

FLOOD CONSEQUENCE ASSESSMENT

ALDI STORE - MAFON ROAD, NELSON, CAERPHILLY

CLIENT



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Revision	Date	Notes	Author	Checked	Approved
A	14.02.24	Initial issue	WAH	CJ	RAG

1. INTRODUCTION

- 1.1. This Flood Consequence Assessment (FCA) has been prepared to support a planning application for the proposed development of a retail food store at the request of Aldi Stores Ltd. This FCA has been prepared in line with the relevant legislation and guidance, as detailed below.
- 1.2. The Welsh Government's policy with respect to development in flood risk areas is set out in Planning Policy Wales, Technical Advice Note 15: Development and Flood Risk published in July 2004 (TAN15). TAN15 supplements Planning Policy Wales (PPW).
- 1.3. The objective of this report is to assess the flood risk to the site and evaluate whether the proposed development meets the requirements of TAN15.
- 1.4. It was intended that the 2004 version of TAN15 would be superseded by a revised version, published in October 2021, with planning applications determined after 1st December 2021 subject to assessment under the revised 2021 version. However, it was announced in November 2021 in a Written Statement by the Minister for Climate Change that implementation of the new version would be suspended until June 2023 and that the 2004 TAN15 would continue as the applicable framework for assessing flood risk in the planning system. In May 2023 it was announced that following re-consultation it was unlikely that the new TAN will come into force before the end of 2023, and as of February 2024 no further announcements on the matter have been made. The 2004 guidance and Development Advice Map therefore remain applicable. NRW advise that whilst the Flood Map for Planning which is associated with the new TAN15 currently has no official status, it represents the best available information on flood risk and should be used to inform FCAs.
- 1.5. This report has been developed using information from Natural Resources Wales (NRW) including online mapping, Dŵr Cymru / Welsh Water asset mapping, and other site-specific information.

2. PROPOSED DEVELOPMENT SITE

2.1. Site Location

The site is located at the site of the current Co-op food store, Mafon Road, Nelson, Caerphilly, CF46 6PE and national grid reference ST 1079095063. A location plan is included as appendix A.

The total site area is approximately 1.08 hectares. The site is bounded to the north by Mafon Road, to the south and east by open fields, and to the west by the Texaco petrol station.

2.2. Topographical Survey Data

A topographic survey of the site has been carried out by Berry Geomatics, drawing ref. 15/21. A copy of this survey is included in appendix B.

The topographic data shows that the site is relatively flat with levels typically in the range of 141.43 to 141.87m AOD, with the area around Mafon Road being the lowest.

The site is currently occupied by a Co-op food store and associated car parking.

3. DEVELOPMENT PROPOSALS

It is proposed to demolish the existing Co-op food store and construct in its place an Aldi food store with associated parking, access, and landscaping. The public vehicle and pedestrian access as well as delivery vehicle access will be from Mafon Road. Refer to appendix C for the Proposed Site Plan.

4. FLOOD RISK FEATURES

The site is not located close to the coast or any NRW main river. A small culverted watercourse currently crosses the site running from east to west, running almost parallel to Mafon Road.

5. ASSESSMENT OF RISK

5.1. Data Sources

(a) Relevant extracts from NRW online mapping are included in appendix D.

5.2. TAN15 Development Advice Map

A relevant extract from the Natural Resources Wales online Development Advice Map (DAM) is shown in appendix D. This map shows that the site and surrounding area is classified as DAM Zone A, which describes areas considered to be at little or no risk of fluvial or coastal/tidal flooding.

5.3. TAN15 (2021) Flood Map for Planning Wales

An extract from the NRW Flood Map for Planning with various data sets highlighted is also included in appendix D. On the Flood Map for Planning, the site is shown to be in Flood Zone 1 with respect to flooding from both fluvial and tidal flooding. This represents an annual risk of less than 0.1% of flooding from the sea or river, including the effects of climate change. With respect to flooding from surface water and overland flows, the majority of the site is designated as Flood Zone 3, representing an annual risk of more than 1%, including the effects of climate change.

5.4. Tidal and Fluvial Flood Risk

Since the site is not considered to be at risk from these sources of flooding, no further justification or special measures are required.

