Flood Risk Assessment

Sheldale Developments Ltd

Pontefract Road, Barnsley

Flood Risk Assessment

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August 2011.

Flood Risk Assessment

Report Control

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1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Sheldale Developments Limited is proposing to develop a site on the A628 Pontefract Road to the east of the centre of Barnsley. This Flood Risk Assessment (FRA) has been prepared to support the proposed planning application for the development

1.2 PROPOSED DEVELOPMENT

The proposed development is to consist of a new building located on the northern side of Pontefract Road in Barnsley providing a high quality rehabilitation and care facility for the disabled together with associated car parking and landscaping works. A plan showing the proposed development is included in Appendix B.

1.3 REQUIREMENT FOR FLOOD RISK ASSESSMENT

The site is approximately 0.13 ha in area (accounting for both sections of the site, north and south of Pontefract Road). According to the current flood maps produced by the Environment Agency (EA), the site lies on the edge of the floodplain; both Flood Zones 2 (extent of 1 in 1000 extreme flood) and 3 (extent of 1 in 100 flood) cross the northern part of the site.

As the EA's maps show that the site is partially within an area of flood risk, the EA would object to a Planning Application that was not supported by a Flood Risk Assessment (FRA). This report therefore forms a FRA for the development to support the planning application for the development.

2 SITE DESCRIPTION

2.1 EXISTING SITE

The site covers an area of approximately 0.13 ha and is located on the A628 Pontefract Road east of Barnsley at Grid Reference SE361065, as shown in Figures 1 & 2 below.

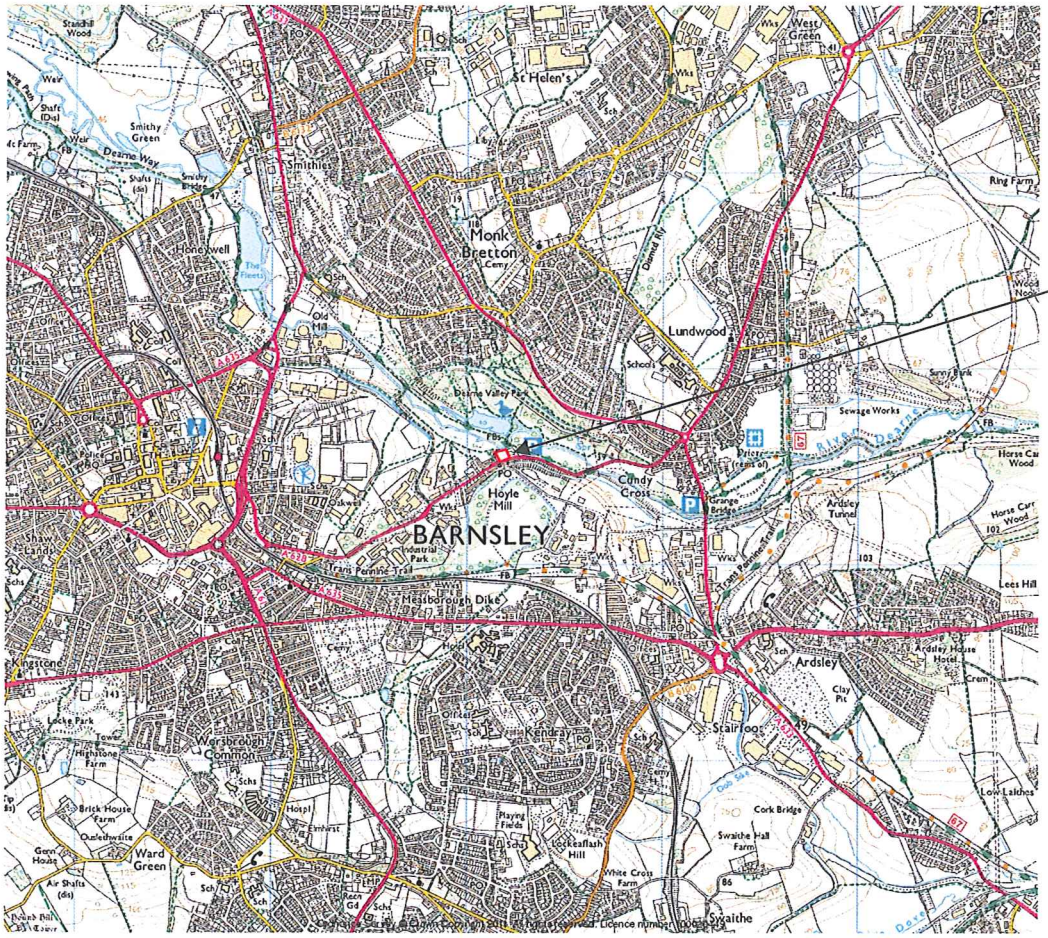


Figure 1 – Location Plan

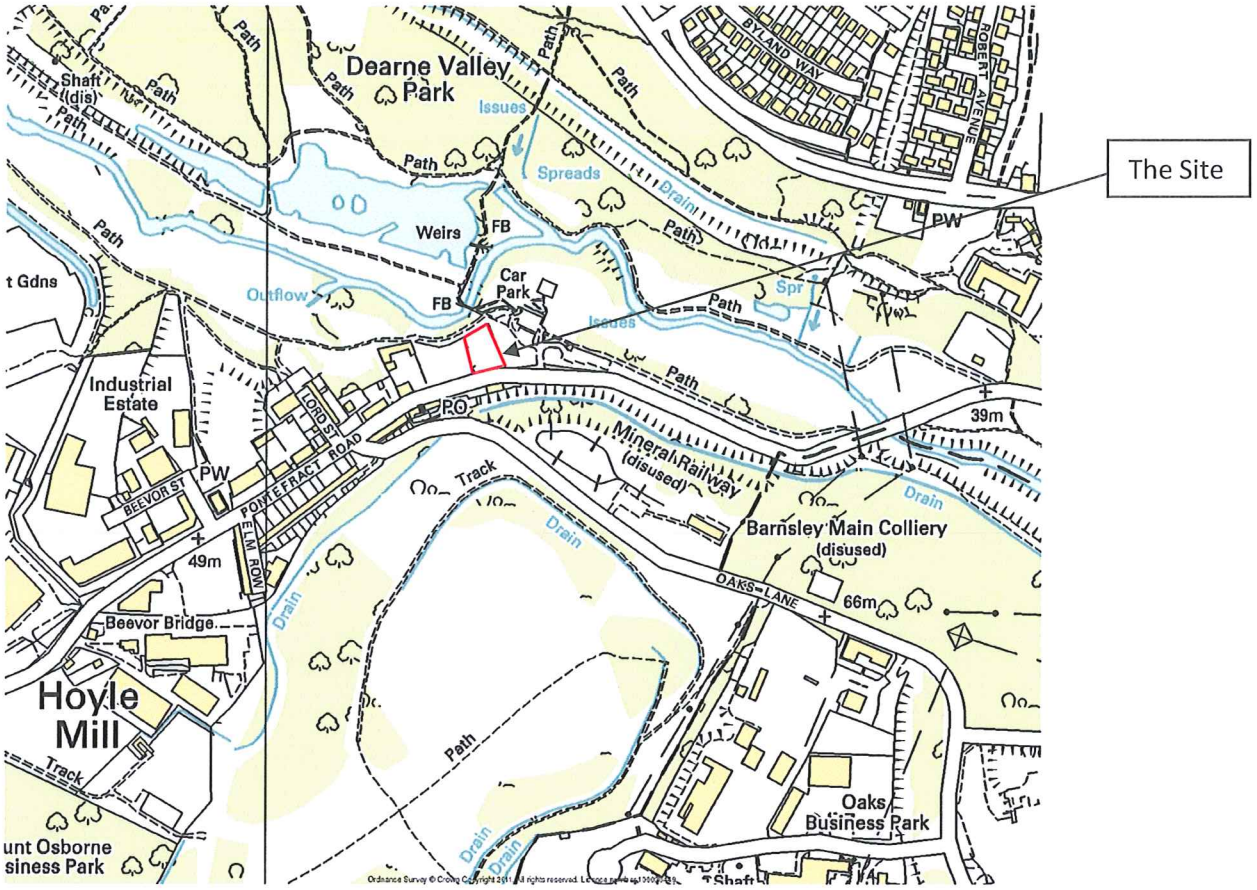


Figure 2 – Site Location Plan

The development site (i.e. the northern site) consists of an area of existing car parking together with an area of grassland. The northern site is bounded by a landscaped area including a public footpath to the north with the River Dearne located approximately five metres further north. To the east and west the site is bordered by landscaped areas. To the south the site is bordered by Pontefract Road.

From a review of the topographic survey it can be seen that the site slopes from south to north towards the River Dearne. The area is currently a car park serving the restaurant and surfaced with asphalt. The car park is drained by two gullies located along its northern boundary, however, no information is available as to where these drain to. It is believed that they are connected to the adjacent YW sewer.

The car park falls from 46.5 m AOD at its south-western corner to 42.85 m AOD at its north-western corner, and 43.78 m AOD at its north-eastern corner. North of the existing car park the ground falls down to the existing footpath and then continues to fall down towards the River Dearne.

A copy of the topographic survey is contained within Appendix B.

2.2 EXISTING DRAINAGE

2.2.1 Main Rivers

The River Dearne is located approximately 20m to the north of the site and flows in an easterly direction. The River Dearne joins the River Don at Doncaster

2.2.2 Ordinary and Manmade Watercourse

There is a minor water course located to the south of the southern site which receives overland flows from the area immediately to the south. This watercourse discharges into the River Dearne approximately 700m to the east of the site.

2.2.3 Sewers

A new consultation has been issued to Yorkshire Water in respect of the site, however, at the time of writing this report no response has been received and therefore the contents of the previous consultation from November 2005 have been used. Should the revised consultation, once received, provide any new information affecting the assessment of the flood risk, then an addendum report will be produced addressing the points raised.

A previous response was received dated 8th November 2005 and in this YW stated that there are no properties in the vicinity of the site on the Flooding Register (DG5), although YW did also note that there have been blockages and collapses on the small diameter public sewer serving nos. 154 and 156 Pontefract Road (which are located immediately west of the development site).

With regards to surface water discharges from the site, YW stated that the preference would be for surface water to discharge directly to the River Dearne. If this is not possible, YW stated that it could accept a discharge of 9 l/s into its 300 mm public surface water sewer to the north west of the site.

YW identified that there are public sewers that cross the site, and restrictions on building near these sewers will apply. The local sewage treatment works also reportedly may have limited capacity for further flows.

Copies of the correspondence received from Yorkshire Water are contained within Appendix C1

The existing car park is drained by two gullies located along its northern boundary; however, no information is available as to where these drain to. It is believed that they are connected to the adjacent YW sewer.

3 FLOOD RISK

3.1 FLUVIAL FLOOD RISK

Fluvial flood risk is the risk arising from rivers and watercourses.

3.1.1 Environment Agency Data Review – Fluvial Flooding

A new consultation has been made to the Environment Agency (EA) to confirm that the flood modelling data supplied in November 2005 was still current. The EA have responded to the new consultation and confirmed that the previous modelling information from 2004 is still current.

The EA statutory flood map was consulted and a copy of the current flood map is shown below in Figure 3.

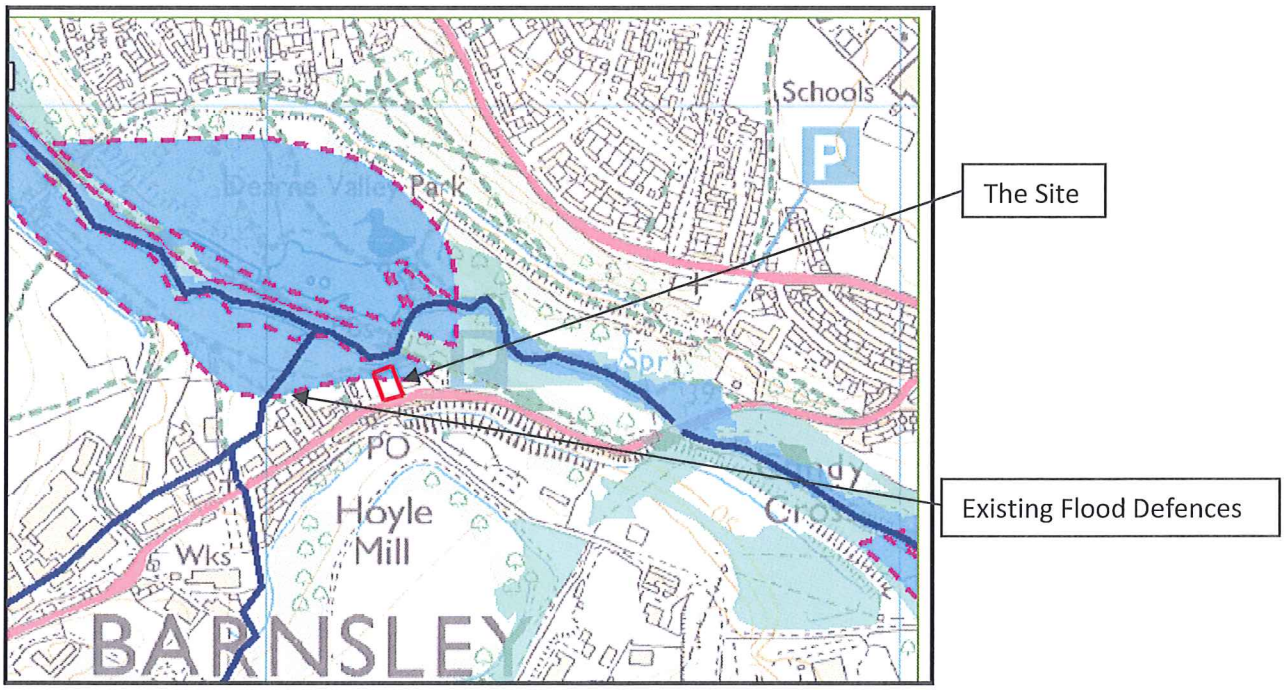


Figure 3 – Environment Agency Flood Map downloaded 15th August 2011

The map shows that EA understands that part of the site falls within both Flood Zones 2 (1 in 1000 extreme flood) and 3 (1 in 100 floods). At the scale on which the EA present this information, the outline for both Flood Zones is identical at this location. This reflects the steep topography of the River Dearne valley at this point, in that an increase in flood flows, and hence water levels, does not result in a large increase in the extent of the land affected by flooding.

The map that the EA supplied was supported by output from the River Don hydraulic model. This model also incorporates modelling of tributaries to the Don including the River Dearne. The results from the model provide the following flood levels for River Dearne cross-sections in the vicinity of the development site.

Cross section	Flood event	Water level (m AOD)
Chainage 21316 (approx. 200 m d/s of the site)	4% (1 in 25)	37.619
	2% (1 in 50)	37.797
	1.33% (1 in 75)	37.866
	1% (1 in 100)	37.900
	0.67% (1 in 150)	38.051
	0.5% (1 in 200)	No modelling data provided
Chainage 21706 (approx. 80 m d/s of the site)	4% (1 in 25)	38.322
	2% (1 in 50)	38.500
	1.33% (1 in 75)	38.569
	1% (1 in 100)	38.889
	0.67% (1 in 150)	38.956
	0.5% (1 in 200)	38.980
Chainage 21770 (at the footbridge immediately north of the site)	4% (1 in 25)	38.451
	2% (1 in 50)	38.613
	1.33% (1 in 75)	38.676
	1% (1 in 100)	38.960
	0.67% (1 in 150)	38.981
	0.5% (1 in 200)	38.990
Chainage 22135 (approx. 350 m u/s of the site)	4% (1 in 25)	39.995
	2% (1 in 50)	40.298
	1.33% (1 in 75)	40.408
	1% (1 in 100)	40.420
	0.67% (1 in 150)	40.654
	0.5% (1 in 200)	40.770

The nearest cross-section to the site, and therefore the levels that are most relevant to this report, is the cross-section at Chainage 21770.

