

The Lodge, Tredegar Park, Flood Consequences Assessment

Version 1

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This report describes work commissioned by Newport City Council, by an instruction dated 16th September 2024. The Client's representative for the contract was Luke Stacey of Newport City Council. Erica Godsland of JBA Consulting carried out this work.

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Abbreviations

AEP	Annual Exceedance Probability
BGS	British Geological Survey
DCWW	Dŵr Cymru Welsh Water
FCA	Flood Consequence Assessment
FFL	Finished Floor Level
FMfP	Flood Map For Planning
FRAW	Flood Risk Assessment Wales
LFRMP	Local Flood Risk Management Plan
LiDAR	Light Detection And Ranging
NGR	National Grid Reference
NRW	Natural Resources for Wales
OS	Ordnance Survey
PPW	Planning Policy Wales
TAN-15	Technical Advice Note 15: Development and Flood Risk

1 Introduction

1.1 Terms of Reference

JBA Consulting (JBA) were commissioned by Newport City Council to undertake a Flood Consequences Assessment (FCA) for a proposed commercial development at The Lodge in Tredegar Park. This FCA has been prepared to demonstrate the suitability of the proposed development, describing the flood resilience measures recommended to manage flooding at the site.

1.2 FCA Requirements

This FCA follows Welsh Government guidance on development and flood risk set out in the Technical Advice Note 15: Development and Flood Risk (TAN-15). Where appropriate, the following aspects of flood risk should be addressed in all planning applications over their expected lifetime:

- The likely mechanisms of flooding
- The likely source of flooding
- The depths of flooding through the site
- The speed of inundation of the site
- The rate of rise of flood water through the site
- Velocities of flood water across the site
- Overland flow routes
- The effect of access and egress and infrastructure, for example, public sewer outfalls, combined sewer outflows, surface water sewers and effluent discharge pipes from wastewater treatment work
- The impacts of the development in terms of flood risk on neighbouring properties and elsewhere on the floodplain.

2 Site Description

2.1 Site Summary

The proposed development site is located in Tredegar Park, Newport. The development site is currently a brownfield site within the park, comprising of a disused residential building and park ranger office.

The site is approximately 0.1ha and is accessed from the roundabout serving Tredegar Park car park, off Pont Ebbw Roundabout. Surrounding the site is a mixture of residential properties to the far northeast, Tredegar Park car park to the east and commercial/industrial premises to the far south. The development site is located within the park, with playing fields and open space to the west and a play area/splash port and minigolf course to the north.

Table 2-1 Site Summary

Parameter	Description
Site Name	The Lodge, Tredegar Park
Site area	0.1ha
Existing land use	Brownfield
Purpose of development	Commercial premises
OS NGR	ST 29068 86009
Local Planning Authorities	Newport City Council
Lead Local Flood Authority	Newport City Council



Figure 2-1 Site Location

2.2 Site Topography

A topographic survey undertaken by 3 Point Surveys in September 2023 is shown in Appendix A. Furthermore, Figure 2-2 shows Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data, which provides an alternative illustration of the site topography.

The topographic survey demonstrates that the proposed development site is relatively flat with a slight fall from the southwest (11.21mAOD) to the south (10.11mAOD). It is also evident that the disused residential building is located at a higher elevation than the remainder of the development site.

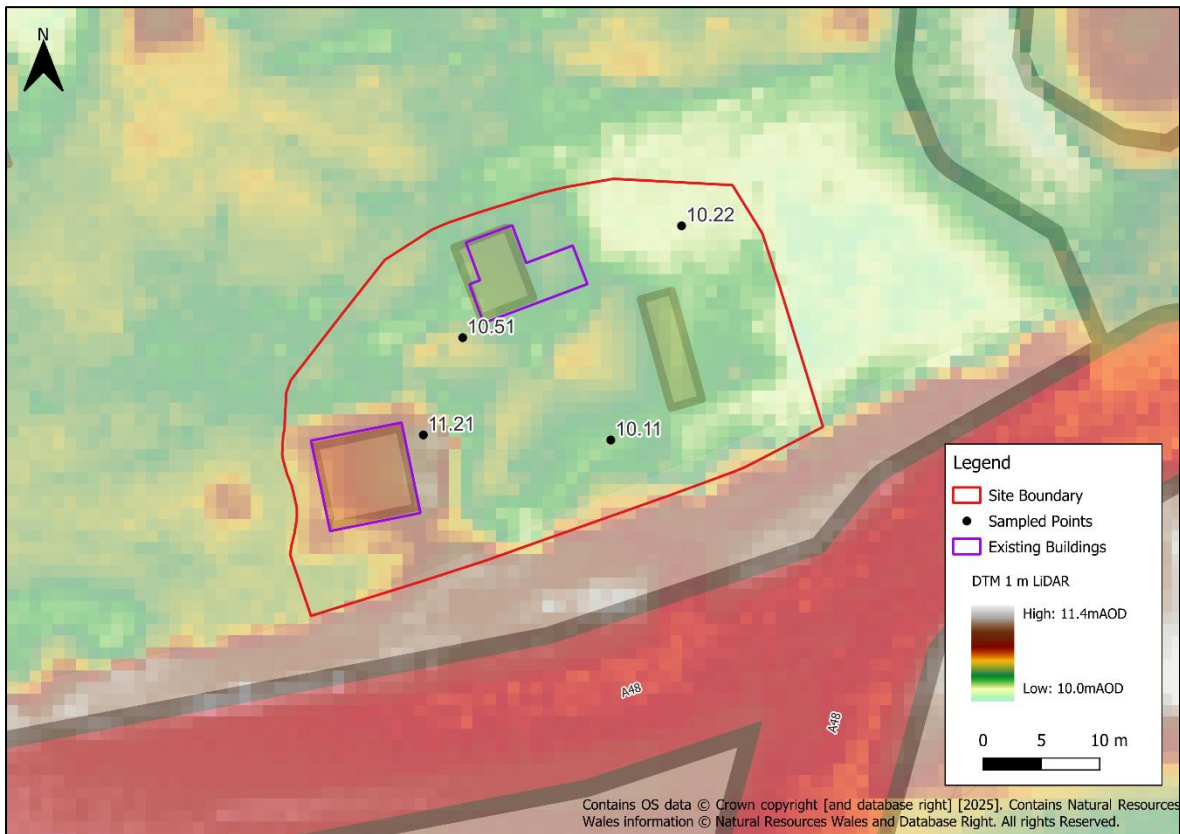


Figure 2-2 LiDAR Topographic data from NRW (1m resolution) with sample points

2.3 Watercourses

An NRW Main River, the Ebbw River, flows in an easterly direction approximately 110m north of the site, before flowing southeast around the Tredegar Park boundary towards its outfall into the River Usk some 3km south-east of the site.

An ordinary watercourse also flows in a southeasterly direction approximately 70m southwest of the site, before flowing into the Pontygwew Reen Main River. These watercourses are shown in Figure 2-3.

It should be noted that a fluvial flood defence, comprising of an embankment, is present along the Ebbw River to the north and east of the site.

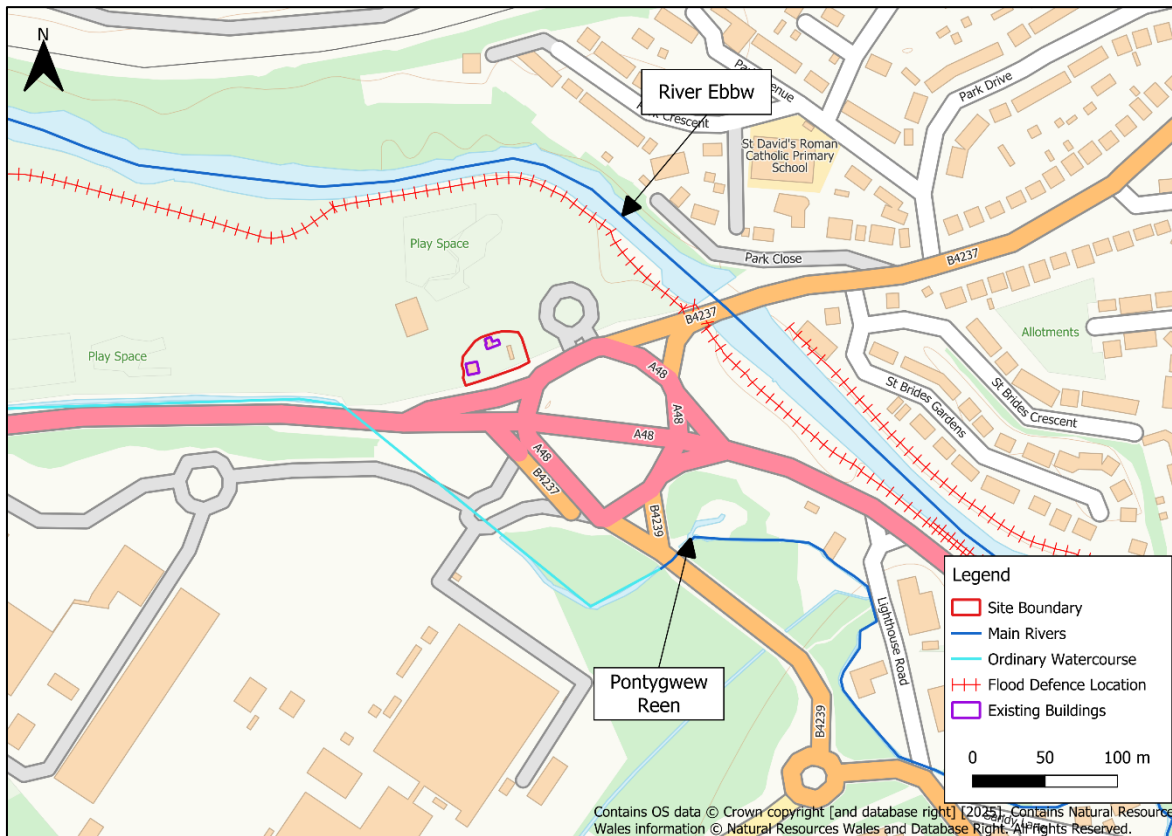


Figure 2-3 Nearby Watercourses

2.4 Soils and Geology

The geology of the site has been assessed using the British Geological Survey (BGS) GeoIndex¹. The bedrock is shown to be Undifferentiated Lower Devonian Rocks comprised of mudstone, siltstone and sandstone. The superficial geology is formed of alluvium comprised of clay, silt, sand and gravel.

The soils on site have been assessed on the Cranfield University Soilscape viewer² and are shown to be freely draining floodplain soils.

2.5 Development Proposal

Development proposals for the site are to convert an existing residential building into a café by constructing an extension to expand the premises. The existing building will form additional seating, toilets and the store, whilst the proposed extension will comprise of the main seating area, entrance and the kitchen.

The finished floor level for the existing residential building is shown to be 11.43mAOD, with the ranger office at 10.59mAOD. The proposed finished floor levels will remain the same for both buildings, with the proposed extension for the café level at 11.43mAOD.

1 <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>

2 <https://www.landis.org.uk/soilscales/>

External developments will include the construction of a garden courtyard and stage with outdoor seating.

The existing park ranger office building will be unchanged with only internal reconfigurations. An extract is provided in Figure 2-4 below.

The development plans are shown in full in Appendix B.

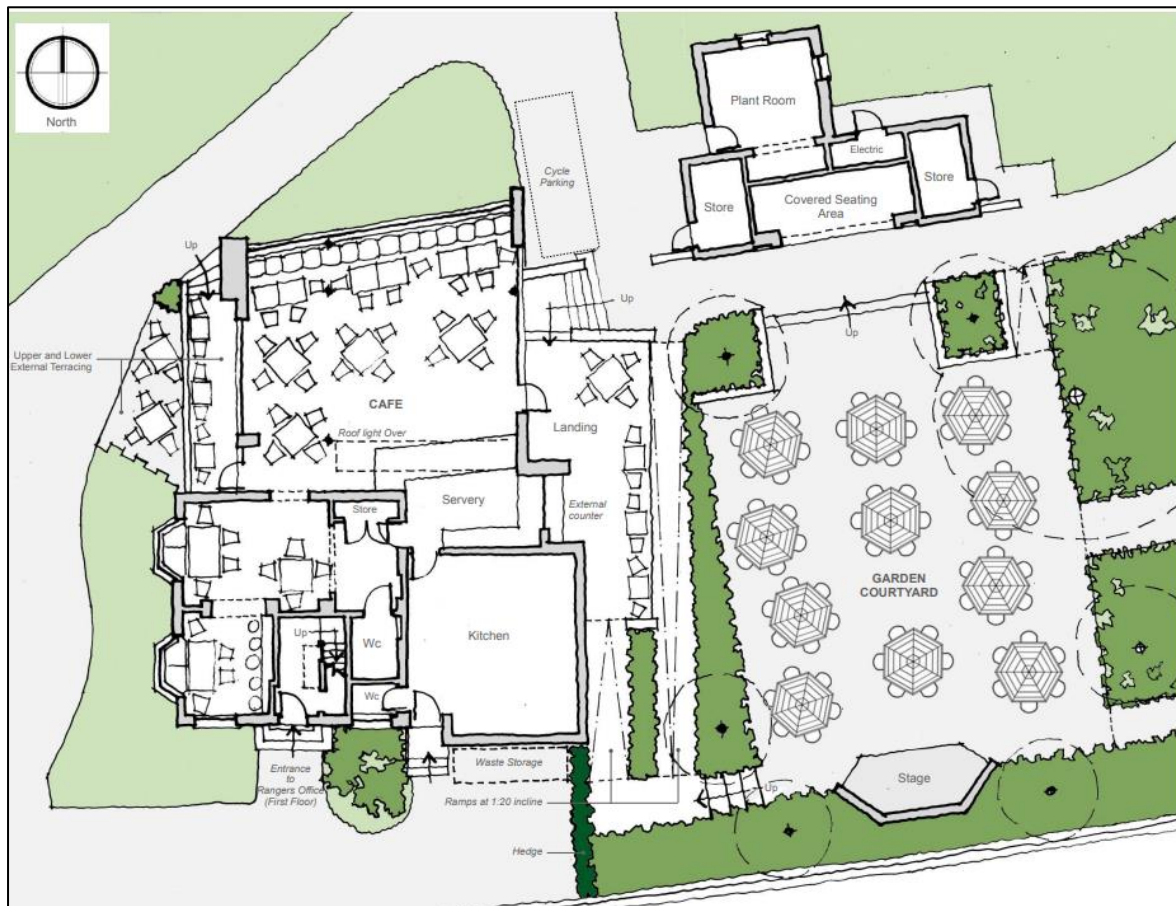


Figure 2-4 Proposed development extract from Appendix B

3 Planning Policy and Flood Risk

3.1 Planning context

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy and improve the social, economic, environmental, and cultural wellbeing of Wales as set out in the Wellbeing of Future Generations Act 2015.

