



TOPPING ENGINEERS

CONSULTING CIVIL &
STRUCTURAL ENGINEERS

FLOOD RISK ASSESSMENT

LOCATION:

LIDL – Monk's Cross, York, YO32 9GX

CLIENT:

Lidl GB

DOCUMENT REF:

21650-FRA-001

REVISION/DATE:

Revision F

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Revision	Description	Date	Author	Checked
A	First Issue	OCT 2021	S Fenwick	A.Dyson
B	Updated to include most recent site layout	May 2022	T Andrews	A Dyson
C	Updated to suit clients' comments	May 2022	T Andrews	A Dyson
D	Updated to suit new site layout	Oct 2023	J Sellers	P Beeley
E	Updated to suit comments	Nov 2023	O Gill	J Sellers
F	Updated new site layout	Nov 2023	J Sellers	P Beeley

1.0 INTRODUCTION

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of the Lidl GB in respect of a planning application for the proposed (LIDL) development at Monk's Cross, York.

Site Name	Lidl Monk's Cross
Location	Jockey Lane, Monks Cross, Huntington, York
NGR (approx.)	462425, 455060
Application Site Area (ha)	1.3ha
Development Type	Retail
NPPF Vulnerability	Less
EA Flood Zone	Flood Zone 1
EA Office	Yorkshire
Local Planning Authority	City of York Council

Table 1.1 - Site Summary

1.1 SOURCES OF DATA

The report is based on the following information:

- i. Topographical Survey (Appendix A)
- ii. Proposed Site Layout (Appendix B)
- iii. Environment Agency information
- iv. City of York Strategic Flood Risk Assessment

1.2 EXISTING SITE

The site in question is located to the north east of the city of York, approximately 3.0km away from the city centre. The site is approximately 1.3ha in size and is bounded by Monk's Cross Drive to the east and other industrial business to the north and south.

From Appendix A it can be considered that the development area is relatively flat. At the far east region of the site, the highest level is approximately 15.00 AOD. Contrastingly, in the far western area, the lowest level is approximately 16.00 AOD. Therefore, there is only a 1.00m change in levels on this site.

1.3 PROPOSED DEVELOPMENT



Figure 1.1 - Site Location

The proposed development is Demolition of the existing building and erection of a new Lidl food store (Use Class E) and drive-through unit with associated car parking and landscaping.

1.4 FLOOD RISK PLANNING POLICY

National Planning Policy Framework

The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online.

The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance.

Flood Zones

The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping is included as Figure 1.1.

