

Geoarchaeological Deposit Modelling

Client: National Grid Electricity Distribution (NGED)
Scheme name: Holbeach Primary Substation

Project details

Project name	Holbeach Primary Substation
Scheme number	22007610
Planning Reference	H05-0439-25
NGR	TF 3696 2341
OASIS Reference	dalcourm1-541095
Site Code	HOPS26
Accession Number	LCNCC: 2026.45

PREPARED BY

Name	Nick Daffern
Date	June 2026

APPROVED BY

Name	Dave Hodgkinson
Date	June 2026

VERSION	AUTHOR	APPROVED	ISSUE DATE	CHANGES
1	ND	DH	15-05-2026	N/A
2	ND	DH	30-06-2026	Amendments requested by Ruben Lopez Catalan

This report has been prepared for National Grid Electricity Distribution Ltd, in accordance with the terms and conditions of appointment. No responsibility is accepted for any use of or reliance on the contents of this report by any third party. The copyright of this document, including the electronic format shall remain the property of Dalcour Maclaren.

Contents

1	Introduction.....	4
1.2	Site Location.....	4
2	Aims and Objectives.....	5
3	Methodology.....	6
3.1	Standards and Guidance	6
3.2	Deposit Modelling.....	6
3.3	Definition of terms.....	7
4	Results	8
4.1	Geology	8
4.2	Deposit Modelling.....	8
5	Conclusions	9
5.1	Summary of Findings and Potential.....	9
	Bibliography	10
	Drawings.....	11

Drawings

No.	Title
Drawing 1.0	Site Investigation Locations (OpenStreetMap)
Drawing 2.0	Site Investigation Locations (Google Maps)
Drawing 3.0	Surface Height (m AOD)
Drawing 4.0	3D model overview from southwest
Drawing 5.0	3D model – orthographic view from southwest
Drawing 6.0	3D model – orthographic view from south
Drawing 7.0	3D model from southwest with surfaces
Drawing 8.0	3D model from southwest without surfaces
Drawing 9.0	3D model from northeast with surfaces
Drawing 10.0	3D model from northeast without surfaces

Appendices

No.	Title
Appendix 1	CP and TP Locations
Appendix 2	GIP Borehole and Trial Pit Logs

1 Introduction

- 1.1.1 Dalcour Maclaren (DM) were commissioned by National Grid Electricity Distribution (NGED) (hereafter referred to as 'the Client') to undertake geoarchaeological deposit modelling on land (hereafter referred to as 'the Site').
- 1.1.2 The Site is centred on National Grid Reference (NGR) TQ 4586 7943 (Figure 1 - 3).
- 1.1.3 The works were undertaken to enable an informed decision to be made in relation to the presence or absence of archaeological, palaeoenvironmental and geoarchaeological remains; their significance; and to guide the design of appropriate further mitigation measures, should they be required.

1.2 Site Location

- 1.2.1 The Site is located at the junction of Branches Lane and Pike Dam Lane, South Holland (NGR: TF 3696 2341) located c. 1km to the southeast of Holbeach.
- 1.2.2 The Site currently comprises the southeast corner of a larger cultivated field and, at the time of the Site visit was under crop.
- 1.2.3 The Site is bound to the north and west by open, cultivated agricultural land, to the south by a thin treeline adjacent to a drainage ditch with further agricultural land beyond, and to the east by the highways of Branches Lane and Pike Dam Lane.
- 1.2.4 The Site is generally flat, with the surface height derived from the geotechnical investigations ranging between +2.61m OD (CP2) and +2.39m OD (CP1) with an average of +2.53m OD.

2 Aims and Objectives

- 2.1.1 In accordance with a request by Ruben Lopez Catalan, Historic Environment Officer, Lincolnshire County Council, a programme of geo/archaeological deposit modelling was undertaken to supplement previously undertaken desk-based assessment (Dalcour Maclaren 2023) to, where possible:
- Determine the presence or absence of buried archaeological and palaeoenvironmental remains within the proposed development Site.
 - Determine the character, date, extent and distribution of any archaeological and palaeoenvironmental deposits and their potential significance.
 - Determine levels of disturbance to any archaeological and palaeoenvironmental deposits from agricultural/industrial practices or later building activities.
 - Provide a sufficient level of information to allow determination of any additional requirements for mitigation.
 - Disseminate the results through an appropriate level of reporting.

3 Methodology

3.1 Standards and Guidance

- 3.1.1 The geoarchaeological investigation deposit modelling conforms to the following guidance and best practice presented within the following documents:
- Geoarchaeology: using earth sciences to understand the archaeological record (Historic England 2015);
 - Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Third Edition) (Historic England 2025);
 - Environmental archaeology and archaeological evaluations: Recommendations concerning the environmental component of archaeological evaluations in England (AEA 1995);
 - Deposit Modelling and Archaeology (Carey et al. 2018);
 - Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits (Historic England 2020);
 - Using Geoarchaeological Deposit Modelling to Aid in the Identification, Evaluation and Targeting of Lithic Scatters and Sites (Champness 2024);
 - Piling and Archaeology: Guidance and Good Practice (Historic England 2019);
 - Preserving Archaeological Remains: Decision-Taking for Sites under Development, Historic England: London (Historic England 2016);
 - Land Contamination and Archaeology: Good Practice Guidance (Historic England 2017), and;
 - Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management (English Heritage and The Environment Agency 2005).

3.2 Deposit Modelling

- 3.2.1 The deposit modelling comprised lithological data from two cable percussive boreholes (CP1 and CP2) to depths of approximately 14m and 15.5m below existing ground level, and five machine excavated trial pits (TP1, TP2, TP3, TP4 & TP5) to depths in the region of 3m to 3.5m below existing ground level (Drawings 1 – 3; Appendix 1 and 2).
- 3.2.2 These investigations were undertaken for geotechnical purposes in May 2023 by GIP Limited and were not monitored by a geoarchaeologist, but all investigations were monitored, and the logs verified by, a suitably qualified ground engineer in accordance with BS 5930:2015+A1:2020.
- 3.2.3 The data was input into Golden Software's 'Surfer' software packages for the production of transects, sections and isocontour plans to illustrate the conjectured thickness and depth of deposits.
- 3.2.4 Due to the irregular spacing of the locations, interpolation of the data was required with the Kriging method being utilised for the production of the isocontour plans. Modelling was limited to the convex hull of data as it is considered that any projection beyond this could be inaccurate and/or misleading.

3.3 Definition of terms

- 3.3.1 The term 'geo/archaeological' is used throughout the report to combine the terms archaeological, geoarchaeological and palaeoenvironmental for ease of reading and understanding. Where appropriate, the individual specific terms will be used.
- 3.3.2 The abbreviation 'ka' is used after dates to represent 'thousand years ago' e.g. 100ka = 100,000 years ago.
- 3.3.3 Marine Isotope Stage is abbreviated to 'MIS' with the relevant stage number and, where relevant, the equivalent 'ka' dates, for example, MIS 4/ 71 – 57ka. The dates for the MIS boundaries are derived from Lisiecki and Raymo (2005).
- 3.3.4 The abbreviation 'm OD' represents the spot height in metres in relation to Ordnance Datum Newlyn; +/- will be used to reflect whether the level is above or below OD. The abbreviation 'bgl' is used to represent depth below (current) ground level.

4 Results

4.1 Geology

- 4.1.1 The British Geological Society (2026) maps the bedrock geology of the Site as mudstone of the Ampthill Clay Formation, which is of Oxfordian Age, during the Late Jurassic Period.
- 4.1.2 The Site is underlain by superficial deposits comprising unconsolidated sediment, mainly mud and/or sand, representing tidal flat deposits, including mud flat and sand flat deposits (Ibid).

