



Land at Dan Y Graig, Pont Walby

Flood Consequences Assessment

May 2022

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Client Name: Mrs Williams
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Contents

1. Introduction.....	5
1.1 Terms of Reference	5
2. Site Description	6
2.1 Location.....	6
2.2 Watercourses	7
2.3 Topography	7
2.4 Soils, Geology & Hydrogeology	8
3. Proposed Development	9
4. Planning Policy and Flood Risk	10
4.1 Proposed Development and TAN 15	10
5. Flood Risk Review	11
5.1 Historical Flooding	11
5.2 Flood Risk from Rivers and Sea	11
5.3 Flood Risk from Surface Water & Small Watercourses	11
6. Conclusions & Recommendations.....	13

Appendices

- A. Site Topographical Survey Plan
- B. Proposed Site Layout Plan
- C. Flood Maps



1. Introduction

1.1 Terms of Reference

Tulip Engineering Consultancy was commissioned by Mrs Williams to prepare this Flood Consequences Assessment (FCA) to support an Outline planning application for a development of three detached dwellings on land at Dan y Graig, Pont Walby, Glynneath SA11 5LN. The proposal is classed as “highly vulnerable” development in Technical Advice Note (TAN) 15 Development, Flooding & Coastal Erosion (Welsh Government, 2021).

The application site lies close to the flood zone as shown on the Flood Map for Planning published by Natural Resources Wales (NRW).

The objective of this report is to assess the hydrological issues affecting the site, and establish whether and to what extent the flood risk can be managed over the lifetime of the development, using the principles and tests set out in TAN 15.



2. Site Description

2.1 Location

The site is a parcel of grassed land in Pont Walby to the south and west of the Nant Gwrelych watercourse as it bends past the site, and north of the Pont Walby viaduct.

The proposed development area consists of a vacant grassed field accessed from the end of Glan Gwrelych via a rough track through a field gate.

The National Grid Reference for the site is SN89001 06500.

A site location plan is shown in Figure 1.

