

FLOOD RISK ASSESSMENT & DRAINAGE STATEMENT

McDonald's, Reading Gate Retail Park, Refurbishment (ST0960)



Prepared for: McDonald's Restaurants Ltd
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Document History

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Hertfordshire | Oxfordshire | Cambridgeshire | Bristol
 postbox@glanvillegroup.com | www.glanvillegroup.com



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1.0 Introduction

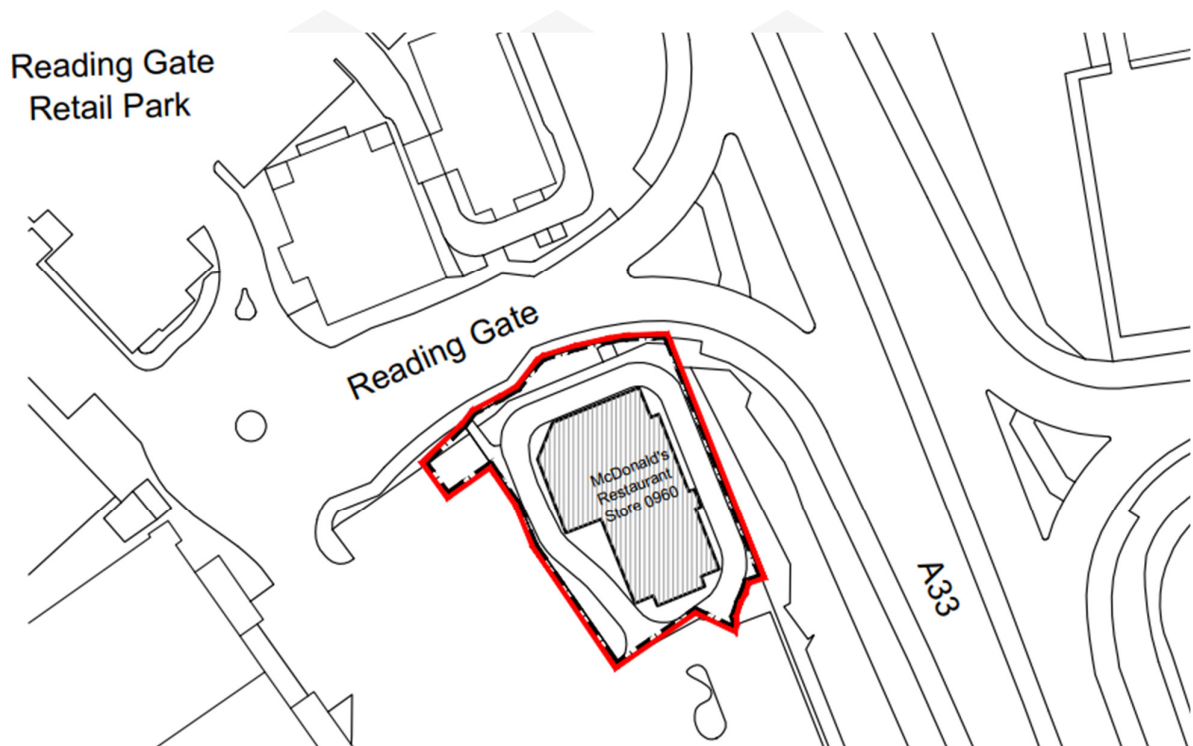
Purpose

- 1.1 This Flood Risk Assessment and Drainage Statement (FRA & DS) has been prepared by Glanville Consultants Ltd on behalf of McDonald's Restaurants Limited to accompany a planning application for the refurbishment of an existing McDonald's restaurant. The proposed layouts shown in this report are outline ones only but accurately reflect the proposal from a drainage and flood impact assessment point of view.

Site Location & Description

- 1.2 The site is located on Reading Gate Retail Park, as shown in Image 1. The site is surrounded by the Reading Gate Retail Park access junction to the north, a wooded watercourse (Foundry Brook) and the A33 to the east and parking to the south and west for the retail park.

Image 1: Site Location



Data Sources

1.3 Data used for this report is as follows:

- Existing and Proposed plans.
- Google Earth observations & historical mapping.
- On-line Flood Maps -. Gov.UK.
- National Planning Policy Framework (NPPF) on Flood Risk & SuDS.
- Site specific topographic survey.
- Level 1 Strategic Flood Risk assessment (SFRA) – Reading Borough Council.

