DRAINAGE STATEMENT

SGM
STRUCTURAL
DESIGN
SPRINGFIELD LODGE
4 THORNHILL ROAD
HUDDERSFIELD
HD3 3AU
TELEPHONE
01484 435876

St Mary's School
Upton Street
Batley
WF17 8PH

Prepared for:- AHR Building Consultancy Ltd

Project	**St Mary's School, Upton Street, Batley, WF17 8PH**
Project Number	**2024/013**
Date	**11th January 2024**
Revision '-'	

Our Ref: 2024/013/CD/drainage_statement

11 January 2024

FAO: Phil Facey

AHR Building Consultancy Ltd
Norwich Union House
High Street
Huddersfield
HD1 2LF

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Dear Phil,

St Mary's School, Upton Street, Batley, WF17 8PH
DRAINAGE STATEMENT

1.0 INTRODUCTION

1.01 Following instruction from the Client via AHR Building Consultancy Ltd, SGM Structural Design Ltd has been commissioned to provide a Drainage Statement to support A planning application for the demolition of the existing 'old' school buildings to accommodate the proposed construction of a small new residential development.

1.02 The existing site is located directly off North Bank Road & Upton Street on the North West edge of Batley Town Centre. The site is predominantly made up of three buildings and hardstanding throughout. Due to neglect of the site and lack of any occupation of the site, some areas are overgrown and unkept.

1.03 The site occupies a small parcel of land which is bounded and shared with buildings associated with the occupation of St Mary's RC Church and School estate. However, it would appear that the old original school buildings have become dilapidated and part of the site is in need of redevelopment.

1.04 The site is directly located on a small parcel of land which is bounded on two side by North Bank Road to the South and Upton Street to West. The existing Church building and Presbytery bound the North of the site and terraced housing bounds the East of the site.

1.05 As the site has been historically occupied by the existing buildings and external hardstanding, the site is considered to be BROWNFIELD.

1.06 The whole site area under ownership of the Client (designated blue outline on drawings) covers an approximate area of 6174m^2 (0.6174 hectares) and is noted to fall at an average gradient of 1 in 30 falling

……Continued

from the West to the East of the site. The proposed development will cover just over half of the total site area under the Client ownership (designated red outline on drawings). Therefore, the approximate total area for the application is **3568m²** (0.3568 hectares).

1.07 It is proposed to develop the site to accommodate further much needed housing in the area. The old school buildings are to be demolished to make way for ten new two bedroomed housing plots with designated parking areas and private gardens. In addition to the housing, the site will also accommodate car parking for St Mary's RC Church located on site which will also include some landscaped green spaces.

1.08 No open water courses are believed to run through or lie in the immediate vicinity of the site.
From inspection of the available various OS maps and LA drainage asset maps, the nearest water courses appear to be

- Carlinghow Brook, approximately 250m to the North. The brook appears to be mainly culverted running below buildings & hardstanding areas with occasional sections open..
- Howley Beck, approximately 1300m to the North East.

1.09 The site is located in Flood Zone 1 on the EA flood maps. This zone comprises land assessed as having less than 1 in 1000 (<0.1%) annual probability of tidal or river flooding in any year (see Appendix A).

2.0 DRAINAGE

2.01 **Public Sewers**
There appears to be a 225mm diameter surface water sewer located within North Bank Road. This sewer runs East down North Bank Road until the junction with Cemetry Road, where the sewer turns through 90 degrees via a manhole in the highway. In turn this sewer appears to terminate shortly afterwards with no indication of exact discharge point. There also appears to be a 225mm diameter combined sewer located within Upton Street, which in turn increases to a 700mm brickwork sewer along Upton Street. This can be seen on Yorkshire Water Statutory Mains & Services plans (see Appendix B).

2.02 **Existing Drainage**
From the preliminary survey works undertaken there are minimal drainage runs clearly evident. There are many rain water down pipes evident throughout that discharge from the existing buildings. However, due to the unkept nature of the site and overgrown vegetation it was not evident if any of the external hardstanding areas were positively drained. It was not evident if the existing drainage systems were separated or combined, but ultimately, they will become combined at some point on site considering the age of the old properties and nearby public sewers.

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2.03 **Foul Water Drainage**

A separate foul water system will be provided to the new development.

Foul water will be discharged into the existing combined public sewer in Upton Street using existing connections from the site where possible. Alternatively, new connections onto the existing public sewer may be necessary.

Invert levels of the public sewer have not been checked, however the existing manhole uncovered on site is recorded to have a depth of 1.76m. Therefore, it is envisaged a gravity system can hopefully be utilised on the development. Although, should relative site levels and inverts prove unfavorable then the drainage would require discharge via pumping. Any pumped run will be employed using a proprietary designed foul water pump kitted out with back up pump and battery operated back up together with all necessary alarms etc.

