

Flood Risk Assessment
for a development at
Stand Golf Club, Whitefield, Bury
undertaken on behalf of
Westshield Ltd

Report Title:	Flood Risk Assessment – Stand Golf Club, Whitfield, Bury
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Client:	Westshield Ltd
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Revision Status / History

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1.0 INTRODUCTION

- 1.1 WML Consulting Ltd have been commissioned by Westshield Ltd to provide a Flood Risk Assessment (FRA) to support a planning application for the proposed development of two sites within the grounds of Stand Golf Club, Whitefield, Bury.
- 1.2 The Flood Risk Assessment (FRA) follows the guidance and requirements of the National Planning Policy Framework (NPPF) – and the supporting Technical Guidance to the NPPF.
- 1.3 The NPPF identifies that it is the responsibility of developers to demonstrate:
- whether the development would be affected by current or future flooding from any source;
 - that the development is safe and where possible reduces flood risk overall;
 - whether flood risk would be increased elsewhere;
 - mitigation measures for any identified flooding risks;
 - that the site can be developed and occupied safely.
- 1.4 The FRA identifies whether there are any flooding or surface water management issues related to the development site that may warrant further consideration.

2.0 NATIONAL PLANNING POLICY

- 2.1 The aim of the Sequential Test, as set out in the National Planning Policy Framework (NPPF), is as follows:-

‘Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.’

- 2.2 It is intended that new development is steered to areas with the lowest probability of flooding.
- 2.3 The flood zones are shown on the Flood Map for Planning, these zones indicate the probability of sea and river flooding. The extents of Flood Zones 2 and 3 are shown on the flood map, with Flood Zone 1 being the land outside Flood Zones 2 and 3. Flood Zone 1 is the area at the lowest probability of sea or river flooding.

These maps can be viewed on the GOV.UK website via the link below.

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

- 2.4 The NPPF Technical Guidance defines at Table 1 the Flood Risk Zones as below:

Flood Zone 1 Low Probability	Land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any year (<0.1%).
Flood Zone 2 Medium Probability	Land assessed as having between 1 in 100 and 1 in 1,000 annual probability of river flooding (1% to 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% to 0.1%) in any year.
Flood Zone 3a High Probability	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.
Flood Zone 3b Functional Floodplain	Land where water has to flow or be stored at times of flood.

2.5 The NPPF Technical Guidance defines at Table 2 the Flood Risk Vulnerability Classifications, i.e. five categories of flood risk vulnerability with each category having a list of appropriate development uses. The classifications are:

- Essential Infrastructure
- Highly Vulnerable
- More Vulnerable
- Less Vulnerable
- Water – compatible development

2.6 The NPPF Technical Guidance defines at Table 3 the Flood Risk Vulnerability and flood zone ‘compatibility’ as shown below. Thereby providing a matrix that confirms whether a proposed development type is appropriate within a particular flood risk zone.

Table 3 Flood risk vulnerability and flood zone ‘compatibility’

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood Zone (Table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	ExceptionTest required	✓	✓
	Zone 3a	Exception Test required	✓	X	ExceptionTest required	✓
	Zone 3b functional flood plain	Exception Test required	✓	X	X	X

Key: ✓ - Development is appropriate.
X - Development should not be permitted.

2.7 The proposed development would be classified as a ‘more vulnerable’ form of development. From Table 3 it can be seen that this type of development is appropriate in Flood Zone 1, Flood Zone 2 and also in Flood Zone 3a subject to satisfying the requirements of the Exception Test.

3.0 LOCAL POLICY DOCUMENTS

3.1 Strategic Flood Risk Assessments (SFRAs) are prepared by Lead Local Flood Authorities (LLFAs) in consultation with the Environment Agency, sewerage undertakers and where applicable internal drainage boards. Their aim is to assess the risk to the local area from flooding from all sources currently and in the future, taking account of the impact of future climate change.

