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DIDSBURY TECHNOLOGY PARK FLOOD RISK ASSESSMENT

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3	11/07/2022	Daniel Porteous	Trefor Hillas	Trefor Hillas	Client name and development description updated. Figure references updated.

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APPENDICES

Appendix A

Proposed development Layout

1. EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) report prepared by Ramboll is in support a planning application for Building D1 (referred to as Ev0) and associated parking, located within Didsbury Technology Park, South Manchester.

This report is prepared in accordance with the National Planning Policy Framework (NPPF) considers the risks of various sources of flooding to the site and the consequent risk of flooding to downstream receptors. The FRA also includes a BREEAM assessment.

Assessment of flood risk has determined a low baseline risk of flooding from fluvial, pluvial (surface water), with some localised area of groundwater risk based on known high groundwater levels.

No flooding risk from artificial sources or reservoirs was identified. The site has no known history of flooding in Defra's data records. Flood risk on and off site is not likely to increase as a result of development except for surface water flood risk which will require mitigation in the form of a surface water drainage strategy. This is due to the anticipated increase in impermeable surface area across the site, which will need to capture and managed to their equivalent greenfield rate.

A more detailed descriptions of these measures is outlined in the accompanying surface water drainage strategy prepared by Ramboll (document no.1620006198-RAM-00-XX-RP-D-00002).

Mitigation measures to cover the risk of flooding from groundwater during the construction phase have been identified.

The BREEAM assessment has determined that the five credits are available under the criteria of Pol 3 (surface water runoff). This includes the two credits for flood risk, two credits for surface water runoff, and one credit for minimising watercourse pollution.

2. INTRODUCTION

2.1 Appointment and Brief

- 2.1.1 Ramboll UK Limited (Ramboll) has been commissioned by Bruntwood Works ("the client") to undertake a Flood Risk Assessment (FRA) to support a planning application for Building D1 (referred to as Ev0) and associated parking, located within Didsbury Technology Park, South Manchester, M20 2EW. The FRA is also to include a BREEAM assessment.

2.2 Scope and Objectives

- 2.2.1 This report considers the risks of various sources of flooding to the site and the consequent risk of flooding to downstream receptors (such as people, property, habitats, infrastructure and statutory sites) from the proposed development as a result of surface water runoff. A comparison is made between the current situation and the proposed future development.
- 2.2.2 This FRA has been carried out in accordance with the National Planning Policy Framework (NPPF)¹. It is to be used to assist the Local Planning Authority (LPA) and relevant statutory consultees when considering the flooding issues of the proposed development, as part of a planning application.
- 2.2.3 This report provides the following information:
- A review of the flood risk to the site based upon flood data and the flood maps provided by the Environment Agency (EA) and the relevant Strategic Flood Risk Assessment (SFRA);
 - An assessment of flood risk from all sources including tidal, fluvial, pluvial, groundwater and infrastructure failure to the proposed development;
 - An assessment of the compatibility of the proposed development for its location based on flood risk and its proposed usage;
 - Proposals to mitigate any flood risks to the development; and
 - BREEAM assessment of the proposed development.

2.3 General Limitations and Reliance

- 2.3.1 In preparation of the report and performance of any other services, Ramboll has relied upon publicly available information, information provided by the client and information provided by third parties. Accordingly, the conclusions reached in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.
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- 2.3.4 Unless stated otherwise, the geological information provided is for general environmental interpretation and should not be used for geotechnical and/or design purposes.

¹ GOV.UK, National Planning Policy Framework (revised July 2021) <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (accessed May 2022)

3. SITE OVERVIEW

3.1 Site Description

- 3.1.1 The existing site of approximately 1.68 ha comprises an area of green space, car parking and a road adjacent Spire Manchester Hospital. The site is bounded by Sir William Siemens House to the immediate north, Kensal Drive to the east, Princess Road (A5103) approximately 50 m to the west and Spire Manchester Hospital and Barlow Moor Road (A5145) to the immediate south.
- 3.1.2 The site location plan is provided in Figure 1, at the rear of this report.

3.2 Site Topography

- 3.2.1 EA 1m Digital Terrain Model (DTM) LiDAR data accessed through DEFRA's online spatial data download service indicates external ground elevations at the site range from approximately 31.5 mAOD (metres Above Ordnance Datum) to 31.7 mAOD in the main site area increasing marginally to 32.0 mAOD towards the southern extent of Siemens Road, suggesting a generally flat site topography.
- 3.2.2 The LiDAR data is presented in Figure 2, at the rear of this report.

3.3 Geological Setting

- 3.3.1 BGS mapping of the area (1:50,000 scale map series) was accessed via the online BGS Onshore GeoIndex digital mapping database². The map series indicate the site is underlain by the Wilmslow Sandstone Formation. Superficial deposits consist of glaciofluvial sheet deposits, Devensian - sand and gravel. There were no BGS borehole records available within the site boundary.
- 3.3.2 The 2017 previous Ground Investigation Report noted Made Ground across most of the site area and the wider vicinity, underlain by sands and then clay. Exploratory holes BH06, BH09 AND BH10, WS09, WS09, WS11 and WS12 from the Ground Investigation Report are within or in close proximity to the Proposed development site boundary and a general summary of these exploratory hole logs is shown in Table 3.1.