5.5. Surface Water Flooding

It is apparent from the flood mapping included in appendix D that the surface water flood risk to the site originates primarily from overland flows entering the site from the fields to the east and exiting to the west. Without other mitigation measures being taken, climate change over time will increase the risk of surface water flooding, commensurate with a predicted increase in rainfall intensity. The surface water drainage strategy is covered in Section 9 of this report.

5.6. Sewer Water Flooding

There is a combined sewer that runs along Mafon Road to the north of the site. There are no known records of sewer flooding within the area. In the unlikely event that flooding from this sewer was to occur, any overflow would tend to be directed towards the highways drainage.

5.7. Ground Water Flooding

There is no known history of ground water flooding at the site.

Reservoir Flooding

It is important to consider the potential failure of reservoirs as if these bodies of water are breached or fail then rapid inundation could occur downstream. The NRW website provides mapping to show the flood risk from reservoirs. This is included in appendix D and shows that the site is not considered to be at risk from this form of flooding.

5.8. Historic Flood Data

Anecdotal reports indicate that in the past the culvert running through the site has become blocked due to a build up of debris at the trash screen at its upstream end and this has resulted in some local flooding to the upstream channel that has extended into the adjacent A472 Mafon Road.

In May 2019, notice was served by Caerphilly Council on the Co-op store informing the store that as landowners they held riparian responsibility for the watercourse running through the site and therefore responsibility for maintenance of the headwall and trash screen. Records show that the trash screen was replaced in or around March 2021 and that an appropriate maintenance regime has subsequently been followed. It is understood that no flooding events have been noted since this time, suggesting that the situation has been considerably improved. Refer to appendix E for relevant correspondence.

5.9. Additional Issues Considered in the Assessment of Flood Risk

- (a) Obstruction to the flow of water during a flood event – the site layout and levels will be arranged such that any overland flows entering the site will not be obstructed and will not encroach on the building.
- (b) Obstruction to watercourses or access to them – the culverted watercourse is understood to run directly beneath the existing building. As part of the redevelopment of the site the building will be demolished and replaced with car parking, therefore making excavation to access the culvert considerably easier should it ever be required. Access to the upstream headwall of the culvert is within the site boundary and will be retained as in the existing arrangement.

6. FLOOD CONSEQUENCES AND ACCEPTIBILITY CRITERIA

The information included with this FCA demonstrates that the site is not considered to be at risk of fluvial or tidal flooding. The development therefore meets the requirements of the threshold frequency criterion in Welsh Government advice on flood risk TAN15 (2004) A1.14.

7. MITIGATION MEASURES

Based on the extents of Flood Zone 2 as shown on the NRW Flood Map for Planning, it is estimated that surface flood water could reach a level of up to 141.75m AOD in the 1 in 1000 year (0.1% AEP) scenario. It is proposed that the new store will be constructed with a floor level of 142.00m AOD, 200mm higher than the existing building on site, therefore ensuring that water will not cross the building threshold even in this extreme scenario. As the new landowners, Aldi Stores Ltd will become responsible for the maintenance of the culvert trash screen, and keeping it debris-free will serve to limit the frequency and severity of any future surface water flood events.

8. THE SUITABILITY OF SITE FOR DEVELOPMENT

8.1. Compatibility of Proposed Development

As shown in section 5, the site is classified as being within TAN15 (2004)'s Development Advice Zone A and TAN15 (2021) Flood Map for Planning Flood Zone 1. The proposed development being a "commercial and retail development" is classified by TAN15 as "less vulnerable development". Less vulnerable development located in Flood Zone 1 is considered compatible provided that the development does not increase flood risk elsewhere.

