



EQUITY HOUSING GROUP

**MATLOCK ROAD
BARNSELY**

FOUL & SURFACE WATER DRAINAGE STRATEGY

OCTOBER 2013

1.0 INTRODUCTION

- 1.1 Equity Housing Group are proposing to develop a piece of land located between Matlock Road and Bakewell Road, adjacent to the Blessed Sacrament Catholic Church, Barnsley with new residential dwellings. As part of the consultations for the Planning Application, a foul & surface water drainage assessment was required.
- 1.2 ARP Associates have been appointed to carry out an assessment of the site, and prepare a Statement on foul and surface water drainage proposals for the new development.
- 1.3 The walkover survey and report has been prepared in October 2013.

2.0 SITE WALKOVER

General

- 2.1 The site, which is centred on Ordnance Survey Grid Reference SE 355 089, is located to the southeast of Athersley, approximately 2.6km north of Barnsley, and is a roughly L shaped piece of land extending to an area of approximately 0.49ha.
- 2.2 A site location plan is presented in Appendix A.

Current Use

- 2.3 The site is developed with a large single building which connects to the adjacent church, a tarmac basketball/football court, a playground and several unofficial footpaths.

Site Features and Boundaries

- 2.4 The site is bounded by a 6ft high, metal palisade fence, in a densely populated residential area. The site is surrounded on all sides by existing public highways with four existing semi-detached dwellings between the site itself and the highway, to both the north and south. Blessed Sacrament Catholic Church is located in the southeast

corner, just beyond the site boundary. An existing footpath trends east to west along the northern boundary between the site and the existing residential dwellings.

2.5 The topography of the land falls prominently in a northeasterly direction with the exception of the basketball/football court that has been plateaued to form a level of the playing surface.

2.6 The site has minimal vegetation over the site itself with only overgrown grassed areas and a few trees in the northeastern corner. Several trees, bushes and shrubs are, however, located adjacent to the southern boundary.

2.7 A topographical survey is presented in Appendix B.

3.0 EXISTING DRAINAGE

3.1 There is a positive drainage system on the site with multiple manhole covers clearly visible. A CCTV drainage survey was carried out by Jet Aire Drain Care Limited on behalf of ARP Associates, and this identified the existing drainage system connects into the existing public sewers recorded adjacent to the site. A copy of the CCTV Drainage Survey carried out by Jet Aire Drain Care Limited is enclosed in Appendix C for reference purposes.

4.0 CONSULTATIONS

Environment Agency

4.1 No formal consultation has been undertaken with the Environment Agency, but a review of the Environment Agency website shows that the site falls within land having a 1 in 1000 (greater than 0.1%) chance of flooding for a 1 in 100 year storm, and the site is considered to fall within Flood Zone 1. Therefore, there are no implications relating to flooding on the site, but consideration needs to be given to surface water discharge and ensure that this does not exceed existing discharge rates, less 30% to meet the requirements of the Pitt Review.

Water Authority

4.2 A consultation was requested from Yorkshire Water, who are the Water Authority for this area, and a copy of their response, reference PO14371 dated 8th October 2013, is presented in Appendix D for reference purposes.

4.3 There is a 225mm diameter public combined sewer recorded crossing the site. In this instance, building-over may take place under the control of Part H4 Building Regulations 2000.

4.4 Development of the site should take place with separate systems for foul and surface water drainage. The separate system should extend to the public sewer.

4.5 Foul water domestic waste should discharge to the 225mm diameter public combined sewer recorded crossing/within the site.

- 4.6 In respect of surface water, reference is made to Requirement H3 of the Building Regulations 2000 and Sustainable Drainage (SUDS). This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order. Where appropriate, soakaways, swales and infiltration trenches (SUDS) may be adopted as part of the public sewer network.
- 4.7 As a last resort and subject to providing evidence as to why the other methods of surface water disposal have been discounted, curtilage surface water may discharge to the 375mm diameter public surface water sewer recorded in Matlock Road at a point adjacent to the site.
- 4.8 The surface water discharge from the site is to be restricted to not greater than 5 (five) litres/second.
- 4.9 Further restrictions on surface water disposal from the site may be imposed by other parties. It is advised to seek advice from the Environment Agency/Land Drainage Authority.
- 4.10 The use of infiltration techniques will need to be considered prior to detailed design. However, it is likely that soakaways will be unsuitable as the site is underlain by undifferentiated mudstone, siltstone and sandstone strata, which are likely to be impermeable. Therefore, as the existing buildings have a proven positive drainage system to sewer, a request has been made to Yorkshire Water for an alternative to restrict surface water from the proposed site, including the church, to the same level of run-off, less 30%. At the time of writing this report, a response was still to be received to this request for a 13.9l/s discharge rate to the sewer.

