

DRAINAGE STATEMENT
McDonald's Wrexham, Plas Coch Road
(NB8104)

**Engineering, Design and
Surveying Consultants**
from inception to completion

Prepared for: McDonald's Restaurants Ltd
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Glanville

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1.0 Introduction

Purpose

- 1.1 This Drainage Statement has been prepared by Glanville Consultants Ltd on behalf of McDonald's Restaurants Limited to support a planning application for the development of a brownfield site into a McDonald's Restaurant with associated restaurant parking.

Site Location & Description

- 1.2 The site is located approximately 2.0km northwest of the centre of Wrexham as shown in Figure 1. The site is approximately 2368sqm (0.24 hectares) in area and is currently a car park bound by Argos to the west, the Plas Coch pub to the north, and by Plas Coch Road to the east and south. Access is from a side road off Plas Coch Road.
- 1.3 The site is currently a bituminous car park with several parking bays defining buildouts and islands.

Data Sources

Data used for this report is as follows:

- Topographical survey of the site – Glanville Consultants
 - On-line Flood Maps - .Gov
 - CCTV
 - Existing drainage network data and historical flooding records - AWAITED
 - Geotechnical & Geo-environmental data - PAM Brown - AWAITED
 - Site observations
- 1.5 All the topographical levels used in this report are to be considered above the Ordnance Datum (AOD) recorded at Newlyn in Cornwall.

2.0 Existing Conditions and Sources of Flooding

Topography

- 2.1 The levels undulate across the site, the highest part of the site is to the south west at +89.72 and the lowest part of the site is in the centre at +89.19. The pedestrian footpath surrounding the boundary is a 0.8m lower than the site in some places. Therefore, a retaining wall may be required subject to structural engineer's level design to the south east. See Figure 3 for the existing site survey. Further site inspection and level survey of the entire site are in the process of being completed at this moment in time.

Geology

- 2.2 Geological records indicate the ground conditions on the site consist of Made Ground overlaying Till and Devensian Deposits (superficial) which are underlain by mudstone, siltstone and sandstone (bedrock). The site report is currently yet to be completed.

Groundwater Quality

- 2.5 The Lle Geo portal for wales defines Source Protection Zones (SPZs) for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity to the groundwater source, the greater the risk.
- 2.6 The application site is currently defined by the Lle Geo portal for wales on-line mapping as being outside of any source protection zones.

Drainage

- 2.7 An existing surface water network has been identified on site; therefore, the design will try to use as much of the existing network as possible. A CCTV survey was carried out in May 2019; however, the majority of the information obtained from the survey is yet to be present. From the CCTV survey it is clear that the current surface water infiltrates to the ground via a soakaway.

3.0 Surface Water Drainage Proposals

Development Proposals

- 3.1 The proposed development consists of a McDonald's Restaurant with associated drive through lane and car park. The development layout can be seen in Figure 2.

Surface Water Drainage Strategy Influencing Factors

- 3.2 The Building Regulations (Part H) require that the roofs and paved areas around buildings to be adequately drained. Surface water drainage systems constructed for this purpose shall discharge to one of the following in order of priority: -
- A soakaway or some other adequate form of infiltration system, or if not practicable,
 - A watercourse, or if not practicable,
 - A sewer.
- 3.3 There are surface water drains /sewers within the site and the surrounding area. A copy of the public sewer records, which is operated by Welsh Water in this area, can be found in Appendix B.
- 3.4 The surface water drainage strategy is to tie in with the existing network and therefore discharge to a soakaway. Due to the site investigation report not being completed, an estimated infiltration rate of ($\times 10^{-5}$) has been assumed.

Climate Change

- 3.5 The Gov.UK web site includes guidance on Climate change allowances which was updated in February 2016. For peak rainfall intensity to the years 2070 - 2115 an upper end 40% and central 20% check is recommended. For simplicity all rainfall calculations have been completed with a 40% allowance for climate change.

