Alma Park Primary School, Levenshulme

Drainage Strategy

April 2024



Waterco

Assessment | Modelling | Design

Project Information	
Project:	Alma Park Primary School, Levenshulme
Report Title:	Drainage Strategy
Client:	Alma Park Primary School
Instruction:	The instruction to undertake this Drainage Strategy was received from Daniel Markwart of Studio OL3 acting on behalf of the Client.
File Ref:	15818-Drainage Strategy-01

Approval Record	
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Document History		
Revision	**Date**	**Comment**
01	03/04/2024	First issue

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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

Contents

Introduction.....1
Existing Conditions 1
Development Proposals 2
Planning Policy.....3
Consultation.....3
Surface Water Management 4
Maintenance.....6
Conclusions..... 7
Recommendations.....7

Appendices

Appendix A Location Plan and Aerial Image
Appendix B Topographical Information
Appendix C BGS Borehole Location Plan and Record
Appendix D UU Sewer Plan and Correspondence
Appendix E Existing and Proposed Development Plans
Appendix F Greenfield Runoff Estimates
Appendix G Attenuation Storage Estimate
Appendix H Concept Drainage Sketch
Appendix I Concept Designer's Risk Assessment

Introduction

Waterco has been commissioned to undertake a Drainage Strategy in relation to a proposed multi-use games area (MUGA) at Alma Park Primary School, Errwood Road, Burnage, Levenshulme, M19 2PF.

Manchester City Council as Lead Local Flood Authority (LLFA) is a statutory consultee for major planning applications in relation to surface water drainage, requiring that all planning applications are accompanied by a Sustainable Drainage Strategy. The aim of the Sustainable Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment.

Existing Conditions

The site covers an area of approximately 520m^2 and is located at National Grid Reference (NGR): 387373, 393815. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed April 2024) shows that the site comprises amenity / play space in the grounds of Alma Park Primary School.

The site is bordered by Alma Park Primary School to the north, a railway line to the east, a pedestrian footpath and communal open space to the south, and the grounds of Alma Park Primary School to the west. Access to the site is provided from the Alma Primary School which in turn is accessed off Errwood Road.

Local Topography

An Existing Block Plan identifying the site topography has been provided by Studio OL3. The Existing Block Plan shows that the site is relatively flat with levels ranging from 55.31 metres Above Ordnance Datum (m AOD) in the north-east to 55.11m AOD in the east.

Topographic levels to m AOD have also been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR data generally corroborates with the topographical survey.

Topographical data is provided as Appendix B.

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by superficial deposits of Devensian Till, generally comprising of Diamicton. The superficial deposits are identified as being underlain by the Collyhurst Sandstone Formation.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The closest historical BGS borehole record (BGS reference: SJ89SE18) is located 115m west of the site (NGR: 387247, 393814) and is included together with a borehole location plan in Appendix C. The borehole record

(off Errwood Road) identifies:

- Soil from ground level to 0.61 metres below ground level (m.bgl).
- Hard, blue clay from 0.61m.bgl to 6.71m.bgl.
- Dark, loamy sand from 6.71m.bgl to 8.99m.bgl.

According to the EA's Aquifer Designation data, obtained from MAGIC's online mapping [accessed April 2024], the Devensian Till is classified as a Secondary Undifferentiated Aquifer. Secondary Undifferentiated Aquifers are assigned in *'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.*

The underlying Collyhurst Sandstone Formation is described as a Principal Aquifer. Principal Aquifers are *'layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale'.*

The EA's 'Source Protection Zones' data, obtained from MAGIC's online mapping [accessed April 2024], indicates that the site is not located within a Groundwater Source Protection Zone.

The Cranfield University 'Soilscapes' map [accessed April 2024] indicates that the site is underlain by *'slowly permeable seasonally wet loamy and clayey soils'*.

Local Drainage

Public sewer records have been obtained from United Utilities (UU) and are included in Appendix D. The UU sewer records identify a 700mm public combined sewer approximately 35m south of the site. The 700mm public combined sewer flows west and orientates north crossing the wider Alma Park Primary School site (approximately 95m west of the site) becoming 600mm in diameter. No cover or invert levels for the public combined sewer crossing the Alma Park Primary School are provided on the UU sewer plans.

There is no information on how surface water from the primary school is currently drained. However, in absence of a nearby watercourse and based on the underlying ground conditions (clay), it is assumed that surface water from the school currently drains to the public combined sewer crossing the wider Alma Park Primary School site.

Development Proposals

The proposed development comprises the construction of 3no. MUGA pitches with an associated access footpath. Proposed development plans are included in Appendix E.

The proposed MUGA pitches and associated access footpath cover an area of approximately 520m^2. All measurements have been taken from a PDF copy of the 'Part Site Plan as Proposed and Block Plan as

Proposed (Rev P-02)' and are approximate only.

Planning Policy

The Manchester City Council Core Strategy (adopted July 2012) contains the following policies relating to drainage:

'Policy EN 8 – Adaptation to Climate Change:
All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- *Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability.*

Policy EN 14 – Flood Risk:

- *All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.*

Policy EN 17 – Water Quality:
With reference to the Manchester-Salford-Trafford SFRA and other relevant documents:

- *Development should minimise surface water run-off from development and associated roads, and maximise the use of appropriate sustainable drainage systems, to minimise groundwater contamination, and to avoid pollutants reaching watercourses'.*

Consultation

A pre-development enquiry was submitted to United Utilities (UU) in February 2024. In their response (Appendix D), UU have stated that:

<u>Surface Water</u>
All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

1. into the ground (infiltration);

2. to a surface waterbody;

3. to a surface water sewer or highway drain;

4. to a combined sewer.

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted. The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area). The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Should the above be exhausted and a connection to the combined sewer is required I can confirm we would have no objections to a connection to the public 600dia combined sewer running through your site with a maximum pass forward flow rate of 5 l/s.'

A consultation request was also submitted to the LLFA in February 2024. A response is currently awaited.

Surface Water Management

The site is not formally drained and is therefore considered to be 100% permeable. The proposed development will introduce 520m² of formally drained area in the form of the MUGA pitches and an associated footpath.

The introduction of formally drained area will result in an increase in surface water runoff rates and volumes. In order to ensure the proposed development will not increase flood risk elsewhere, surface water discharge from the site will be controlled.

The existing greenfield runoff rates have been estimated using the Revitalised Flood Hydrograph Model (ReFH2) method. A summary of the greenfield runoff rates for a range of events is provided as Appendix F. The existing 1 in 1 year greenfield runoff rate for the 520m^2 site is 0.36 l/s.

A discharge rate of 1 l/s is proposed for this site to ensure the drainage system is self-cleansing.

Discharge Method

Paragraph 056 of the NPPG: Flood Risk and Coastal Change sets out the following hierarchy of drainage options: into the ground (infiltration); to a surface water body; to a surface water sewer, highway drain or another drainage system; to a combined sewer.

Infiltration

The first consideration for the disposal of surface water is infiltration (soakaways and permeable surfaces).

As described above, the site is underlain by superficial deposits of Devensian Till comprising Diamicton. Given the impermeable nature of the underlying superficial deposits, it can be concluded that infiltration techniques are unlikely to be suitable for the disposal of surface water runoff.

Watercourse

As infiltration techniques are not considered feasible, a connection to watercourse is the next consideration. The nearest watercourse is Fallowfield Brook which is located approximately 500m east of the site. The site is separated from Fallowfield Brook by third party, urbanised land, including a railway line. Therefore, discharge to watercourse is not considered to be feasible.

Sewer

As disposal of surface water to watercourse is not possible, a connection to the public sewer system is the final consideration. There is a 600mm public combined sewer located approximately 95m west of the site crossing the wider Alma Park Primary School Site.

UU have stated that: '*Should the above be exhausted and a connection to the combined sewer is required I can confirm we would have no objections to a connection to the public 600dia combined sewer running through your site with a maximum pass forward flow rate of 5 l/s.*'

Therefore, it is proposed to discharge surface water to the 600mm public combined sewer at a limited discharge rate of 1 l/s. Where possible, a connection to the 600mm public combined sewer will be made via the existing surface / combined drainage system serving the adjacent school. This will avoid making a new connection to the public combined sewer and will minimise the length of pipework required.

A survey of the drainage system serving the adjacent school buildings should be undertaken as to establish invert levels. The site is slightly elevated above the adjacent school buildings and as such a gravity connection should be achievable.

It is noted that a public surface water sewer is located in Errwood Road immediately west of the school site. The surface water sewer is shown to drain into the public combined sewer system. As such, there are no surface water sewers in this area which provide an alternative discharge point.

Attenuation Storage

In order to achieve a limited discharge rate of 1 l/s, attenuation storage will be required. An attenuation storage estimated has been undertaken using MicroDrainage software and is included in Appendix G. An estimated storage volume of 37m³ will be required to accommodate the 1 in 100 year plus 45% Climate Change (CC) event. The storage estimate is based on a contributing drainage area of 520m², storage within the pitch sub-grade, a void ratio of 30% (applicable to stone sub-grade) and a discharge rate of 1 l/s.

Attenuation storage will be provided within the stone sub-grade of the MUGA pitches. Based on a level sub-grade and a pitch area of 490m² (site area excluding the footpath north of the MUGA pitches) a sub-grade

depth of 250mm will be required to accommodate the 1 in 100 year plus 45% CC event. Perforated pipes will be laid within the sub-grade to encourage water towards the flow control chamber.

Concept Surface Water Drainage Scheme

As infiltration techniques are unlikely to be feasible due to the underlying clay geology, surface water runoff will be discharged into the existing surface water drainage system that currently serves the school at a limited rate of 1 l/s. The drainage system serving the school is assumed to drain into the 600mm public combined sewer located approximately 95m west of the site.

Surface water runoff up to the 1 in 100 year plus 45% climate change allowance event will be attenuated on site. A total attenuation volume of 37m³ will be required to achieve a discharge rate of 1 l/s and will be provided within the stone sub-grade of the MUGA pitches.

A Concept Drainage Sketch is included in Appendix H.

Exceedance Event

Storage will be provided for the 1 in 100 year plus 45% CC event. Storm events in excess of the 1 in 100 year plus 45% CC event will be permitted to produce temporary shallow depth flooding on the surface of the proposed MUGA pitches.

Surface Water Treatment

The pollution hazard associated with the artificial pitches is considered to be very low. Rainwater will filtrate through the sub-grade material prior to entering the flow control chamber via a series of collection drains (perforated pipework). No additional surface water treatment is deemed necessary for the proposed MUGA pitches.

Maintenance

Maintenance of the drainage system will be the responsibility of the site owner. The maintenance of the artificial sports pitches will be as per the manufacture's guidelines.

Conclusions

The proposed development is for the construction of multi-use games area (MUGA) pitches with an associated footpath.

The proposed development will include formally drained area in the form of the MUGA pitches. This will result in an increase in surface water runoff. In order to ensure the increase in surface water runoff will not increase flood risk elsewhere, flow control will be used, and attenuation provided on site to accommodate storm events up to and including the 1 in 100 year plus 45% climate change event.

All surface water discharge methods have been assessed. Infiltration techniques are not considered to be feasible given the impermeable nature of the underlying clay. There are no watercourses in the vicinity of the site and as such a connection to the public combined sewer is proposed. Where possible, a connection to the 600mm public combined sewer 95m west of the site will be made via the existing surface / combined drainage system serving the adjacent school. This will avoid making a new connection to the public combined sewer and will minimise the length of pipework required. Discharge will be made at a limited rate of 1 l/s.

Surface water runoff up to the 1 in 100 year plus 45% climate change allowance event will be attenuated on site. A total attenuation volume of 37m³ will be required to achieve a discharge rate of 1 l/s and will be provided within the stone sub-grade of the proposed MUGA pitches. Perforated pipes will be laid within the sub-grade to encourage water towards the flow control chamber.