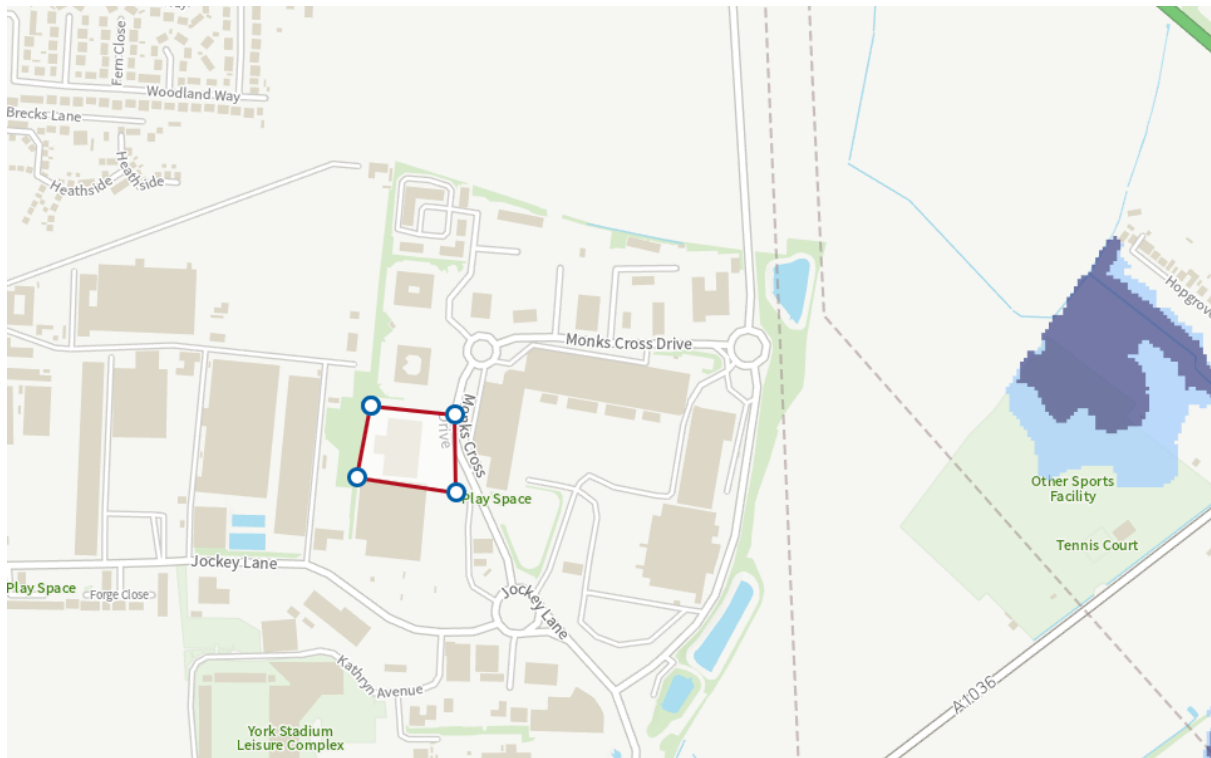


Figure 1.1 - Environment Agency Flood Zone Mapping

The site is shown to be located entirely within Flood Zone 1 (Low Probability) therefore the site is considered to be low risk of flooding. Flood Zone 1 is defined as land assessed as having less than a 0.1% annual probability of flooding from fluvial and tidal sources.

Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed Lidl Food Store is considered to be 'less Vulnerable' to the potential impacts of flooding.

Table 3 of the Planning Practice Guidance identifies that any development is considered appropriate within Flood Zone 1.

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable
Flood Zone 1	✓	✓	✓	✓
Flood Zone 2	✓	✓	Exception test required	✓
Flood Zone 3a	Exception test required	✓	x	Exception test required
Flood Zone 3b	Exception test required	✓	x	x

1.5 OTHER RELEVANT POLICY AND GUIDANCE

Strategic Flood Risk Assessment

The City of York Flood Risk Assessment (SFRA) was prepared to review flood risks on a much wider scale to assess the potential for new development within the study area. The SFRA was used as an evidence base for Local Development Frameworks for each Local Planning Authority.

The SFRA therefore aims to bring together all available flood risk information for a variety of sources to provide a robust assessment. The SFRA therefore is useful for this site-specific FRA by highlighting available data and instances of known flooding in the area. Although written under the guidance of Planning Policy Statement 25, the SFRA is still considered to include relevant information.

2.0 POTENTIAL SOURCES OF FLOOD RISK

The table below identifies the potential sources of flood risk to the site, and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within Section 3.0.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial			X		The site is located in flood zone 1.
Tidal				X	There are no tidal influences effecting the site.
Canals				X	None present.
Groundwater			X		Ground conditions are not conducive to fluctuating groundwater levels.
Reservoirs and waterbodies				X	The site is shown to fall outside of the catchment for reservoir and waterbodies flooding.
Sewers			X		The site in question is higher than the surrounding sewers therefore there is a very low risk.
Pluvial runoff		X			An area of the site is within a medium-risk area of surface water flooding.
Effect of Development on Wider Catchment				X	The impermeable area of the site is not being altered.

Table 2.1 - Pre-Mitigation Sources of Flood Risk

2.1 FLUVIAL FLOOD RISK

As previously mentioned, the site is shown to be within Flood Zone 1 and therefore poses a low risk to the proposed development.

The risk of flooding posed to the proposed development is low. This is because there is only one watercourse near the site that can pose a threat. However, the watercourse is 75m away from the site and is it a lower level.

