Chichester and District Archaeology Society

Trial Trench Investigations, Petworth House Pleasure Gardens, Petworth – October 2019

Figure 1: CDAS volunteers excavating across a 'lost' path

1. Summary

Following geophysical surveying undertaken by Chichester and District Archaeology Society (CDAS) in October 2018, within the Pleasure Gardens of Petworth House and Gardens, two trial trenches were opened to better investigate specific responses identified as a result of that survey.

One small trench confirmed responses seen in the geophysical results. A natural rock outcrop was discovered about 150mm below the surface of the grass.

A second slightly larger trench revealed part of a path and its construction, curving up towards or away from the Doric Temple within the Pleasure Gardens. Aside from the path, part of a clay pipe was revealed – assumed as being a drainage pipe.

2. Background

In 2018, at the invitation of the National Trust's Petworth Landscape Manager, CDAS undertook a geophysical survey in an area east of the Doric Temple, set within the House's Pleasure Gardens. The purpose of that survey was to aid a proposed Trust plan to re-instate paths around the Temple.

Utilising both magnetometer and resistivity equipment, this CDAS survey was conducted in October 2018. The results of the survey (Davies 2018), identified paths shown in the 1897 Ordnance Survey map, along with 'anomalies' in front of the Temple, not able to be fully understood by geophysical surveying alone.

Consequently, CDAS proposed two trial trenches. One across an area of path southeast of the Temple (Trench 2, Figure 3). The other across a response requiring clearer understanding (Trench 1, Figure 3).

This proposal was accepted, and then scheduled to run in conjunction with a separate geophysical survey, again undertaken by CDAS, this time across the sports field, southwest of the House.