2.04 **Geology**

No formal Phase 2 intrusive ground investigation has been undertaken at this early stage yet. However, Rogers Geotechnical Services have historically prepared a Coal Mining Risk Assessment (report number J4357/18/E/CRA dated 29/08/2018) for the site, which gives an over-view of the site geology. A summary of their findings are noted below:

- The site is underlain by The Emley Rock which represents the Pennine Lower Coal Measures comprising of fine grained flaggy Sandstone with Mudstone partings.
- No Superficial deposits are noted to the site.
- Alluvial deposits (CLAY) are present on the Geological maps 170m North East.
- Historical borehole Records for the adjacent Primary School site indicate that Made Ground was encountered over the natural deposits. This comprised of brown CLAY with sandstone fragments and can be classified as a Cohesive soil. Sandstone / Mudstone was encountered beneath the Clay.

2.05 **Surface Water Drainage**

A separate surface water drainage system will be provided to the new development.

The use of infiltration drainage on the development is un-likely to be feasible as both the near surface cohesive clay soils are likely to be relatively impermeable. However, infiltration testing should be undertaken as a matter of course on site as part of the ground investigation works to either confirm or rule out infiltration.

It is considered at this stage to assess the surface water run off from the impermeable & hardstanding areas within the Application area.

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In view of this it is proposed to continue to discharge from the development to the existing public sewer at the existing rate of discharge less 30%.

The existing rate of discharge from the Application site has been estimated at 17.4 l/sec. This would result in a discharge rate for the new development only of 12.1 l/sec.

The following extenuation of storm water storage requirements for the proposed development has been based on the following:-

Proposed discharge rate 12.1 l/sec
Hard Cover Area 3568 m^2
Stormwater Storage Estimate 134 m^3
(Based on a 1 in 100 year storm return period and a 30% increase in rainfall intensity for climate change).

See stormwater storage estimate calculations attached in Appendix together with existing & proposed drainage layout drawings in Appendix C.

2.06 Maintenance Requirements of Surface Water Drainage System

Private Area's – Roofs & Hardstandings

Regular inspection and maintenance is required to ensure the effective long-term operation of below ground drainage systems. Initially, the maintenance will be the responsibility of the developer. However, it will ultimately become the responsibility of the building owner.

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Remove debris from any catchment surfaces (may cause risk to performance)	Monthly for first 3 months, then six monthly thereafter (and after large storm events).
	Visual inspection of manholes, to ensure no obvious build up of silt or other blockages. De-silt as required. Check to ensure there is no standing water in manholes.	Monthly for first 3 months, then six monthly thereafter (and after large storm events).
	Remove sediment from inspection chambers, rainwater gullies, channels and jet associated pipework.	Annually, or as required.
Ongoing Monitoring	Inspect/check all drainage inlets to ensure that they are in good condition and working as designed.	Annually and after large storm events.
Remedial Actions	Repair/rehabilitation of drainage inlets. De-silt as required.	As required.

……Continued

3.0 CAVEATS

3.01 The comments given in this statement and recommendations made are based on the information that could be obtained from reasonably accessible sources. Detailed discussions have not yet been held with statutory bodies and the Local Authority.

3.02 This statement has been prepared for the sole use of St Mary's, Batley and AHR building consultancy and their associated design team only, unless agreed otherwise in writing by ourselves.