Mitigation measures to address the residual risk posed by the watercourses surrounding the site are discussed within Section 3.0 of this report.

2.2 GROUNDWATER FLOOD RISK

Subject to completion of site investigation to confirm we would assume that natural ground water level is located well below the site surface and the nature of the strata means it is unlikely that there will be perched water above this level.

We therefore do not consider there is a risk of groundwater flooding affecting the development subject to final confirmation upon completion of suitable site investigation.

2.3 FLOOD RISK FROM RESERVOIRS & LARGE WATERBODIES

Reservoir failure flood risk mapping has been prepared by the Environment Agency, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map displays a worst-case scenario and is only intended as a guide. An extract from the mapping is included as Figure 2.1.

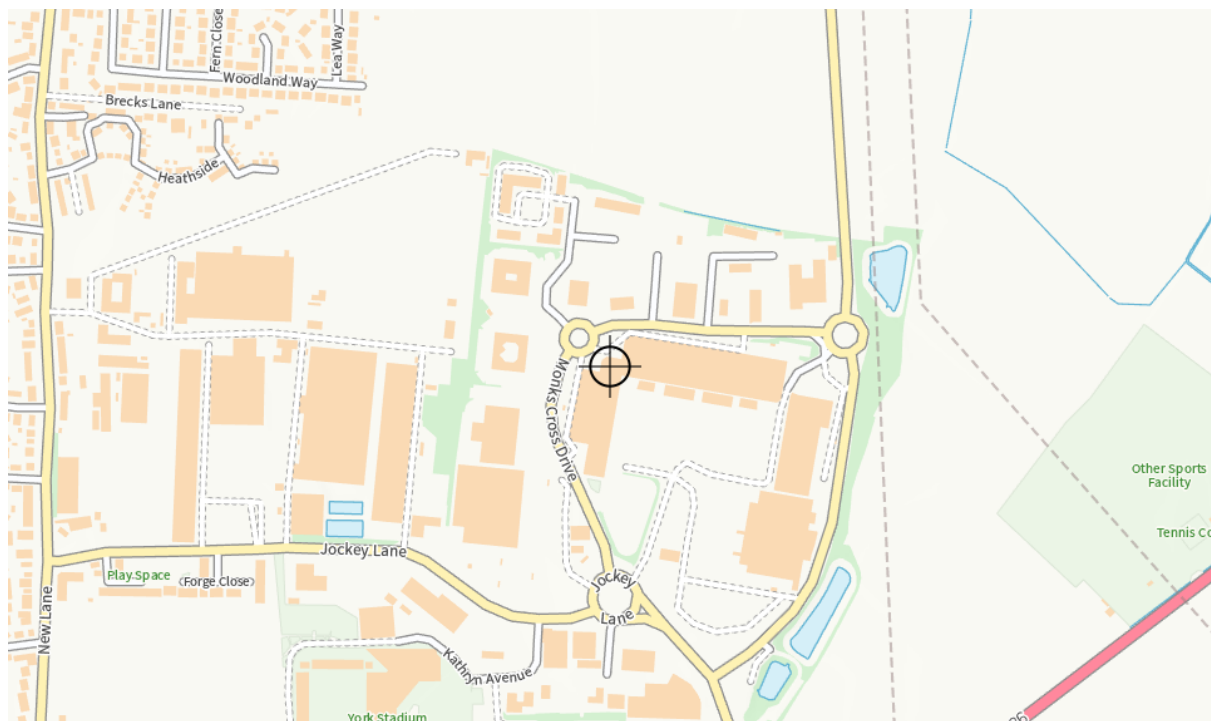


Figure 2.1 - Environment Agency Reservoir Failure Flood Risk Map

Mapping demonstrates the site and possible access routes are far removed from the flood extent associated with flooding from large reservoirs. A review of Ordnance Survey mapping shows that no areas or reservoir flooding encroach the site.

As such, there is considered to be no risk from reservoir flooding.