Flow Rates & Attenuation

- 3.6 The site occupies an area of approximately 2368sqm. The existing (brownfield) discharge rate of surface water generated by this site is 32.8 l/s. The proposed discharge rate will be unrestricted in to the soakaway. Full calculations can be seen in Appendix A.
- 3.7 The proposed surface water drainage layout is shown in Figure 5. Rainfall will be collected from roofs and pavements by a combination of gutters, drainage channels and gullies. Once collected, rainfall from the restaurant roof and the eastern hardstanding areas will be directed through drains to a cellular attenuation tanks under the proposed car park. Surface water will leave this attenuation and enter a treatment chamber and finally discharge to the soakaway where the surface water will infiltrate into the ground.

Pollution Control

- 3.8 Pollution control measures are designed to minimise the transmittal of any pollutants, collected by runoff flowing over hard paved areas, to the sewer. Pre-treatment is provided with gulley's and catchpit manholes to remove silt and prolong the life of the pollution control treatment media. Pollution control measures for this site include a Naylor Smart Filter (or similar approved) installed downstream of the soak away to ensure all surface water is treated before infiltrating the site.
- 3.9 The suitability of the proposed treatment chambers is quantified in accordance with CIRIA C753 – the Simple Index Approach. Comparing the pollution indices in Table 1 with the mitigation indices in Table 2 and applying the formula below (for each pollutant), it can be seen that the suggested filter system will be sufficient to mitigate the likely pollution from roofs and paved areas: -

Total SuDs Mitigation Index (Table 2) $\geq$ Pollution Hazards Index (Table 1)

Table 1: Pollution Hazard Indices

Catchment Type	Pollution Hazard Level	Requirements for Discharge to surface waters	Pollution Hazard Indices		
			Suspended solids	Metals	Hydro-carbons
Commercial Roofs	Low	Simple Index Approach	0.3	0.2	0.05
Non-residential parking & delivery areas	Medium	Simple Index Approach	0.7	0.6	0.7

Table 2: Pollution Mitigation Indices

Type of SuDs	SuDs Mitigation Indices		
	Suspended solids	Metals	Hydro-carbons
Naylor Smart Filter (or similar)	0.8	0.65	0.98
Permafilter geotextile around Soakaway	0	0.2	0.1

Maintenance

- 3.10 Table 3 shows the maintenance programme to manage the SuDs within this development. All private drainage and soft landscaping will be maintained by McDonald's / PFS operator.

Table 3: Surface Water Maintenance Schedule

SuD's Element	Inspection and Maintenance	Frequency	Responsible Authority
Gullies and drainage channels	Inspection of chamber and channels if necessary, removal of silt/debris	Inspect quarterly and after any major pollution incident. Replace media when required.	McDonald's / PFS Operator
Inspection/manholes chambers	Inspection of chamber and channels if necessary, removal of silt/debris	Inspect monthly and after any major pollution incident. Replace media when required.	McDonald's / PFS Operator
Naylor Smart Filter	Inspection of chamber and if necessary, removal and replacement of filter media.	Inspect monthly and after any major pollution incident. Replace media when required.	McDonald's / PFS Operator
Attenuation Crates	Inspect inlet at adjacent catchpit manhole	Inspect monthly and after any major pollution incident.	McDonald's / PFS Operator

4.0 Foul Drainage Strategy

- 4.1 The proposed development will connect foul water flows to the public sewer in Mold Road, which at this location is a Ø150mm public sewer. The proposed discharge rate from the development is 2l/s. A copy of the proposed foul water drainage is show on Figure 5.
- 4.2 The restaurant drainage includes an alarmed grease trap to ensure that downstream of all the kitchen waste pipework, drains do not lose capacity due to grease build up and to prevent grease entering the public sewers.