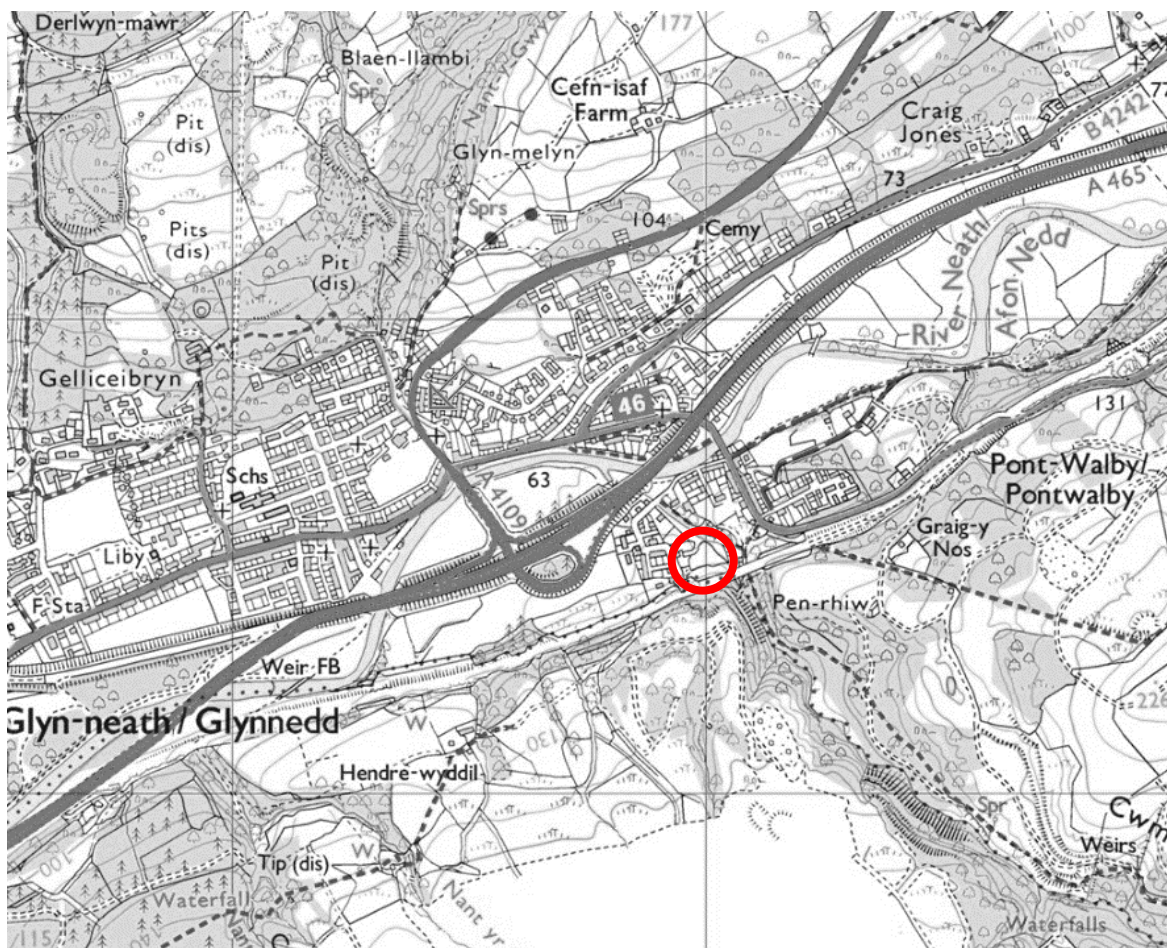


Figure 1: Site Location

Ordnance Survey Data © Crown Copyright and Database Right 2022

An aerial view of the site is shown in Figure 2.