2.4 FLOOD RISK FROM SEWERS

The site in question lies above any main roads which is potentially where any Yorkshire Water sewers will lie.

As such, it is considered that there is no risk of flooding from sewers.

2.5 PLUVIAL FLOOD RISK

Risk of flooding from surface water mapping has been prepared by the Environment Agency, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as Figure 2.

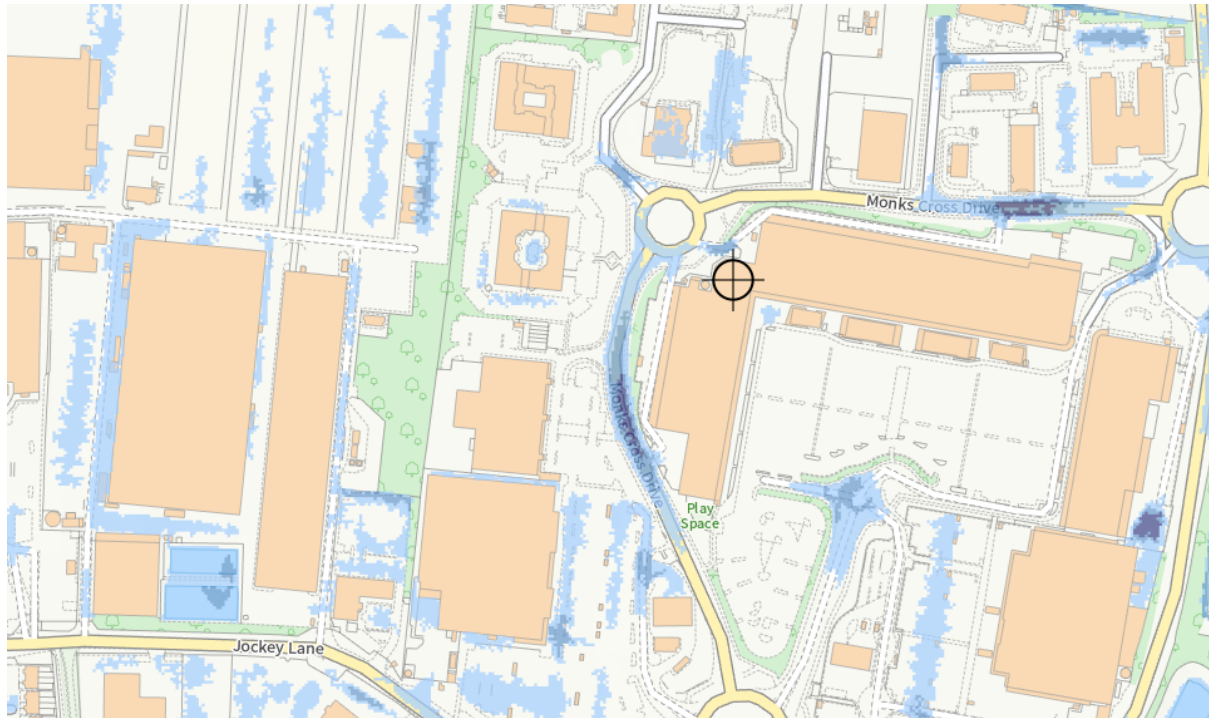


Figure 2.2 - Risk of Flooding from Surface Water Mapping

The mapping produced by the Environment Agency shows that there are several small areas of the site that are at risk of surface water flooding. These areas do not encroach the existing building and the new development will alter levels and provide a positive drainage system therefore mitigate any localised pluvial flooding associated with topographical low spots.

Therefore, the risk posed by this threat is considered negligible.

2.6 EFFECT OF DEVELOPMENT ON WIDER CATCHMENT

2.6.1 Development Drainage

The current site is considered to be brownfield. The amount of impermeable area will be altered and a 30% betterment provided with new development. Attenuation will be needed to 1in100 years plus 30% climate change. This therefore reduces the risk to the wider catchment are in regards to flooding.

As such a site specific Drainage Strategy has been produced by Topping Engineers which will accompany this FRA in the application.

