-XX-DR-C-1401. Glandwr Road General Arrangement. Scale: as shown.**



# HIRAEI BAY FLOOD ALLEVIATION SCHEME

CYGNOR GWYNEDD COUNCIL  
Council Offices, Shirehall Street, Caernarfon  
LL55 1SH

AECOM  
2 City Walk,  
Leeds, LS11 9AR  
+44(0)-113-301-8400 tel.  
www.aecom.com

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
3. ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
4. ALL CONCRETE TO BE C40/50 AND MEET MINIMUM REQUIREMENTS FROM 60664880-ACM-XX-XX-CA-0101. NOMINAL COVER TO REINFORCEMENT 70 mm.
5. FOR TOPOGRAPHY, SLOPE AND EARTHWORK DETAILS SEE 60664880-ACM-XX-XX-DR-C-1402.
6. ALIGNMENT AND DEPTH OF ALL SERVICES TO BE CONFIRMED ON SITE PRIOR TO WORK STARTING.
7. FOR STOPLOGS PLAN AND DETAILS, REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1451.
8. FOR EARTHWORKS, REFER TO DRAWING 60664880-ACM-XX-XX-DR-C-1402.
9. FULL EXTENT OF JAPANESE KNOTWEED TO BE IDENTIFIED BY CONTRACTOR AND REMOVED IN ACCORDANCE WITH BEST ENVIRONMENTAL PRACTICE. REFER TO WORKS SCHEDULE 60664880-ACM-XX-XX-RP-C-1005

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

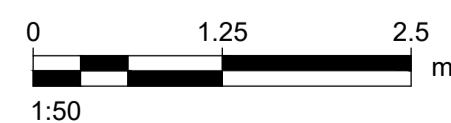
FOR TENDER

P02	12/10/2022	SECOND REVISION
P01	14/01/2022	FIRST REVISION
I/R	DATE	DESCRIPTION

## 60664880

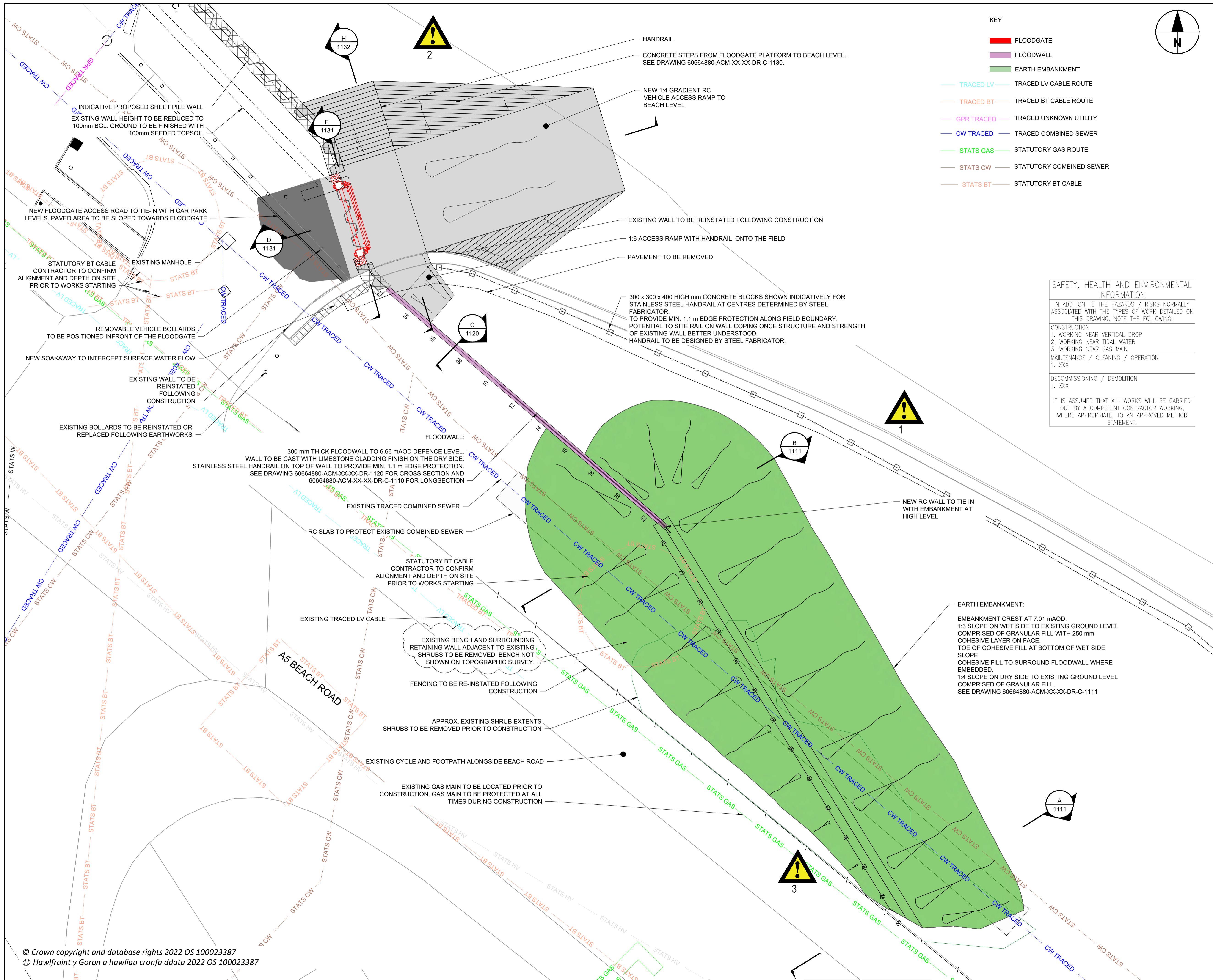
## GLANDWR ROAD GENERAL ARRANGEMENT

## 60664880-ACM-XX-XX-DR-C-1401



## **FIGURE 04**

**Reproduction of ACOM Job No. 60664880. Sheet No: 60664880-ACM-XX-XX-DR-C-1100 Beach Road East General Arrangement. Scale: as shown.**



## PROJECT

# HIRAEI BAY FLOOD ALLEVIATION SCHEME

**CLIENT**

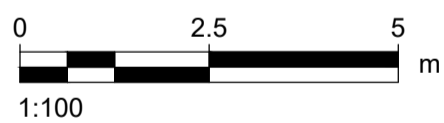
CYNGOR GWYNEDD COUNCIL  
Council Offices, Shirehall Street, Caernarfon  
LL55 1SH

## CONSULTANT

AECOM  
2 City Walk,  
Leeds, LS11 9AR  
+44(0)-113-301-8400 tel.  
www.aecom.com

## NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
3. BOLLARDS ARE TO BE STEEL 1000 HIGH, MIN 1500 AND CAST IN CONCRETE. BOLLARDS TO BE HOT DIP GALVANISED AND PAINTED YELLOW. INSTALLATION TO MANUFACTURERS SPECIFICATION.
4. ALIGNMENT AND DEPTH OF ALL SERVICES TO BE CONFIRMED ON SITE PRIOR TO WORK STARTING.
5. FOR TOPOGRAPHY, SLOPE AND EARTHWORK DETAILS SEE 60664880-ACM-XX-XX-DR-1101.
6. FOR EARTHWORKS AND SUB-SURFACE ARRANGEMENT REFER TO DRAWING 60664880-ACM-XX-XX-DR-1102.
7. FOR EMBANKMENT LONGSECTION AND CROSS SECTIONS REFER TO DRAWINGS 60664880-ACM-XX-XX-DR-1110-1111
8. FOR FLOODWALL AND RC JOINT DETAILS DETAILS REFER TO DRAWING 60664880-ACM-XX-XX-DR-1120
9. FOR FLOODGATE AND VEHICLE ACCESS RAMP DETAILS REFER TO DRAWINGS 60664880-ACM-XX-XX-DR-1130-1133



