

Site Specific Flood Risk Assessment



Development :

Residential Development
Lees Hall Road
Thornhill Lees
Dewsbury

Client :

Hannah Gold Solicitors Ltd.

CDS Project Reference : 2016.6503 July 2016

Revision B – 23.01.17

Prepared By:

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1 Summary Information

The following Flood Risk Assessment (FRA) is compliant with the requirements outlines in the current National Planning Policy Framework (NPPF) and the corresponding Technical Guidance Notes together with the associated online Planning Policy Guidance.

Site Name	New Residential Development
Location	Lees Hall Road, Thornhill Lees
National Grid Reference	423650, 419640
Site Area	0.24ha
Development Type	Residential Dwellings 10 No.
NPPF Vulnerability	More Vulnerable
EA Flood Zone	Flood Zone Varies Across Site
EA Office	Northern Region, Yorkshire Area
Local Planning Authority	Kirklees Council

Table 1 Site Summary

1.2 Sources of Data

This report is based upon the following information:

- Site Layout Plan
- Topographical Survey
- Environment Agency (EA) Flood mapping
- EA Site Specific Flood data
- LLFA Informal Advice
- Canal & River Trust - On Site Informal Advice
- Walkover survey by CDS. July 2016.
- Yorkshire Water formal advice

1.3 Existing Site

The site is currently a residential development with 4 semi-detached homes.

The site is almost level with Lees Hall Road at the southern extent and drops in level towards the north. Lees Hall Road sits at approximately 45m AOD. The lowest level within the site curtilage at the north end of the development is approximately 38.0m AOD. A site survey showing existing levels can be seen in Appendix A.

The Environment Agency (EA) produces Flood zone maps which identify areas at risk of flooding from fluvial or tidal sources. Flood zones for new developments are determined on the basis of this information.

Flood Zone 1	Low Probability – less than 1 in 1000 annual probability of river or coastal flooding	Appropriate for all land uses
Flood Zone 2	Medium Probability – between 1 in 100 and 1 in 1000 annual probability of river flooding or 1 in 200 and 1 in 1000 annual probability of coastal flooding	Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses are appropriate in this zone. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed.
Flood Zone 3a	High Probability – having a greater than 1 in 100 year annual probability of river flooding or 1 in 200 year probability of coastal flooding	The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.
Flood Zone 3b	Functional Floodplain - having a greater than 1 in 20 year annual probability of river flooding or 1 in 200 year probability of coastal flooding	Only the water-compatible uses and essential infrastructure that has to be there should be permitted in this zone. It should be designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows; and • not increase flood risk elsewhere. Essential infrastructure in this zone should pass the Exception Test.

Table 2 Flood Zone Definitions

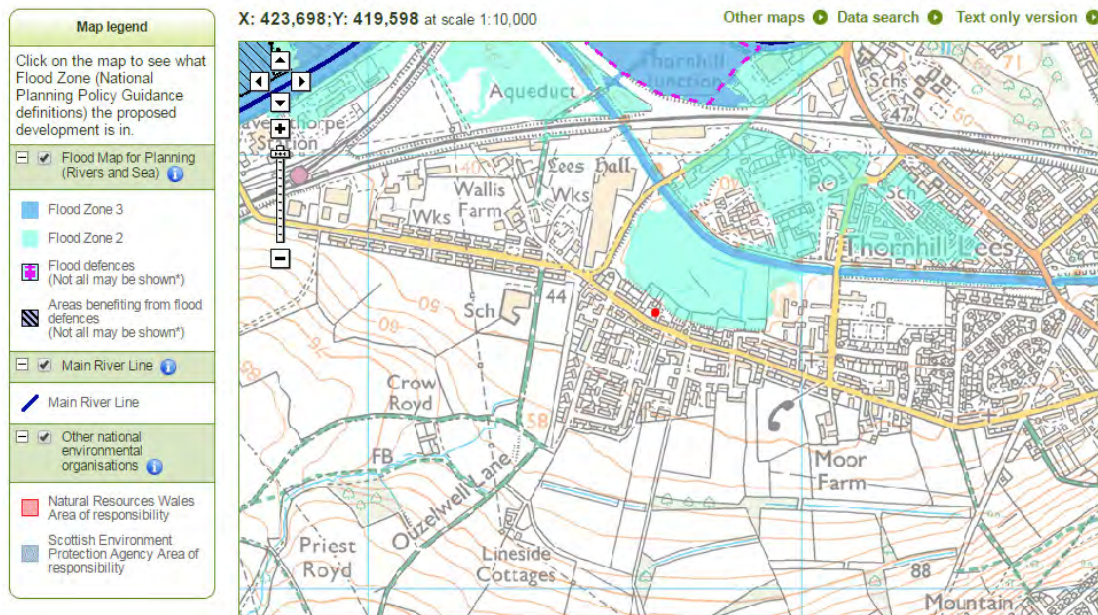


Figure 2 Extract from EA Flood Maps

EA map data indicates that the proposed site ownership is partially within Flood Zone 2.

The JBA Calder & Hebble SFRA Nov 2008 model suggests the site lies just outside Flood Zone 2. This Superseded Data can be seen in Appendix C.

A site specific EA Flood Product 4 has been obtained to clarify the current model flood levels within and around the site. It is confirmed that the site primarily lied within Flood Zone 1, however, Flood Zone 2 does encroach onto the lower part of the site ownership.

This EA data can be seen in Appendix D. This fluvial flood risk is discussed in greater detail in later chapters.

2. Sources Of Flood Risk

The following section identifies the potential sources of flood risk to the proposed development site.