1.4 All of the level information quoted in this report refers to the Ordnance Datum, defined as the mean sea level recorded at Newlyn in Cornwall.

Scope

1.5 National planning policy permits Flood Risk Assessments for minor development to be appropriate to the scale, nature and location of development and proportionate to the degree of flood risk. The proposed works make no change to the impermeable area on site, the vulnerability of the site or its users or the risks to people or property outside the site. The location is within flood zone 2/3 and therefore the scope of this report will be limited to:

- A short review of planning policy.
- A description of existing conditions relating to flood risk.
- An assessment of existing flood risks & drainage, the proposed works and potential implications for flood risk & drainage.

2.0 Flood Risk & SuDS Planning Policy

National Flood Risk Policy

- 2.1 The National Planning Policy Framework includes policies on planning and flood risk, the most relevant of which are listed below:
- 170 Inappropriate developments in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.
- 173 A sequential risk-based approach should also be taken to individual applications in areas known to be at risk now or in future from any form of flooding, by following the steps set out below.
174. Within this context the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test.
- 176 Applications for some minor development⁶² and changes of use should also not be subject to the sequential test, nor the exception test set out below, but should still meet the requirements for site-specific flood risk assessments set out in footnote 63. Minor development includes householder development, small non-residential extensions (with a footprint of less than 250m²) and changes of use, except for changes of use to a caravan, camping or chalet site, or to a mobile home or park.
- Footnote ⁶³ A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.
177. Having applied the sequential test, if it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.
178. The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that: a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment ⁶³. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable), it can be demonstrated that: a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location; b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
182. Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should: a) take account of advice from the Lead Local Flood Authority; b) have appropriate proposed minimum operational standards; and c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.

2.2 In relation to this development, the national flood risk policy is interpreted as follows:

- With only a small extension to the building (+51m²), this work is classified as 'Minor Development'. Therefore, the development is not subject to The Sequential or Exception test.
- The site is within Zone 2/3 and therefore a Flood Risk Assessment is required.
- A restaurant use is classified as 'Less Vulnerable'. In accordance with NPPF Flood Risk Guidance, Table 2 - Flood Risk Vulnerability and flood zone 'incompatibility', less vulnerable development is compatible with flood Zones 1, 2 or 3a. The refurbishment proposals do not change the use or the vulnerability of the development in flood risk terms.
- The development includes internal & external refurbishments which have no impact on impermeable areas or drainage and therefore do not requiring changes to the existing drainage system to incorporate SuDS.
- As the development is minor and not major, SuDS do not need to take account of LLFA requirements and standards aimed at major development.

3.0 Existing Conditions and Sources of Flooding

Geology & Ground Conditions

- 3.1 The British Geological Survey (BGS) mapping indicates superficial Alluvium (clay, silt, sand & gravel) over bedrock of the Lambeth Group (Clay, Silt & Sand).

Groundwater Quality

- 3.2 Geological records indicate the bedrock aquifer designation is 'Secondary A'. The superficial deposits are also 'Secondary A'. The site has a 'medium high' groundwater vulnerability classification. The site is not within a source protection zone.

Tidal & Fluvial Flooding

- 3.3 Flood Zone definitions are set out in the National Planning Policy Guidance:

- Flood Zone 1 - land assessed as having a less than 1 in 1,000 annual probabilities of river or sea flooding (<0.1%).
- Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.
- Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Note: Flood zones refer to the probability of river and sea flooding, ignoring defences.

- 3.4 The Flood Map for planning (undefended), see Image 2, indicates the site to be located within Zone 3 & 2, for the future epoch of 2070-2125. Image 3 shows there is a reduction in flood risk when defences are considered. With defences, the site has a low chance of flooding, 0.1%-1%, allowing for climate change.