3.0 FLOOD RISK MITIGATION

Section 2.0 has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be considered within the proposed development detail design to address and reduce the risk of flooding to within acceptable levels.

3.1 SITE ARRANGEMENTS

3.1.1 Sequential Arrangement

The Flood Zone mapping shows the site to be located within flood zone 1.

3.1.2 Finished Levels

Given the site's location within Flood Zone 1, there are no specific requirements for finished floor levels with regard to flood risk. However as is good practice FFLs will be set 150mm above existing levels and external areas set to fall away from buildings.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of LIDL GB.

This report demonstrates that the proposed development is not at significant flood risk, and simple mitigation measures have been recommended to address any residual risks that may remain. The identified risks and mitigation measures are summarised within Table 4.1.

Flood Source	Proposed Mitigation Measure
Fluvial	Site is shown to be in Flood Zone 1.
Impact of the Development	Strategic surface water drainage strategy prepared for wider development will ensure a sustainable approach to surface water management.

Table 4.1 - Summary of Flood Risk Assessment

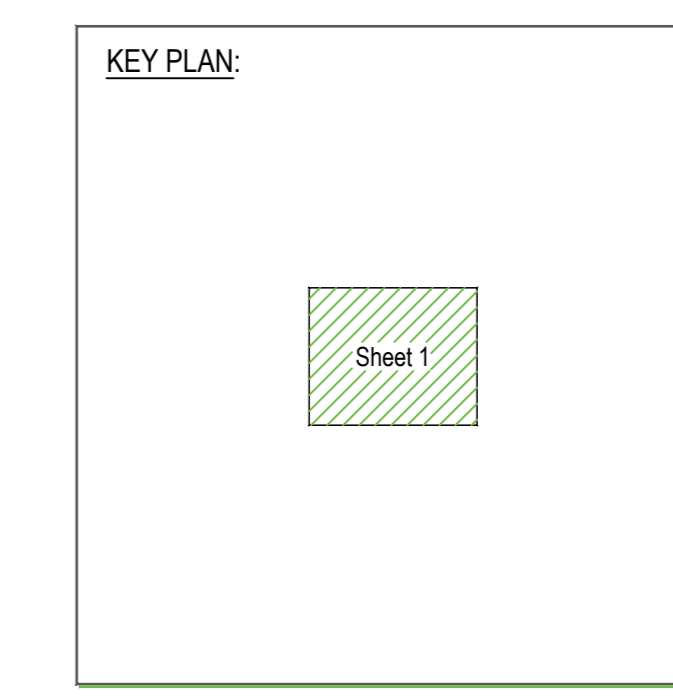
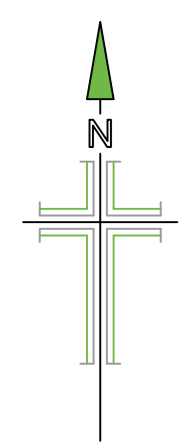
In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area as a result of suitable management of surface water runoff discharging from the site.

5.0 APPENDICES

Appendix A – Topographical Survey

Appendix B – Proposed Site Layout

Appendix A
Topographical Survey



Utility	Symbol	Color
Electric	Blue dashed line	Blue
Gas	Red dashed line	Red
Water	Green dashed line	Green
Sewer	Yellow dashed line	Yellow
Other	Purple dashed line	Purple

GENERAL NOTES:

General Notes: This drawing is a site plan showing the location of all utility lines and structures shown on the plan. It is not intended to be used as a guide for excavation or construction. The location of utility lines is shown as approximate only and should be verified by a utility locator or by a competent person before any excavation or construction work is carried out. The location of utility lines is shown as approximate only and should be verified by a utility locator or by a competent person before any excavation or construction work is carried out.

Method used: The location of utility lines has been determined by a combination of the following methods: 1. Utility records; 2. Visual inspection; 3. Ground Penetrating Radar (GPR); 4. Direct observation.

Accuracy: The location of utility lines is shown as approximate only and should be verified by a utility locator or by a competent person before any excavation or construction work is carried out.

