

APPENDIX B

Calculations

STORM SEWER DESIGN by the Modified Rational MethodGlobal Variables

Pipe Size File C:\Program Files\Micro Drainage Ltd\WinDes\STANDARD.PIP
 Manhole Size File C:\Program Files\Micro Drainage Ltd\WinDes\STANDARD.MHS

Location - England & Wales

Return Period (years)	1	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	19.000	Min Cover Depth for Optimisation (m)	1.200
Ratio R	0.350	Min Vel for Auto Design Only (m/s)	1.00
Maximum Rainfall (mm/hr)	25	Min Slope for Optimisation (1:X)	500
Foul Sewage (l/s/ha)	0.00	Minimum Outfall Invert (m)	0.000
O'flow Setting (*Foul only)	0	Ground Level at Outfall (m)	0.000
Volumetric Runoff Coeff.	0.75	Outfall Manhole Name	
Add Flow / Climate Change (%)	0	Outfall Manhole Dia/Length (mm)	0
Minimum Backdrop Height (m)	0.200	Outfall Manhole Width (mm)	0

Designed with Level Soffits

Network Design Table

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	T.E. (mins)	DWF (1/s)	k (mm)	HYD SECT	DIA (mm)
1.000	10.00	0.200	50.0	3.480	5.00	0.0	0.600	o	375

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E.Area (ha)	E.DWF (1/s)	Foul (1/s)	Add Flow (1/s)	Vel (m/s)	CAP (1/s)	Flow (1/s)
1.000	25.0	5.1	0.000	3.480	0.0	0.0	0.0	2.57	283.6	235.6

Variables	Result	Design	Overview 2D	Overview 3D	Vt
Region	England & Wales				Cv (Summer) 0.750
Return Period (years)	100				Cv (Winter) 0.840
Map	M5-60 (mm)	19.000			Impermeable Area (ha) 2.91
Ratio R	0.401				Maximum Allowable Discharge (l/s) 165
					Infil Coefficient (m/hr)
					Safety Factor 2
					Climate Change % 20
					Apply
Done			Help		

Variables

Result

Design

Overview 2D

Overview 3D

Vt

Global Variables require approximate storage
of between 594 m³ and 1012 m³.

These values are estimates only and should not be used for design
purposes.

Done

Help

Variables	Result	Design	Overview 2D	Overview 3D	Vt
Region	England & Wales				
Return Period (years)	30				
Map	M5-60 (mm)				
Ratio R	0.401				
		Cv (Summer)			0.750
		Cv (Winter)			0.840
		Impermeable Area (ha)			2.91
		Maximum Allowable Discharge (l/s)			165
		Infil Coefficient (m/hr)			
		Safety Factor			2
		Climate Change %			20
					Apply

Done

Help

Variables

Result

Design

Overview 2D

Overview 3D

Vt

Global Variables require approximate storage
of between 389 m³ and 693 m³.

These values are estimates only and should not be used for design
purposes.

Done

Help

APPENDIX C

Consultation Responses

Thomas Walker

From: Wiles, Lynne [lynne.wiles@environment-agency.gov.uk]
Sent: 25 August 2009 08:39
To: Thomas Walker
Subject: Your Enquiry: RFI/2009/9822
Attachments: Standard Notice Commercial (Feb 2008).doc; RFI 9822 Map.pdf

Our Ref: RFI/2009/9822

Your Ref: 090814/e103

Dear Thomas

RE: ST MICHAELS ALC SITE: CARLTON ROAD, BARNSELEY - FLOOD RISK ASSESSMENT

Thank you for your enquiry dated 14 August 2009.

Under Planning Policy Statement 25 Development and Flood Risk (PPS25) land is divided into three zones with regard to flood risk.

Zone 1, little or no risk, this is land outside the 1 in 1000 year flood plain, land deemed to be safe from flooding in the event of a flood with a 0.1% probability of occurring in any one year.

Zone 2, medium risk; land between the 1 in 1000 and 1 in 100 year fluvial (1 in 200 year tidal) flood plain. Between 0.1% and 1.0% (0.5%) probability of occurring in any one year.

Zone 3, high risk, land within the 1 in 100 year fluvial (1 in 200 year tidal) flood plain, at risk in the event of a flood with a 1.0% (0.5%) probability of occurring in any one year.

These zones do not take account of any flood defences that may exist as these could be overtopped or breached by a more severe flood event than designed for or maintained against.