Table 4: Foul Water Maintenance Schedule

SuDs Element	Inspection and Maintenance	Frequency	Responsible Authority
Inspection and manholes chambers	Inspection of chamber and channels if necessary, removal of silt/debris	Inspect monthly and after any major pollution incident. Replace media when required.	McDonald's / PFS Operator
Grease trap	Inspection of chamber necessary removal of silt/debris	Inspect fortnightly. Empty chamber when required.	McDonald's / PFS Operator

5.0 External Levels Strategy

- 5.1 The proposed external levels strategy ensures that the proposed levels tie in to existing as much as possible and that overland flow exceedance route does not change from the existing. A copy of the overland flow paths are shown on Figure 3.

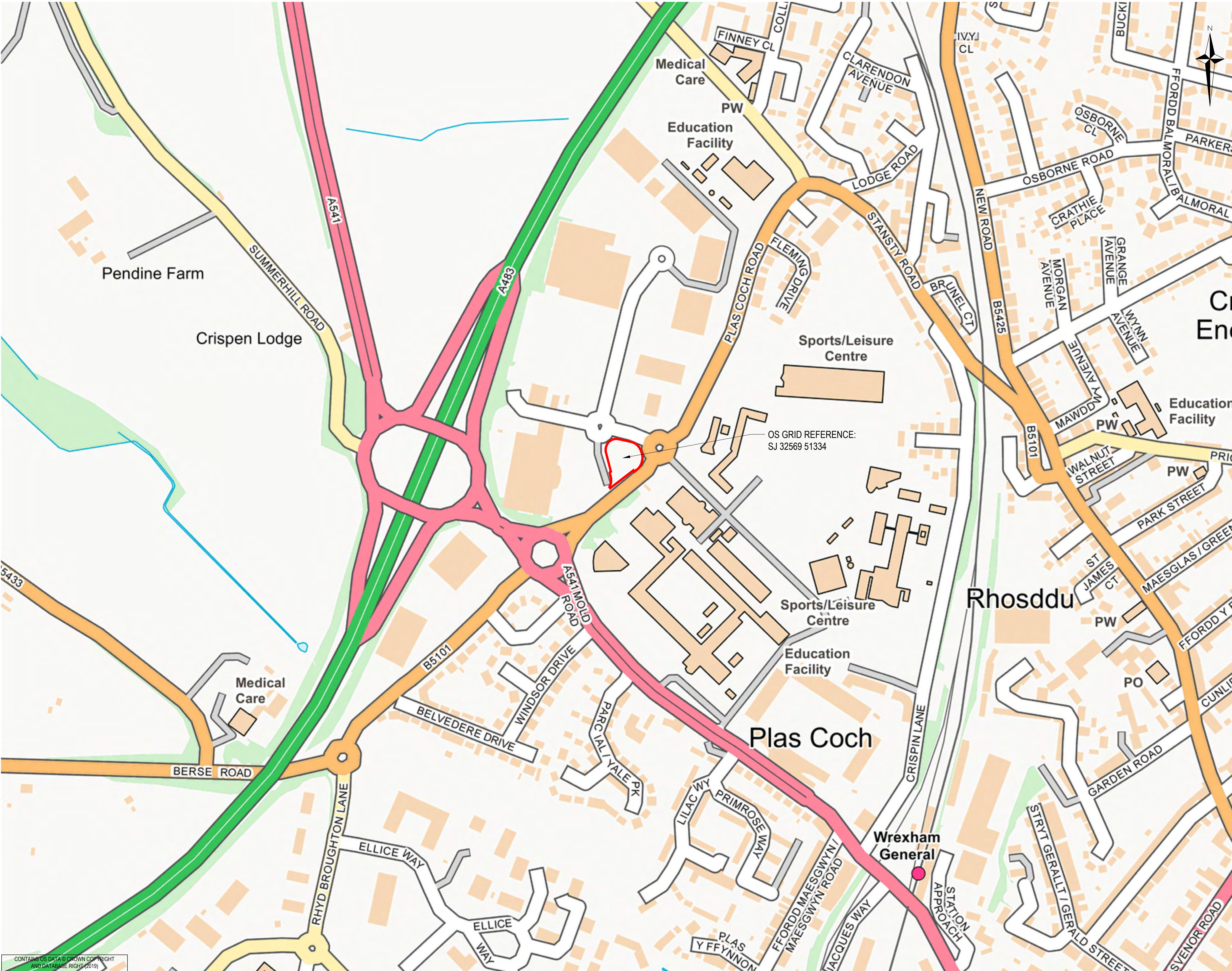
6.0 Further Investigations & Approvals

- 6.1 The information in this report is sufficient to demonstrate the suitability of the proposed development in respect of Flood Risk and Sustainable Drainage. It is expected that planning conditions will be imposed requiring drainage proposals to be in accordance with this drainage statement, and that details of the on-site foul and surface water drainage designs will be provided prior to commencement of works.
- 6.2 The drainage design must comply with the Building Regulations and approval will be required from a qualified Building Inspector.