Image 2: Gov.UK Fluvial & Tidal, Flood Zone (2070-2125 - undefended)

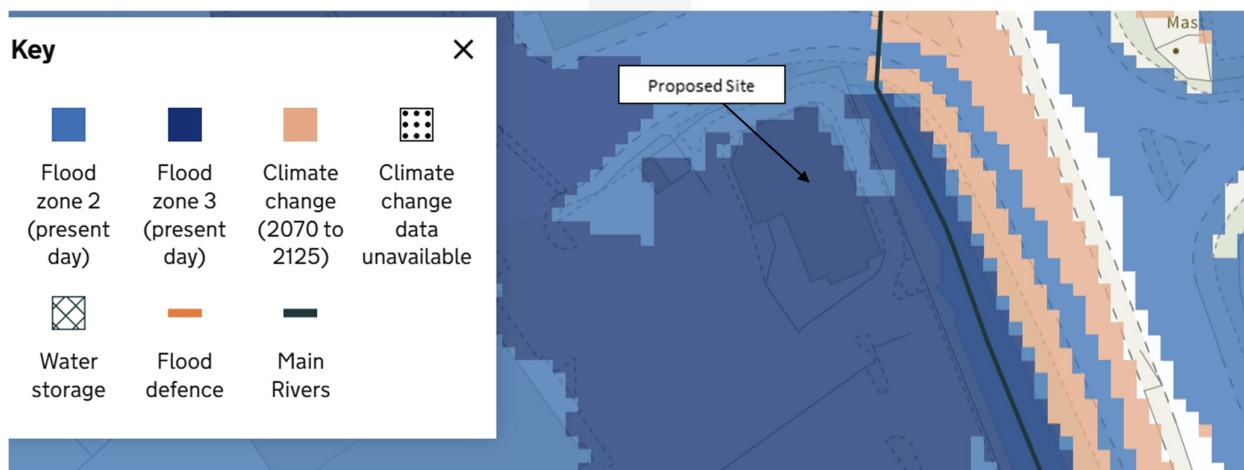


Image 3: Gov.UK Fluvial & Tidal, Flood Zone (climate change 2040 - 2160 - defended)