Site Assessment

The site is located in Flood Zone 1, which is land outside the floodplain as shown on our

02/09/2009

Flood Zone Maps. I have attached a map which indicates this. We have no record of any watercourses on or abutting this property but the map does show that there is a small watercourse/drain approximately 300 metres from the site. The site may be subject to flooding from a number of different sources including small or culverted watercourse, public sewers, highway drains and overland surface water flow. We would suggest that you contact the Local Authority Main Drainage Department who may hold more detailed information for the site and may be able to advise further.

Flood Risk Assessment (FRA) over 1ha – Flood Zone 1

A flood risk assessment must be submitted with a planning application on any proposed development site over 1ha. It should assess the existing and proposed surface water drainage from the site. In addition the FRA should also consider other potential sources of flooding including:

Flooding from groundwater

Flooding via overland flow from adjacent land

Flooding from surface water drainage

For a detailed view of what requires an FRA, you can look at our Flood Risk Standing Advice which can be found at

<http://www.environment-agency.gov.uk/research/planning/82587.aspx> A more comprehensive guide on flood risk assessments can be found in CIRIA report C624 'development and flood risk guidance for the construction industry'.

Surface water Runoff

There should be no increase in surface water runoff from the new development.

PPS25 recognises that the management of flood risk is not simply restricted to flood plains and that a catchment-wide approach should be employed.

Greenfield development sites should balance surface water discharge to the 1 in 1 year greenfield run-off rate, this is considered to be

5 l/sec/ha.

If the existing site is shown to drain to a watercourse or public sewer, then surface water

runoff should be attenuated to provide a 30% reduction in the final surface water discharge from the site when compared with the existing site outflow prior to redevelopment. However, if the site does not drain to a watercourse or public sewer at present, then flows must be attenuated to a maximum of 5 litres/second/hectare.

An "on site" storm water storage facility should be provided to accommodate the flood volume for a 1 in 100 year return period plus an allowance of 20% for climate change. If the drainage system is to be adopted it should be noted that sewage undertakers usually require storage designed to accommodate the 1 in 30 year event, preferably by means of oversized pipes or underground tanks. Additional volumes up to the 1 in 100 year return period (plus climate change) should be stored on site without causing any flooding to buildings or adjacent land.

SUDs

There are alternatives to conventional storage for the control of surface water run-off that are favoured by us where ground conditions are suitable. Sustainable Urban Drainage techniques (SUDs) tackle surface water run-off problems at source using features such as soakaways, permeable pavements, grassed swales, infiltration trenches, ponds and wetlands to attenuate flood peak flows, produce water quality improvements and environmental enhancements. We seek to promote the use of SUDs techniques to this site and we expect the developer of the site to submit detailed investigations such that the use of SUDs has been fully explored.

More information on SUDs can be found at: <http://www.ciria.org.uk/suds/>

For information on Green Roofs in particular, please visit: www.thegreenroofcentre.co.uk

Lesley Slaney is the Development Control Officer dealing with the Barnsley area. Her contact details are (0113 213 4779) or e-mail lesley.slaney@environment-agency.gov.uk

This information is based on data that is currently available to the Environment Agency and is subject to our standard notice. The Agency accepts no liability for any loss or damage arising from its use. The interpretation of the information is your responsibility.

If you require any further help, please do not hesitate to contact me.

Yours sincerely,

Lynne Wiles
External Relations Officer
Tel. No: 0113 395 4529

02/09/2009

Email: lynne.wiles@environment-agency.gov.uk

Environment Agency
Phoenix House
Global Avenue
Leeds
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Part of the Environment Agency's Yorkshire area and North East Region