A Concept Designer's Risk Assessment (cDRA) has been prepared to inform future designers of any identified hazards associated with the scheme. The cDRA has been included in Appendix I.

Recommendations

1. Submit this Drainage Strategy to the Planning Authority in support of the Planning Application.

2. Survey the exiting drainage system serving the adjacent school building to establish invert levels.

Appendix A Location Plan and Aerial Image

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Land Under Client's Ownership
- Watercourses
- Waterbodies



CLIENT:

www.waterco.co.uk

SCHEME:

Alma Park School, Levenshulme

PLOT TITLE:

Location Plan

PLOT STATUS:	DATE:
FINAL	02-04-2024

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	JR	AW	1:1250

PLOT NAME:	REVISION:
15818_Location_Plan	-

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Notes:
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LEGEND

- Site Boundary
- Land Under Client's Ownership



CLIENT:

www.waterco.co.uk

SCHEME:

Alma Park School, Levenshulme

PLOT TITLE:

Aerial Plan

PLOT STATUS:			DATE:
FINAL			02-04-2024
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	JR	AW	1:1250
PLOT NAME:			REVISION:
15818_Aerial_Plan			-

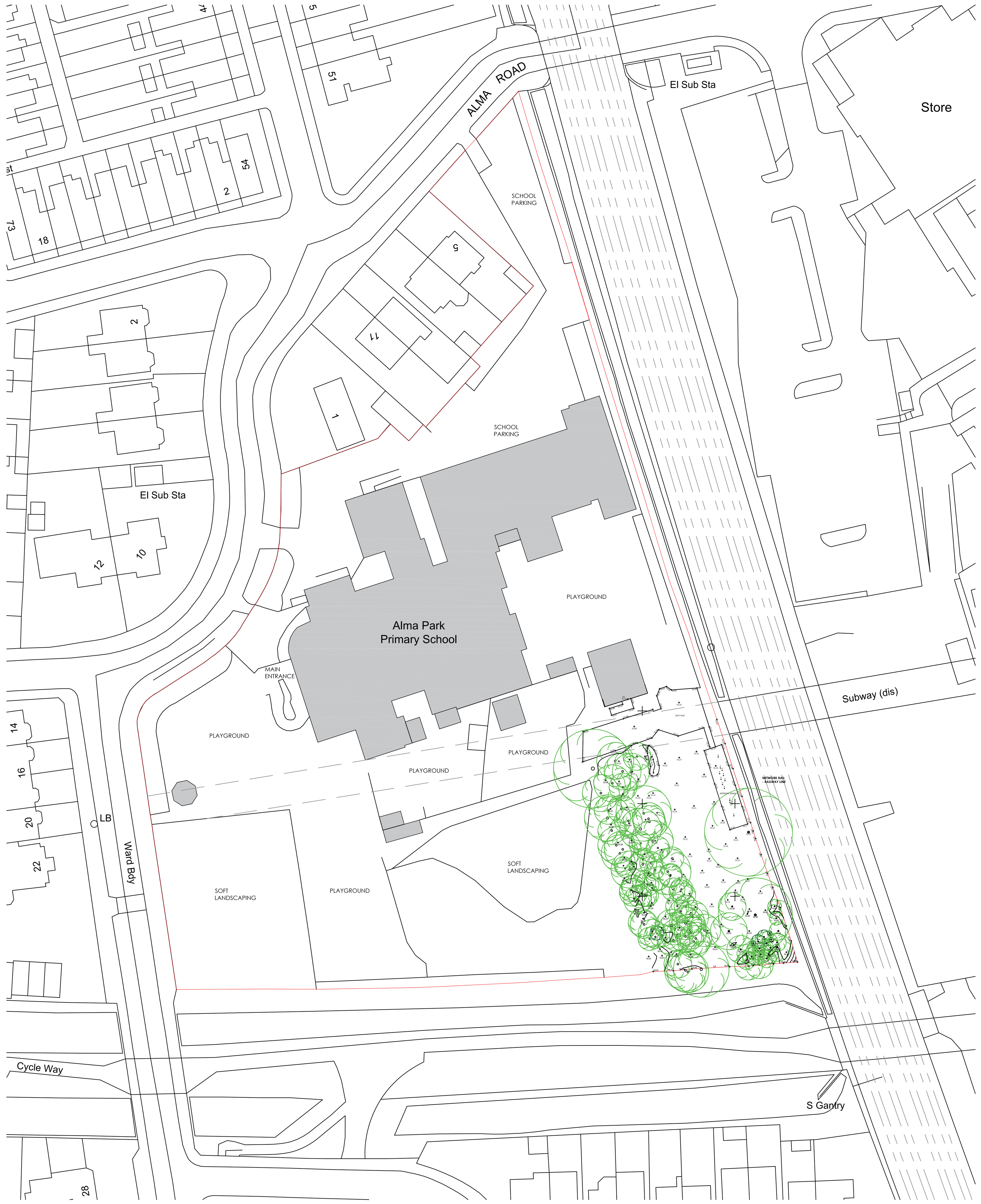
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Appendix B Topographical Information

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Any discrepancies should be reported to Studio OL3 Ltd.
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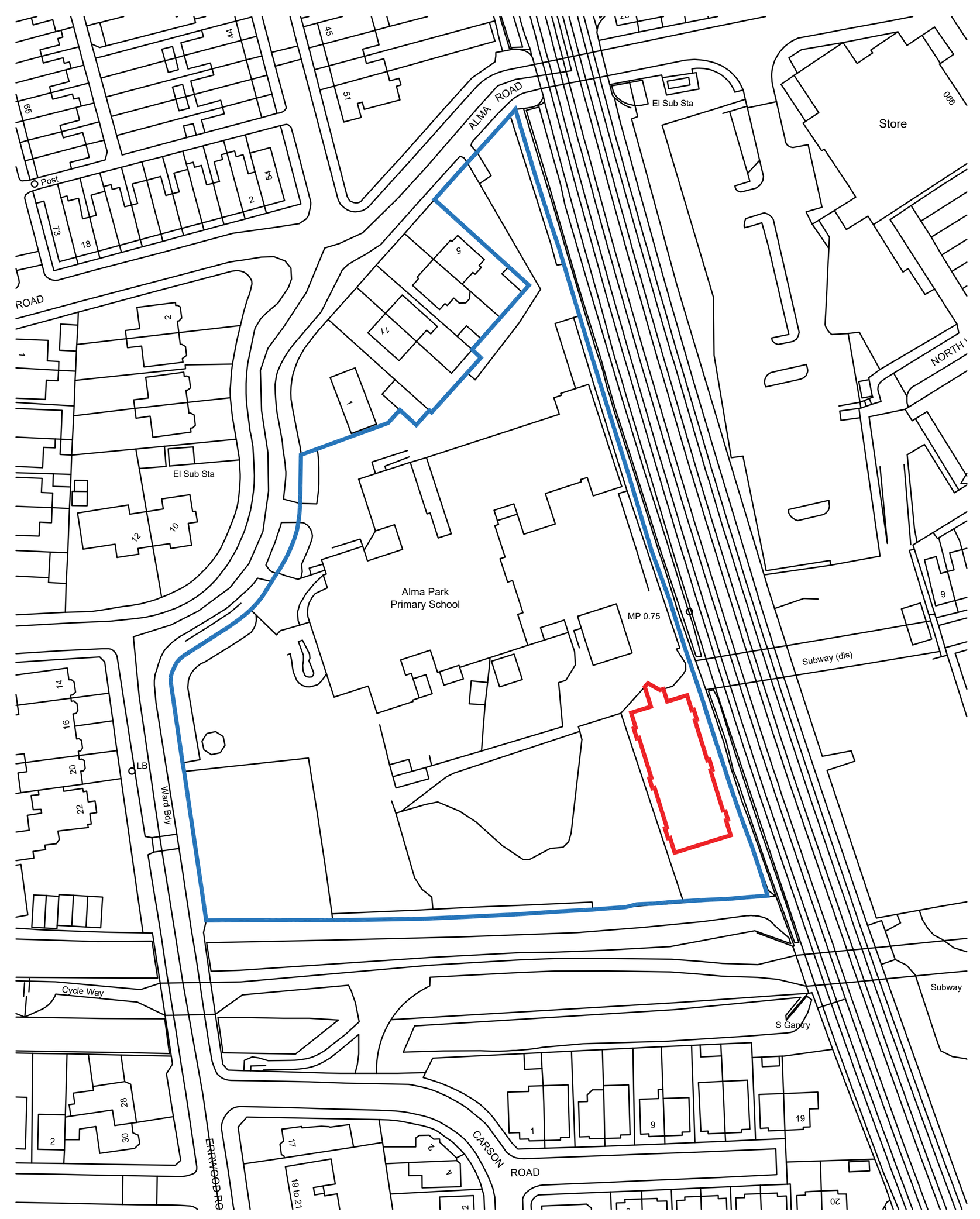


PART SITE PLAN AS EXISTING
Scale - 1:100



BLOCK PLAN AS EXISTING
Scale - 1:500

N



LOCATION PLAN
Scale - 1:1250

No.	Date	Description	Issued by

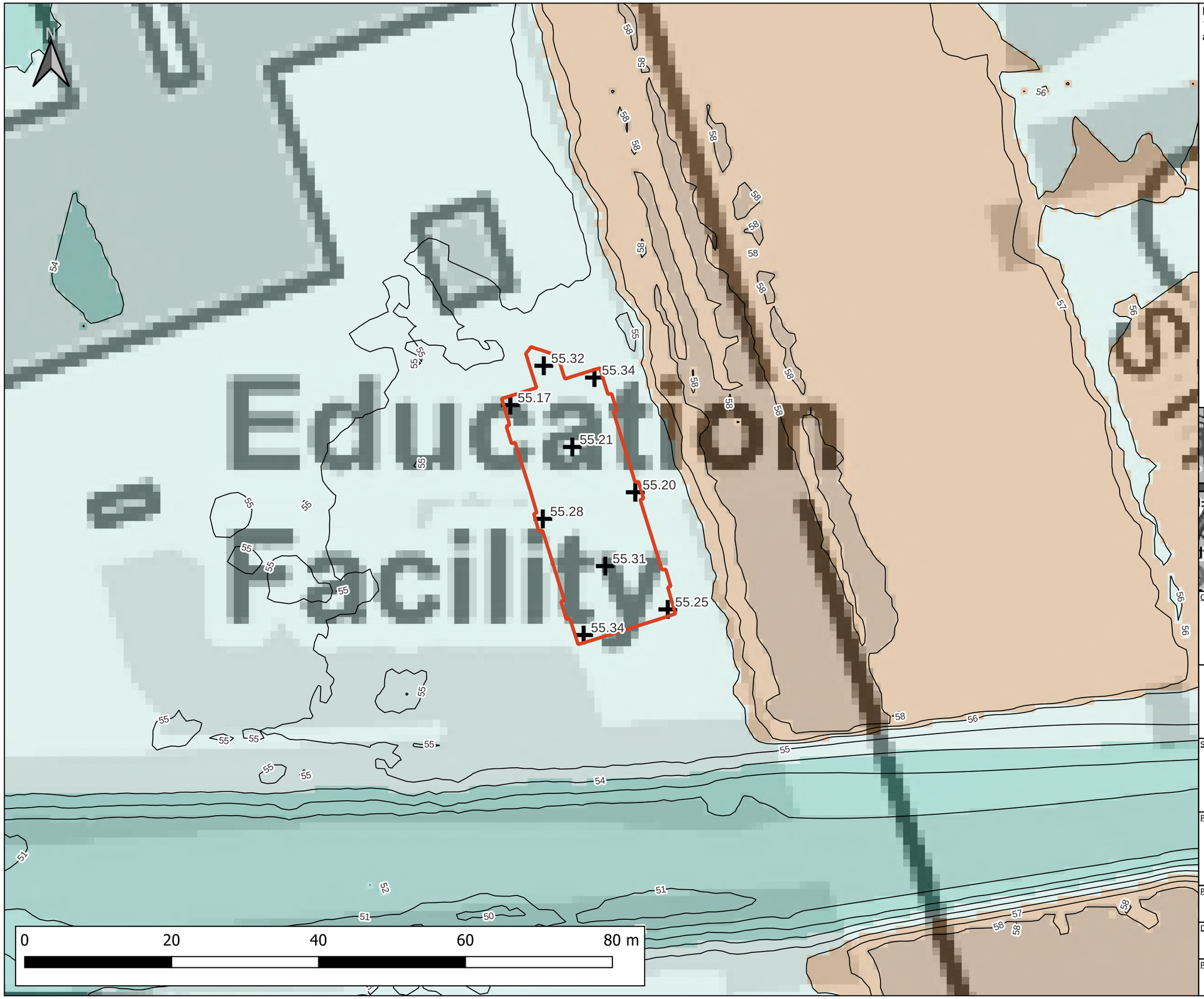
ALMA PARK PRIMARY SCHOOL,
ERRWOOD ROAD, LEVENSHULME,
MANCHESTER, M19 2PF

PROPOSED MUGA PITCHES

PART SITE PLAN AS EXISTING AND
BLOCK PLAN AS EXISTING AND
LOCATION PLAN

Project number	320-01	P-01
Date	03.01.2024	
Drawn by	DM	
Checked by	OL3	Scale @ A0 AS NOTED