2.1 Fluvial Flood Risk

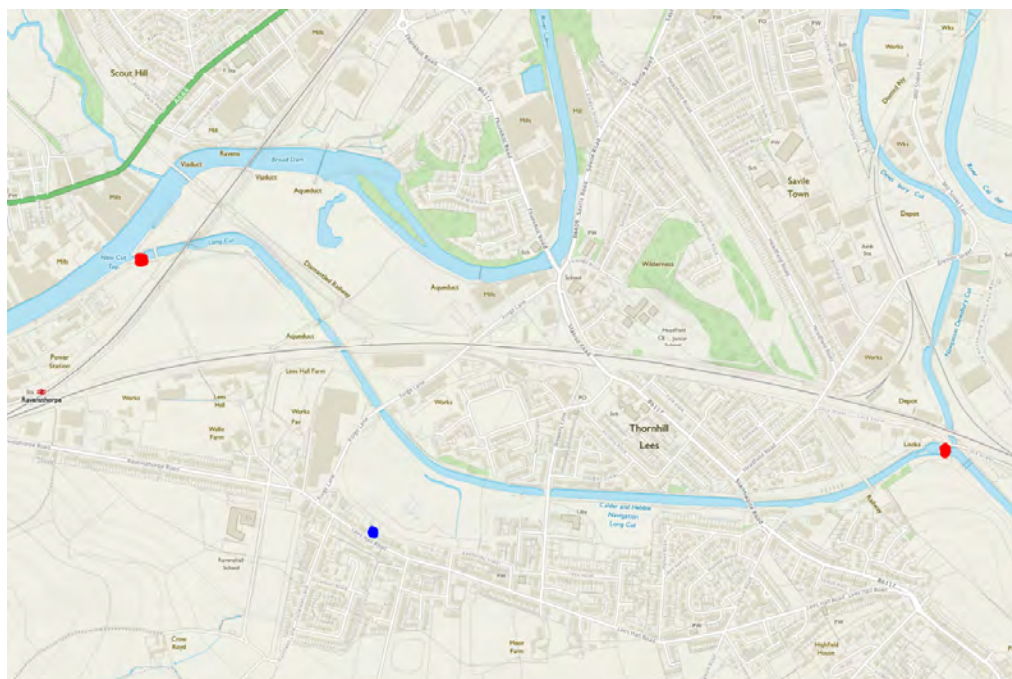
Fluvial flooding offers the primary source of flood risk affecting the development.

The site lies to the south of the Calder & Hebble Navigation. A canal that effectively connects the loop of the Calder as it circumnavigates Dewsbury.

The canal has locks at each end of the navigation (red dots) which provide protection from the River Calder flooding during severe storm events. Having met with the Canal & River Trust representative on site, it was advised that both locks have both manual and automated gates. The C&RT attend regularly to ensure the default gate position is closed throughout the year and make specific visits during storm events. This system is backed up by secondary automatically activated gates in the event the C&RT cannot attend.

The canal basin is protected by a series of high ground bunds and an elevated railway line, together with the locks.

EA data appears to suggest that the area is protected for the 50 year return period.



Locks/Flood Protection Gate location are red dots. Site location is blue dot.



Thornhill Lock & Barrier (upstream of site)



Lock Street Lock & Barrier (downstream of site)

EA Floodplain Height maps for the 1 in 100 year plus climate change forecast indicates the nearest flood stage water level of 38.73m AOD. The 1000 year flood level is given as 39.84m AOD. These flood extents are plotted on CDS' drawing in Appendix G.

The Undefined Scenario Model results yield a 100 year stage level of 38.0 (no CC) and a 1000 year stage level of 39.87. No data exists for the 100 year plus climate change event.

2.2 Groundwater Flood Risk

A ground investigation has not yet been completed for this development. Detailed local knowledge from both Kirklees Building Control and Flood Management team indicate the local area as having dense clay subsoil. Not conducive to the passage of groundwater. The risks of flooding from groundwater are deemed to be low.

2.3 Pluvial Flood Risk

The site entrance is located at a vertical curve crown position (high spot) on Lees Hall Road. As such, the immediate catchment offering flood risk to the site itself is negligible. Records suggest that properties on Ouzelwell Road suffer overland flow issues from farmland runoff to the south. This is a local issue but does not affect this site specific assessment. Flood water flowing north (downhill) towards Lees Hall Road will then run west towards Forge Lane following topographical falls.

2.4 Reservoirs and Waterbodies

The River Calder SFRA considers 72 upstream reservoirs within the Calder catchment area. No specific development recommendations are made for consideration during site specific FRAs. Risks and recommendations for the maintenance and repair of waterbodies and reservoirs are beyond the scope of site specific reports, but it can be noted that long term monitoring and maintenance is in place by Water Authorities and as such, the risk of flooding can be considered as being low.

2.5 Sewers

There are public sewer assets within the study site. The site is not at risk of flooding should sewers in the locality of the site become inundated as existing topography would not direct flood flows into the site.

Any flooding from the 375mm combined sewer to the north of the development should be carried north, following surface topography towards the Canal. Flooding from the 300mm sewer within Lees Hall Road should be contained within the carriageway by kerbs and flow in either direction along Lees Hall Road away from the site. The site lies at a crest position on the highway.

Water companies are obliged to provide capacity within the network for existing and new development. In the event of flooding of the public sewer network, the water company is legally obliged to repair or improve the network within a reasonable timeframe, providing adequate flood protection for critical storm events up to the 1 in 30 year return period.

2.6 Effects upon the Wider Catchment

The proposed building will not affect the known flood extent for the 1 in 100 year flood. Areas within the 1 in 1000 year flood extent that are subject to landscaping will not be increased in ground level. Therefore the development will not impact upon any flood flow within the site or displace any flood water off site. Two properties will extend into the 1/1000 year flood extent, however, the footprints are insignificant. As such, flood volume mitigation is not deemed as practical or necessary for the development.

Section 2.0 has considered the sources of flooding which could potentially pose a risk to the site and the proposed development. This section sets out the mitigation measures to be incorporated into the scheme to minimise the flood risk to the development and ensure the risk to the surrounding area is not increased

3.1 Site Arrangements

Fluvial Flood Risk

EA flood data indicates a maximum nearby flood level of 38.73m AOD for the critical 1 in 100 year plus climate change event. It should be noted that the FRA completed for a nearby development off Brewery Lane (directly adjacent to the canal) found that FFLs for that development should be set at 40.0m AOD or above, however, this was based upon superseded JBA flood modeling from 2003.

Site topography is such that the main design factor influencing FFLs for plots 8 - 10 will be suitable falls from the highway. Assuming a maximum 1 in 10 fall to the driveway plateau serving these properties, FFLs would be set at around 40.0m AOD. As such, it is deemed that by setting the lowest site FFLs (units 8 - 10) at 40.0m AOD or above, both flood risk and practical access matters are satisfied.

Following a discussion with Liz Henry at the Environment Agency, it was agreed that the EA would have no objection to the development as long as the minimum floor level be set above 40.1m AOD. This was agreed and confirmed as acceptable by CDS. Liz also confirmed that no flood volume mitigation measures would need to be taken due to the relatively small nature of the site.

The site development will lie wholly within Flood Zone 1.

External hard and soft landscaped features within the areas currently at risk of flooding in the 1 in 1000 year critical storm events are to be constructed at existing ground levels where possible so as to minimise impact upon the existing flood storage capacity within the site.

In the event of an exceedence flood event, site topography allows for residents to egress the site exiting north onto Lees Hall Road. Emergency vehicle access can be gained from Lees Hall Road.

Pluvial Flood Risk

Although the site is not considered to be at significant risk from pluvial flooding, in order to mitigate any residual risks, it is recommended that the floor levels are constructed 150mm above surrounding ground levels wherever practicable.

External levels should be arranged so as to divert any overland flooding away from building thresholds thus minimising flood risk to buildings.