3. Location of trenches

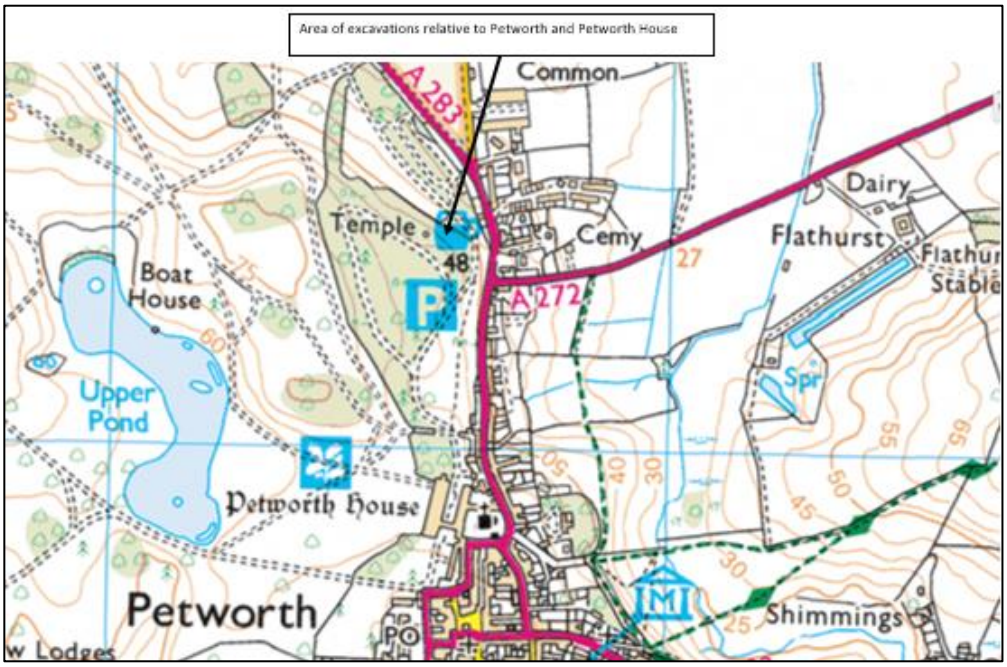

Figure 2: Location of excavations relative to Petworth and Petworth House

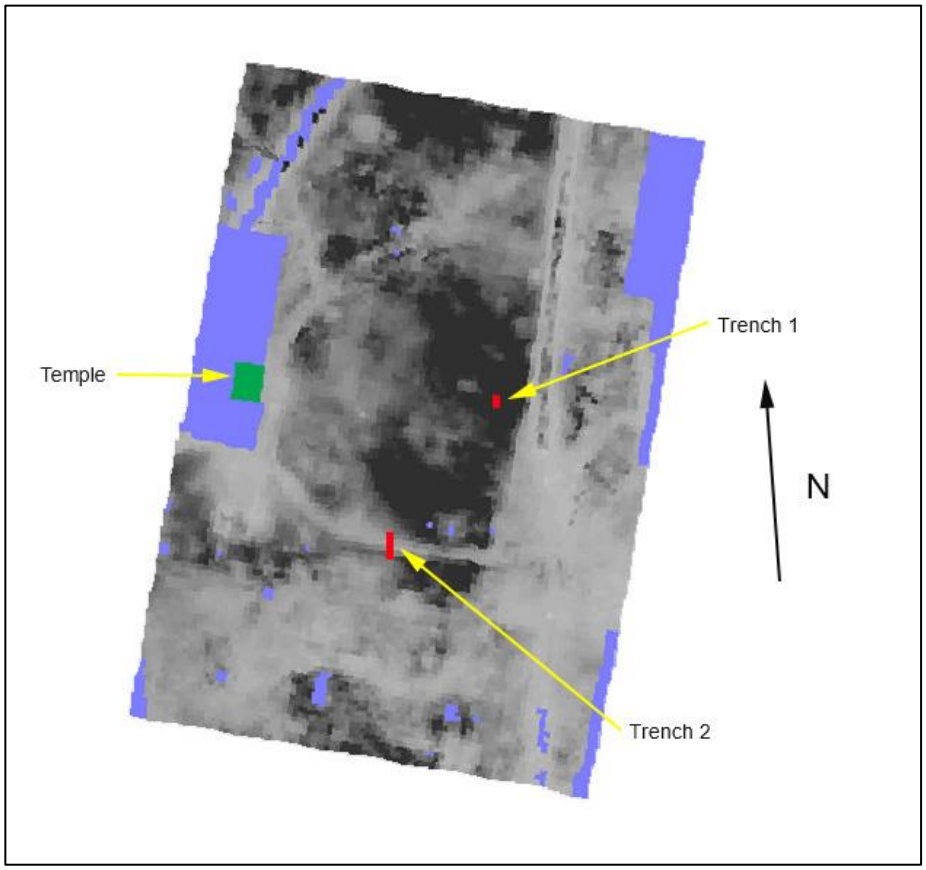

Figure 3: Locations of trenches 1 & 2 relative to the CDAS 2018 resistivity results

Appendix 2 details the procedure for establishing the location of both trenches.

4. Site Access/ Health and Safety

Health and Safety Risk Assessments (Appendix 1), were prepared and issued in advance to participating members prior to undertaking the trial trenches.

5. Method

The trenches utilised the following equipment:

1. Dumpy Level and measuring staff were used for taking specific heights, employing a Benchmark on the Doric Temple as a back-site to calculate height changes.
2. Drawing boards, with either A3 or A4 permatrace attached, used to create the trench plans (scales 1:20) and section (scale 1:10) of the two trenches. The drawn images were subsequently inked, scanned and tidied within Photoshop. Distance measuring was undertaken using a 30m length tape along a string baseline, and hand tape for offsets.

6. Volunteer Participation

6 CDAS members worked on the excavations from 14th October to 15th October 2019, resulting in a total of 12 days of effort.

7. Trial Trench results

The geology of the location (hereafter known as the 'natural') is 'Hythe Formation – Sandstone. Sedimentary Bedrock formed approximately 113 to 126 million years ago in the Cretaceous Period' (British Geological Survey 2019).

Regarding the trenches (see Figure 3 for locations):

- Trench 1 was opened to investigate a high resistance response in an area east of the Temple, – considered to be a natural but worthy of confirmation.
- Trench 2 was opened across a segment of the path, to identify its character and how well it survives.

- Appendix 3 lists the Context numbers and brief descriptions.