STUDIO OL3
ARCHITECTURAL DESIGN
Unit 7 Whitegate Business Centre, Jardine Way, Oldham, OL9 9JT
Email - design@studio-ol3.co.uk Web - www.studio-ol3.co.uk



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Site Levels (m AOD)

Ground Elevations (m AOD)

- <= 52
- 52 - 54
- 54 - 56
- 56 - 58
- 58 - 60
- > 60



CLIENT:

Alma Park

waterco
www.waterco.co.uk

SCHEME:
Alma Park School, Levenshulme

PLOT TITLE:
LiDAR Plan
1m Resolution
Data from Environment Agency

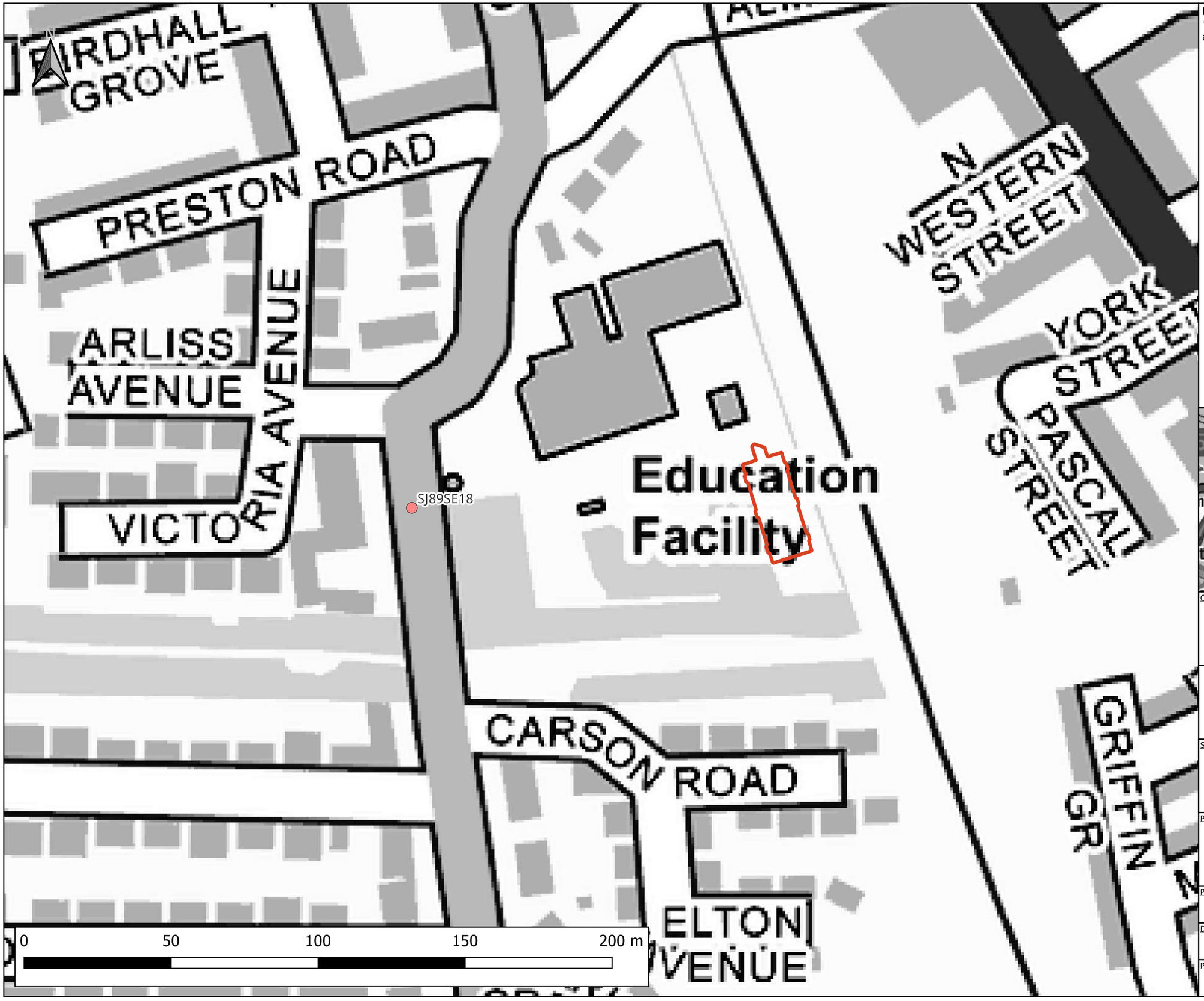
PLOT STATUS:	DATE:
FINAL	02-04-2024

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	JR	AW	1:500

PLOT NAME:	REVISION:
15818_LiDAR_Plan	-

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Appendix C BGS Borehole Location Plan and Record



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- BGS Borehole Location



CLIENT:

Alma Park

Waterco
www.waterco.co.uk

SCHEME:
Alma Park School, Levenshulme

PLOT TITLE:
Historical BGS Borehole Location Plan
Data from British Geological Survey (BGS)

PLOT STATUS:	DATE:
FINAL	02-04-2024

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	JR	AW	1:1250

PLOT NAME:	REVISION:
15818_BGS_Borehole_Location_Plan	-

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British Geological Survey
BGS ID: 865696 : BGS Reference: SJ89SE18
British National Grid (27700) : 387247,393814

G.S.M. Nos. 15–19

GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

SJ89SE 15–19

on standard and site maps

County Lancs.

6-in. Map 111 NE

GSM

Manholes ~~BORE or SHAFT~~ along Marshall Road & Errwood Road Sewer, Levenshulme, Manchester.

Surface level Separately O.D. stated One-inch Map 85 & 98.

Communicated 8th June 1932 by City Engineer's Office, Manchester Corporation.

Date of sinking 1931-2 Borer —

Specimens

Description.	Thickness. Feet.	Thickness. Inches.	Depth. Feet.	Depth. Inches.	
Manhole 1. N. end of Marshall Road. 168 ft. above O.D.					metres
No. 15 **15** Setts	-	9	-	9	0·23
Soil	1	3	2	-	0·61
Yellow clay	2	3	4	3	1·30
Hard blue clay	13	9	18	-	5·49
Red sandstone	9	-	27	-	8·23
Manhole 2. Midway down Marshall Road. 172½ ft. above O.D.					
No. 16 **16** Setts & filling	1	6	1	6	0·46
Yellow clay	2	6	4	-	1·22
Hard blue clay	13	-	17	-	5·18
Red sandstone.	—		—		
Manhole 3. South end of Marshall Road 174½ ft. O.D.					
No. 17 **17** Setts & filling	1	3	1	3	0·38
Yellow clay	2	9	4	-	1·22
Hard blue clay	9	6	13	6	4·11
Ballast	1	6	15	-	4·57
Fine dry sand & pebbles.	13	6	28	6	8·69
Manhole 4. Off Errwood Road 177 ft. O.D.					
18 Soil	2	-	2	-	0·61
Hard blue clay	20	-	22	-	6·71
Dark loamy sand.	7	6	29	6	8·99
Manhole 5. South corner Errwood Road & railway. 158 ft. O.D. at base of 18 ft. cutting.					
No. 19 **19** Hard brown clay to depth of 7 ft. below floor of cutting.					

(B12268) Wt. 13119—0014 5000 9/27 Gp. 160 O.A.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 865696 : BGS Reference: SJ89SE18
British National Grid (27700) : 387247,393814

SJ89/178A-E

GEOLOGICAL SURVEY AND MUSEUM. BOREHOLES AND SHAFTS.

County Lancs.
6-in. Map 111 NE E

Manholes ~~BORE or SHAFT~~ along Marshall Road & Errwood Road Sewer, Levenshulme, Manchester GSM

Surface level Separately O.D. stated One-inch Map 85 & 98.

Communicated 8th June 1932 by City Engineer's Office, Manchester Corporation.

Date of sinking 1931-2 Borer —

Specimens

	Description.	Thickness. Feet.	Thickness. Inches.	Depth. Feet.	Depth. Inches.
A	**Manhole 1.** N. end of Marshall Road. 168 ft. above O.D.				
	No. 15				
	SJ 8725 9415				
	Setts	-	9	-	9
	Soil	1	3	2	-
	Yellow clay	2	3	4	3
	Hard blue clay	13	9	18	-
	Red sandstone	9	-	27	-
	Manhole 2. Midway down Marshall Road. 172½ ft. above O.D.				
	No. 16				
B	SJ 8726 9405				
	Setts & filling	1	6	1	6
	Yellow clay	2	6	4	-
	Hard blue clay	13	-	17	-
	Red sandstone	—		—	
	Manhole 3. South end of Marshall Road 174½ ft. O.D.				
	No. 17				
C	SJ 8730 9395				
	Setts & filling	1	3	1	3
	Yellow clay	2	9	4	-
	Hard blue clay	9	6	13	6
	Ballast	1	6	15	-
	Fine dry sand & pebbles.	13	6	28	6
	Manhole 4. Off Errwood Road 177 ft. O.D.				
	No. 18				
D	SJ 8725 9386				
	Soil	2	-	2	-
	Hard blue clay	20	-	22	-
	Dark loamy sand.	7	6	29	6
	Manhole 5. South corner Errwood Road & railway. 158 ft. O.D. at base of 18 ft. cutting.				
	No. 19				
E	SJ 8725 9376				
	Hard brown clay to depth of 7 ft. below floor of cutting.				