The EA also provided a copy of records of historical flood extents and level information. This information identified that the site was recorded as not being affected by flooding during the 1947 or the 2007 flood event.

The EA/SFRA flood maps identify that the site is defended to a 1 in 30 year standard and this believed to be via the natural topography of the area adjacent to the River Dearne and not any artificial engineered structures. The EA have confirmed that no new flood defences are proposed in the area adjacent to the site.

A copy of the consultation received from the EA dated 17th August 2011 is contained within Appendix C2

3.1.2 Barnsley Metropolitan Borough Council – Fluvial Flooding

A response was received from Barnsley MBC confirming that it was not aware of any flooding in the vicinity of this site following regrading of the River Dearne by the Rivers Authority in the late 1980s, and that it had no records of any minor watercourses in this area that may cause flooding problems, or any other constraints with respect to flood risks. The response confirmed that it had no new information from the previous response dated November 2005 and a copy of all the relevant correspondence is contained within Appendix C3

3.1.3 Barnsley Metropolitan Borough Council SFRA – Fluvial Flooding

A review was undertaken of the Barnsley SFRA to review fluvial flooding issues. The review identified:

a) That the site was not affected by the June 2007 floods, nor any of the previous flooding incidents i.e. Autumn 2000, January 1982 or March 1947.

b) That the site is within Flood Zone 2 & 3 as previously identified on the EA Flood maps. The area shown as being within the flood zones extending slightly further south towards Pontefract Road.

c) That the section of the River Dearne immediately north of the site is defended to a 1 in 30 year standard. It is understood that following the site inspection that the defences are those provided by the natural topography and steep banks adjacent to the river and not any specific artificial or engineered structures.

d) The site forms part of the functional floodplain (i.e. Flood Zone 3b) for the River Dearne. Flood Zone 3b is designated as land where water has to flow or be stored in times of flood.

e) The site is not within an area where pluvial flooding occurs as a result of a 1 in 100 year rainstorm.

A copy of the relevant SFRA maps are contained within Appendix D

3.1.4 Deane & Dearne Internal Drainage Board

The Deane & Dearne Internal Drainage Board (DDIDB) whose catchment covers the River Dearne corridor, were contacted regarding the proposed flooding implications of the development. They confirmed that as they are not responsible for the maintenance of the River Dearne where it passes the site, then they would not have any comments in respect of flood risk.

3.2 SEWER FLOODING

Yorkshire Water have previously stated in their November 2005 response that there are no properties in the vicinity of the site on the Flooding Register (DG5), although YW did also note that there have been blockages and collapses on the small diameter public sewer serving nos. 154 and 156 Pontefract Road (which are located immediately west of the development site).

A copy of the previous correspondence from Yorkshire Water is contained within Appendix C1

3.3 SURFACE WATER FLOODING

Surface water flooding occurs where high rainfall events exceed the drainage capacity in an area (i.e. sewer system and/or watercourse), leading to flooding.

From a review of the SFRA the site is not located within any areas prone to flooding.

3.4 GROUND WATER

3.4.1 Groundwater Source Protection Zone

A review of the EA's Ground Water Source Protection Zone (GWSPZ) map for the development site location shows that the site is located entirely outside any GWSPZ.

These zones show the risk of contamination from any activities that might cause pollution in the area. It is considered that the closer the activity is to a GWSP zone, then the greater the risk. This is of significance for any future development where the surface water drainage will be reliant on the use of infiltration based methods. As such the use of infiltration based methods would not be restricted from a GWSPZ perspective.

3.5 RESERVOIR FLOODING

Although the probability of a catastrophic dam failure is considered to be extremely low, the consequence of such an event would be severe. However, a review of the EA online 'Risk of Flooding from Reservoirs' found that the site is considered to be outside the maximum extent of flooding from reservoir. An extract of the EA reservoir flooding is included below in Figure 4.

Figure 4 – Extract Of EA Reservoir Flooding Map (downloaded 15th August 2011)



Extent of reservoir flooding

3.6 OTHER SOURCE OF FLOOD RISK

A site walkover was conducted in August 2011 and no other sources of flooding were observed. Copies of the photographs taken during the site visit are contained within Appendix E

3.7 SUMMARY OF FLOOD RISK

3.7.1 Fluvial

The information obtained from the EA/Barnsley SFRA flood mapping identified that the site is at risk from flooding on at least a 1 in 100 flood. However, it should be noted that this information is derived from various sources. The national topographic dataset used is based on LiDAR data, rather than conventional ground-based surveying techniques. There are inaccuracies inherent in LiDAR data that mean that the ground levels that it provides can typically be considered to have an accuracy of approximately ± 200 mm.

Therefore, whilst the information presented on the EA's/ Barnsley SFRA flood mapping provides an initial indication of flood risk at the national level, for specific sites it is usually necessary to obtain more accurate topographic level data in order to assess flood risk. A topographic survey of the site has been carried out, and the levels from this survey were used in establishing flood risk for this FRA.

The topographic survey has identified that the lowest point on the site occurs on its northern side, where the level is 42.85 m AOD. The data provided by the EA shows that the modelled 1 in 100 level for cross-section Chainage 21770, (which is the cross-section nearest to the site) is 38.960 m AOD, and that the modelled 1 in 200 level is 38.99m AOD. No data was provided to confirm the 1 in 1000 year flood event and as to whether the site would still fall within Flood Zone 2. However, based on the 1 in 200 year level still being 3.86m below the lowest level within the site and the steeply sloping

nature of the ground towards the river, it is not anticipated that the site would fall within Flood Zone 2 either.

The above demonstrates that in fact the site does not fall within Flood Zone 3 and can be considered to be at risk of flooding only on events more extreme than a 1 in 200 flood with the probability that this would extend up to the 1 in 1000 flood event. In addition, it can be seen that none of the events for which the EA has supplied flood level data would have affected the site. It should be noted that based on data supplied by the EA there has been no historical flooding of the site.

3.7.2 Overview of Flood Risk

Based on the above it can be seen that the site is considered to be at low risk of flooding from fluvial and pluvial flooding as well as flooding from reservoir failure or from groundwater.

4 DEVELOPMENT PROPOSALS

4.1 PROPOSED DEVELOPMENT

The proposed development is to consist of a new building located on the northern side of Pontefract Road in Barnsley providing a high quality rehabilitation and care facility for the disabled together with associated car parking and landscaping works. The lowest floor level within the new building is to be set at 42.74m AOD. A plan showing the proposed development is included in Appendix B.

One of the aims of PPS 25 is to steer development away from zones of high flood risk towards Flood Zone 1. The development is classified as 'More Vulnerable' and is within Flood Zones 2 & 3 according to the current EA flood maps. However, as identified within section 3.7.1 a review of the existing flood modelling data supplied by the EA against the existing site levels, has established that the site is not within Flood Zone 3 and probably not within Flood Zone 2 and therefore the development will occur within Flood Zone 1 (i.e. at low risk of fluvial flooding) and therefore the PPS 25 Sequential Test is considered to have been passed.

4.2 DEVELOPMENT AND FLOOD RISK

4.2.1 Flood Risk to the Development

As described in Section 2, comparison of topographic survey levels with modelled flood levels from the EA has shown that the site is not within Flood Zone 3, and the probability of it flooding is in fact less than 1 in 1000 in any year. Flood risk to the existing site from fluvial sources can therefore be considered to be low. The current plans for the developed site show that the basement level is set at 42.74m AOD and therefore the lowest part of the developed site will therefore be some 3.75 m above the current predicted 1 in 200 flood levels from the River Dearne.

In addition, this difference between site level and flood level is considered to be more than adequate for the increase in water levels that would result from a 20% increase in peak flows due to climate change[1]. It should also be noted that the northern bank of the River Dearne is significantly lower than the southern. This means that as flood flows increase the tendency will be for the flood depth (and hence total flow area) to increase more significantly on the northern bank of the River Dearne than on the steeper-sided southern bank.

4.3 PROPOSED MITIGATION

4.3.1 Surface Water Management Strategy from the Proposed Development

The management of surface water runoff has been considered via a sequential approach in line with Building Regulations. The following options for the disposal of surface water runoff from the extension were considered, in order of preference[2].

[1] As recommended in Appendix A of PPG25.

[2] Building Regulations H3(3), Rainwater drainage

a. Soakaway or infiltration system

b. Watercourse

c. Sewer

Soakaway or infiltration system

At the time of writing this report no information was available as to the underlying ground conditions and therefore it is not possible to assess as to whether SUDs infiltration techniques can be utilised to discharge the surface water run off from the site. It is recommended that a full site investigation is undertaken including permeability testing to allow a detailed review into the feasibility of utilising SUDs infiltration techniques.

If SUDS techniques are proven to be feasible then the surface water drainage design should assess the options of utilising permeable paving and swales to discharge the surface water run off from the site.

Discharge to a Watercourse

As the River Dearne is located approximately 20 m to the north of the development site and at a lower level than the site then a gravity discharge direct to the River Dearne is possible. This will be subject to permission being granted by the land owner (Barnsley MBC) over which the sewer will pass.

The greenfield run off rate for which any new discharge to the River Dearne will be restricted to should be based on a green field run off rate of 5 l/s/ha. However, based on a total impermeable site area of 0.13 ha, this would only allow a peak discharge of 0.65 l/s. Normally the peak run off rate is controlled by a flow control device such as a hydro brake or orifice plate and the lowest flow rate that can be practically provided is 5 l/s and therefore it is proposed that this minimum rate is utilised in assess the amount of on site storage/attenuation required.

Assessment of On Site Attenuation Required

Based on the above maximum discharge rate of 5 l/s a preliminary assessment has been undertaken to identify the amount of on site attenuation required for both the 1 in 30 year storm event and storm events in exceedance of this up to the 1 in 100 year storm event.

The results of this preliminary analysis show that for the 1 in 30 year storm event approximately 41m^3 of storage will be required. This storage being provided by utilising either an underground storage tank or a cellular storage system.

It will also be necessary to store the flows in exceedance of the 1 in 30 standard up to the 1 in 100 year plus climate change event. Traditionally these volumes are retained on site by allowing adequate surface storage, but if due to the proposed levels, then this is not possible then the additional volume of 30 m^3 required it is proposed that this volume is provided within the on site drainage storage system and pipe work.

It should be noted that the above volumes are estimates only and the final design volumes will be confirmed through the detailed design process.

Copies of the preliminary storage calculations demonstrating the above are contained within Appendix F.

Discharge to a Sewer

In the event that it is not possible to utilise SUDS techniques or discharge to the River Dearne it will be necessary to discharge to the existing YW public sewer system.

YW in their response have stated that a discharge can be made to the existing 300mm diameter public sewer located to the north west of the site and that a maximum discharge rate of 9 l/s can be made to the sewer. However, to make this connection it will be necessary to cross Barnsley MBC land and if this has not been allowed, as in the connection to the River Dearne, then it would be assumed that they would not allow this connection to be made also.

To overcome this situation then a sewer requisition under Section 98 of the Water Industry Act could be made to Yorkshire Water to overcome the problem. However, this would be a lengthy and expensive option.

Should further investigations identify that the existing car park and restaurant site discharge to the existing public sewers, then Yorkshire Water may allow these connections to be retained, but with a reduced discharge rate than existing.

A preliminary assessment of the existing run off to the existing public sewers is as follow:

Northern Site
Existing Impermeable area = 880m2
Allowable run off per ha = 140 l/s
Existing run off = 0.088 x 140 = 12.3 l/s
Applying 30% brownfield reduction, maximum discharge rate = 8.6l/s

Based on the above it is assumed that the site will be connected via a new surface water drainage system before discharging into the Yorkshire Water sewer and hence a peak run off rate of 8.6 l/s could be adopted. This will result in a reduced requirement for on site attenuation and preliminary calculations indicate that the 1 in 30 year storm event will require 26m^3 for the flows in exceedance of this up to the 1 in 100 year storm event a further 28m^3 will be required.

It should be noted that utilising any existing connections to the Yorkshire Water public sewer system will only be considered by Yorkshire Water once all the other options have been reviewed and found not feasible and it has been demonstrated by an on site sewer survey that the existing sites discharge to the public sewer system. The discharge rates stated above are only typical rates and will also be subject to agreement with Yorkshire Water.

4.3.2 Existing 300 mm Yorkshire Water Sewer

It is understood that based on information provided by the Client's Drainage designers that the existing 300mm diameter combined sewer which crosses the site is to be diverted locally along the

western boundary in order to provide the minimum easement from the building to the sewer. The surface water run off from the northern site is to be discharged into this sewer utilising on site storage pipes with the outflow restricted to 5 l/s.

A copy of the proposed drainage layout is contained within Appendix F

4.3.3 Residual flood risk

If the above mitigation measures are provided as part of the development, it is considered that the primary residual failure would be as a result of some type of failure of the site drainage system during the life of the development. Regular, ongoing maintenance will be required by the final site owner to ensure that the capacity of the system is maintained as it has been designed.

In addition, as discussed above there remains a residual risk of a storm event that exceeds the capacity of the drainage system, as events beyond the 1 in 100 year storm event will not be catered for explicitly.

5 CONCLUSIONS AND RECOMMENDATIONS

The FRA has identified the following:

- The EA's flood mapping shows that the proposed development site at Pontefract Road is located partially within Flood Zone 3. However, comparison of topographic data and modelled flood levels indicates that in fact the site is above the 1 in 200 modelled flood level and due to the development site being 3.75m above the 1 in 200 year level it would probably be above the 1 in 1000 year flood level i.e. within Flood Zone 1.
- Based on information obtained from the Environment Agency or Barnsley MBC that the development site has not experienced any historical flooding.
- The site is believed to drain to the existing adjacent Yorkshire Water sewer.
- The site is currently designated as a brownfield site.
- Yorkshire Water have accepted that should SUDS infiltration techniques or a direct connection to the River Dearne not be feasible, then a maximum flow of 9 l/s can be made to the existing public surface water sewer located within the north western corner of the adjacent site.
- That the surface water run off from the site should be either restricted to 5 l/s if flows are discharged direct to the River Dearne or 9 l/s if connected to the existing Yorkshire Water surface water sewer.
- The existing 300 mm diameter Yorkshire Water combined sewer that crosses the site is to be diverted.
- Based on the reassessment of the flood levels and flood risks from other sources that the site is considered to be at low risk of flooding.

