



Mount Stamper Road, St Austell

Flood Risk Assessment

For Aldustria

Date *24 November 2023*

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Issued by	Hydrock Consultants Limited Second Floor 172 Edmund Street Birmingham B3 2HB United Kingdom	T +44 (0)121 7525197 E birmingham@hydrock.com hydrock.com
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Prepared by		Bethan Williams BSc (Hons)
Checked by		Natasha Maxworthy BSc (Hons)
Approved by		Alexandros Petrakis BSc (Hons) MCIWEM C.WEM

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1. Introduction

This report has been prepared by Hydrock Consultants Limited (Hydrock) on behalf of our client Aldustria in support of a Planning Application for a proposed Battery Storage facility on land off Mount Stamper Road, St Austell.

Local Planning Authorities are advised by the Government's National Planning Policy Framework (NPPF) to consult the Environment Agency (EA) and Lead Local Flood Authority (LLFA) on development proposals in areas at risk of flooding. For a development of this nature the EA and LLFA normally require a Flood Risk Assessment to be submitted in support of such an application. The report has been prepared to consider the requirements of NPPF through:

- » Assessing whether the proposed development is likely to be affected by flooding;
- » Assessing whether the proposed development is appropriate in the suggested location, and,
- » Detailing measures necessary to mitigate any flood risk identified, to ensure that the proposed development would be safe, and that flood risk would not be increased elsewhere.

The report considers the requirements for undertaking a Flood Risk Assessment as stipulated in NPPF Technical Guidance. Only those requirements that are appropriate to a development of this nature have been considered in the compilation of this report.

This report has been prepared in accordance with current EA Policy.

2. Site Information

2.1 Site Location

The site is located to the north west of St Austell. It is bound by greenfield land to the north, south and west and to the east by Mount Stamper Road and an electricity distribution site.

The St Austell River lies 400m to the west of the site flowing in a southerly direction.

The approximate site address and Ordnance Survey Reference Grid are available in Table 1, with the site location shown in Figure 1.

Table 1 - Site Referencing Information

Site Referencing Information	
Site Address	Mount Stamper Road, St Austell, Cornwall, PL25 5RR
Grid Reference	SX016537 201609, 53729