3.2 The Bury Council SFRA and associated information can be found via the link below.

<https://www.bury.gov.uk/planning-building-control/flood-and-water-management/developments-flood-risk>

4.0 EXISTING SITE AND PROPOSED DEVELOPMENT

- 4.1 The two separate proposed development sites are located within the grounds of Stand Golf Club, Ashbourne Grove, Whitefield, Manchester M45 7NL.
- 4.2 A plan indicating the location of the two sites, Site A and Site B, can be found at appendix 01.
- 4.3 Site A has an area of around 1.6 ha, and is located at the north east corner of the existing golf course. It is bounded to the north by existing industrial development, to the east by existing residential development, and to the south and west by the existing golf course fairways and greens. Part of the site is occupied by the existing golf club house plus associated access and car parking areas, whilst the remaining area is the existing golf course fairways, greens and soft landscaping.
- 4.4 At the time of reporting, no topographic survey information was available for review for Site A. However, aerial imagery indicates it to be at a level of around 115m AOD in the area of the club house and around 111m to 113m AOD across the golf course area of the site.
- 4.5 It is understood that the proposals for Site A involve the creation of new low rise residential development.
- 4.6 Site B has an area of around 2.3 ha, and is located at the south west corner of the existing golf course. It is bounded to the north and west by the existing golf course fairways and greens, to the east by existing residential development, and to the south by Ringley Road with farmland beyond. The site is currently an area of rough grassland containing some trees and bushes.
- 4.7 At the time of reporting, no topographic survey information was available for review for Site B. However, aerial imagery indicates it to be at a level of around 123m to 125m AOD.
- 4.8 It is understood that the proposals for Site B involve the creation of new club house for the Stand Golf club, together with associated access and parking areas.

5.0 POTENTIAL SOURCES OF FLOODING

Correspondence

- 5.1 The Environment Agency (EA), Bury Council (BC), and United Utilities (UU) have been asked to confirm if they have any information regarding past, present or future flooding issues that may affect the site.
- 5.2 The EA's response, which can be found at Appendix 02, confirms that they have no records of flooding affecting the site.
- 5.3 The BC response, which can be found at Appendix 03, confirms that they have no records of flooding affecting the site.
- 5.4 The UU response, which can be found at Appendix 04, confirms that they have no records of sewer flooding incidents in the vicinity of the site.

Potential Sources of Flooding

- 5.5 The potential sources of flooding that require consideration as part of the FRA are as below:-

- Flooding from rivers – fluvial flooding;
- Flooding from sea – tidal flooding;
- Flooding from surface water run-off – pluvial flooding;
- Flooding from sewers;
- Flooding from ground waters;
- Flooding from reservoirs;
- Flooding from other sources.

Flooding from Rivers – Fluvial Flooding

- 5.6 From a review of the online Flood Map for Planning it can be seen that both Site A and Site B are located in Flood Zone 1 (very low risk), which means that they have a chance of flooding of less than 0.1% (1 in 1,000) each year.
- 5.7 Given the above, it is considered that the risk to the proposed development from fluvial flooding is low.

Flooding from Sea – Tidal Flooding

- 5.8 Both Site A and Site B are not located in an area that is at risk of tidal flooding.
- 5.9 Given the above, it is considered that the risk to the proposed development from this form of flooding is low.

Flooding from Surface Water Runoff – Pluvial Flooding

- 5.10 The online surface water flood mapping indicates that the majority of Site A is generally at “very low” risk from this form of flooding. Very low risk means that each year this area has a chance of flooding of less than 0.1% (1 in 1,000) each year.
- 5.11 Though it can be seen that the potential for surface water flood risk appears to increase to “low”, “medium” and “high” (more than 3.3% chance of flooding each year) towards the north west corner of Site A.
- 5.12 However, it should be noted that flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features, such as surface water drainage systems

that were not taken into account when the modelling behind the surface water flood mapping was carried out, can greatly affect the chance and severity of flooding.