FOR TENDER

**ISSUE/REVISION**

P03	15/02/2023	THIRD REVISION
P02	17/01/2023	SECOND REVISION
P01	04/10/2022	FIRST REVISION
I/R	DATE	DESCRIPTION

## PROJECT NUMBER

60664880

**SHEET TITLE**

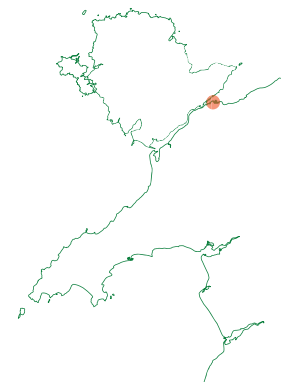
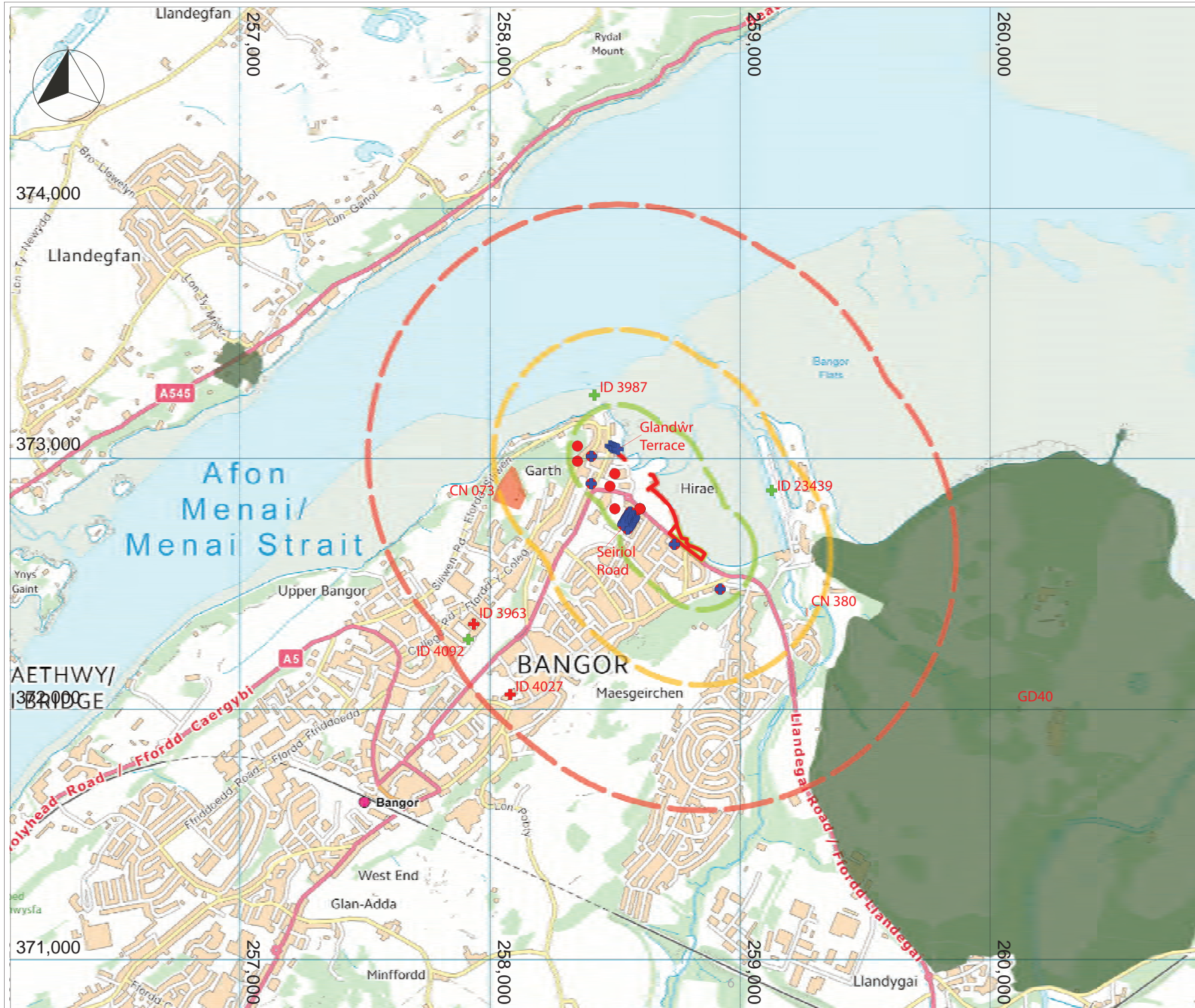
## BEACH ROAD EAST GENERAL ARRANGEMENT

**SHEET NUMBER**

60664880-ACM-XX-XX-DR-C-1100

## **FIGURE 05**

**Reproduction of Brython Archaeology Location plan showing proposed development, 1km, 500m and 200m buffer zones and assessed assets. Scale: as shown.**



**Figure 1**  
Location plan showing proposed development, 1km, 500m and 200m buffer zones and assessed assets.  
Grid: 1000m

- Key**
- Proposed Development
  - 200m Buffer Zone
  - 500m Buffer Zone
  - 1km Buffer Zone
  - Scheduled Ancient Monument
  - Registered Parks & Gardens
  - + Listed Building Grade I
  - + Listed Building Grade II\*
  - + Listed Building Grade II
  - HER Site

© Archaeolog Brython Archaeology CYF.  
Contains Ordnance Survey data  
© Crown copyright and database right 2019

Drawn By:	IGP
Date:	18/02/2020
Location:	SH58687280
Project:	AB2004

## **APPENDIX I**

**Reproduction of Natural Resources Wales Marine Licence CML2159**

# Marine Licence with introductory note

The Marine and Coastal Access Act (2009)

---

Licence Holder: Gwynedd Council

Swyddfa'r Cyngor  
Ffordd y Cob  
Pwllheli  
Gwynedd  
LL53 5AA

Hirael Flood Protection Scheme

Licence Number: CML2167

30/03/2022

Licence Number: CML2167

## **Hirael Flood Protection Scheme**

### **Marine Licence number: CML2167**

## **Introductory note**

### **This introductory note does not form a part of the marine licence**

The main features of the marine licence are as follows.

Enhancement of existing sea wall at Hirael as part of the Hirael Coast Protection Scheme. Consisting of the construction of a sheet piled retaining wall to replace the existing gabion wall at the promenade.

The status log of the marine licence sets out the marine licence history, including any subsequent marine licence variation(s)

<b>Status log of this marine licence</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application	Duly made 13/01/2022	Application received and considered to be duly made
Date licence determined	30/03/2022	Determination date

### **Related marine licences or applications under determination**

*n/a*

End of introductory note.

Licence Number: CML2167

## MARINE LICENCE, NUMBER CML2167

### 1 LICENCE DETAILS

#### 1.1 Marine Licence

This is a licence granted by the Licensing Authority in respect of an application numbered CML2167 and duly made on 13/01/2022 and authorises the Licence Holder to carry on activities for which a licence is required under Part 4 of the Marine and Coastal Access Act 2009, (2009 Act). This licence should be interpreted in accordance with **Section 4**.

#### 1.2 Licence Holder

The Licence Holder is the organisation set out below:

**Organisation name:** Gwynedd Council

**Address:** Swyddfa'r Cyngor, Ffordd y Cob, Pwllheli, Gwynedd, LL53 5AA

#### 1.3 Licence Validity

<b>Licence Start Date</b>	<b>30/03/2022</b>
<b>Licence End Date</b>	<b>31/03/2023</b>
<b>Licence Issue Date</b>	<b>30/03/2022</b>

#### 1.4 Conditions

This licence is subject to the conditions set out in **Section 3**.

Signed:



Dr. Emmer Litt

For and on behalf of the Licensing Authority

## 2 LICENSED ACTIVITIES

### 2.1 Project

**Enhancement of existing sea wall at Hiraal as part of the Hiraal Coast Protection Scheme. Consisting of the construction of a sheet piled retaining wall to replace the existing gabion wall at the promenade.**

The following Licensed Activities can be conducted within the Licence Period, within the Licensed Area and in accordance with the Approved Application and the Approved Supporting Documents:

**Table 1 Licensed Activities**

<b>Activity 1 Construction of sea wall</b>	
Type of Licensed Activity	Removal/Construction
Description	<p>Construction of a retaining wall to replace the existing gabion wall. The new defence will be constructed through a sheet piling method.</p> <p>To allow the installation of the sheet pile wall as close to the existing wall as possible lower level gabion baskets and large stones will be removed.</p> <p>Concrete will be used to fill voids in the existing gabions that are to be retained.</p> <p>Sheet piles will be installed as close to the existing gabions as practicably possible.</p> <p>Voids between the proposed sheet pile wall and existing promenade to be filled using engineering backfill.</p> <p>In-situ reinforced capping beam and cladding will be installed.</p>
Material types to be removed or deposited	<p>Removal: Degraded gabion baskets will be removed. Large rocks may be moved to allow operation but must remain on the foreshore and be reinstated following installation of sheet piles.</p> <p>Deposit: sheet piles, concrete, engineering backfill to fill any space between the new sheet piled wall and the existing gabions (100-200mm)</p>

### 2.2 Licensed Area

**Licence Number: CML2167**

The Licence Holder is authorised to conduct the activities described in Table 1 in the vicinity of Hiraël, Bangor bounded by the coordinates specified in Appendix 1 as indicated on the plan attached at Appendix 2.

In the event of any discrepancy between the coordinates set out in Appendix 1 and the plan attached at Appendix 2, the coordinates shall take precedence.

**2.3 Approved Supporting Documents**

<b>Title/Description of Document</b>	<b>Date submitted</b>	<b>Version No.</b>
7720_Hiraël_Red Line Map_V3	8/12/2021	3
7720_Hiraël_Habitats Regulations Assessment_v0.03	24/01/2022	3
7720_Hiraël_ECIA_0.05	8/12/2021	5
Hiraël FAS - Methodology Statement	8/12/2021	1
60664880-ACM-XX-XX-DR-C-0203 - Beach Road East Overview Plan for Planning	8/12/2021	1
60664880-ACM-XX-XX-DR-C-0204 - Beach Road East Design Profiles and Sections for Planning	8/12/2021	1
60664880-ACM-XX-XX-DR-C-0208 - Promenade Design Overview for Planning	8/12/2021	1
60664880-ACM-XX-XX-DR-C-0209 - Promenade Design Profiles and Sections for Planning	8/12/2021	1
Marine Licence Application form	26/01/2022	3
Heritage Report AB2004 Hiraël FAS	15/02/2022	1

### **3 CONDITIONS**

#### **Notification and Inspection**

##### **3.1 Notification of Commencement**

- 3.1.1** The Licence Holder must notify the Licensing Authority no less than **10 days** before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.
- 3.1.2** The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) no less than **10 days** before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.
- 3.1.3** The Licence Holder must ensure that local mariners and fishermen's organisations are made fully aware of the Licensed Activities through local notices to mariners **10 days** prior to the commencement of the Licensed Activities.

##### **3.2 Notification of Vessels and/or Vehicles**

The Licence Holder must ensure that the details of the vessels and/or vehicles utilised to undertake the Licensed Activities are submitted to the Licensing Authority and Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) at least **24 hours** prior to the commencement of the Licensed Activities.

##### **3.3 Notification of Agents/Contractors/Sub-contractors**

The Licence Holder must ensure that details of any agent(s), contractor(s) or sub-contractor(s) utilised to undertake the Licensed Activities are submitted to the Licensing Authority at least **24 hours** prior to the commencement of Licensed Activities.

##### **3.4 Notification of HM Coastguard**

The Licence Holder must ensure that HM Coastguard is made aware of the Licensed Activities at least **24 hours** prior to commencement by contacting The National Maritime Operations Centre at **zone31@hmcg.gov.uk**.

##### **3.5 Inspection of Licensed Activities**

The Licence Holder must allow Marine Enforcement Officers or any other person authorised by the Licensing Authority to inspect the Works at any reasonable time.