Signed,

Carl Devenish
Associate Director
SGM Structural Design Ltd

APPENDIX A

Environment Agency
Risk Of Flooding From
Surface Water Map

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4 THORNHILL ROAD
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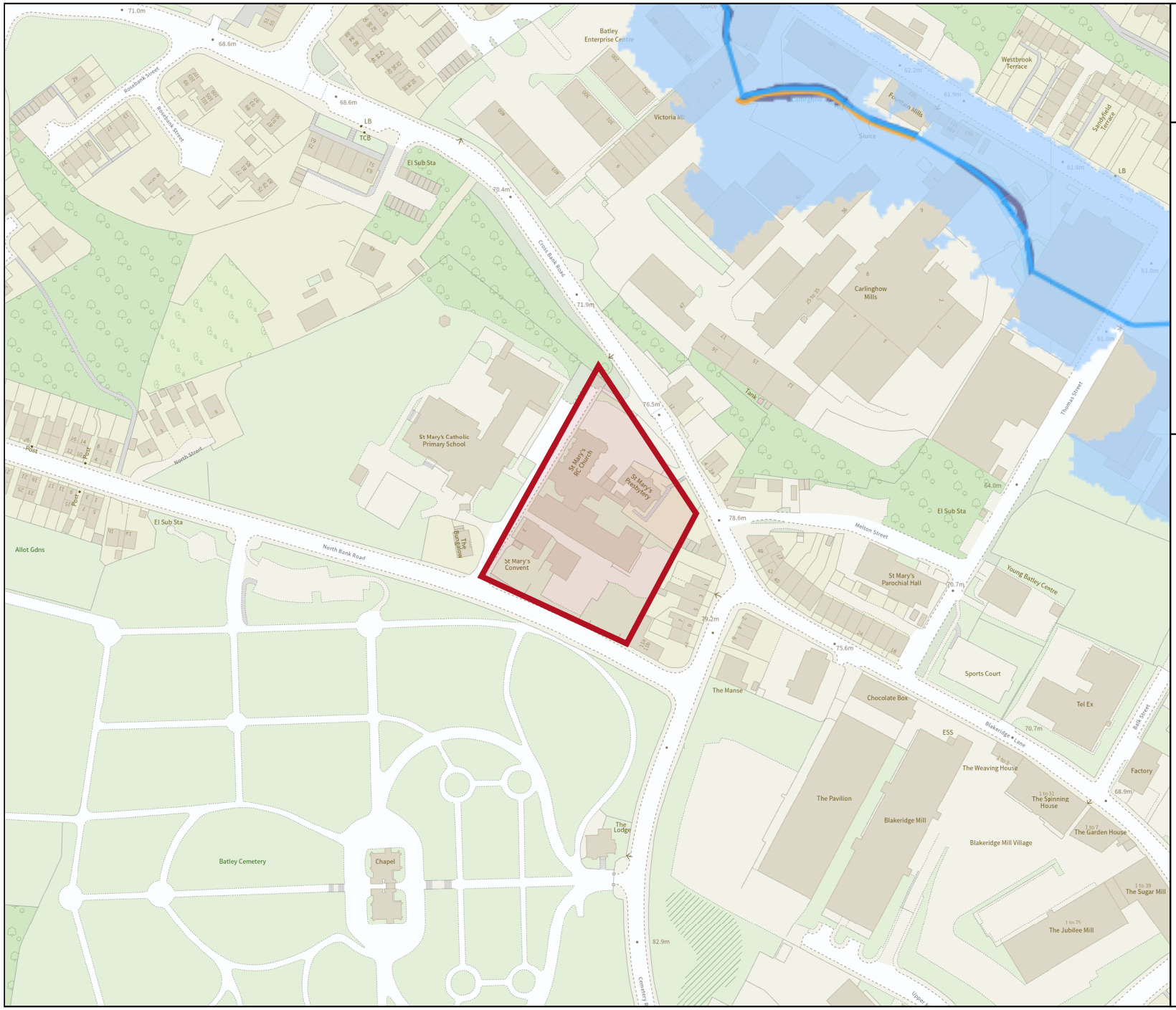

Environment Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
423724/424561

Scale
1:2500

Created
12 Jan 2024 12:13

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

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APPENDIX B

Yorkshire Water Assets Plan
(Mains Drainage)

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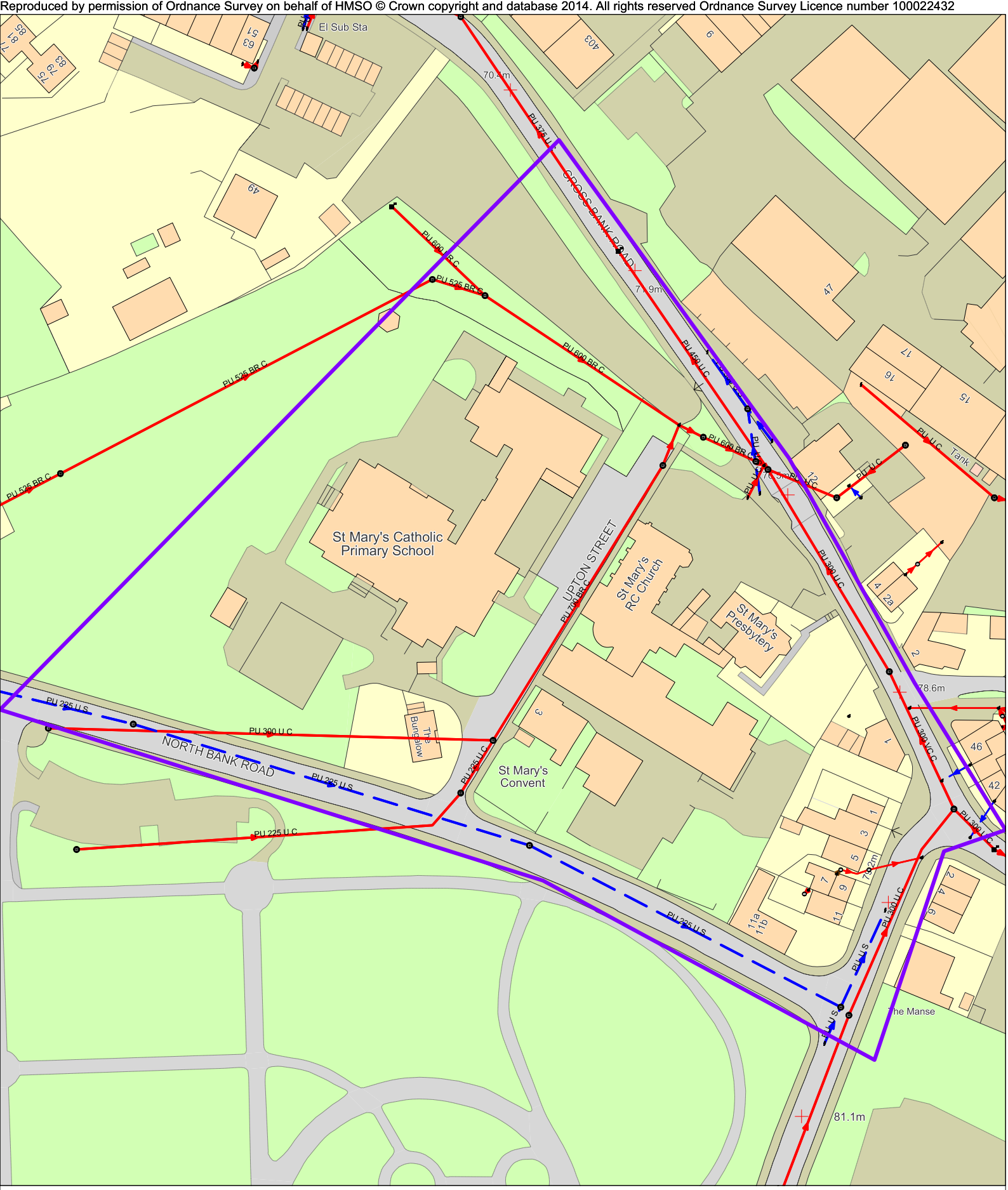