4 Surface Water Drainage

4.1 Existing Site Run-off

The existing site area contributing to the combined sewer network is approximately 600sqm. The existing runoff is calculated as 7.5 l/s for the 1/1 year event. This does not allow for greenfield runoff.

4.2 Proposed Site Run-off

The inclusion of new roof and hardstand as part of the development will increase the runoff peak flow for the development.

Initial advice from Building Control and the LLFA suggested that ground conditions would not be conducive to the use of SUDS percolation systems. Ground investigation works by others indicate that the ground does not percolate water and that no results for permeability 'f' have been able to be calculated. It is deemed that SUDS soakaway systems are not viable for the development, and as such, a 5 l/s forward flow to the nearby storm sewer (NW of site) has been agreed in principle with Yorkshire Water. This connection should be made under a Section 106 agreement with YW.

In accordance with the NPPF guidance, the development proposals shall consider the likely effects of climate change over the design life of the site. The following table outlines the recommended sensitivity ranges for peak rainfall intensities.

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak Rainfall Intensity	+5%	+10%	+20%	+30%

For a development in the residential sector such as this, a design life of 75 years is considered reasonable. Therefore, the hydraulic impact assessment of the 1 in 100 year storms shall make an additional 30% allowance for the effects of climate change.

In accordance with best practice, the proposed drainage system will not increase the likelihood of flooding to the site and surrounding area upon its pre-development condition.

The drainage proposals shall ensure that sufficient attenuation storage is provided in the critical storm events for the 1 in 100 year return period (plus climate change) to prevent flooding of any buildings within the site boundary and ensure that properties off site are not exposed to an increase in flood risk as a consequence. The drainage proposals shall ensure that no surface flooding occurs in the critical storm events for the 1 in 30 year return period.

Drainage proposals should aim to meet the requirements of C697 by providing a single stage of treatment for drainage from roof areas and two stage of treatment for drainage from external areas. The use of a suitable filtered storage system such as Triton should be utilised as percolation is not viable.

Foul water from the development will be connected to the 375mm Combined Sewer to the north of the site by way of a Section 106 application with YW.

5.1 Sequential Approach to Flood Risk

The Sequential Test is designed to steer new development to areas with the lowest probability of flooding. The exercise compares the Flood Zone of the development area (as discussed in Section 1) against the vulnerability classification of the type of development.

The vulnerability classifications are outlined in the NPPF Technical Guidance document, which in the case of the proposed development, can be classified as 'More Vulnerable'.

The following table summarises the types of development that can be considered appropriate for any given Flood Zone:

	Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	√	√	√	√	√
	Zone 2	√	√	Exception Test required	√	√
	Zone 3a	Exception Test required	√	x	Exception Test required	√
	Zone 3b	Exception Test required	√	x	x	x

√ Appropriate development
x Development should not be permitted

The site 'development' area will lie wholly within Flood Zone 1, the site can be deemed to have passed the sequential test and can be considered appropriate for development by the Planning Authority.

The Exception Test is therefore not required.

This assessment demonstrates that the site and proposed development can be considered appropriate. The development poses an acceptable level of flood risk provided that the recommended mitigation measures are incorporated as part of the site works.

EA flood data stipulates a maximum flood level of 38.73m AOD for the critical 1 in 100 year plus climate change event. Floor levels for the proposed building will be above this level. The minimum floor level within the development will be above 40.1m AOD (FZ1).

6.0 Conclusion Summary

This assessment demonstrates that the site and proposed development can be considered appropriate. The development poses an acceptable level of flood risk provided that the recommended mitigation measures are implemented as part of the site works.

All developed area will lie wholly within Flood Zone 1.

The development type can be classified as 'more vulnerable' and can be deemed to have passed the Sequential Test. The Exception Test will not be required.

Finished Floor Levels will be set a minimum of 600mm above the 1 in 100 year (plus climate change) flood level of 38.73m AOD. In this case site access constraints suggest the lowest FFLs (units 8-10) will be at or near 40.1m AOD. Well above the required level. This level has been discussed with and agreed with EA Engineers. All Dwellings will be located within Flood Zone 1.

The drainage system shall be connected to the local YW storm sewer and forward flow from the site limited to 5 l/s. Attenuated flow should be stored within an underground tank, providing storage for the 100 year storm event, with an allowance for 30% climate change.

Report compiled and signed on behalf of Construction Design Solutions Ltd by

Steve Nicoll B.Eng (Hons) MCIHT.



Date 23rd January 2017

7.0 CDS Notes

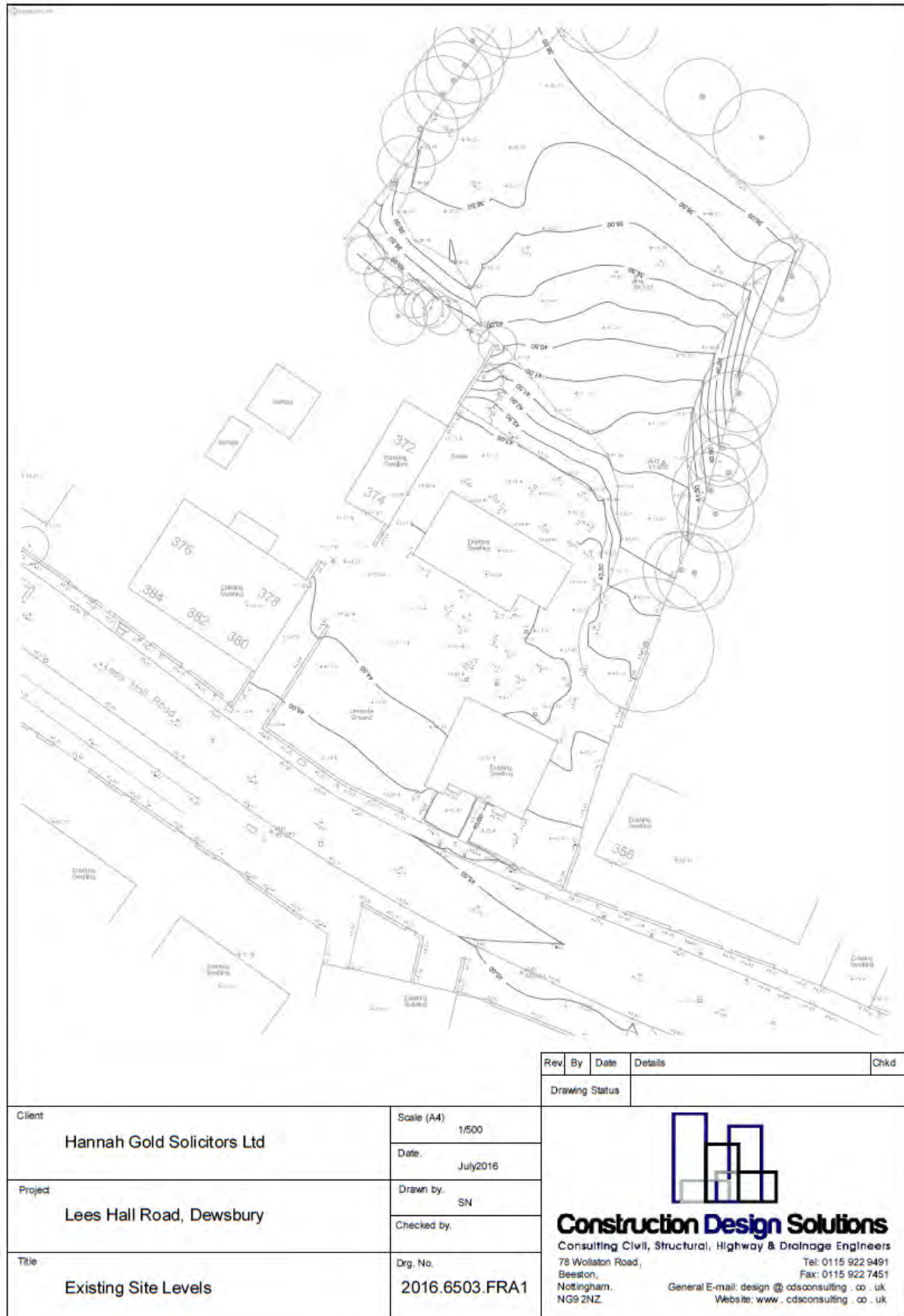
This Flood Risk Assessment has been prepared on behalf of Hannah Gold Solicitors Ltd in support of a proposed residential development off Lees Hall Road, Thornhill Lees, Dewsbury.

