



Par River Railway Embankment, Cornwall Archaeological Watching Brief

Cornwall Archaeological Unit

Report No: 2017R034

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2017R034

Report Name

Par River Railway Embankment, Cornwall
Archaeological Watching Brief.

Report Author

C. M. Thorpe

Event Type

Watching Brief

Client Organisation

Mott Macdonald

Client Contact

Ben Mason

Monuments (MonUID)

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Fieldwork dates (From)

26/04/17

(To)

11/05/17

(Created By)

CMT

(Create Date)

May 2017

Location (postal address; or general location and parish)

Ponts Mill, in the parish of Luxulyan

(Town - for urban sites)

(Postcode)

PL242RF

(Easting) X co-ord

SX 07339

(Northing) Y co-ord

55702



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Abbreviations

CAU Cornwall Archaeological Unit

HER Historic Environment Record

1 Project background

Cornwall Archaeological Unit (CAU) was commissioned by Ben Mason of Mott Macdonald on behalf of the Environment Agency to undertake archaeological recording during groundworks required for the repair of a collapsed revetment wall (Fig 4) to a railway embankment running alongside the Par River at SX 07339 55702 (Figs 1 and 2).

The archaeological method statement produced (01/03/17) by Adam Sharpe (Archaeology Projects Officer, CAU) for the Luxulyan Valley to St. Blazey Geotechnical Investigations that was based on a Written Scheme of Investigation (WSI) supplied by Mott McDonald dated 12 February 2017 was adopted for use with this project.

This short report covers the results of an archaeological watching brief carried out between the 26th April and 11th May 2017.

2 Location and background

The site is located at SX 07339 55702 roughly 450m south of the settlement of Pons Mill, on the east bank of the Par River within the Luxulyan Valley (Figs 1, 2 and 3). The underlying geology is calcareous slate, grit and thin limestones of the Devonian Meadfoot Beds (BGS sheet 347 Bodmin 1982).

The Embankment is part of the Cornwall Minerals Railway. This was constructed in 1873 to replace the early nineteenth century mineral tramways and canal which had been built by Joseph Treffry (Smith 1992) to service the various mines and quarries within the Luxulyan Valley, by connecting them with the harbours of Par and Newquay. The line carried by this embankment was closed in the 1960s.

The site is within the Cornwall Mining World Heritage Site (A8i).

3 Aims and objectives

The site specific aims and objectives were:

- To identify and record the presence/absence of archaeological remains.
- To determine the extent, condition, nature, character, date and significance of any archaeological remains encountered.
- To provide further information on the archaeological history of the site.

4 Working methods

The stone rubble from the collapsed revetment wall (Fig 4) was to be removed by a machine operating from the top of the embankment (the rails being protected by timber boarding) reaching down into the stream bed. Once the stone had been removed, a section was to be cut into the collapsed fill of the embankment, to provide seating for a new revetment wall to be constructed. As part of this work, a gabion dam was erected within part of the stream bed. This allowed dry access to the base of the embankment, so that a small section of the stream bed could be cut away and levelled to provide a platform onto which a concrete foundation could be laid. The new revetment wall was built upon the platform.

When removal of the collapsed fill commenced it was found that this operation caused the entire embankment to become unstable resulting in further slippage into the stream.

To prevent further slippage, sheet piling was inserted (Figs 3 and 5) within the railway embankment roughly 1.5m from the eastern edge of the stream, along the length of the area to be affected by the work (approximately 10m).

An archaeologist was present during the removal of collapsed material from the side of the embankment. Due to close proximity of the machine, the very restrictive working

area, and the unstable nature of the bank, the section created within the embankment was unsafe to be inspected directly. This meant that the site work was recorded from a vantage point on the opposite side of the stream.

A sketch section of the profile cut through the embankment was made at a scale of 1:20 recording any features and layers and a photographic record of the work was made.

A plan at a scale of 1:200 showing the location of the area of the embankment affected by the work was also made.

5 Results

The length of the trench was approximately 10m. It reached a maximum width of 1.5m, and roughly a depth of 2.6m (Figs 3 and 6).

It was found that the railway embankment had been constructed as follows.