Public Waste Water Network 11/01/2024 14:55:40 OS Grid Coordinates: 423562 : 424431 Map Name : SE2324SE svcGISSafeMovePD

Registered office, Yorkshire water Services Limited. 1
Western House, Halifax Road, Bradford BD62SZ.
Registered in England and wales No. 2366682

SafeMove
A part of YorkshireWater

APPENDIX C

Preliminary Surface Water Drainage Calculations

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Project at:
ST Mary's School
Upton Street
Batley, WF17 8PH

Client: **AHR Building Consultancy Ltd**

Title: **Preliminary Drainage Calculations**
Proposed Housing Development

Preliminary Drainage Calculations
To support Planning Submission

Project No : **2024 / 013**
Date : **12th January 2024**

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CALCULATION SHEET

Project number **2024 / 013**
Sheet number **01**
Date **JAN. 2024**

Project **St Mary's School, Upton Street, Batley**	Prepared by **CD**
Sub section **Preliminary Drainage Design Calculations**	Checked by

Introduction

It is proposed to build 10No. small housing plots on the old disused school site at the above named site location.

SGM Structural Design have been commissioned to only undertake preliminary based surface water run off calculations to aid with the drainage statement supporting a planning submission including an estimate for any respective attenuation required to store any excess surface water generated by the proposals.

Drainage Methodology

Desk based studies from easily accessible sources indicate that the site is overlain with cohesive clay soils and natural sandstone & mudstone beneath the clay. Therefore, as these soils are likely to be relatively impermeable any infiltration system would not prove feasible. In addition to this, the LA 'Flood Management & Drainage' officer has made a statement in a previous application that terraced housing with cellars are present adjacent to the site and that they would be reticent to employ soakaways (ie infiltration) for discharge of soakaways, unless proof of soakaways exist on site.

As there are no known nearby water courses, the intention is to discharge into the existing public surface water sewer.

The site is classified as brownfield and in view of this it is intended to discharge the surface water run off at the existing rate less 30% and including an allowance of 30% increase for climate change.

The approximate hardcover (impermeable) area equates 3568m^2

Analysis of the various design rainfall surface water run-off for each storm duration are noted on the following pages:

Existing Pre-Development 'Peak Flow' from site = **17.4 l/sec**.

Applying 30% reduction, Flow Allowance = **12.1 l/sec**

SGM Structural Design Ltd Springfield Lodge 4 Thornhill Road, Edgerton, Huddersfield, HD3 3AU	Project St Mary's School, Upton Street, Batley				Job no. 2024 / 013
	Calcs for PRELIMINARY Surface Water Drainage Calculations				Start page no./Revision 02
	Calcs by CD	Calcs date JAN. 2024	Checked by	Checked date	Approved by	Approved date

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **5** min
Return period	Period = **1** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **0** %
Factor Z1 (Wallingford procedure)	Z1 = **0.36**
Rainfall for 5min storm with 5 year return period	$M5_5min_i$ = Z1 × M5_60min = **6.8** mm
Factor Z2 (Wallingford procedure)	Z2 = **0.62**
Rainfall for 5min storm with 1 year return period	M1_5min = Z2 × $M5_5min_i$ = **4.2** mm
Design rainfall intensity	I_{max} = M1_5min / D = **50.6** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **1236** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	Q_{max} = A_{catch} × p × I_{max} = **17.4** l/s ← PEAK FLOW FROM SITE AS EXISTING 1:1 YEAR EVENT.