Historical Flooding

3.5 The SFRA Map F2_S1 & S2, see Images 4 & 5, indicate flooding of the site in August 1977 & June 1971.

Image 4: SFRA Map F2_S1 – Historic Flood Map

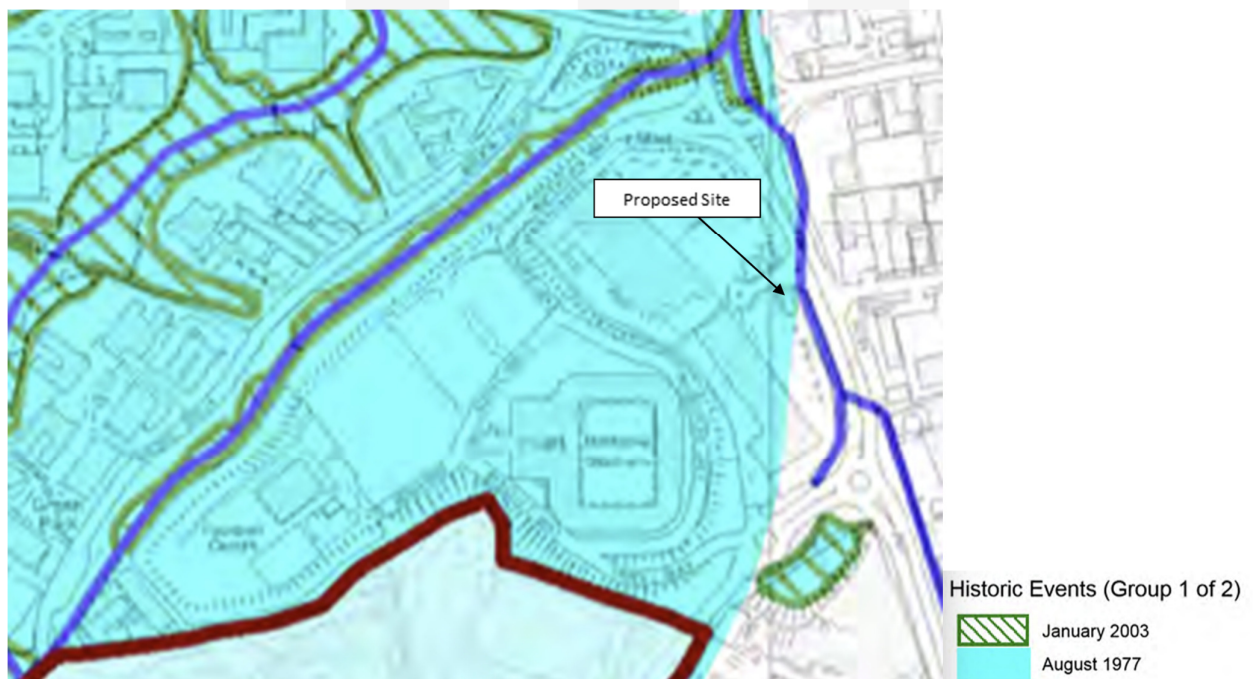


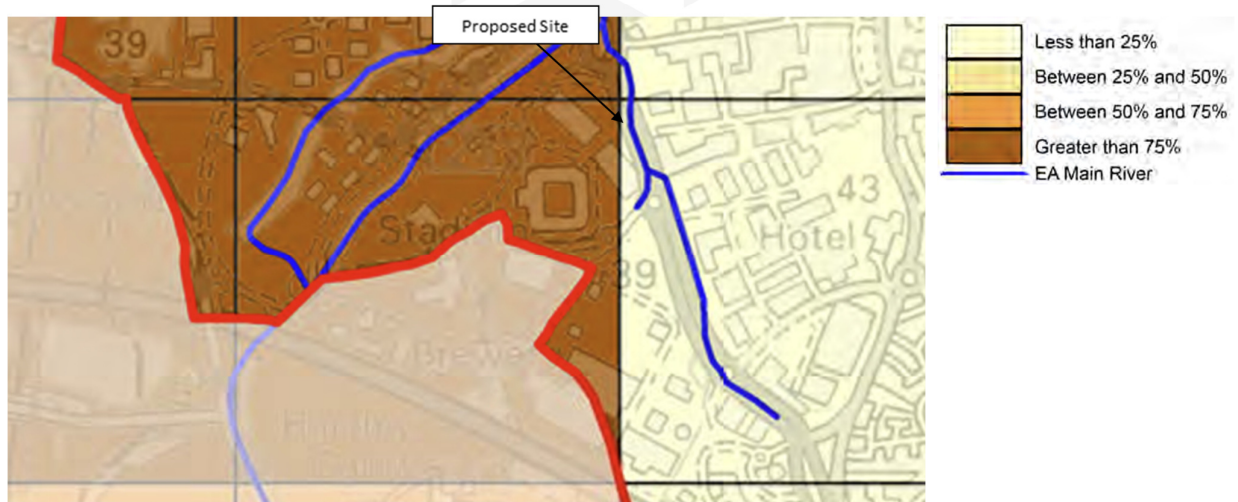
Image 5: SFRA Map F2_S2 – Historic Flood Map



Groundwater Flooding

- 3.6 The SFRA Map F8, see Image 6, indicates the site to be on the boundary of two 1km squares, one square with less than 25% of its area and one with over 75% of its area, being susceptible to groundwater flooding.