Two vertical stone walls (mostly of large granite blocks) running parallel with each other and set roughly 6m apart (wall, context 6 on the west side of the embankment, and the wall forming the eastern side) had been constructed. The space between them had been infilled by tightly packed light grey-brown friable sandy clay with stone rubble fragments (5). This filled the gap to roughly 0.8m below the level of the top of the embankment. The layer was overlain by white, grey-brown sand (possibly derived from china clay working) up to 0.5m thick (4). It was in turn sealed by layer (3), a deposit of orange-brown granitic 'rab' clay, which was up to 0.1m thick. This layer was immediately below the level of the base of the rails. It was not visible where the sleepers were actually sitting upon it. The structural engineers working on the site (pers comm) suggested that the sand (4) may have acted as a cushioning layer to protect the rails from the effects of heavy loads allowing them to flex a little, while the 'rab' clay (3) above was a weatherproofing layer (Fig 6).

On the western (river) side of the embankment a further chamfered wall (8) was constructed to deflect the river away from the base of the main core of the embankment to prevent it from being undermined. It was this part of the railway embankment construction that had failed, resulting in the collapse into the river and the necessity for this current scheme of repair (Fig 6).

6 Discussion

The archaeological recording provided an important opportunity to gain an insight into the construction of the nineteenth century railway embankment at this location.

7 References

British Geological Survey, 1982. Map sheet 347 Bodmin.

Sharpe, A, 2017. Risk Assessment and Method Statement Luxulyan Valley to St. Blazey Geotechnical Investigations (Cornwall Archaeological Unit).

Smith, JR, 1992. Walking the Tramway Trail. A guide to the industrial archaeology of the Luxulyan Valley (Cornwall Archaeological Unit).

8 Project archive

The CAU project number is **146683**

The project's documentary, digital, photographic and drawn archive is maintained by Cornwall Archaeological Unit, Cornwall Council, Fal Building, County Hall, Treyew Road, Truro, TR1 3AY. The contents of this archive are listed below:

1. Projects file containing site records and notes, project correspondence and administration (146683).
2. Field plans stored in an A2-size plastic envelope (GRE 877/1-2).
3. Digital photographs stored in the directory: R:\Historic Environment (Images)\SITES.M-P\Par River Railway embankment WB 2017 146683
4. English Heritage/ADS OASIS online reference: cornwall2-286273
5. This report text is held in digital form as: G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites P\Par River Railway Embankment WB 146683\Report

No artefacts were recovered during the fieldwork.