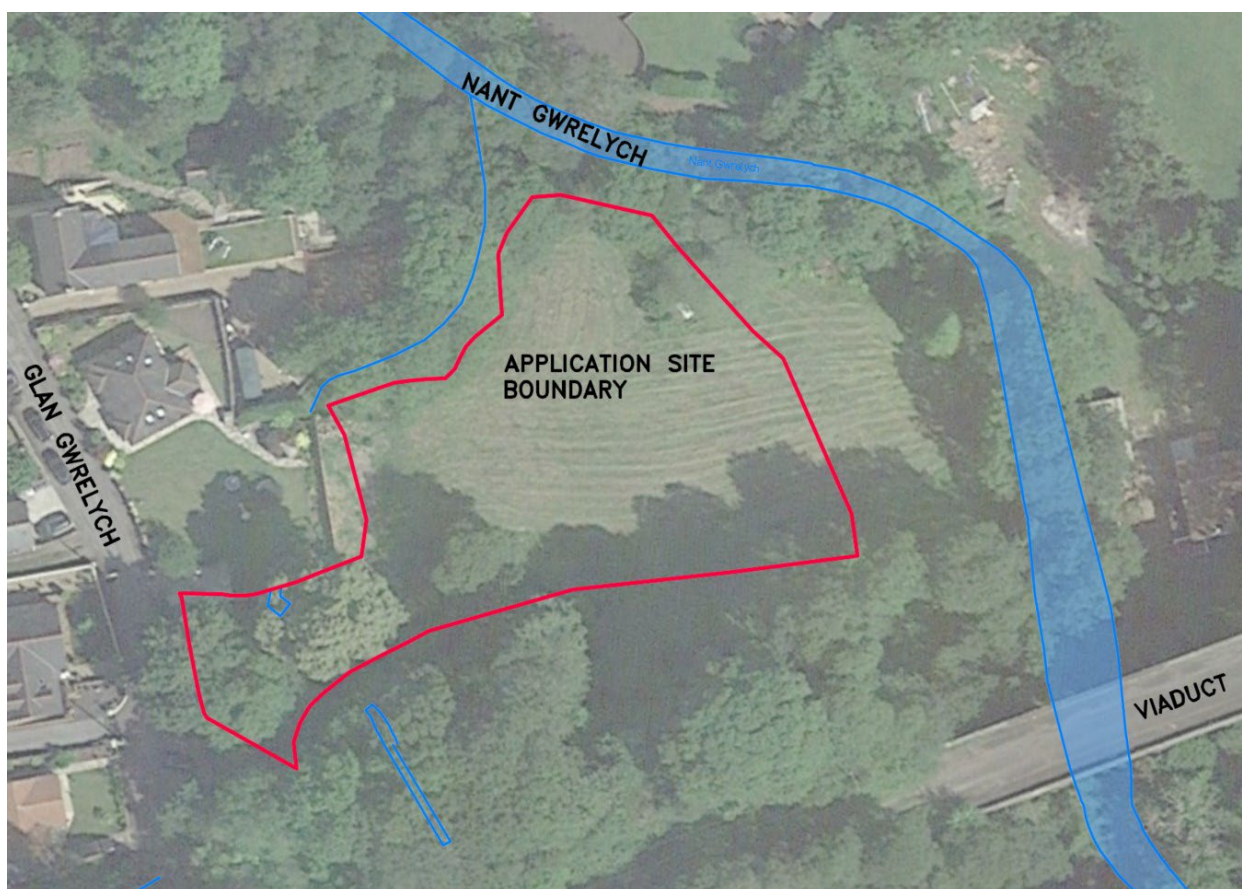


Figure 2: Aerial View showing Site Location

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2.2 Watercourses

The Afon Nedd (R. Neath) main river flows in a south-westerly direction some 200m north of the site.

The Nant Gwrelych ordinary watercourse, a tributary of the R. Neath, flows in a north-westerly direction past the site and joins the R. Neath some 270m north-west of the site.

The total catchment area of the Nant Gwrelych up to the point it passes the site is approximately 7.5km².

2.3 Topography

The access track along the southern site boundary slopes gently down eastward from an elevation of circa 79m AOD at the Glan Gwrelych entrance to circa 73.5m AOD at the south-eastern corner of the application site red line.

The track is elevated some 2m above the grassed field atop a 1:2 slope earth bank. The field itself slopes down north-eastwards at approximately 1:10 towards the stream which forms the eastern and northern boundaries of the field.

The stream bed lies approximately 3m below top of bank as it passes the site.



A topographical survey of the site (not including the watercourse) is included in Appendix A.

A site plan and section (including the watercourse and wider lidar data) is included in Appendix C.

2.4 Soils, Geology & Hydrogeology

Local soils are described as slowly permeable wet very acid upland soils with a peaty surface according to the Cranfield University Soilscales Viewer. Alluvial fan deposits (sand and gravel) overlying Bishopston Mudstone Formation - mudstone, siltstone and sandstone sedimentary bedrock, according to the BGS Geology of Britain Viewer.

The aquifer designation of the bedrock & superficial deposits is Secondary A (higher permeability layers that may store and yield limited amounts of groundwater). The site is not in a groundwater Source Protection Zone area.



3. Proposed Development

The development proposal is for three detached dwellings.

Whilst this planning application is Outline in nature, indicative dwelling position, finished floor levels (FFLs) and minimum/maximum dimensional parameters (from a previously approved application) are proposed.

This is to demonstrate that acceptable drive width / gradients are achievable whilst also ensuring that the application red line boundary lies wholly outside of the flood zone as shown on the Flood Map for Planning.

The proposed plot 3 eastern boundary fence is aligned to run to the west of the extreme flood zone outline which means west of an existing tree near the top of the stream bank.

No ground level changes are proposed along this boundary. As such the plot 3 driveway will be some 1m lower than the FFL at the north-eastern corner of this house.

The proposed site layout plan is included in Appendix B.



4. Planning Policy and Flood Risk

4.1 Proposed Development and TAN 15

The Flood Map for Planning (FMP) is a flood map published by NRW for land use planning purposes. It is used alongside Planning Policy Wales and Technical Advice Note (TAN) 15 to direct new development in respect to flood risk. Together, they form a precautionary framework to guide planning applications.

The map uses zones to indicate the degree to which land is at risk of flooding from rivers, the sea, surface water and small watercourses.

Zone 3 (dark blue for rivers, dark purple for surface water and small watercourses) is land with a greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.

Zone 2 (light blue for rivers, light purple for surface water and small watercourses) is land with a chance of flooding between 1 in 100 and 1 in 1000 (0.1%) in a given year.