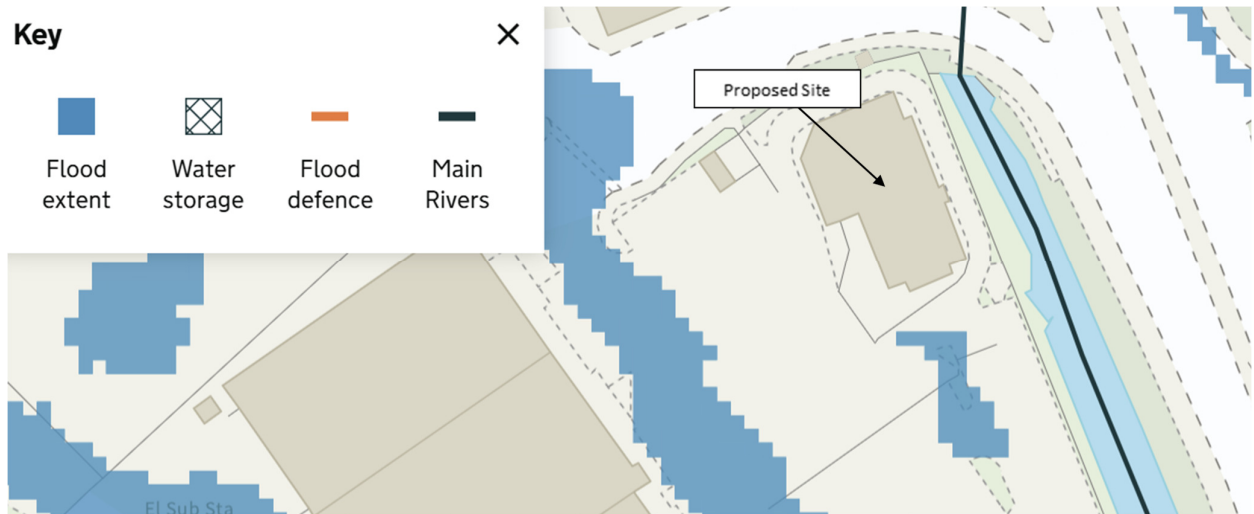
Image 6: SFRA Map F8 – Areas Susceptible to Groundwater Flooding



Overland (Pluvial) Flooding

- 3.7 The Flood Map for Planning, see Image 7, indicates the site to be outside any areas of surface water flood risk.

Image 7: Gov.UK Surface Water Flood Risk (extent 1:100)



Flooding from Reservoirs, Canals and other Artificial Sources

- 3.8 The Long-Term Flood Risk website the site to be outside the area at risk of reservoir flooding, as shown in Image 8.

Image 8: Gov.UK Reservoir Flood Breach Extent Map



Existing Sewer Flooding

- 3.9 The site rainwater pipes and gulleys connected to a positive drainage system which is likely to discharge directly to the Foundry Brook.

Existing Flood Risk Summary

- 3.10 The existing restaurant is in a high-risk area of flooding from fluvial / tidal sources, Zone 3/2, but the flood risk is reduced by defences to an annual probability of between 1% and 0.1%, taking into account climate change.
- 3.11 Two historic fluvial flooding incidents have been recorded, which include the site area. However, the site was located on the very edge of these flood extents, indicating a likely minimal depth of floodwater on site. These floods occurred many years prior to the development of this site as a restaurant.
- 3.12 The site is shown to have some risk of groundwater flooding, although the proximity of the adjacent Brook, indicates that any groundwater is likely to be hydraulically linked to the brook water levels.