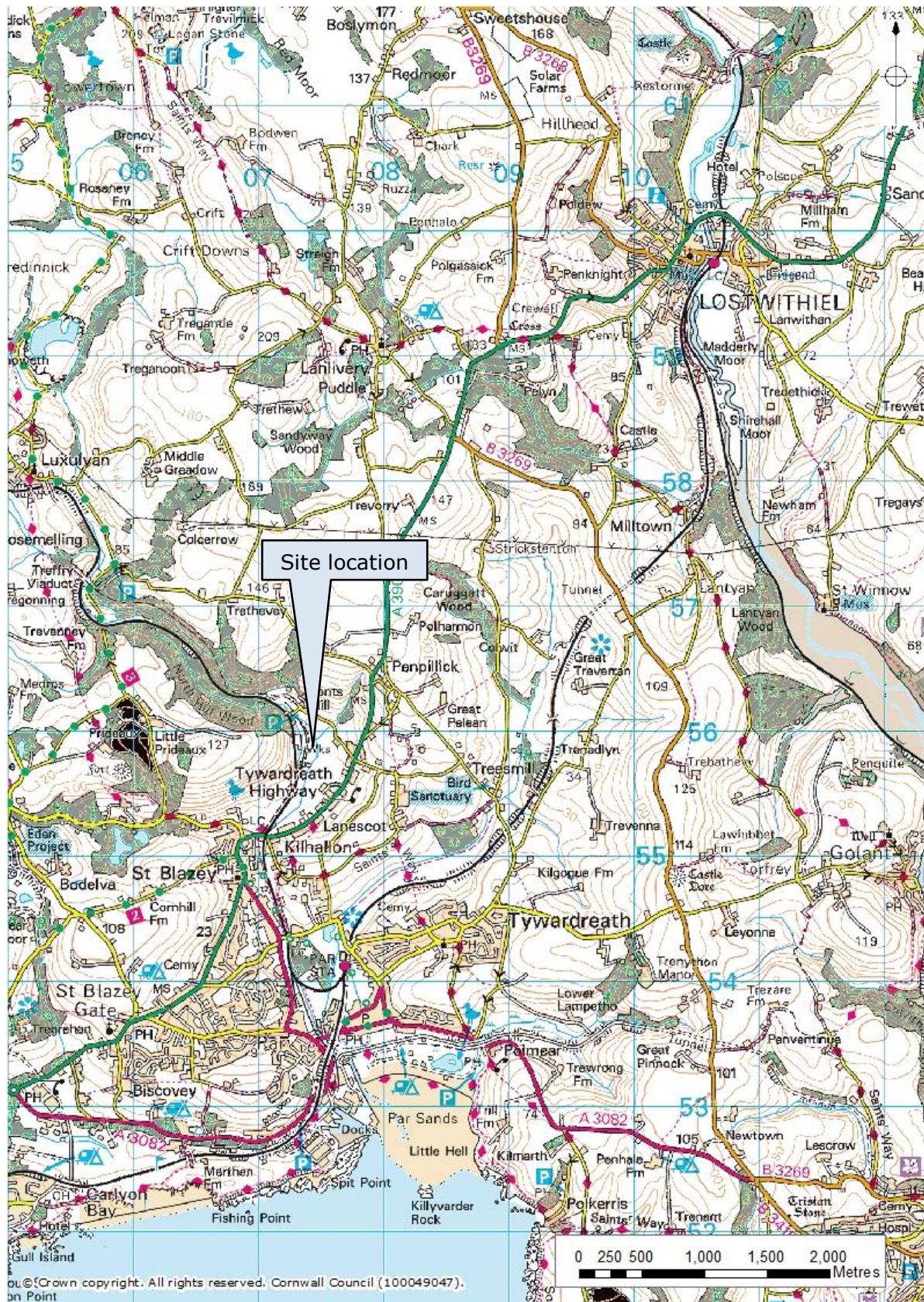


Figure 1. Site location map.