##### **3.6 Notification of Completion**

- 3.6.1** The Licence Holder must notify the Licensing Authority within **10 days** of completion of the Licensed Activities.
- 3.6.2** The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) within **10 days** of completion of the Licensed Activities.

**Licence Number: CML2167**

### **3.7 Accident or Emergency**

**3.7.1** If, by reason of force majeure any substances or articles are deposited otherwise than as permitted as part of the Licensed Activities or in the Licensed Area full details of the circumstances shall be notified to the Licensing Authority within **48 hours** of the incident occurring.

**3.7.2** If it is necessary for the Licence Holder to recover or remove any equipment, plant or machinery used to undertake the Licensed Activities that have been dropped as a result of an accident or emergency, the Licence Holder is permitted to do so provided that the methodology for such recovery or removal has been approved by the Licensing Authority.

### **3.8 Distribution of Copies of this Licence**

The Licence Holder is required to ensure that a copy of this Licence is given to:

- All agent(s), contractor(s) and sub-contractor(s) whose names have been provided to the Licensing Authority under condition 3.3 and
- The Masters of any vessels and transport managers responsible for the vehicles employed in accordance of this Licence whose details have been submitted to the Licensing Authority under condition 3.2.

### **3.9 Inspection of Documents**

Copies of this Licence shall be made available at the following locations:

- at the address of the Licence Holder specified in section 1.2;
- at any site office, located at or adjacent to the Licensed Area, used by the Licence Holder or its agent(s), contractor(s) or sub-contractor(s) responsible for the loading transportation or deposit of any substances or articles permitted as part of the Licensed Activities;
- on board each vessel or vehicle carrying out Licensed Activities.

The documents referred to in this Condition shall be available at all reasonable times for inspection by officers appropriately authorised by the Licensing Authority and authorised Marine Enforcement Officers at the locations stated in that paragraph.

### **Vessels, Plant and Equipment**

#### **3.10 Notified Contractors, Vessels and/or Vehicles only to Carry out Licensed Activities**

Only those agent(s), contractor(s), sub-contractor(s), vessels and/or vehicles whose details have been notified to the Licensing Authority may operate under the terms of this Licence. Any changes must be notified to and be approved by the Licensing Authority in writing prior to any such agent, contractor, subcontractors or vehicles carrying out any Licensed Activities pursuant to or otherwise operating under this Licence.

**Licence Number: CML2167**

### **3.11 Refuelling of Plant and Equipment**

The Licence Holder must ensure that plant, vehicles and machinery are not refuelled on the foreshore or in the sea.

### **3.12 Equipment, Structures and Access**

The Licence Holder must ensure that all equipment, temporary structures, access tracks, waste and/or debris associated with the Licensed Activities are removed on completion of the Licensed activities.

## **Safety**

### **3.13 Removal of Deposited Material**

If the Licensing Authority considers it necessary or advisable for the safety of navigation, the Licence Holder must remove any deposit specified by the Licensing Authority or Marine Enforcement Officers within one month of notice being given by the Licensing Authority, and shall not replace such material until the Licensing Authority has given its written approval.

## **Pollution control**

### **3.14 Pollution Prevention**

The Licence Holder must ensure that pollution prevention best practice is adhered to at all times. Any incidents must be reported to the Licensing Authority as soon as possible using the hotline number **0300 065 3000**.

### **3.15 Spillage of Pollutants**

The Licence Holder must employ bunding, storage facilities and spill kits to contain and prevent the release of fuel, oils and chemicals associated with the plant, refuelling and construction equipment into the marine environment. Secondary containment must be used with a capacity of **no less than 110%** of the container's storage capacity

### **3.16 Prevention of Disposal of Man-made Debris**

The Licence Holder must ensure that all reasonable precautions are taken to prevent the disposal of man-made debris to the marine environment. Such material must be removed immediately and be disposed of appropriately. If it is not possible to prevent manmade debris from entering the marine environment during the Licensed Activities, the Licensed Activities must cease immediately.

### **3.17 Cleanliness of Equipment**

The Licence Holder must ensure that equipment, machinery and PPE are washed with freshwater and/or thoroughly airdried before deployment and before moving between locations.

## **Activity-specific Conditions**

### **3.18 Construction Environment Management Plan (CEMP)**

**3.18.1** The Licence Holder must submit a Construction Environment Management Plan (CEMP) to the Licensing Authority for written approval prior to commencement of the Licensed Activity. No Licensed Activities may be undertaken prior to written approval from the Licensing Authority. The plan must incorporate the proposed mitigation identified within the 7720\_Hirael\_Habitats Regulations Assessment\_v0.03 and include:

- Measures to avoid potential impact of underwater noise associated with piling activities
- Measure to avoid potential impacts on roosting waders/waterfowl
- Measure to avoid the spread of invasive non native species

**3.18.2** The Licence Holder must ensure that any actions outlined in the CEMP detailed in condition 3.18.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by the Licensing Authority prior to any changes being enacted.

### **3.19 Use of Concrete**

**3.19.1** The Licence Holder must ensure that no waste concrete slurry or wash water from the use of concrete or cement are discharged into the marine environment. Concrete and cement mixing and washing areas should be contained and sited at least **10 metres** from any watercourse or surface water drain to minimise the risk of runoff entering a watercourse.

**3.19.2** The Licence Holder must ensure materials used are suitable for use in the marine environment and works should be timed to ensure maximum concrete cure time.

#### 4 INTERPRETATION

In this Licence terms are as defined in section 115 of the Marine and Coastal Access Act unless otherwise stated.

- (a) **"2009 Act"** means the Marine and Coastal Access Act 2009;
- (b) **"Approved Application"** means the Marine Licence Application Form together with the Approved Supporting Documents;
- (c) **"Approved Supporting Documents"** means the documents supporting, or supplementary to, the Approved Application, submitted prior to the Licence Issue Date, listed in the Table at paragraph 2.3 above;
- (d) **"Commencement"** means the first undertaking of any Licensed Activities;
- (e) **"Force majeure"** may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel determines that it is necessary to deposit the substances or articles because the safety of human life and/or of the vessel is threatened;
- (f) **"Licensed Activities"** means the activities authorised by this licence as specified in 2.1;
- (g) **"Licensed Area"** means the area within which Licensed Activities are authorised by this licence as specified in section 2.2;
- (h) **"Licence Holder"** means the person(s) or organisation(s) named in section 1.2 to whom this licence is granted;
- (i) **"Licence Period"** means the period beginning with the Licence Start Date and ending on the Licence End Date;
- (j) **"Licensing Authority"** means Natural Resources Wales acting on behalf of the Welsh Ministers;
- (k) **"Marine Enforcement Officers"** means the relevant officers appointed by Welsh Ministers under section 235 of the 2009 Act, contact details for whom are provided in section 5;
- (l) **"Marine Licence Application Form"** means the application form forming part of the application referred to in paragraph 1.1;
- (m) **"Method Statement"** means the Method Statement(s) forming part of the Approved Application or Approved Supporting Documents;

**Licence Number: CML2167**

- (n) **“Works”** means any construction activities comprised in the Licensed Activities and, where the context permits, includes any plant, equipment or materials used to carry out those activities or operations but excludes monitoring, minor routine maintenance or other ongoing operational activities following completion of any construction activities;
- (o) all times shall be taken to be the time in Greenwich Mean Time (GMT) on any given day;
- (p) all co-ordinates shall be taken to be latitude and longitude decimal degree (WGS 84)
- (q) in the event of any discrepancy between the coordinates listed in Appendix 1 and the plan attached at Appendix 2, the coordinates shall take precedence.

## **5 CONTACTS**

**Except where otherwise indicated, the primary point of contact with the Licensing Authority and the address for returns, correspondence and requests for variations of the licence is:**

Marine Licensing Team  
Natural Resources Wales  
Permitting Service  
29 Newport Road  
Cambria House  
Cardiff  
CF24 0TP

Tel: 0300 065 3000

Email: [marinelicensing@naturalresourceswales.gov.uk](mailto:marinelicensing@naturalresourceswales.gov.uk)

**Welsh Government Marine Enforcement Officers may be contacted at:**

Welsh Government  
Suite 3  
Cedar Court  
Haven's Head Business Park  
Milford Haven Pembrokeshire  
SA73 3LS

Tel: 03000253500

Email: [wfmccmpc@gov.wales](mailto:wfmccmpc@gov.wales)

**Appendix 1**

Longitude	Latitude
-4.116795000	53.232062797
-4.116835595	53.232097856
-4.116885059	53.232126117
-4.116929713	53.232097076
-4.116938888	53.232100427
-4.117101919	53.232192007
-4.117052952	53.232307956
-4.117243361	53.232335483
-4.117384878	53.232388719
-4.117426035	53.232442110
-4.117518239	53.232561722
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-4.117591703	53.232670116
-4.117625750	53.232732301
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-4.117800939	53.233071479
-4.117844654	53.233138547
-4.117890997	53.233197061
-4.117911630	53.233223115
-4.117953897	53.233276586
-4.118042169	53.233370506
-4.118103517	53.233432719
-4.118180931	53.233500282