4.2 Deposit Modelling

- 4.2.1 The deposits identified within the available sequences can, on lithological grounds, be grouped into two stratigraphic units, from youngest to oldest they are:
- Topsoil
 - Tidal Flat Deposits
- 4.2.2 Both strata were encountered in all locations.
- 4.2.3 No evidence for in situ archaeological remains was inferred during the modelling works.
- 4.2.4 The base of the Tidal Flat Deposits, and the relationship with the underlying Ampthill Clay Formation, was not established in any of the investigated locations.
- 4.2.5 Groundwater was encountered during the drilling of the boreholes at the following depths:
- CP1 – 4m, rising to 3.2m after 20 minutes.
 - CP2 – 3m, rising to 2.2m after 20 minutes.

Topsoil

- 4.2.6 Topsoil was the upper strata encountered in all locations and comprised a very stiff greyish brown silty clay containing rootlets and some organic rich pockets, the latter originating from modern agricultural practice.
- 4.2.7 Average thickness of topsoil was 0.32m with the thickest deposits (0.40m) encountered in CP2 and the thinnest (0.30) present in CP1, TP1 – 3 and TP 5.
- 4.2.8 Base of topsoil was encountered between +2.30m OD (TP5) and +2.09m OD (CP1) with an average basal height of +2.20m OD.

Tidal Flat Deposits

- 4.2.9 Tidal Flat Deposits were encountered in all locations and typically comprised an upper layer of stiff, greyish brown clay and sandy clay overlying very loose and loose greyish brown and orangish brown, becoming grey with depth, silty sands or sandy silts. The latter was noted to contain rare shells.
- 4.2.10 The base of the tidal flat deposits was not proven in any of the investigated locations but the deepest, CP1, showed these deposits to be present, and broadly homogeneous, to 15.45m bgl/ -13.06m OD.

5 Conclusions

5.1 Summary of Findings and Potential

- 5.1.1 The following summary and statement of potential is solely for the Site and is based upon the findings and lithological descriptions of the ground investigation report (GIP 2023).
- 5.1.2 Topsoil within the Site is considered to be 'modern' i.e. 20th century, in origin and, based upon the description of the deposit and its inclusions within the site assessment, it can be considered to be of no archaeological potential and no palaeoenvironmental potential.
- 5.1.3 The Tidal Flat Deposits are considered to have low archaeological potential as they represent mud flat and sand flat deposits forming extensive marshy land in the intertidal zone which, whilst exploited in the past, are not conducive to permanent human occupation. No evidence for the presence of in situ archaeological remains was identified in the logs or captured within the photographs of the trial pits (Appendix 2)
- 5.1.4 Broadly, these deposits can be considered to have palaeoenvironmental and geoarchaeological potential ranging from low – high depending upon the depositional environment within which the deposits formed but, within the present Site, no evidence for deposits of palaeoenvironmental potential i.e. organic alluvium, were identified during the deposit modelling and therefore the palaeoenvironmental and geoarchaeological potential of the Site is considered to be low – none.

Bibliography

- Association for Environmental Archaeology. (1995). Environmental archaeology and archaeological evaluations: Recommendations concerning the environmental component of archaeological evaluations in England, Working Papers of the Association for Environmental Archaeology, 2.
- Bowen, D. Q., (eds.) (1999). *A revised correlation of Quaternary deposits in the British Isles*, Special Report of the Geological Society of London No.23.
- British Geological Society (BGS). (2026). *BGS Geology Viewer*. Accessed online: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/>
- Carey, C., Howard, A. J., Knight, D., Corcoran, J. and Heathcote, J. (eds) (2018). *Deposit Modelling and Archaeology*. University of Brighton, Brighton.
- Dalcour Maclaren. (2023). *Archaeological Desk-Based Assessment: Holbeach Primary Substation*. Unpublished document
- English Heritage and The Environment Agency. (2005). *Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management*. Accessed Online: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010090/EN010090-000521-Environment%20Agency.%20English%20Heritage.pdf>
- GIP Ltd (2023). *Ground Investigation at Holbeach South Substation, Lincolnshire*. Unpublished Report. Ref: SJ/31895. Dated: 3rd July 2023
- Historic England. (2015). *Geoarchaeology: using earth sciences to understand the archaeological record*. Accessed Online: <https://historicengland.org.uk/images-books/publications/geoarchaeology-earth-sciences-to-understand-archaeological-record/>
- Historic England. (2016). *Preserving Archaeological Remains: Decision-Taking for Sites under Development*. Accessed Online: <https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/>
- Historic England. (2017). *Land Contamination and Archaeology: Good Practice Guidance*. Accessed Online: <https://historicengland.org.uk/images-books/publications/land-contamination-and-archaeology/heag096-land-contamination-and-archaeology/>
- Historic England. (2019). *Piling and Archaeology: Guidance and Good Practice*. Accessed Online: <https://historicengland.org.uk/images-books/publications/piling-and-archaeology/heag270-piling-and-archaeology/>
- Historic England. (2020). *Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits*. Accessed Online: <https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/heag272-deposit-modelling-and-archaeology/>
- Historic England. (2025). *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Third Edition)*. Accessed Online: <https://historicengland.org.uk/images-books/publications/environmental-archaeology-3rd/heag327a-environmental-archaeology/>
- Lisiecki, L.E., and Raymo, M.E. (2005). A Pliocene-Pleistocene stack of 57 globally distributed benthic $\delta^{18}O$ records, *Paleoceanography* 20

Drawings

Client:

National Grid Electricity
Distribution Ltd

Scheme:

22007610
Holbeach Primary Substation

Key:

Redline Boundary

CP Location

TP Location

Drawn By	ND	Approved By	DH
Date	05/2026		
Figure No.	1.0		

Title :

Site Investigation
Location

(© OpenStreetMap)



Client:
**National Grid Electricity
Distribution Ltd**

Scheme:
**22007610
Holbeach Primary Substation**

Key:

Redline Boundary

CP Location

TP Location

Drawn By	ND	Approved By	DH
Date	05/2026		
Figure No.	2.0		

Title :
**Site Investigation
Location**
(© Google Maps)



Client:

National Grid Electricity
Distribution Ltd

Scheme:

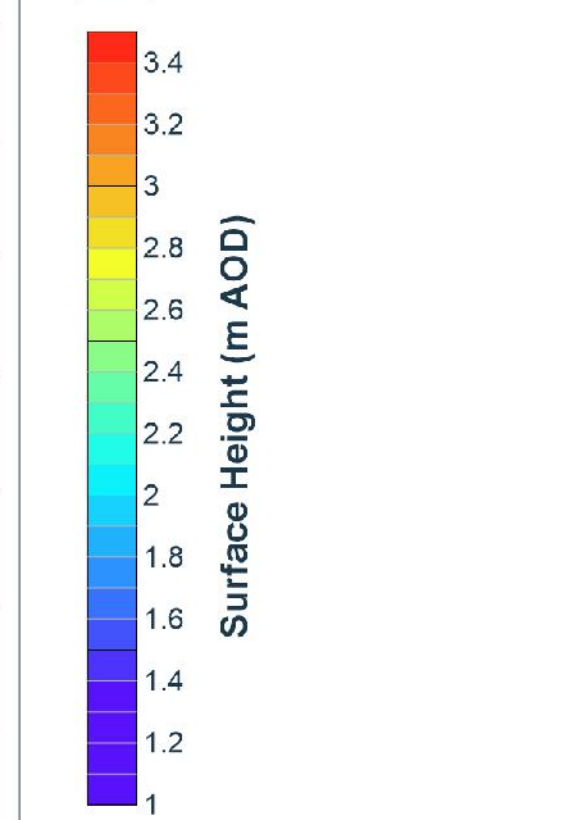
22007610
Holbeach Primary Substation

Key:

Redline Boundary

CP Location

TP Location



Drawn ByNDApproved ByDH

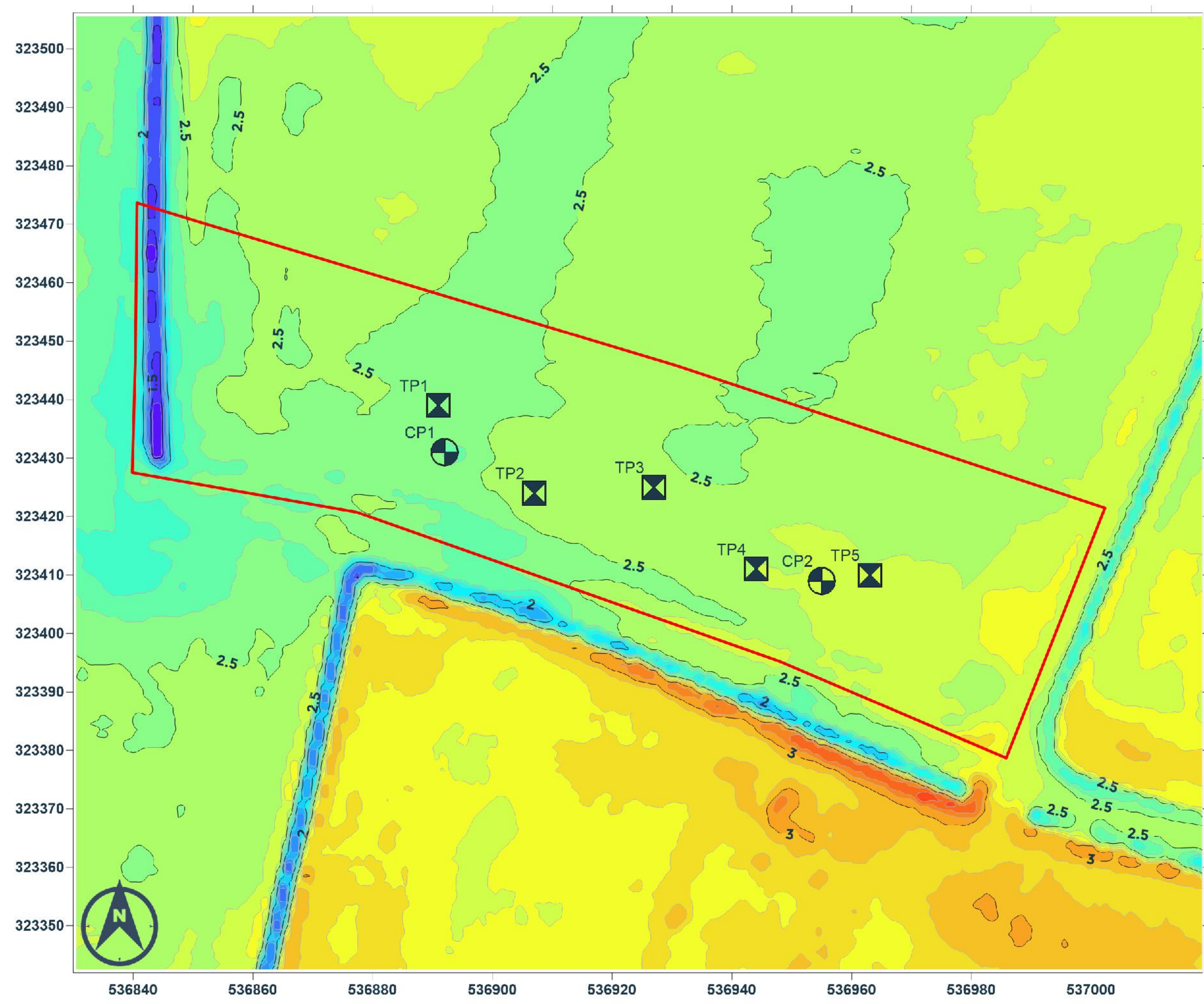