7.1.Trial trench 1

Figure 4: Photograph of Trench 1 (Author)

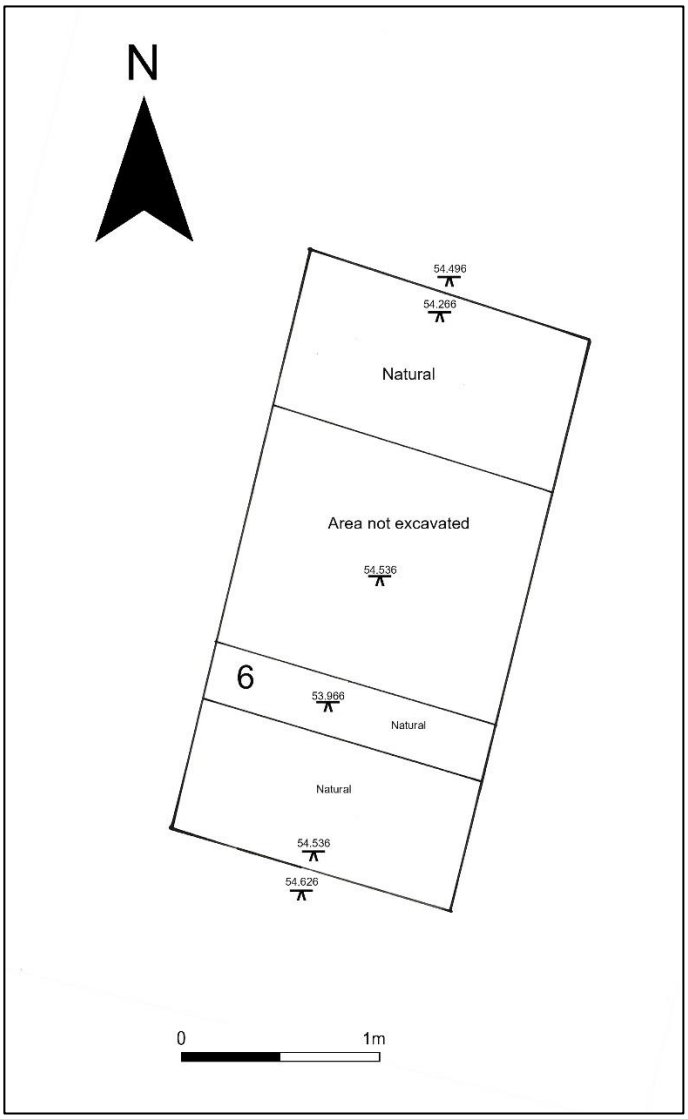

Figure 5: Drawn plan of Trench 1

Figures 4 and 5 show the results of Trench 1. The main points are as follows:

- It was decided to open sections either end of the trench. If natural was found immediately under their topsoil, the middle portion of Trench 2 would be left unexcavated.
- After removal of turfs, either end of the trench, a light clean with trowels took place. Patches of natural, sand/sandstone, were observed within the lowermost of the topsoil.
- Recognising this layer, either end of the trench as all natural, a section, Context 6, was dug to the depth of approximately 60cm to confirm.

- **Finds**

  Context 2 – 25 pieces of sandstone, weighing 1,830g (discarded)

  Context 2 – 1 piece of clear glass (window), weighing 1g

  Context 2 – 1 piece of light green glass (vessel), weighing 1g

  Context 2 – 2 pieces of Ceramic Building Material, glazed either side, likely to be post-medieval, weighing 8g

  Context 2 – 1 rounded flint (about 2cm in diameter), weighing 9g

  Context 6 – 33 pieces of sandstone, weighing 1,361g (discarded)

  Context 6 – from uppermost level, 1 seedpod (unknown species), weighing 1g

  Context 6 – from uppermost level, 2 pieces of Ceramic Building Material, glazed, likely to be post-medieval, weighing 12g

7.2. Trial trench 2

Figure 6: Photograph of Trench 2 (Author)