**Licence Number: CML2167**

-4.118217616	53.233527051
-4.118305832	53.233584743
-4.118432598	53.233665114
-4.118542197	53.233730759
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-4.119000645	53.233970584
-4.119109413	53.234039591
-4.119174183	53.234074802
-4.119272918	53.234155351
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-4.119187104	53.234125179
-4.119130363	53.234099487
-4.119058341	53.234060334
-4.118942090	53.233987577
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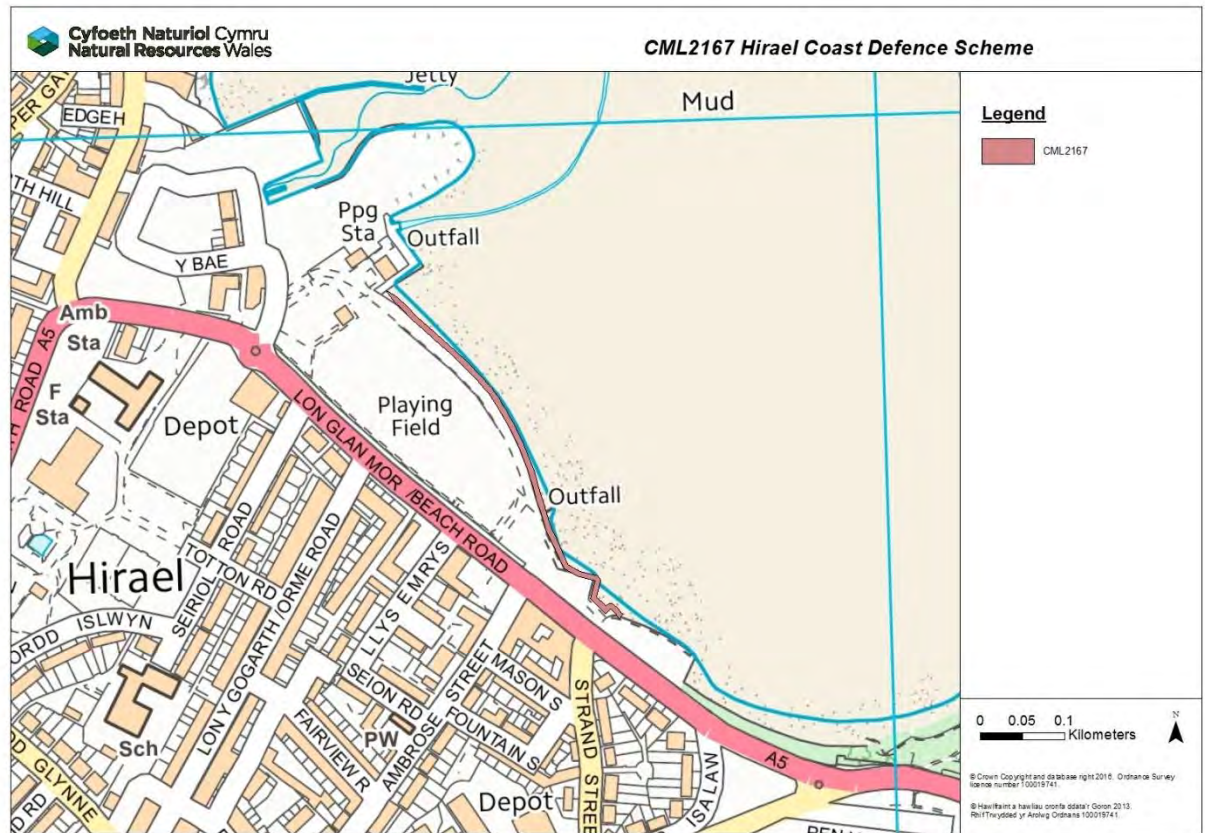
**Licence Number: CML2167**

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-4.117338268	53.232413882
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-4.117029194	53.232340915
-4.117020174	53.232337964
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-4.116993731	53.232312587

**Licence Number: CML2167**

-4.116993260	53.232306429
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-4.116934311	53.232147097
-4.116920570	53.232154979
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-4.116894375	53.232161548
-4.116873896	53.232161324
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-4.116788547	53.232120004
-4.116780790	53.232113524
-4.116766018	53.232100766
-4.116753314	53.232092289
-4.116751801	53.232091969
-4.116795000	53.232062797

## Appendix 2



## **APPENDIX II**

### **Gwynedd Archaeological Watching Brief pro-forma**

YMDDIRIEDOLAETH ARCHAEOLEGOL GWYNEDD ARCHAEOLOGICAL TRUST		
WATCHING BRIEF DAY RECORD		Date
Project name	Project number	Compiler
Location		
Description		
Times of travelling and on-site		
Drawn record details		
Photographic record details		

## **APPENDIX III**

### **Gwynedd Archaeological Trust Photographic Metadata pro-forma**



**Digital Photographic Record      Project code and name:**

Include main context numbers for each shot, drawing numbers for sections and any other relevant numbers for cross referencing.

Delete any unwanted photos **immediately** from the camera.

Regularly upload photographs to computer.

[illegible]

## **APPENDIX IV**

### **Gwynedd Archaeological Trust Context Selection Strategy**

# G2784\_Hirael\_FAS

## 25/05/2023 v1.0

### Selection Strategy

#### Project Information

##### Project Management

<b>Project Manager</b>	John Roberts <a href="mailto:john.roberts@heneb.co.uk">john.roberts@heneb.co.uk</a>
<b>Archaeological Archive Manager</b>	John Roberts <a href="mailto:john.roberts@heneb.co.uk">john.roberts@heneb.co.uk</a>
<b>Organisation</b>	Gwynedd Archaeological Trust

Stakeholders		Date Contacted
<b>Collecting Institution(s)</b>	GAT Historic Environment Record	25/05/2023
	RCAHMW	On completion of Project Archive
	Storiell, Ffordd Gwynedd, Bangor, Gwynedd, LL57 1DT	If applicable, post-fieldwork based on artefact recovery
<b>Project Lead / Project Assurance</b>	Gwynedd Archaeological Planning Services	25/05/2023
<b>Landowner / Developer</b>	<i>Griffiths Civil Engineering and Construction</i>	n/a

##### Resources

<b>Resources required</b> Describe the resources required to implement this Selection Strategy, particularly if unusual resources are required.	No unusual resources required outside of GAT normal operating equipment and personnel.
--	--

##### Context

Describe below the context of this Selection Strategy. You should refer to:

- The aims and objectives of the project;
- Local Authority guidance (including the brief);
- Research Frameworks;
- The repository collection development policy and/or deposition policy;
- Material-specific guidance documents.

**Note:** This section may be copied from your Project Design/WSI to ensure all Stakeholders receive this context information.

The full aims and objectives of this project are detailed in the project specific WSI.

Gwynedd Archaeological Trust (GAT) has been asked by Griffiths Civil Engineering and Construction to prepare a written scheme of investigation (WSI) for an archaeological mitigation during a coastal defense scheme at Hirael, Bangor, Gwynedd (NGR SH5871872826; postcode: LL57 1DG; Figure 01). Hirael is located northeast of Bangor within a low-lying basin with a catchment area which includes most of the city of Bangor. The area consists of a 550m length foreshore, a narrow-cobbled beach, and a recreational waterfront open space in the form of a playing field. Immediately behind Beach Road is a densely populated area of residential and commercial properties. The area is at risk of flooding from sea and surface water beach levels. The existing defenses provide coastal erosion and tidal flooding protection in the form of Gambian baskets located along the promenade, however, over recent years they have become into poor state of repair and need replacing. The proposed scheme will include the insertion of 15m long sheet piles (12m buried and 3m retained) with the addition of rock armor immediately seawards of the existing promenade and pumping station (total length approx. 300m) (Figure 02, 03, 04). The archaeological mitigation will include a watching brief for all areas of excavations on the foreshore and archaeological recording of the coastal wall along with re-utilised WWII anti-invasion cylinders within the coastal wall (before scheme commencement, and after scheme completion). Site works will commence on the foreshore in June 2023. The works are being undertaken in accordance with Natural Resources Wales Marine Licence CML2167 (cf. Appendix I).

Gwynedd Archaeological Trust. 2023. Hirael FAS, Bangor Written Scheme of Investigation for Archaeological Watching Brief (G2784).

# 1 – Digital Data

## Stakeholders

Name the individual(s) responsible for the Digital Data Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Collections Curator).

John Roberts (GAT Principal Archaeologist)

## Selection

### Location of Data Management Plan (DMP)

Selection of digital data elements should be considered in your project's DMP. For the purpose of the Selection Strategy, you can either copy the selection section of your DMP below, or attach it as an appendix to this document. Please indicate here if the DMP is attached.

All digital data will be collected, stored and selected in lines with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers (available on request).

The selection strategy in your DMP should:

- 1.1 Define what digital data will be selected for inclusion in the archaeological archive, how this will be done, and why. Do not forget to consider that specialists may have digital data that should be included in the archaeological archive.
- 1.2 Identify the selection review points during the project (i.e. project planning, data gathering, analysis and reporting and archive compilation).
- 1.3 Reference all relevant standards, policies or guidelines (e.g. digital repository deposition requirements) and specialist advice sought.
- 1.4 Identify any selection decisions that differ from standard guidelines and explain why.

Following the completion of the fieldwork, a working project archive will be created based on following task list;

1. Pro-formas: all cross referenced and complete;
2. Photographic Metadata: completed in *Microsoft Access* and cross-referenced with all pro-formas;
3. Survey data: downloaded using a Computer Aided Design package;
4. Sections (if relevant): all cross referenced and complete;
5. Plans (if relevant): all cross referenced and complete;
6. Artefacts (if relevant): quantified and identified; register completed;
7. Ecofacts (if relevant): quantified and register completed;
8. Context register (if relevant): quantified and register completed.

All relevant site archive data will be added to a digital project register specific to this project, which will be prepared in *Microsoft Excel*.

This data will then be used as the basis for the physical and digital dataset archives. Information from these will be used to compile the project report. The physical archive will be stored in a designated project folder and the location confirmed in the Trust project database; the digital dataset will be stored on a dedicated Trust server, with the location confirmed in the Trust project database via a specific hyperlink. External datasets for the HER and RCAHMW are as defined in the dissemination strategy below. De-selected digital data will be confirmed in an updated digital management plan appended to the final report

## De-Selected Digital Data

The procedure for dealing with De-selected digital data and what specialist advice informed this process should be recorded in your DMP. Please copy this information here or attach your DMP as an appendix to this document.

It is envisaged that the de-selected material will be retained on the GAT servers for 2 years following the completion of the project at which point they will be reviewed and deleted as necessary in line with the GAT DMP.

## Amendments

Detail any amendments to the above selection strategy here.

Date	Amendment	Rationale	Stakeholders

## 2 – Documents

### Stakeholders

Name the individual(s) responsible for the Documents Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Repository Representative).