On the basis of the above and the other issues set out in the FRA, the following recommendations are made:

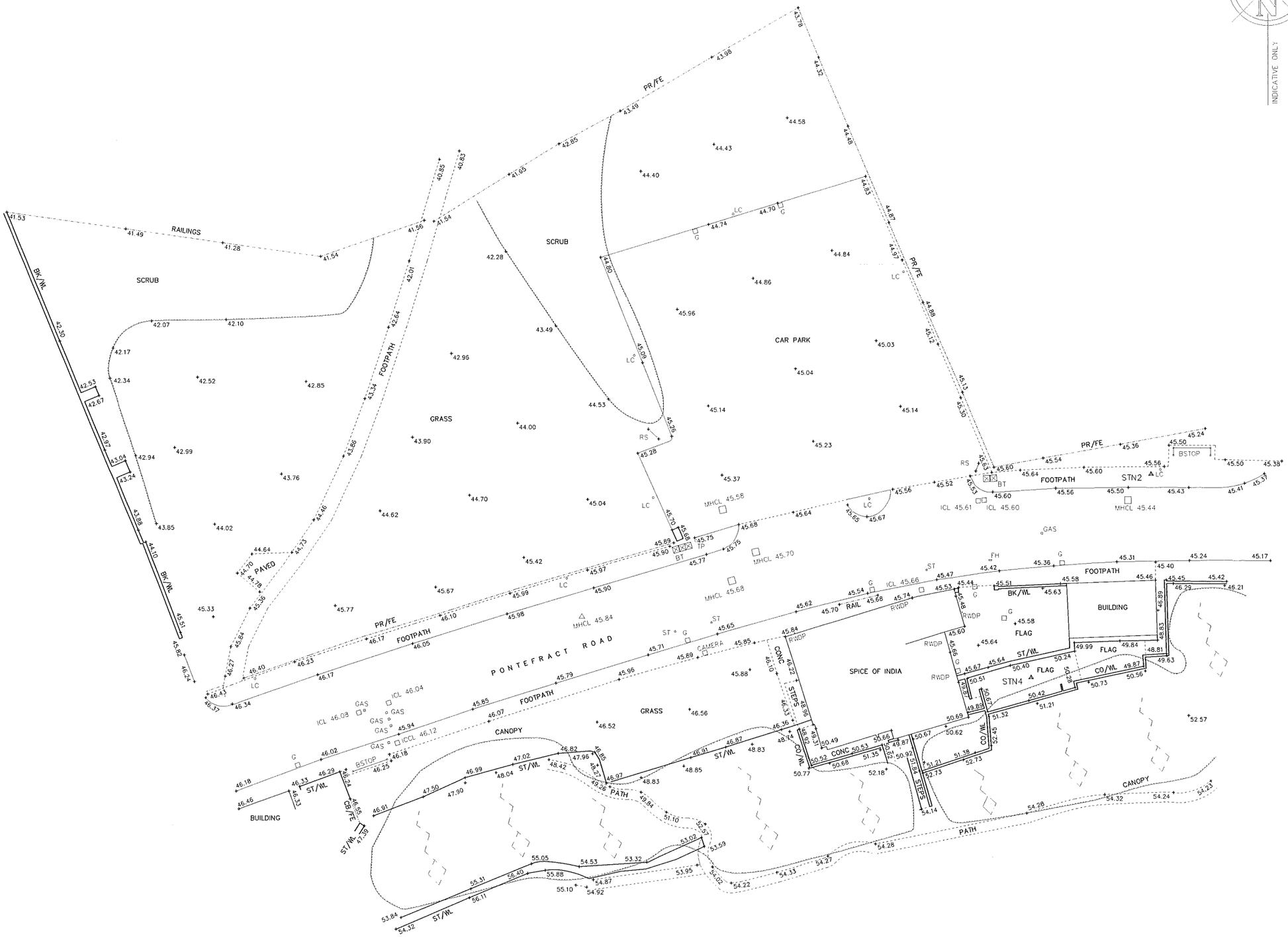
- There is no need for any further mitigation measures to be provided to reduce the flood risk to the site.
- Site investigation should be undertaken to establish if SUDS infiltration techniques can be utilised.
- Should SUDS techniques not prove feasible then a review should be undertaken to assess the options of discharging the surface water direct to the River Dearne or if this not feasible connection to the existing Yorkshire Water surface water sewer located to the north west of the site.
- If the above options are not feasible further, then investigations are undertaken to prove that the existing sites discharge to the Yorkshire Water combined sewers and that these connections are utilised to drain the proposed development.
- Where the new connections are to discharge to Yorkshire Water sewers then further negotiations are undertaken with Yorkshire Water to finalise the design.
- A detailed design should be undertaken to define the amount of on site attenuation required for the final discharge option.

PPS25 PRACTICE GUIDE PRO-FORMA

The table below provides an easy cross-reference between the PPS25 Practice Guide Pro-form (ref. Appendix C of PPS25 Practice Guide) and this WYG Flood Risk Assessment.

PPS25 Practice Guide section		WYG Report ref.	
1	**Description and location**	**Para.**	**Page**
1a	Development description and location?	1.1/1.2	1
1b	EA vulnerability classification?	1.3	1
1c	Consistency with Local Development Documents?	N/A	N/A
1d	Evidence that the sequential test or exception test (PPS25) has been applied in the selection of this site for this development type.	4.1	12
2	**Definition of the flood hazard**		
2a	What are the sources of flooding that could affect the site?	3.0	6-11
2b	Description of flood mechanics for all sources and any historical flooding.	3.0	6-11
2c	Existing surface water drainage arrangements for the site?	2.2.3	5
3	**Probability**		
3a	EA Flood Zone classification?	3.1.1.	6
3b	Reference to any Strategic Flood Risk Assessment covering this site?	3.1.3.	8
3c	Probability of the site flooding taking account of the contents of the SFRA and of any further site-specific assessment?	3.7	10
3d	Existing rates and volumes of run-off generated by the site?	4.3.1.	12-14
4	**Climate change**		
4a	Influence of climatic change on the site?	4.2.3/ 4.3.1	12/14
5	**Detailed development proposals**		
5a	Details of the development layout, referring to the relevant drawings.	4.1	12
5b	Where appropriate, demonstrate how land-uses most sensitive to flood damage have been placed in areas within the site that are at least risk of flooding.	N/A	N/A
6	**Flood risk management measures**		
6a	How will the site be protected from flooding, including the potential impacts of climate change, over the development's lifetime?	4.2.3	14

PPS25 Practice Guide section		WYG Report ref.	
7	**Off site impacts**		
7a	How will you ensure that the measures to protect your site from flooding will not increase flood risk elsewhere?	4.2.3/ 4.3.1	13-15
7b	How will you prevent run-off from the completed development causing an impact elsewhere?	4.2.3/ 4.2.3	13-15
8	**Residual risks**		
8a	What flood-related risks will remain after you have implemented the measures to protect the site from flooding?	4.3.3	15
8b	How, and by whom, will these risks be managed over the lifetime of the development	Site Owner	15



KEY

- Kerblines
- Road edges Paths Foundations Bases etc.
- Buildings
- Walls
- Hedgerows
- Limits of Bushes Canopies Scrub
- Fence PM/FE Post & Mesh; CB/FE Close boarded; PW/FE Post & Wire; PR/FE Post & Rail; I/R Iron Railings
- Batters
- Overhead Powerlines
- Gate
- 52.47 Spot level
- Tree

BB	Belisha beacon	PP	Petrol pump
BOLL	Bollard	RE	Reading eye
BIN	Litter bin	RP	Reflector post
BSTP	Bus stop	RS	Road sign
BTEL	British Telecom IC	RWDP	Rain water pipe
CATV	Cable Television cover	SVP	Soil vent pipe
DRAIN	Drain	SP	Spring
DS	Direction Sign	STAP	Stop tap
ECAB	Electrical Cable Marker	SVAL	Stop valve
ELEC	Electrical IC	STAY	Cable stay
EP	Elec. pole	TCB	Telephone call box
FT	Floodlight	TLTS	Traffic light
FB	Flagpole	TPOL	Telegraph pole
FHYD	Hydrant	UTIL	Unable to Lift
G	Gully	VP	Vent pipe
GAS	Gas valve	WM	Water meter
IC	Inspection Cover	WO	Water outlet
KO	Kerb outlet		
LB	Letter box	BL 33.58	Bed level
LCOL	Lamp column	CL 32.56	Cover level
MIX	Utility marker	FL 36.52	Floor level
MY	Mercury Telecom IC	IL 36.59	Invert level
NP	Name plate	SL 37.54	Soffit level
PM	Parking meter	TL 36.45	Threshold level
POST	Post	WL 36.24	Water level

SURVEY CONTROL DETAILS

STN2	1051.560	1009.091	45.584
STN4	1039.378	988.500	50.347

REVISIONS

ALL LEVELS RELATED TO OSBM VALUE 84.53M LOCATED ON BRIDGE LAMBRA ROAD

SCALE = 1:200

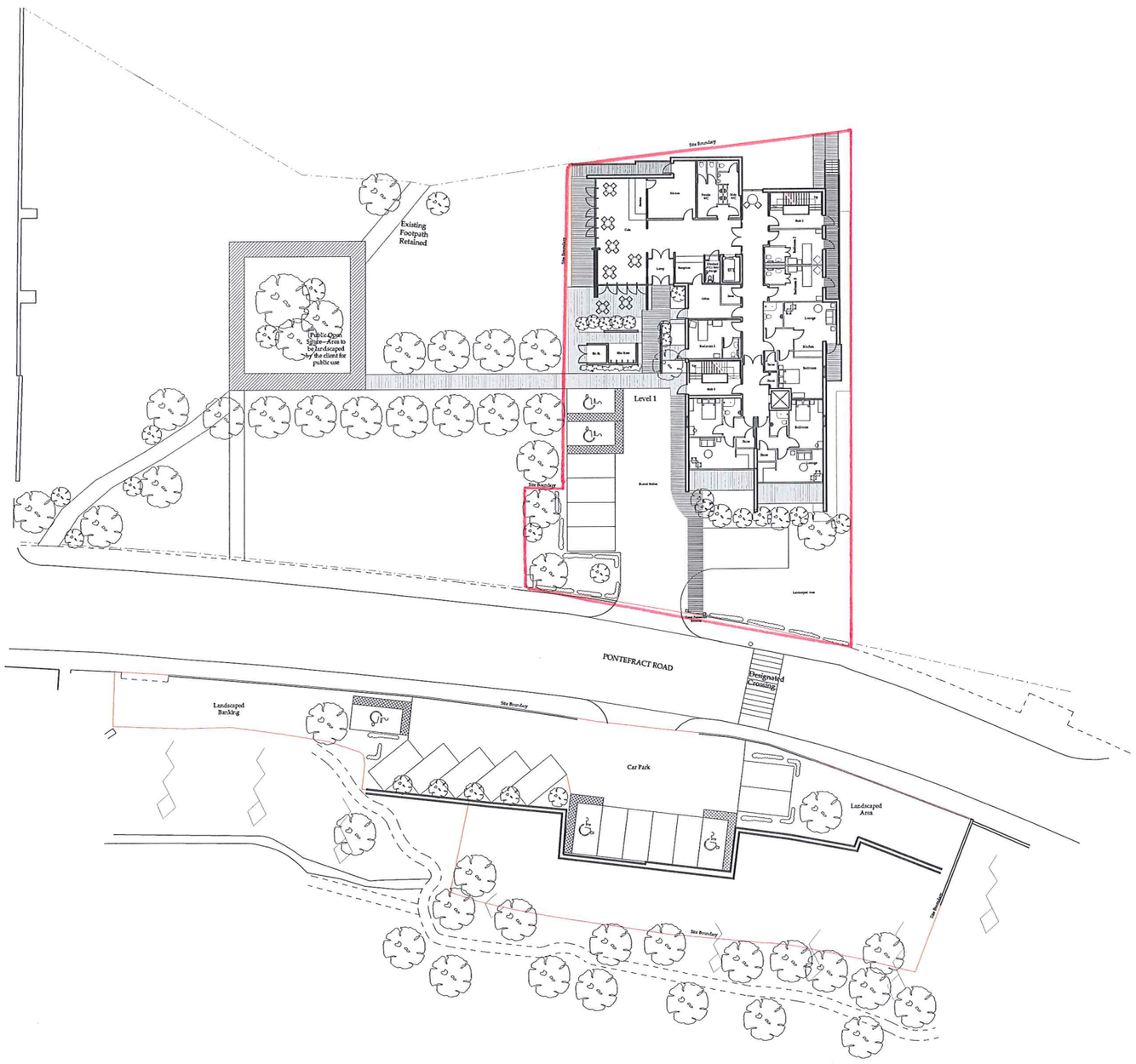
Survey Site Services
Consulting Engineers
Surveyors

Survey and Site Services LLP
26 Huddersfield Road
Barnsley
South Yorkshire
S75 1DL
Tel and Fax (01226) 289177

Surveyed for: SHELDALE DEVELOPMENTS

SPICE OF INDIA
PONTEFRACT ROAD
BARNSLEY
SITE SURVEY

Surveyed MJT	Processed MJT	Drawn MJT	Checked VHM
Drg.No. B179/S/2		Date 03/01/06	



Revision	Description	Date
A	Amendments to plan, car parking, general layout, building dimensions and facilities	Dec 2011

Do not scale from this drawing.
Any errors, omissions and discrepancies to be reported to the Architects as soon as they are discovered and instruction sought before proceeding.

Drawing Status:	Planning

ALSTON MURPHY ASSOCIATES
architects
planning supervisors
57 Grainger Street
Newcastle upon Tyne
NE1 5JE
Tel: 0191 230 2930
Fax: 0191 221 0459
mail@alstonmurphy.com

Proposed Care Home
Barnsley

Site Plan
as Proposed

Scale: 1:500 @ A3 Date: Oct 10

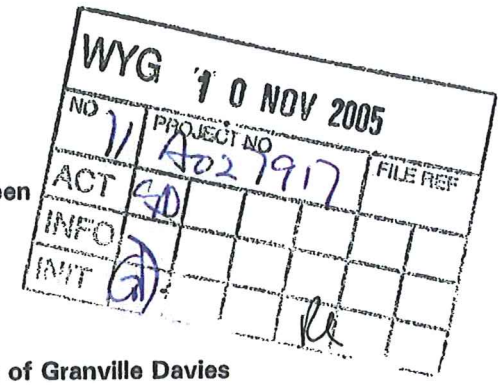
Drawn: TM/OC Auth:

1457 L[9] 01

Appendix C
Correspondence
C1 – Yorkshire Water
C2 – Environment Agency
C3 – Barnsley MBC

C1 – Yorkshire Water

YorkshireWater



Yorkshire Water
Waste Water - Sewerage
New Development Team
Knostrop WWTW
Knowsthorpe Lane
LEEDS
LS9 0PJ

Tel: (0113) 235 4148
Fax: (01274) 372 834

Email:
Planning.Sewerage@yorkshirewater.co.uk

White Young Green
Arndale Court
Headingley
LEEDS
LS6 2UJ

For the attention of Granville Davies

Your Ref: A027917 Pontefract Road, Barnsley
Our Ref: F008797 /sew/ndt/peh

For telephone enquiries ring:

Philip Hoffmann on (0113) 235 4148

8th November 2005

Dear Sir,

Land at Pontefract Road, Hoyle Mill, Barnsley - Pre-Planning Sewerage Enquiry - Residential Development

Thank you for your enquiry of 31st October 2005. Our charge of £60.00 (plus VAT) will be added to your account with us, reference WYG 074. You will receive an invoice for your account in due course.

Please find enclosed a complimentary extract from the Statutory Sewer Map. This indicates the recorded position of the public sewers. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site:

There are 225mm & 300mm diameter public combined sewers recorded crossing the site. No buildings are to be erected within 3 (three) metres, nor trees planted within 5 (five) metres of these public sewers. It may not be acceptable to raise or lower ground levels over the sewers, nor to restrict access to the manholes on the sewers. If you wish to have these sewers diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0114 251 8321.

The site should be developed with separate systems for foul and surface water drainage both on and off site.

Foul water may discharge to the 300mm diameter public combined water sewer recorded within the site.

The local Waste Water Treatment Works (WWTW) is Lundwood. It is understood that this WWTW may only have limited spare capacity, if any, available. You are strongly advised, therefore, to seek comments from Yorkshire Water's Land and Planning Team - telephone Ms.Stephanie Walden on 01274 692349 - in respect of this matter.

The developer's attention is drawn to Requirement H3 of the Building Regulations 2000. 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.

Sustainable Drainage Systems (SUDS), for example the use of soakaways and/or permeable

hardstanding etc., may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SUDS in this instance from the appropriate authorities.

Where appropriate, soakaways, swales and infiltration trenches (SUDS) may be adopted as part of the public sewer network. For general conditions for the adoption of SUDS please see the attached sheet. Further information may be seen in the DEFRA publication 'Interim Code of Practice for Sustainable Drainage Systems' (ISBN 0-86017-904-4). If the developer is considering adoption of SUDS please contact the New Development Team on 0114 251 8321.