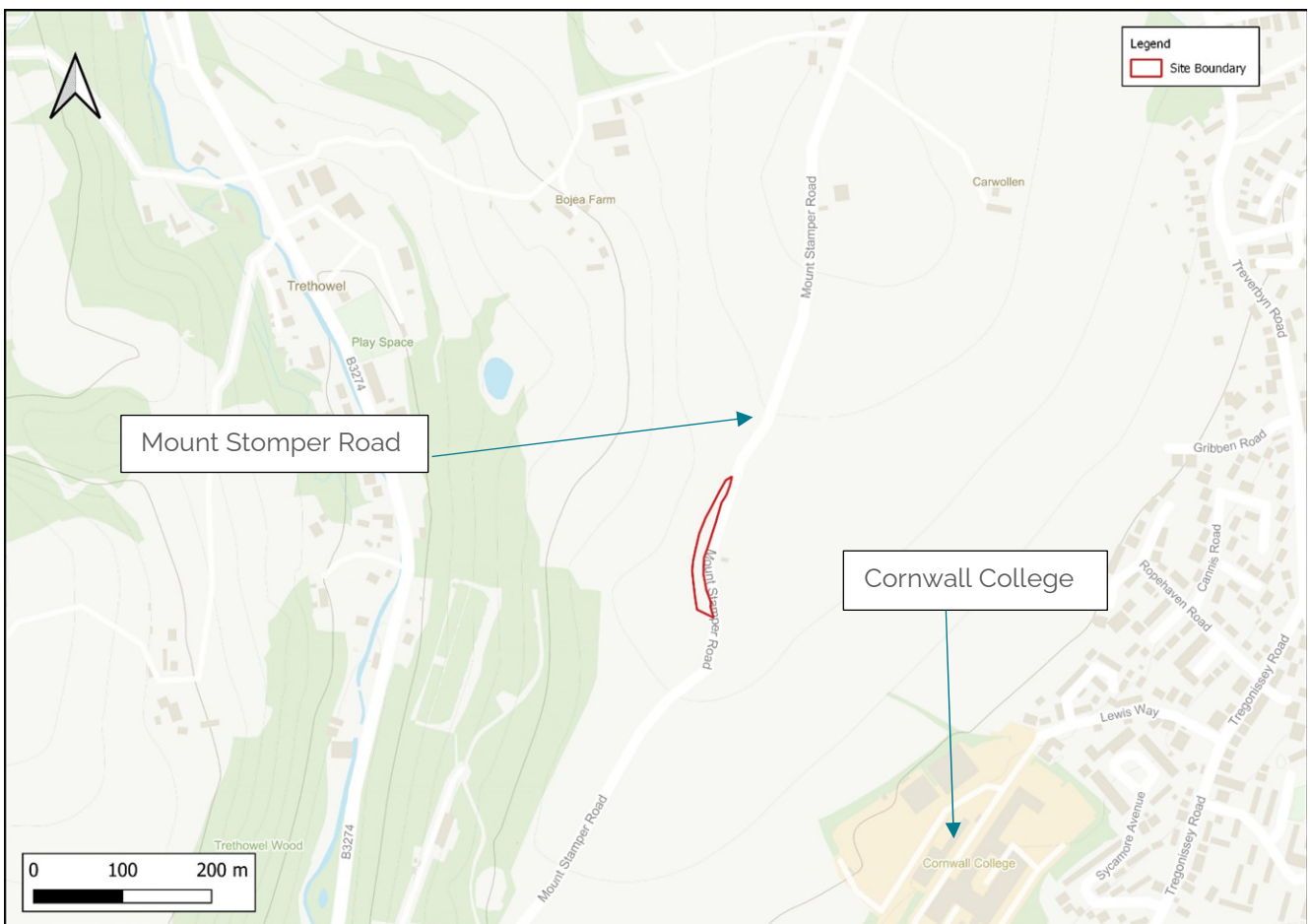


Figure 1 - Site Location

2.2 Topography

The topographic survey undertaken in 2022 (Appendix A) has provided levels to metres Above Ordnance Datum (m AOD) across the site. The site is shown to have levels of approximately 176.8 m AOD in the north-east of the site that slope to 174 m AOD in the south west of the site.

2.3 Current Site Use

The site is currently an undeveloped greenfield site, comprising grassland and a dilapidated tin shed.

2.4 Proposed Development

It is proposed to redevelop the site for battery storage.

3. Sources of Flood Risk

3.1 Fluvial Flooding

The nearest watercourse to the site is the St Austell River which is located 400m west of the site and flows in a southerly direction.

According to the current EA Flood Map for Planning (Figure 2), the site is located within Flood Zone 1 (Low Probability).