Table 3.1. BGS Borehole Records Summary

Strata	Description	Max Depth, metres below ground level (mbgl)
Topsoil and sand/Made Ground	Topsoil: unspecified (assumed sandy loam). Made Ground: Sand and gravel with some cinder brick, concrete and other materials.	0.3 – 2.2
Sand and Gravel	Brown, slightly gravelly sand with occasional gravel.	2.8 – 5.5
Clay	Firm to stiff brown silty and sandy clay with gravels.	End of logs

3.4 Hydrological Setting

- 3.4.1 The nearest water body is the River Mersey approximately 350 m south of the Proposed development, flowing west. There are no other water bodies within 1 km of the site.

² The British Geological Survey (BGS) Onshore GeoIndex. <http://mapapps2.bgs.ac.uk/geoindex/home.html> (accessed May 2022)

- 3.4.2 The site falls within the Bollin Dean Mersey Upper Water Framework Directive (WFD) Operational Catchment and is part of the Chorlton Brook river catchment. Chorlton Brook is situated approximately 1.3 km north-west of the site and flows west into the River Mersey.

3.5 Hydrogeological Setting

- 3.5.1 The site is situated within the Triassic Ricks rock unit which is characterised as a highly productive aquifer up to 600 m thick and yielding 125 l/s.
- 3.5.2 Groundwater strikes are noted in the Site Investigation Borehole logs as occurring between 1.7 and 3.0 mbgl, mainly within the sand strata. Subsequent groundwater monitoring indicated standing water at depths between 1.8 to 3.0 mbgl.

3.6 Site Drainage

- 3.6.1 United Utilities sewer records indicate that there are no known public sewers within or adjacent the site boundary. Storm water sewers are present within Kensal Drive on the west of the site. It is unconfirmed if they are public or private. A public combined sewer exists along Barlow Moor Road south of the site.
- 3.6.2 There is a surface water drainage system serving the existing Siemens buildings and car park which passes through a storage tank. The outfall from the tank passes through the south-eastern corner of the proposed development site before leaving the site southwards.
- 3.6.3 Details and figures of the existing site drainage are available in the Ramboll drainage strategy report³.

³ Ramboll (2022) Didsbury Technology Park Surface and Foul Water Drainage Strategy, document no. 1620006198-RAM-00-XX-RP-D-00002

4. FLOOD RISK BASELINE

4.1 Fluvial and Tidal Flood Risk – Present Day

- 4.1.1 The EA identifies areas in England and Wales at risk of flooding by allocating them into flood risk zones. The flood risk zones shown on the flood maps are defined in Table 1 (Flood Zones) of online government guidance⁴:

Zone 1: Low Probability. According to the NPPG, land in this zone is considered to have less than 1-in-1000 annual probability of river or sea flooding in any year. This is <0.1%.

Zone 2: Medium Probability. According to the NPPG, land in this zone is considered to have between a 1-in-100 and 1-in-1000 annual probability of river flooding in any year (between 1% and 0.1%) or between a 1-in-200 and 1-in-1000 annual probability of sea flooding in any year (0.5% to 0.1%).

Zone 3a: High Probability. According to the NPPG, land in this zone is considered to have a 1-in-100 or greater annual probability of river flooding in any year (>1%) or a 1-in-200 or greater annual probability of flooding from the sea in any year (>0.5%).

Zone 3b: The Functional Floodplain. According to the NPPG, land in this zone is used for water flow or storage in times of flood. This flood zone should be identified by a Strategic Flood Risk Assessment (SFRA). It is considered to have a 1-in-20 or greater chance of river flooding in any year which is >5%. Another probability, however, can also be agreed between the Local Planning Authority (LPA) and the EA.

- 4.1.2 The EA Flood Map for Planning indicates the site is situated within Zone 1 and therefore has a low probability of river or sea flooding. The nearest Flood Zone above 1 is situated approximately 250 m south and is associated with the River Mersey.
- 4.1.3 The Flood Map for Planning is presented in Figure 3, at the rear of this report.

4.2 Surface Water and Sewer Drainage Flood Risk

- 4.2.1 The Flood and Water Management Act 2010 defines surface water flooding as flooding that takes place when surface runoff generated by rainwater falls on the surface of the ground and has not yet entered a watercourse, drainage system or public sewer.
- 4.2.2 The EA's online Long-Term Flood Risk Map⁵ identifies areas in England and Wales at potential risk of surface water (pluvial) flooding. The surface water flood maps define flood risk as follows:

High Risk. Considered to have a greater than 1-in-30 annual probability of surface water flooding in any year (>3.3%).

Medium Risk. Considered to have between a 1-in-30 and 1-in-100 annual probability of surface water flooding in any year (between 3.3% and 1%).

Low Risk. Considered to have between a 1-in-100 and 1-in-1000 annual probability of surface water flooding in any year (between 1% and 0.1%).

Very Low Risk. Considered to have a less than 1-in-1000 annual probability surface water flooding in any year (<0.1%).

⁴ Flood risk and coastal change guidance, available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change> (accessed May 2022)

⁵ EA Long-Term Flood Risk Map, available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map> (accessed May 2022)

- 4.2.3 According to the EA Flood Warning Information Service Long Term Flood Risk Map the majority of the site area is at a Very Low risk of surface water flooding. There is however an area at 'Low risk' which is indicated as an overland flow path extend along the northern site boundary adjacent Sir William Siemens House and along the path through the centre of the site.
- 4.2.4 Additionally, a small area of 'High' flood risk (>3.3% chance of flooding each year) exists on Siemens Road within the planning boundary, south of the main site area. However, it should be noted that the EA surface water flood modelling does not consider existing drainage infrastructure such as road drains, therefore any mapped surface water flood risk along roads and in developed areas represent a worst-case scenario, with actual flood risk expected to be lower. Additionally, this area of higher risk is isolated – most likely because it is the result of a localised topographic depression – and does not appear to form part of a major overland flow route.
- 4.2.5 Some areas of elevated surface water flood risk are also shown along Nell Lane and the A5103. However, this risk is a worst-case expectation for the reasons discussed above and these areas are beyond the site boundary. The EA's surface water flood modelling does not indicate this would be conveyed to the site.
- 4.2.6 Risk of flooding from surface water is presented in Figure 4, at the rear of this report.