- 5.13 It is considered that the location where the surface water flood risk increases above “very low” actually represents a localised low area, which will be eliminated as part of the development proposals for Site A. In addition the area will be served by the proposed site drainage system, which would act to remove the potential flood risk highlighted by the flood mapping.
- 5.14 The online surface water flood mapping indicates that Site B is not located in an area that is at risk from this form of flooding.
- 5.15 Given the above, it is considered that the risk to the proposed development from this form of flooding is low.

Flooding from Sewers

- 5.16 United Utilities have confirmed that they do not have any records of sewer flooding in the vicinity of the Site A and Site B.
- 5.17 On this basis it is considered that the risk to the proposed development from this form of flooding is low.

Flooding from Groundwater

- 5.18 Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below ground infrastructure and buildings (tunnels, basements, etc.) where these are underlain by permeable strata (aquifers).
- 5.19 From the online British Geological Survey data, it appears that the ground conditions in the vicinity of the site comprise Glaciofluvial Deposits, which mainly comprise sand and gravel. In general, clayey or silty ground conditions are likely to restrict the potential for ground water flooding, whereas sandy or gravelly ground conditions would be less of a barrier to this form of flooding.
- 5.20 However, neither the EA nor the site owner have raised the issue of ground water flooding at the site.
- 5.21 The proposed development does not entail the creation of any below ground / basement facilities.
- 5.22 Given the above, it is considered that the risk to the proposed development from this form of flooding is low.

Flooding from Reservoirs

- 5.23 The online reservoir flood mapping indicates that the Site A and the vast majority of Site B are not at risk from this form of flooding.
- 5.24 There is a very small area at the western end of Site B where the potential for reservoir flooding “when there also flooding from rivers” is indicated.
- 5.25 However, given that the Environment Agency has a regulatory role for reservoir safety under the Reservoirs Act 1975, and that reservoir failure in the UK is generally accepted to be extremely unlikely, it is considered that the risk to the development from this form of flooding is low.

Flooding from Other Sources

- 5.26 From a review of the Ordnance Survey mapping there does not appear to be any significant bodies of water in the vicinity of the site.
- 5.27 On this basis, it is considered that the risk to the development from this form of flooding from other sources is low.

6.0 DRAINAGE STRATEGY

6.1 The proposed development is to be drained via separate foul and surface water drainage systems.

Surface water drainage proposals

6.2 The surface water drainage proposals will be designed in accordance with BS EN 752-4 and the Building Regulations approved document H (2010), which indicates the following hierarchy for the disposal of surface water drainage from development sites:-

1. discharge via infiltration;
2. discharge to watercourse;
3. discharge to sewer.

6.3 These options are discussed in further detail below.

Surface water discharge via infiltration

6.4 The BGS records indicate that near surface ground conditions at both Site A and Site B are anticipated to comprise granular deposits (sand and gravel).

6.5 It is generally considered that relatively permeable ground conditions such as this will support the use of infiltration techniques to discharge runoff that will be generated by the proposed development. This will be confirmed by intrusive site investigations as outlined in BRE365 in due course.

Surface water discharge via watercourse

6.6 From the online Ordnance Survey mapping it can be seen that there are no existing watercourses within, or in the vicinity of, Site A or Site B. Therefore the discharge of surface water runoff via a watercourse is not considered feasible for either site.

Surface water discharge via the public sewerage system

6.7 In the event that intrusive site investigations confirm that infiltration techniques are not a suitable at either or both these sites, it will be necessary to discharge the surface water runoff generated to the existing public drainage system.

Surface water design criteria

6.8 In line with modern design standards for surface water drainage systems, the proposals will be formulated to ensure there will be:-

- No surcharging of sewers for the critical 1 in 1 year storm event.
- No surface flooding for the critical 1 in 30 year event.
- No surface flooding that may affect buildings on or off site for the critical 1 in 100 year event including a 45% climate change allowance.

6.9 Should infiltration not be feasible, the surface water drainage proposals for both sites will be formulated to ensure that the existing greenfield runoff rates for each site will not be exceeded for all storm events up to and including the critical 1 in 100 year event plus a 45% climate change allowance.