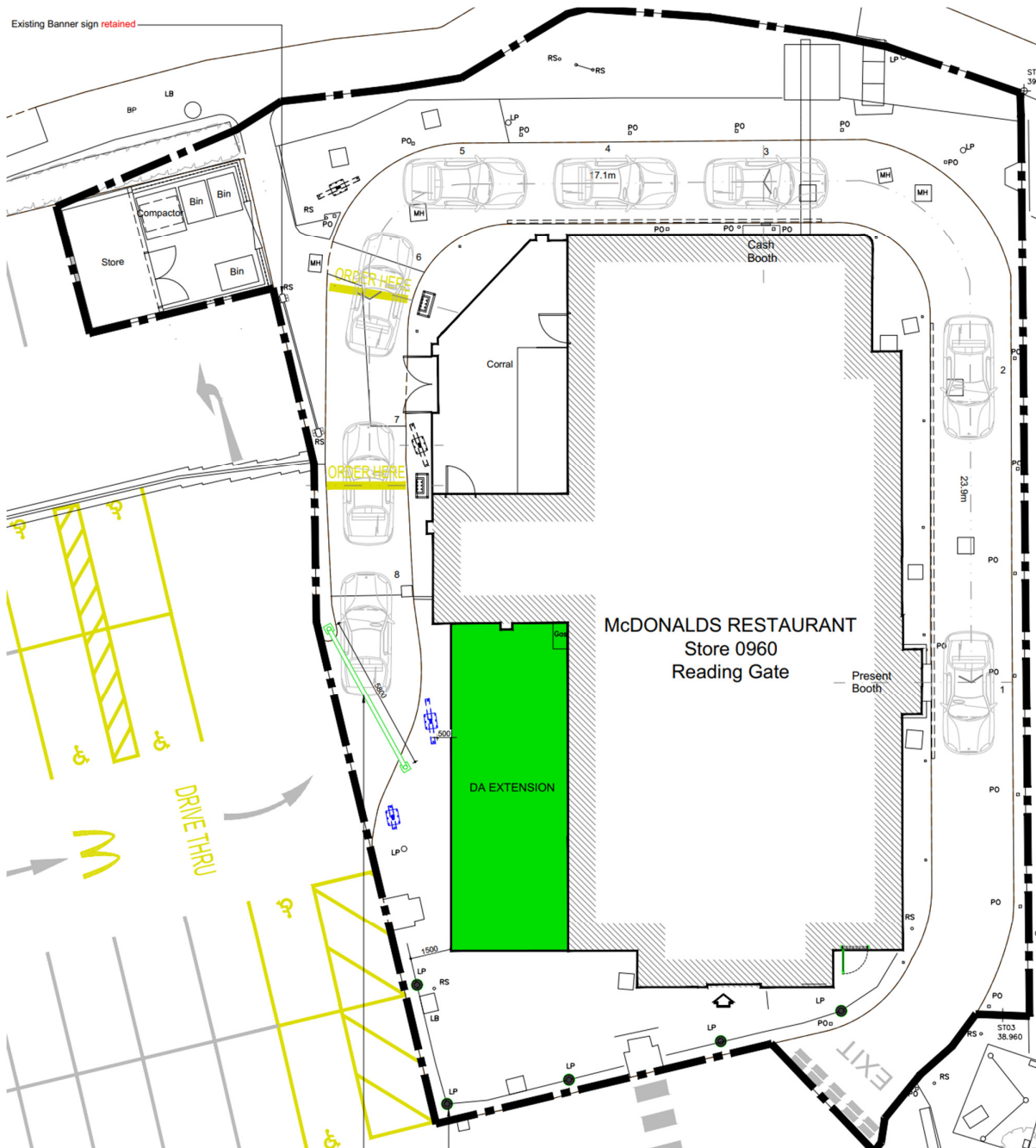


4.0 Proposed Works, Flood Risk & Drainage Implications

Proposed Works

- 4.1 The refurbishment works include internal and elevational changes to the building, an extension to the southwest corner (51m²), road marking changes and a new goal post height restrictor for the drive thru lane. Please note that all changes are made over exiting positively drained impermeable areas, so there is no change to impermeable areas or drainage flows.

Image 8: Proposed Site Plan – showing all external changes



Impact of the works on Flood Risk & Drainage

- 4.2 The existing use of the building is a restaurant with a drive thru lane, which is classed as a less vulnerable use with respect to flood risk planning policy. The proposed works do not change the proposed use or its vulnerability.
- 4.3 The restaurant floor level will not change with these minor works, so there is no change to the probability of internal flooding.
- 4.4 The small increase in building footprint is over existing impermeable paving, therefore there is no change to impermeable areas or drainage. Consequently, there is no increase in peak or volumetric run off from the proposed refurbishment proposals.
- 4.5 There are no changes to either the vehicle or pedestrian escape routes, so there is no greater risk in the event of any required evacuation and escape. All vehicle and pedestrian escape routes remain as they currently are, which is 'safe' for the 1% plus climate change event, when defences are considered, see Image 3.
- 4.6 The building extension occurs on land outside the defended 1:100 plus climate change event, therefore there is no loss of floodplain storage and no flood risk consequences for areas outside of the site.
- 4.6 In summary, the proposed works are minor and have no impact on flood risk or drainage. There is no history of flooding on the site, since the building was constructed and there is no increase in flood risk to people or property. Therefore, no mitigation is required as a result of these proposals.

5.0 Conclusion

- 5.1 Flood risks within the site have been assessed and are not considered to pose a significant risk to people or property. The proposed works have no impact on flood risk or drainage and require no mitigation.



Hertfordshire

|

Oxfordshire

|

Cambridgeshire

|

Bristol

postbox@glanvillegroup.com | www.glanvillegroup.com



Glanville Consultants Ltd, Registered office: 3 Grovelands Business Centre,
Boundary Way, Hemel Hempstead, Hertfordshire, HP2 7TE