Scale: The drawing is drawn to a scale of 1:100.

Units: All dimensions are in meters.

Warning: The location of utility lines is shown as approximate only and should be verified by a utility locator or by a competent person before any excavation or construction work is carried out.

Legend:

Utility	Symbol	Color
Electric	Blue dashed line	Blue
Gas	Red dashed line	Red
Water	Green dashed line	Green
Sewer	Yellow dashed line	Yellow
Other	Purple dashed line	Purple

ABBREVIATIONS:

Symbol	Description
BT	Brick Trench
EL	Electric Line
GP	Ground Penetrating Radar
G	Gas
W	Water
S	Sewer
O	Other

DESKTOP UTILITY RECORDS

Utility Type	Provider Details	Date Acquired
Gas	Northern Gas	22/09/21
Water / Sewers	Yorkshire Water	22/09/21
Electric	Northern Powergrid	22/09/21
BT	Openreach	22/09/21
Telecoms	Vodafone and City Fibre	22/09/21

SURVEY AND DATUM INFORMATION:

Pseudo Distance Survey plane grid tied to National Grid via GPS observations at survey control point STN01. Bearing 3.7901 to STN02, 252° 24' 12". Survey control as indicated.

Station Name	Easting	Northing	Height
STN01	482051.346	492051.195	14.658
STN02	482051.838	492051.245	14.654
STN03	482051.894	492051.196	14.619
STN04	482051.793	492051.795	14.658
STN05	482051.961	492051.341	14.617
STN06	482051.482	492051.124	14.644
STN07	482051.105	492051.289	14.658
STN08	482051.113	492051.794	14.619

UTILITY NOTES:

Services shown outside the survey boundary are for information only and may not be complete. If information is required outside our survey boundary, please contact a Technical Project Manager.

WEATHER CONDITIONS:

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Rev.	Date	First Issue	Revision	By
A	08/08/21	First Issue		LW

DO NOT SCALE!