Date05/2026

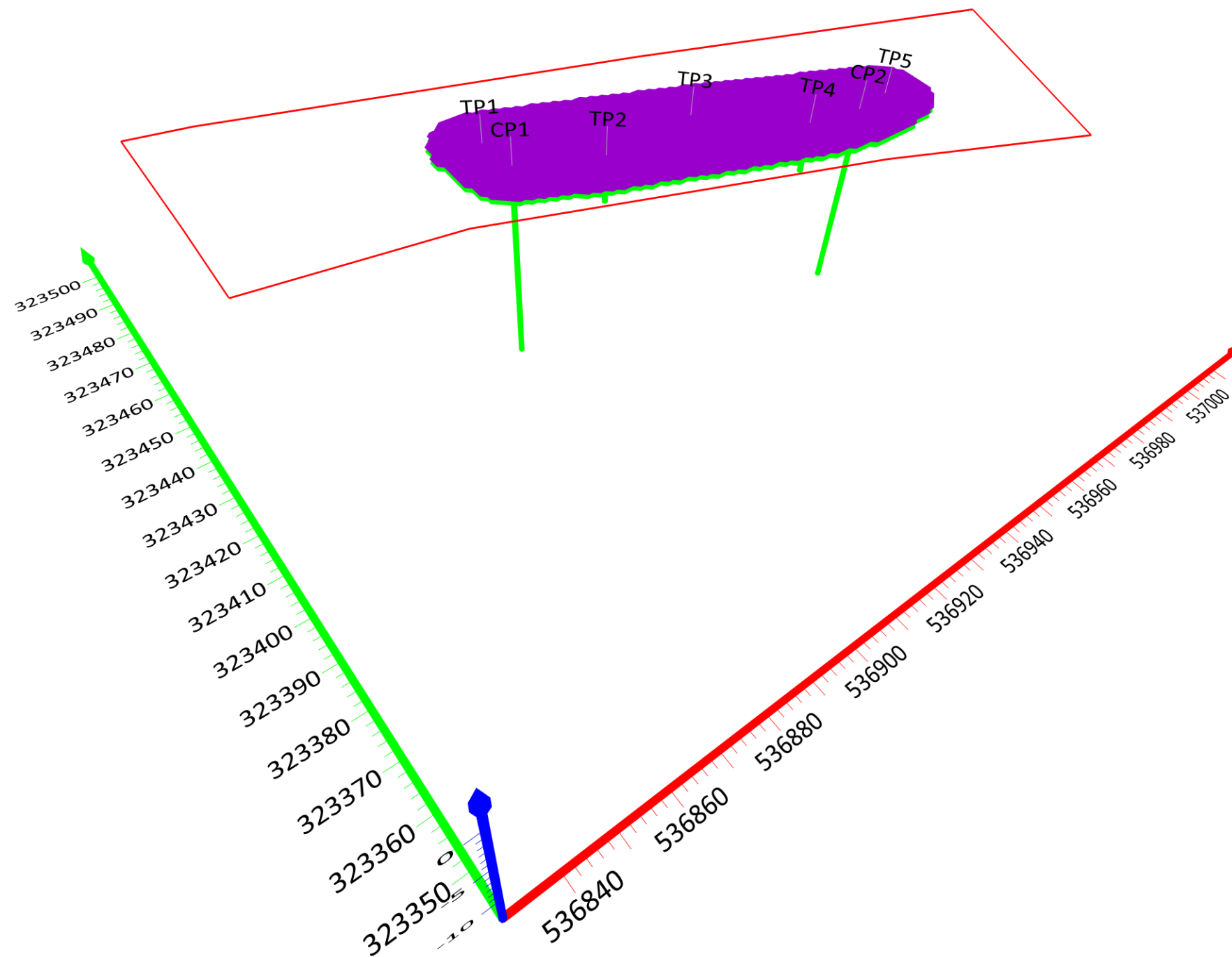
Figure No.3.0

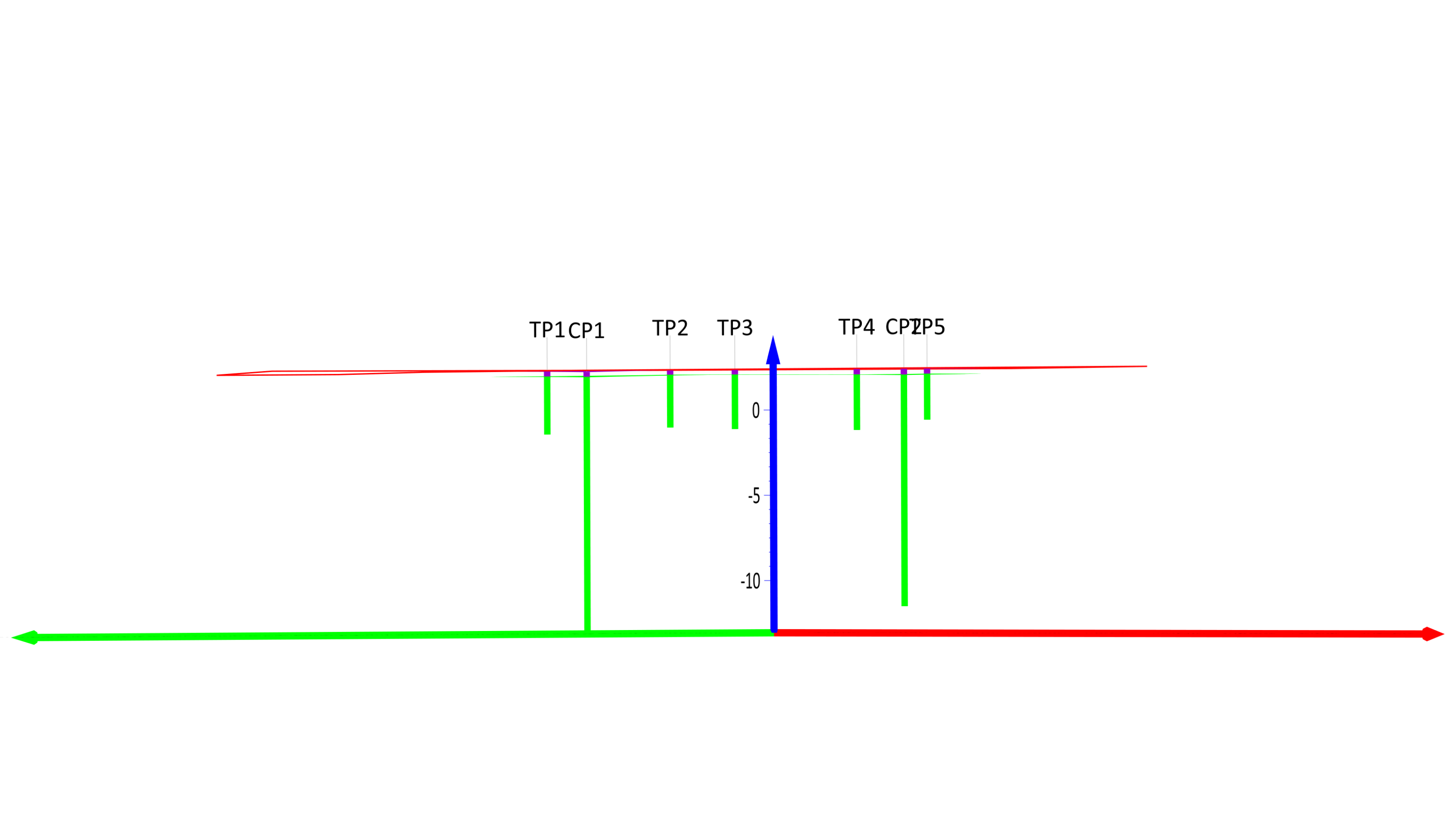
Title :