Land Drainage Authority

- 4.11 A consultation was requested from Barnsley Metropolitan Borough Council, who are the Land Drainage Authority for this area. However, at the time of writing this report, a response was still to be received.

5.0 CLIMATE CHANGE

- 5.1 The National Planning Policy Framework (NPPF) and the accompanying Technical Guidance (TG) has indicated that the Global sea level will continue to rise, depending on greenhouse gas emissions, and the sensitivity of the climate system and there will be an increase in rainfall across the country. Table 5 of the TG makes an assessment of the peak rainfall intensity and states that this is likely to increase by 20% between 2055 and 2085 and by 30% between 2085 to 2115.
- 5.2 Due to the topography of the land and surrounding area, overland run-off from adjoining land is unlikely to be an issue. Any overland run-off encountered should be dealt with at the site boundary. Therefore, any run-off from outside the site will be insignificant and, on this basis, only rainfall falling within the site boundaries will need to be considered in respect of climate change.
- 5.3 In accordance with the TG, the published figures show that, for an expected life of greater than 2085 for any new development, the anticipated increase in rainfall will be

around 30%. It will be necessary to design any new positive drainage system with a 30% increase in capacity to accommodate this requirement.

6.0 SUSTAINABLE DRAINAGE

- 6.1 In order to comply with the requirements of NPPF, it will be necessary to consider aspects of Sustainable Drainage techniques for the new development. No intrusive investigation of the ground conditions has been undertaken, but the Geological Survey map of Great Britain shows the site to be underlain by Woolley Edge Rock - sandstone of the Pennine Middle Coal Measures of mudstone, siltstone and sandstone. This material is likely to be impermeable.
- 6.2 In light of the above, the use of soakaway drainage or other infiltration techniques on the site is not considered feasible. Therefore, for the purpose of the report, it will be necessary to provide a positive drainage system for the new development. However, infiltration testing in accordance with BRE Digest 365 'Soakaway Design' shall be carried out and the results reported to the Planning Authority for approval prior to construction on site.

7.0 PROPOSED FOUL & SURFACE WATER DRAINAGE

- 7.1 Foul water domestic waste should discharge to the 225mm diameter public combined sewer recorded within the site.
- 7.2 Consideration for the proposed surface water drainage should firstly be given to infiltration techniques (to ground). However, as the use of soakaways is considered unlikely, it will be necessary to provide a positive connection to watercourse or sewer.
- 7.3 Connection to watercourse has been considered, but, the nearest watercourse is located approximately 500m to the east, beyond existing residential dwellings, public highways, and over third party land. Therefore, any potential connection is considered impractical.
- 7.4 Therefore, connection shall be made to the existing 375mm public surface water sewer recorded in Matlock Road, at a point adjacent to the site.
- 7.5 The surface water discharge from the site to be restricted to not greater than 5 (five) litres/second. Alternatively, as the drainage investigation carried out by Jet Aire Drain Care Limited, presented in Appendix B, has identified that the existing surface water drainage system outfalls to the existing 375mm public surface water sewer recorded in Matlock Road, the proposal site and church could be restricted to the same level of run-off, less 30%, subject to Yorkshire Water approval.
- 7.6 In assessing the existing run-off from the site into the existing public sewers an existing flow rate of 19.9l/s has been calculated. In accordance with current guidelines the existing discharge should be reduced by 30%, and therefore, the proposed discharge rate should be restricted to 13.9l/s. The calculations are presented in Appendix E for reference purposes.
- 7.7 The proposed development plan, which is presented in Appendix F, has been assessed as having a proposed impermeable area of no greater than 50% of the site area. Calculations have been carried out using the WinDES Source Control Computer

Program. The proposed surface water system should be designed to accommodate a 1 in 30 year storm event without flooding and the 1 in 100 year storm event, plus climate change event, should be retained within the site in an area which will not affect the new buildings from flooding.