Figure 1 – Summary of national policy requirements for new developments

Flood Map for Planning Zone	Development Type	Development Advice	Planning Requirements	Acceptability Criteria
1	All	No constraints relating to flooding from rivers or the sea, other than to avoid increasing risk elsewhere.	Justification test not applicable. Flood resistant and resilient design in locally-defined areas of current or future flood risk. Refer to surface water requirements set out in section 8 and in the Development Plan.	<ul style="list-style-type: none"> • No increase in flooding elsewhere.
TAN 15 Defended Zones	All	Plan allocations and applications for development can proceed subject to justification in accordance with section 10 and acceptability of consequences in accordance with section 11.	Application of justification test (section 10), and acceptability of consequences test (section 11). Refer to surface water requirements set out in section 8 and in the Development Plan.	<ul style="list-style-type: none"> • Acceptable consequences for type of use. • Agreement for construction and maintenance costs secured. • Occupiers aware of flood risk. • Escape/evacuation routes present. • Flood emergency plans and procedures. • Flood resistant and resilient design. • No increase in flooding elsewhere.
Rivers and Sea – Flood Zone 2	All	Plan allocations and applications for development can proceed subject to justification in accordance with section 10 and acceptability of consequences in accordance with section 11.	Application of justification test (section 10), and acceptability of consequences test (section 11). Refer to surface water requirements set out in section 8 and in the Development Plan.	<ul style="list-style-type: none"> • Acceptable consequences for type of use. • Agreement for construction and maintenance costs secured. • Occupiers aware of flood risk. • Escape/evacuation routes present. • Flood emergency plans and procedures. • Flood resistant and resilient design. • No increase in flooding elsewhere.

The proposed Aldi store represents a redevelopment of an existing paved site and a small net decrease in total positively drained area. The new drainage system will discharge to the watercourse at a controlled rate with appropriately sized attenuation. In a surface water flooding event, overland flows will be permitted to pass through the site as in the existing arrangement. The development therefore will not increase flood risk elsewhere.

9. MANAGING SURFACE WATER

9.1. Existing Site Drainage

The surface water drainage for the existing Co-op discharges into the existing culverted watercourse that runs across the site from east to west. The existing foul drainage discharges into the public foul sewer that runs along Mafon Road.

9.2. Proposed Surface Water Drainage Strategy

Following the implementation of Schedule 3 of the Flood Water Management Act 2010 in Wales, developments with a construction area greater than 100m² are required to incorporate Sustainable Drainage Systems (SuDS). All such systems are required to be approved by the SuDS Approval Body (SAB) under an approval application and required to be adopted by the SAB where they serve more than a single property. As such, surface water drainage for the proposed site will be developed and approved under a SAB application separate to the planning process.

Infiltration of surface water generated by the development is not expected to be viable due to potential near-surface contamination. It is therefore proposed to discharge all surface water run-off from the site into the watercourse that passes through the site via a new outfall immediately upstream of its inlet, with a flow control device to mimic equivalent greenfield rates.

Surface water will discharge by gravity for as much of the site as possible, however it is anticipated that pumping may be required for the lowest parts of the site including the HGV delivery ramp. The system will be designed to have enough attenuation storage capacity to prevent flooding for all storm durations up to and including the 1 in 30-year return period event, plus a 40% increase in rainfall intensity as allowance for climate change. MicroDrainage System 1 software will be used to size the pipes and MicroDrainage Simulation and Source Control software will be used to model the integrated below ground drainage system.

The drainage system will also be checked for the 1 in 100-year return period events plus 40%. Any surface water flooding will be retained on the site during these storm events, via ponding in low points in car park areas. Any ponding will not affect the proposed building or access/egress routes.

In the event of drainage system failure or exceedance (beyond 1 in 100-year events), flow routes will be away from the proposed and existing buildings which will not be affected. Refer to appendix F for sketch illustrating overland flow routes on and around the site.

The surface water drainage systems for the ALDI will not be offered for adoption to the SAB.

The design of the private drainage will be developed in accordance with the requisite standards, including current Building Regulations Approved Document Part H. Refer to appendix G for the preliminary proposed drainage layout.

9.3. Proposed Foul Water Drainage Strategy

Foul drainage will discharge to the existing public sewer which runs along Mafon Road, similar to the existing arrangement. The invert of the foul sewer is approximately 3 metres below the proposed FFL of the new store, and it will be possible to discharge to this destination via gravity.