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RFI 9822 MAP



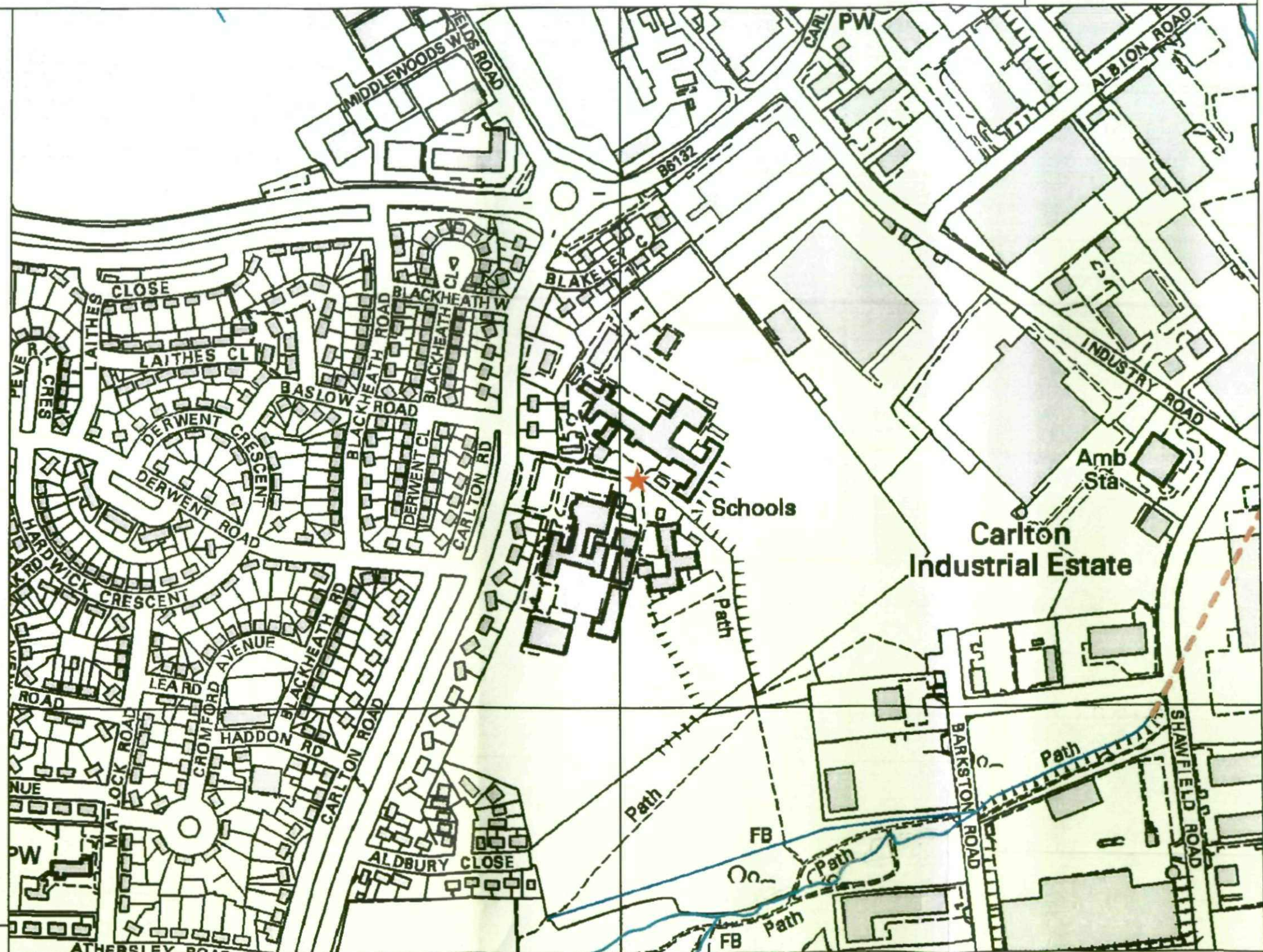
Legend

Detailed River Network

- Primary River
- Secondary River
- Tertiary River
- D/S of High Water Mark
- D/S of Seaward Extension
- Lake / Reservoir
- Canal
- Extended Culvert (greater than 50m)
- Canal Tunnel
- Underground River (Inferred)
- Underground River (local knowledge)

Flood Map - Defences

- Areas Benefiting from Flood Defences
- Flood Map - Flood Storage Areas
- Flood Map - Flood Zone 3
- Flood Map - Flood Zone 2



0 50 100 150 m.



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YorkshireWater

RECEIVED
19 AUG 2009

tw

Thomas Walker
Sanderson Associates
Sanderson House
Jubilee Way
Grange Moor
Huddersfield
WF4 4TD

Safe-Move
PO Box 682
Bradford
BD3 7YT

Tel: 0800 1 385 385
Fax: (01274) 253502

Your Ref: LNSS-7UWKP5
Our Ref: E091815/FS

18th August 2009

Dear Thomas Walker,

LOCATION: CARLTON ROAD, BARNSELY

Thank you for your enquiry/notice dated 14/08/2009 concerning the above.