All comments, recommendations, conclusions and opinions contained within this report are given in good faith and based upon the information available to CDS at the time of writing. If the source material is later found to be inaccurate & misleading (or if additional information becomes available after the time of writing) CDS accept no liability should this prove to be the case.

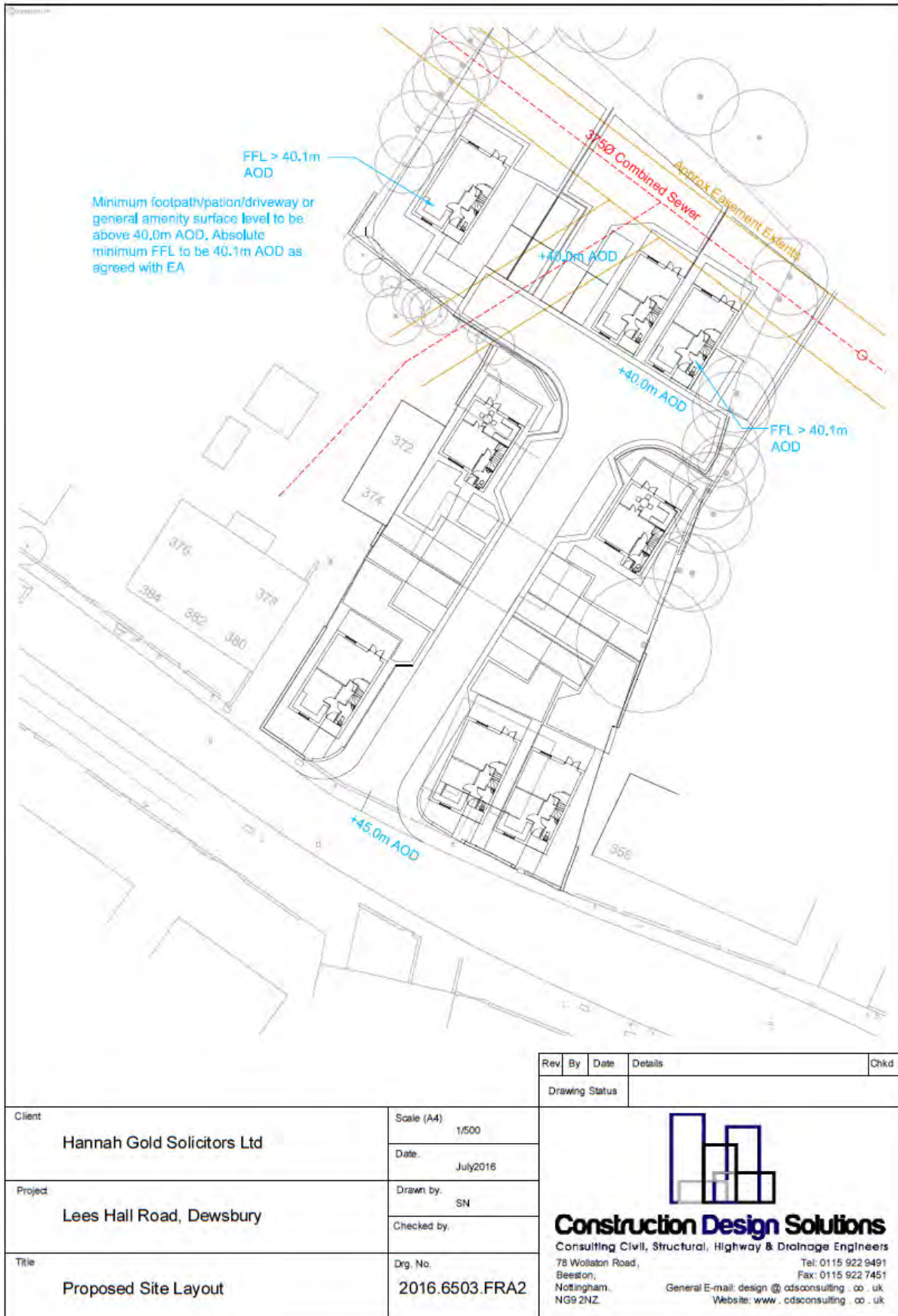
CDS make no representation concerning the legal significance of it's findings or any legal matters referred to, directly or inadvertently, within the report.

This Flood Risk Assessment is site specific and only refers to the project detailed within the text. It is based upon current statistical data and is provided for guidance purposes only. CDS provide no guarantee that this development or adjacent areas will not flood, nor guarantee the accuracy of flood stage levels, runoff rates or probabilities quoted.