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DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **5** min
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **0.36**
Rainfall for 5min storm with 5 year return period	$M5_5min_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **8.9** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.88**
Rainfall for 5min storm with 100 year return period	$M100_5min = Z2 \times M5_5min_i$ = **16.7** mm
Design rainfall intensity	I_{max} = M100_5min / D = **201.0** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **199.2** l/s

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DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **10** min
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **0.51**
Rainfall for 10min storm with 5 year return period	$M5_10min_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **12.6** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.95**
Rainfall for 10min storm with 100 year return period	$M100_10min = Z2 \times M5_10min_i$ = **24.6** mm
Design rainfall intensity	I_{max} = M100_10min / D = **147.5** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **146.2** l/s

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DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **15** min
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **0.62**
Rainfall for 15min storm with 5 year return period	$M5_15min_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **15.3** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.99**
Rainfall for 15min storm with 100 year return period	$M100_15min = Z2 \times M5_15min_i$ = **30.5** mm
Design rainfall intensity	I_{max} = M100_15min / D = **122.1** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **121.0** l/s

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DESIGN RAINFALL

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Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **30** min
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **0.79**
Rainfall for 30min storm with 5 year return period	$M5_30min_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **19.5** mm
Factor Z2 (Wallingford procedure)	Z2 = **2.03**
Rainfall for 30min storm with 100 year return period	$M100_30min = Z2 \times M5_30min_i$ = **39.5** mm
Design rainfall intensity	I_{max} = M100_30min / D = **79.1** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **78.4** l/s

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DESIGN RAINFALL

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Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **1** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **1.00**
Rainfall for 1hr storm with 5 year return period	$M5_1hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **24.7** mm
Factor Z2 (Wallingford procedure)	Z2 = **2.01**
Rainfall for 1hr storm with 100 year return period	$M100_1hr = Z2 \times M5_1hr_i$ = **49.7** mm
Design rainfall intensity	$I_{max} = M100_1hr / D$ = **49.7** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **49.2** l/s

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DESIGN RAINFALL

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Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **2** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **1.22**
Rainfall for 2hr storm with 5 year return period	$M5_2hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **30.1** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.97**
Rainfall for 2hr storm with 100 year return period	$M100_2hr = Z2 \times M5_2hr_i$ = **59.3** mm
Design rainfall intensity	I_{max} = M100_2hr / D = **29.7** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **29.4** l/s

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DESIGN RAINFALL

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Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **4** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **1.48**
Rainfall for 4hr storm with 5 year return period	$M5_4hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **36.6** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.92**
Rainfall for 4hr storm with 100 year return period	$M100_4hr = Z2 \times M5_4hr_i$ = **70.1** mm
Design rainfall intensity	I_{max} = M100_4hr / D = **17.5** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **17.4** l/s

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DESIGN RAINFALL

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Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **6** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **1.67**
Rainfall for 6hr storm with 5 year return period	$M5_6hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **41.2** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.88**
Rainfall for 6hr storm with 100 year return period	$M100_6hr = Z2 \times M5_6hr_i$ = **77.5** mm
Design rainfall intensity	I_{max} = M100_6hr / D = **12.9** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **12.8** l/s

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Project				Job no.	
St Mary's School, Upton Street, Batley				2024 / 013	
Calcs for				Start page no./Revision	
PRELIMINARY Surface Water Drainage Calculations				11	
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
CD	JAN. 2024				

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **10** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **1.90**
Rainfall for 10hr storm with 5 year return period	$M5_10hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **46.9** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.83**
Rainfall for 10hr storm with 100 year return period	$M100_10hr = Z2 \times M5_10hr_i$ = **86.1** mm
Design rainfall intensity	I_{max} = M100_10hr / D = **8.6** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **8.5** l/s

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Calcs for				Start page no./Revision	
PRELIMINARY Surface Water Drainage Calculations				12	
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
CD	JAN. 2024				

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.01

Design rainfall intensity

Location of catchment area	Leeds
Storm duration	D = **24** hr
Return period	Period = **100** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.360**
5-year return period rainfall of 60 minutes duration	M5_60min = **19.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **30** %
Factor Z1 (Wallingford procedure)	Z1 = **2.42**
Rainfall for 24hr storm with 5 year return period	$M5_24hr_i = Z1 \times M5_60min \times (1 + p_{climate})$ = **59.8** mm
Factor Z2 (Wallingford procedure)	Z2 = **1.74**
Rainfall for 24hr storm with 100 year return period	$M100_24hr = Z2 \times M5_24hr_i$ = **104.2** mm
Design rainfall intensity	I_{max} = M100_24hr / D = **4.3** mm/hr

Maximum surface water runoff

Catchment area	A_{catch} = **3568** m^2
Percentage of area that is impermeable	p = **100** %
Maximum surface water runoff	$Q_{max} = A_{catch} \times p \times I_{max}$ = **4.3** l/s