(B12204) Wt. 13119—0014 5000 9/27 Gp. 160 O.A.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 865696 : BGS Reference: SJ89SE18
British National Grid (27700) : 387247,393814

Lowes 111 NE / 15—19

Contact BGS: ngdc@bgs.ac.uk

Appendix D UU Sewer Plan and Correspondence

United Utilities
Water for the North West

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Waterco

Waterco
Ion parcwr,
ruthin, denbighshire
ll15 1nj

FAO:

Your Ref: 15818
Our Ref: UUPS-ORD-549491
Date: 19/02/2024

Dear Sirs

Location: 15818-Alma Park School Levenshulme

I acknowledge with thanks your request dated 15/02/2024 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

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- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
6102	54.72	CO	52.11	225			VC	14.31782	1 in 48
4502	52.19	SW	50.84	225			VC	48.75449	1 in 59
2811	53.32	SW	51.79	225			VC	7.28011	1 in 364
5002	55.67	CO	54.07	225			VC	21.09502	1 in 42
5012		CO		100			VC	6.994386	
3509	51.27	CO	48.74	300			VC	67.70668	1 in 174
2804	53.67	CO	50.22	300			VC	42.29657	1 in 201
2507	51.24	CO	48.05	300			VC	24.0987	1 in 161
1601	50.99	SW	49.14	225			VC	53.74106	
5511	53.98	SW	53.08	225			VC	49.65864	1 in 99
0506		CO		150			VC	8.392903	
2901	53.17	CO	44.72	600			CO	102.6158	1 in 160.337169
4104	53.94	CO	50.57	300			VC	85.04759	
3501	51.19	SW	49.55	225			VC	9.988541	1 in 67
1903	52.32	CO	50.24	225			VC	3.162278	1 in 35
5703	57.15	CO	52.1	450			VC	21.09502	1 in 192
1003	51.45	CO	48.12	300			VC	25.29822	1 in 97
1103	50.94	CO	48.95	225			VC	9.055386	1 in 7
4102	53.59	CO	50.76	300			VC	5.09902	
5910	55.72	CO	54.21	150			VC	13.45362	1 in 11
5506	54.19	CO	51.85	300			VC	53.31041	1 in 381
5006	56.23	CO	53.75	300			VC	49.25444	1 in 36
1102	50.87	CO	47.65	300			VC	35.01428	1 in 159
5806	56.97	CO	51.9	450			VC	54.08327	1 in 186
3701	54.35	SW	52.51	225			VC	55.56393	1 in 85
5001	55.55	CO	53.54	225			VC	7.071068	1 in 23
5503	54.02	SW	51.27	300			VC	34.52535	1 in 52
2606	51.98	CO	48.7	225			VC	53.15073	1 in 75
5407	54.14	SW	52.35	300			VC	62.39391	1 in 58
5905	56.49	CO	55.53	225			VC	49.81968	
4002	54.27	CO	52.61	225			VC	15.0333	1 in 84
4000	54.82	CO	50.84	450			VC	98.9798	1 in 241
4600	53.41	CO	50.69	300			VC	73.40681	1 in 80
4501	52.26	CO	49.77	225			CO	44.69423	1 in 56
5804	56.16	CO	53.21	300			VC	5.830952	
1603	51.75	SW	50.59	225			VC	36.37922	
4903	55.57	CO	53.31	225			VC	6.708204	
2902	53.31	CO	48.85	300			VC	19.31321	
5803	57.03	SW	56.31	225			VC	4	
3704	55.3	CO	52.88	225			VC	63.06228	1 in 60
2704	53.73	CO	48.48	300			VC	3.334369	
1501		CO		150			CO	7.946466	
2609	52.31	CO	48.39	600			CO	10.33719	1 in 61
1101	51.32	CO	48.68	225			VC	25.01999	1 in 68
1702	55.07	CO	52.85	300			VC	50.01	1 in 16
1001	51.94	CO	49.4	225			VC	2.236068	
4111	54.39	CO	51.35	225			VC	12.36932	1 in 30
4801	55.98	CO	52.71	300			VC	29.52965	1 in 51
4004	54.2	CO	52.37	225			VC	18.24829	1 in 61
2706	49.11	CO	46.33	600			VC	4.011683	
1700	54.98	CO	52.22	300			VC	79.02531	1 in 60
1804	53.39	CO	50.69	300			VC	47.01064	1 in 196
5700	56.68	CO	54.73	225			VC	7	
1107	51.52	CO	47.83	300			VC	24.18677	1 in 151
5011		CO		100			VC	19.11233	
5505	53.92	CO	51.69	300			VC	52.43378	1 in 437
1002	51.59	CO	48.68	225			VC	2	
5600	55.32	SW	54.54	225			VC	66.30988	1 in 34
5716		CO		150			VC	2.613094	
2803	53.61	CO	49.99	300			VC	45.64203	1 in 95
5902	55.62	CO	52.55	300			VC	46.68392	
3707	49.44	CO	0	0			VC	119.9118	
3703	54.62	CO	51.81	225			VC	25.74038	1 in 117
5103	54.58	CO	51.77	225			VC	18.24829	
5800	56.77	CO	54.13	225			VC	31.57531	
6801	57.06	CO	55.45	225			VC	56.29387	1 in 48
6709		CO		150			VC	7.363668	
4900	55.65	CO	52.13	450			VC	93.51572	1 in 74
2003		CO	0	375			VC	68.73656	
5900	55.86	CO	52.97	225			VC	16.64332	1 in 151
1600	50.76	CO	47.87	300			VC	101.0445	1 in 35
5701	51.39	CO	0	450			VC	49.25444	
2705	53.81	CO	46.45	600			GRP	14.41417	
0621		CO		100			VC	8.708642	
5613		CO	0	600			VC	23.32381	
6802	56.99	SW	56.35	225			VC	82.36504	1 in 81
5906	56.2	SW	55.27	225			VC	28.30194	
2506		CO	0	150			VC	23.47574	
3702	54.62	SW	53.01	225			VC	23.33076	1 in 48
5715		CO		150			VC	11.3362	
1905	52.55	CO	49.5	300			VC	114.2904	1 in 181
3508	51.29	CO	48.83	300			VC	14.49616	1 in 181
5509	53.84	CO	51.92	225			VC	8.062258	1 in 45
5708	56.74	CO	0	600			VC	22.02271	
3900	52.73	CO	51.37	300			VC	82.57655	1 in 176
5501	54.24	CO	52.03	225			VC	16.55295	1 in 79
1802	53.47	CO	51.17	300			VC	37.05402	1 in 81
3700	54.37	CO	51.52	300			VC	43.82706	1 in 125
2503	50.78	CO	47.87	1200			VC	81.44827	1 in 240
2802	53.65	SW	52.47	225			VC	40.4475	1 in 60
2712		CO	0	450			CO	413.1465	
5602	56.54	CO	52.26	600			CO	16.12452	
5803	56.15	CO	54.32	225			VC	10.29563	
2508		CO		150			VC	22.7636	
5908	56.42	CO	55.53	225			VC	91.24144	1 in 96
1805	53.27	CO	0	225			VC	14.86607	
1704	52.51	CO	49.63	300			VC	37	1 in 308
3505	51.01	CO	48.65	525			VC	76.11884	1 in 293
5930		CO		225			VC	21.09677	
1803	53.26	CO	0	300			VC	26.19135	
2801	53.26	SW	51.72	225			VC	3	
4114		CO	0	0			VC	5.726357	
5611	56.5	SW	54.59	225			VC	73.92564	
5805	56.56	CO	51.6	450			VC	90.85407	1 in 233
1703	52.72	SW	51.29	225			VC	57.00877	1 in 114
2711	48.22	CO	0	600			VC	40.26369	
2908		CO	0	300			VC	94.14908	
6805	57.09	CO	55.02	225			VC	50.48762	1 in 59
5508	54.14	CO	51.96	225			VC	6.708204	1 in 84
0612		CO		100			VC	8.671783	
0505		CO		150			VC	8.883918	
4101	53.96	CO	50.93	225			VC	9.486833	
5807	56.76	CO	52.54	300			VC	11.75752	
5705	56.7	CO	55.75	150			VC	2.828427	
4003	53.63	CO	50.85	225			VC	8.544003	1 in 71
2831		CO		150			VC	29.08891	
5707	56.68	CO	51.96	600			CO	21.09502	
1606		SW	0	225			VC	37.64783	
5907	56.19	SW	55.29	225			VC	3.162278	
2000	52.62	CO	44.06	600			CO	91.48224	1 in 4574
2701	53.35	SW	52.04	225			VC	70.00714	1 in 93
5602	56.54	CO	52.91	150			VC	11.18034	1 in 160
2907	53.33	CO	49.02	300			VC	12.04159	1 in 75
5609	54.82	CO	53.63	225			VC	29.54657	
5510	54.49	CO	0	225			VC	30.8707	
5500	54.07	SW	52.56	225			VC	55.54278	
5606	54.06	CO	51.23	300			VC	17.72005	1 in 35
5003	55.57	CO	52.37	300			VC	73.43707	1 in 36
3504	51.33	CO	0	300			VC	4.371487	
2110		CO	0	375			VC	26.30469	
6603	56.71	CO	52.75	300			VC	43.12133	1 in 1078
5909	55.72	CO	52.85	300			VC	13.60147	
5009		CO		100			VC	6.758606	
5608	54.22	CO	51.8	225			VC	9.219544	1 in 44
2621		CO		100			VC	21.66439	
2700	53.04	CO	49.5	300			VC	47.4936	
3000	53.06	CO	0	450			VC	37.58989	
6806	57.11	CO	53.1	300			VC	45.7067	1 in 95
5711		CO	0	700			VC	20.24846	
2800	53.35	SW	0	225			VC	6.708204	
1701	52.2	SW	50.77	225			VC	55.57877	1 in 35
1000	51.89	CO	48.93	225			VC	12.36932	
5406	54.12	CO	52.06	225			VC	17.46425	
5005	56.17	CO	53.53	225			VC	8	1 in 53
3705	55.14	SW	53.73	225			VC	53.00943	1 in 76
0102	49.96	CO	47.54	225			VC	25.4951	1 in 45
5507	54.06	CO	52.04	225			VC	8.944272	1 in 64
2501	50.82	CO	47.89	300			VC	10.14747	1 in 1015
4909		CO	0	225			VC	39.90543	
2903	53.26	CO	49.1	300			VC	8.062258	1 in 45
5614	55.68	SW	54.09	300			VC	31.95309	1 in 82
3604	54.88	CO	52.81	225			VC	50	1 in 104
4800	55.8	CO	53.82	300			VC	48.76474	1 in 45
5704	56.67	CO	54.79	225			VC	45.96855	1 in 28
3602	54.28	CO	52.29	225			VC	47.09565	1 in 105
5802	55.99	CO	52.13	300			VC	10.29563	
3510	50.94	CO	48.34	300			VC	46.74629	1 in 173
3601	54.21	SW	53.22	225			VC	44.10215	1 in 232
5702	57.05	CO	51.94	450			VC	13.60147	
5903	55.61	CO	53.86	225			VC	31.62278	1 in 63
5901	55.56	CO	52.4	225			VC	8.544003	
4500	51.22	CO	49.65	225			VC	40.60936	1 in 508
1500	49.99	CO	47.13	300			VC	103.5761	1 in 102
1691		CO		100			VC	6.456895	
2900	52.76	CO	51.48	225			VC	87.0919	1 in 73
2002	52.35	CO	50.27	225			VC	82.71603	1 in 77
4504	52.26	SW	49.9	375			VC	45.90738	
5607	54.26	CO	51.55	300			VC	27.73085	1 in 107
4001		CO	0	225			VC	28.09643	
6502	54.84	CO	52.61	225			VC	35.34119	1 in 56
2687		CO		1500			VC	48.21785	
2726		CO		0			UN	10.80948	1 in
6708		CO		150			VC	43.50508	
4505	52.39	CO	50.76	300			VC	46.51956	1 in 186
2602	52.37	SW	51.28	225			VC	67	1 in 97
2727		CO		0			UN	15.49616	1 in
5108	54.54	SW	51.57	1250			CC	17.49053	1 in 350
5748		CO		225			VC	7.874451	
1602	51.48	CO	49.06	300			VC	89.01111	1 in 148
2604	52.38	SW	50.78	225			VC	3.013804	
0699		CO		0			UN	6.304659	
1801	53.21	CO	51.18	300			VC	35.01428	1 in 1167
6606	56.61	CO	55.46	225			VC	72.20111	1 in 105
5829		CO		150			VC	14.83608	
2806	53.41	CO	49.51	300			VC	35.12834	
5502	54.02	CO	52.42	225			VC	38.91015	1 in 108
2610	52.3	CO	47.6	1500			CSB	12.63952	
5728		CO		100			VC	3.106707	
2703	53.47	SW	51.81	225			VC	81.06451	1 in 83
1902	52.29	CO	50.13	225			VC	61.16154	
2601	52.31	CO	48.42	300			VC	18	
2904	53.27	CO	48.91	300			VC	28.84445	1 in 240
2815		CO	0	600			CO	157.7149	
4700	55.97	CO	54.55	300			VC	68.25185	1 in 155
5723		CO		225			VC	47.51044	
5113	54.61	FO	52.57	150			VC	12.25683	1 in 77
4503	52.29	CO	50.04	300			VC	53.22593	1 in 205

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned / Foul / Surface Water / Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

15818-Alma Park School Levenshulme,

Scale: 1:1250 **Date:** 19/02/2024

Sheet: 1 of 1

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Ryan Moore

From: seweradoptions@uuplc.co.uk
Sent: 21 February 2024 14:56
To: Jessica Roberts
Subject: RE: 15818: Ref - 05327311 - Pre Developer Enquiry - Alma Park Primary School

Caution: This is an external email and may be malicious. Please take care when clicking links or opening attachments.