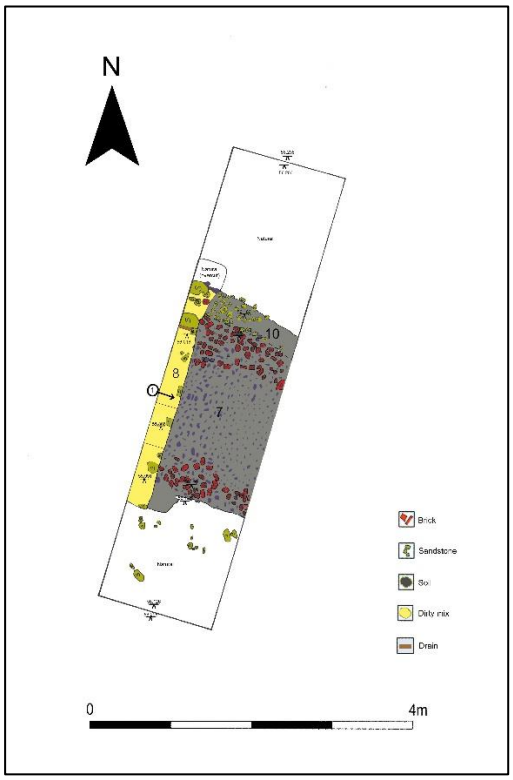

Figure 7: Drawn plan of Trench 2

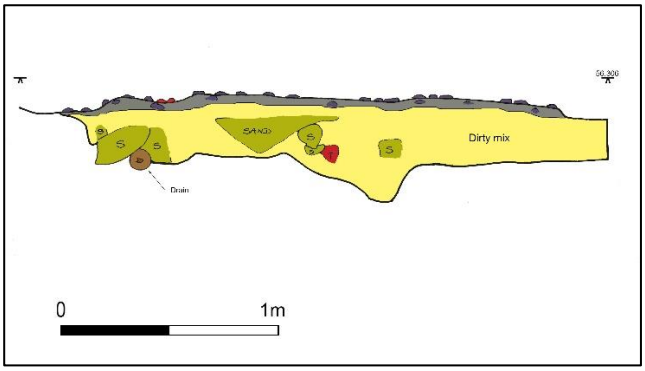

Figure 8: Drawn section of Context 7/path (west facing)

Figures 6, 7 and 8 show the results of Trench 2. The main points are as follows:

- Aside from the archaeology found in the middle of the trench, its surrounds are natural geology. Tree roots can be observed in Figure 6, to the right of the trench.
- As anticipated in the geophysical results of 2018, a path emerged where we expected it to.
- This path/trackway is approximately 2mtrs in width. Its uppermost level is packed with stone – the majority of which appears to be ironstone, set firmly into soil.

- Running alongside either edge of this ironstone path, brick fragments bound its fringes.
- North of the northern most edge of the path, defined by the brick fragments, lumps of sandstone and soil suggest that the construction trench for the path/trackway, was slightly wider than the actual path itself – Context 10.
- A limited section, Context 8, was dug to identify the paths material composition, and to determine its depth. This section was approximately 2mtrs in length, and roughly 30cm wide.
- Unfortunately, due to time constraints, excavation of this section was curtailed after digging downwards to a depth of 30cm. Its material fill being a dirty mix of sand, sandstone and soil with some finds recovered. The true depth of the path's construction trench was therefore not realised during this excavation.
- During the excavation of this section, part of a clay pipe (not glazed, see Figure 8), assumed for drainage usage, was revealed. Running approximately East-West, this pipe lay roughly under the line of brick fragments defining the northern most edge of the path.

- **Finds**

  Context 8 – 6 pieces of Ceramic Building Material, likely to be post-medieval, weighing 44g

  Context 8 – 1 piece of flint (black with cortex), weighing 23g

  Context 8 – 16 pieces of charcoal, weighing 42g

  Context 8 – 1 piece of limestone, weighing 72g

  Context 8 – 1 Fe object/nail, weighing 5g

  Context 8 – 1 piece of slate, weighing 4g

  Note – Unlike Trench 1, the sandstone lumps were too numerous to count or weigh.

Figure 9: Image showing buried drain edge (Author)

8. Discussion of results

It is hoped that enough data from these investigations prove useful to the National Trust and their future project aspirations. Individually:

8.1. Trench 1

The 2018 geophysics results raised the suspicion that the results witnessed, were most likely due to the local geology. The opening of this trench proved this to be the case.

8.2. Trench 2

The 2018 geophysical results, especially when overlain onto the map of 1897, suggested we were in the area for a southern path curving toward/from the Doric Temple. The limited excavation precludes any final and explicit interpretation. However, this trench confirmed the path and verified its width.