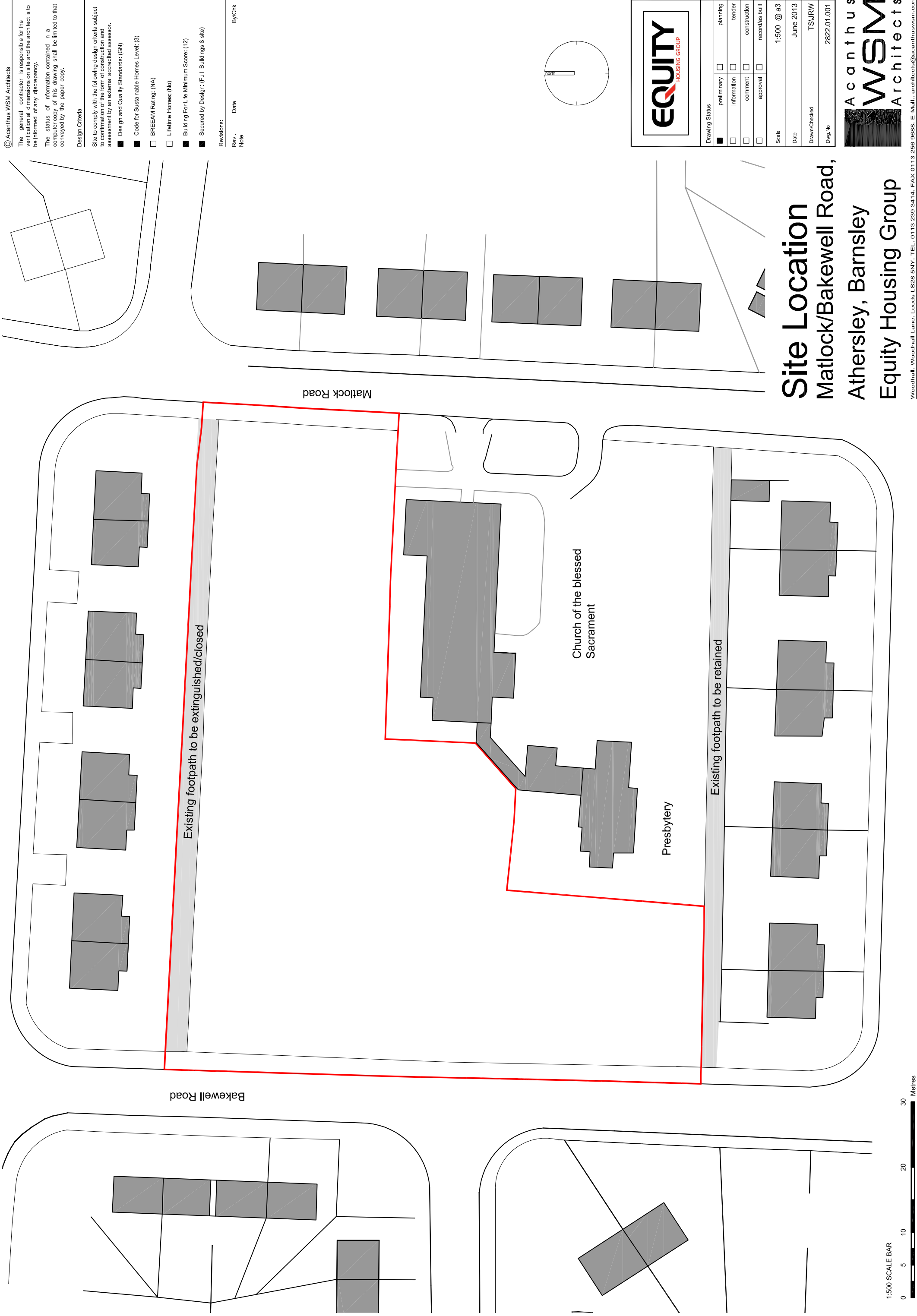
- 7.8 Restricting the discharge rate to no greater than 13.9l/s, subject to Yorkshire Water approval, on site storage of 50.2m³, will need to be provided for a 1 in 30 year storm event. This can be achieved by several methods, including oversized pipes, underground tanks and balancing ponds. One such option would be to provide 44.5m of 1.2m diameter pipes to achieve the necessary attenuation. The use of a balancing pond is considered impractical on such a small development. The drainage system will also need to accommodate the 1 in 100 year storm plus 30% climate change event without causing flooding of property or third party land. In the event that levels dictate that the 1 in 100 year storm plus climate change floodwater would flow off-site, an additional or larger storage facility will be required. In these circumstances, on-site storage would increase to 109.1m³. The indicative surface water calculations are presented in Appendix G.
- 7.9 Detailed calculations and proposals will need to be prepared and submitted to the Planning Authority for approval prior to construction.