Good Afternoon Jessica,

Thank you for your confirming the pitches are not soil, please see below.

UU REF 05327311 – WW PDE – Alma Park Primary School, Errwood Road, Manchester

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:
https://www.unitedutilities.com/builders-developers/working-near-our-assets/

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.
Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.
The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).
The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Should the above be exhausted and a connection to the combined sewer is required I can confirm we would have no objections to a connection to the public 600dia combined sewer running through your site with a maximum pass forward flow rate of 5 l/s.

Please do contact me should you wish to discuss any further details or processes

Regards

Anthony

Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

M: 07880 298897
unitedutilities.com

---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 21/02/2024 13:54
To: jessica.roberts@waterco.co.uk
Subject: RE: 15818: Ref - 05327311 - Pre Developer Enquiry - Alma Park Primary School

Good Afternoon

Your enquiry has been logged and sent to our engineer Anthony Laithwaite. His contact number is 07880298897. Our service Level agreement is to respond to you on or before 6 March 2024.

Many thanks

Jayne Guest
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Tel: 0345 072 6067
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-

developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: Jessica Roberts [jessica.roberts@waterco.co.uk]
Sent: 21/02/2024 13:40
To: seweradoptions@uuplc.co.uk
Subject: 15818: Ref - 05327311 - Pre Developer Enquiry - Alma Park Primary School

UU REF 05327311 – WW PDE – Alma Park Primary School, Errwood Road, Manchester

Good morning Anthony,

Many thanks for your prompt response in relation to the development located at the above address.

The sports pitch will be constructed with synthetic material with a sub-grade build up similar to that of a hardstanding yard. As such, the pitch will need a formal drainage system and won't be a grassed field. We therefore don't consider that the drainage will constitute land drainage.

Therefore, please can you provide us with an updated response based on the following approach:

We propose to attenuate surface water flows up to the 1 in 100 year + CC within the MOT sub-grade layer of the pitch. Water in the sub-grade would be collected by carrier drains to a flow control chamber which will limit flows to the 1 in 1 year greenfield runoff rate before discharging to the public sewer (in lieu of any alternative options for surface water disposal).

Please see attached pitch specification and sewer plan for your reference.

If you require anything further to process my request, then please don't hesitate to contact me.

Kind regards,

Jessica Roberts BSc (Hons) MCIWEM
Senior Environmental Consultant

01244 734982
jessica.roberts@waterco.co.uk

We're recruiting! For more information, please take a look at our website.



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Please consider the environment before printing this email.

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: Friday, February 16, 2024 2:13 PM
To: Jessica Roberts <jessica.roberts@waterco.co.uk>
Subject: RE: Ref - 05327311 - Pre Developer Enquiry - Alma Park Primary School

Caution: This is an external email and may be malicious. Please take care when clicking links or opening attachments.

Good Afternoon Jessica,

Thank you for your WW PDE, please see below:

UU REF 05327311 – WW PDE – Alma Park Primary School, Errwood Road, Manchester

I note your proposal is for sports pitches, please note United Utilities does not accept any form of land drainage to communicate with any public sewer and therefore you will need to look for an alternative method of surface water disposal.

Please contact me on my mobile should you wish to discuss.

Regards

Anthony

Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

M: 07880 298897
unitedutilities.com

---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 16/02/2024 14:10
To: jessica.roberts@waterco.co.uk
Subject: Ref - 05327311 - Pre Developer Enquiry - Alma Park Primary School

Dear Jessica

PRE DEVELOPMENT APPLICATION AT: Alma Park Primary School – UU Ref 05327311

Please accept this email as receipt of your application received on 15 February 2024 for the above development. This has now been logged on our system and the job reference is 05327311 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Anthony Laithwaite for technical assessment. You will receive their response on or before 29 February 2024.

Kind regards

Jayne Guest
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Tel: 0345 072 6067
unitedutilities.com

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WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: Jessica Roberts [jessica.roberts@waterco.co.uk]
Sent: 15/02/2024 12:42
To: wastewaterdeveloperservices@uuplc.co.uk
Subject: 15818-Pre Developer Enquiry

Proposed development at Alma Park Primary School, Errwood Road, Levenshulme, Manchester, M19 2PF.

Dear Sir/Madam,

We are currently preparing a Drainage Strategy for a site located at the above address, please can you provide us with your pre-developer advice (see completed form attached).

Development proposals are for 3no. MUGA pitches which are to be located on a parcel of existing school land which is currently laid to grass.

The site is underlain by Diamicton (likely clayey and as such the site is unlikely to be suitable for infiltration techniques. Therefore, we propose to utilise permeable surfacing, with storm water storage within the MOT layer before discharging to a flow control chamber onto the public sewer.

Please could you advise if this would be acceptable and if you have any discharge rate requirements. Furthermore, please can you advise if you have any further surface water drainage requirements.

If you have any questions or require any further information to process my request, please don't hesitate to contact me.

Kind Regards,

Jessica Roberts BSc (Hons) MCIWEM
Senior Environmental Consultant

01244 734982
jessica.roberts@waterco.co.uk

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Appendix E Existing and Proposed Development Plans

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PART SITE PLAN AS PROPOSED
Scale - 1:100



BLOCK PLAN AS PROPOSED
Scale - 1:500

KEY

- 3no. 14m long x 10m wide MUGA pitches to be installed with multi coloured Macadam finish, 2.5m wide run off areas to be provided between pitches. 3m tall ball stop fencing to be installed to perimeter of proposed MUGA pitches to provide protection to adjacent Network Rail line from play equipment used within MUGA.
- Denotes proposed min. 3m tall ball stop fencing to perimeter of 3no. proposed MUGA pitches / courts.
- Denotes proposed crush and run footpath to be installed to provide pedestrian access between existing playground and MUGA pitches.
- Indicates location of proposed soft landscaping to provide natural boundary between existing playground and MUGA pitches and will provide improved visual aspect.
- Denotes existing soft play / artificial grass area which is to be retained.

No.	Date	Description	Issued by

ALMA PARK PRIMARY SCHOOL,
ERRWOOD ROAD, LEVENSHULME,
MANCHESTER, M19 2PF

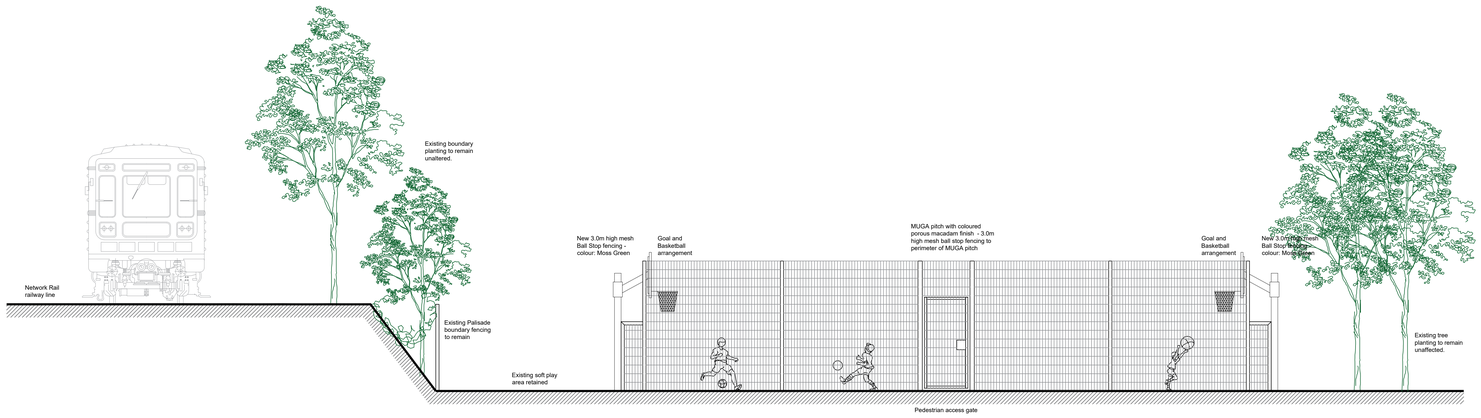
PROPOSED MUGA PITCHES

PART SITE PLAN AS PROPOSED AND BLOCK PLAN AS PROPOSED

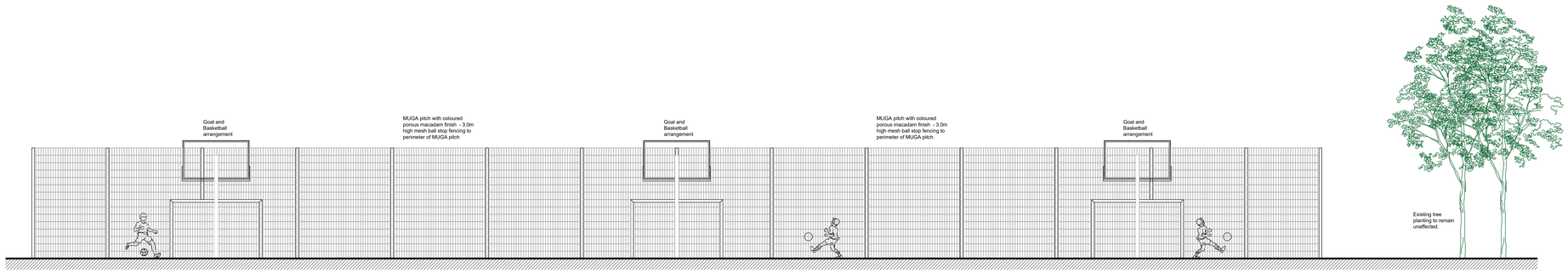
Project number	320-01	P-02	
Date	03.01.2024		
Drawn by	DM		
Checked by	OL3	Scale @ A0	AS NOTED

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ARCHITECTURAL DESIGN
Unit 7 Whitegate Business Centre, Jardine Way, Oldham, OL9 9JT
Email - design@studio-ol3.co.uk Web - www.studio-ol3.co.uk