Zone 1 is land with less than 1 in 1000 chance of flooding in a given year (i.e. uncoloured, outside the flood zone).

The Flood Map for Planning is shown in Figure 3 and is included in Appendix C.

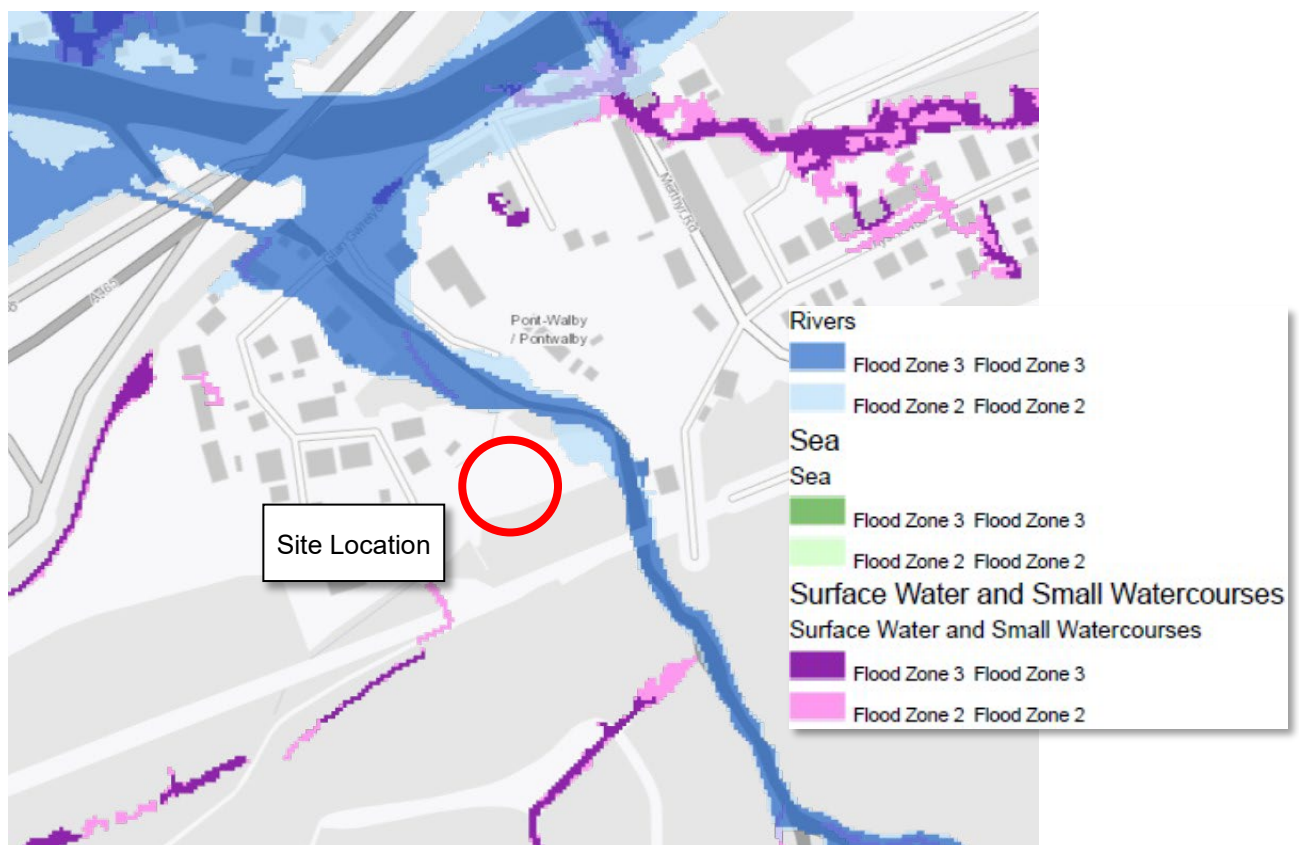


Figure 3: Flood Map for Planning

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5. Flood Risk Review

5.1 Historical Flooding

There are no incidents of historical flooding affecting the site according to NRW's map of historical flood outlines.