8.0 SUMMARY

- 8.1 Foul water domestic waste should discharge to the 225mm diameter public combined sewer recorded within the site.
- 8.2 Sustainable Drainage Systems of infiltration techniques are considered unsuitable on this particular site. However, it will be necessary to carry out appropriate infiltration tests in accordance with BRE Digest 365 'Soakaway Design' with the results presented in a report for the approval of the Planning Authority.
- 8.3 Should infiltration techniques prove unsuccessful, surface water run-off from the site may discharge to the 375mm diameter public surface water sewer recorded in Matlock Road, at a point adjacent to the site.
- 8.4 The surface water discharge shall be restricted to 5 (five) litres/second or, 13.9l/s by re-routing the existing surface water drains from the church and into the new drainage system.
- 8.5 A 30% increase in rainfall shall be incorporated into any new positive drainage system to satisfy the requirements of climate change for developments extending beyond 2085.
- 8.6 The proposed surface water drainage system shall be designed for an allowance for climate change and restricted to the agreed discharge rate with appropriate attenuation incorporated into the design. A design, details and calculations shall be submitted to the Planning Authority for approval prior to construction on site.
- 8.7 From the information available, it is likely that the site will not be able to drain by gravity to the public sewer network. Therefore, an adoptable surface water pumping station may be required.

APPENDIX A

SITE LOCATION PLAN



© Acanthus WSM Architects

The general contractor is responsible for the verification all dimensions on site and the architect is to be informed of any discrepancy.

The status of information contained in a computer copy of this drawing shall be limited to that conveyed by the paper copy.

Design Criteria

Site to comply with the following design criteria subject to confirmation of the form of construction and assessment by an external accredited assessor.

- Design and Quality Standards: (GN)
- Code for Sustainable Homes Level: (3)
- BREEM Rating: (NA)
- Lifetime Homes: (No)
- Building For Life Minimum Score: (12)
- Secured by Design: (Full Buildings & site)

Revisions:

Rev.	Date	By/Chk

Drawing Status	
☒ preliminary	☐ planning
☐ information	☐ tender
☐ comment	☐ construction
☐ approval	☐ record/as built
Scale 1:500 @ a3	
Date June 2013	
Drawn/Checked TSJRW	
Drawn No 2822.01.001	

Acanthus

WSM

Architects

Site Location
Matlock/Bakewell Road,
Athersley, Barnsley
Equity Housing Group



APPENDIX B

TOPOGRAPHICAL SURVEY

APPENDIX C

EXISTING DRAINAGE INVESTIGATION

Project-information

Project name: CHURCH OF BLESSED SACRAMEN	Contract number: 038459	Contact:	Date: 04/10/2013
--	-----------------------------------	----------	----------------------------

Client
Contact:
Position:
Road
Town
County
Telephone:
Fax:
Mobile:
E-Mail:

ARP ASSOCIATES LTD
MR A POYSER

5/6 NORTHWEST BUSINESS PARK
SERVIA HILL
LEEDS LS6 2QH
0113 245 8498

Site
Contact:
Position:
Road
Town
County
Telephone:
Fax:
Mobile:
E-Mail:

CHURCH OF THE BLESSED SACRAMENT

MATLOCK ROAD/BAKEWELL ROAD
BARNSELY

Contractor
Contact:
Position:
Road
Town
County
Telephone:
Fax:
Mobile:
E-Mail:

Jet Aire Drain Care
Charlie Kirk
Managing Director
Northways Court, Great North Road
Aberford, Leeds
West Yorkshire
0113 393 5500
0113 281 4910

enquiries@jetaire.co.uk

Defect Grade DescriptionProject name:
CHURCH OF BLESSED SACRAMENContract number:
038459

Contact:

Date:
04/10/2013**1:**Brick: No Structural Defects
Pipe: No Structural Defects**Acceptable Structural Condition****2:**Brick: Minor cracking, Surface mortar loss, Spalling slight, wear slight
Pipe: Circumfrential crack, Moderate joint defects, Spalling slight, Wear slight**Minor collapse risk in short term but potential for further deterioration****3:**Brick: Total mortorloss without other defects, single brick displaced, Deformation up to 5%, Spalling medium, Wear medium
Pipe: Fractures with deformation up tp 5%, Longitudinal cracking or mulitlpe cracking, Minor loss of level, More severe joint defects, Spalling medium, Wear medium**! Collapse unlikely in near future but future deterioration likely !****4:**Brick: Total mortorloss with deformation greater than 10%, Deformation up to 10% and fractured, Displaced/hanging brickwork, Small number of missing bricks
Pipe: Broken, Deformation up to 10% and broken,, Fractured with deformation 5 - 10%, Multiple fractures, Serious loss of level, spalling large, wear large**!! Collapse likely in foreseeable future !!****5:**Brick: Already Collapsed, Missing invert, Deformation over 10% and fractured, Displaced/hanging brickwork and deformation over 10%, Extensive missing bricks
Pipe: Already collapsed, Deformation over 10% and broken, Extensive areas of fabric missing, Fractured with deformation over 10%**!!! Collapsed or collapse imminent !!!**

Inspection report

Date: 04/10/2013	Job N°: 038459	Weather: No rain or snow	Operator: DC	section number: 1	PLR: MH7 X
Video Volume No.:	Flow Ctrl:	Temperature:	Year laid:	Cleaned:	Strat. Drain:

Road: MATLOCK RD/BAKEWELL RD	Div/Dist:	start MH: MH7
Place: BARNSELY	Drain. Area:	end MH: PUB. SEWER
Location: Tarmac	Standard: BS EN 13508-2:2003	Total length: 6.8 m
Purpose:	Shape/Size: Circular 150	Pipe length:
Type:	Material: Vitrified clay (i.e. all clayware)	
Use: Foul	Lining:	
	Lining Type:	
Comment:		

1:50	position	observation	grade
	0.00	Start node type, manhole, reference number: MH7	0
	0.00	Water level 0 % height/diameter	0
	0.50	Line of drain/sewer deviates left, Remark: SLIGHT	
	0.90	Joint displaced medium	1
			 0.9 m
			 6.6 m
	6.30	Line of drain/sewer deviates down, Remark: MEDIUM	
	6.60	Joint displaced medium	1
	6.80	Finish node type, other special chamber, reference number: PUBLIC SEWER	

Date: 04/10/2013	Job N°: 038459	Weather: No rain or snow	Operator: DC	section number: 2	PLR: MH9 X
Video Volume No.:	Flow Ctrl:	Temperature:	Year laid:	Cleaned:	Strat. Drain:

Road:	MATLOCK RD/BAKEWELL RD	Div/Dist:	start MH:	MH9
Place:	BARNSELEY	Drain. Area:	end MH:	PUB. SEWER
Location:	Tarmac	Standard:	Total length:	9.4 m

Purpose:	Shape/Size:	Circular 150
Type:	Material:	Vitrified clay (i.e. all clayware) Pipe length:
Use:	Lining:	
Surface water	Lining Type:	

1:75	position	observation	grade
	0.00	Start node type, manhole, reference number: MH9	0
	0.00	Water level 0 % height/diameter	0
	8.30	Junction at 12 o'clock dia 150 mm	0
	9.40	Finish node type, manhole, reference number: PUBLIC SEWER	