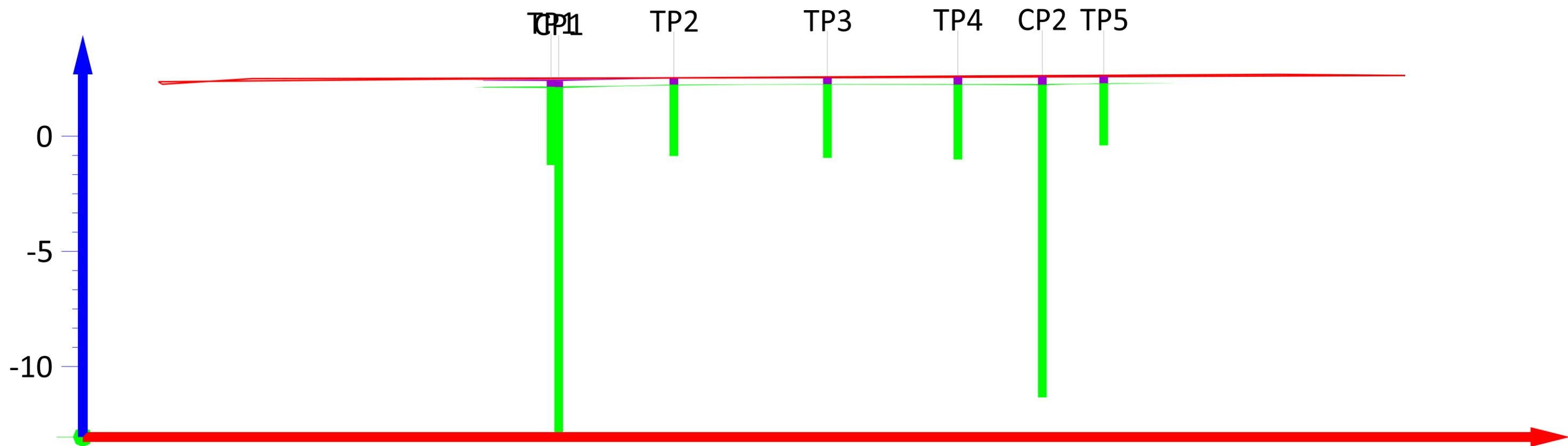
Surface Height
m AOD

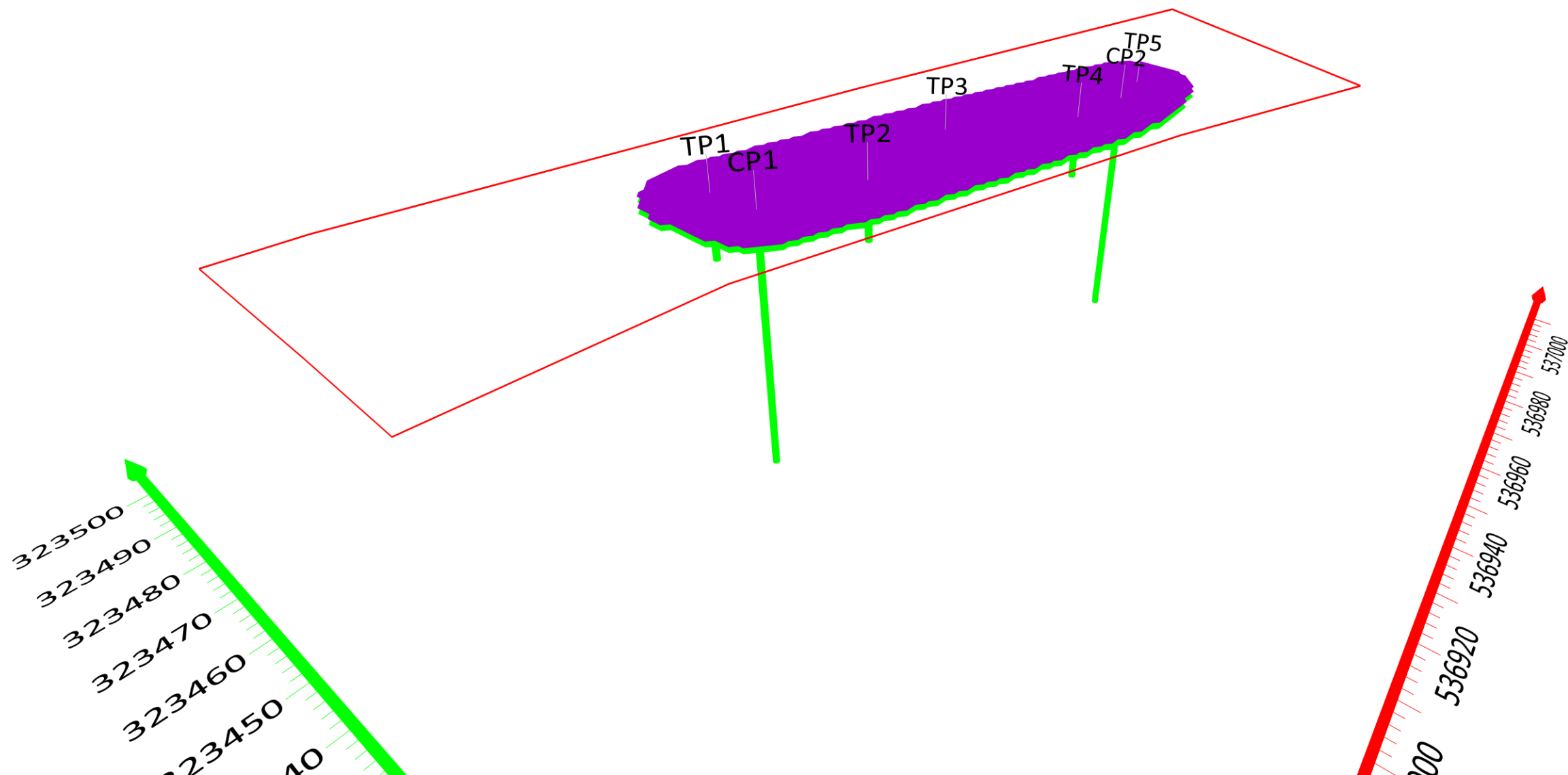
(Heights derived from DEFRA Survey Data
2022 LIDAR Composite DTM)

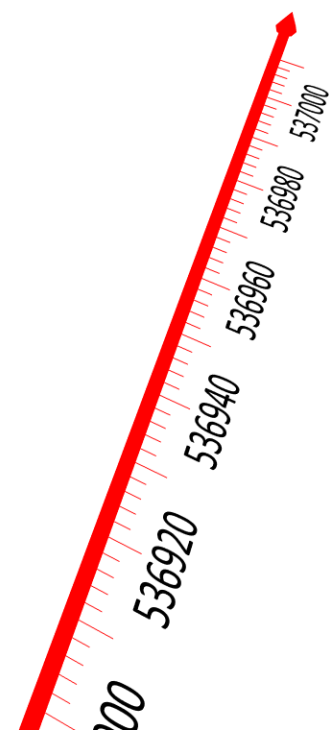
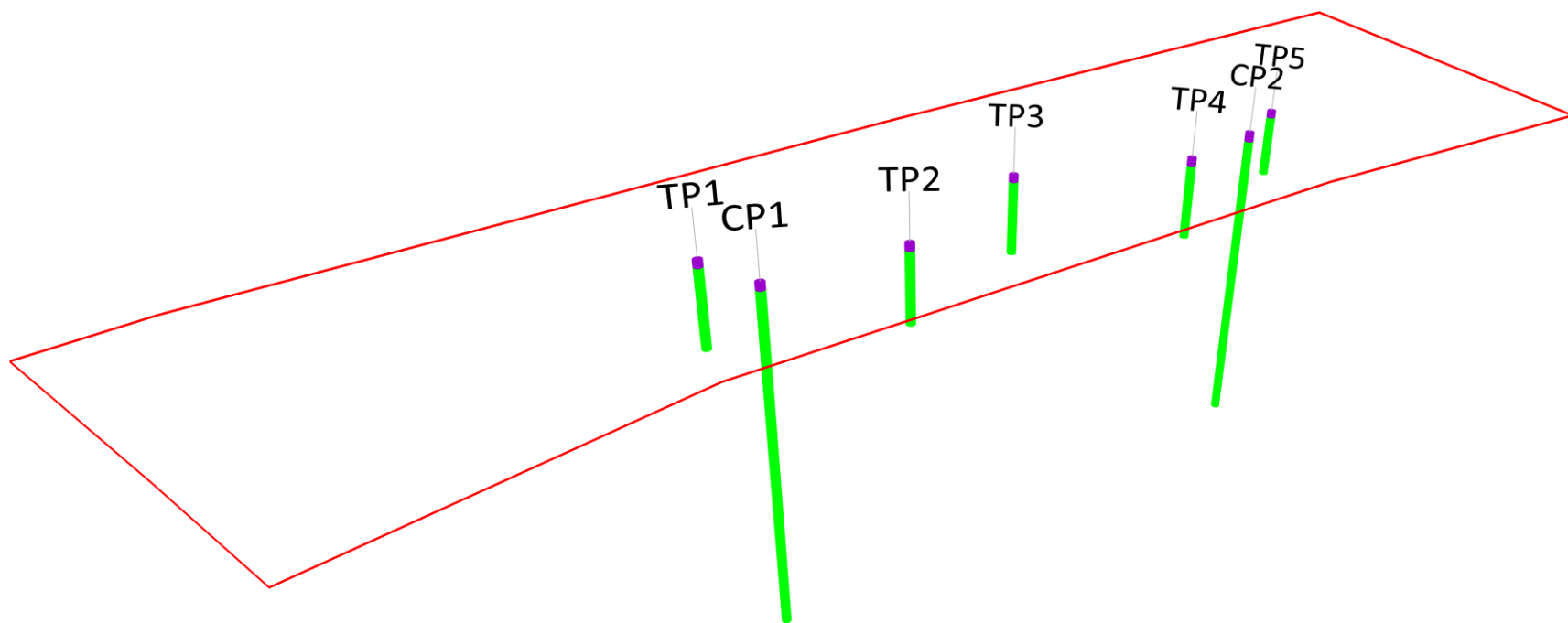