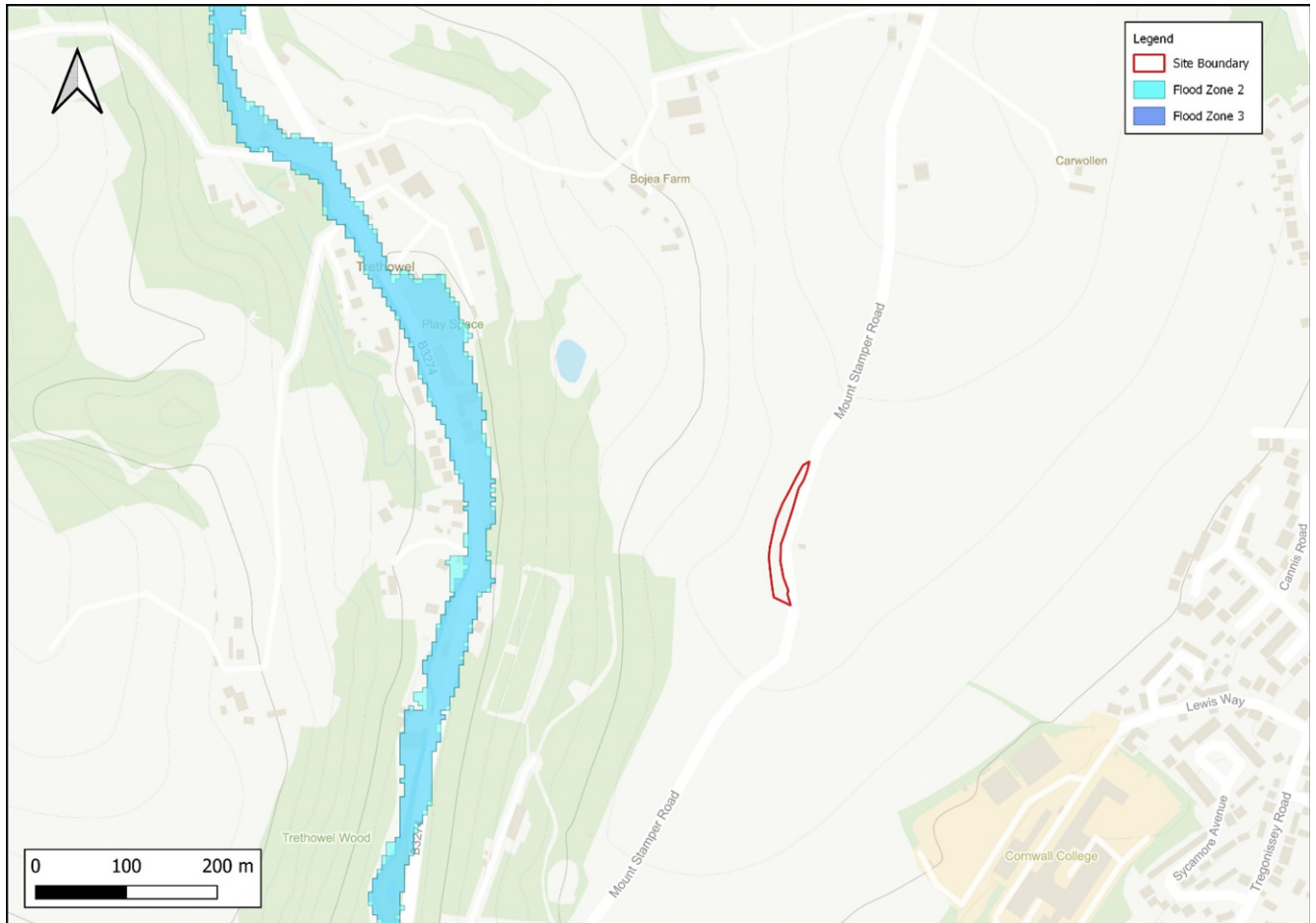


Figure 2 - EA Flood Map for Planning (Rivers and Seas)

For reference, the EA Flood Zones are defined as follows:

- » Flood Zone 1 (Low Risk) comprises land assessed as having a $\leq 0.1\%$ AEP of fluvial flooding in any given year, equivalent to the $\geq 1,000$ yr return period flood event.
- » Flood Zone 2 (Medium Risk) comprises land assessed as having a 0.1-1% AEP of fluvial flooding in any given year, equivalent to the 1,000-100yr return period flood event.
- » Flood Zone 3 (High Risk) comprises land assessed as having a $\geq 1\%$ AEP of fluvial flooding in any given year, equivalent to the ≤ 100 yr return period flood event.
 - » Flood Zone 3a (High Risk) comprises land assessed as having a 1-3.3% AEP of fluvial flooding in any given year, equivalent to the 100-30yr return period flood event.

- » Flood Zone 3b (Functional Floodplain) comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.

According to the 'Recorded Flood Outlines' dataset provided by the EA, the site is shown to be outside of the extents of historical fluvial flooding events.

There is no evidence contained within the Cornwall Strategic Flood Risk Assessment¹ to indicate that the site is at risk of fluvial water flooding. There is also no evidence contained within the 'Flood and Coastal Erosion Risk Management Annual Report 2022'² to indicate that the site is at risk of fluvial flooding.

The potential effects of climate change are considered unlikely to be of a magnitude which would result in a significant increase in the risk of fluvial flooding, as the site is located 400m east of the nearest watercourse in an elevated position between 174 m AOD and 176.8 m AOD.

As such, the site is concluded to be at 'low' risk of fluvial water flooding now and in the future.

3.2 Tidal Flooding

It should be noted that the EA Flood Map for planning does not differentiate between the risks from coastal, fluvial and tidal flooding. However, given the site's elevated position (between 174m AOD and 176.8 m AOD) and location inland and away from any tidally influenced watercourses, the site is concluded to be at a 'negligible' risk of tidal flooding.

3.3 Surface Water Flooding

Surface water flooding occurs as the result of an inability of intense rainfall to infiltrate the ground. This often happens when the maximum soil infiltration rate or storage capacity is reached. Flows generated by such events either enter existing land drainage features or follow the general topography, which can concentrate flows and lead to localised ponding/flooding.

According to the EA Long Term Flood Risk Map (Surface Water), in Figure 3, the entire site and access/egress route is shown to be at a Very Low (<0.1% annual probability) risk of surface water flooding.