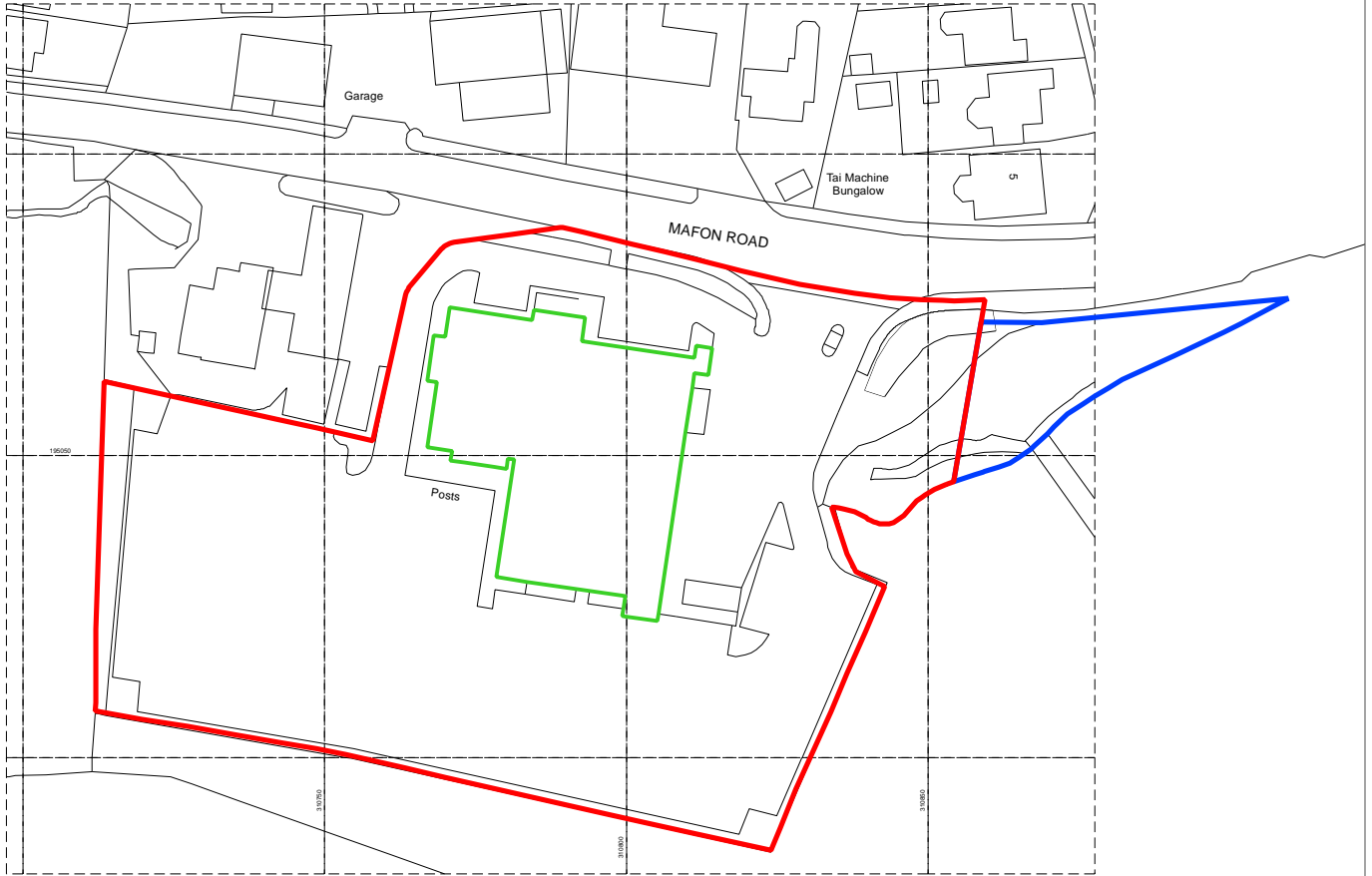
A Section 106 direct sewer connection application for the new store will need to be completed and agreed with Welsh Water prior to construction. Foul drainage proposals are included on the preliminary drainage layout in appendix G.

10. SUMMARY & CONCLUSIONS

- (a) The site is not at risk of tidal or fluvial flooding.
- (b) The Development Advice Map currently classifies the site as TAN15 (2004) flood zone A.
- (c) According to NRW flood mapping the site is at risk of surface water flooding, however this will be mitigated by the presence and continued maintenance of the new trash screen at the upstream end of the culvert which runs through the site. Run-off from the site to the watercourse will be controlled by means of a flow control and appropriately sized attenuation. In the event that any residual surface water flooding does occur it will affect the car park only, and will not encroach on the building.
- (d) The site is not at elevated risk from other forms of flooding.
- (e) The site is not at risk from tidal or fluvial flooding within the commercial thresholds set out by TAN15 over a 75-year commercial design life.
- (f) The finished floor level of the building will be higher than other site levels, to mitigate the impact of floodwater on site, and prevent ingress of water to the building.
- (g) Surface water generated by the proposed development will be discharged to the culverted watercourse which runs beneath the car park, with appropriately sized attenuation to prevent flooding on site and minimise the impact on other sites downstream.
- (h) Foul water generated by the proposed development will discharge via gravity to the public sewer on Mafon Road.