6.10 To this end it is suggested that the development should incorporate SuDS measures such as green roofs, permeable paving, rainwater harvesting, rain gardens, etc.

Foul water drainage proposals

- 6.11 It is anticipated that the foul drainage flows generated by each site will be directed to the existing nearby public drainage system.

7.0 SUMMARY

- 7.1 WML Consulting Ltd have been commissioned by Westshield Ltd to provide a Flood Risk Assessment (FRA) to support a planning application for the proposed development of two sites (Site A and Site B) within the grounds of Stand Golf Club at Whitefield, Bury.
- 7.2 At this stage, development plans not yet available. However it is understood that Site A will be a new low rise residential development, whilst Site B will involve a new golf club house.
- 7.3 From a review of the online Flood Map for Planning it can be seen that both Site A and Site B are located in Flood Zone 1 (very low risk), which means that they have a chance of flooding of less than 0.1% (1 in 1,000) each year.
- 7.4 The proposed development would be classified as a 'more vulnerable' form of development, which is deemed to be appropriate in Flood Zones 1.
- 7.5 It is considered that the development is not at significant risk of flooding from fluvial sources, tidal waters, surface water, reservoirs, sewers, groundwater or from other sources.
- 7.6 Given the above it is considered that the development is appropriate in this instance.
- 7.7 The surface water drainage proposals for the development will incorporate the principles of the NPPF and the SUDS manual.
- 7.8 Ground conditions are anticipated to support the use of infiltration techniques to discharge the surface water from the proposed development. This will be confirmed by intrusive site investigations in due course.
- 7.9 There are no existing watercourses near either of the sites, therefore the discharge of surface water runoff via watercourse is not feasible.
- 7.10 Hence in the event that site investigations confirm that infiltration techniques are not a feasible, it will be necessary to discharge the surface water runoff generated by the development sites to the existing public drainage system locally.
- 7.11 Should infiltration not be feasible, the surface water drainage proposals for both sites will be formulated to ensure that the existing greenfield runoff rates for each site will not be exceeded for all storm events up to and including the critical 1 in 100 year event plus a 45% climate change allowance.
- 7.12 It is anticipated that the foul drainage flows generated by each site will be directed to the existing public drainage system locally.
- 7.13 Given the above it is considered that the proposed development should not be at risk from flooding during its life time, and that it will not increase flood risk to elsewhere.

Appendix 01
Site Location Plan

Appendix 02

Environment Agency Correspondence

Tom Booth

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 29 October 2024 10:28
To: Tom Booth
Subject: GMMC382285SW Response attached from the Environment Agency [Filed 01 Nov 2024 11:46]
Attachments: GMMC382285SW Table.pdf; GMMC382285SW DFM.pdf
Categories: Filed by Mail Manager

Dear Tom,

Thank you for your enquiry which was received on 25/10/24.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

We hold no record of flooding in this area. However, this does not mean flooding has not occurred in the past or that it will not flood in future.

We recommend that you also contact United Utilities and Bury Council who may hold additional information (the former especially in relation to sewer flooding).

There are no flood defences in the vicinity of the site.

There are no 2D levels available for this site.

Bury Council is responsible for issues relating to surface water and hold information on surface water flooding.

Please be aware you can check your risk of flooding on our external website <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>

Here are some useful links below:

<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Sarah Walters

Customer and Engagement Officer

Greater Manchester, Merseyside and Cheshire

Email: inforequests.gmmc@environment-agency.gov.uk

Office address: Richard Fairclough House, Knutsford Road, Latchford, Warrington, WA14 4UW

From: Tom Booth <Tom.Booth@wmlconsulting.com>

Sent: 25 October 2024 12:43

Subject: 241028/SB08 11745G - The Stand Golf Club, Ringley Road, Bury, M45 7JW

Hi.