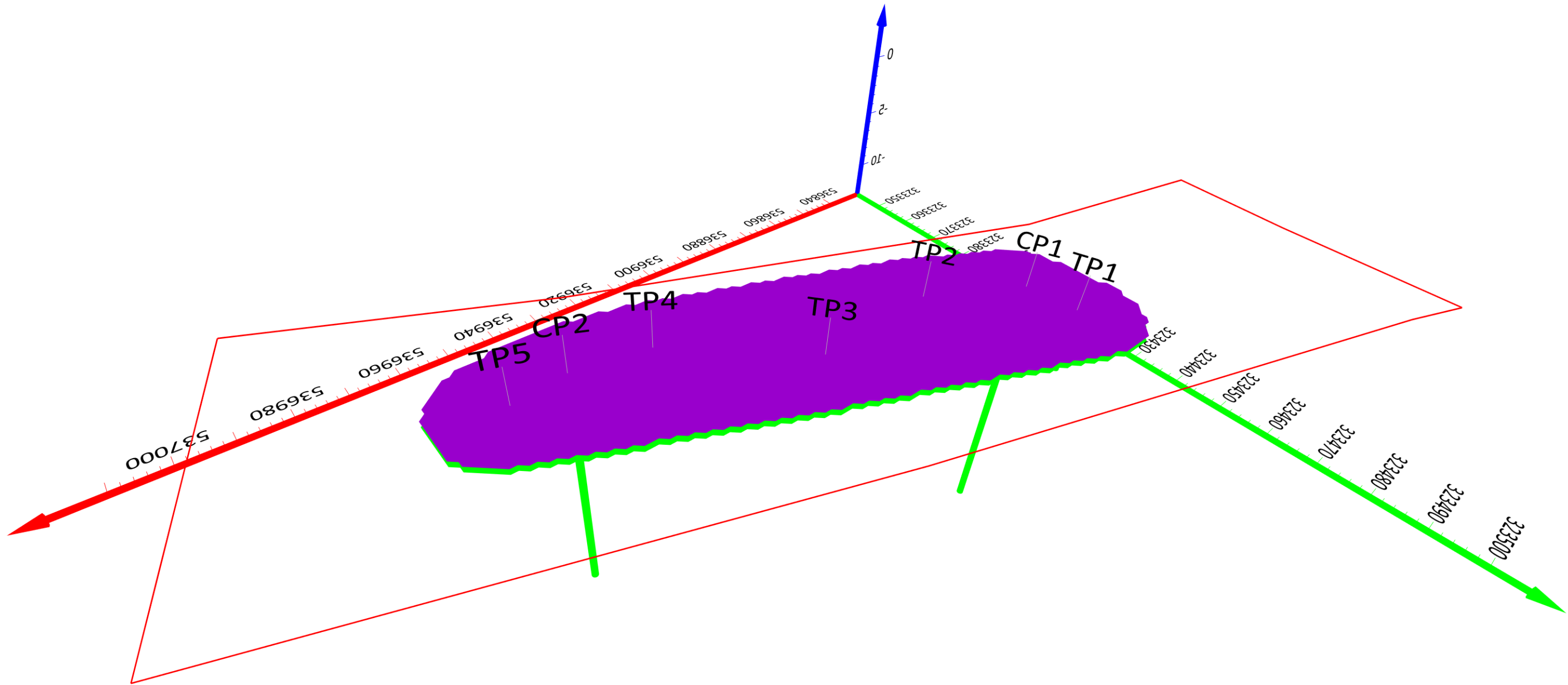


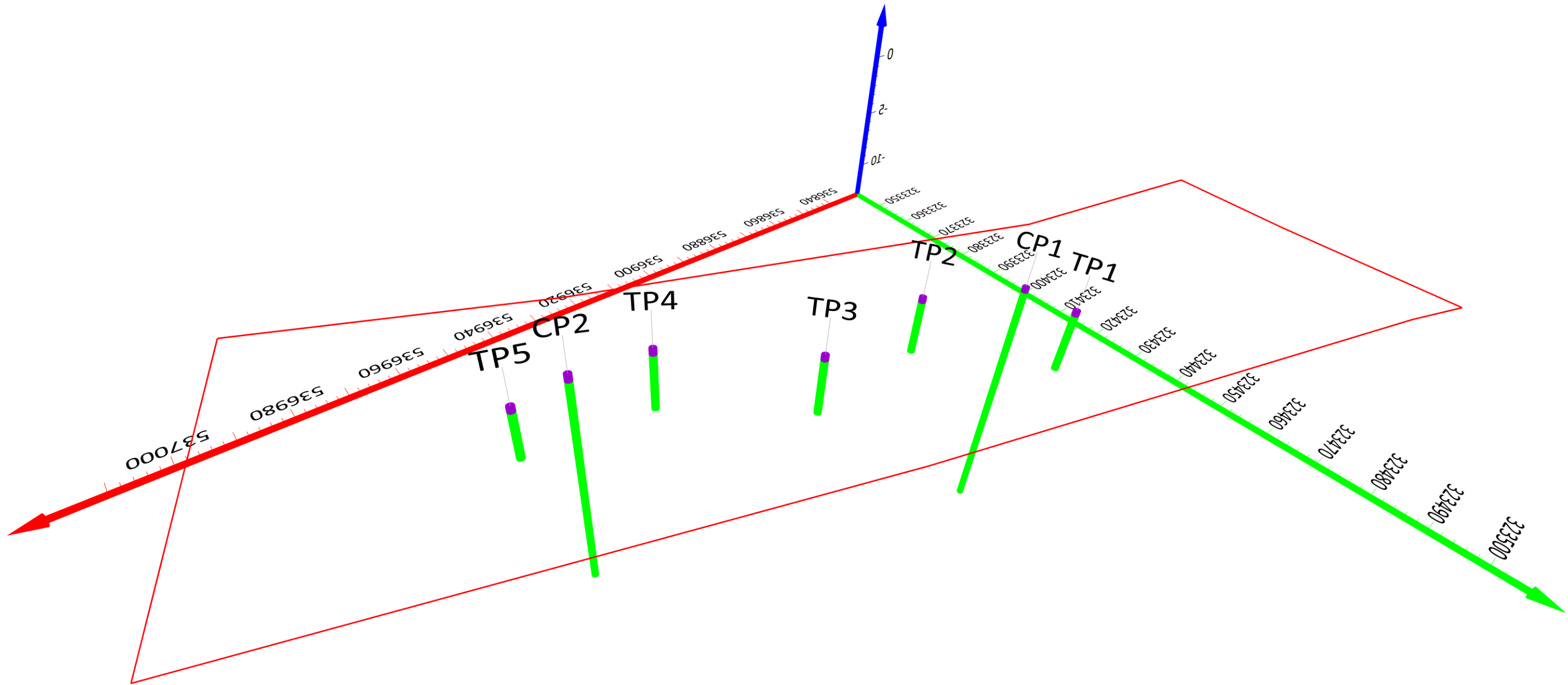












Appendix 1 – CP and TP Locations

Location ID	Easting	Northing	Surface Elevation (m OD)	End Depth (m bgl)	End Depth (m OD)
CP1	536892	323431	2.39	15.45	-13.06
CP2	536955	323409	2.61	13.95	-11.34
TP1	536891	323439	2.45	3.70	-1.25
TP2	536907	323424	2.54	3.40	-0.86
TP3	536927	323425	2.56	3.50	-0.94

Appendix 2 - GIP Borehole and Trial Pit Logs



Building 62, Third Avenue
The Pensnett Estate
Kingswinford
DY6 7XT
Tel: 01902 459558
Email: info@gipuk.com
www.gipuk.com

Cable Percussion Borehole Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Drilled: 22/05/2023 to 23/05/2023
Diameter: 150mm
Depth Cased: 14.00m

National Grid:
Ground Level:
Final Depth: 15.45m

Borehole:	CP1
Sheet 1 of 2	
Logged By:	TL
Checked By:	SJ
Drilled By:	DD

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.		0.30			0.30	B		
Stiff greyish brown and orangish brown mottled silty CLAY. (Superficial Deposits).					1.00 1.00	S 6 B (1,1,1,2,1,2)		
Firm greyish brown and orangish brown mottled silty CLAY with some sandy laminations. (Superficial Deposits).		1.50			2.00	U [10]		
					2.45	D		
Very loose to loose (from 3.00m) greyish brown and orangish brown mottled becoming grey (from 3.50m) very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).		2.45		3.20	3.00 3.00	S 4 B (1,0,1,1,1,1)		
					4.00 4.00	S 5 B (1,1,1,1,2,1)		
4.00-5.00m: Loose.				4.00	5.00 5.00	S 4 B (0,1,1,1,1,1)		
					6.00 6.00	S 8 B (1,1,2,2,2,2)		
6.00m: Becoming loose.					7.50 7.50	S 12 B (1,2,3,2,3,4)		
					9.00 9.00	S 17 B (2,3,3,4,4,6)		
Medium dense grey very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).								