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3ALCULATION SHEET

Project number **2024 / 013**
Sheet number **13**
Date **JAN. 2024**

Project **St Mary's School, Upton Street, Batley**	Prepared by **CD**
Sub section **Preliminary Drainage Design Calculations**	Checked by

Storm Duration	Time (Seconds)	Run Off Rate (l/s)	Permitted Discharge Rate (l/s)	Water Retained (l/s)	Required Storage (lts)	Storage Volume (m^3)
5 mins	300	199.2	12.1	79.2	23,760	23.76
10 mins	600	146.2	12.1	134.1	80,460	80.46
15 mins	900	121.0	12.1	108.9	98,010	98.01
30 mins	1800	78.4	12.1	66.3	119,340	119.34
60 mins	***3600***	***49.2***	***12.1***	***37.1***	***133,560***	***133.56***
2 hours	7200	29.4	12.1	17.3	124,560	124.56
4 hours	14400	17.4	12.1	5.3	76,320	76.32
6 hours	21600	12.8	12.1	0.7	15,120	15.12
10 hours	36000	8.5	12.1	0	0	0
24 hours	86400	4.3	12.1	0	0	0

Therefore, maximum required storage volume = **134 m^3**

APPENDIX D

Existing Drainage Layout AND Schematic Drainage Proposal Drawings

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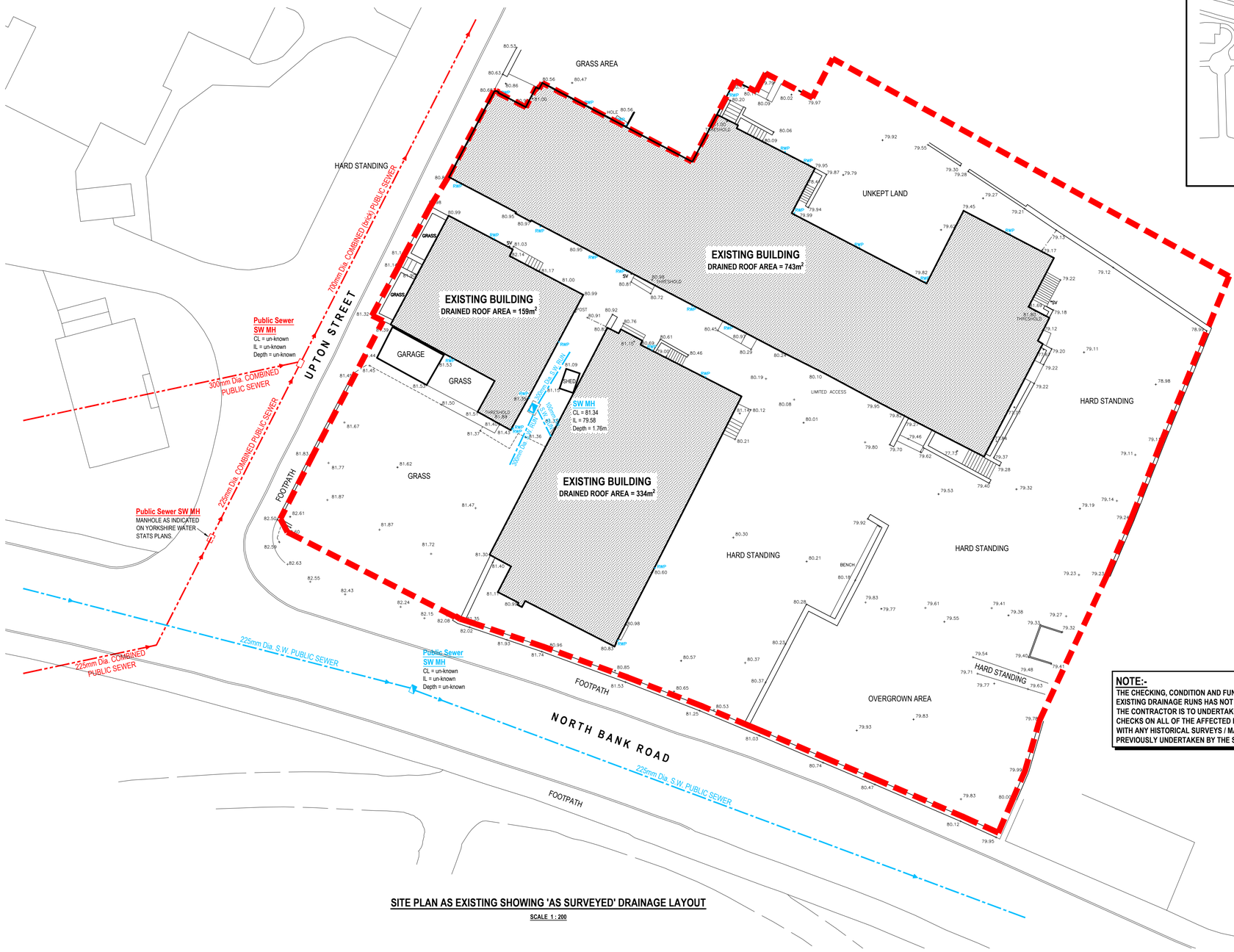
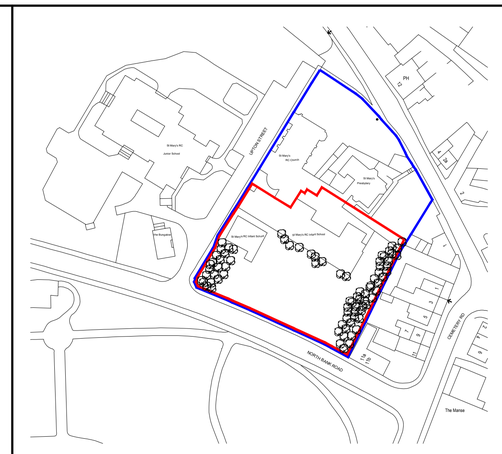