Technical Advice Note (TAN-15) introduced by the Welsh Government in 2004, provides technical guidance relating to development planning and flood risk in Wales. The initial requirements of TAN-15 are to identify the vulnerability classification(s) and flood zones relevant to the proposed development, and to apply this information to the application of the justification tests.

An update for TAN-15 was released in October 2021. However, Welsh Government subsequently suspended this, and it is not currently known when the new TAN15 will be published in its final form and implemented.

Although the draft update of TAN-15 is not a material consideration, Welsh Government and NRW advise that some consideration is given to the Flood Map for Planning (FMfP) as best available information³. Therefore, where a site is located in a FMfP flood risk zone it is recommended that an FCA is carried out.

As a result of the above, both the DAM and FMfP are considered as part of this FCA, although only the current TAN-15 has been applied to the assessment.

3.2 Vulnerability Classification

TAN-15 assigns one of three flood risk vulnerability classifications to a development, as shown in Table 3-1. The proposed development is for a café and is consequently classified as '**Less Vulnerable**' development.

It should be noted that the current vulnerability classification for the disused building is 'Highly Vulnerable' and there is therefore a decrease in vulnerability due to the change of use.

Table 3-1 Development Categories Defined by TAN-15

Development category	Types
Emergency services	Hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood.

³ Welsh Government, 'Technical Advice Note (TAN)15: Development, flooding and coastal erosion - further amendments' 2023. <https://www.gov.wales/technical-advice-note-TAN-15-development-flooding-and-coastal-erosion-further-amendments-html>

Development category	Types
Highly vulnerable development	All residential premises (including hotels and caravan parks), public buildings, (e.g., schools, libraries, leisure centres), especially vulnerable industrial development and waste disposal sites.
Less vulnerable development	General industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites.

3.3 Lifetime of Development

The Welsh Government's latest technical guidance for climate change states:

"When considering new development proposals, Technical Advice Note 15: Development, Flooding and Coastal Erosion (TAN-15) states that it is necessary to take account of the potential impact of climate change over the lifetime of development. A rule of thumb is that residential development has a lifetime of 100 years while a lifetime of 75 years is assumed for all other developments."

As the proposals are for commercial development, a lifetime of the development of 75 years will be applied to the assessment.

3.4 Development Advice Map Classification

The Development Advice Map (DAM) is used to trigger different planning actions based on a precautionary assessment of flood risk.

Figure 3-1 shows that the entire site is located within DAM Zone C1. Zone C1 is described as "areas of the floodplain served by significant infrastructure, including flood defences".

Less vulnerable development within Zone C1 can occur subject to the application of a Justification Test, including the acceptability of consequences.

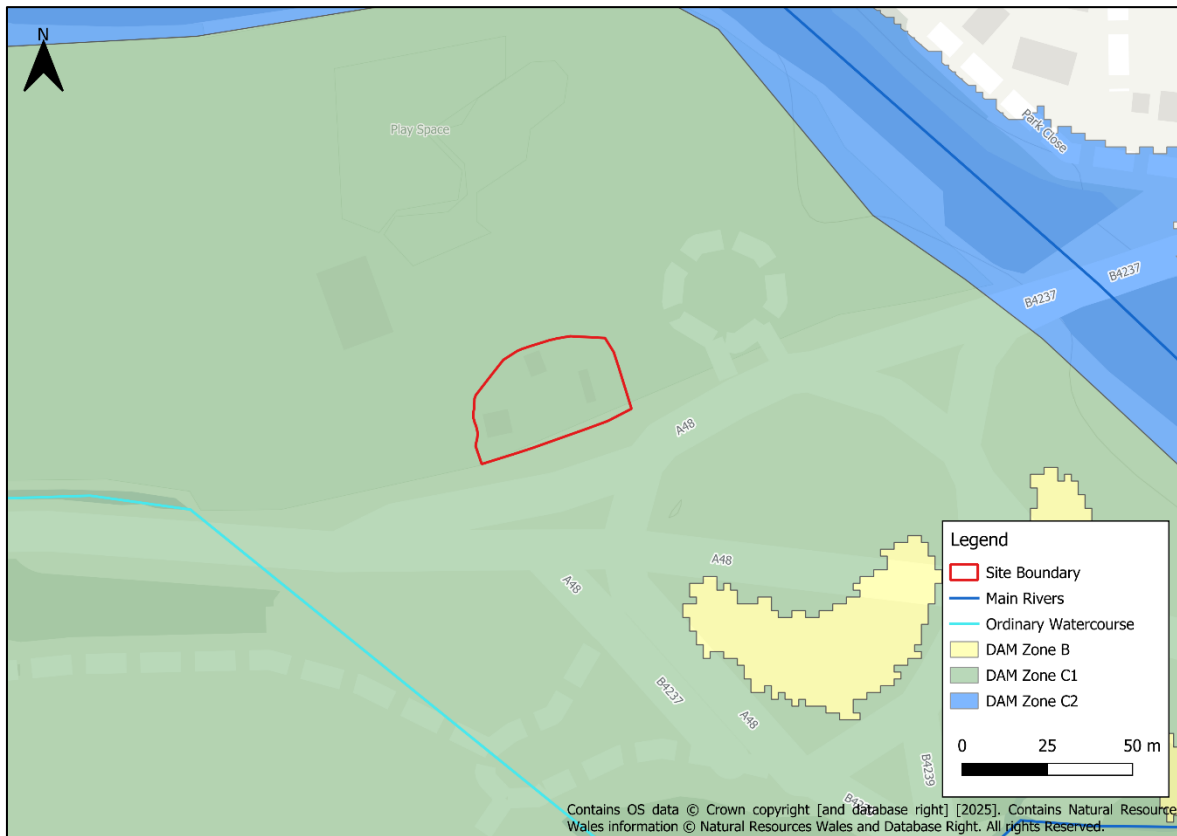


Figure 3-1 Development Advice Map

3.5 Flood Map for Planning Classifications

3.5.1 Flood Map for Planning - Rivers

As shown in Figure 3-2, the site is entirely located within Flood Zone 3. Flood Zone 3 represents an area greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.

As noted in Section 2.4, the proposed development is protected by the presence of flood defences. These flood defences form part of the TAN-15 Defended Zone for flooding from Rivers. TAN-15 Defended Zones show areas that benefit from risk management authority owned flood defence infrastructure, that have a minimum, present day level of protection of 1% (1 in 100) annual event probability (AEP) for rivers.

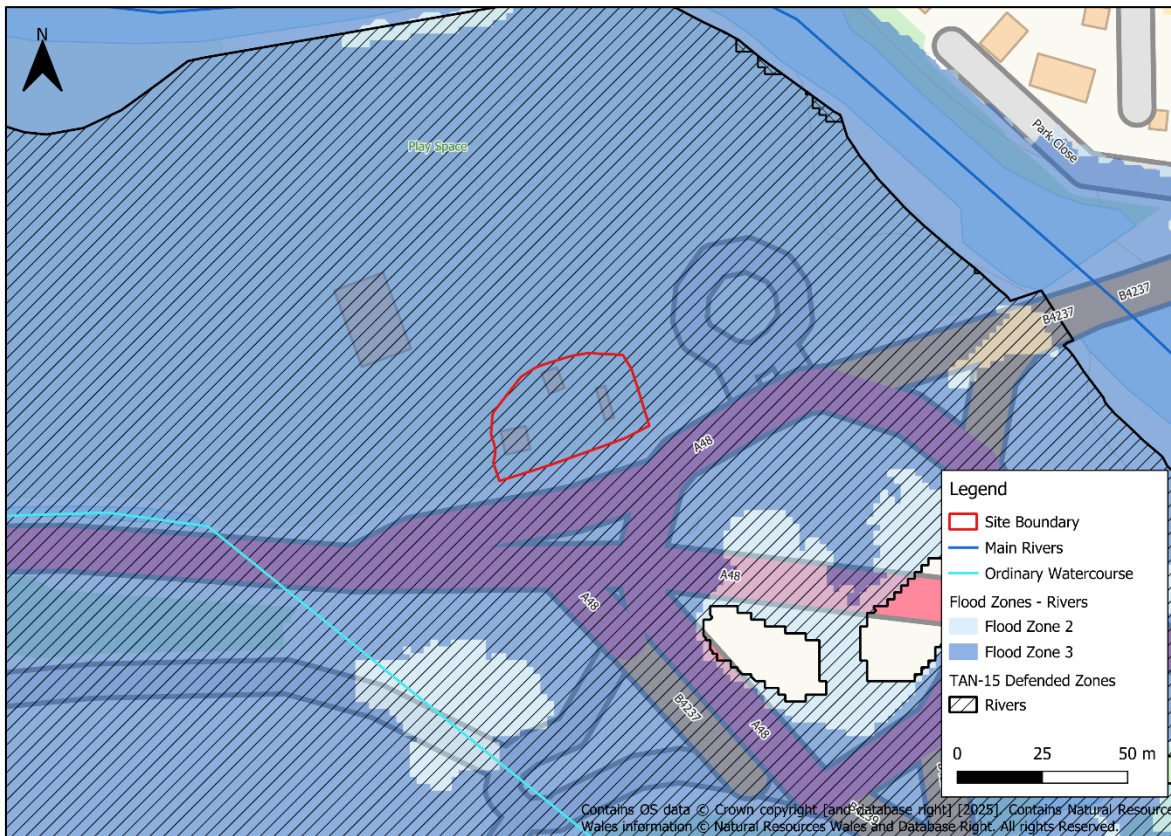


Figure 3-2 Flood Map for Planning - Rivers

3.5.2 Flood Map for Planning - Sea

The proposed development site is located within Flood Zone 1 of the Flood Map for Planning for the Sea, as shown in Figure 3-3. Flood Zone 1 represents areas which have less than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.

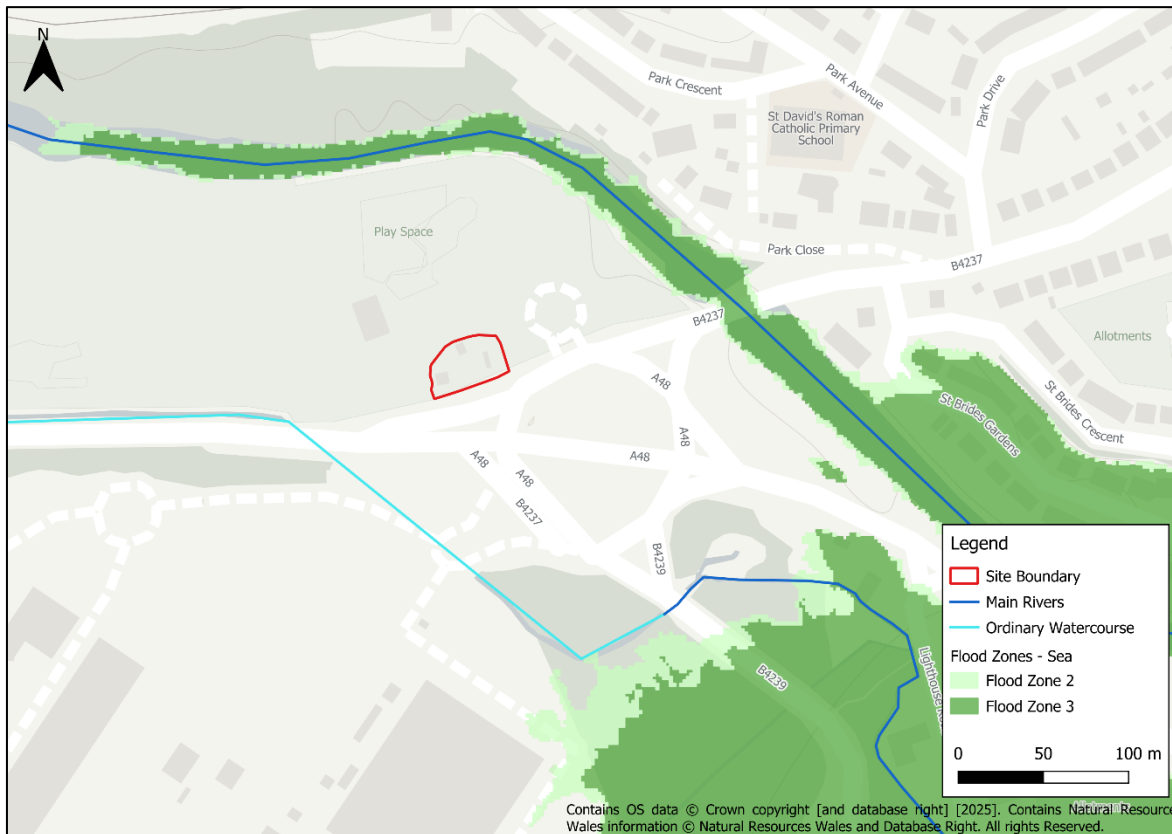


Figure 3-3 Flood Map for Planning - Sea

3.6 Local Development Plan

The Newport Local Development Plan 2011 - 2026⁴ is designed to guide development within Newport up to 2026. The vision of the plan is to make Newport "a centre of regeneration that celebrates its culture and heritage, while being a focus for varied economic growth that will strengthen its contribution to the region". To achieve this vision, the plan has ten detailed objectives.

The development site will help meet Objectives 1 and 3 shown below, by converting a residential premises into a commercial premises providing jobs and economic growth.