Continued on Next Sheet

Samples/Tests

U Undisturbed
D Disturbed
B Bulk
W Water

S/C SPT/CPT

ES Environmental Sample
HV Hand Shear Vane
NR No Recovery

Water Strike

Water Level

Document 4.144

Other Information:

- Groundwater encountered at 4.00m, rising to 3.20m after a duration of 20 minutes.
- Borehole cased with 200mm casing to 9.00m and 150mm casing to 14.00m.
- 2 hours - installing 150mm casing to base of 200mm casing.
- Unable to advance 150mm casing beyond 14.00m, borehole abandoned.
- Borehole backfilled on completion.



Building 62, Third Avenue
The Pensnett Estate
Kingswinford
DY6 7XT
Tel: 01902 459558
Email: info@gipuk.com
www.gipuk.com

Cable Percussion Borehole Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Drilled: 22/05/2023 to 23/05/2023
Diameter: 150mm
Depth Cased: 14.00m

National Grid:
Ground Level:
Final Depth: 15.45m

Borehole:	CP1
Sheet 2 of 2	
Logged By:	TL
Checked By:	SJ
Drilled By:	DD

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
Medium dense grey very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).					10.50 10.50	S 12 (2,2,2,3,3,4) B		
					12.00 12.00	S 16 (2,3,3,4,4,5) B		
					13.50 13.50	S 16 (2,3,3,4,4,5) B		
15.00m: Becoming dense.					15.00	S 35 (3,4,5,8,10,12)		
Borehole Complete at 15.45m		15.45						

Samples/Tests

U Undisturbed
D Disturbed
B Bulk
W Water
S/C SPT/CPT
ES Environmental Sample
HV Hand Shear Vane
NR No Recovery
 Water Strike
 Water Level

Document 4.144

Other Information:

- Groundwater encountered at 4.00m, rising to 3.20m after a duration of 20 minutes.
- Borehole cased with 200mm casing to 9.00m and 150mm casing to 14.00m.
- 2 hours - installing 150mm casing to base of 200mm casing.
- Unable to advance 150mm casing beyond 14.00m, borehole abandoned.
- Borehole backfilled on completion.



Building 62, Third Avenue
The Pensnett Estate
Kingswinford
DY6 7XT
Tel: 01902 459558
Email: info@gipuk.com
www.gipuk.com

Cable Percussion Borehole Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Drilled: 23/05/2023 to 24/05/2023
Diameter: 150mm
Depth Cased: 13.30m

National Grid:
Ground Level:
Final Depth: 13.95m

Borehole:	CP2
Sheet 1 of 2	
Logged By:	TL
Checked By:	SJ
Drilled By:	DD

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.		0.40			0.40	B		
Brown very silty clayey SAND. (Superficial Deposits).		1.00			1.00	U [9]		
Loose (from 2.00m) light brown and light grey sandy clayey SILT. (Superficial Deposits).		1.00			1.45	D		
					2.00	S 5 (1,1,1,1,1,2)		
					2.00	B		
					2.20			
					3.00	U [3] NR		
Very loose to loose (from 4.00m) grey very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).		3.00			3.00	B		
					4.00	S 4 (0,1,1,1,1,1)		
					4.00	B		
					5.00	U [5] NR		
					5.00	B		
6.00m: Becoming loose.					6.00	S 9 (1,2,3,2,2,2)		
					6.00	B		
Loose to medium dense grey very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).		7.50			7.50	S 10 (0,1,2,2,3,3)		
					7.50	B		
9.00m: Becoming medium dense.					9.00	S 13 (1,2,2,3,4,4)		
					9.00	B		
Continued on Next Sheet		10.00						

Samples/Tests

U Undisturbed
D Disturbed
B Bulk
W Water

S/C SPT/CPT

ES Environmental Sample
HV Hand Shear Vane
NR No Recovery

Water Strike

Water Level

Document 4.144

Other Information:

- Groundwater encountered at 3.00m, rising to 2.20m after a duration of 20 minutes.
- Borehole cased with 200mm casing to 9.00m and 150mm casing to 13.30m.
- 2 hours - installing 150mm casing to base of 200mm casing.
- Unable to advance 150mm casing beyond 13.30m, borehole abandoned.
- Borehole backfilled on completion.



Building 62, Third Avenue
The Pensnett Estate
Kingswinford
DY6 7XT
Tel: 01902 459558
Email: info@gipuk.com
www.gipuk.com

Cable Percussion Borehole Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Drilled: 23/05/2023 to 24/05/2023
Diameter: 150mm
Depth Cased: 13.30m

Borehole:	CP2
Sheet 2 of 2	
Logged By:	TL
Checked By:	SJ
Drilled By:	DD

National Grid:
Ground Level:
Final Depth: 13.95m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		SPT 'N' Value [U100 Blows] Hand Vane	Installation /Backfill
					Depth (m bgl)	Type		
Medium dense grey very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).					10.50	S 23	(2,3,4,5,6,8)	
					10.50	B		
12.00m: Becoming dense.					12.00	S 32	(4,5,6,7,9,10)	
					12.00	B		
					13.50	S 35	(4,4,6,8,10,11)	
Borehole Complete at 13.95m		13.95						

Samples/Tests U Undisturbed D Disturbed B Bulk W Water S/C SPT/CPT ES Environmental Sample HV Hand Shear Vane NR No Recovery Water Strike Water Level	Other Information: 1. Groundwater encountered at 3.00m, rising to 2.20m after a duration of 20 minutes. 2. Borehole cased with 200mm casing to 9.00m and 150mm casing to 13.30m. 3. 2 hours - installing 150mm casing to base of 200mm casing. 4. Unable to advance 150mm casing beyond 13.30m, borehole abandoned. 5. Borehole backfilled on completion.
--	---

Trial Pit Log

 Project Number: 31895
 Project Name: Holbeach Sub-Station, Lincolnshire
 Client: National Grid
 Engineer:
 Date Excavated: 22/05/2023
 Plant Used: JCB 3CX

 National Grid: E: 536891.00 N: 323439.00
 Ground Level:
 Final Depth: 3.70m

Borehole:	TP1
Sheet 1 of 1	
Logged By:	TL
Checked By:	SJ

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		Results
					Depth (m bgl)	Type	
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets and occasional dark grey organic pockets.		0.30					
Very stiff becoming stiff (from 1.00m) greyish brown and orangish brown mottled silty CLAY with rare shells. (Superficial Deposits).					0.40	B	190kPa
0.30-0.50m: Occasional rootlets.					0.45	HV	210kPa
					0.45	HV	
		1.90					
(Loose) light greyish brown and orangish brown mottled becoming grey (from 2.20m) very silty SAND tending in parts to a sandy SILT. (Superficial Deposits).							
		3.70					
3.00m: Material is wet from 3.00m.							