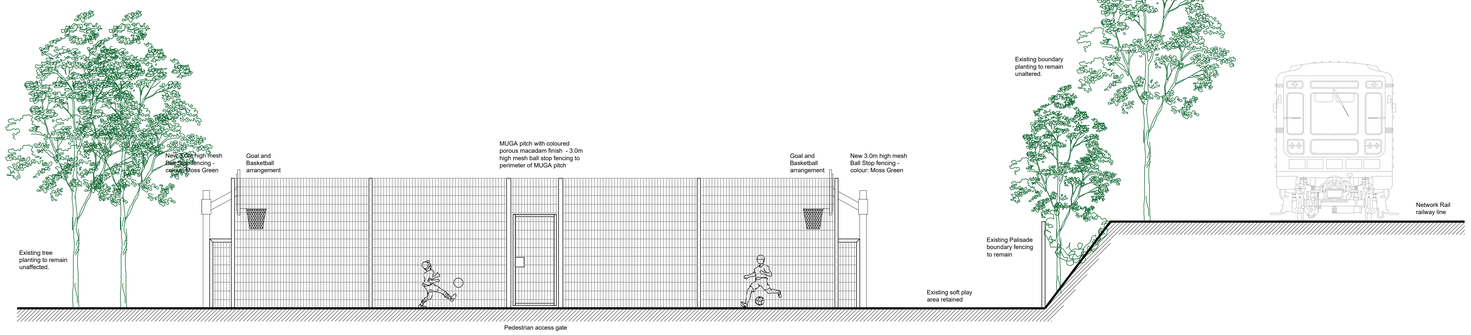
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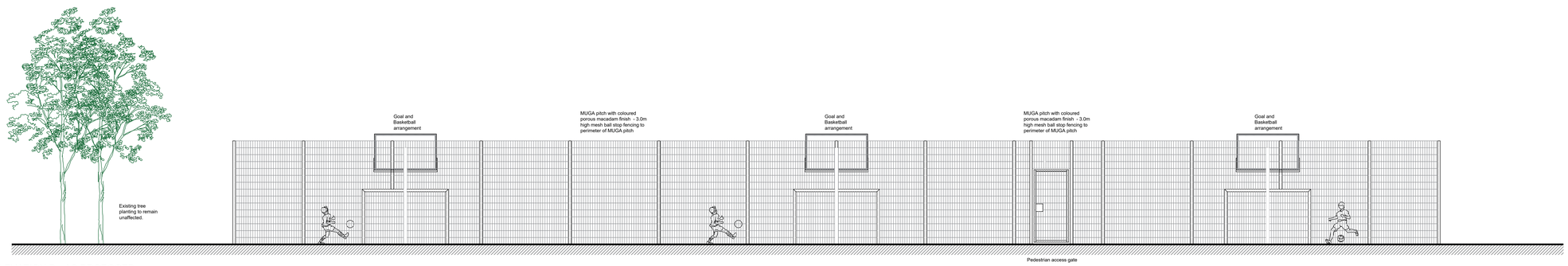
ELEVATION A - AS PROPOSED
Scale - 1:50



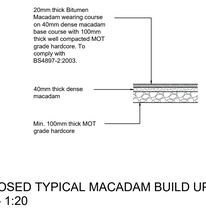
ELEVATION B - AS PROPOSED
Scale - 1:50



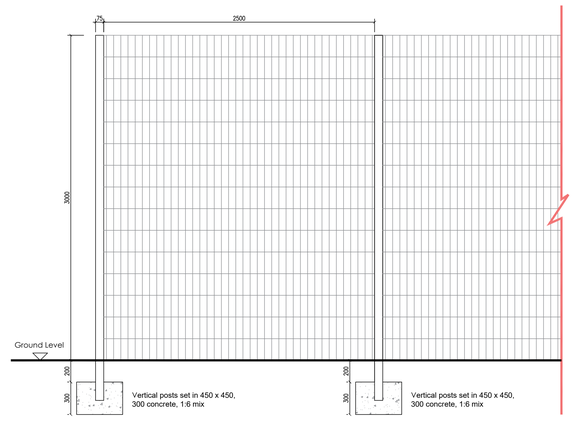
ELEVATION C - AS PROPOSED
Scale - 1:50



ELEVATION D - AS PROPOSED
Scale - 1:50



PROPOSED TYPICAL MACADAM BUILD UP DETAIL
Scale - 1:20



PROPOSED TYPICAL 3.0M TALL BALL STOP FENCING ELEVATION
Scale - 1:20

Specification

3.0m tall Ball Stop Fencing
Bottom 1.2m of mesh panelling which is exposed to most impact to be reinforced with rigid double horizontal wire at 66.3mm centres. Above 1.2m, 200mm x 50mm double wire provides containing boundary.
3.0m high fence with 80 by 40mm post sections.
Vertical infil section size of 6mm (wire size) and horizontal section size of twin 8mm wire diameter.
Post centres 2.5 metres.
Powder coated in RAL 6005 - Moss Green.
Posts to have smooth pitch side appearance with use of discreet clamp fixing bars that attach directly to the mesh.
Conforms to British Standard BS 1722 Part 14:2016
Fence panel size of 3.03m height x 2.52m width.
Supply of panels and posts inclusive of required fixings

No.	Date	Description	Issued by

ALMA PARK PRIMARY SCHOOL,
ERRWOOD ROAD, LEVENSHULME,
MANCHESTER, M19 2PF

PROPOSED MUGA PITCHES

MUGA PITCH ELEVATIONS AS PROPOSED & TYPICAL DETAILS AS PROPOSED

Project number	320-01	P-03	
Date	03.01.2024		
Drawn by	DM		
Checked by	OL3	Scale @ A0	AS NOTED

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Appendix F Greenfield Runoff Estimates

DOCUMENT VERIFICATION RECORD	
Project:	Alma Park Primary School, Levenshulme
Client:	Alma Park Primary School
Report Title:	15818-Drainage Strategy-01
Date:	3rd of April 2024

DOCUMENT REVIEW & APPROVAL	
Author:	Ryan Moore BSc (Hons)
Checker:	Jessica Roberts BSc (Hons) MCIWEM
Approver:	Aled Williams BSc (Hons) MCIWEM C.WEM

ReFH2 RUNOFF RATES*	
Return Period (Years)	**As-rural Peak Flow (l/s)**
1	0.36
2	0.41
5	0.6
10	0.73
30	0.95
50	1.06
75	1.15
100	1.22
200	1.41
1000	1.93

*Runoff Rates printed from the ReFH Flood Modelling software package

Appendix G Attenuation Storage Estimate

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 310 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.867	0.117	0.0	1.0	1.0	17.1	Flood Risk
30 min Summer	9.907	0.157	0.0	1.0	1.0	23.1	Flood Risk
60 min Summer	9.949	0.199	0.0	1.0	1.0	29.2	Flood Risk
120 min Summer	9.977	0.227	0.0	1.0	1.0	33.3	Flood Risk
180 min Summer	9.988	0.238	0.0	1.0	1.0	35.0	Flood Risk
240 min Summer	9.992	0.242	0.0	1.0	1.0	35.5	Flood Risk
360 min Summer	9.991	0.241	0.0	1.0	1.0	35.4	Flood Risk
480 min Summer	9.988	0.238	0.0	1.0	1.0	35.0	Flood Risk
600 min Summer	9.984	0.234	0.0	1.0	1.0	34.4	Flood Risk
720 min Summer	9.979	0.229	0.0	1.0	1.0	33.7	Flood Risk
960 min Summer	9.968	0.218	0.0	1.0	1.0	32.0	Flood Risk
1440 min Summer	9.943	0.193	0.0	1.0	1.0	28.4	Flood Risk
2160 min Summer	9.904	0.154	0.0	1.0	1.0	22.6	Flood Risk
2880 min Summer	9.871	0.121	0.0	1.0	1.0	17.8	Flood Risk
4320 min Summer	9.829	0.079	0.0	1.0	1.0	11.6	Flood Risk
5760 min Summer	9.812	0.062	0.0	0.9	0.9	9.1	Flood Risk
7200 min Summer	9.803	0.053	0.0	0.8	0.8	7.8	Flood Risk
8640 min Summer	9.798	0.048	0.0	0.7	0.7	7.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	154.619	0.0	17.6	16
30 min Summer	102.466	0.0	24.1	31
60 min Summer	64.984	0.0	31.2	62
120 min Summer	38.805	0.0	37.7	120
180 min Summer	28.524	0.0	41.8	180
240 min Summer	22.864	0.0	44.8	240
360 min Summer	16.666	0.0	49.1	302
480 min Summer	13.294	0.0	52.3	362
600 min Summer	11.148	0.0	54.9	428
720 min Summer	9.651	0.0	57.0	496
960 min Summer	7.684	0.0	60.5	634
1440 min Summer	5.572	0.0	65.6	908
2160 min Summer	4.043	0.0	71.0	1296
2880 min Summer	3.224	0.0	75.0	1648
4320 min Summer	2.352	0.0	81.1	2332
5760 min Summer	1.887	0.0	85.9	3000
7200 min Summer	1.598	0.0	89.9	3680
8640 min Summer	1.398	0.0	93.4	4416

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	9.794	0.044	0.0	0.7	0.7	6.4	Flood Risk
15 min Winter	9.867	0.117	0.0	1.0	1.0	17.1	Flood Risk
30 min Winter	9.907	0.157	0.0	1.0	1.0	23.1	Flood Risk
60 min Winter	9.948	0.198	0.0	1.0	1.0	29.1	Flood Risk
120 min Winter	9.977	0.227	0.0	1.0	1.0	33.3	Flood Risk
180 min Winter	9.988	0.238	0.0	1.0	1.0	35.0	Flood Risk
240 min Winter	9.992	0.242	0.0	1.0	1.0	35.6	Flood Risk
360 min Winter	9.990	0.240	0.0	1.0	1.0	35.3	Flood Risk
480 min Winter	9.985	0.235	0.0	1.0	1.0	34.5	Flood Risk
600 min Winter	9.979	0.229	0.0	1.0	1.0	33.6	Flood Risk
720 min Winter	9.971	0.221	0.0	1.0	1.0	32.5	Flood Risk
960 min Winter	9.954	0.204	0.0	1.0	1.0	30.0	Flood Risk
1440 min Winter	9.914	0.164	0.0	1.0	1.0	24.0	Flood Risk
2160 min Winter	9.859	0.109	0.0	1.0	1.0	16.0	Flood Risk
2880 min Winter	9.824	0.074	0.0	1.0	1.0	10.9	Flood Risk
4320 min Winter	9.803	0.053	0.0	0.8	0.8	7.7	Flood Risk
5760 min Winter	9.793	0.043	0.0	0.7	0.7	6.3	Flood Risk
7200 min Winter	9.788	0.038	0.0	0.6	0.6	5.5	Flood Risk
8640 min Winter	9.784	0.034	0.0	0.5	0.5	5.0	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Summer	1.251	0.0	96.5	5144
15 min Winter	154.619	0.0	17.6	16
30 min Winter	102.466	0.0	24.1	31
60 min Winter	64.984	0.0	31.2	60
120 min Winter	38.805	0.0	37.7	118
180 min Winter	28.524	0.0	41.8	176
240 min Winter	22.864	0.0	44.8	230
360 min Winter	16.666	0.0	49.1	332
480 min Winter	13.294	0.0	52.3	376
600 min Winter	11.148	0.0	54.9	452
720 min Winter	9.651	0.0	57.0	528
960 min Winter	7.684	0.0	60.5	682
1440 min Winter	5.572	0.0	65.6	966
2160 min Winter	4.043	0.0	71.0	1320
2880 min Winter	3.224	0.0	75.1	1616
4320 min Winter	2.352	0.0	81.2	2292
5760 min Winter	1.887	0.0	85.9	2992
7200 min Winter	1.598	0.0	90.0	3680
8640 min Winter	1.398	0.0	93.5	4480

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Winter	9.781	0.031	0.0	0.4	0.4	4.6	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Winter	1.251	0.0	96.6	5144

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 387373 393815 SJ 87373 93815
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.052

Time (mins) From:	To:	Area (ha)
0	1	0.052

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Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000
Membrane Percolation (mm/hr)	1000
Max Percolation (l/s)	136.1
Safety Factor	2.0
Porosity	0.30
Invert Level (m)	9.750
Width (m)	14.0
Length (m)	35.0
Slope (1:X)	100000.0
Depression Storage (mm)	5
Evaporation (mm/day)	3
Membrane Depth (m)	0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0057-1000-0250-1000
Design Head (m)	0.250
Design Flow (l/s)	1.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	57
Invert Level (m)	9.745
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.250	1.0
Flush-Flo™	0.080	1.0
Kick-Flo®	0.184	0.9
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.0	0.500	1.4	1.200	2.0
0.200	0.9	0.600	1.5	1.400	2.2
0.300	1.1	0.800	1.7	1.600	2.3
0.400	1.2	1.000	1.9	1.800	2.4