The local public sewers do not have capacity to accept an unrestricted surface water discharge from this development. In the first instance, therefore, I would advise you to contact the Environment Agency/local Land Drainage Authority with a view to establishing a suitable watercourse (if any nearby) for discharge. It is noted that a watercourse, River Dearne, is located 20 metres to the north of the site.

Surface water may discharge to the 300mm diameter public surface water sewer recorded in land to the north-west, at a point approximately 15 metres from the site. However, to prevent overloading of the existing public sewers, a storage tank - or some other means of flow attenuation - will be required to control the rate of discharge of surface water. The surface water discharge from the site to be restricted to not greater than 9 (nine) litres/second.

An off-site surface water sewer may be required which may be provided by the developer and considered for adoption under Section 104 of the Water Industry Act 1991. Please telephone 0114 251 8321 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0114 251 8321.

Prospectively adoptable sewers must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 5th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact the New Development Team (telephone 0114 251 8321, Fax 0114 251 8384) for further information.

I would advise you to contact the Environment Agency for details of any flood levels affecting the site.

The public sewer network is for domestic sewage purposes. This generally means foul water for domestic purposes and, where a suitable surface water or combined sewer is available, surface water from the roofs of buildings together with surface water from paved areas of land appurtenant to those buildings. Land and highway drainage have no right of connection to the public sewer network. Land drainage will not be allowed into a public sewer. Highway drainage, however, may be accepted under certain circumstances; for instance, if SUDS are not a viable option and there is no highway drain available and if capacity is available within the public sewer network. In this event, the developer will be required to enter into a formal agreement with Yorkshire Water Services under Section 115 Water Industry Act 1991 to discharge non-domestic flows into the public sewer network.

Any new connection to an existing public sewer will require the approval of Yorkshire Water. You may obtain an application form by telephoning 0114 251 8321.

There are no properties in the vicinity of the site on the Flooding Register (DG5). There have been operational events (blockages and collapses) on the small diameter public sewer serving nos. 154 & 156 Pontefract Road.

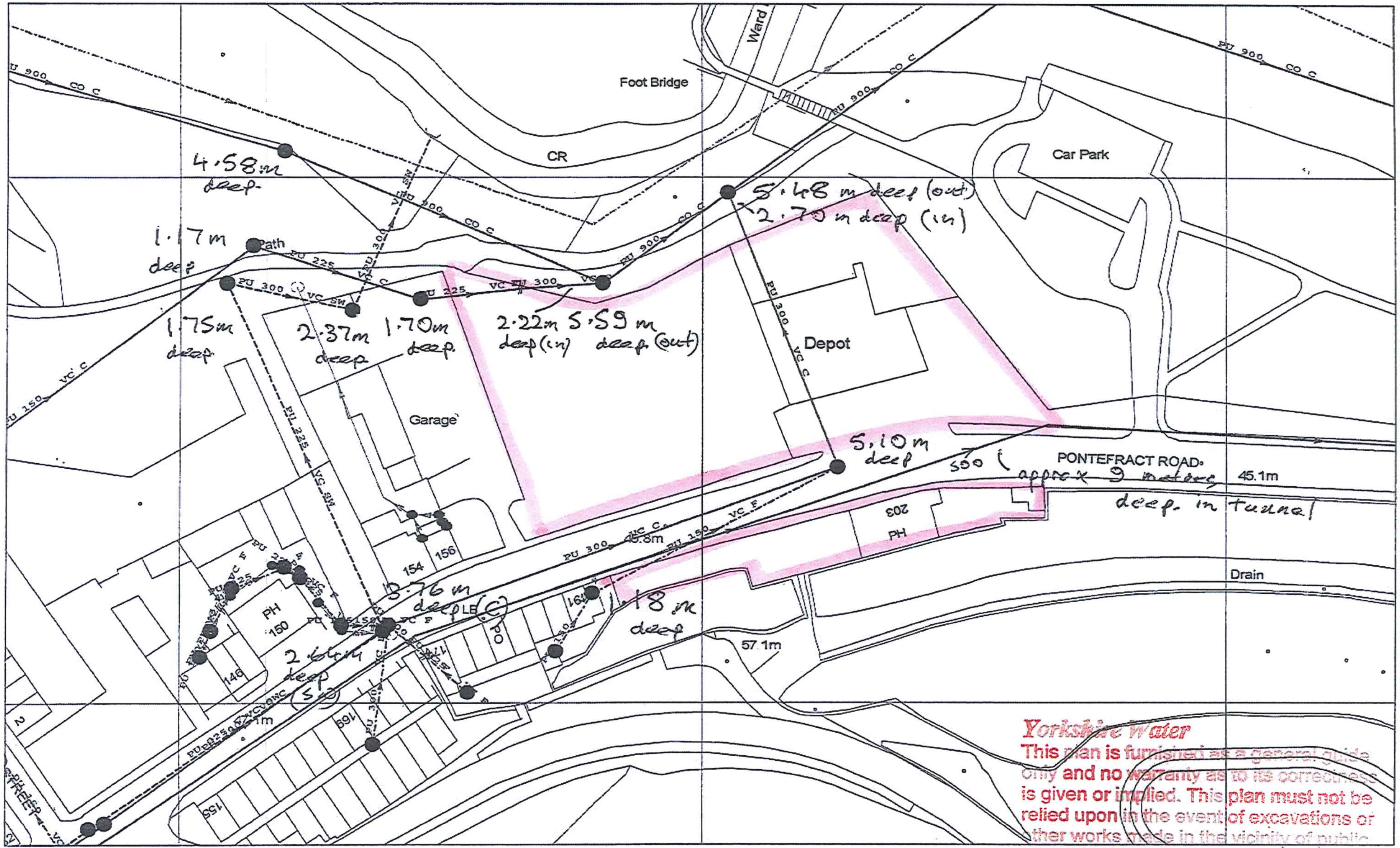
The above comments are based upon the information and records available at the present time. The information contained in this letter together with that shown on any extract from the

Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not generally reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours faithfully,

P.E. Hoffman

New Development Team



Date Requested 08/11/2005, 09:22:0
Date Generated . 08/11/2005, 09:22:30
Source :

UPN: PL/PL_LOCAL/020642
Originator: P Hoffman, New Development

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Yorkshire Water
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.
Extract from Statutory Sewer Map
Location: Pontefract Road, Barnsley
Scale: ~~1/500~~ 1/1000 ~~1/1250~~ ~~1/2500~~
YWS Ref: F008797 / PEH
Sheet: 1 of 1

YorkshireWater

General Conditions in relation to the adoption of Sustainable Drainage Systems (SUDS)

1. There should be no potential to cause pollution and a discharge consent from the EA should not be required – see Sections 4.1.2 and 4.1.3 of the SUDS Interim Code of Practice for further detail. (Yorkshire Water cannot readily control what is discharged into sewers and the risk of pollution to watercourses and groundwater must be avoided.)
2. Health and safety file must be provided to quantify and mitigate any associated risks
3. Yorkshire Water will not adopt SUDS features that are situated in private land. They should be sited in public open space; common shared areas held for general communal purposes or public highway and have unrestricted access. Access to these features is required on a 24 hour basis to ensure entry for routine maintenance and in the event of emergencies.
4. Drainage must be from roofs & yards with a proper outfall and should not have land drainage or groundwater inflow. This will enable adoption as part of the public sewerage system.
5. Any discharges into watercourses or other SUDS features must have the benefit of a right to discharge in perpetuity as Yorkshire Water have no statutory powers in respect of such discharges.
6. Ground conditions must be suitable to allow free drainage from the particular SUDS feature all year round (by having regard to groundwater levels).
7. Required technical considerations:

   (i) Clearly defined channel, conduit or structure for flows
   (ii) Extent of controlled storage of the particular SUDS feature to be defined
   (iii) Must meet relevant design guidance found in current versions of 'Sewers for Adoption or CIRIA documentation
   (iv) Sphere of influence not within 5m of the building
   (v) No tree planting within 5m of feature as this would prevent access for maintenance (approved shallow rooted shrubs may be permitted).
   (vi) Designed flood route as per 'Sewers for Adoption'
   (vii) No outlet to combined sewers or foul sewers
   (viii) Design for 1:30 year flooding if Yorkshire Water is to adopts
   (ix) The SUDS feature must incorporate an adoptable bypass pipe that can be used in the event that the SUDS feature fails and is designed to comply with the requirements of items (vi) and (viii) above.

   Experience with 'Sewers for Adoption' has shown that compliance with the criteria detailed above provides a robust and cost effective solution to draining new developments whilst offering a high level of protection to occupiers of premises that are served by these SUDS features.

In addition to the above general conditions the following specific conditions apply in relation to SUDS features that may be adopted/operated by Yorkshire Water

Swales

- If a swale meets the general requirements detailed above then it could enable adoption by Yorkshire Water. However, swales would normally be expected to be owned and operated by either:

    - Local authority for public open space
    - Highway authority for public highway and verges
    - Private landowners and/or management companies (through maintenance agreements with owners) in respect of private land

Soakaways

- Must be constructed at least 5m from the curtilage of private land to ensure free drainage and no building over
- Properly engineered structure constructed to an agreed design having –
    - A defined chamber or structure
    - Outlet to underground strata
    - Drainage from more than one property
    - An outfall to S.W. sewer/highway drain/watercourse

Infiltration Trenches

- If a infiltration trenches meet the general requirements detailed above then it could enable adoption by Yorkshire Water. However, infiltration trenches would normally be expected to be owned and operated by either:

    - Local authority for public open space
    - Highway authority for public highway and verges
    - Private landowners and/or management companies (through maintenance agreements with owners) in respect of private land

Filter drains

- As infiltration trenches

Pipes - Covered in 'Sewers for Adoption'

YorkshireWater

Supplementary Information: Adoption of Lateral Drains

With the implementation of the Water Act 2003 the Government's strategy on the ownership of new sewers is moving forward.

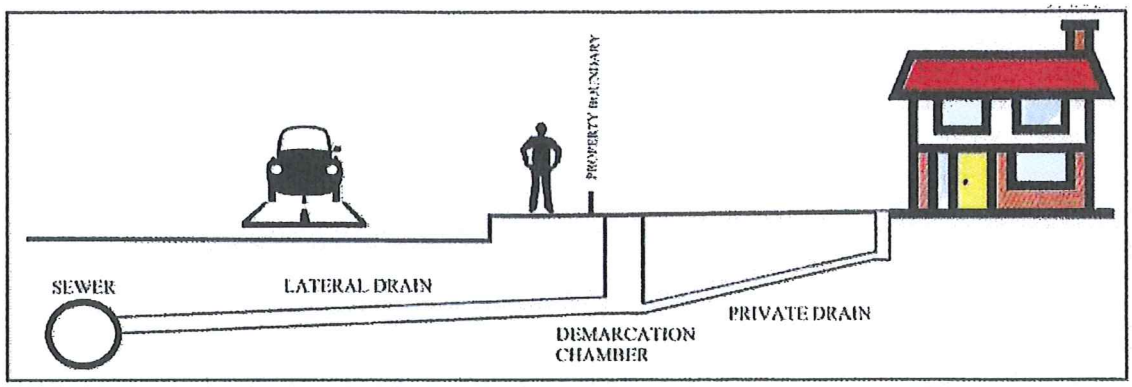
The intention is that all new sewers are to be built to adoptable standards. Further more, drains from the curtilage to the point of connection to the public sewer (to be known as Lateral Drains) can also be in public ownership.

Yorkshire Water's policy on these issues is in line with the Governments thinking and to facilitate this, the following protocol is required to be implemented.

All drains and sewers to be adopted are to be laid at the front of the curtilage, the termination of the lateral drain to be defined by a demarcation access point and to be constructed in accordance with documentation to be introduced in the autumn of 2004. As an interim solution demarcation chambers are to be constructed as per Yorkshire Water's guidelines for demarcation chambers.

All sewers to be adopted (and Yorkshire Water would look to have all sewers adopted) should be designed to either the WRc publication "Sewers for Adoption - a design and construction guide for developers" 5th Edition or if serving less than 9 properties on foul only systems to the protocol on design, construction and adoption of sewers in England and Wales produced by DEFRA. Please contact our Development Team - Technical (telephone 0114 251 8321, Fax 0114 251 8384) for further information.

Criteria for laying adoptable lateral drains/sewers in highway



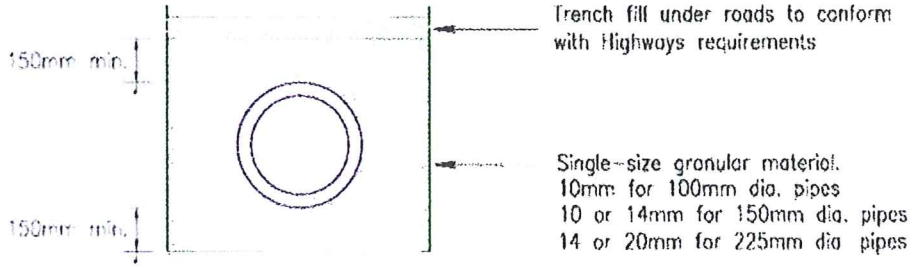
Pipes

The pipes detailed in the table below can be used when laying a lateral drain/sewer under public highway subject to acceptable minimum gradients, also detailed below.

Product Name	Diameter (mm)	Manufacturer	Material
SuperSleve	100 & 150 (I.D.)	Hepworth	Vitrified Clay
SuperSeal	150 & 225 (I.D.)	Hepworth	Vitrified Clay
Densleeve	100, 150 & 225 (I.D.)	Naylor	Vitrified Clay
Denseal	100, 150 & 225 (I.D.)	Naylor	Vitrified Clay
Ultra-Drain	110 & 160 (O.D.)	Uponor	uPVC (solid wall)
Plastidrain	110 & 160 (O.D.)	Hepworth	uPVC (solid wall)

Diameter (mm)	Gradient	
	Foul	S.W
100	1:40	1:100
150	1:80	1:150
225	1:125	1:225

Bedding (typical section)



Class S Bedding
To be used when pipe is more than 1200mm from highway surface
Concrete bed and surround required when less than 1200mm from highway surface

NOT TO SCALE

Demarcation Chamber

A chamber must be located just within the property boundary at the end of the public section of the lateral drain/sewer. The table below lists some acceptable chamber types.

Manufacturer	Product Name / Ref	Material	Maximum Depth	Cover Type
Naylor	Plastic Inspection Chamber	Polypropylene	Up to 1200mm	Class B125
Hepworth	PPIC	Polypropylene	Up to 1200mm	Class B125
Uponor	Inspection chamber (450mm ∅)	Polypropylene	Up to 1200mm	Class B125
Marshalls	Inspection chamber	Precast concrete	Up to 1000mm	To BS5911 pt2

C2 – Environment Agency

tom.beavis

From: Beech, Cheryl [Cheryl.Beech@environment-agency.gov.uk]
Sent: 17 August 2011 11:13
To: tom.beavis
Subject: Your Enquiry: RFI/2011/17995
Attachments: Standard Notice.pdf; Model Nodes Location Map.pdf; Don Model Results 2.pdf; Flood History.pdf; Don Model Results 1.pdf; VAT Receipt.pdf

Our Ref: RFI/2011/17995

Your Ref:

Dear Tom

RE: Land at Pontefract Road, Barnsley

Thank you for your request of 2 August 2011 regarding the above.

Flood History

To the best of our knowledge there is no known flood history for this site. However, in close proximity to this location we do have some flood history available (see enclosed map).

Pease refer to the following table detailing the causes of those past floods.