John Roberts – Principal Archaeologist, Gwynedd Archaeological Trust;  
Sean Derby – Historic Environment Record, Gwynedd Archaeological Trust;  
Gareth Edwards, *Head of Knowledge and Understanding, RCAHMW*

### Selection

Describe your Selection Strategy for the Documents elements of the archaeological archive. To do this you must:

- 2.1 Define which documents will be selected for inclusion in the archaeological archive, how this will be done, and why. Do not forget to consider that specialists may have documents that should be included in the archaeological archive.
- 2.2 Identify the selection review points during the project (e.g. project planning, data gathering, analysis and reporting and archive compilation).
- 2.3 Reference all relevant standards, policies or guidelines (e.g. digital repository deposition requirements) and specialist advice sought.
- 2.4 Identify any selection decisions that differ from standard guidelines and explain why.

- A digital report will be provided to the regional Historic Environment Record; this will be submitted within six months of project completion (final report only), along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1); and
- A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset will be prepared in the format required by RCAHMW and will include:
  - Photographic metadata (Microsoft Access);
  - Photographic archive (TIFF format);
  - Project Information form (Excel);
  - File Information form (Excel) – Microsoft Word report text final;
  - File Information form (Excel) – Photographic metadata (general);
  - File Information form (Excel) – Adobe PDF report final; and
  - File Information form (Excel) - Photographic metadata (detail).

### De-Selected Documents

Describe the procedure for dealing with De-selected material and what specialist advice has informed this procedure.

It is envisaged that the material de-selected from inclusion in the preserved archive will be duplicates or re-productions created during the analysis phase of the project. De-selected material will therefore either be retained to supplement GAT's research files or recycled.

### Amendments

Detail any amendments to the above selection strategy here.

Date	Amendment	Rationale	Stakeholders

## 3 – Materials

**Note:** This step should be completed for each material component of the archaeological archive. Copy this table for the various materials as required, providing the 'Material Type' and a section identifier (eg. '3.1') for each.

### Material type

Bulk Finds

### Section 3.

### Stakeholders

Name the individual(s) responsible for the Materials Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Repository Representative).

John Roberts – Principal Archaeologist, Gwynedd Archaeological Trust;  
Tom Fildes –Planning Archaeologist, Gwynedd Archaeological Planning Service;  
TBC, *Curatorial Officer at STORIEL*

There are known findspots within the local and any diagnostic artefacts recovered during the watching brief will be retained for further examination and identification. Pottery sherds of 19<sup>th</sup> and 20<sup>th</sup> century date will be examined on-site and the context from which they were retrieved noted but the sherds will not be retained. The artefacts will be treated according to guidelines issued by the UK Institute of Conservation, in particular the advice provided within *First Aid for Finds* (Watkinson and Neal 2001).

Any waterlogged artefacts (e.g. wood or leather) that are to be recovered for post-excavation assessment and analysis will be processed in accordance with *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage, 2011) and specifically in accordance with Brunning and Watson (2010) for waterlogged wood and Historic England (2012) for waterlogged leather. In such cases an external specialist will be contacted to agree an appropriate sampling and recovery strategy via Lucy Whittingham Project Manager (post-excavation), AOC Archaeology, telephone: 0208 843 7380. All finds are the property of the landowner; however, it is Trust policy to recommend that all finds are donated to an appropriate museum (in this case Storiol, Ffordd Gwynedd, Bangor, Gwynedd, LL57 1DT), where they can receive specialist treatment and study. Access to finds must be granted to the Trust for a reasonable period to allow for analysis and for study and publication as necessary. Trust staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants used by the Trust, including National Museums and Galleries of Wales at Cardiff.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown, on whose behalf the Portable Antiquities Scheme acts as advisor on technical matters, and may be the recipient body for the objects.

The Treasure Valuation Committee, based at the British Museum, and informed by the Portable Antiquities Scheme, will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it. When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled. GAT will contact the landowner for agreement regarding the transfer of artefacts, initially to GAT and subsequently to the relevant museum (Storiol, Ffordd Gwynedd, Bangor, Gwynedd, LL57 1DT). A GAT produced pro-forma will be issued to the landowner where they are given the option to donate the finds or to record that they want them returning to them once analysis and assessment has been completed. Artefacts to be donated will then be transferred to Storiol.

### Selection

Describe your Selection Strategy for each material type and or object type. To do this you must:

- 3.1 State the Selection Strategy you are applying to each category of material, how this will be done, and why.
- 3.2 Identify the selection review points during the project (e.g. project planning, data gathering, analysis and reporting and archive compilation).
- 3.3 Reference all relevant standards, policies or guidelines (e.g. thematic, period, and regional, Research Frameworks, repository deposition policies) and specialist advice sought.
- 3.4 Identify any selection decisions that differ from standard guidelines and explain why.

The [Materials Selection Template](#) may be useful in structuring this section.

The full material archive returned to the GAT offices will be reviewed following analysis: Stakeholders (see above) will make selection decisions based on specialists reports and selection recommendations and SDMS collecting policy. The selection will take place during archive completion.

## Uncollected Material

If you are practising selection in the field, describe the process that will be applied. To do this you must:

- Detail how you will characterise, quantify and record all uncollected material on site.
- Explain how you will dispose of, or re-distribute, uncollected material.

Any uncollected material will be left on-site to be incorporated into backfill.

## De-Selected Material

Describe what you will do with the de-selected material. All processed material should have been adequately recorded before de-selection.

All bulk finds will be assessed and recorded to appropriate standards. De-selected material will be returned to the landowner as agreed by the landowner and curatorial archaeologist.

## Amendments

Detail any amendments to the above selection strategy here.

Date	Amendment	Rationale	Stakeholders

## Materials Selection Template

This table may be inserted into Section 3 of the main [Selection Strategy Template](#) to help present differing

selection strategies for different material types

Find Type	Selection Strategy	Stakeholders	Review Points

## **APPENDIX II**

### **Gwynedd Archaeological Trust Photographic Register**

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_001	View of cast concrete Second World War anti-tank cylinders along promenade from the car park from the SSE	SSE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	01
G2784_002	View of cast concrete Second World War anti-tank cylinders adjacent to modern skatepark along promenade from the NE	NE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_003	View of holes within top of concrete Second World War anti-tank cylinders from the SW	SW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_004	General view of Second World War anti-tank cylinders along promenade from the SSE	SSE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_005	General view of Second World War anti-tank cylinders along promenade from the SE	SE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	02
G2784_006	General view of Second World War anti-tank cylinders along promenade from the SE	SE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_007	General view of Second World War anti-tank cylinders overlooking King George's Field playing fields from the NE	NE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	03
G2784_008	General view of Second World War anti-tank cylinders towards pumping station from the SE	SE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	04
G2784_009	Close-up view of cross indentation / stamp cast within top of several Second World War anti-tank cylinders from the NE	NE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	11
G2784_010	View of removed Second World War anti-tank cylinder next to pumping station from the SW	SW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	12

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_011	View of Second World War anti-tank cylinders running NE-SW towards pumping station and at the end of the promenade from the SW	SW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_012	General view of Second World War anti-tank cylinders at the end of the promenade next to pumping station, overlooking Port Penrhyn and promenade from the W	W	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_013	Contextual view showing Second World War anti-tank cylinders at the end of the promenade next to pumping station, aligning with cylinders along promenade from the SW	SW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	05
G2784_014	View along promenade from pumping station/end of promenade showing Second World War anti-tank cylinders from the NNW	NNW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	06
G2784_015	General view of Second World War anti-tank cylinders along the promenade from the SE	SE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_016	General view of Second World War anti-tank cylinders along the promenade and adjacent to King George's Field playing fields from the SE	SE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_017	General view of Second World War anti-tank cylinders re-used within sea defence wall with modern stone filled gabion baskets placed above from the ESE	ESE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_018	View of Second World War anti-tank cylinders re-used within sea defence wall from the ENE	ENE	Not used	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_019	Close-up view of Second World War anti-tank cylinders re-used within sea defence wall below modern stone filled gabion baskets from the ENE	ENE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	07
G2784_020	General view of Second World War anti-tank cylinders within sea wall from the N	N	Not used	Building Recording	Michael Sion Lynes	30/05/2023	08

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_021	View of dislodged Second World War anti-tank cylinder present within intertidal zone from the S	S	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	
G2784_022	View of various stone phasing within sea defence wall next to slipway and car park from the ESE	ESE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	13
G2784_023	Close-up view of stone phasing within sea defence wall next to slipway and car park from the ESE	ESE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	14
G2784_024	Close-up view of stone phasing within sea defence wall next to slipway and car park from the ESE	ESE	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	15
G2784_025	Close-up view of Second World War anti-tank cylinder showing interior steel tube with thread still in-situ from the NE	NE	Not used	Building Recording	Michael Sion Lynes	30/05/2023	10
G2784_026	Close-up view of anti-tank cylinder showing steel construction frame from the NE	NE	Not used	Building Recording	Michael Sion Lynes	30/05/2023	09
G2784_027	View along NNE facing coastal wall showing phasing from the WSW	WSW	1x1m	Building Recording	Michael Sion Lynes	30/05/2023	16
G2784_028	Pre-excavation photo showing area to south-east of site compound	NW	Not used	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_029	Pre-excavation photo showing area to south-east of site compound	NE	Not used	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_030	Pre-excavation image - view to the north-west	SE	Not used	Watching Brief	Anne Marie Oattes	27/06/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_031	Topsoil strip at north-west end of storage area	NW	Not used	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_032	Topsoil strip at north-west end of storage area	NW	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_033	Topsoil strip at north-west end of storage area completed showing southern side with stone and geo- textile membrane	SE	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	17
G2784_034	Topsoil strip at north-west end of storage area completed showing southern side with stone and geo- textile membrane	NW	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_035	Topsoil strip to south-west of footpath for haul road to storage area	SE	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_036	Topsoil strip to south-west of footpath for haul road to storage area	NW	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_037	Length of area stripped for haul road to storage area	SE	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_038	Small trial pit showing slate sub-base approximately 0.4m deep in made ground	N	1x1m	Watching Brief	Anne Marie Oattes	27/06/2023	
G2784_039	Small trial pit showing layer of possibly redeposited natural above soil and slate sub-base (made ground)	SW	Not used	Watching Brief	Anne Marie Oattes	27/06/2023	18
G2784_040	View of anti-tank cylinders along the foreshore at Glandŵr road	NW	1x1m	Watching Brief	Anne Marie Oattes	17/07/2023	19