- Objective 1 - the "Sustainable Use of Land" - ensuring that "development makes the most efficient use of natural resources by seeking to locate development in the most sustainable locations".
- Objective 3 - "Economic Growth" - providing new sites for employment use across Newport.

⁴ <http://www.newport.gov.uk/documents/Planning-Documents/LDP-2011-2026/LDP-Adopted-Plan-January-2015.pdf>

3.7 Justification Test

TAN-15 states that development in Zone C1 will be justified if it can be demonstrated that:

Its location in zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy required to sustain an existing settlement;

or

Its location in zone C is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region;

and,

It concurs with the aims of Planning Policy Wales and meets the definition of previously developed land;

and,

The potential consequences of a flooding event for the particular type of development have been considered and found to be acceptable.

Table 3-2 below summarises how the proposed development meets the requirements set out within the Justification Test.

Table 3-2 Justification criteria

TAN 15 Justification Criteria	Comments	Satisfied?
Its location is necessary to assist a local authority regeneration initiative or strategy, or contribute to key employment objectives, necessary to sustain an existing settlement or region.	The proposed development will assist with Objectives 1 and 3 of the Local Development Plan and will contribute towards economic growth within Newport.	✓
The site meets the definition of previously developed land (i.e. it is not a Greenfield site) and concurs with the aims of Planning Policy Wales (i.e. the presumption in favour of sustainable development)	The proposed development site meets the criteria of previously developed land as there are existing buildings on site.	✓
The potential consequences of a flooding event for the particular type of development have been considered and found to be acceptable.	The flood consequences have been assessed and are detailed further in Sections 4 and 5.	✓

4 Flood Risk Assessment

This section assesses the risk to the proposed development site from all sources of flooding, based solely on a desk-based analysis of existing flood risk data.

4.1 Review of Existing Flood Risk Data

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) is summarised in Table 4-1 below.

Table 4-1 Summary of Flood Risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The site is at medium risk of fluvial flooding.
Flood Risk from the Sea	✗	The site is at very low risk of tidal flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at medium risk of surface water flooding.
Flood Risk from Groundwater	✗	The site is at low risk of flooding from groundwater.
Flood Risk from Reservoirs	✓	The site is at low risk of flooding from reservoirs.
Flood Risk from Sewers	✗	The site is at low risk of flooding from sewers.

4.2 Historical Flooding

NRW's map of recorded flood extents does not show any evidence of historic flooding on the site.

Newport City Council's Draft Local Flood Risk Management Plan (2024)⁵ (LFRMP) states that "The majority of reported flood incidents in Gaer ward are located to the north of the ward and are most commonly found near highways and watercourses, occurring multiple times on Cardiff Road (B4237), St Brides Crescent, Gaer Road, Gaer Pond and Maesglas Close". As the proposed development site is located to the south of Gaer ward there is no evidence of historic flood risk at the site.

⁵ <https://www.newport.gov.uk/sites/default/files/media/media-documents/Newport%20Local%20Flood%20Risk%20Management%20Strategy%202024%20-2030%20Draft%20v2.pdf>

4.3 Flood Risk from Rivers

NRW's Flood Risk Assessment Wales (FRAW) flood mapping (Figure 4-1) indicates that the existing residential building is located within an area at low risk of flooding, with the proposed extension and the existing ranger office located within an area at medium risk of flooding in the Flood Risk from Rivers mapping.

Areas at medium risk of flooding from Rivers have between a 1 in 100 (1% AEP) and a 1 in 30 (3.3% AEP) chance of flooding in any given year.

Areas at low risk of flooding from Rivers have between a 1 in 1000 and 1 in 100 (0.1% - 1% AEP) chance of flooding in any given year.

It should be noted that the development site is also located within an Area Benefiting from Flood Defences.

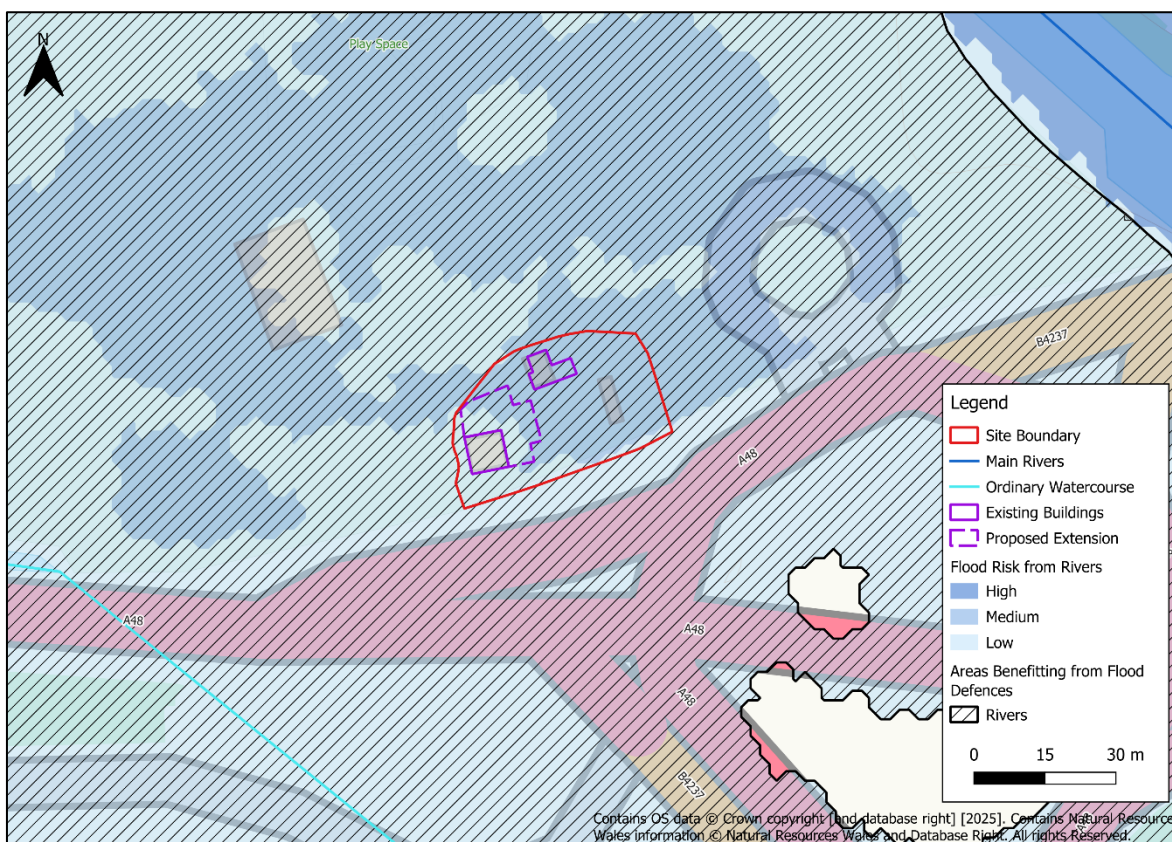


Figure 4-1 FRAW - Flood Risk from the Rivers

4.4 Flood Risk from the Sea

The site is not shown to be located within NRW's Flood Risk Assessment Wales (FRAW) flood mapping, which indicates that the site has a very low risk of tidal flooding and is therefore not shown graphically within this report.

4.5 Flood Risk from Surface Water and Small Watercourses

The NRW FRAW flood risk from Surface Water and Small Watercourses mapping shows that the majority of the site is at low risk of flooding from this source, as shown in Figure

4-2. Small areas of the site (including the existing residential building and ranger office) are shown to be located at very low risk of flooding. The site is predominantly located within an area at low risk of flooding.

- Areas at very low risk of flooding have less than a 1 in 1000 a (0.1% AEP) chance of flooding in any given year.
- Areas at low risk of have between a 1 in 1000 and 1 in 100 (0.1% - 1% AEP) chance of flooding in any given year.

The National Flood Hazard Mapping shown in Figure 4-3, shows the predicted flood depths from the generalised modelling. It becomes evident that the surface water flood risk at Tredegar Park is located within topographical depressions, primarily at risk to the north of the site within the Splash Port. The flood water is shown to flow from the roundabout in a westerly direction to the east of the site, and across the site in between the existing buildings within topographical depressions.

The surface water flood risk to the site should therefore be managed through good site design and a comprehensive SuDS Strategy in accordance with SAB approval.

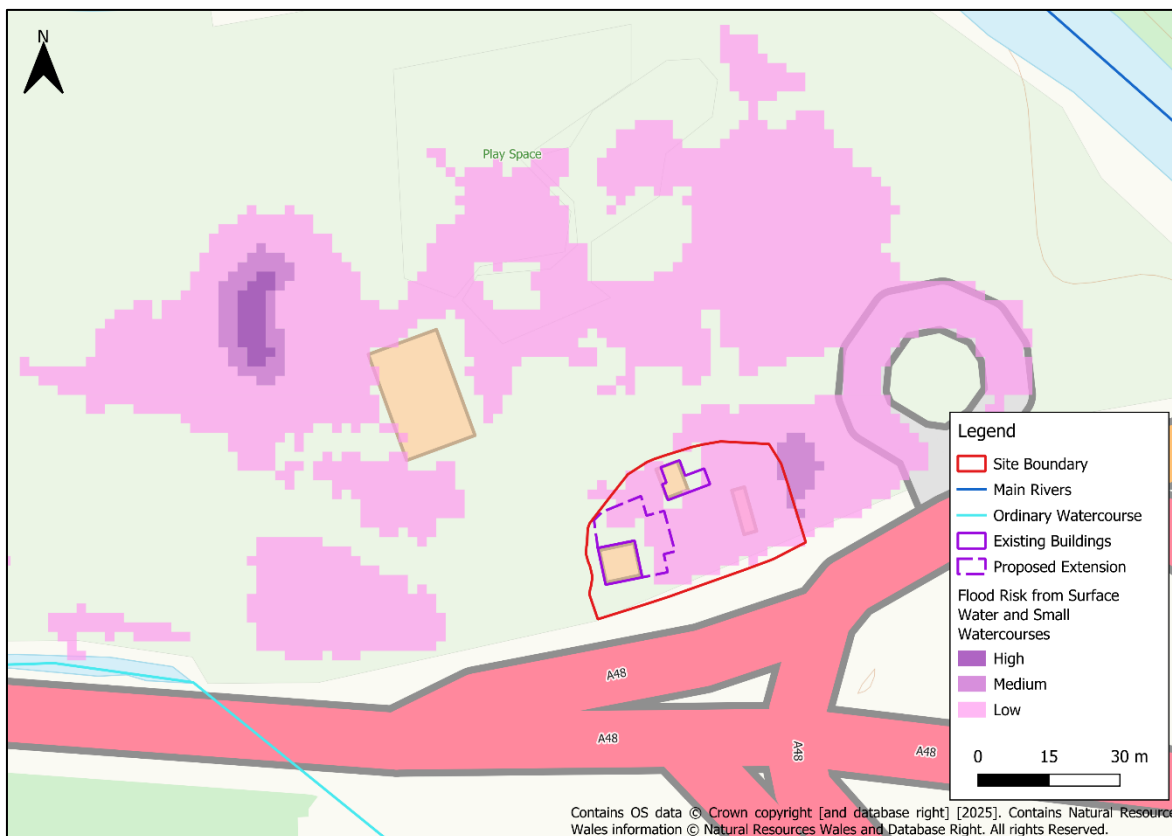


Figure 4-2 FRAW - Flood Risk from Surface Water and Small Watercourses

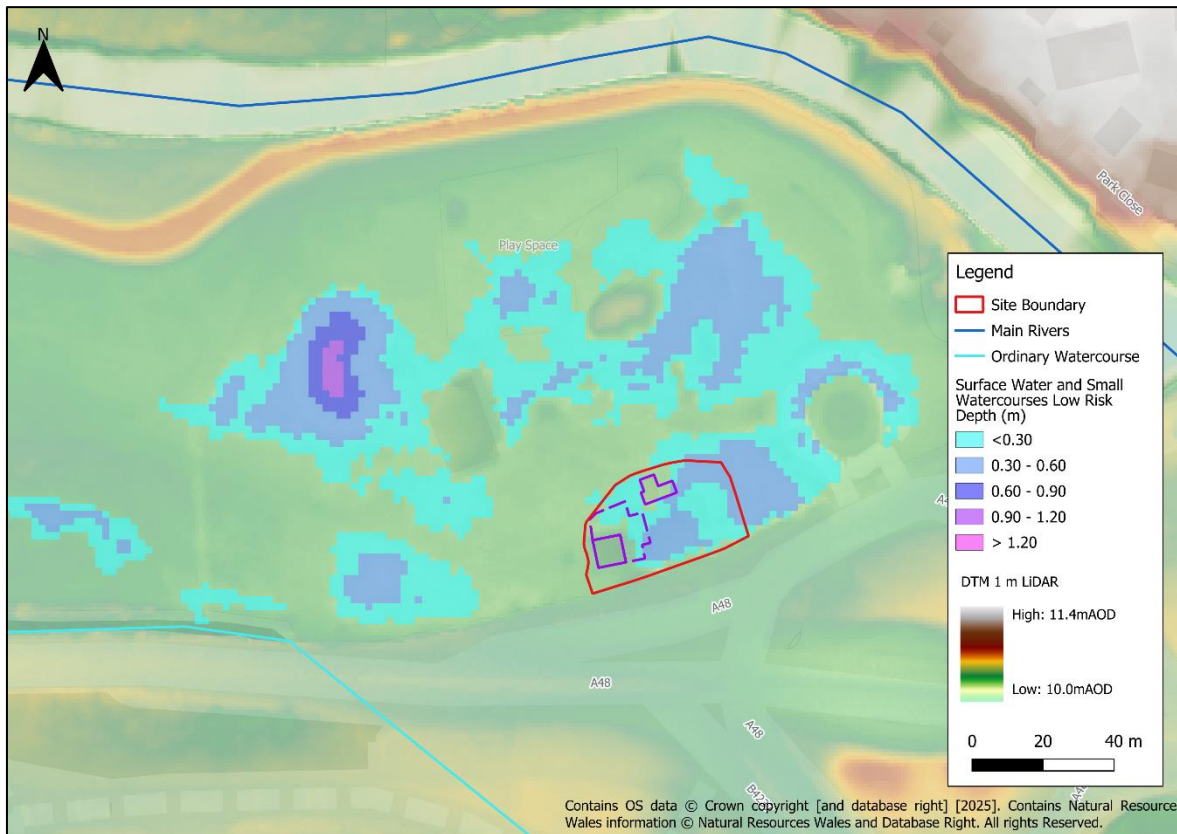


Figure 4-3 National Flood Hazard Map Surface Water and Small Watercourses Low Risk

4.6 Flood Risk from Groundwater

Groundwater flooding is caused by unusually high groundwater levels. It occurs as excess water emerges at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and can result in damage to property. This risk of groundwater flooding depends on the nature of the geological strata underlying the site and the local topography.