Name	Comments	Start Date	End Date	Source Of Boundary	Source Of Flooding	Cause Of Flooding
June 2007 Flood Event (Ridings Area)	Fluvial flooding River Dearne, River Dove, Small Bridge Dike	25/06/2007	26/06/2007	Aerial photography	Unknown	Unknown
March 1947	Extent digitised from large scale 1inch to 1mile map	19/03/1947	22/03/1947	Unknown	Main River	channel capacity exceeded (no raised defences)

Modelling - Flood Modelling - River Don

The River Don Catchment Flood Model was completed by Jeremy Benn Associates in May 2004. See attached the ISIS Hydraulic Model Summary Sheets (Model Results 1) showing modelled water levels and flows for 5 different annual probabilities and the results for the 0.5% annual probability (Model Results 2).

There are no results available for the Climate Change scenarios.

Please note that we have recently completed a new model of the Upper River Dearne but that it ends upstream of your location of interest.

There are no future planned defences in the vicinity of the site.

This information is provided subject to the enclosed notice, which you should read.

If you have any queries or would like to discuss the content of this letter further please do not hesitate to contact us on the number below.

Yours sincerely

Cheryl Beech
External Relations Team
Direct Dial 0113 2134732
Email neyorkshire@environment-agency.gov.uk

Days of work - Mon to Thurs

Environment Agency
Phoenix House
Global Avenue
Leeds LS11 8PG

Part of the Environment Agency's Yorkshire and North East Region

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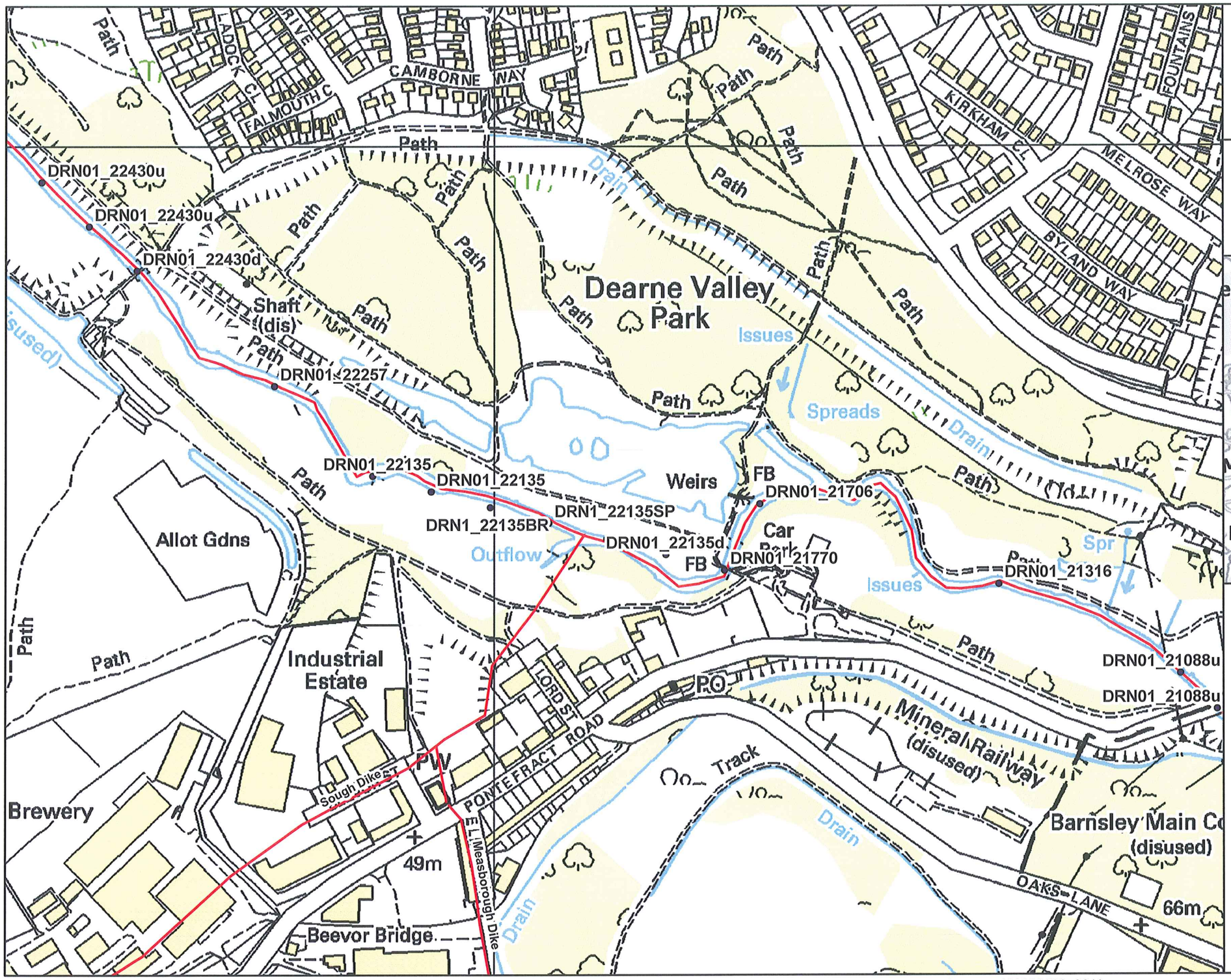
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River Don and tributaries 2004 Model
ISIS Hydraulic Model Levels

Annual Exceedence Probability 0.5% / 1 in 200 year return period

	AEP 0.5%
Model Nodes	**Water Level (mAOD)**
DRN01_22257	40.95
DRN01_22135	40.77
DRN01_21770	38.99
DRN01_21706	38.98

2004 Don Model Nodes for Pontefract Road, Barnsley - Date Created 16/08/2011 [Ref: 17995]



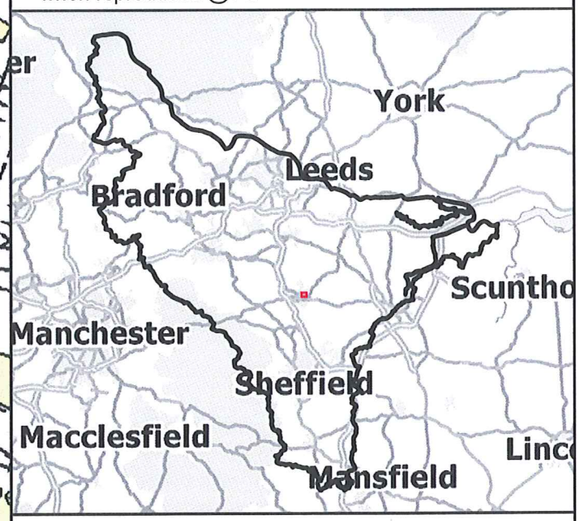
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LEGEND

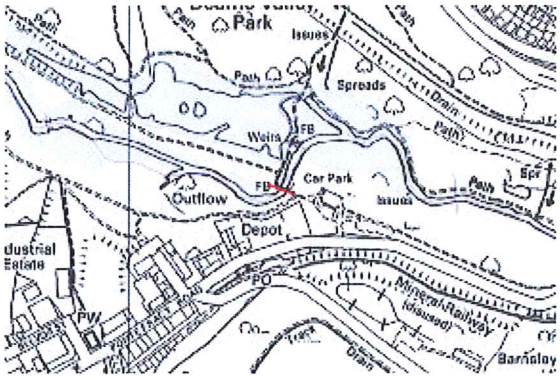
- All ISIS nodes custom point
- Main River

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

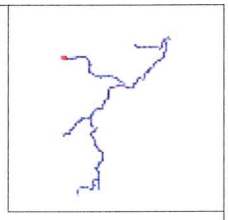
Environment Agency - North East Region
Re-working of the River Don Model
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: DRN

Reach: 01

Chainage: 21770

Section Type: SECTION

OS NGR: SE 36206 06617

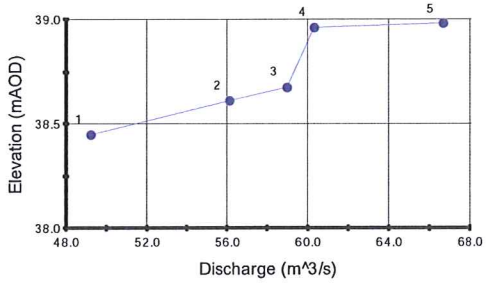
Survey Dwg Ref: N/A

Photograph Ref: DEAR_21770.JPG

Next
Section D/s: 21706
Section U/s: 22135



Rating Curve



Number represents model profile number

Summary of Results

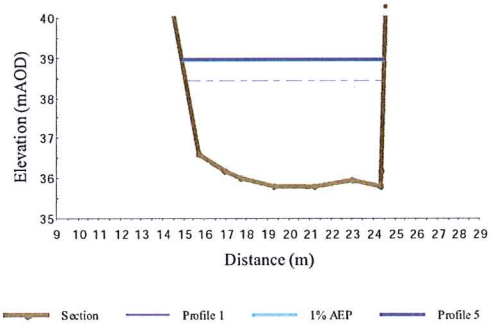
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2	2.00	56.1	38.613	2.39
3	1.33	58.9	38.676	2.45
4	1.00	60.3	38.960	2.46
5	0.67	66.6	38.981	2.47

Level of Left Bank 40.280 mAOD

Level of Right Bank 40.280 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



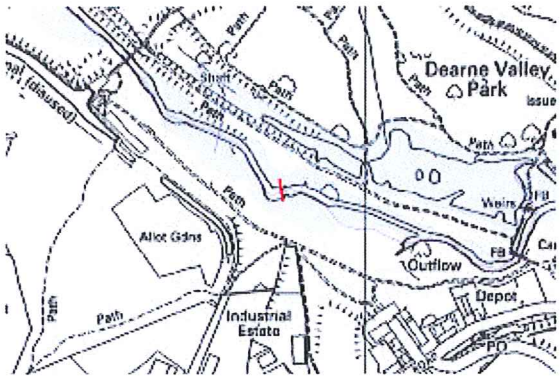
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Print Date: 21/05/2004

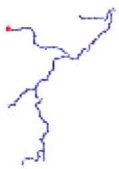
Environment Agency - North East Region
Re-working of the River Don Model
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: DRN

Reach: 01

Chainage: 22135

Section Type: BRIDGE, SECTION, SPILL

OS NGR: SE 35887 06707

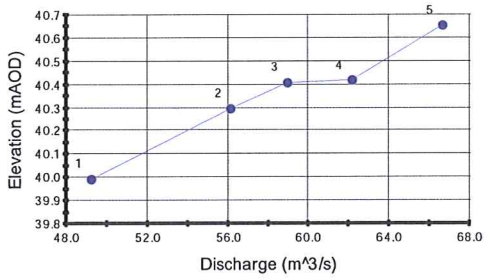
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Photograph Ref: DEAR_22135.JPG

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Section U/s: 22257



Rating Curve



Number represents model profile number

Summary of Results

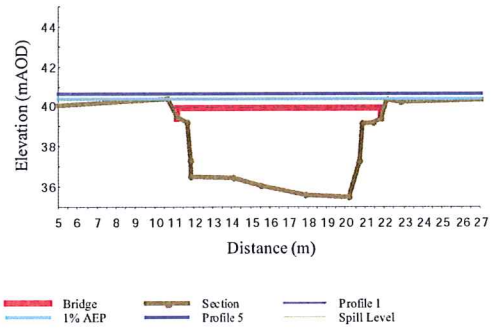
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	4.00	49.2	39.995	1.34
2	2.00	56.1	40.298	1.35
3	1.33	58.9	40.408	1.35
4	1.00	62.2	40.420	1.38
5	0.67	66.6	40.654	1.38

Level of Left Bank 40.420 mAOD

Level of Right Bank 40.370 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



DRN: 01: CROSS SECTION NUMBER 22135

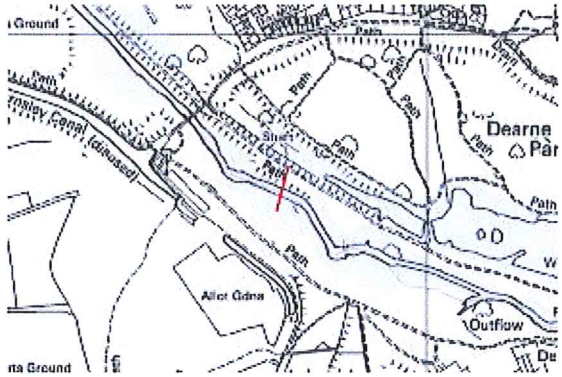
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Print Date: 21/05/2004

Environment Agency - North East Region
Re-working of the River Don Model
ISIS Hydraulic Model Summary Sheet

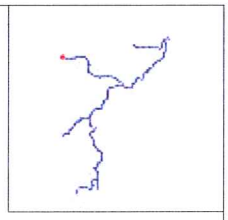
jba

Location Plan



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Cross Section References



River: DRN

Reach: 01

Chainage: 22257

Section Type: SECTION

OS NGR: SE 35804 06790

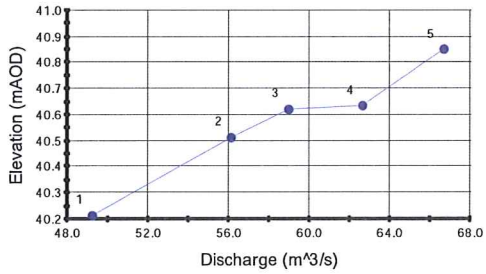
Survey Dwg Ref: N/A

Photograph Ref: DEAR_22257.JPG

Next
Section D/s: 22135
Section U/s: 22430U



Rating Curve



Number represents model profile number

Summary of Results

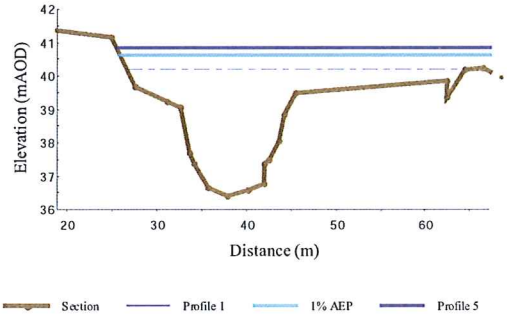
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	4.00	49.2	40.216	1.20
2	2.00	56.1	40.515	1.20
3	1.33	58.9	40.622	1.20
4	1.00	62.6	40.636	1.20
5	0.67	66.6	40.852	1.20

Level of Left Bank 41.160 mAOD

Level of Right Bank 39.368 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



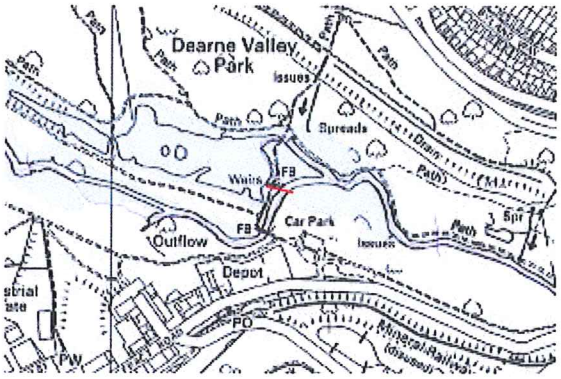
DRN: 01: CROSS SECTION NUMBER 22257

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Print Date: 21/05/2004

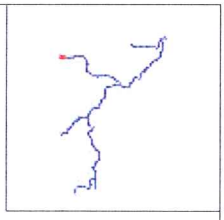
Environment Agency - North East Region
Re-working of the River Don Model
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: DRN

Reach: 01

Chainage: 21706

Section Type: SECTION

OS NGR: SE 36230 06675

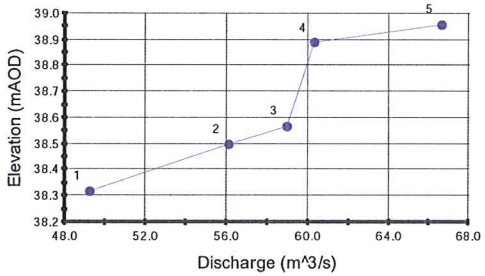
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Photograph Ref: DEAR_21706.JPG