4.3 Groundwater Flood Risk

- 4.3.1 Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata. A groundwater flood event results from a rise in groundwater level sufficient for the water table to intersect the ground surface and inundate low lying land and/or infrastructure below ground. Groundwater floods may emerge from either point or diffuse locations. They tend to be long in duration developing over weeks or months and prevailing for days or weeks.
- 4.3.2 The Manchester City, Salford City and Trafford Council Level 2 Hybrid SFRA indicates the site is not within an area at risk of groundwater flooding (see drawing no. GW_2.1 of the SFRA). Groundwater monitoring from the 2017 Ground Investigation Report noted standing water levels between 1.8 and 3.0 mbgl. The risk of groundwater at the surface is therefore considered to be high. This risk will be assessed against the development proposals in Chapter 5.

4.4 Risk from Reservoirs, Canal and Other Artificial Sources

- 4.4.1 According to the EA, risk of flooding from reservoirs is generally unlikely. An area is considered at risk if people's lives could be threatened by an uncontrolled release of water from a reservoir.
- 4.4.2 According to the EA's online Flood Warning Information Service, the site is not identified as being within an area at risk of flooding from reservoirs.

4.5 Historic Flooding

- 4.5.1 According to Defra spatial data⁶ the site does not fall within an area of historic recorded flooding. There are no recorded floods within at least 1 km of the site.

⁶ Defra, Spatial Data Services Platform, Historic Flood Map, available at:
<https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricFloodMap&Mode=spatial> (accessed May 2022)

4.6 Flood Risk Summary

4.6.1 A summary of the existing risk of flooding from all sources is provided below.

Table 4.1. Summary of Flood Risk

Sources of Flooding	High	Medium	Low	Comments
Tidal / fluvial			X	EA mapping indicates the site is situated in Flood Zone 1 and is therefore at a 'Low' risk of flooding from rivers and the sea. The site is not directly adjacent any other flood zones.
Surface water and drainage flood risk			X	EA surface water flood data indicates the majority of the site area is at a 'Very Low' risk of surface water flooding, while some small sections at the centre and north at a 'Low' risk. An approximate 400 m ² section of Siemens Road is at 'High' risk but the calculation of this risk has not taken into account existing drainage infrastructure.
Groundwater	X			Estimated groundwater levels are understood to be between 1.8 to 3 mbgl, therefore groundwater ingress into below ground structures should be considered.
Artificial Sources			X	The site is not within an area of potential flooding from artificial sources according to EA data and the SFRA.

5. ASSESSMENT OF NEW DEVELOPMENT

5.1 Proposed development

- 5.1.1 The development proposals comprise construction of a ground plus five storey commercial building for use as offices (Use Class E(g)(i)) with ancillary café on ground floor (Use Class E(b)), erection of ground plus two storey multi-storey car park (Sui Generis) together with landscaping and highway works, a new access and other associated works. An external site layout plan of the proposed development (drg no. 159-LYR-XX-XX-DWG-L-1008) is included in Appendix A.

5.2 Flood risk arising from development

- 5.2.1 As summarised above, the site is situated within Flood Zone 1 and has a <0.1% annual probability of flooding from rivers and the sea. This status is unaffected by the Proposed development, i.e., the development does not increase flood risk, either to itself or neighbouring locations. Tidal and fluvial flood risk is therefore considered low for the Proposed development.
- 5.2.2 The risk of surface water flooding before development is presently very low. However, with an increase in impermeable surface area and hardstanding, runoff rates and therefore pluvial flood risk will increase in the absence of an effective drainage strategy.
- 5.2.3 Based on the information reviewed in 2.4 and 2.7 indicating depth of groundwater below the surface to be around 10 mbgl or greater, the risk of groundwater flooding at the surface is therefore considered high and may impact during the construction period when below ground excavations are being made. It is understood that no permanent below ground structures i.e. cellars, underground car parks are proposed, and so this risk is limited to the construction activities that will nonetheless require mitigating.
- 5.2.4 The site is not within an area at risk of flooding from reservoirs or other artificial sources and vulnerability is not expected to increase over the lifetime of the development provided there are no significant changes in local water infrastructure. The risk of flooding to the Proposed development from other sources is low.

5.3 Flood Risk Vulnerability

- 5.3.1 According to Table 2 (Flood Risk Vulnerability Classification) in the Flood Risk and Coastal Change guidance⁷, offices and non-residential institutions not included in the 'more vulnerable' class are part of the 'Less vulnerable' class.
- 5.3.2 Table 3 (Flood Risk Vulnerability and Flood Zone Compatibility) in the guidance states 'Less vulnerable' developments are acceptable in Flood Zone 1 and do not require an exception test.