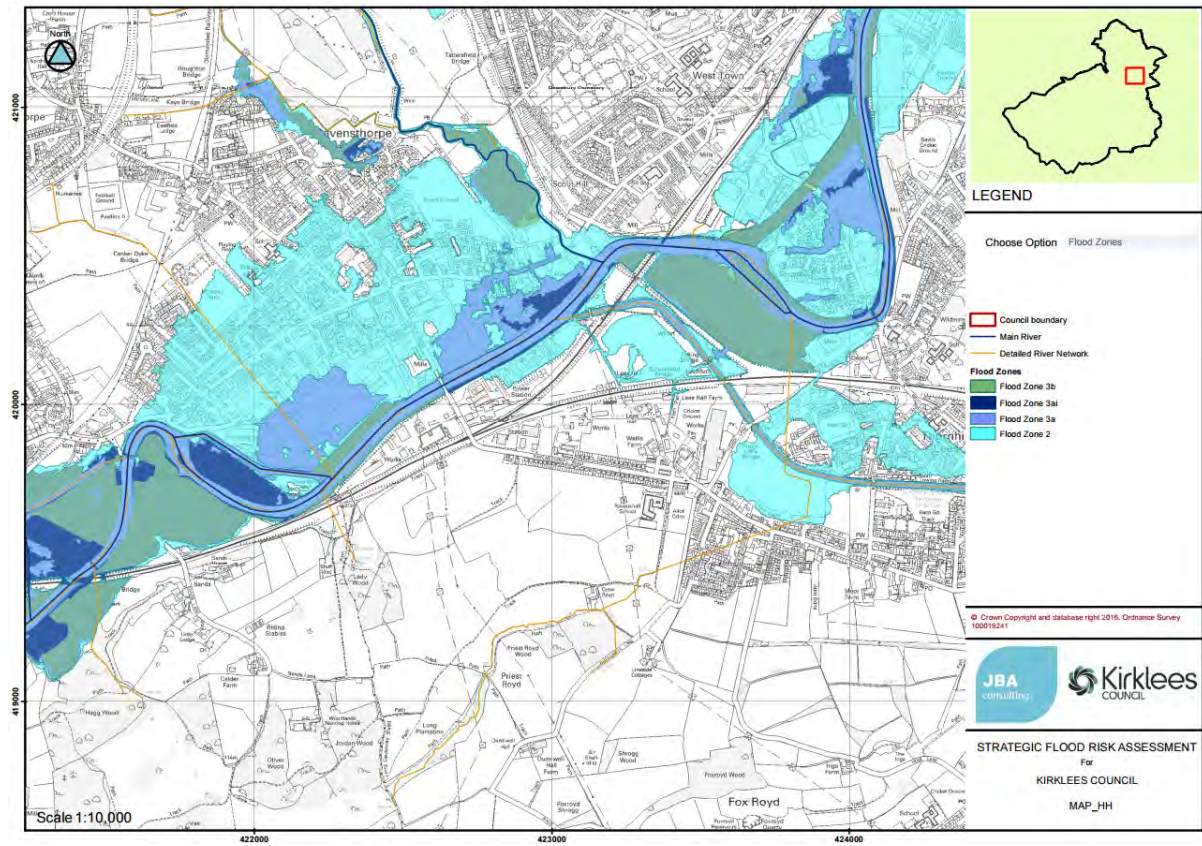
Appendix A - Topographic Survey



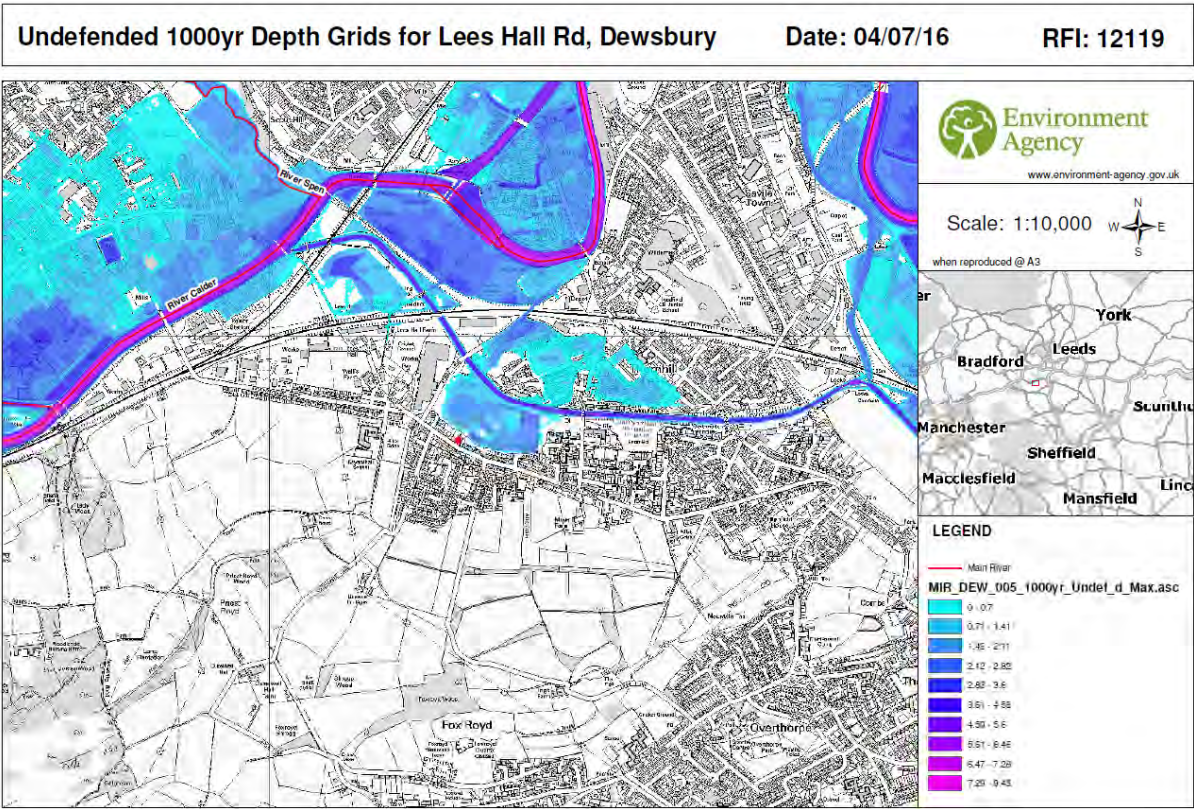
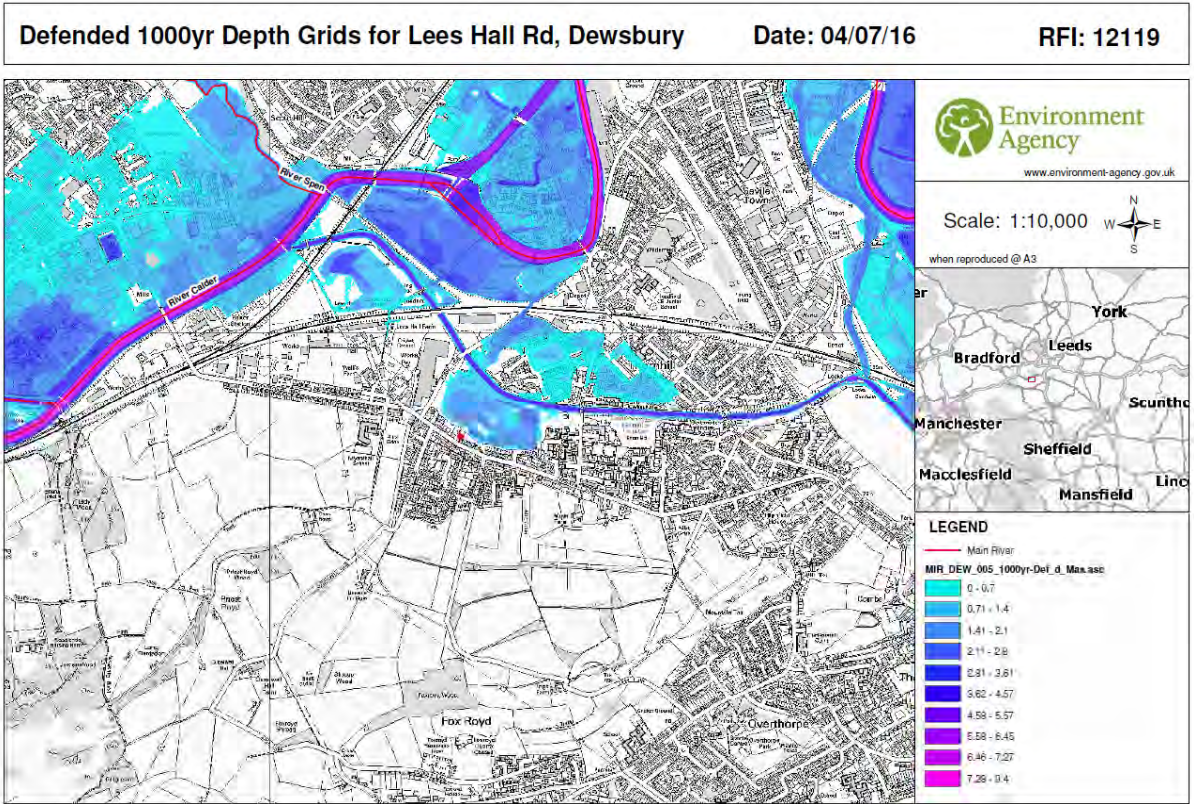
Appendix B - Architect's Site Masterplan