Next
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Section U/s: 21770



Rating Curve



Number represents model profile number

Summary of Results

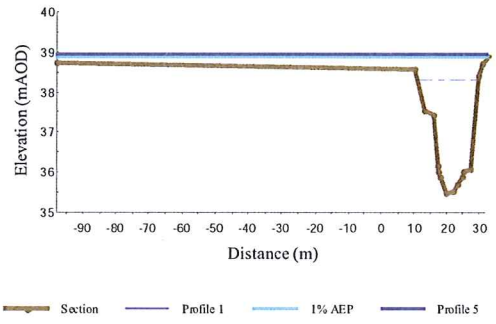
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
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2	2.00	56.1	38.500	1.53
3	1.33	58.9	38.569	1.54
4	1.00	60.3	38.889	1.55
5	0.67	66.6	38.956	1.55

Level of Left Bank 38.410 mAOD

Level of Right Bank 40.280 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile

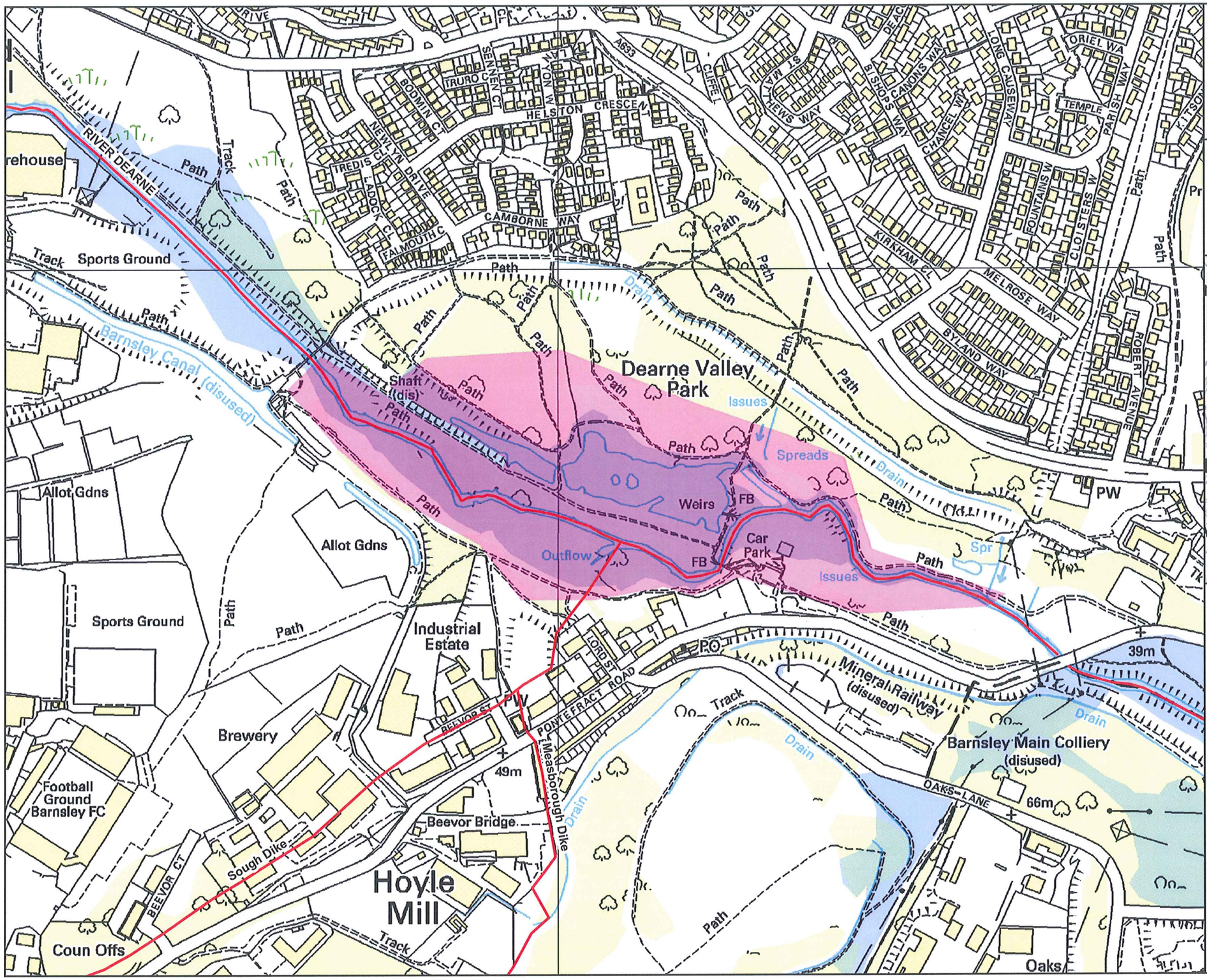


DRN: 01: CROSS SECTION NUMBER 21706

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Print Date: 21/05/2004

Flood History Map for Pontefract Road, Barnsley - dated 16/08/2011 [Ref: 17995]



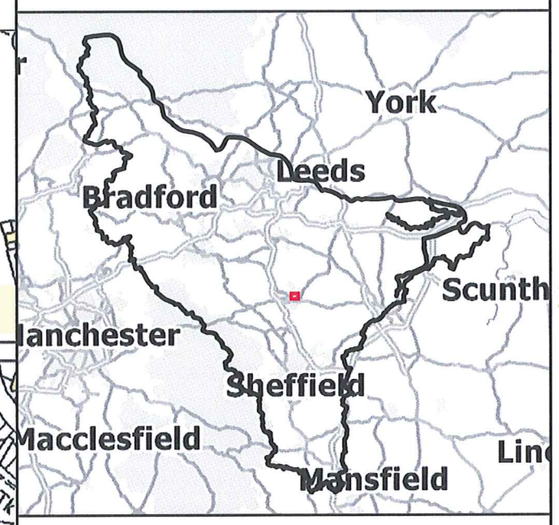
Environment Agency

www.environment-agency.gov.uk

Scale: 1:5,000

when reproduced @ A3

N W E S



Flood Extents

Legend

- Main River
- 2007 Flood Events Flood Extent
- River Don 1947 Flood Event Outline

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

C3 – Barnsley MBC

tom.beavis

From: Atkins , Wayne [WayneAtkins@barnsley.gov.uk]
Sent: 02 August 2011 16:24
To: tom.beavis
Subject: RE: Proposed Development at Pontefract Road, Barnsley - Flooding and drainage enquiry

Tom

I confirm that the information supplied in the previous letter is still correct and that I have no further information regarding the site.

Regards

Wayne Atkins
Senior Engineer - Drainage, Policy and Programming
Barnsley Metropolitan Borough Council
Highways and Engineering
Network Management
Westgate Plaza 1
PO Box 603
S70 9FA
Telephone: 01226 772182
Fax: 01226 772196
E-mail: wayneatkins@barnsley.gov.uk

From: tom.beavis [mailto:tom.beavis@wyg.com]
Sent: 02 August 2011 11:06
To: Atkins , Wayne
Subject: Proposed Development at Pontefract Road, Barnsley - Flooding and drainage enquiry

Wayne

WYG Engineering have been appointed to update a previous Flood Risk Assessment previously undertaken in 2005 and I have been given your name in respect of the above enquiry and would be grateful if you could assist me in the following:

Can you please provide me with a response to the following questions?

This site is at Grid Reference SE361065. A location plan for the site is attached. Please note that the site is split into two sections, either side of the Pontefract Road, as indicated on the location plan.

We would be grateful for the following information:

- Do you have any records of historic flooding at the site? We are aware that part of the site is shown as within the Environment Agency's Flood Zone 3 and are consulting them separately with regards to this.
- Are there either existing or proposed flood defences in the vicinity of the site, and if so what is their precise location and standard?
- Are you aware of any other flood risk constraints at this site, such as surface water flooding or flooding from minor watercourses that may not be recorded by the Environment Agency?
- It is possible that we will intend to discharge surface water from the brownfield site directly to the River Dearne. I would be grateful if you could indicate what the acceptable runoff rate would be.

Barnsley Council previously provided us with a response dated 14/11/2005 and I attach a copy of this letter. Can you confirm that the information previously supplied is still correct, if not can you please provide me with any new information you may have regarding the site.

As I am required to complete the revised FRA within the next two weeks I would be grateful of a prompt reply.

Thank you for your assistance in this. Should you have any queries, please call me on 0113 219 2292

Regards

Tom Beavis
Associate

WYG ENGINEERING LTD
Arndale Court, Headingley, Leeds, West Yorkshire, LS6 2UJ
Tel: +44 (0)113 2787111
Fax: +44 (0)113 2783487
Mob: +44(0)7798828450

www.wyg.com

WYG Engineering Ltd. Registered in England number: 1959704. Registered Office: Arndale Court, Otley Road, Headingley, Leeds, West Yorkshire LS6 2UJ VAT No: 431-0326-08

Winner British Expertise International Award 2011
Winner RoSPA Occupational Health and Safety Gold Medal Award 2011
Winner British Expertise Awards - Positive Environmental Impact Award 2010
Winner Institution of Civil Engineers Award 2010
Winner BREEAM (BRE Environmental Assessment Method) Award 2010
Winner Royal Institute of British Architects Award 2010

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BARNSLEY
Metropolitan Borough Council

Highways and Engineering
Assistant Director: A.J. Carnall, BSc., M.Eng., M.I.C.E., M.I.H.T.
Central Offices, Kendray Street, Barnsley. S70 2TN

My Ref. EMDRD/SK/PM/55/300 Your Ref.

Enquiries to: Mr. S. Kilner Dial Direct (01226) 772116 Fax (01226)772196

Date: 14th November, 2005

Dear Sir,

PROPOSED DEVELOPMENT, PONTEFRACT ROAD, BARNSLEY

I refer to your letter dated received on the 26th October, 2005, and subsequent facsimile dated 2nd November, 2005.

I would respond to the queries raised as follows:-

1. Historic Flooding - I am not aware of any historic flooding in the vicinity of this site, following regrading of the River Dearne by the Rivers Authority in the late 1980's.

2. Flood defences - As the River Dearne is a main river for the purposes of the Land Drainage Act, this query would need to be made to the Environment Agency as operating Authority.

3. Minor watercourse – My Council have no records of any minor watercourse in this area, nor are we aware of any other constraints with respect to flood risks.

4. Discharge to River Dearne – please refer to Environment Agency, for the reasons described under point 2. above.

Yours faithfully,

Drainage and Highways Engineer



For the attention of Mr. Granville Davies
White Young Green Consulting,
Arndale Court,
Headingley,
Leeds,
LS6 2UJ

Beacon Council
2003-2004
Street & Highway Works
Rethinking Construction

Appendix D
Barnsley SFRA Maps

North

1:126,172

LEGEND

- Barnsley MBC Boundary
- Main River

Historical Flood Extents

- June 2007
- Autumn 2000
- January 1982
- March 1947

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MAP 2

HISTORICAL FLOOD EVENTS

North

HUDDERSFIELD

RIVER DEARNE

Sough Dike

RIVER DOVE

RIVER DON

Knoll Beck

ROYSTON

HEMSWORTH

WORSBROUGH

HOYLAND

STOCKSBRIDGE

PENISTONE

ROTHERHAM

HOLMFIRTH

THURLSTONE MOORS

LANGSETT MOOR

HARDEN MOOR

MIDHOPE MOORS

HOWDEN MOORS

UPPER COMMONS

BROOMHEAD MOOR

BRADFIELD MOORS

BIRCHINLEE PASTURE

HOWLEE PASTURE

DERWENT MOORS

DALE MOOR

HOPE FOREST

PEAK

LEGEND 1:120,000

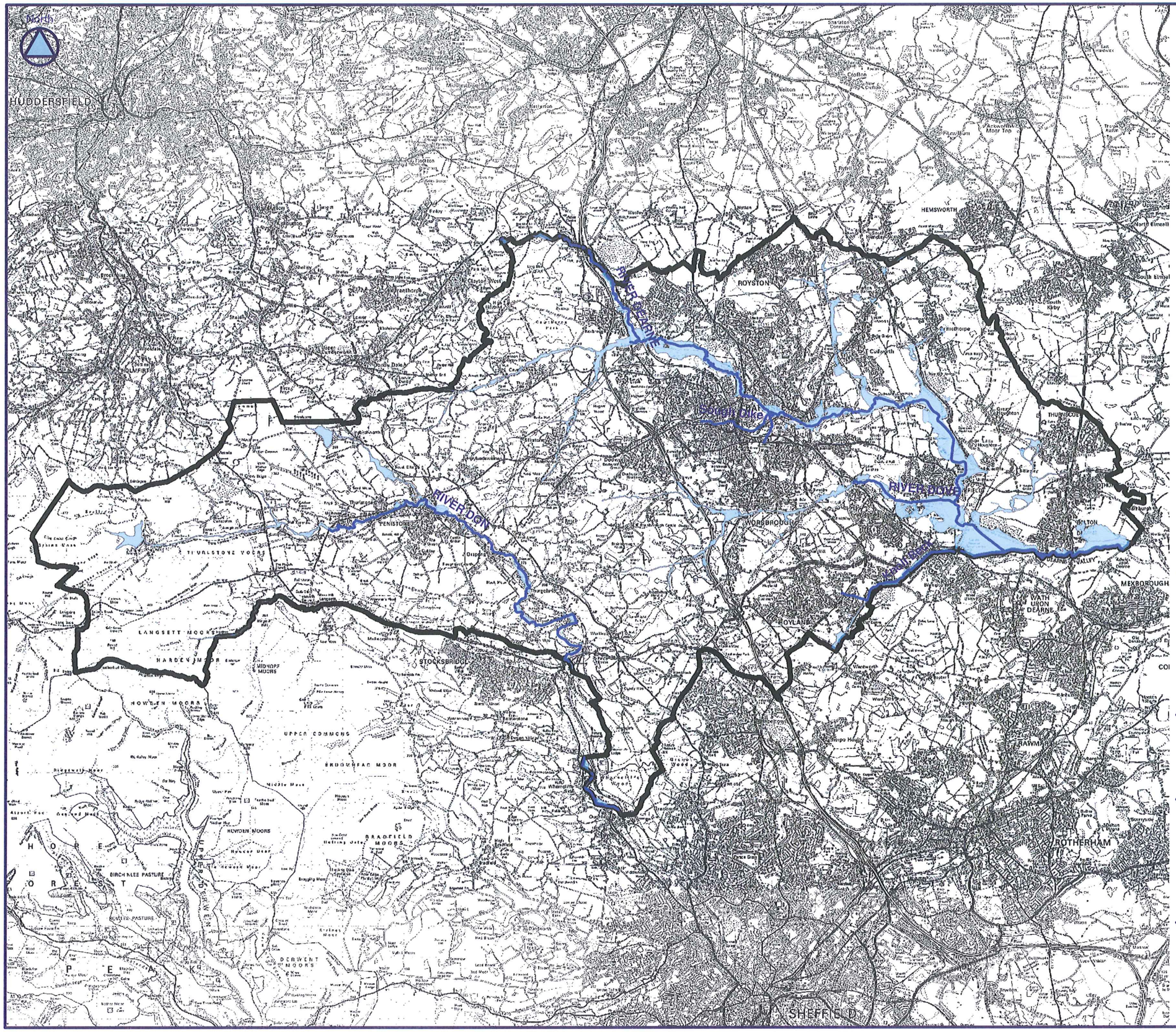
- Main River
- Flood Zone 3
- Barnsley MBC Boundary