- 6.3 Welsh Water will need to formally approve our proposal to connect to the foul sewer in Mold Road (Section 106 of the Water Industry Act).
- 6.4 The Lead Local Flood Authority (LLFA) for this site is Wrexham County Borough Council, who are yet to deem drainage design acceptable. The acceptance is also subject to Welsh Waters' formal approval of the strategy and the provision of calculations.

7.0 Conclusion

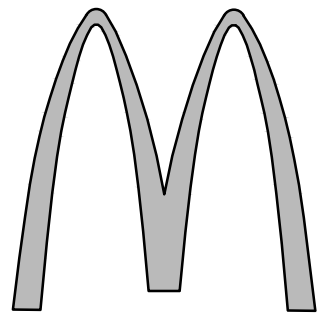
- 7.1 The development proposals have been designed after consideration of national and local planning policy and best practice guidance. The design includes features to reduce flood and pollution risks and to promote sustainable drainage practice.
- 7.2 Flood risks within the site are minimal due to its elevated height relative to surrounding land and water features.
- 7.3 The development's surface water drainage strategy follows sustainable drainage guidance and incorporates many features to mitigate the impact of run-off to both water quality and flooding. The proposed surface water drainage system constructed for this purpose shall discharge to a soakaway infiltration system.
- 7.4 A SuDs maintenance schedule has been provided to demonstrate adoption and maintenance proposals.
- 7.5 The developments foul water drainage strategy requires a new connection into the public sewer to take effluent to the sewage treatment works.
- 7.6 In summary, the development proposals comply with relevant standards for flood risk and sustainable drainage.