5.4 Mitigation Measures

- 5.4.1 The risk of surface water flooding before development is presently low overall. However, with an increase in impermeable surface area and hardstanding, runoff rates and therefore pluvial flood risk will increase. Sustainable Drainage Systems (SuDS) will be considered as part of the drainage strategy solution. SuDS techniques aim to mimic the natural drainage of the land, preferably infiltrating surface water into the ground or instead discharging it into a watercourse. Runoff may also be retained on-site and discharged at controlled rates in extreme events. This may involve below-ground geocellular storage, retention basins or blue roofs.

⁷ GOV.uk (2014) Planning Practice guidance: Flood Risk and Coastal Change, available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change> (accessed May 2022)

- 5.0.2 The drainage strategy report prepared by Ramboll proposes a flow rate into the private surface water drainage network of 2.3 l/s to drain the D1 building, car park and immediate surrounding external works. These rates will be maintained up to and including a 100-year event including a climate change allowance of 40%. This rate has been agreed to by United Utilities.
- 5.0.3 The remaining external works are to drain via infiltration through several tree pits on the site. An overflow for events higher than the return period stated will be included within the design of the tree pits.
- 5.0.4 It is considered that the drainage strategy will include the necessary water treatment precautions to ensure compliance with CIRIA C753 guidance.
- 5.0.5 United Utilities and the Lead Local Flood Authority are to confirm acceptance of these flows prior to commencement of works.

5.5 Management of Residual Risk

- 5.0.1 The risk of flooding from groundwater has identified as being high. At the commencement of the construction phase, groundwater occurrence will be controlled to mitigate risk to construction workers within below ground excavations. Groundwater levels will be continually monitored to establish the risk of inundation of excavations. Suitable measures including pumping/dewatering will be employed as necessary.
- 5.0.2 Workers on-site should be made aware of risks and how to mitigate them during the site preparation, demolition, earthworks and construction phase, and operation phase.
- 5.0.3 It is recommended that the risk of groundwater flooding should be considered within any Health and Safety Plan for the Proposed Development Site. This should include localised hazards such as flooding to excavations, working near to or within existing and new drainage features as well as adequate and safe access to and egress from the site both for workers on site and emergency services.
- 5.0.4 No below-ground site use is proposed and surface water flood risk above ground is a comparatively lower risk. Therefore, no further management of risk is deemed necessary.

6. BREEAM ASSESSMENT

- 6.1.1 The Proposed Development is to be assessed for BREEAM to ensure environmental targets are achieved within the design and construction. BREEAM New Construction (2018) is a sustainability assessment tool which can be applied to new developments to set environmental targets for new buildings.
- 6.1.2 Five credits are available if the criteria of Pol 3 (surface water runoff) are satisfied. These are divided into three parts: flood risk (two available credits); surface water runoff (two available credits); and minimising watercourse pollution (one available credit).
- 6.1.3 Two credits are available for flood risk where the following criteria can be satisfied:
- A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding.
 - The FRA takes all current and future sources of flooding into consideration.
 - A site-specific FRA confirms that the assessed development is at low risk of flooding from all sources.
- 6.1.4 On the basis of the assessment of flood risk to the site from all sources, the two credits are likely to be achieved in this instance.
- 6.1.5 For credits available for surface water runoff, the following prerequisite must be met:
- Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.
- 6.1.6 One credit is available for surface water runoff (rate) where the following criteria can be satisfied:
- For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.
 - For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events.
 - Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.
 - Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance.
- 6.1.7 A second credit is available for surface water runoff (volume) where the following criteria can be satisfied:
- Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); and
- EITHER:
- Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change (see criterion 15).

- Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.

OR (only where the two previous criteria cannot be achieved):

- Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options.
- Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options:
 - The pre-development one-year peak flow rate
 - The mean annual flow rate (Q_{bar})
 - 2l/s/ha.

6.1.8 For the one-year peak flow rate, the one-year return period event criterion applies.

6.1.9 Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.

6.1.10 For either option above calculations need to include an allowance for climate change in accordance with current best practice planning guidance.

6.1.11 The drainage and external levels on site will be designed to ensure that failure of the drainage system will not cause the new building to be flooded. As discussed in 5.4, it is proposed to discharge surface water runoff from within the proposed development site to a private surface water sewer, with restricted rates up to and including a 100-year event including a climate change allowance for increases in rainfall intensity of 40%.

6.1.12 On the basis that measures will be implemented to restrict peak run-off to greenfield runoff rates or 2l/s/ha, whichever is greater, for the 1-year and 100-year return period events, both credits are considered to be achievable in this instance, subject to confirmation at detailed design.

6.1.13 One credit is available for minimising watercourse pollution where the following criteria can be satisfied:

- There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant).
- Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.
- Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems.
- Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure.
- All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site.
- A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers.
- Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.
- All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.

6.1.14 As discussed previously, on-site surface water attenuation is proposed using blue roofs and discharge to the private surface water drainage network in combination with infiltration to ground

through tree pits. Additionally, it considered that the detailed drainage strategy will include the necessary water treatment precautions to ensure compliance with CIRIA C753 guidance. On the assumed basis that oil interceptors implemented in parking areas, water quality targets are also expected to be attained. The one credit is therefore considered awardable in this instance.

7. CONCLUSIONS

- 7.0.1 An FRA was undertaken to evaluate baseline flood risk to the site and flood risk to the Proposed development. Baseline flood risk is low in all categories, other than groundwater flooding. Flood risk in all categories with the exception of surface water flooding in limited extents through the site. With the implementation of an effective Drainage Strategy in accordance with the NPPF, surface water flood risk to the Proposed development is expected to be very low as defined by the EA and, therefore, considered to be acceptable in flood risk terms in accordance with the requirements of the NPPF.
- 7.0.2 The five BREEAM credits are available under the criteria of Pol 3 (surface water runoff) are considered awardable based on the assessment.
- 7.0.3 No further flood risk assessment is deemed necessary.