SITE PLAN AS EXISTING SHOWING 'AS SURVEYED' DRAINAGE LAYOUT

SCALE 1 : 200



SITE LOCATION PLAN

SCALE 1 : 1250

NOTE:-
THE CHECKING, CONDITION AND FUNCTIONALITY OF THE EXISTING DRAINAGE RUNS HAS NOT BEEN FULLY VERIFIED. THE CONTRACTOR IS TO UNDERTAKE ALL NECESSARY CHECKS ON ALL OF THE AFFECTED RUNS IN CONJUNCTION WITH ANY HISTORICAL SURVEYS / MAINTENANCE PREVIOUSLY UNDERTAKEN BY THE SCHOOL.

DRAWING STATUS: **PLANNING**
SHEET SIZE: **A1**

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, STRUCTURAL / CIVILS AND M & E DRAWINGS.
2. ON GAINING SITE ACCESS GENERAL CONTRACTOR TO CONFIRM ALL EXISTING DRAIN INVERT LEVELS AND LAYOUTS AND NOTIFY ENGINEER IF ANY DISCREPENCES EXIST BETWEEN DRAWING INFORMATION AND SITE INFORMATION PRIOR TO ORDERING OF MATERIALS.
3. EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO EXCAVATING ANY TRENCHES.

DRAINAGE SYMBOLS KEY:-

- DENOTES EXISTING SURFACE WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES EXISTING FOUL WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS
- DENOTES EXISTING COMBINED SYSTEM DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES EXISTING SURFACE WATER MANHOLE POSITION AND LEVELS.
- DENOTES EXISTING FOUL WATER MANHOLE POSITION AND LEVELS.
- DENOTES EXISTING COMBINED SYSTEM MANHOLE POSITION AND LEVELS.
- CL = 81.73 DENOTES MANHOLE COVER LEVEL
- IL = 81.11 DENOTES MANHOLE INVERT LEVEL
- 150.86 DENOTES EXISTING LEVELS TAKEN FROM SITE TOPO SURVEY.

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DO NOT SCALE FROM THIS DRAWING

PROJECT: **PROPOSED RESIDENTIAL DEVELOPMENT ST MARY'S SCHOOL UPTON STREET, BATLEY, WF17 8PH**

TITLE: **SITE PLAN AS EXISTING SHOWING 'AS SURVEYED' DRAINAGE LAYOUT**

PROJECT No.	DRAWING No.	AMENDMENT	DATE DRAWN	DRAWN BY
2024/013	01	-	12 JAN 24	CD

Amendment Note: - Date Revised: -

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PRELIMINARY LAYOUT:-

THE PROPOSED DRAINAGE LAYOUT IS PRELIMINARY ONLY AND INDICATES A SCHEMATIC DRAINAGE LAYOUT TO ACCOMPANY THE DRAINAGE STATEMENT FOR THE PLANNING APPLICATION TO AID WITH PLANNING REQUIREMENTS FOR SUBMISSION.
THE PROPOSALS ARE SUBJECT TO CONFIRMATION AND FINALISATION OF THE HOUSE PLOT ROOM LATOUTS etc. AND RELETIVE SITE LEVELS & EXISTING DRAINAGE LEVELS. THE SCHEME MAY THEN BE EITHER VERIFED AND / OR AMENDED ACCORDINGLY FOLLOWING CONFIRMATION OF FINAL SITE LAYOUT & DETAILS.

St Mary's Presbytery

The Bungalow

Connection onto existing public sewer to suit Yorkshire Water's guidance and requirements.

Provide flow control device limited to 12.1 litres per second to last manhole.

Proposed Storm Water Attenuation Tank with a minimum storage volume of 134m³.

Connection onto existing public sewer to suit Yorkshire Water's guidance and requirements.

700mm Dia. COMBINED (brick) PUBLIC SEWER

Public Sewer SW MH
CL = un-known
IL = un-known
Depth = un-known

300mm Dia. COMBINED PUBLIC SEWER

225mm Dia. COMBINED PUBLIC SEWER

Public Sewer SW MH
MANHOLE AS INDICATED ON YORKSHIRE WATER STATS PLANS.