The evidence that this ironstone path was bounded either side by broken bricks was interesting to observe. There was no uniform setting down of these bricks to suggest that they played any part in mapping the path's extent, their presence however could suggest such. The Petworth Landscape Manager, Martyn Burkinshaw, offered the suggestion that the ironstone centre of the path was to promote water runoff. The brick edging would allow drainage, so that water did not accumulate in the grass verge. He commented that with a light gravel topping, the path could be easily re-used.

There were no complete bricks available to offer full diagnostics. In the absence of complete lengths, a number were measured for their depths (the most common surviving aspect), typically reading around 60mm. The bricks seen were not frogged, a technique that is introduced from the early 1800's, and an 'early Georgian brick might measure 225mm by 95mm by 60mm' (The Heritage Directory 2019). However, not enough surviving evidence was available to offer any definitive period for these bricks. Interestingly, a number of brick faces were darkened, suggesting that they may have been 'blackened by exposure to hot flue gasses in the wood fired clamp' (Building Conservation 2019), a process less common in the late Georgian period (Building Conversion 2019). Some bricks had rounded edges.

Where this brick material may have originated from or when it was laid down, is unknown. It could be assumed that the bricks, not being whole, were not manufactured for the purpose of laying down the path and possibly coming from a local demolition source. It is also possible that later repairs are undertaken to an already laid down path, possibly in the Victorian/Edwardian period, making use of demolition matter from an earlier Georgian source.

The section (Context 8), exposed that the uppermost layer of compacted path material, may not be anything but shallow, the ironstone not in evidence further down the section. Due to time constraints, the depth of the path's construction trench was never bottomed out. The lower the volunteers dug, the greater the size of material (mainly sandstone, but other material included), recovered. It could be

intimated that this may also indicate reuse of former building material, like with the bricks.

The depth of the path's construction trench and types of rubble below the path's surface seem like over-engineering for the path concerned.

Resting amongst the dirty mix of deposits, it was unclear if the pipe was laid before the path, or at the same time. It is highly unlikely that it came later. Where either end of this pipeline went is not known, and there is no evidence in the geophysics results to plot a separate 'utility mains' course. This discovery was presented to Martyn Burkinshaw, so that the Trust may examine their records. It is assumed that as the drain was not glazed, it is not a 'modern' clay drainage pipe.

9. Acknowledgements

CDAS are extremely grateful to the National Trust Petworth for granting us permission to excavate. In particular Martyn Burkinshaw and his team for their onsite support, patience and suggestions during our excavation.

CDAS also extend their appreciation to Tom Dommett, National Trust Archaeologist.

10. Next Steps

- Given that CDAS were unable to excavate the full depth of the path's construction trench, we would welcome the chance to revisit and excavate again – perhaps in line with the Trust's proposed project to reconstruct the paths around the Temple.
- The 2018 resistivity results suggest that there may be a similar curving path north of these excavations – not seen in old maps. It should be considered that another exploratory trench over that response is opened, to see if there is an unknown path, and likewise to examine its construction methodology and look for comparisons found during this excavation.
- Copies of this report to be sent to Martyn Burkinshaw and Tom Dommett.
- Add this report to the CDAS archive.
- Issue this report to update the Chichester District Council Historic Environment Record.

Steven Cleverly

CDAS Survey Team

November 2019

REFERENCES

British Geological Survey - http://mapapps.bgs.ac.uk/geologyofbritain/home.html, Viewed on 5th November 2019

Building Conservation: Traditional Brickwork - https://www.buildingconservation.com/articles/traditional-brickwork/traditional-brickwork.htm, Viewed on 7th November 2019

Davies, T. 2018 *Geophysical Survey: Petworth North Garden – October 2018*, 11th November 2018, CDAS Archive

The Heritage Directory - http://theheritagedirectory.co.uk/product.asp?prodid=82, Viewed on 7th November 2019

Figure 2 - https://www.bing.com/maps/, Viewed on 5th November 2019

APPENDIX 1

CHICHESTER AND DISTRICT ARCHAEOLOGY SOCIETY RISK ASSESSMENT FORM

SITE NAME: Petworth House gardens	**SITE CODE: PW19**	**ASSESSMENT BY: Steven Cleverly DATE: 11/10/19**	**PAGE 1 OF 2**
ACTIVITY: Excavation – 14th to 15th October 2019		**No. of people present: 6 (Min 4 / Max 6 at any one time)**	