Newport City Council's Draft LFRMP⁵ states that groundwater flooding is not considered to be a significant flood risk and is considered to rise and fall relatively slowly. Therefore, the groundwater flood risk to the proposed development site is considered to be **low**.

4.7 Flood Risk from Reservoirs

NRW flood maps indicate that the proposed development site is located within an area at risk of reservoir flooding, as shown in Figure 4-4. The site is shown to be at risk from the Blaen-y-cwm Reservoir managed and maintained by Dŵr Cymru Welsh Water (DCWW), located 29km northwest of the site.

However, as a result of regular inspections covered by the 1975 Reservoir Act, it is extremely unlikely that a reservoir would fail, and due to the location of the reservoirs in relation to the site, substantial warning time would be available. Therefore, the risk of reservoir flooding is considered to be **low**.

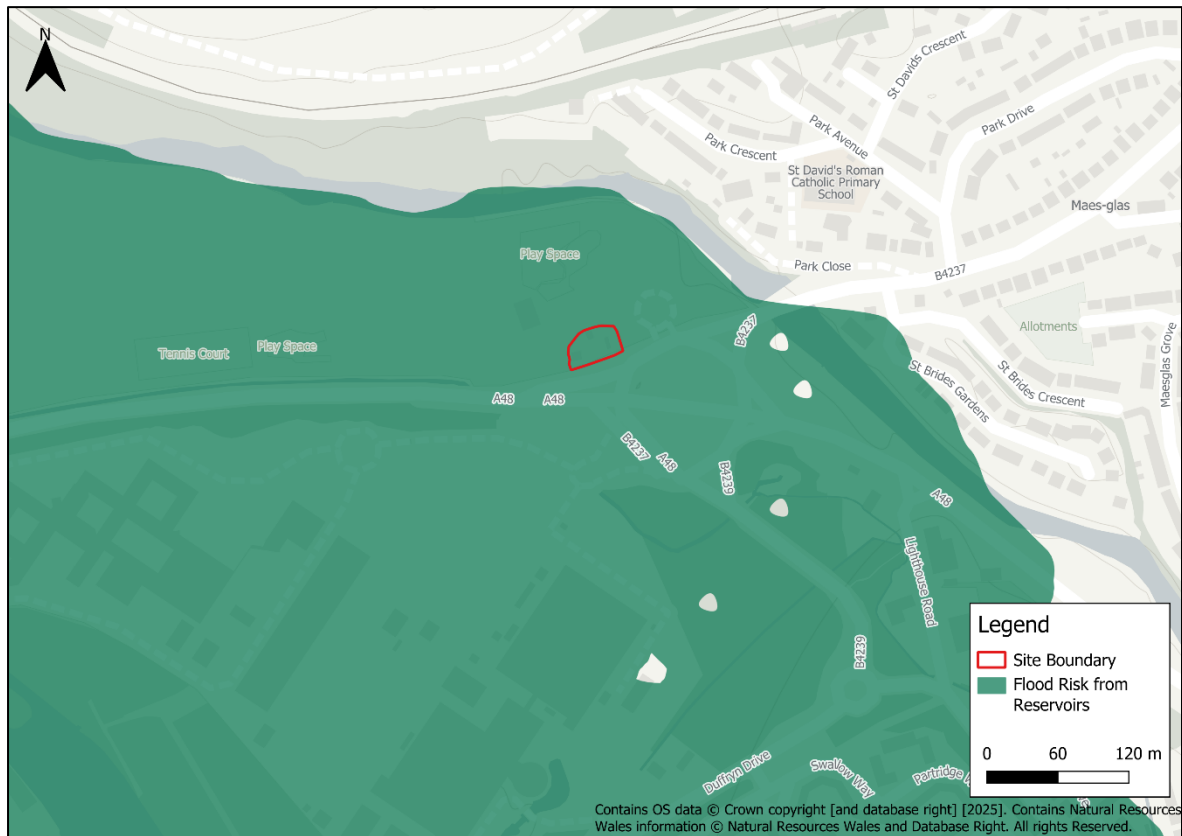


Figure 4-4 Flood Risk from Reservoirs

4.8 Flood Risk from Sewers

Newport City Council's Draft LFRMP⁵ states that "Dŵr Cymru Welsh Water (DCWW) maintains a register of historical property sewer flooding events which shows that there have been 417 incidents of localised sewer flooding within the city. However, there is no evidence to suggest previous flooding at the development site. The site is therefore considered to be at **low risk** of sewer flooding.

5 Detailed Fluvial Flood Risk Assessment

As identified in Section 4, the site is at risk of fluvial flooding. To better understand this potential across the lifetime of the development, further assessment using results from the latest flood model for Tredegar Park are discussed below.

5.1 Hydraulic Modelling Availability

The NRW Lower Ebbw model covers the River Ebbw as it flows in the vicinity of the proposed development site. The model was updated in 2023 by JBA in support of a Flood Map Challenge at Tredegar Park Golf Club. This Flood Map Challenge was accepted by NRW, with the model subsequently updated by NRW, also in 2023, to address a number of issues highlighted in the NRW review of the Flood Map Challenge, associated with the original model as opposed to the JBA model updates. These 2023 updates included updating the model to include the latest LiDAR, Mastermap and Tidal Boundaries, with an extended model run time.

The 2023 version of the Lower Ebbw Model has been used unamended for this study.

5.2 Flood Depth Modelling

5.2.1 1% AEP Plus Climate Change

During the 1% AEP plus Climate Change event, shown in Figure 5-1 and 5-2, flooding associated with the River Ebbw is shown to be significant, with a maximum flood depth of 1.65m in the northeast of the site. The average flood depth on site is shown to be 1.35m, with flood depths across the proposed extension reaching 1.43m.

The water level across the entire site is shown to be 11.78mAOD.

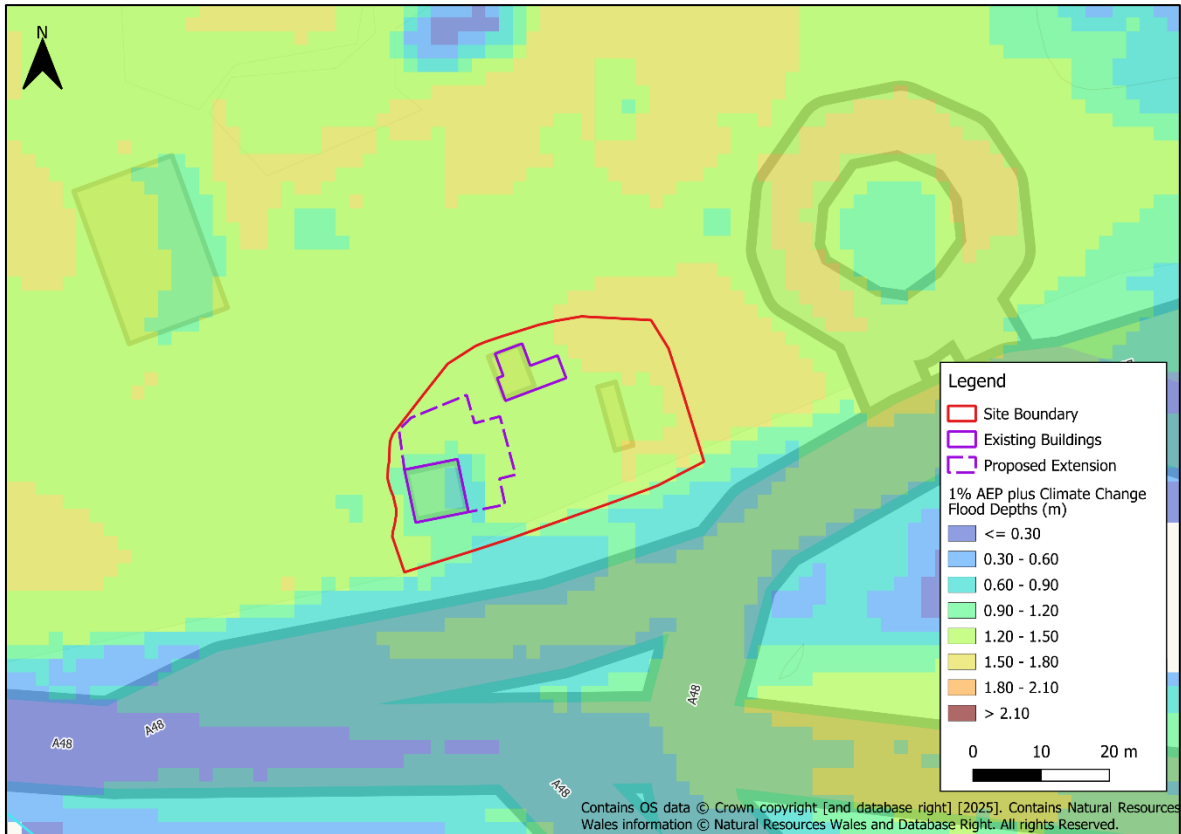


Figure 5-1 1% AEP plus Climate Change flood depths

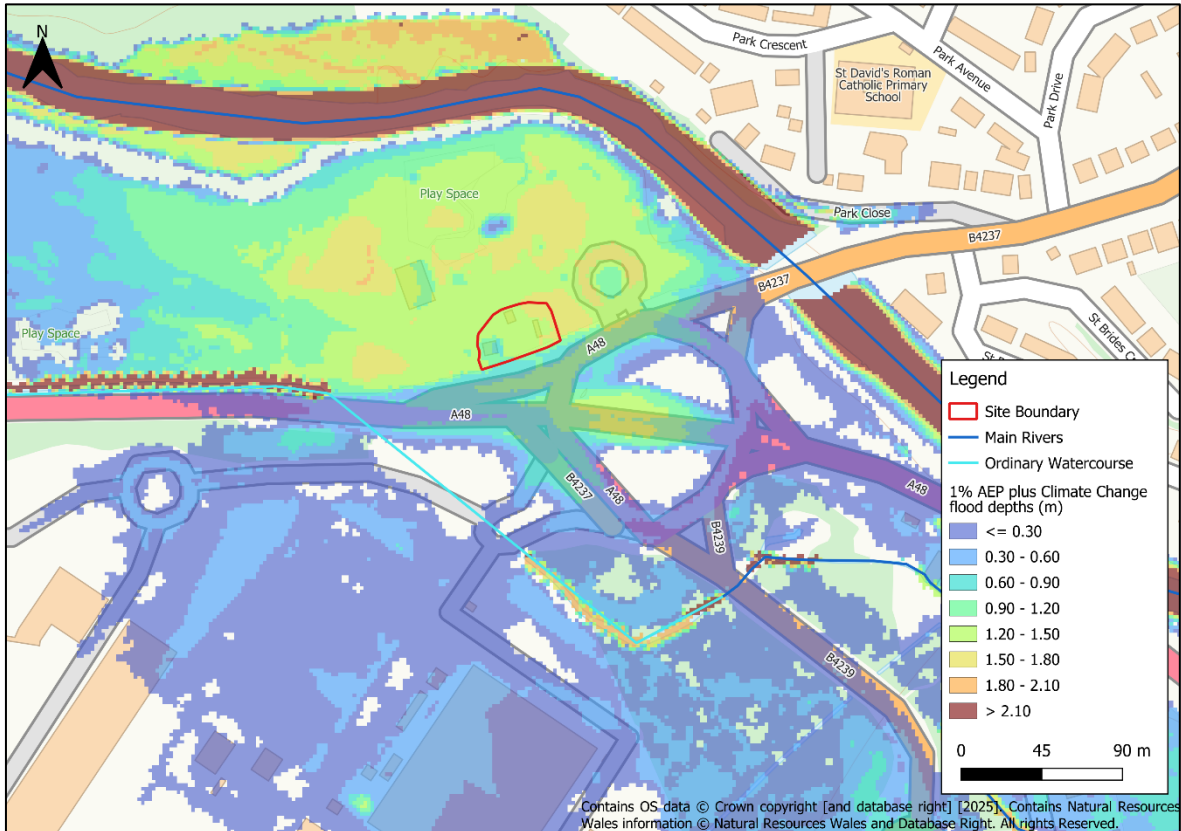


Figure 5-2 1% AEP plus Climate Change flood depths (Wider Extent)

5.2.2 0.1% AEP

The flood extent during the 0.1% AEP event is generally similar to that within the 1% AEP event, as shown in Figures 5-3 and 5-4, though flood depths are predicted to be deeper. A maximum flood depth of 2.05m is predicted in the east of the proposed development site. The average depth within the site boundary is shown to be 1.74m, with a maximum depth of 1.83m within the proposed extension.

The water level across the site is predicted to be 12.17mAOD.