225mm Dia. COMBINED PUBLIC SEWER

225mm Dia. S.W. PUBLIC SEWER

Public Sewer SW MH
CL = un-known
IL = un-known
Depth = un-known

225mm Dia. S.W. PUBLIC SEWER

225mm Dia. S.W. PUBLIC SEWER

Area Retained by Church

Green Space

Private Garden

HOUSE 2 BED

Provide catchpit manhole prior to attenuation tank.

Church Parking

Area Retained by Church

Green Space

Linear Drainage Channel

Bins

NORTH BANK ROAD

CEMETERY RD

1
3
5
7
9
11
11a
11b

NOTE:-
THE CHECKING, CONDITION AND FUNCTIONALITY OF THE EXISTING DRAINAGE RUNS HAS NOT BEEN FULLY VERIFIED. THE CONTRACTOR IS TO UNDERTAKE ALL NECESSARY CHECKS ON ALL OF THE AFFECTED RUNS IN CONJUNCTION WITH ANY HISTORICAL SURVEYS / MAINTENANCE PREVIOUSLY UNDERTAKEN BY THE SCHOOL.

SITE PLAN AS PROPOSED SHOWING SCHEMATIC DRAINAGE LAYOUT AND PRINCIPLES

SCALE 1 : 200

DRAWING STATUS: **PLANNING**
SHEET SIZE: **A1**

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL ARCHITECT'S DRAWINGS.
2. ALL KEY DIMENSIONS ARE TO BE TAKEN ON SITE BEFORE WORK COMMENCES.
3. ALL SETTING-OUT OF MANHOLE CHAMBERS AND ACCESS COVERS RELATIVE TO KEY SURFACE FEATURES TO BE CONFIRMED WITH PROJECT ARCHITECT.
4. ON GAINING SITE ACCESS GENERAL CONTRACTOR TO CONFIRM ALL EXISTING DRAIN INVERT LEVELS AND LAYOUTS AND NOTIFY ENGINEER IF ANY DISCREPENCES EXIST BETWEEN DRAWING INFORMATION AND SITE INFORMATION PRIOR TO ORDERING OF MATERIALS.
5. MANHOLE COVERS TO BE SUPPORTED ON CONCRETE SLABS AND NOT ON INTERCEPTOR SHAFTS.
BY-PASS INTERCEPTORS TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTALLATION PROCEDURES.
6. ALL DRAINAGE TO CONFORM TO LATEST EDITION OF 'SEWERS FOR ADOPTION'.
7. ALL PIPES, JOINTS AND FITTINGS FOR GRAVITY SEWERS SHALL COMPLY WITH RELEVANT PROVISIONS OF BS EN 1401-1, BS EN 1852 AND BS EN 12666-1.
8. ALL SEWERS TO BE LAID IN CLASS S DUAL TRENCH BEDDING AS SHOWN ON STANDARD DETAILS UNLESS OTHERWISE INDICATED. SEWERS LESS THAN 1.2m OF COVER TO CROWN BENEATH VEHICULAR HARDSTANDING AREAS TO BE SURROUNDED IN 150mm GRADE GEN 2 CONCRETE.
9. EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO EXCAVATING ANY TRENCHES.

DRAINAGE SYMBOLS KEY:-

- DENOTES **PROPOSED** SURFACE WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES **PROPOSED** FOUL WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES **EXISTING** SURFACE WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES **EXISTING** FOUL WATER DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- DENOTES **EXISTING** COMBINED SYSTEM DRAINAGE RUN, FLOW DIRECTIONS AND PIPE DIAMETERS.
- MH — DENOTES **PROPOSED** SURFACE WATER MANHOLE POSITION. EXACT LEVELS TO BE CONFIRMED / FINALISED.
- MH — DENOTES **PROPOSED** FOUL WATER MANHOLE POSITION. EXACT LEVELS TO BE CONFIRMED / FINALISED.
- DENOTES **EXISTING** SURFACE WATER MANHOLE POSITION AND LEVELS.
- DENOTES **EXISTING** FOUL WATER MANHOLE POSITION AND LEVELS.
- DENOTES **EXISTING** COMBINED SYSTEM MANHOLE POSITION AND LEVELS.
- CL = 81.73 — DENOTES MANHOLE COVER LEVEL
- IL = 81.11 — DENOTES MANHOLE INVERT LEVEL
- 150.86 + — DENOTES EXISTING LEVELS TAKEN FROM SITE TOPO SURVEY.

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
ST MARY'S SCHOOL
UPTON STREET, BATLEY, WF17 8PH

TITLE
SITE PLAN AS PROPOSED SHOWING SCHEMATIC DRAINAGE LAYOUT PRINCIPLES & PROPOSALS

PROJECT No.	DRAWING No.	AMENDMENT	DATE DRAWN	DRAWN BY
2024/013	02	-	12 JAN 24	CD

Amendment Note: -
Date Revised: -

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