Appendix C - SFRA Extract



Appendix D - Environment Agency Flood Data



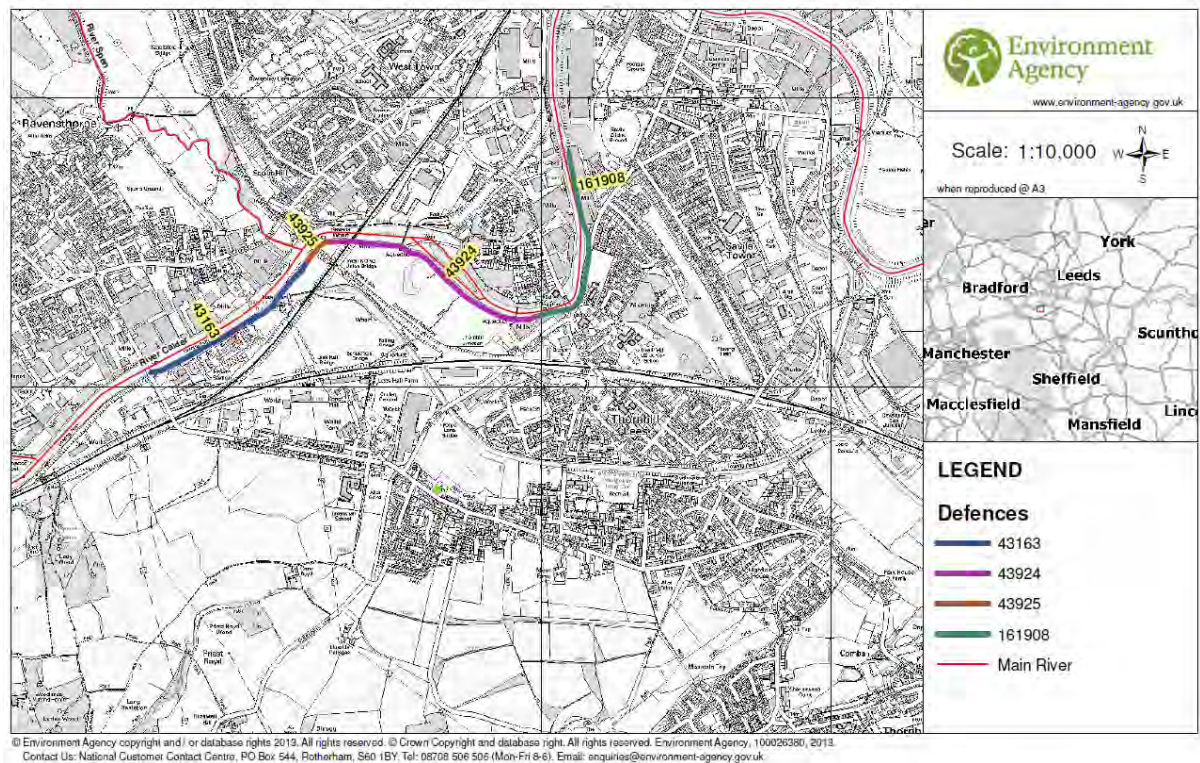
UNCLASSIFIED

RFI No: 12119 Asset Information for Lees Hall Rd, Dewsbury										
OBJECT ID	AIMS TYPE	AIMS SUBTYPE	ASSET MAINTAINER	DESCRIPTION	BANK	DESIGN STANDARD OF PROTECTION (Yrs)	ACTUAL DOWNSTREAM CREST LEVEL (mAOD)	ACTUAL UPSTREAM CREST LEVEL (mAOD)	ACTUAL CONDITION RATING	ASSET ID
43163	defence	high ground	private	Open Channel with some Piles	right	30	No data	No data	3	26706
43924	defence	high ground	private	WASHLAND / high ground	right	50	No data	No data	3	28284
43925	defence	high ground	private	WASHLAND	right	50	No data	No data	3	28285
161908	defence	high ground	private	HIGH GROUND	right	50	No data	No data	3	156902