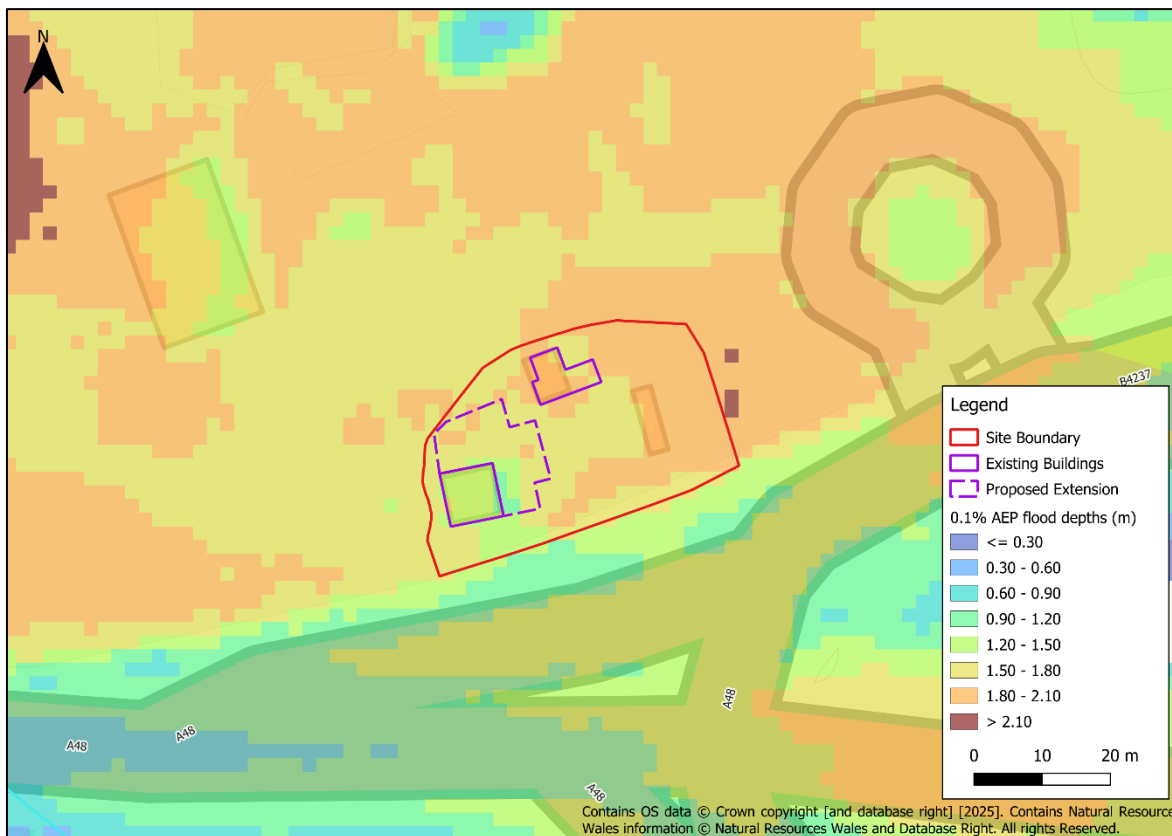


Figure 5-3 0.1% AEP flood depths

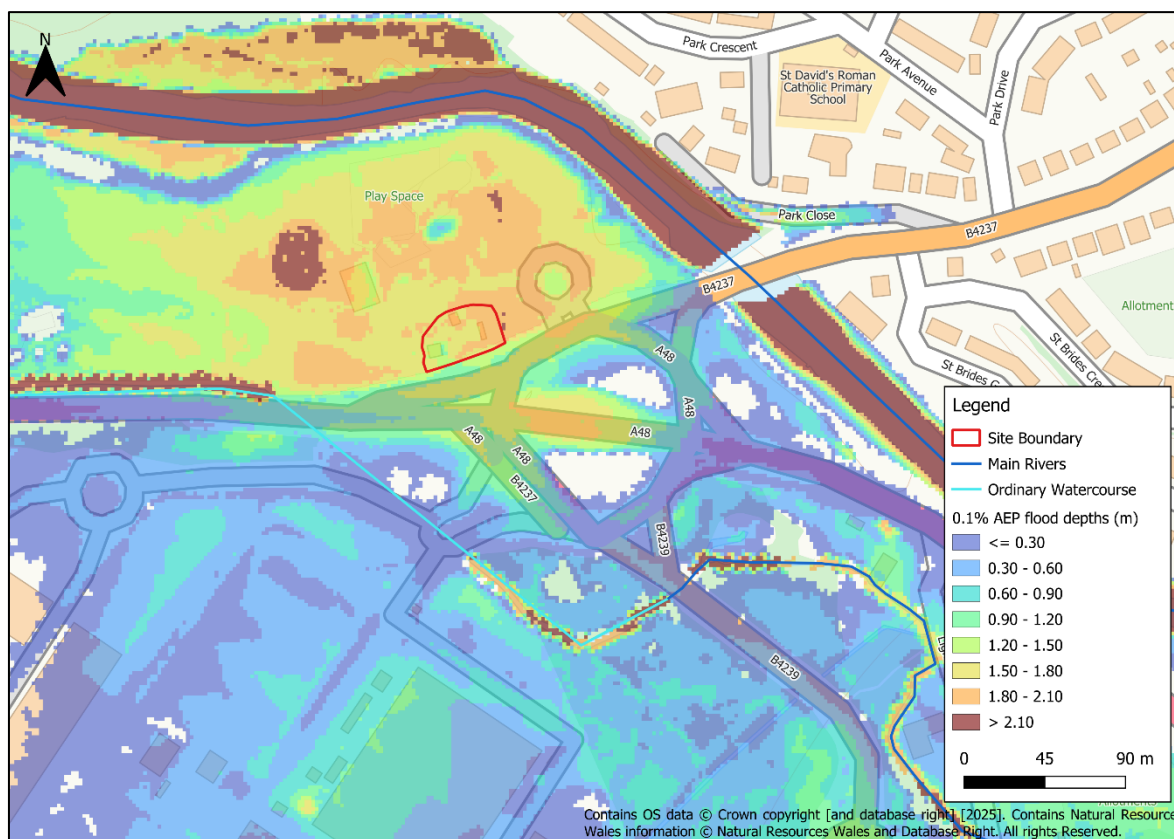


Figure 5-4 0.1% AEP flood depths (Wider Extent)

5.3 Suitability of Development

The River Ebbw is predicted to flood significantly during both of the design events. A summary of sites Finished Floor Levels (FFL), predicted flood levels and depths is contained within Table 5-1. The proposed development is predicted to flood in both of the TAN-15 design events, included an exceedance of the recommended maximum flood depths of 600mm during the 0.1% AEP event, as stated within A1.15 of TAN-15.

Table 5-1 Suitability of development

	Existing Building	Proposed Extension
Threshold / FFL (mAOD)	11.43	11.43
1% AEP CC Level (mAOD)	11.78	
1% AEP CC Depth (mm)	350	350
0.1% AEP Level (mAOD)	12.17	
0.1% AEP Depth (mm)	740	740

The impact of the development on third parties should also be considered. The proposals result in a modest extension to the existing building, with the existing FFL to be retained from the existing building to the proposed extension. As a result of the severity of flooding

within the 1% AEP plus climate change and 0.1% AEP events, and the development site's location within Tredegar Park, the detriment as a result of the modest increase in building footprint is likely to be negligible.

Consideration should be given to the context of development in terms of flood risk. The proposed development is unlikely to result in a change of risk to the site in comparison to its existing use, with no predicted change in flood depths, extents or frequency. However, the proposals will result in the re-use and re-vitalisation of an existing structure within a well-used park of Newport, promoting development in sustainable locations and utilising existing infrastructure. The development would contribute to LPA objectives for the conversion of brownfield sites and for economic growth/employment.

The change of use of the existing building from residential to a commercial premises results in a decrease in vulnerability classification from Highly Vulnerable to Less Vulnerable. Whilst not yet a material consideration, the consultation draft of the forthcoming TAN-15 does provide an indication of current policy thinking. The consultation draft of TAN-15 views this decrease in vulnerability classification more favourably in areas of flood risk when developing on brownfield sites.

In addition, some consideration should be given to the wider context of flooding across Newport in both of the TAN-15 design events. As shown in Figure 5-4, Newport is shown to be at significant risk of flooding from the River Ebbw. Such flooding would cause very considerable associated economic and social impacts. The proposed development site is located in an area benefitting from existing defences which provide a very significant number of properties with flood protection. Consequently, deploying future measures to manage this risk is essential and inevitable to the continued sustainability of the City.

5.4 Flood Resilience Measures

The site is shown to be at risk of flooding during the 1% AEP plus Climate Change and 0.1% AEP fluvial events. It is therefore recommended that flood resilience measures are incorporated into the development. Such practical measures might include:

- Raising the electrical junction box, wiring and electrical sockets so that they are situated above the maximum expected depth of internal flooding where possible.
- Raise the gas and electricity service meter boxes and the boiler above the maximum expected depth of internal flooding.
- Applying solid and hard floors.
- Using waterproof plaster.

The owners/employees would also be advised to sign up to NRW's flood warning service, as the proposed development is located within the River Ebbw at Bassaleg NRW Flood Warning Area.

It is also recommended that a Flood Response Plan is developed for procedures before, during and after a flood event at Tredegar Park.

6 Assessment of Acceptability Criteria

Table 6-1 assesses the proposed development against the acceptability requirements required by TAN-15.

Table 6-1 Assessment of acceptability criteria

TAN 15 Acceptability Criteria	Comments	Achieved
Developer is required to demonstrate that the site is designed to be flood free for the lifetime of development for a 1 in 100 (1%) chance (fluvial) event including an allowance for climate change	The proposed development site is located within the fluvial flood extent with 350mm of internal flooding predicted. The proposals result in no change of flood risk in comparison to existing flood risk and use of the site.	N/A
The development should be designed so that in an extreme (1 in 1000 chance) event there would be less than 600mm of water on access roads and within the property.	The proposed development site is located within the fluvial flood extent with 740mm of internal flooding predicted. The proposals result in no change of flood risk in comparison to existing flood risk and use of the site.	N/A
No flooding elsewhere.	The impact of the proposed development on the surrounding areas is considered to be negligible due to the severity of flooding within the area.	Yes
Flood defences must be shown by the developer to be structurally adequate particularly under extreme overtopping conditions (i.e. that flood with a 1 in 1000 chance of occurring in any given year).	The proposed development site is protected by the presence of flood defences. These are NRW owned assets that must be maintained to offer protection throughout Newport.	Yes
The developer must ensure that future occupiers of development are aware of the flooding risks and consequences.	The developer shall provide purchasers with information on the flood risk in the form of this report.	Yes
Effective flood warnings are provided at the site.	The site is located within the River Ebbw at Bassaleg NRW Flood Warning Area and the Rivers Ebbw, Sirhowy and Lwyd Flood Alert area.	Yes
Escape/evacuation routes are shown by the developer to be operational under all conditions.	Access and egress remain unchanged from the existing arrangements. As the proposed	Yes

TAN 15 Acceptability Criteria	Comments	Achieved
	development is for commercial and employment purposes, the premises should remain closed during flooding events until safe to re-enter Tredegar Park.	
The development is designed by the developer to allow the occupier of the facility for rapid movement of goods/possessions to areas away from flood waters.	It is recommended that the owners/employees sign up to the NRW flood warning service so that they are aware of the potential for any flooding and the premises is constructed to be as resilient as possible to flooding.	Yes
Development is designed to minimise structural damage during a flooding event and is flood proofed to enable it to be returned to its prime use quickly in the aftermath of the flood.	It is recommended that resilience measures are incorporated into internal configurations of the development to enable it to return to its prime use swiftly following a flood event. Information on flood resilience measures are contained in Section 5.4.	Yes

7 Conclusions and Recommendations

JBA Consulting (JBA) were commissioned by Newport City Council to undertake a Flood Consequences Assessment (FCA) for a proposed commercial development at The Lodge in Tredegar Park. This FCA has been prepared to demonstrate the suitability of the proposed development, describing the flood resilience measures recommended to manage flooding at the site.

The site is approximately 0.1ha and is accessed from the roundabout serving Tredegar Park car park, off Pont Ebbw Roundabout. Surrounding the site is a mixture of residential properties to the far northeast, Tredegar Park car park to the east and commercial/industrial premises to the far south. The development site is located within the park, with playing fields and open space to the west and a play area/splash port and minigolf course to the north. The topography of the site is relatively flat with a slight fall from the southwest (11.21mAOD) to the south (10.11mAOD).

The NRW FRAW mapping shows that the development site is at very low risk of flooding from the sea, groundwater and from sewers. The site has a low risk of flooding from surface water and as a result of reservoir failure.

The site is located in an area of low to medium risk of flooding in the Flood Risk from Rivers mapping. The development site is also located within an Area Benefiting from Flood Defences.

The site is shown to be located within a TAN-15 Defended Zone for Rivers and DAM Zone C1. Less vulnerable development within Zone C1 can occur subject to the application of a Justification Test, including the acceptability of consequences.

Detailed flood modelling has been used to carefully assess the flood risk to the site and the surrounding area. The development site is shown to flood internally to 350mm during the 1% AEP plus climate change flooding extent, and to 740mm during the 0.1% AEP event.

However, there are a number of justifications to support the proposed development in Tredegar Park. The existing building is a residential property and therefore classified as Highly Vulnerable Development. By converting this property into a Café and therefore a commercial premises, the vulnerability of the site has been decreased to 'Less Vulnerable'. The development would also help meet a number of planning objectives for the conversion of brownfield sites and for economic growth/employment. Furthermore, the location of the café within Tredegar Park is well suited and would help regenerate the area sustainably.