¹ [Local Flood Risk Management Strategy - Cornwall Council](#)

² [Flood and Coastal Erosion Risk Management \(cornwall.gov.uk\)](#)

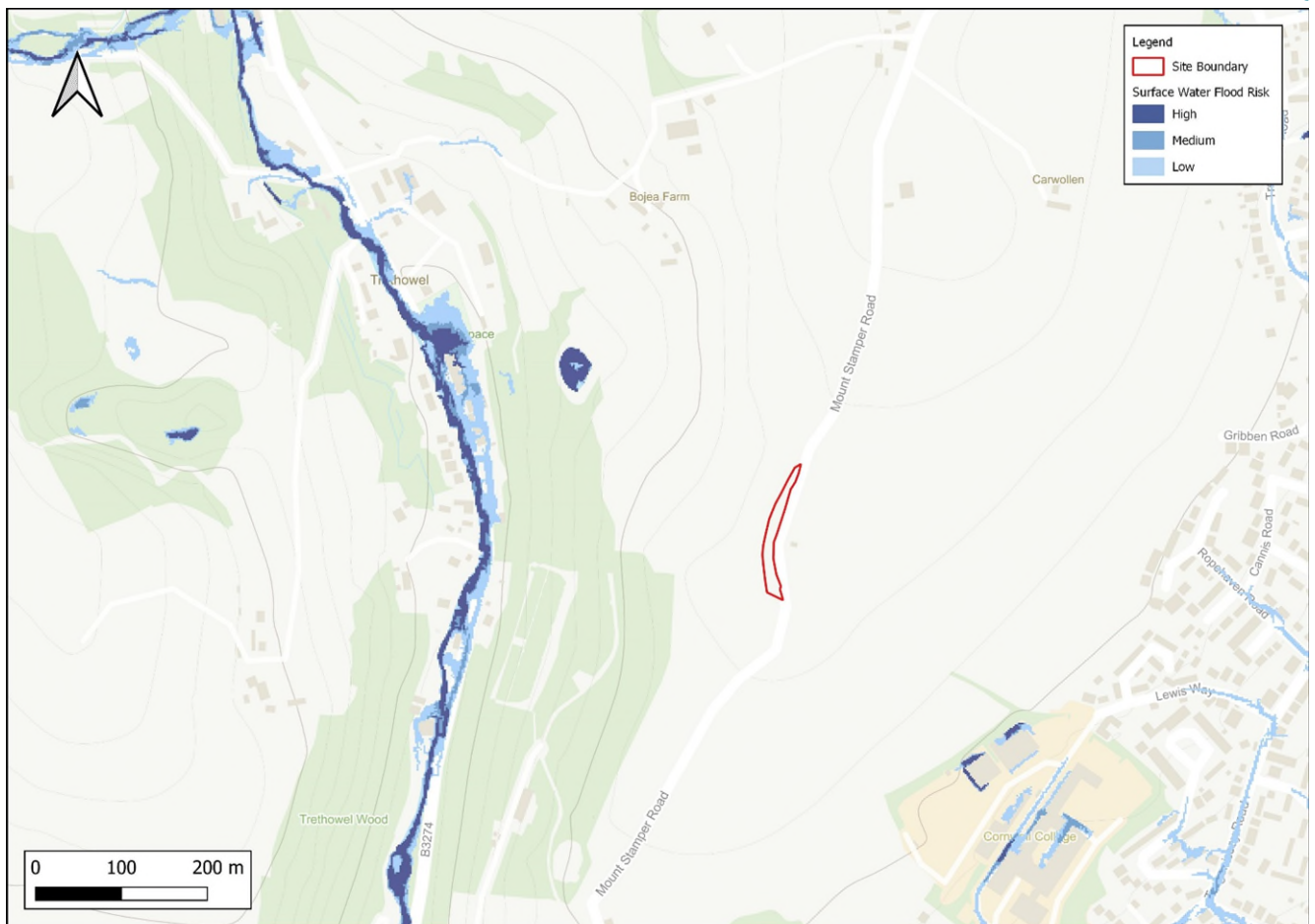


Figure 3 - EA Long Term Flood Risk Map (Surface Water)

Whilst the potential effects of climate change could increase the frequency, depth and extent of on-site surface water flooding, given the current Very Low risk identified, any increase in flood risk is considered unlikely to be of a magnitude that would preclude development, as any surface water run-off will likely continue to be directed overland as shallow 'sheet-flow' with the prevailing topography and away from the site, or be managed by surface water drainage features in the vicinity.

As such, the risk of surface water flooding to the site is considered to be 'low'.

3.4 Groundwater Flood Risk

According to the BGS geological map the site is underlain by the St Austell intrusion comprising of coarse, medium and fine-grained granite, with no superficial deposits, suggesting limited permeability.

BGS historic borehole records indicate that there are no historic boreholes located on-site, however there is a recorded well located within a 200m radius of the site. No groundwater seepage was recorded.

The EA classifies the site as a Secondary A aquifer which comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers.