FIGURES

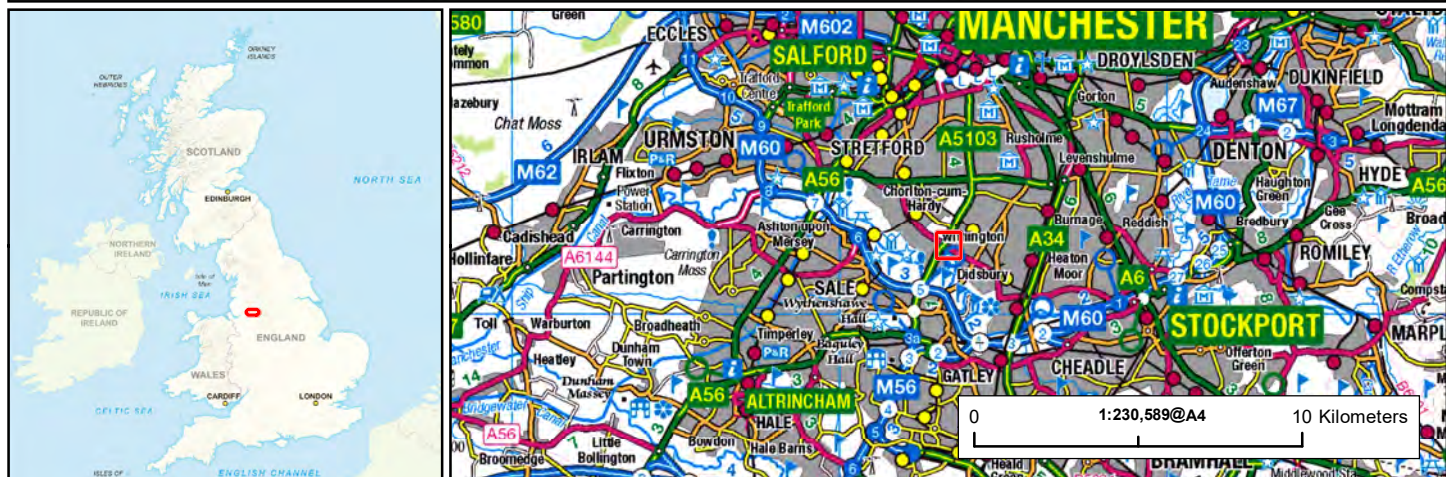
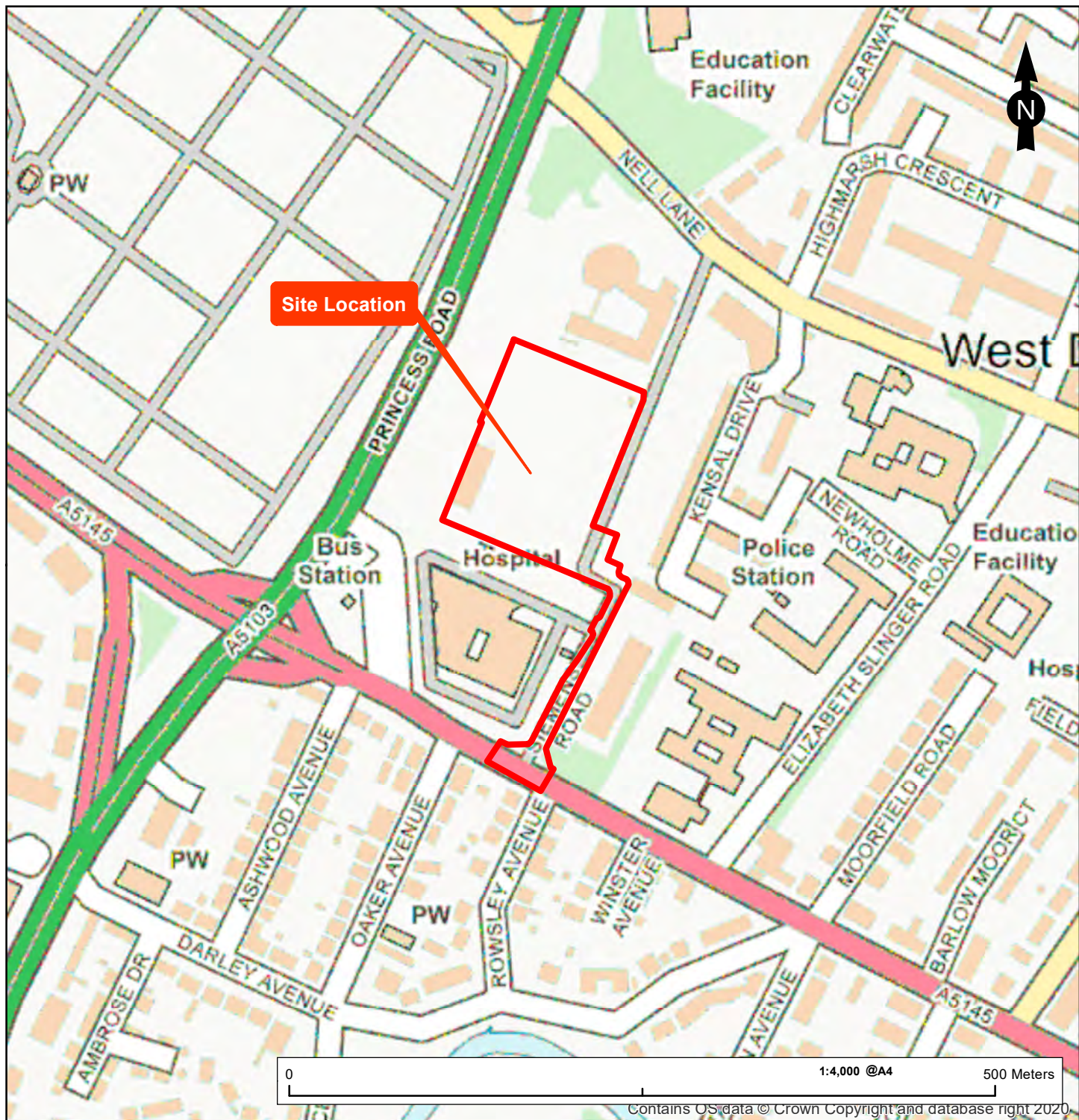