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MAP 3

FLOOD ZONE 3



LEGEND 1:120,000

- Main River
- Flood Zone 2
- Barnsley MBC Boundary

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MAP 4

FLOOD ZONE 2

1:126,172

LEGEND

Barnsley MBC Boundary

Main River

Existing Flood Defences

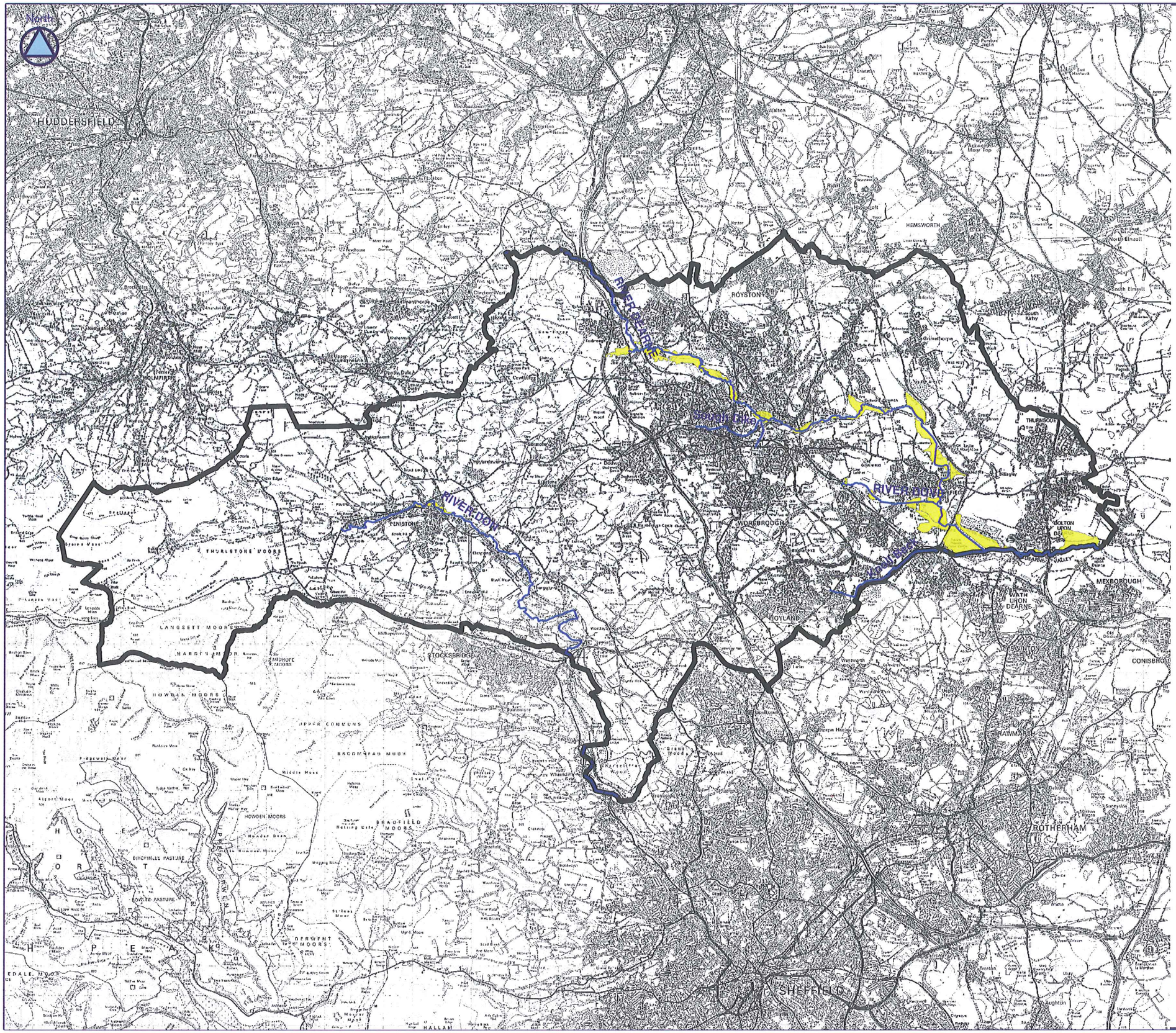
Flood Defence

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MAP 5

EXISTING DEFENCES



LEGEND 1:126,172

- Main River
- Barnsley MBC Boundary
- Functional Floodplain (FZ3b)

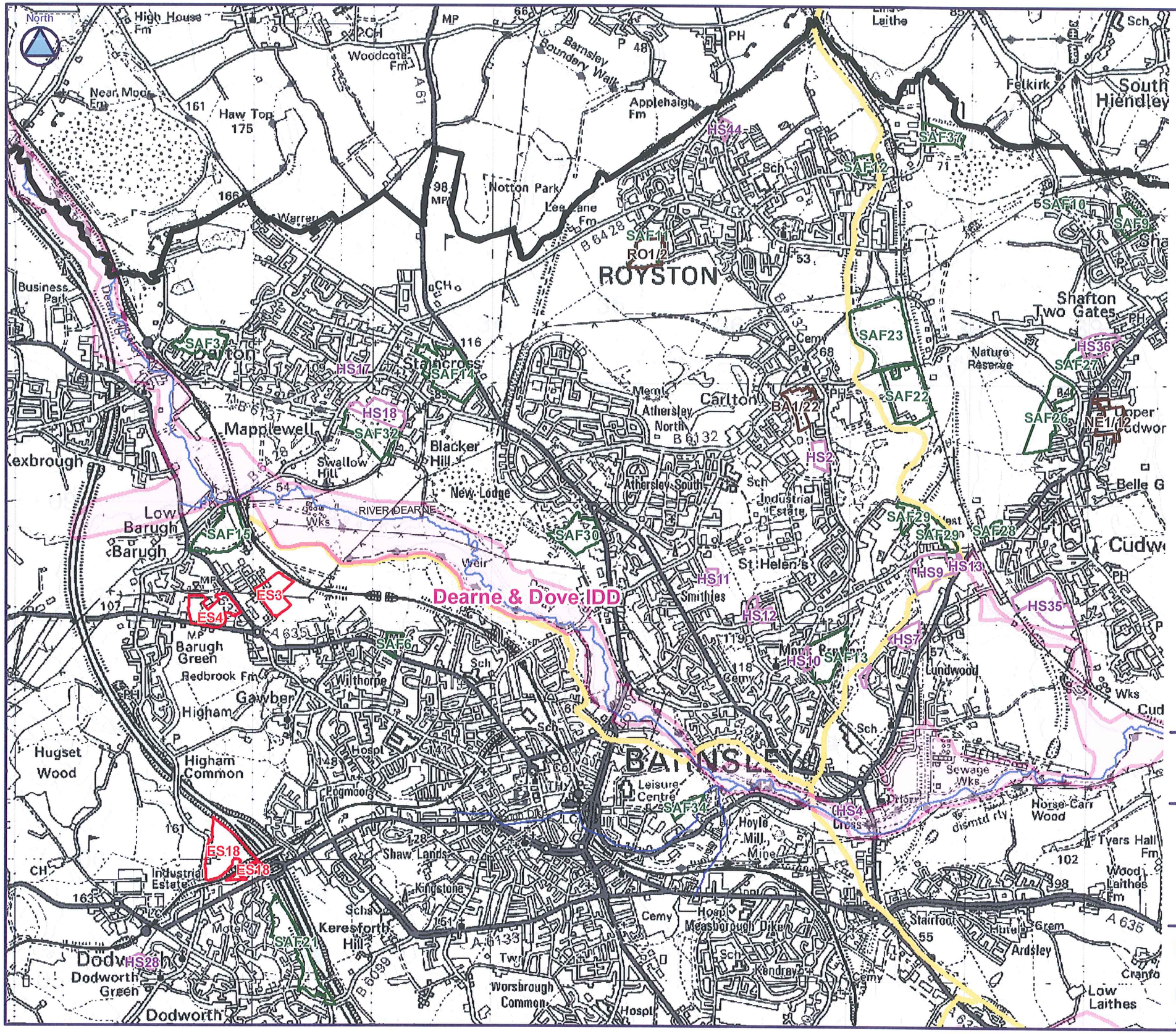
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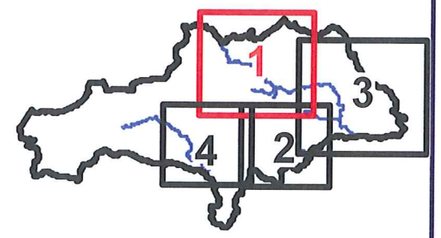


MAP 6

FUNCTIONAL FLOODPLAIN (FZ3b)



KEYPLAN



LEGEND

1:30,809

- Barnsley MBC Boundary
- IDB Boundaries
- Main River
- Possible route of restored canal

Proposed Development Sites

- Employment Sites
- Housing Sites
- UDP Sites
- Safeguarded Land

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MAP B - 1

PROPOSED DEVELOPMENT SITES AND IDB BOUNDARIES

North

ROYSTON

BARNSLEY

Dodworth

Darton

Staincross

Mapplewell

Carlton

Athersley North

Athersley South

Blacker Hill

New Lodge

Barugh

Barugh Green

Higham

Gawber

Wilthorpe

Redbrook Fm

Hugset Wood

Higham Common

Notton Park

Woodcote Fm

Near Moor Fm

Haw Top

Warren

Appleyard Fm

Barnsley Boundary Wall

Felkirk

South Hiendley

Shafton Two Gates

Nature Reserve

Upper Cudworth

Belle G

West Green

St Helen's

Smithies

Monk Bretton

Lundwood

Cudw

Sewage Wks

Horse Carr Wood

Tyers Hall Fm

Wood Laithes Fm

Ardsley

Low Laithes

Cranfo

Keresforth Hill

Worsbrough Common

Kingstone

Shaw Lands

Hoyle Mill

Measborough Dike

Kendray

Stanford

Leisure Centre

Pogmoor

Redbrook Fm

Swallow Hill

Exbrough

RIVER DEARNE

Business

Industrial Estate

Motel

Wks

Cemy

Hospl

Sch

Twr

Mill

Mine

dismtd rly

A 635

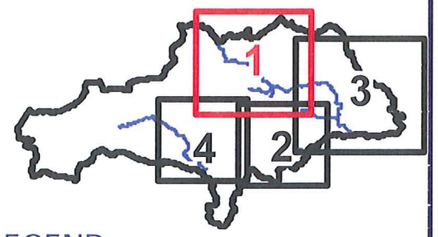
A 6133

B 6098

B 6132

B 6427

KEYPLAN



LEGEND

1:30,809

- Barnsley MBC Boundary
- Urban Areas
- Main River

Surface Water Flooding

Flood Depth (m)

- 0.15 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1 - 2
- > 2

Note:
Please see Section 5.8 of the SFRA for further details.