The Cornwall Strategic Flood Risk Assessment states³ "due to its geology Cornwall has only minor aquifers and generally does not experience much groundwater type flooding", therefore the risk of groundwater flooding to the site is considered 'Low'.

3.5 Infrastructure Flood Risk

Given the greenfield nature of the site and surrounding area it is unlikely that there will be a public drainage system serving the area. Therefore, the risk of flooding from surcharging of sewers is 'Low'.

The EA Reservoir Failure Extent mapping shows that the site does not lie within the extent of potential reservoir flooding if all reservoirs were to fail. Therefore, the risk of reservoir flooding is considered 'Low'.

There is no known risk of flooding from canals or any other artificial sources at the site and as such the site is concluded to be at 'negligible risk' from infrastructure failure flooding.

4. National Planning Policy Framework

4.1 Sequential & Exception Tests

This assessment has demonstrated that the site is on land designated by the EA's Flood Zone Mapping as Flood Zone 1 (Low risk). The site is considered to be at low or negligible risk of all other potential sources.

Paragraph 023 of the Flood Risk and Coastal Change National Planning Practise Guidance (NPPG) states that the Sequential Test 'is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding.' Therefore, a sequential approach has been utilised as this site is at a 'low' or 'negligible' risk from all sources of flooding.

The NPPG Flood Risk Vulnerability and Flood Zone Compatibility matrix (Table 2) also indicates all forms of development are "appropriate" in Flood Zone 1, without application of the Exception Test.

Table 2 - Flood Risk Vulnerability and Flood Zone 'incompatibility'

	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test Required	✓	✓	✓
Zone 3a	Exception Test Required	X	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	X	X	X	✓

4.2 Mitigation Measures

Whilst an Exception Test is not explicitly required under the NPPG, the following section details any measures recommended to mitigate any 'residual' flood risks and to ensure that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, akin to the requirements of section 'b' of the Exception Test as outlined in the NPPF.

4.2.1 Flow Route Mitigation

From the proposed layout in Appendix B and the EA Long Term Flood Risk Map (Surface Water), it can be viewed that there are no surface water flow routes will be affected or obstructed by development.

4.2.2 Safe Access and Egress

The site is proposed to be accessible by one point via Mount Stamper Road to the east of the site.

This preferred access/egress route is shown to be at a negligible to low risk of flooding from all assessed sources. Therefore, safe access and egress can be provided.

4.2.3 *Floodplain Storage*

Paragraph 49 of the NPPG states that development of the cumulative impacts of development may result in an increase in flood risk elsewhere as a result of 'loss of floodplain storage, the deflection or constriction of flood flow routes or through inadequate management of surface water'. Therefore, where flood storage from any source of flooding is lost, as a result of development, on-site level-for-level compensatory storage should be provided.

Given that the location of the proposed development is located within Flood Zone 1 (not a floodplain) it is not considered that there would be any loss of floodplain storage as a result of the development.

4.2.4 *Finished Floor Levels*

It is recommended that, where possible, thresholds levels for critical infrastructure are set above the adjacent ground levels by a minimum of 150mm, either by raising the development level above existing ground levels or sloping ground levels away from the site. This will address any residual risks of surface water flooding (e.g., blockage of the proposed drainage network serving the site or exceedance of the drainage design capacity) by directing runoff away from the site.

It should be noted that, post-development, any rainfall within the site will be managed through a proposed surface water drainage strategy which will further reduce/mitigate the risk of surface water flooding within the site from the development.

5. Summary

This report has been prepared by Hydrock Consultants Limited (Hydrock) on behalf of Aldustria in support of a planning application for a proposed battery storage development on land off Mount Stamper Road, St Austell.

A detailed assessment of flood risk has identified that the site is located within Flood Zone 1 (Low Probability).