5.2 Flood Risk from Rivers and Sea

The site is close to the Rivers and Sea flood zones. At this inland site location the risk is purely fluvial (from rivers), there is no tidal influence at this location.

A detailed site plan and section drawing is included in Appendix C.

This drawing shows the proposed dwelling positions and garden (application red line) boundaries drawn accurately on a topographical survey base plan also showing Lidar ground contours across the wider locality and the Flood Map for Planning Zones 2 & 3 GIS layers taken from Lle Geo-Portal.

The proposed development area (red line) is aligned to ensure that the whole site including access road, dwellinghouses and gardens is located wholly in Zone 1, outside of the flood zones.

TAN15 Criteria

Flood-free Development Level

TAN15 guidelines (11.6) require a flood-free development in the 1% river flood including climate change.

This requirement is achieved by locating the development area wholly outside of the flood zones, i.e. outside both the 1% zone 3 (dark blue) and 0.1% zone 2 (light blue).

Tolerable Conditions and Emergency Access / Egress

Emergency access/egress to/from the site needs to be considered in light of TAN15 (11.13) recommendations, with maximum floodwater depths and velocities in the 0.1% including climate change event considered together as a hazard rating.

Again, by locating this site wholly outside of the flood zones, the site is compliant in terms of tolerable conditions and emergency access / egress.

No Flooding Elsewhere

It is important that proposed development does not cause an increase in flood risk to land beyond the development site.

To this end, it is proposed in that ground levels in the proposed development remain unchanged along the northern and eastern garden boundaries closest to the watercourse.

5.3 Flood Risk from Surface Water & Small Watercourses

The map in Figure 3 shows no flood risk close to the site from these sources (purple shading).



Whilst the Nant Gwryelch is classed as an ordinary watercourse (not main river), its catchment is sufficiently big such that the flood risk associated with it is included on the Rivers flood zones as opposed to the Surface Water and Small Watercourses flood zones.



6. Conclusions & Recommendations

- This report demonstrates that the proposed development lies wholly within Zone 1 of the Flood Map for Planning, i.e. outside of the flood zones.
- Whilst this planning application is Outline in nature, an accurate topographical survey has been commissioned and an outline layout proposed including FFLs and sufficient dimensional parameters to ensure that detailed development proposals adhering to these parameters will be designed with acceptable accessibility (drive widths / gradients) whilst also ensuring that the application red line boundary, including gardens, lies entirely outside of the flood zones.
- As such, the development as proposed meets the key TAN 15 requirements including a flood-free development and emergency access route and no flood risk increase elsewhere.
- Notwithstanding the above, as a precautionary factor the developer may choose to incorporate flood resilience measures in the detailed design and construction, for example entrance flood gates, flood resilient doors and windows, self-closing air bricks, and elevated electrical sockets.
- The developer should provide appropriate signage and prepare a Flood Emergency Plan to make all site occupiers aware of the risk of flooding and actions and/or evacuation procedures to be followed during an extreme event.
- The developer should also sign up to NRW's Flood Alert / Warning Services. These are free services that provides advance warnings, giving time to prepare, direct by telephone, mobile, email & SMS text message. The applicant can register online on the NRW website or by calling the 24-hour Floodline on 0345 988 1188.
- In the context of the site proposals and proximity to the flood zones, with the above mitigation measures in places, it is considered that the risk and consequences of flooding can be managed to an acceptable degree, and that this Outline application can proceed on the grounds of flood risk.