Asset Defence Map for Lees Hall Rd, Dewsbury

Date Created: 04/07/16

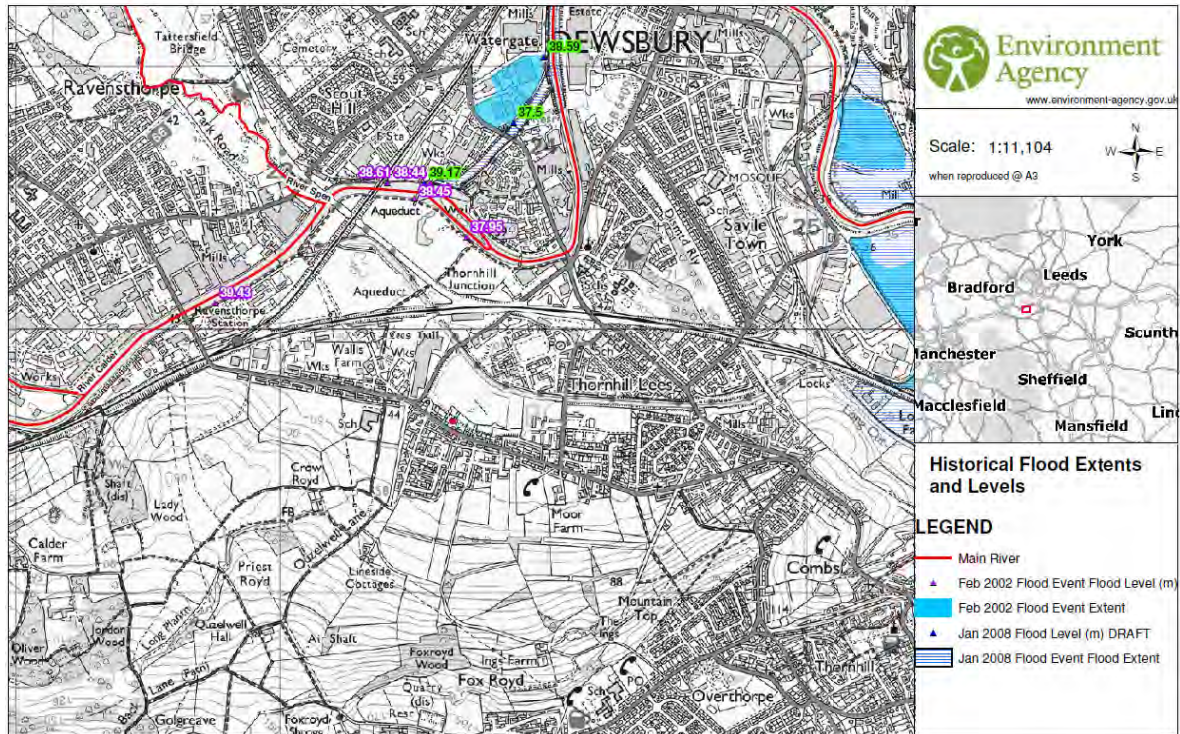
RFI: 12119



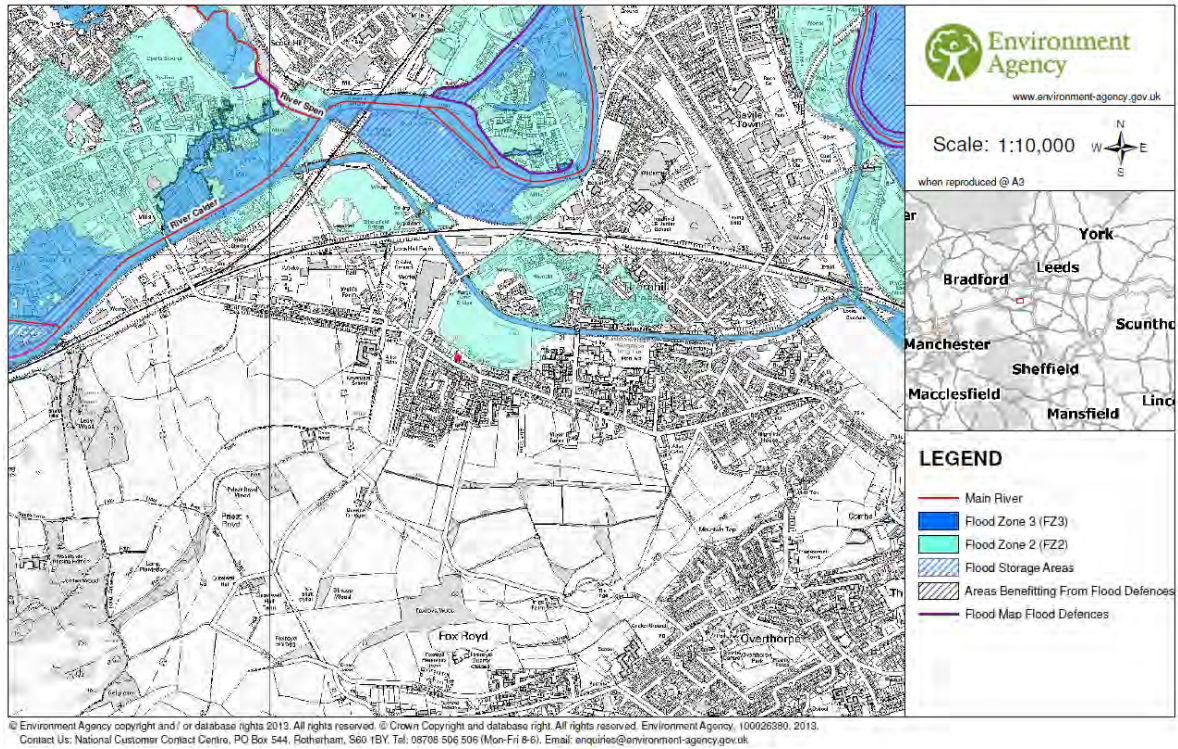
Flood History Information for Lees Hall Rd, Dewsbury RFI: 12119

NAME	COMMENTS	START DATE	END DATE	SOURCE OF FLOODING	CAUSE OF FLOODING	SOURCE OF DATA
River Calder. Brighouse to Dewsbury		10/02/2002	13/02/2002	main river	channel capacity exceeded (no raised defences)	aerial photography