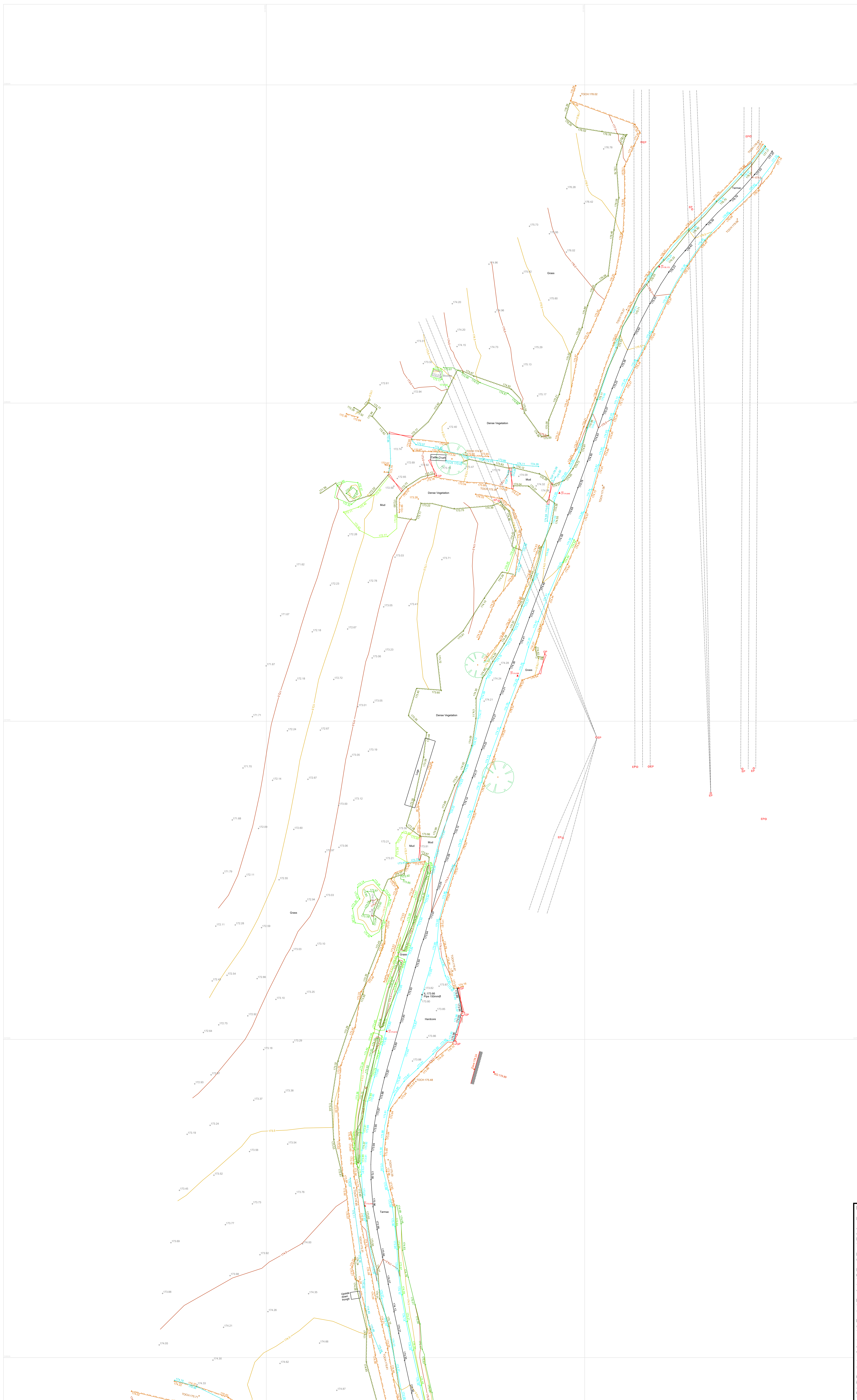
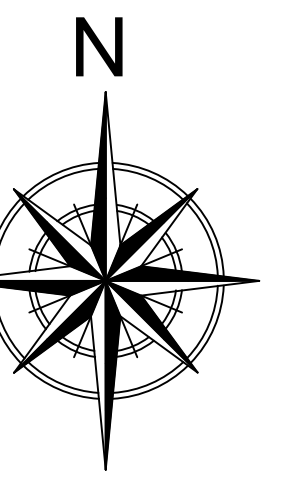
The site is also considered to be at negligible to low risk from all remaining sources.

This report therefore demonstrates that, in respect to flood risk, the proposed development:

- » Is suitable in the location proposed;
- » Will be adequately flood resistant and resilient;
- » Will not place additional persons at risk of flooding, and will offer a safe means of access and egress
- » Will not increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage or impedance of flood flows; and
- » Will put in place measures to ensure surface water is appropriately managed.

As such, the application is concluded to meet the flood risk requirements of the NPPF.

Appendix A - Topographic Survey



Notes

Levels are in metres above Ordnance Survey Datum.

Coordinate system is Ordnance Survey National Grid OSG36(02) at coordinates 201618 902E, 53701 269N, 03. All data has been drawn using a scale factor 1.000 from this point.

Level datum and coordinate system were established using the OS active station GNSS network.

No allowance has been made for sub surface entry into manholes or other chambers or voids below ground level. Therefore any details relating to depths, sizes etc. are taken from above ground and as such will be approximate only.

It is important to note that the same accuracies implied by the plotting scale are equally applicable to digital data supplied for CAD.