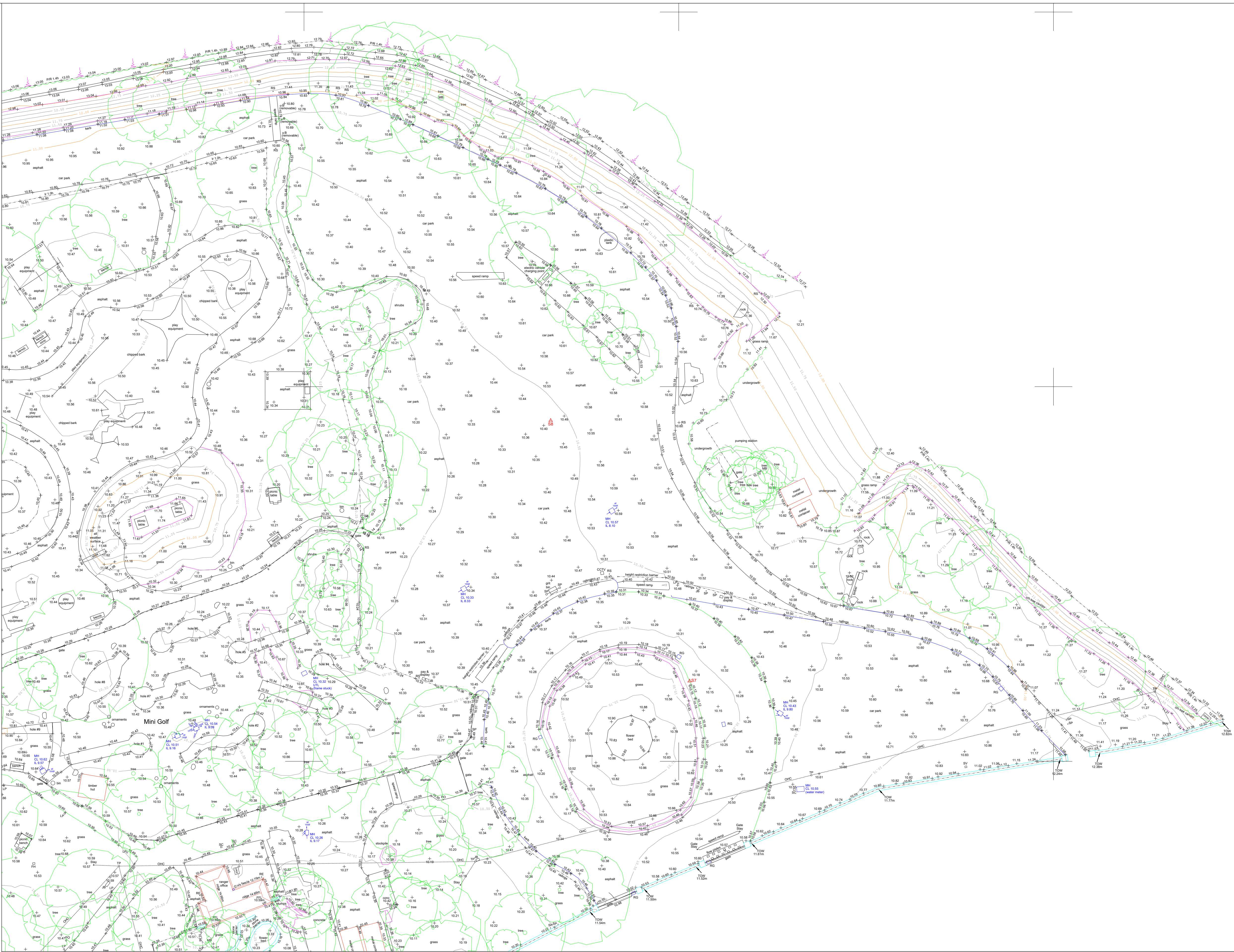
It is therefore concluded that due to the modest development proposals and the scale of flooding across Tredegar Park and Newport City, the risk of flooding on site is minimal. The flood risk can be mitigated using resilience measures and a Flood Response Plan to ensure the cafe remains closed during flooding events.

A Topographic Survey

TOON

050N

000N



KEY TO ABBREVIATIONS

Asp	Asphalt	JB	Junction Box
B	Ballard	KO	Kerb Offset
BB	Belisha Beacon	LP	Lamp Post
BH	Borehole	MH	Manhole
BT	British Telecom Cover	NB	Name Board
BU	Bush/Shrub	CHC	Overhead Cable
CE	Telephone Control Cabinet	PO	Post
CATV	Cable Television Cover	PB	Post Box
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CPS	Concrete Paving Slabs	RG	Road Gully
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EP	Electricity Pole	RWP	Rain Water Pipe
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Fence And Wall Features:

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B/W	Barbed Wire
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CB	Close Boarded
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CPCL	Concrete Post & Chain Link
CP/CP	Concrete Post & Post
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HR	Hand Rail
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IW	Interwoven Wood Slat
MM	Metal Mesh
LL	Larch Lap
S/RW	Stone Retaining Wall
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WPBW	Wood Post & Barbed Wire
WPR	Wood Post & Rail
WPW	Wood Post & Wire

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IL	Invert Level
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SWS	Storm Water Sewer
CWS	Combined Water Sewer
UTL	Unable To Lift
Ø	Pipe Diameter (mm)
SL	Soil Level
←	Arrow indicates direction of flow
←	Water Level with date and time taken
WL	Water Level

Embankment

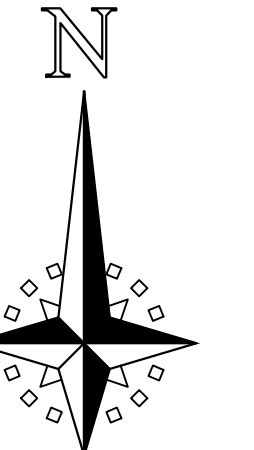
EXISTING TREE (SPREAD - NEAREST METRE)

D. DIAMETER
S. SPREAD

Notes :

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- Do not scale from this drawing.

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S1	328829.373	185971.343	11.834
S2	328909.953	186044.032	11.761
S3	329042.397	186008.871	11.106
S4	329155.671	185971.455	10.553
S5	329145.601	186071.056	11.321
S6	329205.332	186082.115	11.244
S7	329301.446	186010.749	10.128
S8	329282.910	186045.523	10.439



A	Additional detail added	02/04/2
Rev	Description	Date

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10 Gold Tops, Newport, NP20 4PH.
tel:07808 791936
email:chris@3pointssurveys.co.uk
www.3pointssurveys.co.uk.

Client: Newport City Council.

Site: Tredegar Park Sports Ground,
Cardiff Road, Newport.

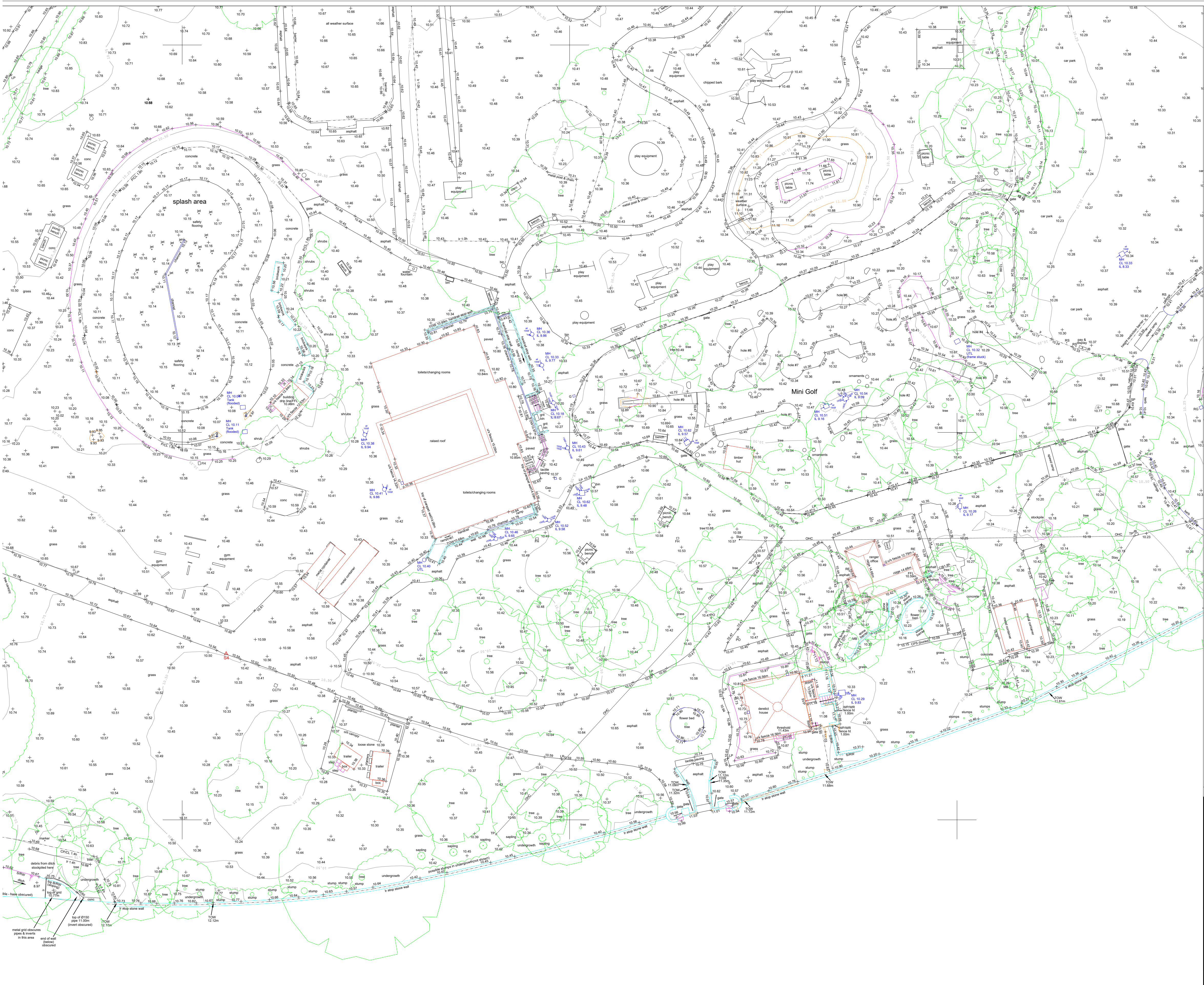
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Sheet 1 of 8

Scale: 1:250@A1 Date: September 2023

Designed By: R.S.L.

Drawing No.:

E1224-1-1 Rev A



KEY TO ABBREVIATIONS

Asp	Asphalt	JB	Junction Box
B	Bollard	KO	Kerb Offset
BB	Belisha Beacon	LP	Lamp Post
BH	Bonhole	MH	Manhole
BT	British Telecom Cover	NB	Name Board
BU	Bush/Shrub	OHC	Overhead Cable
CB	Concrete	PO	Post
CC	Concrete Control Cabinet	PB	Post Box
CATV	Cable Television Cover	RE	Rodding Eye
Conc	Concrete	RS	Road Sign
CRS	Concrete Paving Slabs	RSJ	Rolled Steel Joint
DK	Drop Kerb	RWP	Rain Water Pipe
Elc	Electricity Inspection Cover	Sap	Sailing
EP	Electricity Pole	SV	Stay Wire
ER	Earth Rod	SV	Stop Valve
FB	Flower Bed	SWP	Soil Vent Pipe
FLL	Finished Floor Level	TOW	Top Of Wall
FH	Fire Hydrant	TP	Top Of Fence
G	Gully	TP	Top Of Pole
GP	Gate Post	TP	Top Of Pole
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GW	Gabion Wall
HR	Hand Rail
MR	Metal Railings
IW	Interwoven Wood Slat
MM	Metal Mesh
LL	Larch Lap
SRW	Stone Retaining Wall
Wap	Wood Lap
WPBW	Wood Post & Barbed Wire
WPR	Wood Post & Rail
WPW	Wood Post & Wire

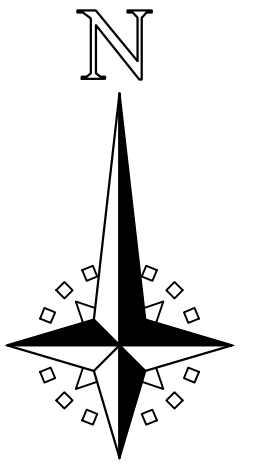
Drainage Features:

CL	Cover Level
IL	Invert Level
FWS	Foul Water Sewer
SWS	Storm Water Sewer
CWS	Combined Water Sewer
UTL	Unable To Lift
Q	Pipe Diameter (mm)
SL	Soil Level
←	Arrow indicates direction of flow
WL	Water Level with date and time taken
▬	Embankment

EXISTING TREE (SPREAD - NEAREST METRE)
D. DIAMETER
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A	Additional detail added	02/04/24
Rev	Description	Date

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10 Gold Tops, Newport, NP20 4PH.
tel:07808 791936
email:chris@3point surveys.co.uk
www.3point surveys.co.uk.

Client: Newport City Council.
Site: Tredegar Park Sports Ground, Cardiff Road, Newport.

Drawing: Topographic Survey
Sheet 2 of 8

Scale: 1:250@A1 Date: September 2023

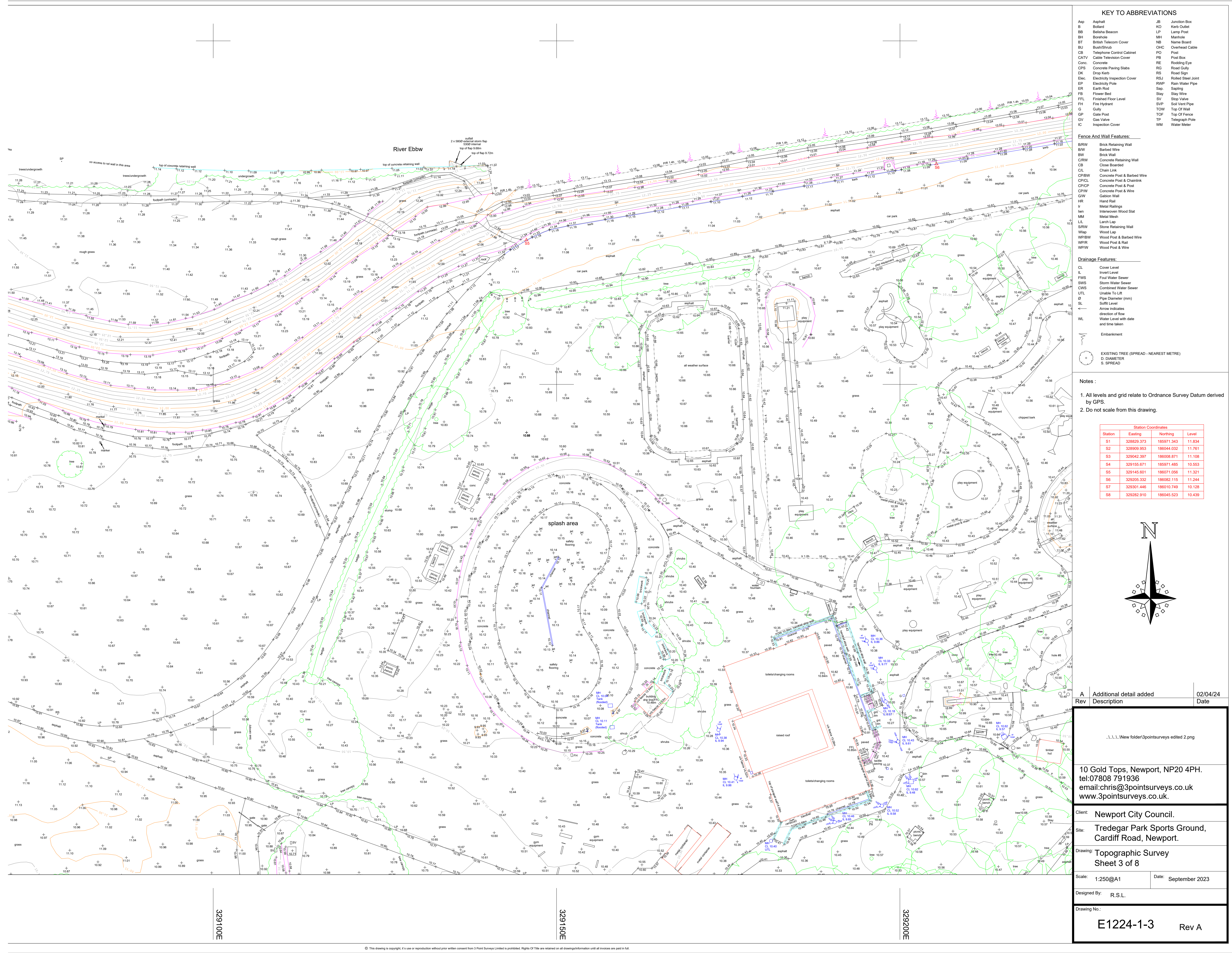
Designed By: R.S.L.