As requested I enclose copies of Yorkshire Water's records, for water mains and sewerage, also enclosed is a 'Protection of Mains and Services' form listing the necessary precautions when working within the vicinity of the Company's apparatus. The information on the plan is believed to be correct, but there may be departures from the positions indicated. The Company accepts no responsibility for any inaccuracy or omissions.

Water mains & services generally have a minimum cover of 900mm and 750mm respectively, although this is not guaranteed as some mains are laid with less cover than this standard depth. Any excavations undertaken should anticipate the presence of mains with minimal ground cover.

Public Sewers generally have a minimum cover of 1200mm, although this is not guaranteed, as some sewers are laid with less than this depth. Any excavations undertaken should anticipate the presence of sewers with minimal ground cover.

The exact position of the Company's apparatus must be located on site prior to commencing works, if necessary by excavating trial holes. Yorkshire Water's staff will render any assistance in locating and safeguarding our apparatus provided advance notification is received of the commencement of works. This assistance will in no way affect your legal liability. Any damage to our apparatus, as a result of your work, may have serious consequences and payment for all remedial works and other related expenses will be the responsibility of yourselves or your Contractor.

The Company has no responsibility for recording the locations of privately owned apparatus.

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Yours sincerely

Fiona Sorsby
Safe-Move



YorkshireWater

YORKSHIRE WATER PROTECTION OF MAINS AND SERVICES - WASTE WATER

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the **general** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline **(0845 124 24 24) for water and (0845 124 24 29) for sewerage.**

2. The public sewer network is lawfully retained in its existing position and the sewerage undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the sewerage undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the sewerage undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful.

3. Sewers in highways will **generally** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense.

4. All excavation works near to YWS apparatus should be by hand digging only.

5. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.

6. To enable future repair works to be carried out, a minimum clearance of 1000mm must be maintained where any works or services are installed adjacent to YWS apparatus and a minimum clearance of 150mm where any works or services cross the apparatus.

7. Adequate support must be provided where any works pass under existing YWS apparatus.

8. Jointing chambers, lighting columns and other structures must not be installed in such a way that future repairs to YWS apparatus are hindered.

9. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 29.

10. Explosives must not be used within 100 metres of YWS apparatus or installations and vibrating equipment should not be used directly over any apparatus.

11. Ground levels over existing YWS apparatus are to be maintained.

12. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.

13. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS.

14. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.

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Sewer Legend

	Combined Sewer		S24 Combined Sewer
	Surface Water Sewer		S24 Surface Water Sewer
	Foul Sewer		S24 Foul Sewer
	Section 104 Sewer		Public Rising Main
	Pumping Station		Abandoned Sewer
	Public Sewage Treatment Works		Syphon Sewer & Vacuum Sewer
			Manhole

Water Legend

	Water Main 4" and below
	Water Main 4" and above
	Raw Water Main
	Private Water Main
	Fire Hydrant
	Pumping Station

10th November 2009

Yorkshire Water
New Development Team Sewerage
Western House
Halifax Road
PO Box 500
Bradford
BD6 2LZ

Thomas.Walker@sandersonassociates.co.uk

Our ref : 5534/TW/001

Dear Sirs,

Re: St. Michael's ALC site: Carlton Road, Carlton, Barnsley – Drainage Impact Assessment

We are currently preparing a drainage impact assessment for the proposed redevelopment at the above site.

We would be grateful if you could confirm where the proposed foul and surface water drainage outfalls from the proposed building could connect into your existing adopted system and advise on any outfall rate restrictions from the proposed development, along with any records of sewer depths in the vicinity of the site. I have enclosed the response I received from your mapping service for your convenience.

We look forward to hearing from you as soon as you are able, however if you wish to discuss the above, then please do not hesitate to contact us.

Yours faithfully

Thomas Walker
Sanderson Associates (CE) Ltd



435458 : 408852

Map Name : SE3508NE

Title



YorkshireWater

Yorkshire Water,
PO Box 500,
Hallifax Road,
Bradford BD6 2LZ
Contact Name :
Mrs F Sorsby
Contact Tel : 75 4934

Notes

Partial Key

Foul Sewer = F
Combined Sewer = C
Surface Water Sewer = SW
Trade Sewer = TD
Partially Separate = PS

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.

Date Req : 18/08/2009, 11:52:12

Date Gen : 18/08/2009, 11:52:21

Source : Sewer Network Enquiry