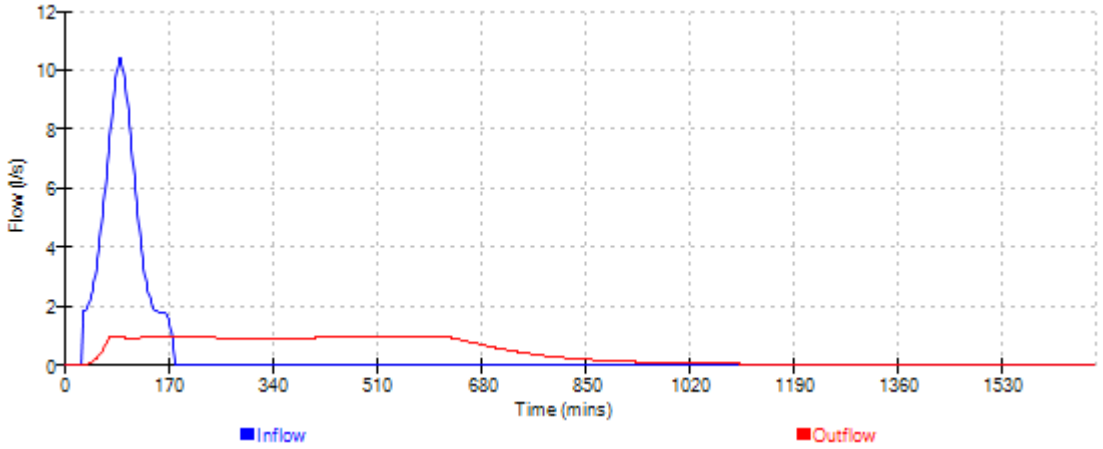
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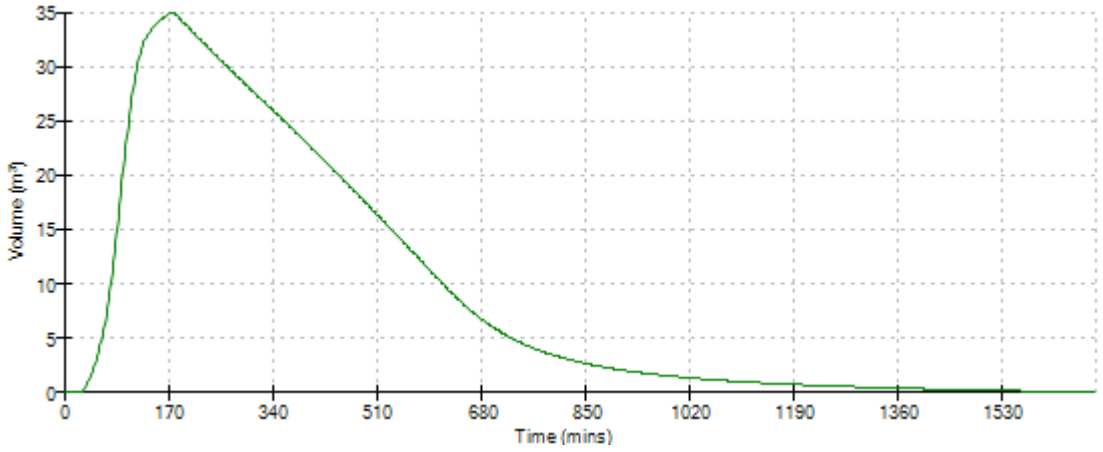
Hydro-Brake® Optimum Outflow Control

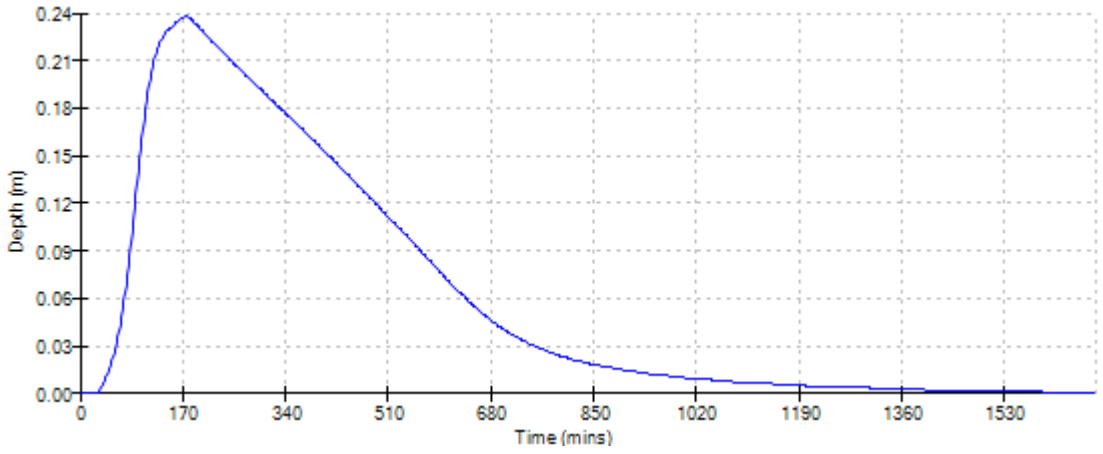
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
2.000	2.6	4.000	3.6	7.000	4.7
2.200	2.7	4.500	3.8	7.500	4.9
2.400	2.8	5.000	4.0	8.000	5.1
2.600	2.9	5.500	4.2	8.500	5.2
3.000	3.1	6.000	4.4	9.000	5.4
3.500	3.3	6.500	4.6	9.500	5.5