Drawing No.: E1224-1-2 Rev A

329150E

329200E

329250E



KEY TO ABBREVIATIONS

Asp	Asphalt	JB	Junction Box
B	Ballast	KO	Kerb Outlet
BB	Belisha Beacon	LP	Lamp Post
BH	Borehole	MH	Manhole
BT	British Telecom Cover	NB	Name Board
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CPW	Concrete Post & Wire
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HR	Hand Rail
MR	Metal Railings
IWW	Interwoven Wood Slat
MM	Metal Mesh
LL	Larch Lap
SRW	Stone Retaining Wall
Wap	Wood Lap
WPBW	Wood Post & Barbed Wire
WPR	Wood Post & Rail
WPW	Wood Post & Wire

Drainage Features:

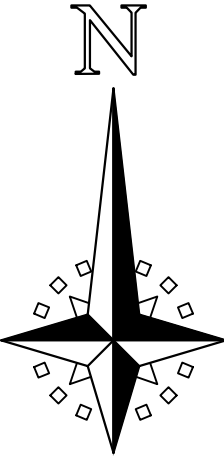
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SWS	Storm Water Sewer
CWS	Combined Water Sewer
UTL	Unable To Lift
Ø	Pipe Diameter (mm)
SL	Soft Level
→	Arrow indicates direction of flow
WL	Water Level with date and time taken
Embankment	

EXISTING TREE (SPREAD - NEAREST METRE)
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A	Additional detail added	02/04/24
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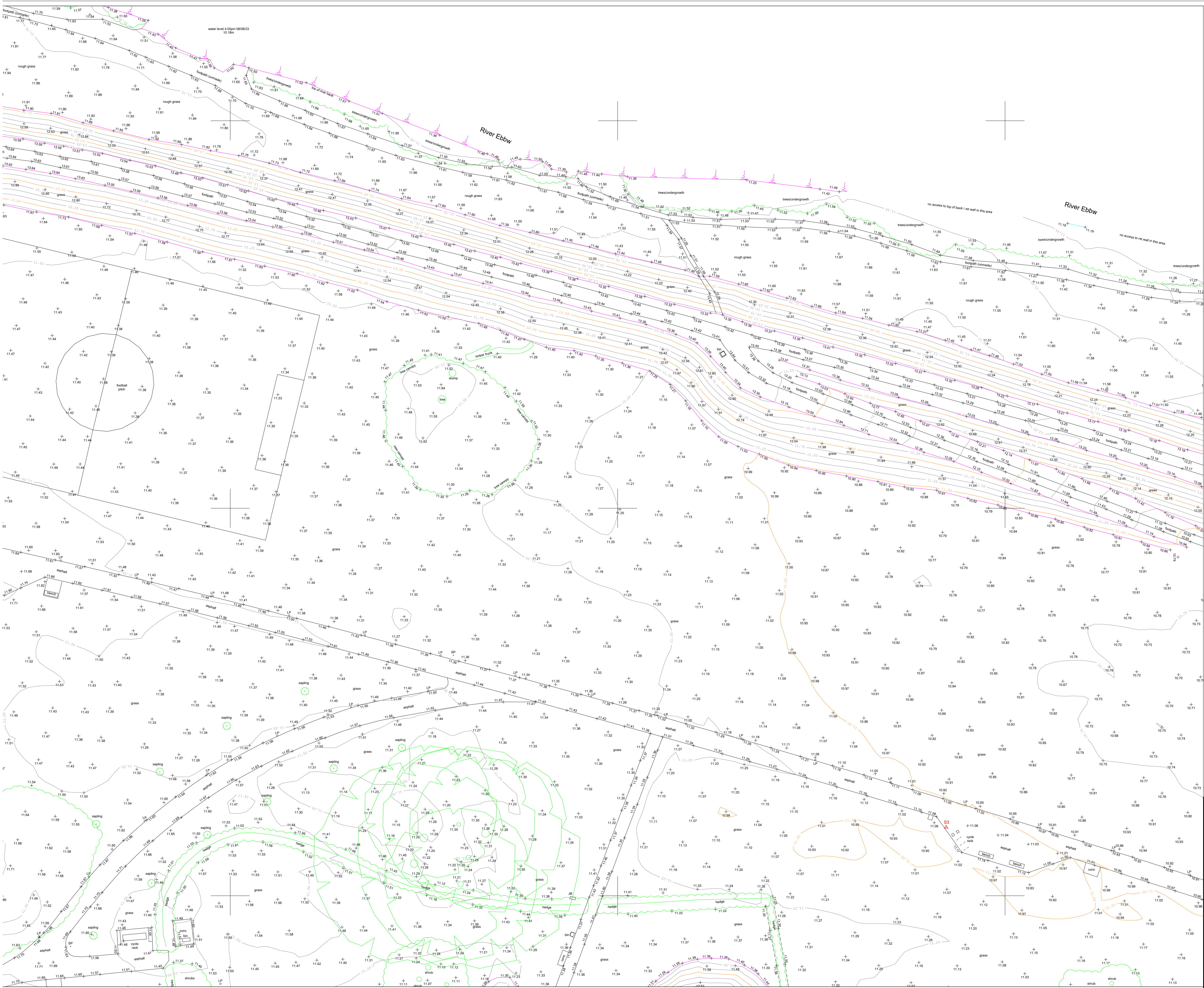
Client: Newport City Council.
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Drawing: Topographic Survey
Sheet 3 of 8

Scale: 1:250@A1 Date: September 2023

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Drawing No.: E1224-1-3 Rev A



KEY TO ABBREVIATIONS

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CPCL	Concrete Post & Chainlink
CPCP	Concrete Post & Post
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HR	Hand Rail
IR	Iron Rail
IW	Interwoven Wood Slat
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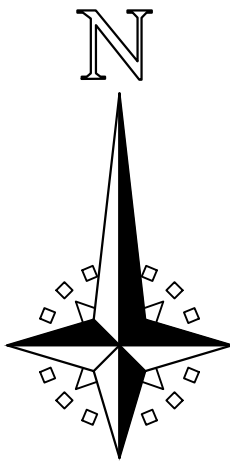


EXISTING TREE (SPREAD - NEAREST METRE)
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A	Additional detail added	02/04/24
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tel:07808 791936
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www.3pointsurveys.co.uk.

Client: Newport City Council.

Site: Tredegar Park Sports Ground,
Cardiff Road, Newport.

Drawing: Topographic Survey
Sheet 4 of 8

Scale: 1:250@A1 Date: September 2023

Designed By: R.S.L.

Drawing No.: E1224-1-4 Rev A



KEY TO ABBREVIATIONS

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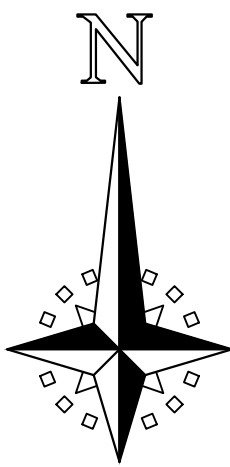
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EXISTING TREE (SPREAD - NEAREST METRE)
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A	Additional detail added	02/04/24
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10 Gold Tops, Newport, NP20 4PH.
tel:07808 791936
email:chris@3pointsurveys.co.uk
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Client: Newport City Council.

Site: Tredegar Park Sports Ground,
Cardiff Road, Newport.

Drawing: Topographic Survey
Sheet 5 of 8

Scale: 1:250@A1 Date: September 2023

Designed By: R.S.L.

Drawing No.: E1224-1-5 Rev A

329250E

329300E

329350E



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WPW	Wood Post & Wire

Drainage Features:

CL	Cover Level
IL	Invert Level
FWS	Foul Water Sewer
SWS	Storm Water Sewer
CWS	Combined Water Sewer
UTL	Unable To Lift
P	Pipe Diameter (mm)
SL	Soft Level
←	Arrow indicates direction of flow
WL	Water Level with date and time taken
—	Embankment

EXISTING TREE (SPREAD - NEAREST METRE)

D. DIAMETER

S. SPREAD

Notes :

- All levels and grid relate to Ordnance Survey Datum derived by GPS.
- Do not scale from this drawing.

Station Coordinates			
Station	Easting	Northing	Level
S1	328829.373	185971.343	11.834
S2	328909.953	186044.032	11.761
S3	329042.387	186008.871	11.106
S4	329155.671	185971.485	10.553
S5	329145.601	186071.056	11.321
S6	329205.332	186082.115	11.244
S7	329301.446	186010.749	10.128
S8	329282.910	186045.523	10.439

A

Rev

Additional detail added

Description

02/04/24

Date

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10 Gold Tops, Newport, NP20 4PH.
tel:07808 791936
email:chris@3pointsurveys.co.uk
www.3pointsurveys.co.uk.

Client: Newport City Council.

Site: Tredegar Park Sports Ground,
Cardiff Road, Newport.

Drawing: Topographic Survey
Sheet 6 of 8

Scale: 1:250@A1

Date: September 2023

Designed By: R.S.L.

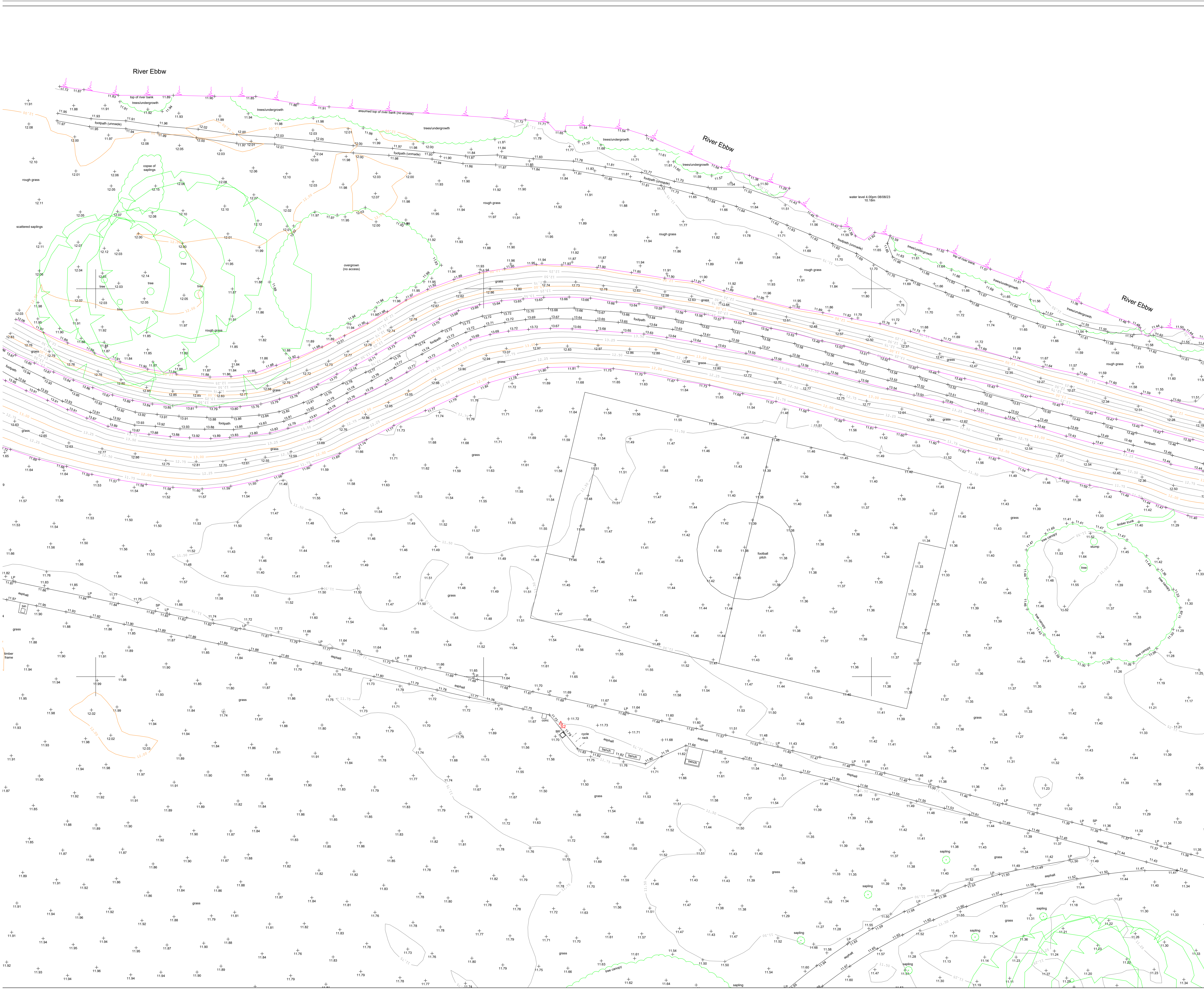
Drawing No.: E1224-1-6 Rev A

328850E

328900E

328950E

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KEY TO ABBREVIATIONS

Asp	Asphalt	JB	Junction Box
B	Ballast	KO	Kerb Outlet
BB	Belisha Beacon	LP	Lamp Post
BH	Borehole	MH	Manhole
BT	British Telecom Cover	NB	Name Board
BU	Bush/Shrub	OHC	Overhead Cable
CB	Cable Control Cabinet	PO	Post
CATV	Cable Television Cover	PB	Post Box
Conc.	Concrete	RE	Rodding Eye
CPS	Concrete Paving Slabs	RG	Road Gully
DK	Drop Kerb	RS	Road Sign
Elc.	Electricity Inspection Cover	RSJ	Rollled Steel Joint
ER	Earth Road	RWP	Rain Water Pipe
EP	Electricity Pole	Sap	Sapling
FB	Flower Bed	Stay	Stay Wire
FFL	Finished Floor Level	SV	Stop Valve
FI	Fire Hydrant	SVF	Soil Vent Pipe
G	Gully	TOW	Top Of Wall
GP	Gate Post	TOF	Top Of Fence
GV	Gas Valve	TP	Telegraph Pole
IC	Inspection Cover	WM	Water Meter