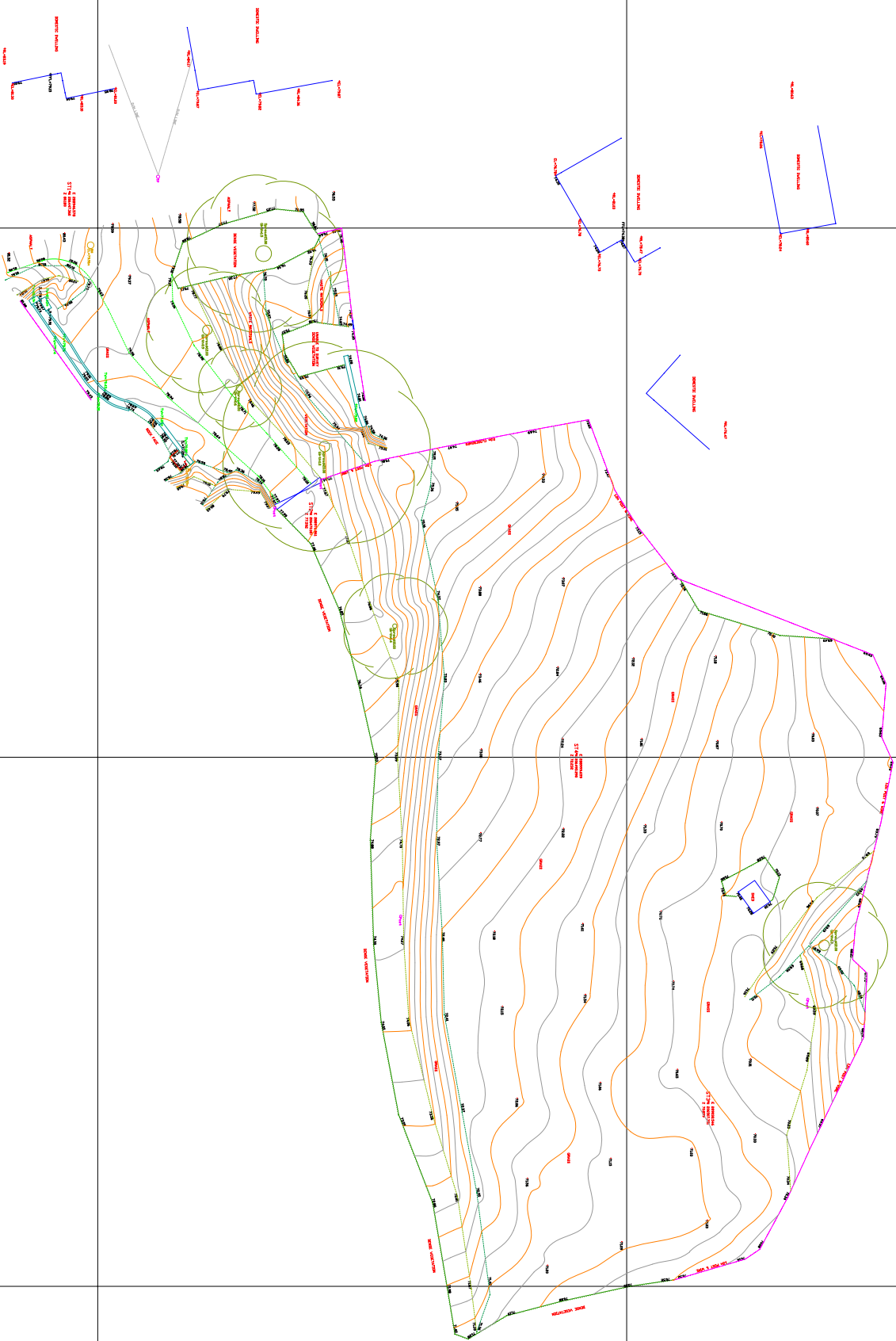
APPENDICES

A. Site Topographical Survey Plan

Row	Amendments	Date	By

Do not score this drawing.
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NOTES:
1. SITE GRID AND LEVELS ARE BASED UPON
ORDNANCE SURVEY VIA THE ACTIVE GPS
NETWORK.

[illegible]



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B. Proposed Site Layout Plan

SEE SUBMITTED PLAN JO76/01



C. Flood Maps

Legend

- TAN15 Defended Zones
- TAN15 Defended Zones
 - Rivers
 - Sea
 - Rivers and Sea Rivers and Sea
- Rivers
 - Flood Zone 3 Flood Zone 3
 - Flood Zone 2 Flood Zone 2
- Sea
 - Flood Zone 3 Flood Zone 3
 - Flood Zone 2 Flood Zone 2
- Surface Water and Small Watercourses
 - Flood Zone 3 Flood Zone 3
 - Flood Zone 2 Flood Zone 2