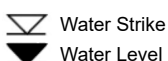
Annotated Sketch Drawing (Not to Scale)



Samples/Tests

 U Undisturbed Sample
 D Disturbed Sample
 B Bulk Sample
 W Water Sample
 ES Environmental Sample
 HV Hand Shear Vane

Other Information:

 Pit Stability: Sides spalling from 0.80m once trial pit had been advanced to 3.70m.
 1. Material was wet from 3.00m.
 2. Note the densities ascribed to granular horizons are assessed on speed, ease and stability of excavation and should only be used as a guide.
 3. Trial pit backfilled upon completion.


Trial Pit Log

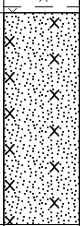
 Project Number: 31895
 Project Name: Holbeach Sub-Station, Lincolnshire
 Client: National Grid
 Engineer:
 Date Excavated: 22/05/2023
 Plant Used: JCB 3CX

National Grid: E: 536907.00 N: 323424.00

Ground Level:

Final Depth: 3.40m

Borehole:	TP2
Sheet 1 of 1	
Logged By:	TL
Checked By:	SJ

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		Results
					Depth (m bgl)	Type	
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.		0.30			0.20	B	
Stiff becoming firm (from 1.30m) greyish brown and orangish brown mottled silty CLAY with rare shells. (Superficial Deposits). 0.30-0.90m: Occasional rootlets. 1.00m: Some sandy laminations from 1.00m.					0.50	HV	146kPa
					0.50	HV	144kPa
					0.80	B	104kPa
					0.80	HV	124kPa
					0.80	HV	120kPa
					0.80	HV	
					1.50	B	52kPa
					1.50	HV	54kPa
					1.50	HV	
							
(Loose) grey very silty SAND tending in parts to a sandy SILT. (Superficial Deposits). 2.00-2.30m: Occasionally orangish brown mottled. 2.50m: Material is wet from 2.50m.		2.00					
					2.40	B	
		3.40					

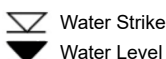
Annotated Sketch Drawing (Not to Scale)



Samples/Tests

 U Undisturbed Sample
 D Disturbed Sample
 B Bulk Sample
 W Water Sample
 ES Environmental Sample
 HV Hand Shear Vane

Other Information:

 Pit Stability: Sides spalling from 1.00m once trial pit had been advanced to 3.40m.
 1. Material was wet from 2.50m.
 2. Note the densities ascribed to granular horizons are assessed on speed, ease and stability of excavation and should only be used as a guide.
 3. Trial pit backfilled upon completion.




Trial Pit Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Excavated: 22/05/2023
Plant Used: JCB 3CX

Borehole:	TP3
Sheet 1 of 1	
Logged By:	TL
Checked By:	SJ

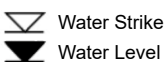
National Grid: E: 536927.00 N: 323425.00
Ground Level:
Final Depth: 3.50m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		Results
					Depth (m bgl)	Type	
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.		0.30			0.10	B	190kPa 188kPa 118kPa 60kPa 58kPa
Very stiff becoming stiff (from 0.80m) becoming firm (from 1.10m) greyish brown and orangish brown mottled silty CLAY with rare shells. (Superficial Deposits). 0.30-0.60m: Occasional rootlets. 0.80m: Some sandy laminations from 0.80m.					0.50	B	
					0.50	HV	
					0.50	HV	
					0.90	HV	
					1.20	B	
					1.20	HV	
					1.20	HV	
							
							
(Loose) light greyish brown and orangish brown mottled becoming grey (from 2.30m) very silty SAND tending in parts to a sandy SILT with rare shells. (Superficial Deposits).		1.80			1.80	B	
3.00m: Material is wet from 3.00m.							
							
							
							
							
							
							
							
							
		3.50			3.20	B	

Annotated Sketch Drawing (Not to Scale)



Samples/Tests	Other Information:
U Undisturbed Sample	Pit Stability: Sides spalling from 1.20m once trial pit had been advanced to 3.50m.
D Disturbed Sample	1. Material was wet from 3.00m.
B Bulk Sample	2. Note the densities ascribed to granular horizons are assessed on speed, ease and stability of excavation and should only be used as a guide.
W Water Sample	3. Trial pit backfilled upon completion.
ES Environmental Sample	
HV Hand Shear Vane	



Trial Pit Log

 Project Number: 31895
 Project Name: Holbeach Sub-Station, Lincolnshire
 Client: National Grid
 Engineer:
 Date Excavated: 22/05/2023
 Plant Used: JCB 3CX

National Grid: E: 536944.00 N: 323411.00

Ground Level:

Final Depth: 3.60m

Borehole:	TP4
Sheet 1 of 1	
Logged By:	
Checked By:	

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		Results
					Depth (m bgl)	Type	
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.					0.10	B	
(Medium dense) orangish brown silty SAND. (Superficial Deposits).		0.35			0.40	B	
(Medium dense and in parts loose) greyish brown and orangish brown mottled sandy clayey SILT with many sandy laminations and rare shells. (Superficial Deposits).		0.90			1.00	B	
2.00m: Material is wet from 2.00m.							
(Loose) grey sandy clayey SILT tending in parts to a very silty clayey SAND with rare shells. (Superficial Deposits).		2.30			2.30	B	
							
		3.60					

Annotated Sketch Drawing (Not to Scale)



Samples/Tests

 U Undisturbed Sample
 D Disturbed Sample
 B Bulk Sample
 W Water Sample
 ES Environmental Sample
 HV Hand Shear Vane

Other Information:

Pit Stability: Sides spalling from 1.10m once trial pit had been advanced to 3.60m.

1. Material was wet from 2.00m.

2. Note the densities ascribed to granular horizons are assessed on speed, ease and stability of excavation and should only be used as a guide.

3. Trial pit backfilled upon completion.

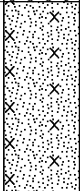
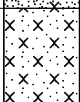
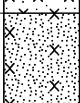


Trial Pit Log

Project Number: 31895
Project Name: Holbeach Sub-Station, Lincolnshire
Client: National Grid
Engineer:
Date Excavated: 22/05/2023
Plant Used: JCB 3CX

Borehole:	TP5
Sheet 1 of 1	
Logged By:	
Checked By:	

National Grid: E: 536963.00 N: 323410.00
Ground Level:
Final Depth: 3.00m

Description of Strata	Legend	Depth (m bgl)	Level (mAD)	Water Level (m bgl)	Samples/Tests		Results
					Depth (m bgl)	Type	
MADE GROUND: Very stiff greyish brown silty CLAY with occasional rootlets.		0.30			0.10	B	
(Loose) light greyish brown and orangish brown mottled very silty clayey and in parts very clayey SAND. (Superficial Deposits).		0.50			0.50	B	
(Loose) light greyish brown and orangish brown mottled sandy clayey SILT with many sandy laminations. (Superficial Deposits).		1.60			1.60	B	
(Loose) grey very silty SAND tending in parts to a sandy SILT. (Superficial Deposits).		2.30					
2.90m: Material is wet from 2.90m.		3.00			2.90	B	

Annotated Sketch Drawing (Not to Scale)



Samples/Tests

U Undisturbed Sample
D Disturbed Sample
B Bulk Sample
W Water Sample
ES Environmental Sample
HV Hand Shear Vane

Other Information:

Pit Stability: Sides spalling from 1.10m once trial pit had been advanced to 3.00m.
1. Material was wet from 2.90m.
2. Note the densities ascribed to granular horizons are assessed on speed, ease and stability of excavation and should only be used as a guide.
3. Trial pit backfilled upon completion.

Contact

Dalcour McLaren HQ
T 0333 188 5310
E info@dalcourmclaren.com

The Barn, Bignell Park Barns
Chesterton, Bicester
Oxfordshire OX26 1TD