Client: Lidl GB

Project: Monks Cross Shopping Centre, Houghton, York, YO32 9GX

Survey Quality: Topographical and QLB" Utility Survey

Start Date of Survey: 23/08/2021

Drawing Status: Final

Digital File: 5372-0821-01A.dwg

Drawing No: 5372-0821-01

Revision: A

Technics
Geospatial Consultant Surveyors

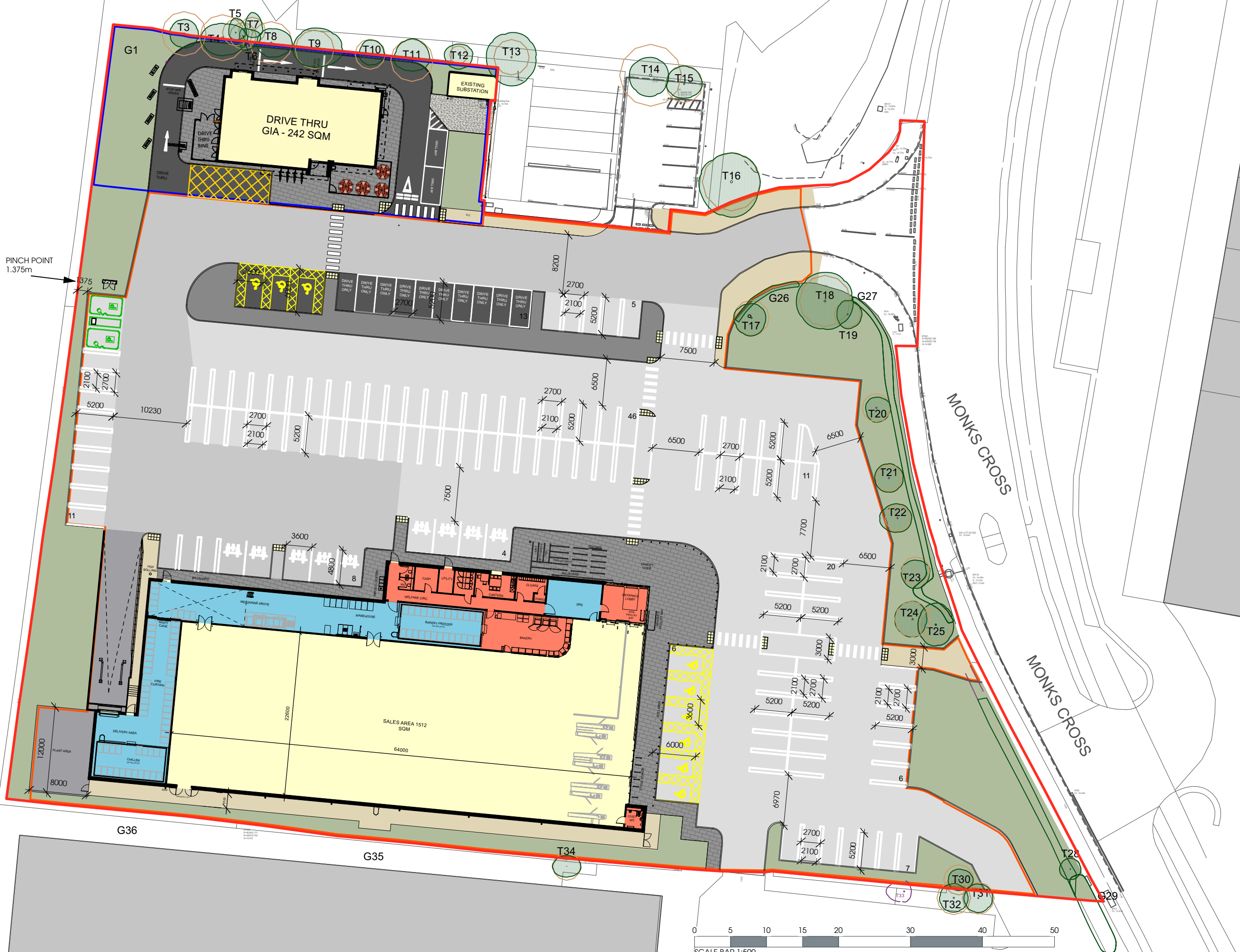
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1. Warning: Water and Gas utilities to individual properties are often of a size that cannot be detected using BML or GPR investigation. Whenever possible the route has been added from surface evidence (pipe risers, valves, etc), but this should be viewed as a guide only. Safe digging techniques shall be used at all times, in line with the requirements of HSE and current CDM regulations.

2. Warning: Assumed Route positions are indicative only and are in an approximate position. Safe digging practices in accordance with HSE/CDM7 must be used to verify the information and establish their actual position.

3. Warning: Records information and positions are indicative only and are in an approximate position. Safe digging practices in accordance with HSE/CDM7 must be used to verify the information and establish their actual position.

Appendix B
Proposed Site Layout



CAR PARK SCHEDULE

TOTAL IN SITE	(137)
LIDL TOTAL	(124)
DISABLED	6
PARENT AND CHILD	9
STANDARD SPACES	107
EVC	2
DRIVE THRU UNIT TOTAL	(13)
DISABLED	3
STANDARD SPACES	10

Site Area

Site Area=	12,621m ² /3.11 acres
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Developable Areas

Orange Area	9,785m ² /2.42 acres
Blue Area	1,199m ² /0.29 acres


SCHEDULE OF AREAS (TYPE 1500):

SALES	= 1512 m ²
WAREHOUSE	= 447 m ²
ANCILLARY	= 213 m ²
GIA	= 2172 m ²

C	03/11/2023	Proposed Tree planting removed and added annotation	BM
B	10/10/2023	Site entrance amended, car park adjusted following comments from Highways engineer	BM
A	25/09/2023	Adjusted parking layout to include pedestrian links	BM
Rev	Date	Description	Drawn

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project
Monks Cross, York

drawing title
Proposed Site Plan (Type 1500)

date **August 2023**
status **Planning**
scale **1:500 @ A3**
drawn **NG** checked **BM**
job no. **2504** dwg no. **P432** rev. **C**