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_041	View of anti-tank cylinders along the foreshore at Glandŵr road	SE	1x1m	Watching Brief	Anne Marie Oattes	17/07/2023	
G2784_042	Location shot showing foreshore, Glandŵr road and concrete base	SE	1x1m	Watching Brief	Anne Marie Oattes	17/07/2023	
G2784_043	View of trench excavated by Griffiths showing the Anti-tank cylinders	SE	1x1m	Watching Brief	Anne Marie Oattes	17/07/2023	20
G2784_044	Location shot showing trench around services to SE of Anti-tank cylinders and in front of apartments on Glandŵr road	SW	Not used	Watching Brief	Anne Marie Oattes	17/07/2023	
G2784_045	Pre-excavationcavation shot of verge to northeast of Beach Road West car park	SE	1x1m	Watching Brief	Anne Marie Oattes	15/08/2023	21
G2784_046	Pre-excavationcavation shot of verge to northeast of Beach Road West car park - location shot	NW	Not used	Watching Brief	Anne Marie Oattes	15/08/2023	22
G2784_047	Area at northeast end of Beach Road car park after topsoil strip and bollards removed	NE	1x1m	Watching Brief	Anne Marie Oattes	15/08/2023	
G2784_048	Topsoil strip area between Beach Road West car park and pumping station access showing uprooted tree stump	SE	1x1m	Watching Brief	Anne Marie Oattes	15/08/2023	
G2784_049	Topsoil strip on southeast side of the footpath to the building in the Beach Road West car park	NE	1x1m	Watching Brief	Anne Marie Oattes	15/08/2023	
G2784_050	Topsoil strip showing made ground	SE	1x1m	Watching Brief	Anne Marie Oattes	15/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_051	Topsoil strip showing made ground	NE	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_052	Pre-excavation image of verge to northwest of Beach Road West car park	NE	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_053	Pre-excavation image of verge to northwest of Beach Road West car park	E	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_054	Verge to north-west of Beach Road West car park excavated showing slate sub-base below the topsoil	NE	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	23
G2784_055	Verge to north-west of Beach Road West car park excavated showing slate sub-base below the topsoil	NE	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_056	Verge to north-west of Beach Road West car park excavated showing slate sub-base below the topsoil	N	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_057	Verge to north-west of Beach Road West car park excavated showing slate sub-base below the topsoil	SW	1x1m	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_058	Topsoil strip to north-east of the Beach Road West car park showing made ground in excavation of access road to pumping station	NW	Not used	Watching Brief	Anne Marie Oattes	16/08/2023	
G2784_059	Topsoil strip showing made ground in area excavated for clay bund	SE	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_060	Location shot - view to the pumping station	SW	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_061	North-east facing section of the haul road excavation showing made ground	NE	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	24
G2784_062	Anti-tank cylinder at the southwest end of the clay bund excavation showing the concrete setting and made ground in northeast facing section	NNW	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	25
G2784_063	Location shot showing Anti-tank cylinders at edge of promenade road	NNW	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_064	Location shot showing Anti-tank cylinders at edge of promenade road	NE	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_065	Working shot showing spoil with broken bricks, stones and sub-base	SW	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_066	Working shot showing spoil with broken bricks, stones and sub-base	SE	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	26
G2784_067	NW facing section at edge of clay bund/haul road excavation	NW	1x1m	Watching Brief	Anne Marie Oattes	17/08/2023	27
G2784_068	Haul road and clay bund area after excavation	SE	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	28
G2784_069	Location shot of haul road and clay bund excavation	SW	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_070	Anti-tank cylinder set in concrete	NW	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_071	Location shot of Anti-tank cylinder and clay bund/haul road excavation	SW	Not used	Watching Brief	Anne Marie Oattes	17/08/2023	
G2784_072	Pre-excavation image of Anti-tank cylinders at NW end of promenade in Trench A	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_073	Pre-excavation image of Anti-tank cylinders at NW end of promenade in Trench A	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_074	SW facing section of Trench A at Anti-tank cylinders 18,19, 20 at NW end of promenade	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_075	SW facing section of Trench A at Anti-tank cylinders 18,19, 20 at NW end of promenade	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	29
G2784_076	NW facing section of Trench A showing deposits	NW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_077	NW facing section of Trench A showing deposits	NW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_078	SW facing section Trench B pre-excavation	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	30
G2784_079	SW facing section Trench B pre-excavation	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_080	SW facing section Trench B pre-excavation	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_081	NW facing section Trench B pre-excavation	NW	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_082	Location shot Trench B	SE	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_083	Location shot Trench B	NW	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_084	SW facing section Trench B	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_085	SW facing section Trench B	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_086	Photo of finds from Trench B		Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_087	SW facing section Trench B with slot excavated to base of cylinder 101	SW	1x1m	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_088	Closer view of slot at base of cylinder 101 showing stones	Sw	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_089	View of slot at base of cylinder 101	SW	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_090	Close up of stones at base of cylinder 101	WSW	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_091	Close up of stones at base of cylinder 101	SSW	Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_092	Plan view of stones at base of cylinder 101		Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_093	Photo of finds from Trench A		Not used	Watching Brief	Anne Marie Oattes	24/08/2023	
G2784_094	View of Trench A with slot at SE end		Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_095	View of slot in Trench A showing deposits in SW facing section at SE end of the trench	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_096	SE facing section in Trench A	SE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_097	Trench A - closer view of deposits in SW facing section at SE end of slot	SW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_098	Trench A - NW end of SW facing section	SW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_099	Pre-excavation image of area to be topsoil stripped for haul road	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_100	Shot of Anti-tank cylinder removed showing the depth of the socket below the soil and tarmac	SE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_101	Area after Anti-tank cylinders were removed	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_102	Haul road area showing stripped area	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_103	Working shot of topsoil strip showing made ground	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_104	Anti-tank cylinder removed showing concrete at the base		Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_105	Topsoil strip for haul road	NNW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_106	Topsoil strip for haul road	SSE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_107	View to Beaumaris and Porth Penrhyn from the promenade	SW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_108	Haul road - view of the stripped area showing old concrete posts from the topsoil	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_109	Anti-tank cylinders showing the depth of the soil removed for haul road	SW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_110	Anti-tank cylinder socket showing concrete base	SE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_111	Anti-tank cylinder socket showing concrete base	SE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_112	Topsoil strip showing made ground	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_113	Topsoil strip showing made ground	WNW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_114	Topsoil strip showing made ground	WNW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_115	Topsoil strip showing made ground	SSE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_116	Topsoil strip showing made ground	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_117	Topsoil strip showing made ground	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_118	Anti-tank cylinders after removal on the grass at the SE end of the promenade	ESE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_119	Haul road topsoil strip showing made ground	SSE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_120	View of the bay	SSW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_121	Area where anti-tank cylinders were removed showing stony material, tarmac and MOT below tarmac	NW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_122	Area after anti-tank cylinders removed showing made ground to SW and old concrete posts	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_123	Area after anti-tank cylinders removed showing made ground to SW and old concrete posts	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_124	Area after anti-tank cylinders removed showing made ground to SW and old concrete posts	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_125	Area after anti-tank cylinders removed showing made ground to SW and old concrete posts	SSE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_126	Anti-tank cylinder socket	NE	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_127	Anti-tank cylinder sockets	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_128	Haul road at NW end showing defunct wiring in the spoil (under an Anti-tank cylinder)	W	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_129	Shot of removal of made ground with stones and old wiring	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_130	Anti-tank cylinder sockets	SW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_131	Area where cylinders were removed	WSW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_132	Working shot of anti-tank cylinder being removed with a grab	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_133	Working shot of anti-tank cylinder being removed with a grab	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_134	Working shot of anti-tank cylinder being removed with a grab	NE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_135	Anti-tank cylinders at SE end of promenade (near the skate park) set in concrete	E	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_136	Anti-tank cylinder socket	ENE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_137	Anti-tank cylinder sockets	WSW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_138	Information board describing the Afon Adda Flood Alleviation Scheme (2007/2008?)		Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_139	Working shot of topsoil strip showing spoil material	NW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_140	Haul road ground reduction - shot shows made ground	SE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_141	NNE facing section of stripped area for the haul road at NW end of promenade	NNE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_142	Ground reduction for haul road showing made ground	NW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_143	Ground reduction for haul road showing made ground	SSE	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	31
G2784_144	NNW facing section of ground reduction for haul road	ENE	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_145	Anti-tank cylinders stacked for storage	WSW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_146	Anti-tank cylinders stacked for storage	WSW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_147	Anti-tank cylinders stacked for storage	WSW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_148	Anti-tank cylinders stacked for storage	WSW	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_149	Location shot - view to the site compound from anti-tank cylinder storage area	WNW	Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_150	Anti-tank cylinder - close up showing ring pull on the part of the cylinder which had been buried		Not used	Watching Brief	Anne Marie Oattes	31/08/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_151	Sand and metal in central hole of anti-tank cylinder		Not used	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_152	Anti-tank cylinders showing different sizes	ENE	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	
G2784_153	Anti-tank cylinders showing different sizes	ENE	1x1m	Watching Brief	Anne Marie Oattes	31/08/2023	32
G2784_154	View of bank removal at far southeastern end of site	W	Not used	Watching Brief	Mike Woods	13/11/2023	
G2784_155	View of bank removal at far southeastern end of site	N	Not used	Watching Brief	Mike Woods	13/11/2023	
G2784_156	General view of site showing bank removal and coastal sea defences	SE	Not used	Watching Brief	Mike Woods	13/11/2023	
G2784_157	View of decorated floor tile and car wing mirror discovered during removal of bank	S	Not used	Watching Brief	Mike Woods	13/11/2023	
G2784_158	Post-ex view of bank removal	W	1x1m	Watching Brief	Mike Woods	13/11/2023	
G2784_159	View of bank removal closest to southern fence line	E	Not used	Watching Brief	Mike Woods	13/11/2023	
G2784_160	View of bank removal closest to southern fence line	NE	1x1m	Watching Brief	Mike Woods	13/11/2023	
G2784_161	Post-ex view of bank showing core stratigraphy	W	1x1m	Watching Brief	Mike Woods	13/11/2023	
G2784_162	General view of trench excavation	E	Not used	Watching Brief	Mike Woods	14/11/2023	
G2784_163	View of trench stratigraphy	N	Not used	Watching Brief	Mike Woods	14/11/2023	
G2784_164	General view of completed trench with boards in place	W	1x1m	Watching Brief	Mike Woods	14/11/2023	