[illegible]

Tel: 0161 482 0600 | Mobile: 07703 807 681 | email: Tom.Booth@wmlconsulting.com

Visit WML's Website: www.wmlconsulting.com

Appendix 03

Bury Council Correspondence

Dear Requestor

Request for Information - Freedom of Information Act 2000 (FOIA)

In response to your Freedom of Information request, the Council's response to your request is as follows:

Request

The Stand Golf Club, Ringley Road, Bury, M45 7JW

Can you confirm if you are aware of any flood risk issues that may affect the site please?

Response

The Stand Golf Club, Ringley Road, Bury, M45 7JW is located in Flood Zone 1, as defined by the Environment Agency. Land within flood zone 1 has a low probability of flooding from rivers and the sea.

The Environment Agency Flood Maps for Planning can be viewed at <https://flood-map-for-planning.service.gov.uk/>

There is a risk of flooding from surface water at this site which can be viewed on the Environment Agency's Surface Water Mapping at <https://check-long-term-flood-risk.service.gov.uk/postcode> .

The Council has not had any reports of flooding at this location.

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Regards

Policy Compliance Service

Department of Corporate Core Services

www.bury.gov.uk/FOI

Appendix 04

United Utilities Correspondence

Tom Booth

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 11 November 2024 15:35
To: Tom Booth
Subject: RE: United Utilities - Our reference - 06600847 Site A - The Stand Golf Club, Ashbourne Grove, Bury, M45 7NL

Good Afternoon Tom,

I can confirm that we have modelled flood risk within the vicinity of the proposed development.

Please note that United Utilities Water Limited (U UW) can only record and check flooding events which are reported to us and we have to comply with our Regulators instructions on the qualification of flooding events.

Our response does not include:

- any sewer flooding events caused by blockages or collapses which are the result of third party actions, natural events or other actions over which U UW has no control and not a facet of sewer capacity; or*
- any historical sewer flooding events that have been resolved as a result of investment in our infrastructure.*

As with all development sites, we recommend you liaise with our water and wastewater engineers by contacting our Developer Services team so the details of your development proposal can be considered further. Details can be found at the following link.

<https://www.unitedutilities.com/services/builders-developers/>

Should you require any further information please do not hesitate to contact me.

Kind regards



James Darlington
Developer Engineer
Developer Services & Metering
T: 01925 429095
M: 07917096253
unitedutilities.com

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----- Original Message -----

From: wastewaterdeveloperservices@uuplc.co.uk [wastewaterdeveloperservices@uuplc.co.uk]

Sent: 11/11/2024 14:27

To: tom.booth@wmlconsulting.com

Subject: United Utilities - Our reference - 06600847 Site A - The Stand Golf Club, Ashbourne Grove, Bury, M45 7NL



Good Afternoon

Thank you for your application

Your query has been logged to an engineer who will respond on or before 15/11/2024

Kind Regards

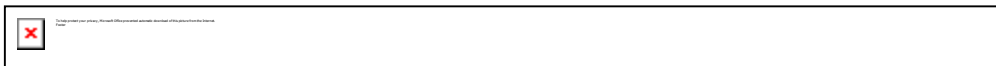
If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated



Visit: <https://unitedutilities.thewowawards.co.uk/nominate>



Olivia Morley
Customer Advisor Advanced
Developer Services & Metering
Customer Services
unitedutilities.com
Tel: 0345 072 6067 Option 2 for
Wastewater Services)
Direct Tel:



----- Original Message -----

From: Tom Booth [tom.booth@wmlconsulting.com]