Inspection report

Date: 04/10/2013	Job N°: 038459	Weather: No rain or snow	Operator: DC	section number: 4	PLR: MH11 X
Video Volume No.:	Flow Ctrl:	Temperature:	Year laid:	Cleaned:	Strat. Drain:

Road: MATLOCK RD/BAKEWELL RD	Div/Dist:	start MH: MH11
Place: BARNSELY	Drain. Area:	end MH: PUB. SEWER
Location: Grass	Standard: BS EN 13508-2:2003	Total length: 4 m
Purpose:	Shape/Size: Circular 150	
Type:	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Foul	Lining:	
	Lining Type:	

Comment:

1:50	position	observation	grade
	MH11	Start node type, manhole, reference number: MH11	0
	0.00	Water level 0 % height/diameter	0
	0.50	Settled deposits coarse 10 % cross-sectional area loss	
	2.80	Settled deposits coarse 30 % cross-sectional area loss	
	3.80	Line of drain/sewer deviates down, Remark: MEDIUM	
	PUB. SEWER	Finish node type, other special chamber, reference number: PUBLIC SEWER	4.00

SURVEY NOTES: CHURCH OF THE BLESSED SACRAMENT, MATLOCK ROAD,
BAKEWELL ROAD, BARNSELY

We were requested to attend site to carry out drainage investigations to establish the connectivity of the drainage system to the public sewer.

Our investigations show there is a public sewer running inside the property boundary downstream from manhole 8 running parallel with Matlock Road. The site's foul water discharges into the public sewer on a blind connection downstream from manhole 7 and also on a blind connection downstream from manhole 11.

There is a separate surface water sewer in Matlock Road and the drainage system on site discharges via manhole 9 into the public sewer at manhole 12.

There is a separate foul/surface water sewer in Bakewell Road to the rear of the site in accordance with the drawing attached.

038459

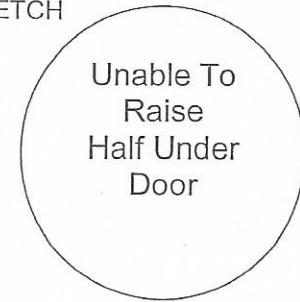
Our assessment of the drainage system is based upon our visual inspection and on information collated at the time of the survey. Where assumptions have been made these are based upon our experience and do not constitute any form of guarantee, nor do we guarantee that further deterioration will not occur following this survey. The CCTV CD will be forwarded with the report.

SITE: Church of the Blessed Sacrament, Bakewell Rd/Matlock Rd, Barnsley

 DATE: 04.10.13
 JOB NO: 038459

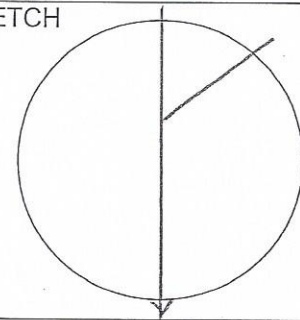
MH NAME	FUNCTION	COVER
MH 1	SW	SQUARE
	FW ☒	TRIANGLE
PIPE MATERIAL	CW	RECTANGLE ☒
	TE	CIRCULAR
COVER SIZE mm	600X600 ☐	675X675 ☐ Other ☐
DEPTH metres		
PIPE SIZE mm	INLET Ø	OUTLET Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH



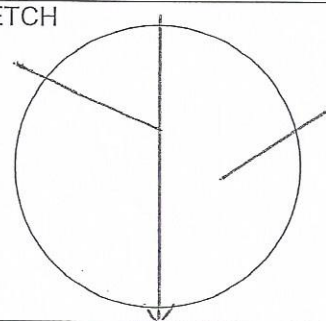
MH NAME	FUNCTION	COVER
MH 2	SW	SQUARE
	FW ☒	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE ☒
	TE	CIRCULAR
COVER SIZE mm	600X600 ☐	675X675 ☐ Other ☐ 660X510
DEPTH metres	925	
PIPE SIZE mm	INLET 100 Ø	OUTLET 100 Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH



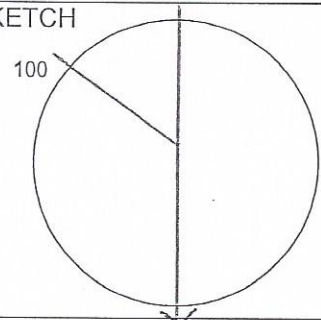
MH NAME	FUNCTION	COVER
MH 3	SW ☒	SQUARE
	FW	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE ☒
	TE	CIRCULAR
COVER SIZE mm	600X600 ☐	675X675 ☐ Other ☐ 660X510
DEPTH metres	925	
PIPE SIZE mm	INLET 100 Ø	OUTLET 100 Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH



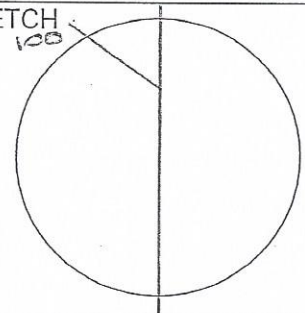
MH NAME	FUNCTION	COVER
MH 4	SW	SQUARE
	FW ☒	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE ☒
	TE	CIRCULAR
COVER SIZE mm	600X600 ☐	675X675 ☐ Other ☐ 660X510
DEPTH metres	1275	
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH



MH NAME	FUNCTION	COVER
MH 5	SW ☒	SQUARE
	FW	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE ☒
	TE	CIRCULAR
COVER SIZE mm	600X600 ☐	675X675 ☐ Other ☐ 660X510
DEPTH metres	1450	
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS LANDINGS	COMMENTS	

SKETCH

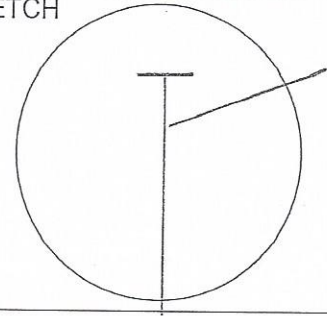


SITE: Church of the Blessed Sacrament, Bakewell Rd/Matlock Rd, Barnsley

 DATE: 04.10.13
 JOB NO: 038459

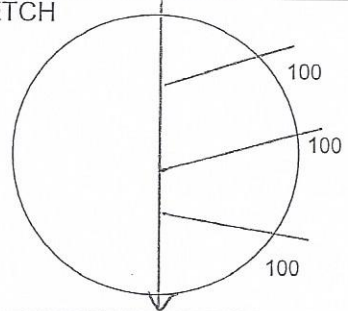
MH NAME	FUNCTION	COVER
MH 6	SW	✓
	FW	✓
PIPE MATERIAL VC	CW	✓
	TE	✓
COVER SIZE mm	600X600	675X675
DEPTH metres	1600	Other
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH



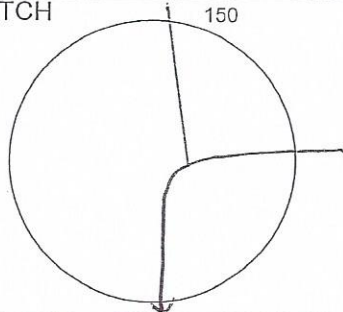
MH NAME	FUNCTION	COVER
MH 7	SW	✓
	FW	✓
PIPE MATERIAL VC	CW	✓
	TE	✓
COVER SIZE mm	600X600	675X675
DEPTH metres	1675	Other
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH



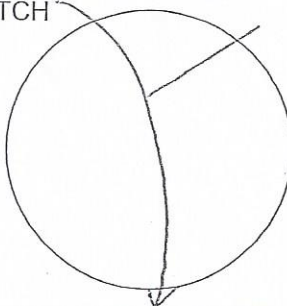
MH NAME	FUNCTION	COVER
MH 8	SW	✓
	FW	✓
PIPE MATERIAL VC	CW	✓
	TE	✓
COVER SIZE mm	600X600	675X675
DEPTH metres	2150	Other
PIPE SIZE mm	INLET 225 Ø	OUTLET 225 Ø
NO. OF STEPS 3 LANDINGS	COMMENTS:	