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MAP C - 1

PLUVIAL FLOODING CAUSED BY 100YEAR RAINSTORM

Appendix E
Site Photos



Photo 1 – Existing northern car park



Photo 2 – Existing building on southern site



Photo 3 – Northern boundary of main site adjacent to existing footpath

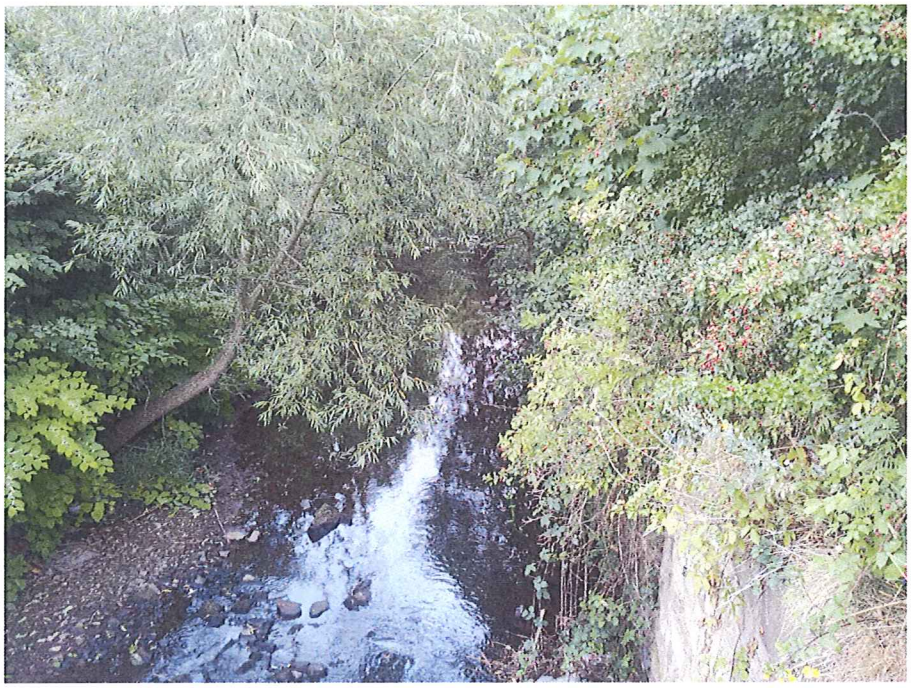


Photo 4 – River Dearne north off development site

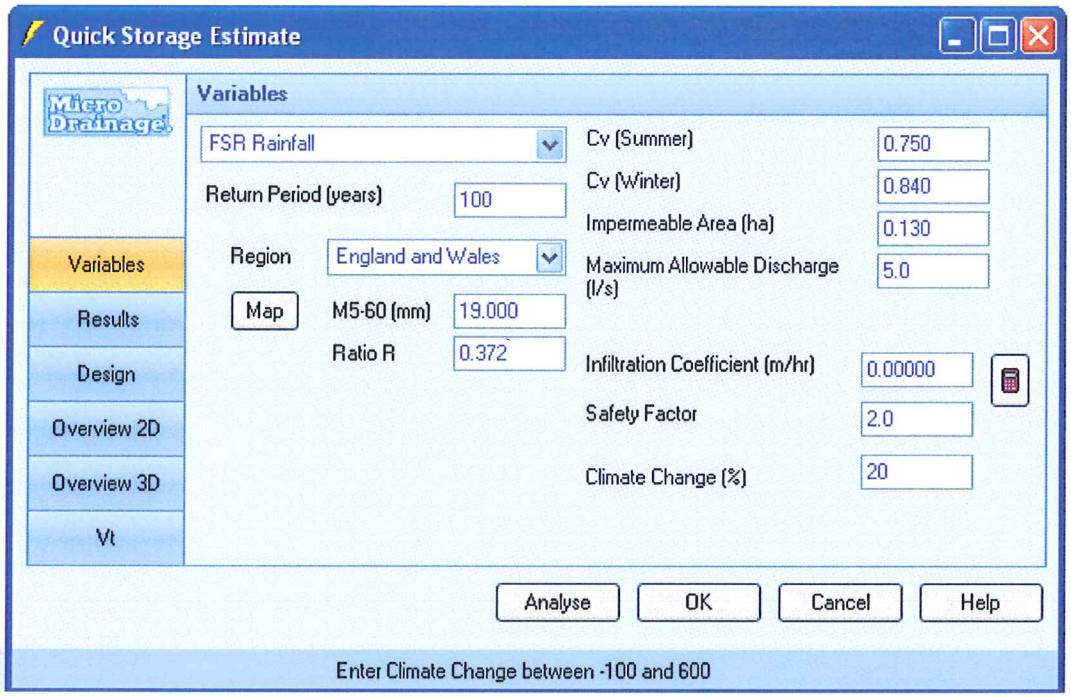


Photo 5 – Land to west of main northern site

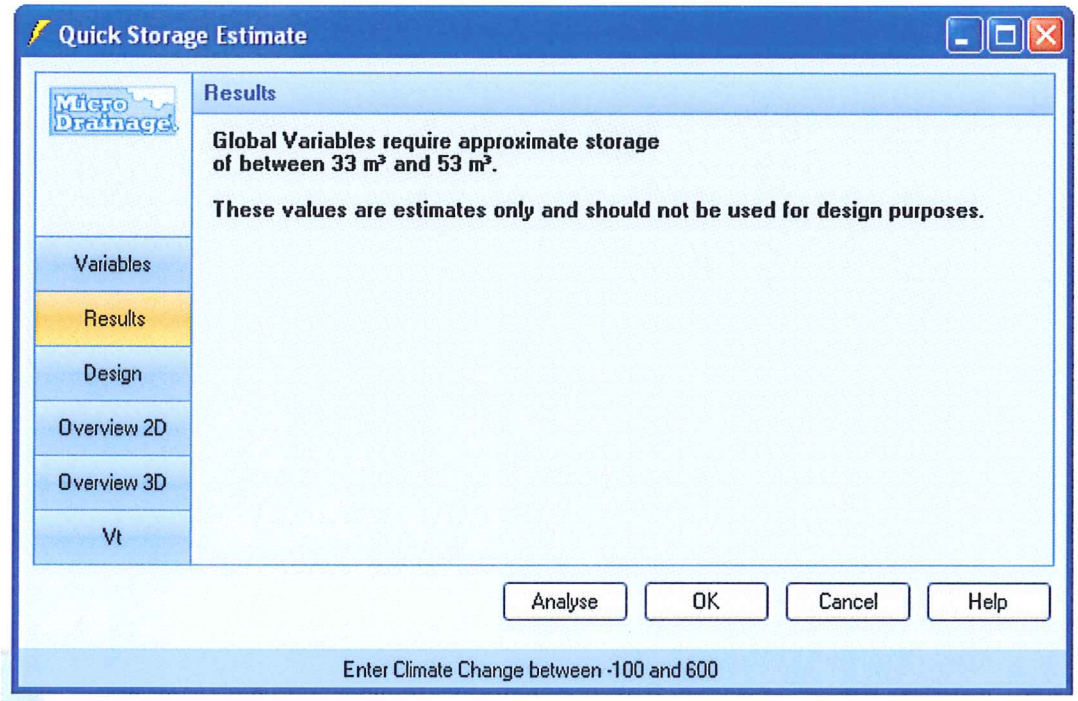


Photo 6 – Land to west of southern site showing retaining wall

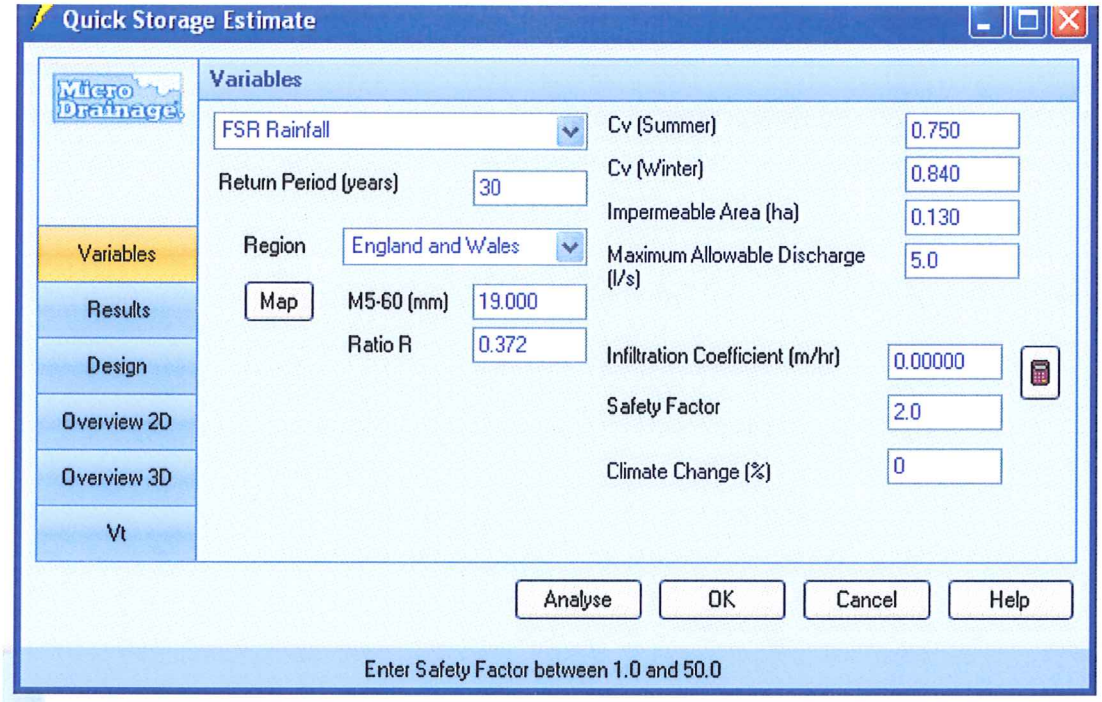
Appendix F
Preliminary Storage Calculations



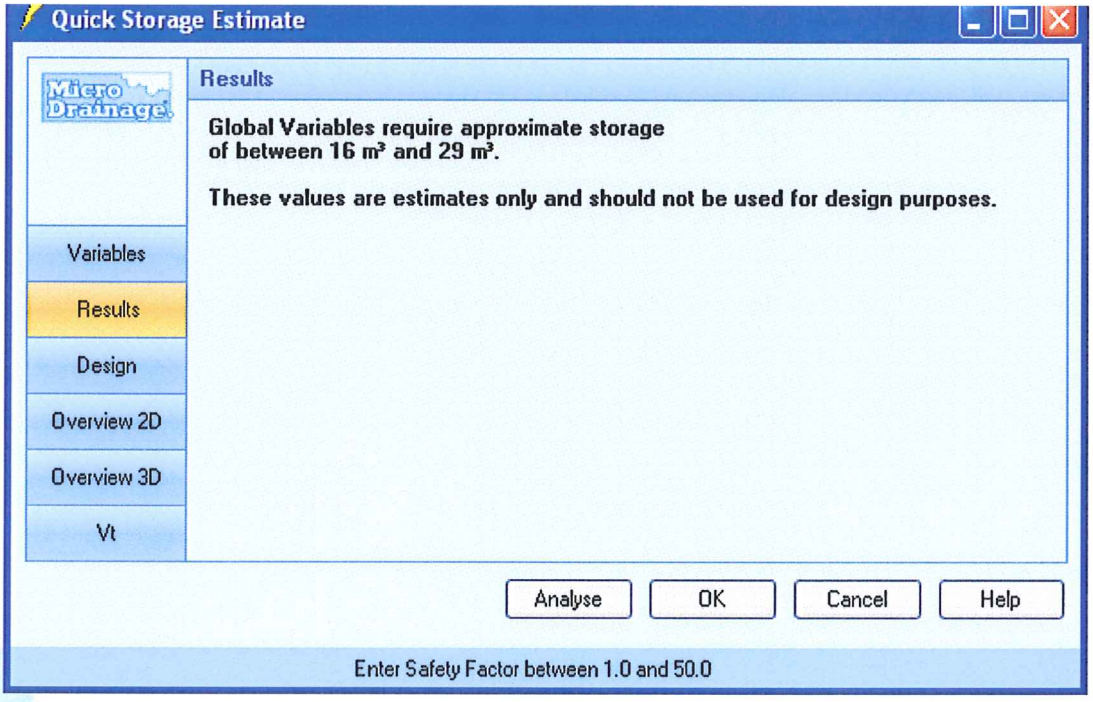
1 in 100 year Quick Storage design criteria



1 in 100 year Quick Storage results

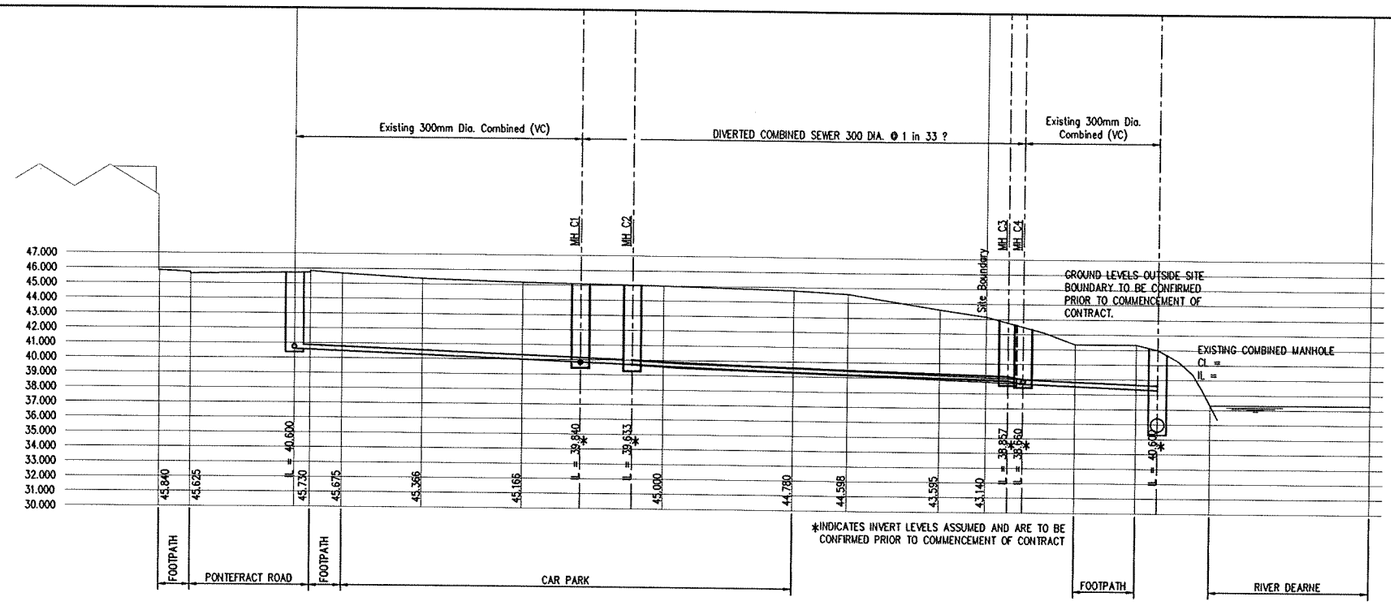


1 in 30 year Quick Storage design criteria

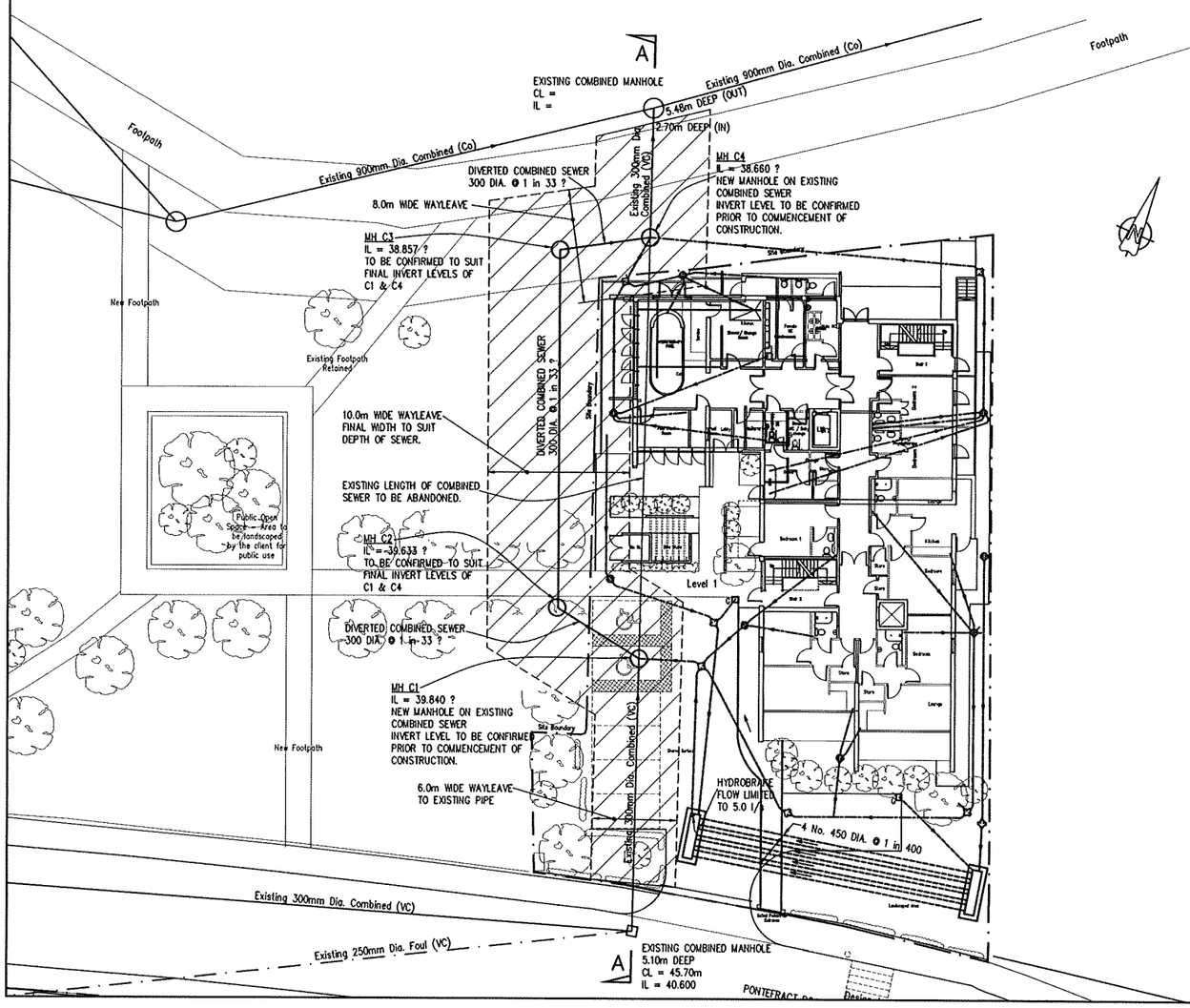


1 in 30 year Quick Storage results

Appendix G
Preliminary Drainage Layout



LONGITUDINAL SECTION (A – A)



NOTES

1. ALL CLAYWARE PIPES TO BE TYPE D.V.C. EXTRA STRENGTH.
2. ALL CONCRETE PIPES TO BE CLASS H
3. ALL UPVC PIPES TO COMPLY WITH THE RELEVANT PROVISIONS OF BS4660 OR BS5481
4. PIPES WITH CONCRETE SURROUND TO HAVE 'KORKPAK OR SIMILAR' APPROVED COLLARS AT EACH JOINT
5. CONNECTIONS TO ROAD GULLIES TO BE 150mm DIA
6. ALL RWP'S TO BE CONNECTED TO BIG'S
7. ALL SEWERS TO BE LAID FROM THE LOWEST LEVEL UPWARDS.
8. LEVELS OF EXTG SEWERS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONTRACT.
9. BEDDING FACTOR FOR DVC PIPES TO BE 2.5 AND FOR CONCRETE PIPES 2.2 UNO
10. DEEP DRAINAGE ADJACENT TO DWELLINGS TO HAVE CONCRETE SURROUND IN ACCORDANCE WITH CLAUSE A11 OF APPROVED DOCUMENT H OF THE BUILDING REGULATIONS.
11. PIPES OF DIFFERING SIZE TO BE CONNECTED CROWN TO CROWN.
12. POSITIONS OF EXISTING SERVICES TO BE CHECKED BY CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

PRELIMINARY

Rev	Drawn	Date	Description

Contract

PROPOSED CARE HOME
PONTEFRACT ROAD,
BARNSLEY.

Drawing Title

DRAINAGE LAYOUT
AND LONGITUDINAL
SECTION.

MOOREHEAD SUTTON & LAING
CONSULTING ENGINEERS
Middlesbrough 01642 240525
Manchester 0161 833 4883
London 0171 242 8220

Scales (A1) 1:200	Date JULY '11
Drawn GH	Checked
Contract No. 3957M	Drawing No. 101
REVISION	