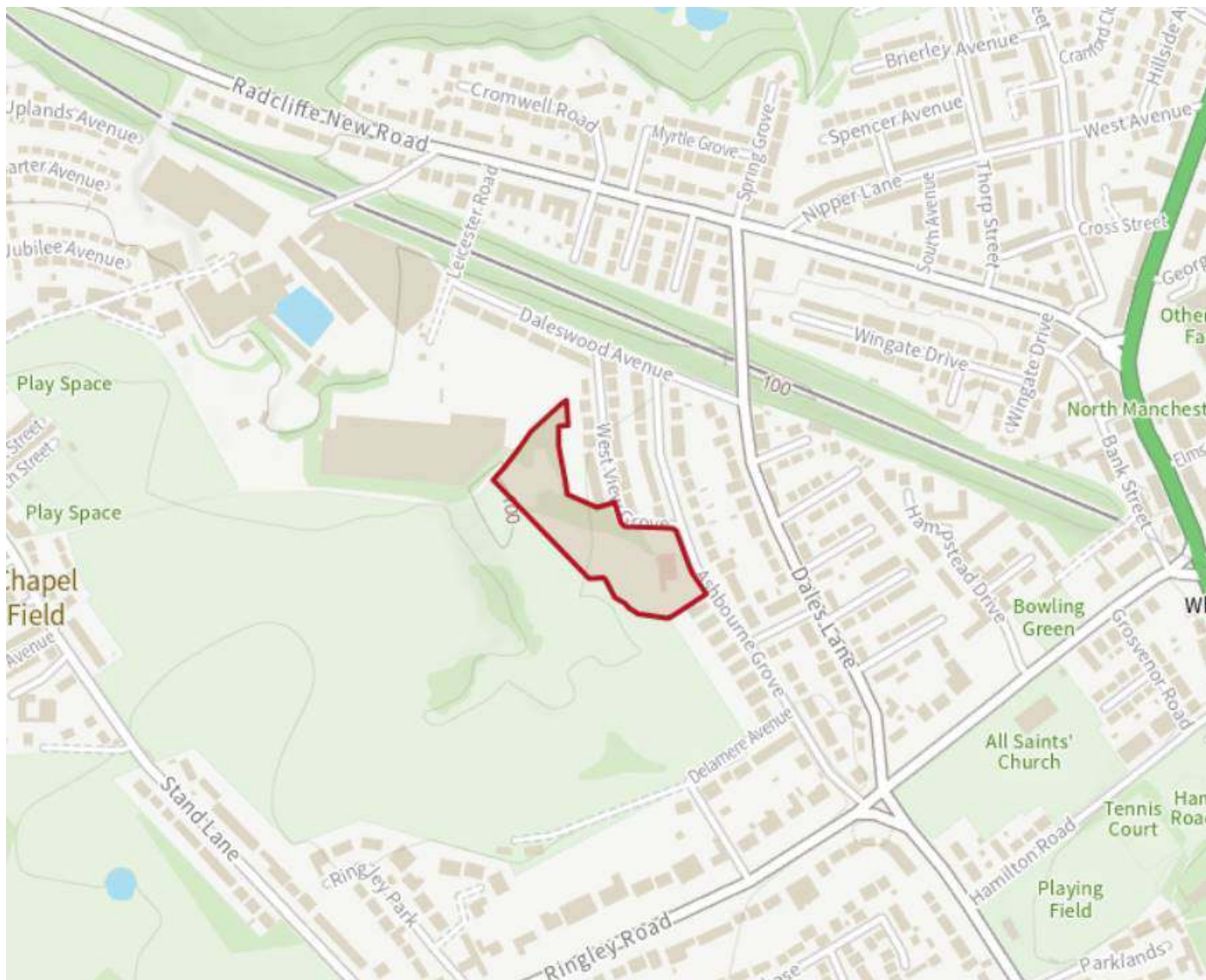
Sent: 08/11/2024 14:43

To: wastewaterdeveloperservices@uuplc.co.uk

Subject: 11745G - Site A - The Stand Golf Club, Ashbourne Grove, Bury, M45 7NL

Hi.

We have been asked to provide a Flood Risk Assessment for a proposed development at the above site, as indicated on the screenshot below.



Can you confirm if you are aware of any flood risk issues that may affect the site please ?

Kind regards.

Tom Booth

Senior Geo-Environmental Engineer

WML Consulting Ltd

Civil, Structural & Geotechnical Engineers

Third Floor South | Metropolitan House | Station Road | Cheadle Hulme | Cheshire | SK8 7AZ

Tel: 0161 482 0600 | Mobile: 07703 807 681 | email: Tom.Booth@wmlconsulting.com