SKETCH



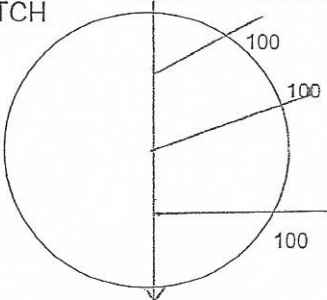
MH NAME	FUNCTION	COVER
MH 9	SW	✓
	FW	✓
PIPE MATERIAL VC	CW	✓
	TE	✓
COVER SIZE mm	600X600	675X675
DEPTH metres	1550	Other
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH



MH NAME	FUNCTION	COVER
MH 10	SW	✓
	FW	✓
PIPE MATERIAL VC	CW	✓
	TE	✓
COVER SIZE mm	600X600	675X675
DEPTH metres	1000	Other
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH

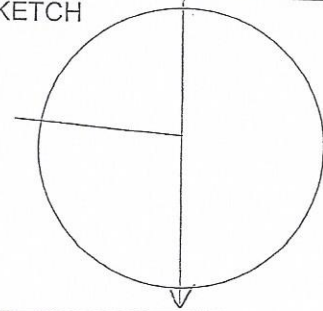


SITE: Church of the Blessed Sacrament, Bakewell Rd/Matlock Rd, Barnsley

 DATE: 04/10/2013
 JOB NO: 038459

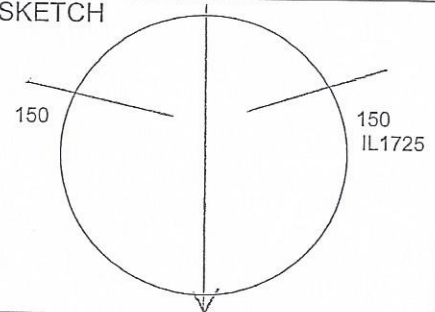
MH NAME	FUNCTION	COVER
MH 11	SW	SQUARE
	FW	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE
	TE	CIRCULAR
COVER SIZE mm	600X600	675X675 Other
DEPTH metres		
PIPE SIZE mm	INLET 150 Ø	OUTLET 150 Ø
NO. OF STEPS LANDINGS	COMMENTS: Unable to raise. In fenced off area	

SKETCH



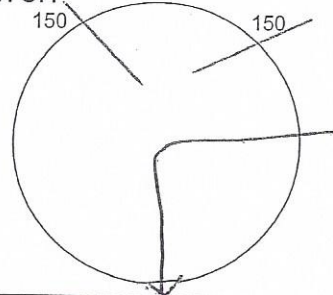
MH NAME	FUNCTION	COVER
MH 12	SW	SQUARE
	FW	TRIANGLE
PIPE MATERIAL VC/Concrete	CW	RECTANGLE
	TE	CIRCULAR
COVER SIZE mm	600X600	675X675 Other
DEPTH metres	1775	
PIPE SIZE mm	INLET 300 Ø	OUTLET Unknown Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH



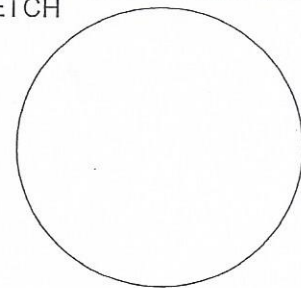
MH NAME	FUNCTION	COVER
MH 13	SW	SQUARE
	FW	TRIANGLE
PIPE MATERIAL VC	CW	RECTANGLE
	TE	CIRCULAR
COVER SIZE mm	600X600	675X675 Other
DEPTH metres	1725	
PIPE SIZE mm	INLET 225 Ø	OUTLET 225 Ø
NO. OF STEPS 2 LANDINGS	COMMENTS:	

SKETCH



MH NAME	FUNCTION	COVER
	SW	SQUARE
	FW	TRIANGLE
PIPE MATERIAL	CW	RECTANGLE
	TE	CIRCULAR
COVER SIZE mm	600X600	675X675 Other
DEPTH metres		
PIPE SIZE mm	INLET Ø	OUTLET Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH



MH NAME	FUNCTION	COVER
	SW	SQUARE
	FW	TRIANGLE
PIPE MATERIAL	CW	RECTANGLE
	TE	CIRCULAR
COVER SIZE mm	600X600	675X675 Other
DEPTH metres		
PIPE SIZE mm	INLET Ø	OUTLET Ø
NO. OF STEPS LANDINGS	COMMENTS:	

SKETCH