APPENDIX A

Site Location Plan



0 10 20 30 40 50 M

Scale 1/1250 @ A4

Application Area

10,160 m²

Site Address

Mafon Rd
Nelson
Treharris
CF46 6PE



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Project
Mafon Road, Nelson, Caerphilly

Client
Aldi Stores Ltd

Date
17/08/2023

Drawn
DG

Purpose/Status
PLANNING

Scale
1/1250

Checked
JS

Paper Size
ISO A4

Filename
200413 Planning Master.vwx

Project 12/02/2024 JS GS Co-op to be demolished edged in green. Project description updated.

Project 08/01/2024 DG JS Preliminary Issue

Rev **Date** **By** **Ap** **Note**

Drawing Title
Site Location Plan

Project Number/Drawing Number

200413-1000

Check all dimensions and levels on site

Revision

P02

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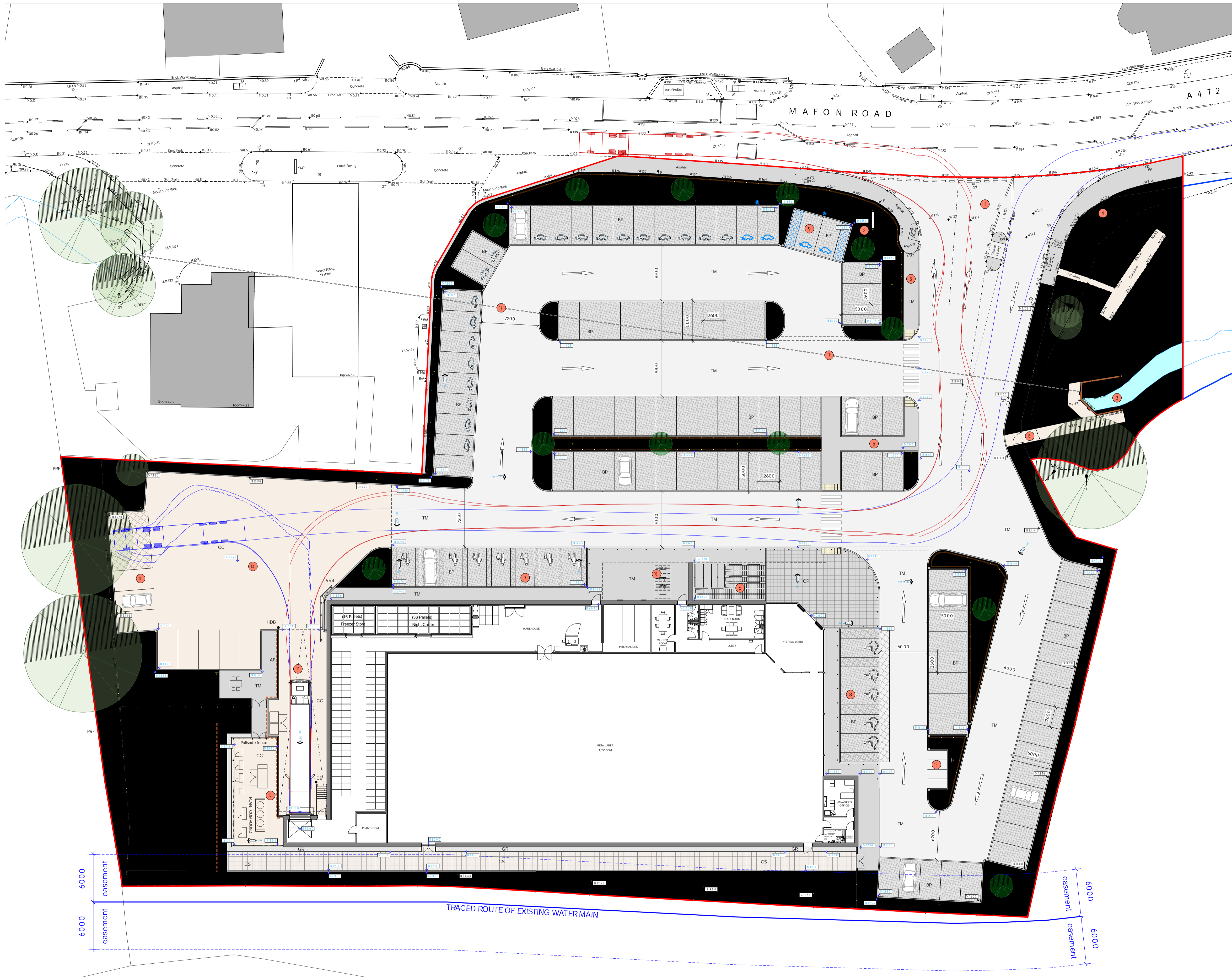
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APPENDIX B