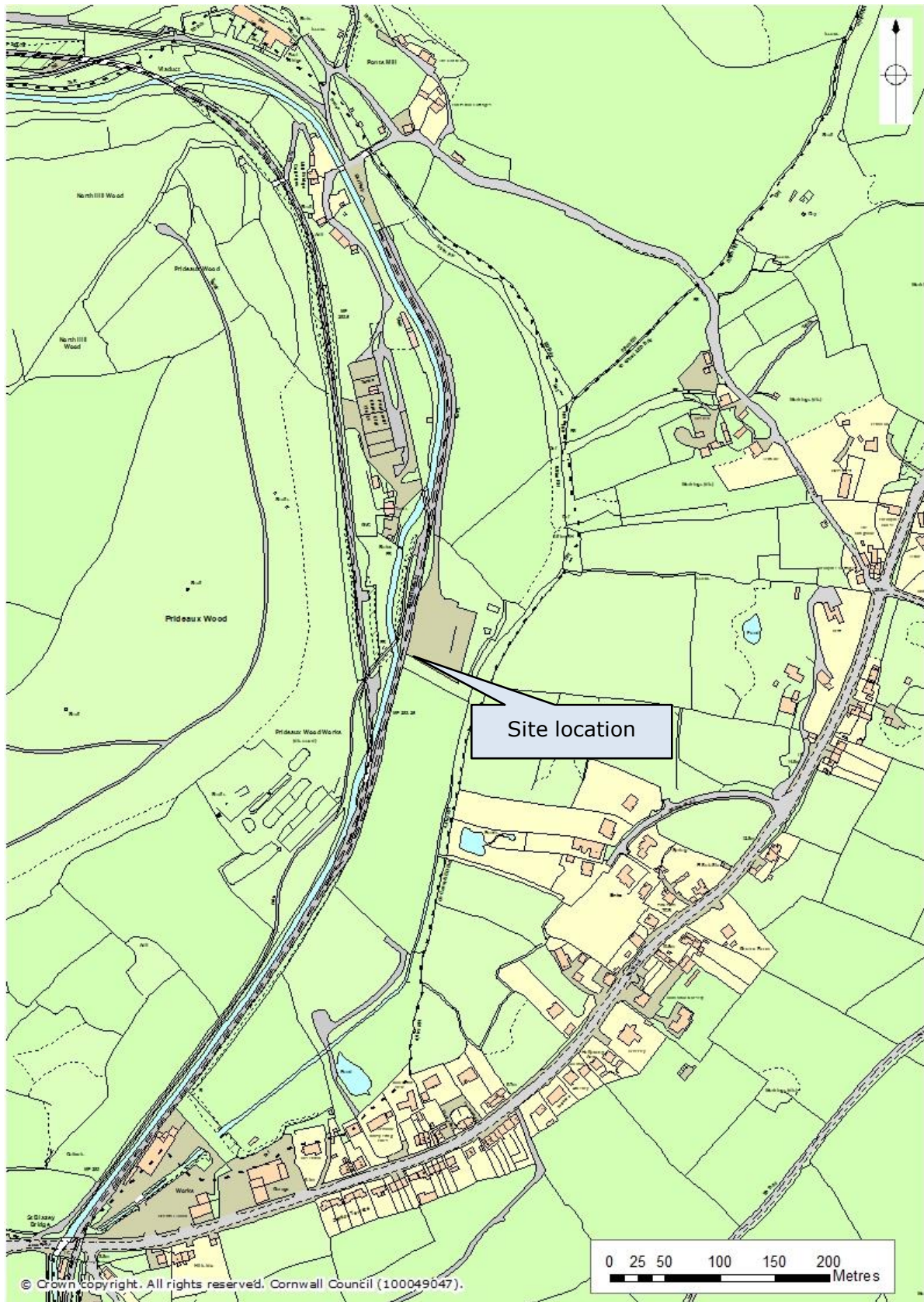


Figure 2. Map showing location of the site.

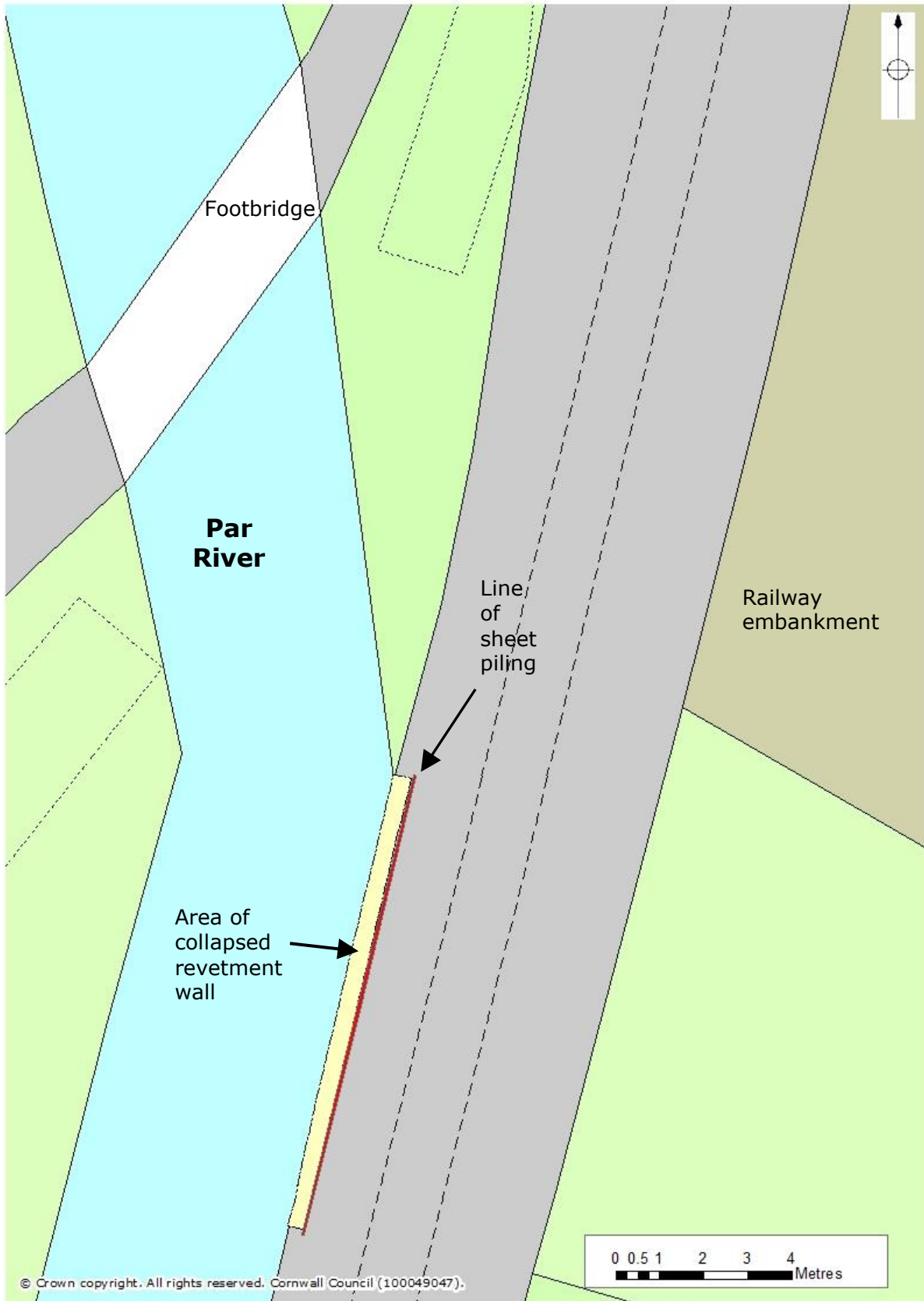


Figure 3. Site Plan, showing the area of the collapsed revetment wall.