Figure Title Figure 1: Site Location	Project Name Didsbury Technology Park	Date July 2022	
Project Number 1620006198	Client Bruntwood Works	Scale As shown	
		Issue 3	



Legend

Site Boundary

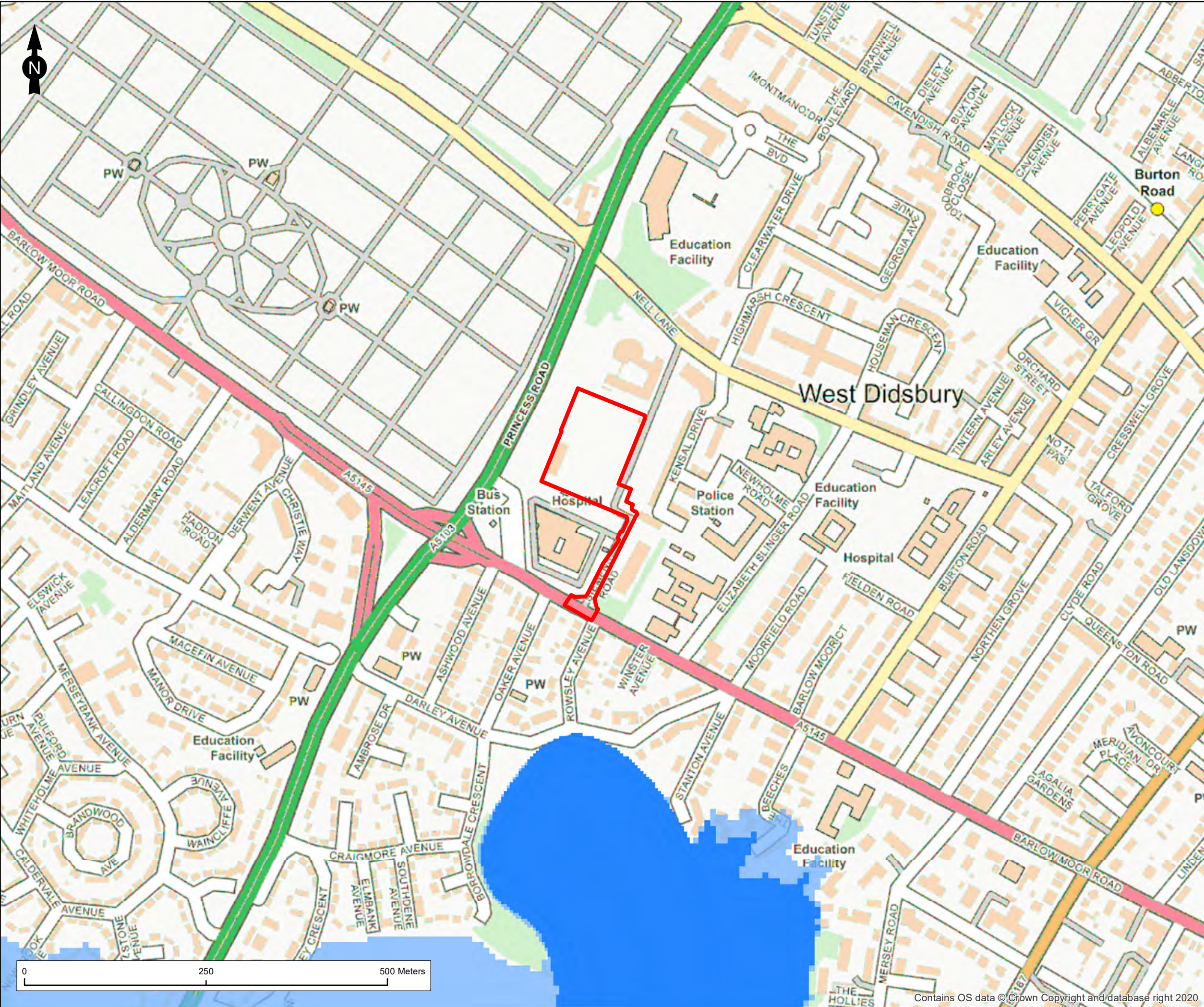
LiDAR 1m DTM (mAOD)

Value

High : 35

Low : 30

Figure Title	
LiDAR 1m DTM	
Project Name	
Didsbury Technology Park	
Project Number	Figure No.
1620006198	2
Date	Prepared By
July 2022	DP
Scale	Issue
1:2,000 @A3	3
Client	
Bruntwood Works	
RAMBOLL	