Every effort has been made to identify all visible above ground features, however it should be borne in mind that there may be items obscured at the time of survey.

Visible features in the vicinity of the boundaries, as shown on this survey, may not represent the extent of legally conveyed ownership.

Tree sizes are approximate only. Trees shown are symbols indicating an approximate canopy fit.

Unless otherwise stated, Trees shown have not been identified by an Arboriculturist and therefore have been assigned their "family" name rather than their "individual" name. It must be noted that only those trees that fall within the site limits have been surveyed unless otherwise specified.

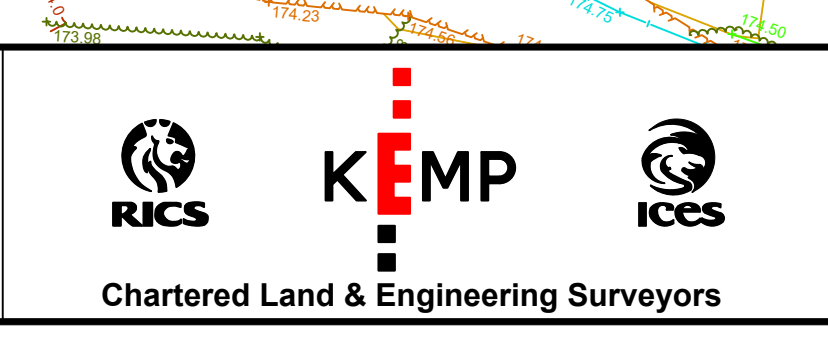
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Fax (01209) 215189
office@kempengineering.co.uk

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Datum House, 8 Barncoose Industrial Estate, Redruth, Cornwall, TR15 3RQ.



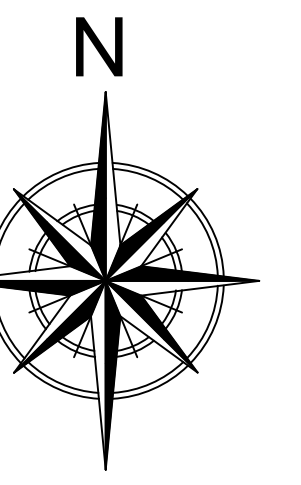
Client
Hydrock

Project Title
Aldustria
St. Austell

Drawing Detail
Topographic Survey

Rev	Date	Description
A	16/12/22	Original

Surveyed by	SH	Date	12/12/2022
Checked by	N.O.	Date	16/12/2022
Drawing Scale	1:200 @A0		
Drawing No	22-1642-001	Revision	A



Notes

Levels are in metres above Ordnance Survey Datum.

Coordinate system is Ordnance Survey National Grid OSG36(02) at coordinates 201618 900E, 53701 269N, 93. All data has been drawn using a scale factor 1.000 from this point.

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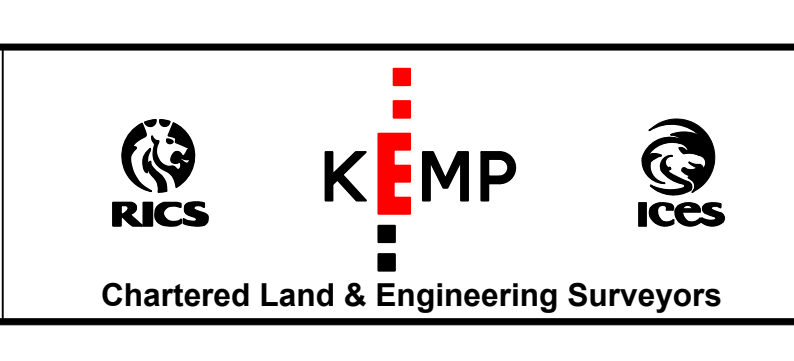
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Site Engineering