HAZARD IDENTIFICATION

HAZARDS IDENTIFIED	People at risk (tick)		Likelihood of injury (tick)			NOTES	ASSESSED BY
	Volunteers*	Public	Probable	Possible	Remote		
1. Beware ticks	✓			✓		From deer – can cause Lymes disease	
2. Avoid leptospirosis	✓			✓		An infectious disease that affects humans & animals	
3. Exposure to sun, wind and rain	✓			✓			
4. Rough ground	✓			✓		Considerable care needed	
5. Insect bites	✓			✓		First aid kit available	

ACTION PLAN

Hazard No.	MEASURES REQUIRED TO REDUCE RISK TO ACCEPTABLE LEVEL	NOTES	All measures in place. Signed/dated by Site Supervisor
1	Check skin for ticks		
2.	Wash hands before eating		
3.	Volunteers advised to bring and use suntan cream and drink plenty of fluid. Use of hats and windproof jackets advised	Shelter within Doric Temple if necessary	
4.	Boots to be worn		
5.	First Aid kit available		

CHICHESTER AND DISTRICT ARCHAEOLOGY SOCIETY RISK ASSESSMENT FORM

SITE NAME: Petworth House gardens	SITE CODE: PW19	ASSESSMENT BY: Steven Cleverly DATE: 11/10/2019	PAGE 2 OF 2
ACTIVITY: Excavation – 14th to 15th October 2019		No. of people present: 6 (Min 4 / Max 6 at any one time)	

HAZARD IDENTIFICATION

HAZARDS IDENTIFIED	People at risk (tick)		Likelihood of injury (tick)			NOTES	ASSESSED BY
	Volunteers*	Public	Probable	Possible	Remote		
1. Use of equipment similar to that used for gardening	✓			✓		Keep clear of others using tools and safe spaces required.	
2. General public awareness		✓	✓			Being in a public place, may attract visitors.	
3. Sharp flints/stones in the ground	✓			✓			
4. Manual handling	✓			✓			

ACTION PLAN

Hazard No.	MEASURES REQUIRED TO REDUCE RISK TO ACCEPTABLE LEVEL	NOTES	All measures in place. Signed/dated by Site Supervisor
1.	Boots to be worn when using equipment		
2.	Volunteers advised. Need to instruct visitors not to come close to our trenches	Fencing and lamp irons being brought onsite	
3.	Volunteers advised. First Aid kit available		
4.	Volunteers reminded of correct lifting procedure. Warning against becoming tired.	Ensure those carrying the equipment are rotated regularly.	

APPENDIX 2

Locating the trial trenches in Petworth House pleasure gardens.

The trenches were located in the same fashion as the grid was set up for the geophysics survey.

The grid was established so that it ran through the west side of the Tijou gate and parallel to the west face of Petworth House, 12.72 metres from the west facing elevation, measured at right angles. The face used was that of the majority of the stonework ignoring the various pediments.

The distances were measured from the point where this line crossed the threshold of the Tijou gate.

Trench 1 was on the same line, 216 metres north from this point.

Trench 2 was 186 metres north from the Tijou gate on this line and 12 metres west.

APPENDIX 3

Site code	**PW.19**	**Site name**	**Petworth Gardens: Two trial trenches east of Doric Temple**

Context	Type	**Fill 1**	**Fill 2**	**Relationship**	**Description**	**Spot date**
1	Trench				Northerly trench, @3m by @1.5m – Trench 1	
2	Topsoil			Topsoil for Context 1	Topsoil of Trench 1	
3	Trench				Southerly trench, @6m by @1.5m – Trench 2	
4	Topsoil			Topsoil for Context 3	Topsoil for Trench 2	
5	Fill			Fill of Context 6		
6	Section	5			Running East-West through Context 2, @30cm by @1.5m	
7	Path/trackway				Running East-West under Context 4 in Trench 2	
8	Section	9			Running North-South, along the western side of Context 7 in Trench 2 - @30cm by @1.5m	
9	Fill			Fill of Context 8	Brick, soil, stone matter from trackway	
10	Construction trench				Northerly edge of construction trench for path/trackway (Context 7), or clay drainage pipe installation	