Legend

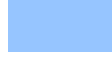
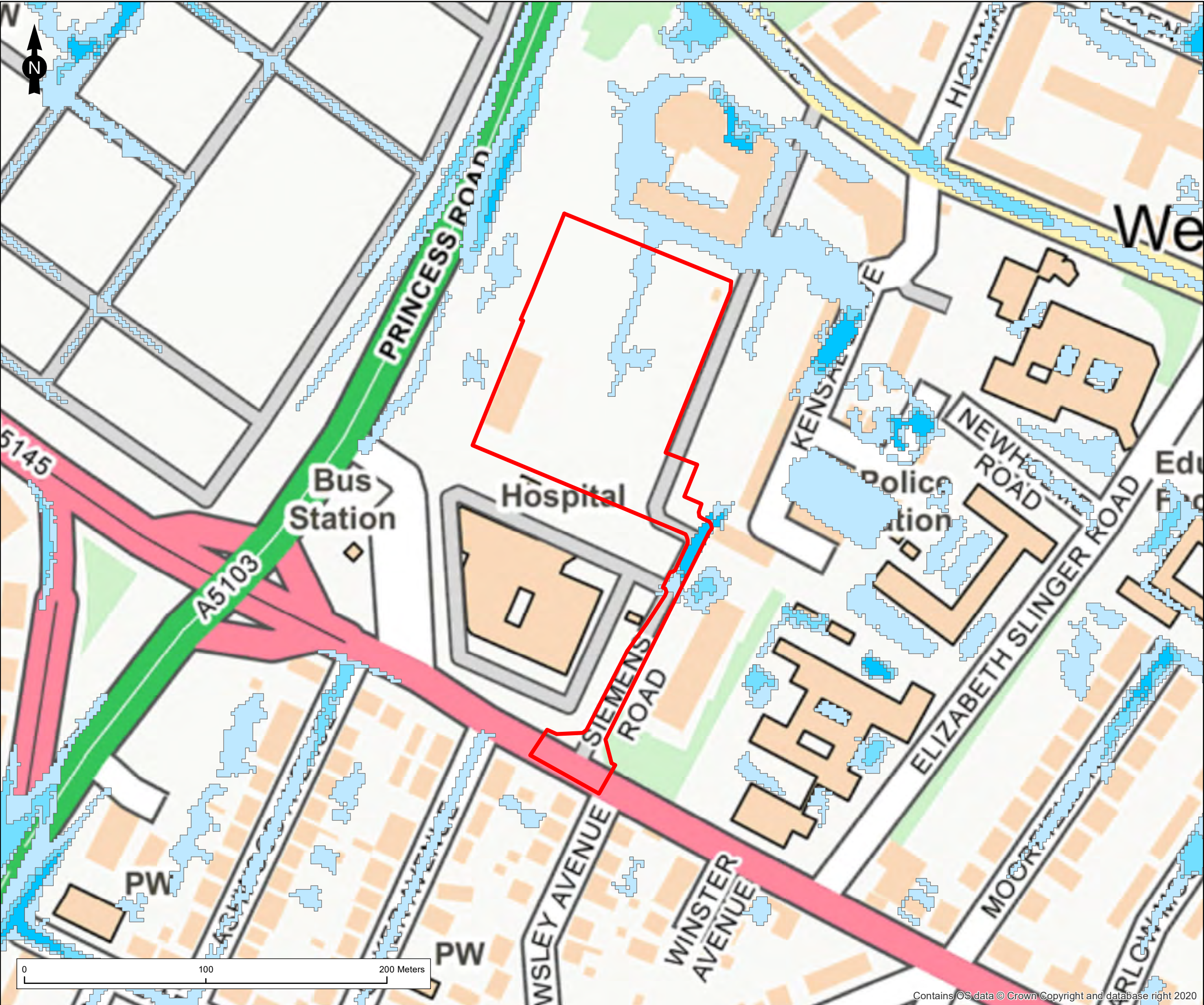
-  Site Boundary
-  Flood Zone 3
-  Flood Zone 2

Figure Title	
Flood Map for Planning	
Project Name	
Didsbury Technology Park	
Project Number	Figure No.
1620006198	3
Date	Prepared By
July 2022	DP
Scale	Issue
1:5,000 @A3	3
Client	
Bruntwood Works	





Legend

Site Boundary

High (>3.3%)

Medium (1 - 3.3%)

Low (0.1 - 1%)

Figure Title	
Flood Risk from Surface Water	
Project Name	
Didsbury Technology Park	
Project Number	Figure No.
1620006198	4
Date	Prepared By
July 2022	DP
Scale	Issue
1:2,000 @A3	3
Client	
Bruntwood Works	
RAMBOLL	

APPENDIX A PROPOSED DEVELOPMENT LAYOUT

NOTES:

1. DO NOT SCALE FROM THIS DRAWING. ALWAYS WORK TO NOTED DIMENSIONS.

2. ALL SETTING OUT, LEVELS AND DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE INSTALLATION OF MATERIALS AND ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.

3. THIS DRAWING MUST BE READ WITH THE RELEVANT SPECIFICATION DOCUMENTS AND DETAIL DRAWINGS. ANY DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.

4. THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY.

5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

THIS DRAWING WAS PLOTTED ON:

21/04/2022

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
22/03/2022	17		Site wide change to layout and deck car park	CL
08/04/2022	18		WS3 Tender	CL
21/04/2022	19		WS3 Tender	CL

GENERAL INFORMATION

PLANNING APPLICATION

BOUNDARY (DRAFT)

HARDWORKS

S1.0

BLOCK PAVING

TO PEDESTRIAN PUBLIC REALM

Newgrange by Kilsaran to match existing paving on site. Unit size and bond TBC. Build up to suit drainage strategy and overrun by servicing/emergency vehicles. Prior for rigid base.

S1.1

PERMEABLE BLOCK PAVING

TO PEDESTRIAN PUBLIC REALM

Clima Pave Newgrange by Kilsaran to match existing paving on site. Unit size and bond TBC. Build up to suit drainage strategy and overrun by servicing/emergency vehicles. Prior for rigid base.

S1.2

BLOCK PAVING

TO PEDESTRIAN PUBLIC REALM

Newgrange by Kilsaran. Unit size and bond TBC. Build up to suit drainage strategy and overrun by servicing/emergency vehicles. Prior for rigid base.

S1.3

BLOCK PAVING

TO PEDESTRIAN PUBLIC REALM

Newgrange by Kilsaran. Unit size and bond TBC. Build up to suit drainage strategy and overrun by servicing/emergency vehicles. Prior for rigid base.

S2.0

PERMEABLE BLOCK PAVING

TO VEHICULAR DROP OFF

Clima Pave Newgrange by Kilsaran to match existing paving on site. Unit size and bond TBC. Build up to suit drainage strategy and frequent use by vehicles.

S2.1

PERMEABLE BLOCK PAVING

TO PARKING BAYS

Clima Pave Newgrange by Kilsaran to match existing paving on site. Unit size and bond TBC. Build up to suit drainage strategy and frequent use by vehicles.

S3.0

MACADAM SURFACING - GREY COLOUR

VEHICULAR GRADE

Impermeable with appropriate sub base to suit drainage strategy

S3.1

PERMEABLE SURFACING

TO TEMP CAR PARK

Geocell system with gravel infill. Spaces defined with plastic fill markers.

S3.2

MACADAM SURFACING - BUFF COLOUR

VEHICLE GRADE

Impermeable surface with appropriate sub base

SE

EXISTING BLOCK PAVING

NEWGRANGE BY KILSARAN

<https://www.kilsaran.ie/projects/elements-wes-1-disbury/>

T

INDICATIVE LOCATION FOR TACTILE PAVING

STEPPING STONES - NATURAL STONE

EDGINGS

K1.0

FLUSH KERB TYPE 1.0

CONCRETE, SQUARE EDGE, LAID FLUSH WITH BOTH ADJOINING SURFACES. WIDER KERB TO BE USED IN HEAVILY TRAFFICKED VEHICLE AREAS (RAMBOLL REF CS2).

K1.1

FLUSH KERB TYPE 1.1

CONCRETE, SQUARE EDGE KERB, LAID FLUSH WITH ADJOINING PAVING. RAIN GARDEN CHANNEL AT REDUCED DEPTH

K2.0

UPSTAND KERB TYPE 2.0

GRANITE, SQUARE EDGE KERB, LAID WITH UPSTAND AND WITH DRAINAGE CHANNELS AT 1M INTERVALS

K2.1

UPSTAND KERB TYPE 2.1

HALF BATTER CONCRETE KERB, LAID WITH UPSTAND

K2.2

UPSTAND KERB TYPE 2.2

CONCRETE KERB DRAIN

K3

UPSTAND KERB TYPE 3

STANDARD CONCRETE BULLNOSE KERB, LAID WITH UPSTAND

KE

EXISTING KERB RETAINED

SOFTWORKS

S4

SEMI-MATURE TREE TYPE 1

WITH TREE PIT WATER MANAGEMENT

35-40cm Girth, rootball with underground guying. Surface water attenuation to be incorporated into tree pit design by Green Blue Urban. Include for structural soil cells, irrigation and aeration to rooting area.

S5

SEMI-MATURE TREE TYPE 2

WITH TREE PIT WATER MANAGEMENT

35-40cm Girth, rootball with underground guying. Surface water attenuation to be incorporated into tree pit design by Green Blue Urban. Include for structural soil cells, irrigation and aeration to rooting area.

S6

MULTI STEM TREE TYPE 3

TO RAIN GARDENS

Height 300-350mm, rootball with underground guying.

S7

MULTI STEM TREE IN PLANTER

TO NEW AREAS OF HARDWORKS

Height 300-350mm, rootball with underground guying.

S8

SHRUB PLANTING

TO ALL NEW AREAS

Min 8L pots, 400mm depth topsoil. Bark mulch.

S9

LAWN

S10

RAIN GARDEN/OPEN CHANNEL

FOR SURFACE WATER ATTENUATION

Allow for 4500mm depth topsoil. Sub base to suit drainage strategy

ORIGINATOR

W

layer.studio

T

01625 523 157

E

manchester or newcastle@layer.studio

MANCHESTER

The Barn

One Hollin Lane

Styal

Cheshire

SK9 4JH

NEWCASTLE

The Studio

Low Shilford House

Stocksfield

Northumberland

NE43 7HW

CLIENT

BRUNTWOOD

PROJECT

DIDSBURY TECHNOLOGY PARK

MANCHESTER

DRAWING TITLE

EXTERNAL WORKS GENERAL ARRANGEMENT

DRAWING NUMBER

159-LYR-XX-XX-DWG-L-1008

REV

19

STATUS

WS3 TENDER

SCALE

1:500 @ A1

CREATED BY

C LESTER

CHECKED BY

M WARNER