Tel (01209) 214687
Fax (01209) 215189
office@kempengineering.co.uk

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Client
Hydrok

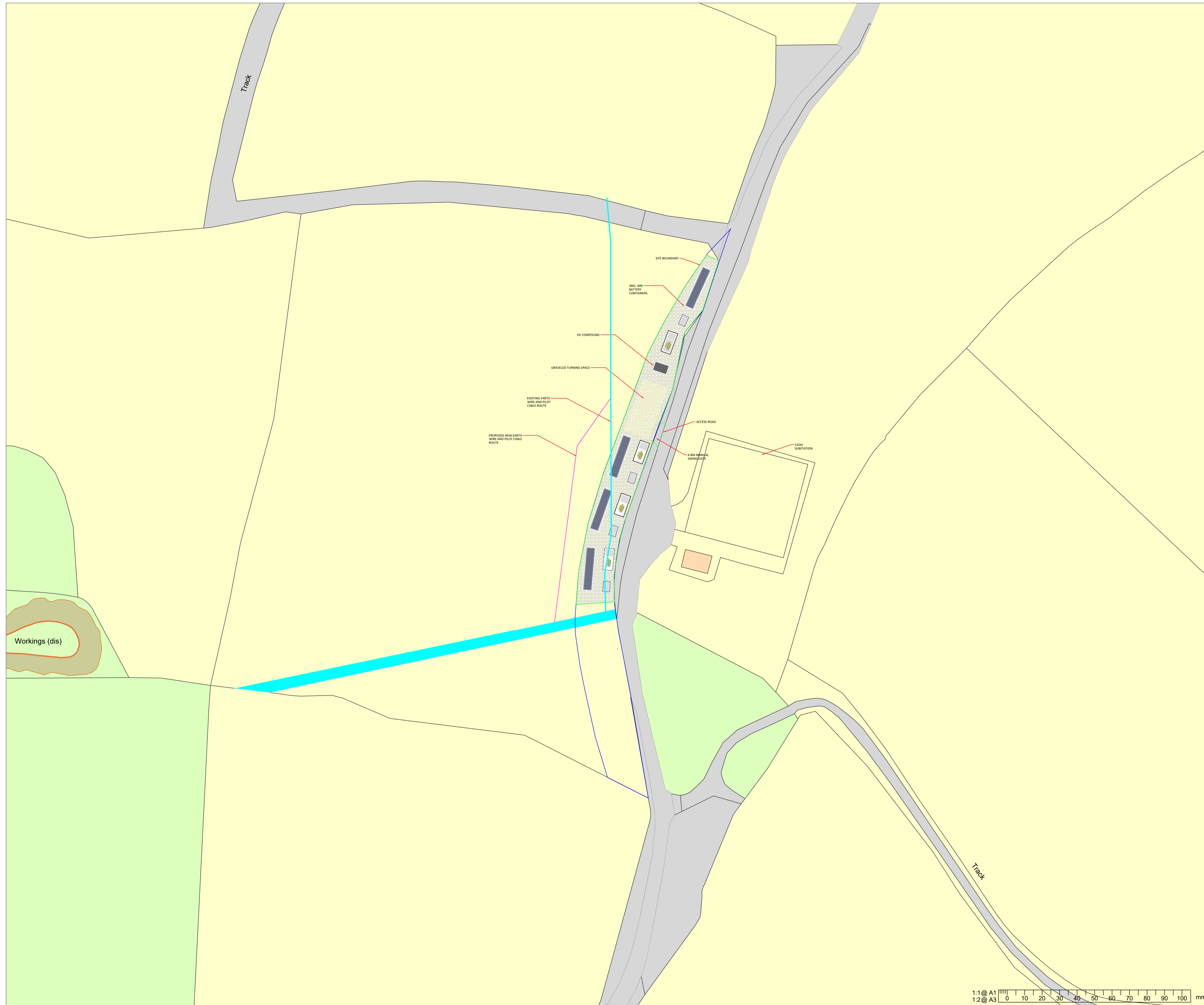
Project Title
Aldustria
St. Austell

Drawing Detail
Topographic Survey

Rev.	Date	Description	Surveyed by	SH	Date
A	16/12/22	Original	N.O.		16/12/2022

Checked by
Drawing Scale 1:200 @A0
Drawing No 22-1642-002
Revision A

Appendix B - Site Layout



KEY PLAN

- Option Boundary
- Compound Boundary
- Existing Cable Routes
- Proposed New Cable Routes

NOTES

REVISIONS

PO2	ISSUED FOR INFORMATION					
J.MCCONNELL	28/09/22	T.SHLTON	28/09/22	D.STREATHER	28/09/22	
PO1	ISSUED FOR INFORMATION					
J.MCCONNELL	15/09/22	T.SHLTON	15/09/22	D.STREATHER	15/09/22	
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock Merchants House
Wapping Road
Bristol
BS1 4RW
t: +44 (0) 117 945 9225
e: bristol@hydrock.com

CLIENT
ALDUSTRIA LTD

PROJECT
ST AUSTELL BATTERY STORAGE

TITLE
PROPOSED SITE PLAN

HYDROCK PROJECT NO. 17716	SCALE @ A1 1:500	STATUS S2
STATUS DESCRIPTION SUITABLE FOR INFORMATION		REVISION P02
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 17716-HYD-10-XX-DR-Y-0001		