PHOTO RECORD NUMBER*	DESCRIPTION*	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR	DATE	PLATE
G2784_165	General view of completed trench with boards in place	N	1x1m	Watching Brief	Mike Woods	14/11/2023	
G2784_166	General view of completed trench	N	1x1m	Watching Brief	Mike Woods	15/11/2023	
G2784_167	General view of completed trench	E	1x1m	Watching Brief	Mike Woods	15/11/2023	
G2784_168	General view of completed works showing trench section	S	1x1m	Watching Brief	Mike Woods	15/11/2023	

## **APPENDIX III**

### **Gwynedd Archaeological Trust Context Register**

<b>Context No.</b>	<b>Type</b>	<b>Description</b>	<b>Evaluation No</b>	<b>Initials</b>	<b>Date</b>
01	Deposit	Topsoil	Trench A	AMO	21/08/2023
02	Fill	Madeground	Trench A	AMO	21/08/2023
03	Fill	Greyish brown clay	Trench A	AMO	21/08/2023
04	Fill	Greyish clay	Trench A	AMO	21/08/2023
05	Fill	Red clay	Trench A	AMO	21/08/2023
06	Fill	Black cinders	Trench A	AMO	21/08/2023
07	Fill	Grey-brown clay	Trench A	AMO	21/08/2023
08	Fill	Black cinders	Trench A	AMO	21/08/2023
09	Deposit	Topsoil	Trench B	AMO	21/08/2023
10	Fill	Medium brown silty clay grit, gravel, with broken bricks, stones, cement lumps and slate	Trench B	AMO	21/08/2023
11	Fill	Light grey sandy clay	Trench B	AMO	21/08/2023
12	Fill	Dark greyish brown silty clay	Trench B	AMO	21/08/2023
13	Fill	Light grey sandy silt	Trench B	AMO	21/08/2023

## **APPENDIX IV**

### **Gwynedd Archaeological Trust Drawing Register**

DWG No.	Sheet No.	Size	Scale	Description
01	1	A3	01:10	SW Facing Section Of Trench A Showing Anti-Tank Cylinders
02	1	A3	01:10	NW Facing Section Of Trench A
03	2	A3	01:10	SW Facing Section Of Trench B At Cylinders 99 - 102

## **APPENDIX V**

### **Gwynedd Archaeological Trust Data Management Plan Final**

# Gwynedd Archaeological Trust Data Management Plan Overview

The sections below are the basic components of the Data Management Plan. Each section comprises a series of sections which need to be completed. The Work Digital / Think Archive guidance provides a full version of this document which includes Questions to Consider, Guidance and Examples where appropriate.

Section 1: Project Administration
<ul style="list-style-type: none"><li>• Key project details, unique identifiers and contacts</li></ul>
Section 2: Data Collection
<ul style="list-style-type: none"><li>• What data will you collect or create?</li><li>• How will the data be collected or created?</li></ul>
Section 3: Documentation and Metadata
<ul style="list-style-type: none"><li>• What documentation and metadata will accompany the data?</li></ul>
Section 4: Ethics and Legal Compliance
<ul style="list-style-type: none"><li>• How will you manage any ethical, copyright and Intellectual Property Rights (IPR) issues?</li></ul>
Section 5: Storage and Backup
<ul style="list-style-type: none"><li>• How will the data be stored, accessed and backed up during the research?</li></ul>
Section 6: Selection and Preservation
<ul style="list-style-type: none"><li>• Which should be retained, shared, and/or preserved?</li><li>• What is the long-term preservation plan for the dataset?</li><li>• Have you contacted the data repository?</li><li>• Have the costs of archiving been fully considered?</li></ul>
Section 7: Data Sharing and Accessibility
<ul style="list-style-type: none"><li>• How will you share the data and make it accessible?</li><li>• Are any restrictions on data sharing required?</li></ul>
Section 8: Responsibilities
<ul style="list-style-type: none"><li>• Who will be responsible for data management?</li></ul>

## SECTION 1: PROJECT ADMINISTRATION

Project ID
G2784
Project Name
Hirael_FAS
Project Description
<p>The full aims and objectives of this project are detailed in the project specific WSI.</p> <p>Gwynedd Archaeological Trust (GAT) Trust was commissioned by Griffiths Civil Engineering and Construction to undertake an archaeological watching brief as part of the coastal defense scheme at Hirael, Bangor (NGR SH5871872826; postcode: LL57 1DG). Hirael is located northeast of Bangor within a low-lying basin with a catchment area which includes most of the city of Bangor. The area consists of a 550m length foreshore, a narrow-cobbled beach, and a recreational waterfront open space in the form of a playing field (St George). Immediately behind Beach Road is a densely populated area of residential and commercial properties. The area is at risk of flooding from sea and surface water beach levels. The existing defenses provide coastal erosion and tidal flooding protection in the form of Gambian baskets located along the promenade, however, over recent years they have become into poor state of repair and need replacing. The proposed scheme will include the insertion of 15m long sheet piles (12m buried and 3m retained) with the addition of rock armor immediately seawards of the existing promenade and pumping station (total length approx. 300m). The archaeological mitigation will include a watching brief for all areas of excavations on the foreshore and archaeological recording of the coastal wall along with the re-utilised WWII anti-tank cylinders (ATD) (PRN 102429) within the coastal wall and promenade (before scheme commencement, and after scheme completion).</p> <p>The watching brief was monitored by the Gwynedd Archaeological Planning Services (GAPS) and undertaken in accordance with an approved written scheme of investigation prepared by GAT.</p> <p>Lynes, M., 2024, Hirael Coastal Defence Scheme, Bangor, Gwynedd: Archaeological Watching Brief. Gwynedd Archaeological Trust, Report 1718.</p> <p>Gwynedd Archaeological Trust. 2023. Hirael FAS, Bangor Written Scheme of Investigation for Archaeological Watching Brief (G2784).</p>
Project Funder / Grant reference
Griffiths Civil Engineering and Construction
Project Manager
John Roberts
Project Archaeologist
Michael Lynes
Data Contact Person
John Roberts
Date DMP created
29/02/2024
Date DMP last updated
26/05/2023
Version
V2
Related data management policies
G2784_Hirael_FAS_Selection_Strategy_v2.0

## SECTION 2: DATA COLLECTION

What data will you collect or create?
Following the completion of the fieldwork, all documentary material created, generated and/or annotated during data gathering and fieldwork has been selected for inclusion in the preserved archive, and comprises:

- G2784 watching brief sheets x 10
- G2784 context sheets x 13
- G2784 drawing register sheets x 1
- G2784 context register sheets x 1
- G2784 photographic register sheets x 9
- G2784 permatrace A4 sheets x 2

The physical archive has been stored in a designated project folder and the location confirmed in the GAT project database. The final version of all born digital documents have been selected for inclusion in the Preserved Archive; these comprise:

- G2784\_Hirael\_FAS Bangor Written Scheme of Investigation for Archaeological Watching Brief (G2784) (WSI) (Microsoft Word and Adobe PDF);
- G2784\_Photographic\_Metadata (Microsoft Access);
- GAT\_1718 (Microsoft Word and Adobe PDF);
- Photographic archive (168 images in TIFF format);
- Photographic archive (168 images in RAW format);
- Photographic archive (168 images in JPEG format);

A digital archive dataset has been created for the Royal Commission on Ancient and Historic Monuments Wales, in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset has been prepared in the format required by RCAHMW and comprise:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Excel);
- File Information form (Excel) – Microsoft Word report text final;
- File Information form (Excel) – Photographic metadata (general);
- File Information form (Excel) – Adobe PDF report final; and
- File Information form (Excel) - Photographic metadata (detail).

The digital archive has been stored on a dedicated Trust server, with the location confirmed in the GAT project database via a specific hyperlink.

#### How will the data be collected or created?

- All site recording, including archaeological context descriptions and the photographic archive will be recorded using GAT pro-formas.
- Photographic images were taken using a digital SLR camera set to maximum resolution in RAW format; the photographic record will be digitised in *Microsoft Access* as part of the fieldwork archive and dissemination process. Photographic images were archived in TIFF format using Adobe Photoshop; the archive numbering system ran from **G2784\_01 to G2784\_168**.

### SECTION 3: DOCUMENTATION AND METADATA

#### What documentation and metadata will accompany the data?

- A digital report(s) will be provided to the client and GAT (draft report then final report);
- A digital report will be provided to the regional Historic Environment Record; this will be submitted within six months of project completion (final report only), along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 2); and
- A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset will be prepared in the format required by RCAHMW and will include:
  - Photographic metadata (Microsoft Access);
  - Photographic archive (TIFF format);
  - Project Information form (Excel);
  - File Information form (Excel) – Microsoft Word report text final;
  - File Information form (Excel) – Photographic metadata (general);
  - File Information form (Excel) – Adobe PDF report final; and
  - File Information form (Excel) - Photographic metadata (detail)

#### SECTION 4: ETHICS AND LEGAL COMPLIANCE

How will you manage any ethical, copyright and Intellectual Property Rights (IPR) issues?
The project archive does not include data which requires formal consent to be used or included; Digital data archive will be compliant with GDPR 2018 legislation; Data be stored in secure servers with password access; Data will be transferred securely; Data will be owned by Gwynedd Archaeological Trust.