Topographic Survey

APPENDIX C

Proposed Site Plan



- ### Key
- Site Application Boundary
 - TM Denotes tarmac finish
 - CC Denotes concrete surface finish
 - CS Denotes concrete slab finish
 - GR Denotes gravel finish
 - BP Denotes block paving, herringbone pattern
 - CPT Denotes conservation paving, colour charcoal grey
 - Denotes landscaped area with misc planting within application area. Refer to separate soft landscaping proposals
 - ↻ Denotes parking space with electric vehicle charging point
 - ↻ Denotes parking space with infrastructure installed for the future conversion to electric vehicle charging point (20no in total)
 - Existing trees. Refer to separate arboricultural report
 - Proposed trees
 - 2.0m high timber acoustic grade fence
 - 1.8m high timber close boarded fence
 - 1.2m high timber post and rail fence
 - 450mm high timber knee rail
 - Vehicle restraint barrier
 - ↕ Existing site level
 - ↕ Proposed site level
 - Denotes lighting column
 - Heavy duty bollards
 - New stainless steel anti ram bollards

- ### Annotations
- 1 Site access retained as existing
 - 2 Aldi pole sign subject to separate advert consent application
 - 3 Existing headwall to culvert running under car park
 - 4 Possible future location for electric sub station (subject to agreements with statutory provider)
 - 5 Pedestrian route to store
 - 6 Covered trolley bay
 - 7 Parent & Child spaces
 - 8 Disabled spaces
 - 9 Active EVCP spaces
 - 10 Cycle parking
 - 11 Loading bay ramp and bin store
 - 12 External plant area enclosed by 2.5m high palisade fencing
 - 13 Service yard
 - 14 Staff parking
 - 15 Motorcycle parking
 - 16 Maintenance access to headwall
 - 17 Route of existing culvert (line between existing pipe openings)

Car Parking Numbers 120
Typically 2.6m x 5.0m spaces

STANDARD	95
DISABLED	5
PARENT & CHILD	8
ACTIVE EVCP	4
STAFF	8
MOTORCYCLE	4
BICYCLE	8



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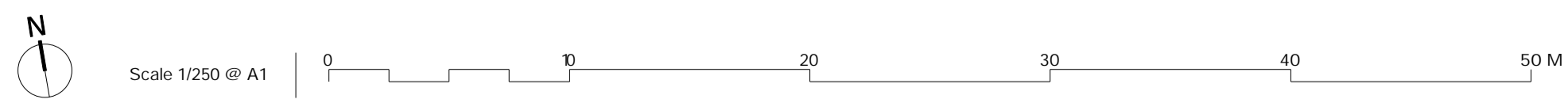
Project: Mafon Road, Nelson, Caerphilly
Client: Aldi Stores Ltd

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Date:	30/01/2024	Drawn:	JS	Purpose/Status:	PLANNING
Scale:	1:250	Checked:	GS	Page Size:	ISO A1
Filename:	200413 Planning Master.vwx				

Drawing Title:	Proposed Site Plan
Project Number/Drawing Number:	200413-1310
Revision:	P03

Rev	Date	By	Ap	Note
P03	12/02/2024	JS	GS	Project description updated. Future EV's banked together. Acoustic fence to plant enclosure moved further west. Proposed site levels added.
P02	08/02/2024	JS	GS	HGV tracking added. Notional easement to culvert under car park removed.



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APPENDIX D

NRW Flood Mapping