Figure 4. Collapsed embankment prior to work commencing.



Figure 5. Embankment after clearance of collapse showing location of sheet piling.

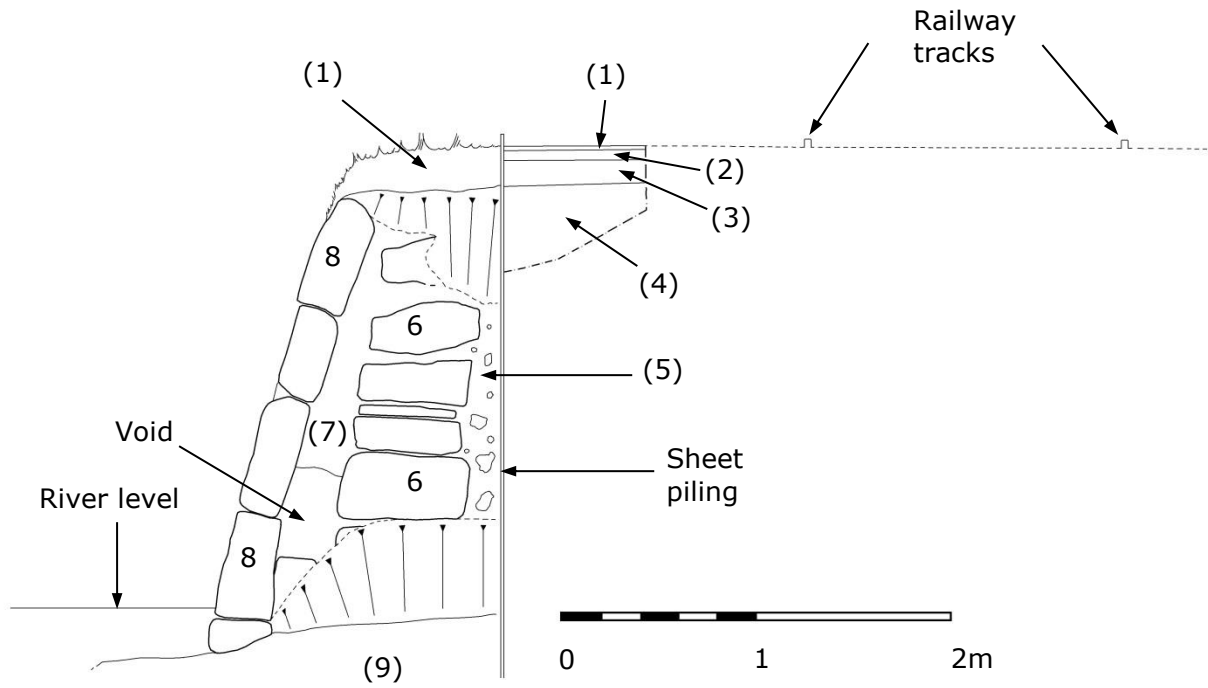


Figure 6. Sketch section through exposed part of the railway embankment.

9 Appendix 1. Context list

Context	Type	Description
1	Layer	Topsoil, grass and roots.
2	Layer	Grey-brown sandy loam.
3	Layer	Compacted red-brown clay (derived from a granitic 'rab' subsoil?) up to 0.12m thick. Clay sealing layer for top of embankment?
4	Layer	White, grey-brown compacted sand (possibly derived from china clay working). Cushioning layer for railway?
5	Layer	Compacted light grey-brown friable sandy clay with stone fragments. Main packing layer forming the embankment in between the two vertical revetment walls forming the sides of the railway embankment.
6	Structure	Vertical wall constructed of large blocks of stone (mostly granite) forming the western wall of the railway embankment. The wall was roughly 2m high and 0.7m wide.
7	Layer	Compacted pale grey-brown clay packing and sealing the gaps between walls 6 and 8.
8	Structure	Sloping revetment wall constructed of stone blocks (mostly granite). Wall constructed to protect the base of the embankment from the river.
9	Layer	Pale grey-brown clay and shillet, the natural bedrock upon which the railway embankment appears to have been constructed.

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