Fence And Wall Features:

B/RW	Brick Retaining Wall
B/W	Barbed Wire
BW	Brick Wall
CRW	Concrete Retaining Wall
CB	Close Boarded
CL	Chain Link
CPBW	Concrete Post & Barbed Wire
CPCL	Concrete Post & Chainlink
CPCP	Concrete Post & Post
CPW	Concrete Post & Wire
G/W	Gibson Wall
HR	Hand Rail
IR	Iron Railings
I/W	Interwoven Wood Slat
MM	Metal Mesh
LL	Larch Lap
S/RW	Stone Retaining Wall
Wap	Wood Lap
WPBW	Wood Post & Barbed Wire
WPR	Wood Post & Rail
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Drainage Features:

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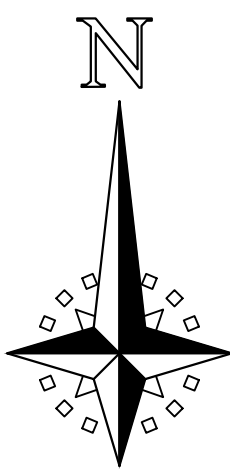


EXISTING TREE (SPREAD - NEAREST METRE)
D. DIAMETER
S. SPREAD

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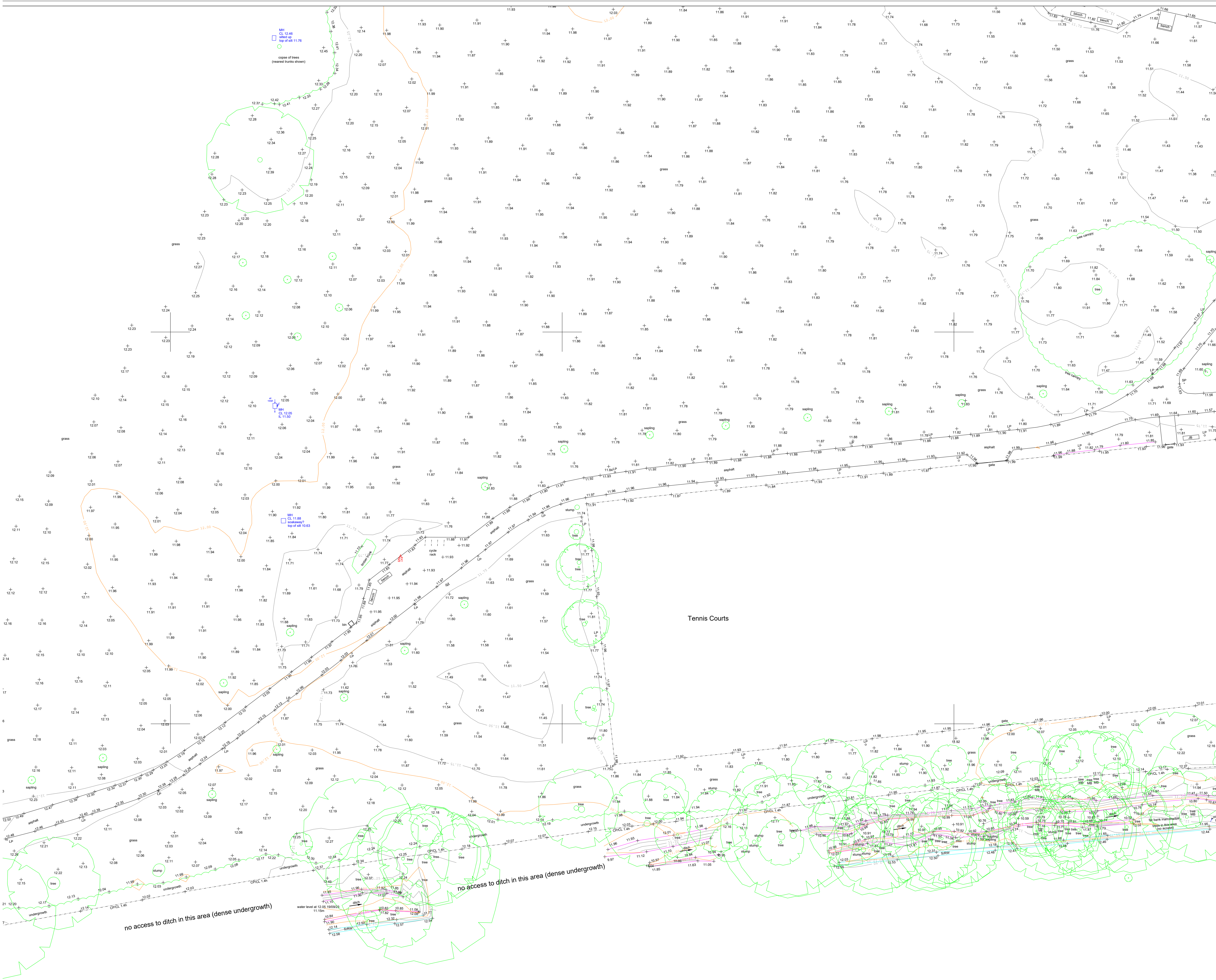
Scale: 1:250@A1 Date: September 2023

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Drawing No.:

E1224-1-7

Rev A



KEY TO ABBREVIATIONS

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B	Ballot	KO	Kerb Outlet
BB	Belisha Beacon	LP	Lamp Post
BH	Borehole	MH	Manhole
BT	British Telecom Cover	NB	Name Board
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CB	Telephone Control Cabinet	PO	Post
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BW	Brick Wall
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MR	Metal Railings
IW	Intervenor Wood Slat
MM	Metal Mesh
LL	Larch Lap
SRW	Stone Retaining Wall
Wap	Wood Lap
WPBW	Wood Post & Barbed Wire
WPR	Wood Post & Rail
WPW	Wood Post & Wire

Drainage Features:

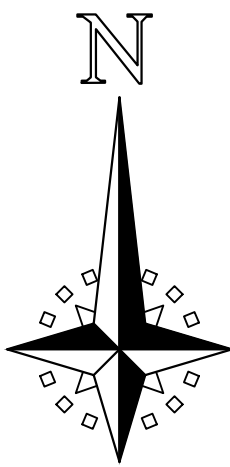
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○	EXISTING TREE (SPREAD - NEAREST METRE)
○	D. DIAMETER
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Sheet 8 of 8

Scale: 1:250@A1 Date: September 2023

Designed By: R.S.L.

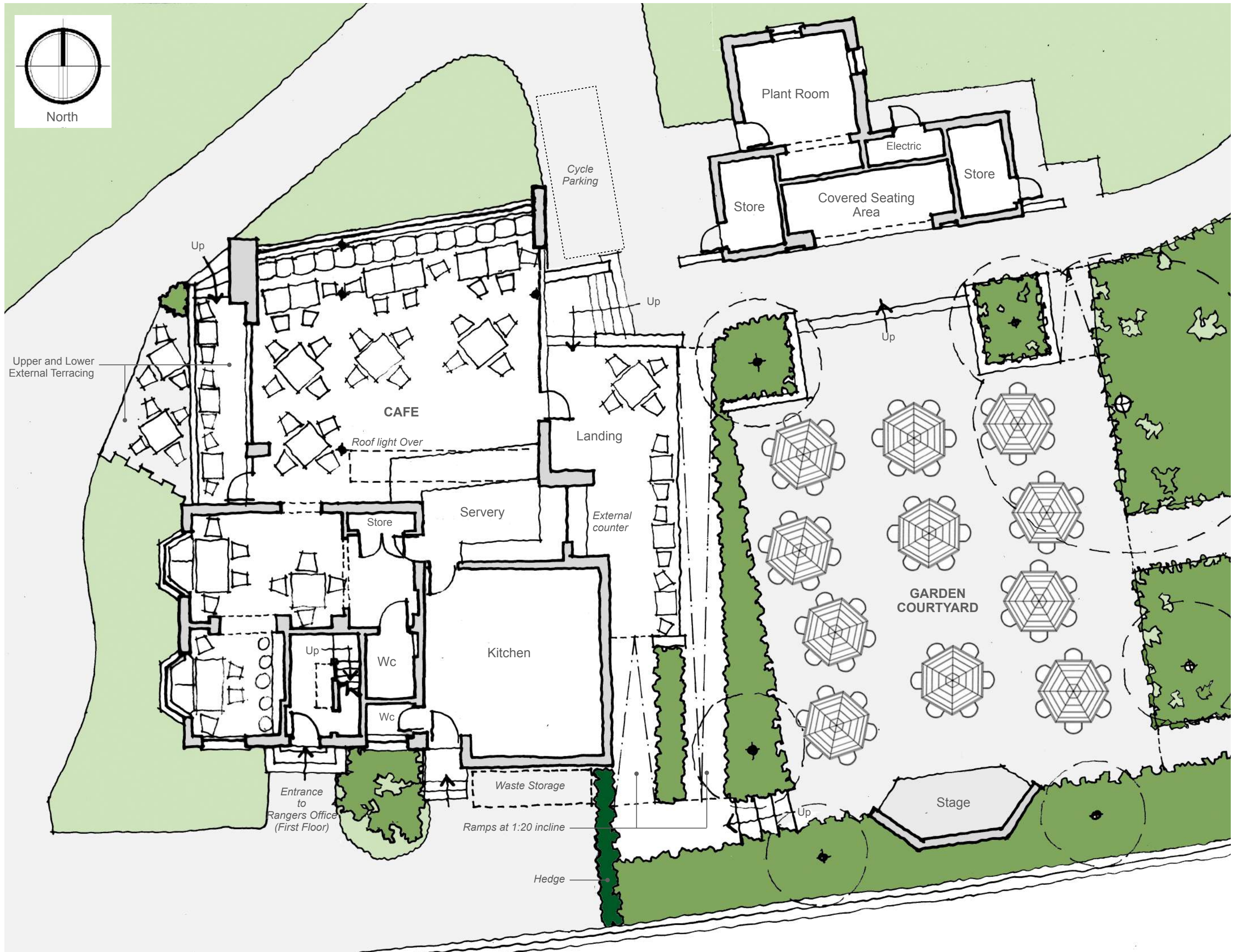
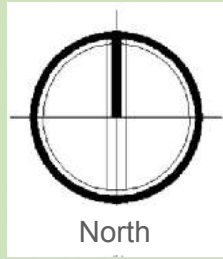
Drawing No.: E1224-1-8 Rev A

328800E

328800E

328800E

B Proposed Development Plan



B. Kitchen extension extended east. 12/09/2024
A. Cafe extensions moved north. 05/09/2024

DRAWING NO.	REV.	Date
4121_Sk240722_02.	B	22.07.24

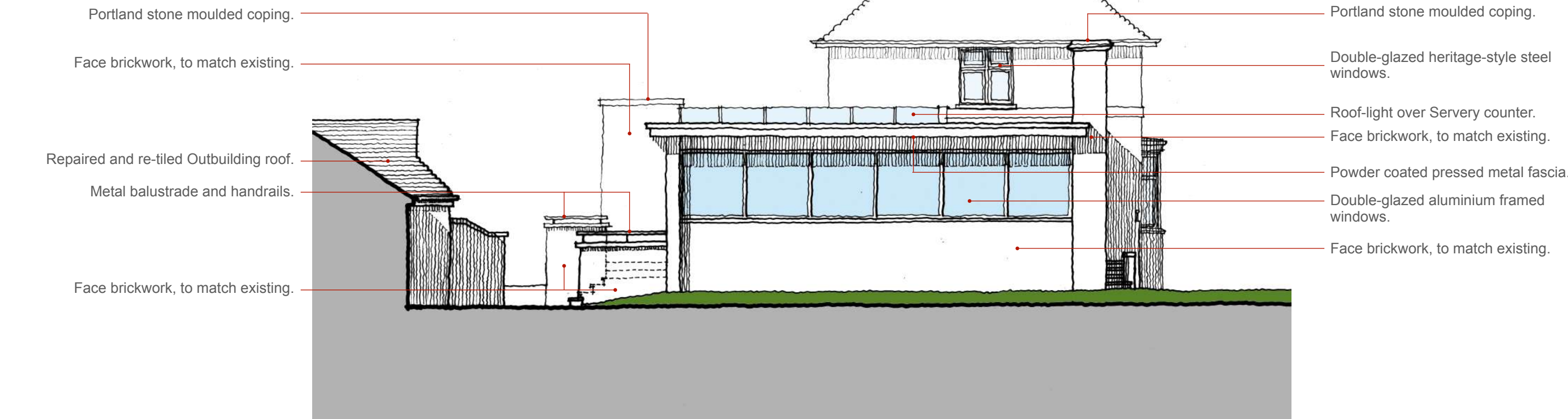
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