Figures



- NOTES
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KEY:
SITE BOUNDARY



McDonald's™

FIGURE 1

11	SITE LOCATION PLAN	04/06/19 GS	FG
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Rev.	Description	Date	Chkd
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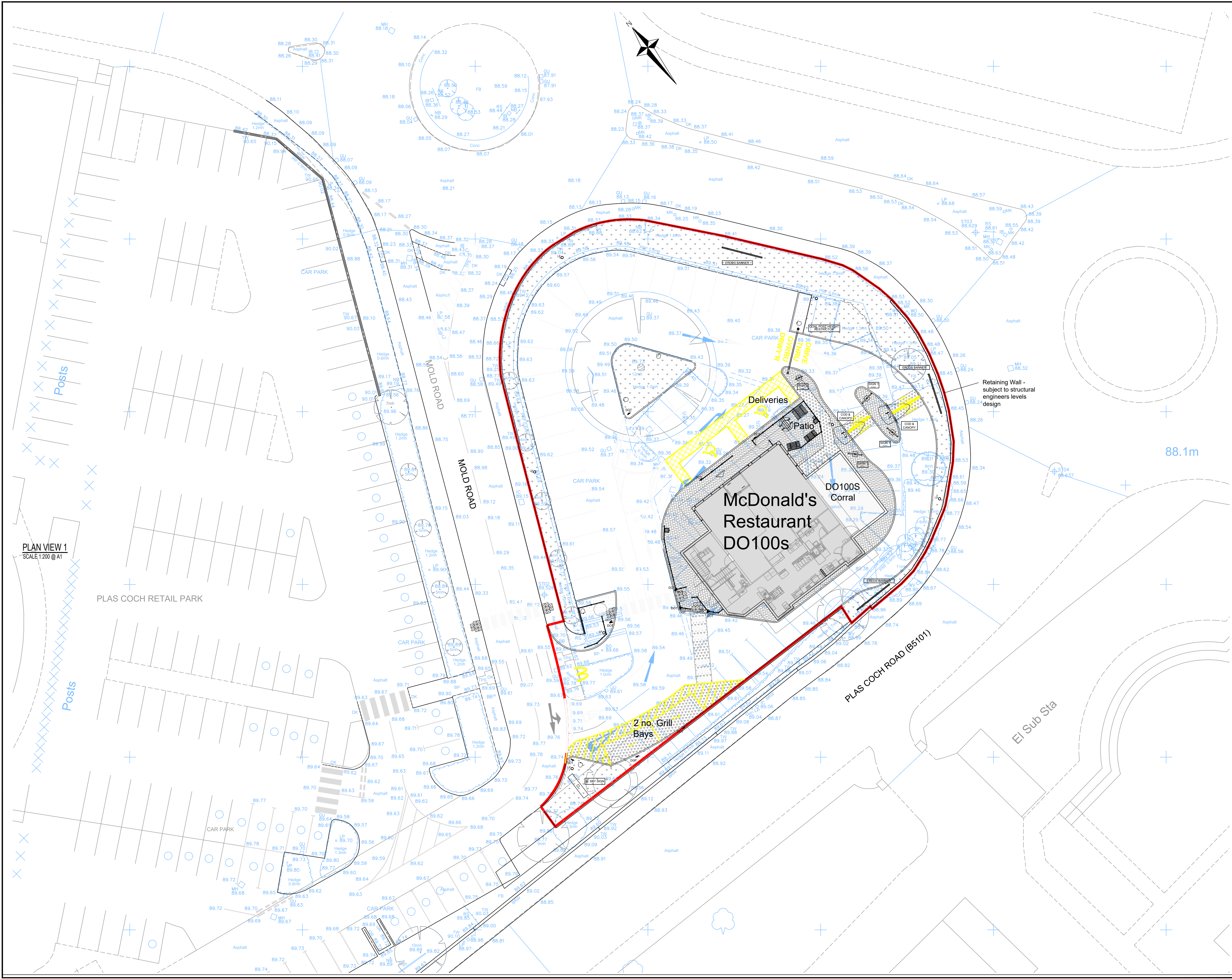
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Client:  **McDonald's**
RESTAURANT

Project: **McDONALD'S RESTAURANT
WREXHAM, PLAS COCH ROAD
LL11 2BW**

Title: **SITE LOCATION PLAN**

Project Engineer :	FG	Scale :	1:5000 @ A3
Project Director :	FG	Date :	JUN 2019
Status :	INFORMATION		



This drawing should not be scaled. For construction purposes work to figured dimensions only

0mm 40mm 80mm

ORIGINAL SHEET SIZE A1

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5. SITE LAYOUT BASED ON 'AEW' DRAWING 7391_AEW_8903_0004.

KEY

SITE BOUNDARY

EXISTING SURVEY

FIGURE 2

11	FIRST ISSUE	05.06.19	SK	HBG
Rev.	Description	Date	Chkd	

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Project :

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STORE 8104**

Title :

PROPOSED LAYOUT

Project Engineer : HBG Scale : AS SHOWN @ A1

Project Director : HBG Date : JUNE 2019

Status : INFORMATION

Drawing No. 4190200-SK04	Rev 11
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