#### SECTION 5: DATA SECURITY: STORAGE AND BACKUP

How will the data be stored, accessed and backed up during the research?
All data will be held on Gwynedd Archaeological Trust servers and backed up onto an external NAS Drive. Access will be restricted and password limited

#### SECTION 6: SELECTION AND PRESERVATION

Which data should be retained, shared, and/or preserved?
The core project dataset will be retained, with content dictated by the Gwynedd Archaeological Trust contract section project folder system and server. Any de-selected material will be retained on the server for 2 years following the completion of the project at which point they will be reviewed and deleted as necessary. Any de-selected material will be confirmed in the project specific selection strategy (ref. G2715_Snowdonia_VIP_Selection_Strategy_v2 and includes supplementary data that is not required for the core project archive.
What is the long-term preservation plan for the dataset?
<ul style="list-style-type: none"><li>Internally, the dataset will be retained in a project specific folder that will remain accessible to project personnel;</li><li>Externally, the relevant datasets will be retained by the regional Historic Environment Record and RCAHMW; dataset content will be dictated by their respective requirements.</li></ul>
Have you contacted the data repository?
The regional Historic Environment Record has been contacted and an event Primary Reference Number sourced ahead of data submission; on project completion, data will be submitted in accordance with the required standards set out in <i>Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Version 2)</i> ; RCAHMW will be contacted on project completion, with data then submitted in accordance with <i>RCAHMW Guidelines for Digital Archives Version 1</i> .
Have the costs of archiving been fully considered?
Data archiving costs have been incorporated into the project budget.

#### SECTION 7: DATA SHARING

How will you share the data and make it accessible?
<ul style="list-style-type: none"><li>Internally, a project specific folder will be used for data storage that will remain accessible to project personnel;</li><li>Externally, data will be submitted to the regional Historic Environment Record and RCAHMW and they will be responsible for accessibility.</li></ul>
Are any restrictions on data sharing required?
No

#### SECTION 8: RESPONSIBILITIES

Who will be responsible for implementing the data management plan?
John Roberts, Principal Archaeologist, Gwynedd Archaeological Trust

## **APPENDIX VI**

### **Gwynedd Archaeological Trust Selection Strategy Final**

# G2784\_Hirael\_FAS

## 29/02/2024 v2.0

### Selection Strategy

#### Project Information

##### Project Management

<b>Project Manager</b>	John Roberts <a href="mailto:john.roberts@heneb.co.uk">john.roberts @heneb.co.uk</a>
<b>Archaeological Archive Manager</b>	John Roberts <a href="mailto:john.roberts@heneb.co.uk">john.roberts @heneb.co.uk</a>
<b>Organisation</b>	Gwynedd Archaeological Trust

<b>Stakeholders</b>		<b>Date Contacted</b>
<b>Collecting Institution(s)</b>	GAT Historic Environment Record	25/05/2023
	RCAHMW	On completion of Project Archive
	Storiell, Ffordd Gwynedd, Bangor, Gwynedd, LL57 1DT	If applicable, post-fieldwork based on artefact recovery
<b>Project Lead / Project Assurance</b>	Gwynedd Archaeological Planning Services	25/05/2023
<b>Landowner / Developer</b>	<i>Griffiths Civil Engineering and Construction</i>	n/a

##### Resources

<b>Resources required</b> Describe the resources required to implement this Selection Strategy, particularly if unusual resources are required.	No unusual resources required outside of GAT normal operating equipment and personnel.
--	--

##### Context

Describe below the context of this Selection Strategy. You should refer to:

- The aims and objectives of the project;
- Local Authority guidance (including the brief);
- Research Frameworks;
- The repository collection development policy and/or deposition policy;
- Material-specific guidance documents.

**Note:** This section may be copied from your Project Design/WSI to ensure all Stakeholders receive this context information.

The full aims and objectives of this project are detailed in the project specific WSI.

Gwynedd Archaeological Trust (GAT) Trust was commissioned by Griffiths Civil Engineering and Construction to undertake an archaeological watching brief as part of the coastal defense scheme at Hiraël, Bangor (NGR SH5871872826; postcode: LL57 1DG). Hiraël is located northeast of Bangor within a low-lying basin with a catchment area which includes most of the city of Bangor. The area consists of a 550m length foreshore, a narrow-cobbled beach, and a recreational waterfront open space in the form of a playing field (St George). Immediately behind Beach Road is a densely populated area of residential and commercial properties. The area is at risk of flooding from sea and surface water beach levels. The existing defenses provide coastal erosion and tidal flooding protection in the form of Gambian baskets located along the promenade, however, over recent years they have become into poor state of repair and need replacing. The proposed scheme will include the insertion of 15m long sheet piles (12m buried and 3m retained) with the addition of rock armor immediately seawards of the existing promenade and pumping station (total length approx. 300m). The archaeological mitigation will include a watching brief for all areas of excavations on the foreshore and archaeological recording of the coastal wall along with the re-utilised WWII anti-tank cylinders (ATD) (PRN 102429) within the coastal wall and promenade (before scheme commencement, and after scheme completion).

The watching brief was monitored by the Gwynedd Archaeological Planning Services (GAPS) and undertaken in accordance with an approved written scheme of investigation prepared by GAT.

Lynes, M., 2024, Hiraël Coastal Defence Scheme, Bangor, Gwynedd: Archaeological Watching Brief. Gwynedd Archaeological Trust, Report 1718.

Gwynedd Archaeological Trust. 2023. Hiraël FAS, Bangor Written Scheme of Investigation for Archaeological Watching Brief (G2784).

# 1 – Digital Data

## Stakeholders

John Roberts (GAT Principal Archaeologist)

## Selection

All digital data will be collected, stored and selected in lines with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers (available on request).

The final version of all born digital documents have been selected for inclusion in the Preserved Archive; these comprise:

- G2784\_Hirael\_FAS Bangor Written Scheme of Investigation for Archaeological Watching Brief (G2784) (WSI) (Microsoft Word and Adobe PDF);
- G2784\_Photographic\_Metadata (Microsoft Access);
- GAT\_1718 (Microsoft Word and Adobe PDF);
- Photographic archive (168 images in TIFF format);
- Photographic archive (168 images in RAW format);
- Photographic archive (168 images in JPEG format);

A digital archive dataset has been created for the Royal Commission on Ancient and Historic Monuments Wales, in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset has been prepared in the format required by RCAHMW and comprise:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Excel);
- File Information form (Excel) – Microsoft Word report text final;
- File Information form (Excel) – Photographic metadata (general);
- File Information form (Excel) – Adobe PDF report final; and
- File Information form (Excel) - Photographic metadata (detail).

The digital archive has been stored on a dedicated Trust server, with the location confirmed in the GAT project database via a specific hyperlink.

All digital data has been collected, stored and selected in lines with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers.

## De-Selected Digital Data

The following client data will not form part of the preserved archive and have been deselected:

The following client data will not form part of the preserved archive and have been deselected:

- G2784 Beach road east general arrangement plan supplied by client
- G2784 Promenade overview general arrangements plan supplied by client
- G2784 Pumping station general arrangement plan supplied by client
- G2784 Glandwr road general arrangement plan supplied by client
- G2784 Brython Archaeological desk based assessment report supplied by client
- G2784 Environment specifications.docx supplied by client
- G2784 CML2167 Marine licence.pdf supplied by client

The following GAT data generated for the report will not form part of the preserved archive and have been deselected:

- G2784\_combined\_figures.pdf
- G2784\_combined\_plates.pdf
- G2784\_Figures\_and\_Plates\_List.docx
- G2784\_Appendix\_I.pdf
- G2784\_Appendix\_II.docx
- G2784\_Appendix\_III.pdf
- G2784\_Appendix\_IV.pdf
- G2784\_Appendix\_V.pdf
- G2784\_Appendix\_VI.pdf
- G2784\_Appendix\_VII.pdf
- G2784\_front\_cover.pdf
- G2784\_inner\_cover.pdf
- G2784\_rear\_cover.pdf
- Plates01.pdf
- Plates03.pdf
- Plates05.pdf
- Plates07.pdf
- Plates09.pdf
- Plates11.pdf
- Plates13.pdf
- Plates15.pdf
- Plates17.pdf
- Plates19.pdf
- Plates21.pdf
- Plates23.pdf
- Plates25.pdf
- Plates27.pdf
- Plates29.pdf
- Plates31.pdf
- Plates33.pdf

## Amendments

Detail any amendments to the above selection strategy here.

Date	Amendment	Rationale	Stakeholders

## 2 – Documents

### Stakeholders

John Roberts – Principal Archaeologist, Gwynedd Archaeological Trust;  
Sean Derby – Historic Environment Record, Gwynedd Archaeological Trust;  
Gareth Edwards, *Head of Knowledge and Understanding, RCAHMW*

### Selection

A digital report will be provided to the regional Historic Environment Record, along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1); and

A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset was prepared in the format required by RCAHMW and included:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Excel);
- File Information form (Excel) – Microsoft Word report text final;
- File Information form (Excel) – Photographic metadata (general);
- File Information form (Excel) – Adobe PDF report final; and
- File Information form (Excel) - Photographic metadata (detail).

Following the completion of the fieldwork, all documentary material created, generated and/or annotated during data gathering and fieldwork has been selected for inclusion in the preserved archive, and comprises:

- G2784 watching brief sheets x 10
- G2784 context sheets x 13
- G2784 drawing register sheets x 1
- G2784 context register sheets x 1
- G2784 photographic register sheets x 9
- G2784 permatrace A4 sheets x 2

The physical archive has been stored in a designated project folder and the location confirmed in the GAT project database

### De-Selected Documents

No documents have been de-selected.

### Amendments

Detail any amendments to the above selection strategy here.

Date	Amendment	Rationale	Stakeholders





Gwynedd Archaeological Trust  
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