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Event: 180 min Winter

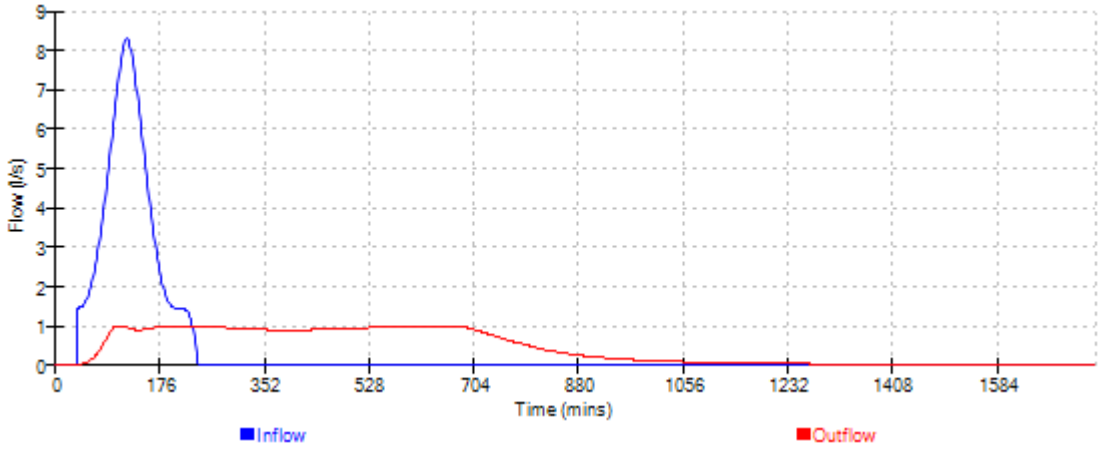


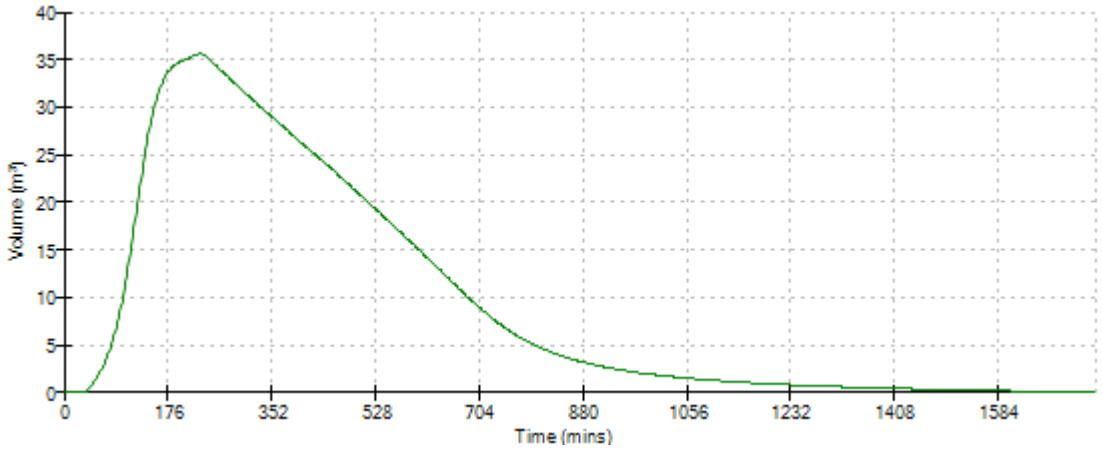


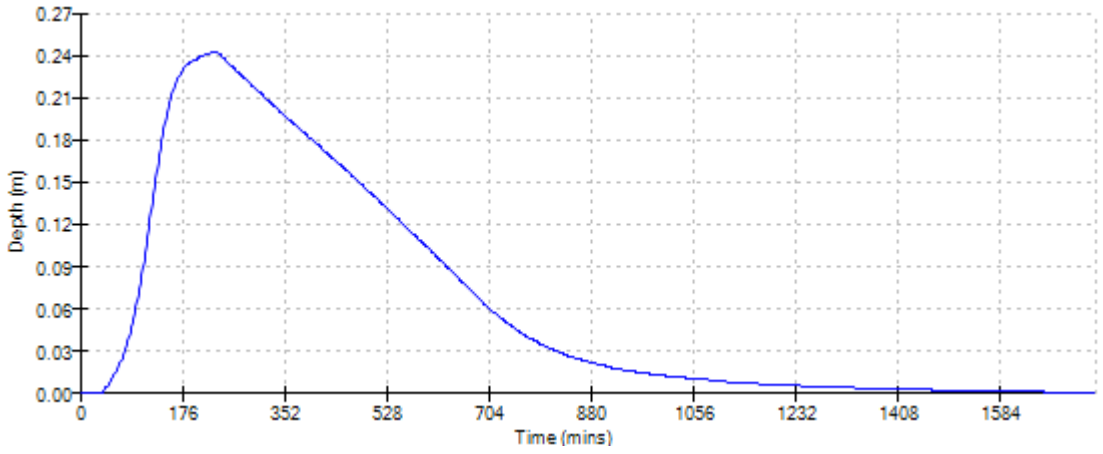


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Event: 240 min Winter

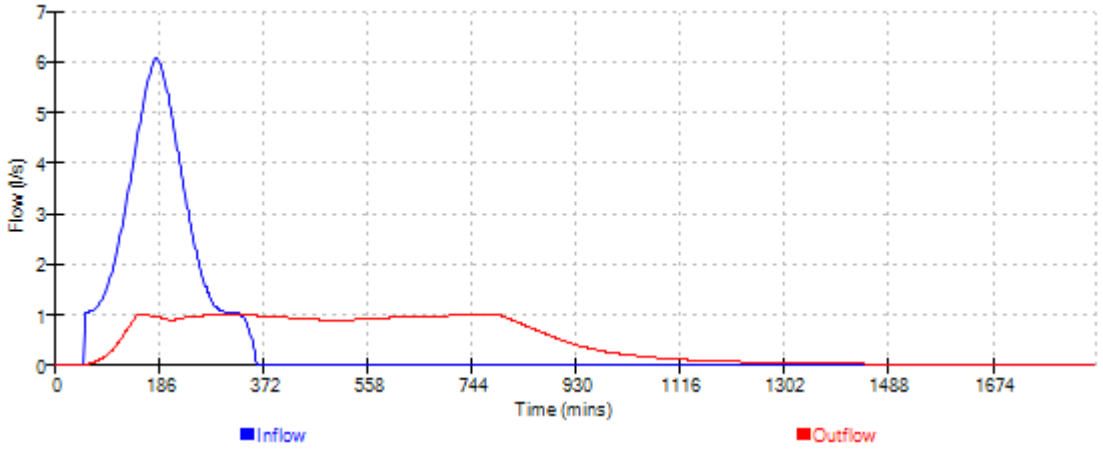


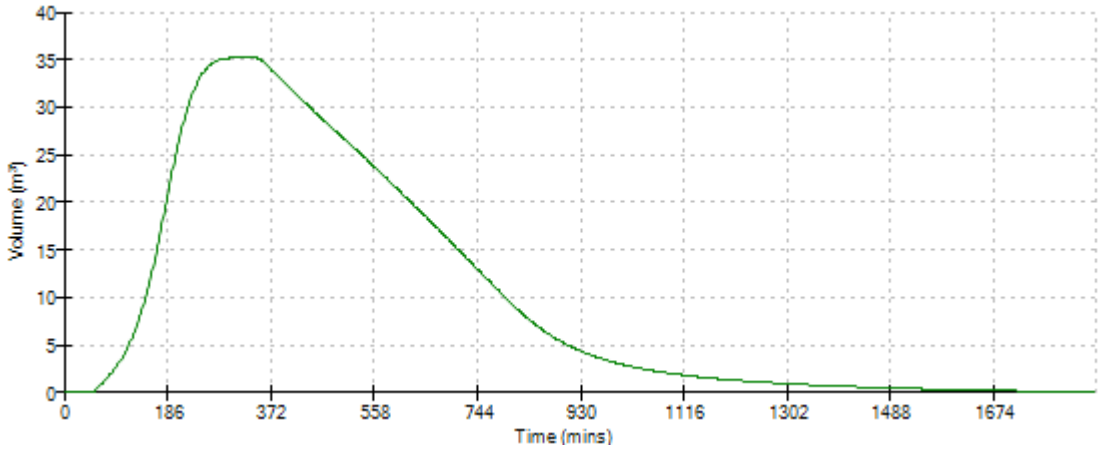


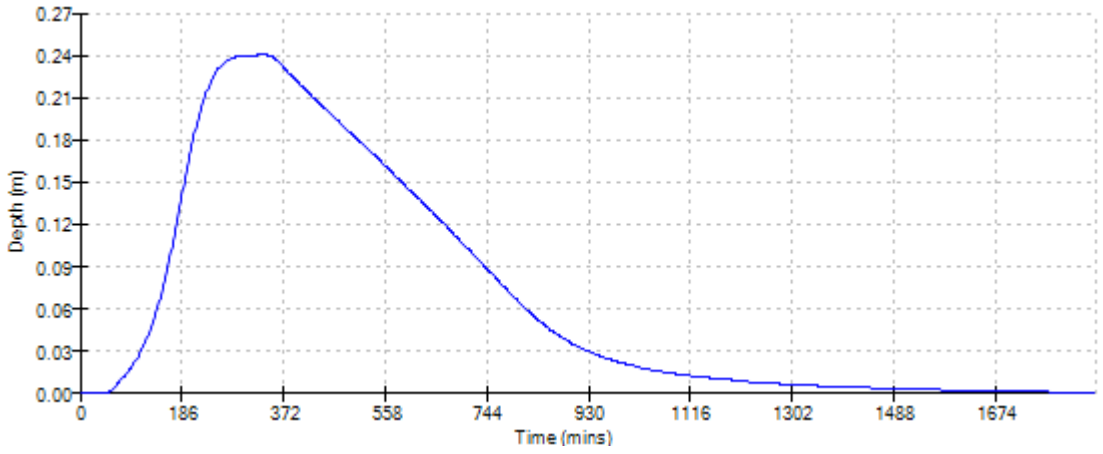


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Event: 360 min Winter

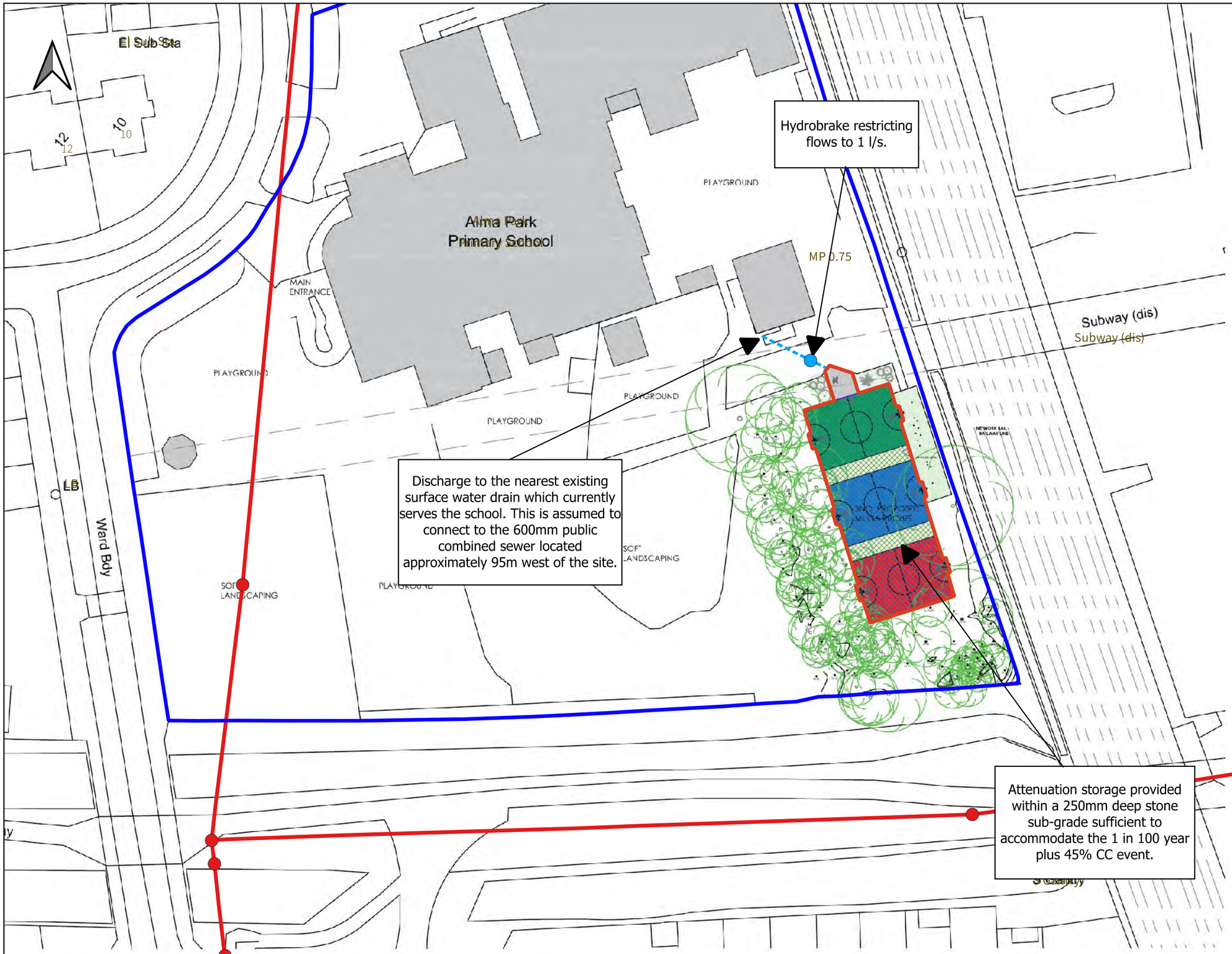






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Appendix H Concept Drainage Sketch



Notes:
1) This sketch has not been subject to formal checks or approvals. Its validity and use must therefore be limited to discussion and information purposes only.
2) Unless otherwise noted the risks associated with this proposal are not considered to be extra ordinary and within the remit of an experienced and competent contractor.
3) All dimensions in millimetres and all levels in metres above ordnance datum unless shown otherwise.
4) This drawing is an amendment of the 'Part Site Plan as Proposed and Block Plan as Proposed' (Rev P-02) by 'Studio OL3'. This drawing provides a concept only and is not intended for detailed design.

LEGEND

- Site Boundary
- Land Under Client's Ownership
- Proposed Sub-grade
- Proposed Surface Water Drain
- Proposed Flow Control Chamber
- Existing Public Combined Sewer
- Existing Public Combined Manhole

CLIENT:

waterco
www.waterco.co.uk

SCHEME:
Alma Park School, Levenshulme

PLOT TITLE:
Concept Drainage Sketch

PLOT STATUS:	DATE:
SKETCH	03-04-2024

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	JR	AW	1:600

PLOT NAME:	REVISION:
15818_Concept_Drainage_Sketch	-

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Appendix I Concept Designer's Risk Assessment

CONCEPT DESIGNER'S RISK ASSESSMENT

Project:	Alma Park Primary School, Levenshulme	**Project No:**	15818
Client:	Alma Park Primary School		
Report Reference:	15818-Drainage Strategy-01		

Prepared by:	Ryan Moore BSc (Hons)	**Date:**	02/04/2024
Checked by:	Jessica Roberts BSc (Hons) MCIWEM	**Date:**	02/02/2024
Reviewed by:	Aled Williams BSc (Hons) MCIWEM C.WEM	**Date:**	03/04/2024

Requirement:

The Construction (Design and Management) Regulations 2015 (CDM 2015) place an obligation on the Designer to take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under CDM. The Designer has undertaken this assessment to identify any extra-ordinary risks, or those that would not be expected on this particular project by an experienced and competent Contractor. The aim is to avoid needless paperwork and bureaucracy and ensure the assessment is project specific, relevant and proportionate to the risk.

DRA Summary

Each of the following risk areas has been considered using the question below. Is a risk present which is considered to be **extra-ordinary or unexpected** in this instance?

If **YES** - A detailed risk assessment is required at design stage
If **UNKNOWN** - Insufficient information has been provided at concept design stage and the risks are unknown. Further consideration must be given at design stage(s)
If **NO** - No further action is required.

Hazard Ref.	Risk Areas	YES, UNKNOWN or NO	Comments
1	Ground Conditions	Unknown	To be considered at detailed design stage.
2	Hazardous Environment	Unknown	To be considered at detailed design stage.
3	Existing Working Environment	Yes	Existing school.
4	Existing Services	Unknown	Site located within the grounds of Alma Park Primary School.
5	Proximity to Other Structure(s)	Yes	Site adjacent to raised railway line embankment
6	Near Waterbody / flood risk	No	
7	Proximity to Other Activities	Yes	Site located within the grounds of Alma Park Primary School.
8	Sequence of Construction	Unknown	To be considered at detailed design stage.
9	Access	Unknown	To be considered at detailed design stage.
10	Interfaces	Unknown	To be considered at detailed design stage.
11	Confined Space Working	Unknown	To be considered at detailed design stage.
12	Maintenance Considerations	Unknown	To be considered at detailed design stage.
13	Working at Height	Unknown	To be considered at detailed design stage.
14	Steep Slopes	No	
15	Demolition / Refurbishment / Repair	Unknown	To be considered at detailed design stage.
16	Welfare	Unknown	To be considered at detailed design stage.
17	Occupational Health	Unknown	To be considered at detailed design stage.
18	Environmental Issues	Unknown	To be considered at detailed design stage.
19	Other Significant Hazards not Identified Above	Unknown	To be considered at detailed design stage.
20	Residual Risk to Future Users	Unknown	To be considered at detailed design stage.