Flood History Map for Lees Hall Rd, Dewsbury RFI: 12119 Date Created: 04/07/16



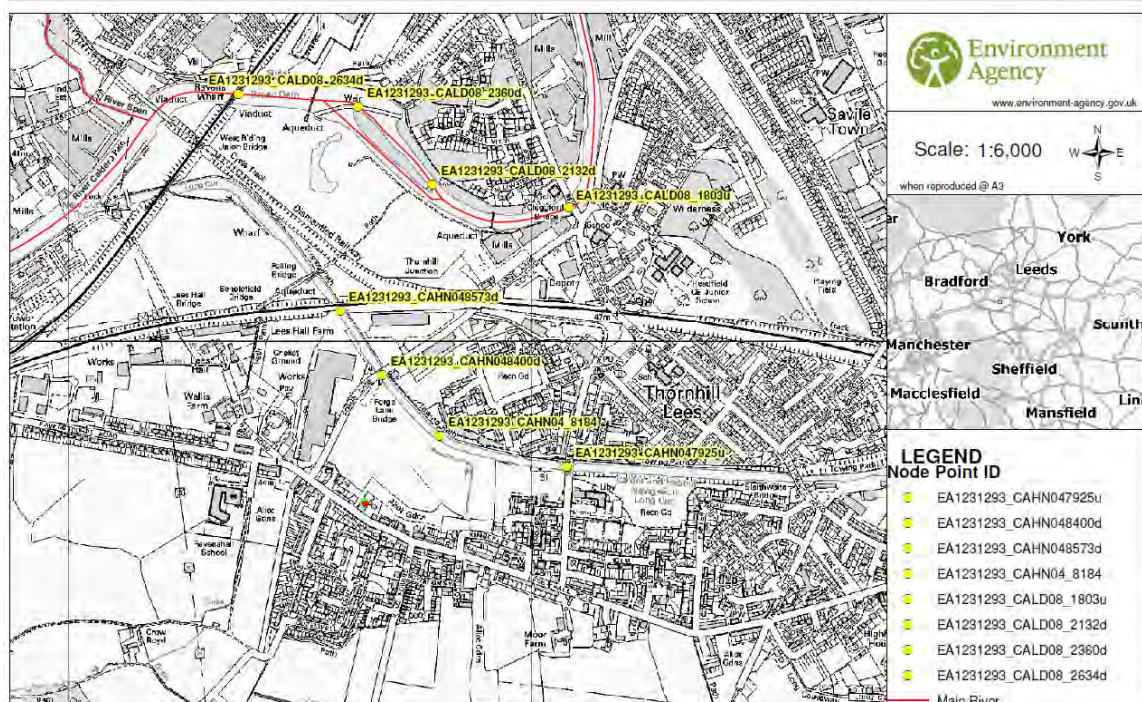
Flood Map for Planning for Lees Hall Road Date Created: 04/07/16 RFI: 12119



2015 Calder Model Defended Scenario Model Results for Lees Hall Road, Dewsbury (Stage - mAOD, Flow - m³/s)

Node Point	Return Period											
	2		5		10		25		30		50	
	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow
EA1231293_CALD08_1803u	36.94	182.42	37.66	234.51	37.83	248.48	38.45	298.29	38.54	305.48	38.73	318.67
EA1231293_CALD08_2634d	38.82	231.94	39.1	312.91	39.18	335.73	39.55	419.24	39.63	433.02	39.78	464.69
EA1231293_CALD08_2360d	38.55	182.69	38.68	234.87	38.72	249.04	38.99	298.5	39.06	305.44	39.19	319.98
EA1231293_CALD08_2132d	37.21	182.58	37.87	234.69	38.03	248.74	38.62	298.33	38.71	305.39	38.88	319.93
EA1231293_CAHN04_8184	37.85	1.63	37.85	1.75	37.85	1.78	38	1.89	38	1.91	38	1.93
EA1231293_CAHN047925u	37.85	1.63	37.85	1.73	37.85	1.75	38	1.86	38	1.87	38	1.89
EA1231293_CAHN048573d	37.85	1.65	37.85	1.77	37.85	1.81	38	1.94	38	1.96	38	1.99
EA1231293_CAHN048400d	37.85	1.64	37.85	1.76	37.85	1.8	38	1.92	38	1.94	38	1.97

Node Point	Return Period									
	75		100		101		200		1000	
	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow
EA1231293_CALD08_1803u	38.83	324.12	38.95	344.21	39.38	351.33	39.19	343.97	40.51	425.84
EA1231293_CALD08_2634d	39.88	488.93	39.95	492.31	40.11	580.8	40.07	545.74	41.1	772.43
EA1231293_CALD08_2360d	39.27	330.65	39.38	349.05	39.67	365.07	39.52	357.35	40.72	418.07
EA1231293_CALD08_2132d	38.97	331.44	39.1	347.32	39.52	355.85	39.34	349.46	40.59	423.4
EA1231293_CAHN04_8184	38	1.95	38	1.98	38.73	5.45	38.14	2.2	39.84	21.56
EA1231293_CAHN047925u	38	1.91	38	1.94	38.73	4.6	38.14	2.12	39.83	21.59
EA1231293_CAHN048573d	38.01	2.02	38	2.04	38.73	4.79	38.14	2.36	39.85	21.13
EA1231293_CAHN048400d	38.01	1.99	38	2.02	38.73	4.71	38.14	2.29	39.84	20.94

2015 Calder Model Undefended Scenario Model Results for Lees Hall Rd, Dewsbury (Stage - mAOD, Flow - m³/s)

Node Point	Return Period					
	100		101		1000	
	Max Level	Max Flow	Max Level	Max Flow	Max Level	Max Flow
EA1231293_CALD08_1803u	38.85	325.61	No data	No data	40.52	422.83
EA1231293_CALD08_2634d	39.89	492.49	No data	No data	41.11	775.52
EA1231293_CALD08_2360d	39.28	333.58	No data	No data	40.73	418.61
EA1231293_CALD08_2132d	38.99	333.1	No data	No data	40.6	420.75
EA1231293_CAHN04_8184	38	1.98	No data	No data	39.86	21.82
EA1231293_CAHN047925u	38	1.94	No data	No data	39.85	22.05
EA1231293_CAHN048573d	38	2.04	No data	No data	39.87	21.56
EA1231293_CAHN048400d	38	2.01	No data	No data	39.87	21.39

Appendix E - Yorkshire Water Sewer Records & Correspondence



Mr S Nicoll
Construction Design Solutions
78 Wollaton Road
NG9 2NZ

Yorkshire Water Services
Developer Services
Sewerage Technical Team
PO BOX 52
Bradford
BD3 7AY

Your Ref:
Our Ref: S007873

Tel: 0345 120 8482
Fax: (01274) 372 834

Email:
Technical.Sewerage@yorkshirewater.co.uk

For telephone enquiries ring:
Chris Roberts on 0345 120 8482

23rd May 2016

Dear Mr Nicoll,

Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees Dewsbury WF12 - Pre Planning
Sewerage Enquiry On R176598

Thank you for your recent enquiry and remittance. Our official VAT receipt has been sent to you under separate cover. Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records.

The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months.

Existing Infrastructure

There is a 375 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3 (three) metres, nor trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer. If you wish to have this sewer diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0345 120 84 82.

(Please note:- due to the change in legislation on 01/10/2011 there may be public sewers within the site boundary which is not recorded on the Statutory Sewer Map the presence of which should be taken into account in the design of the scheme)

Foul Water

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

Foul water domestic waste should discharge to the 375 mm diameter public combined sewer recorded to the south of the site.

Surface Water

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.



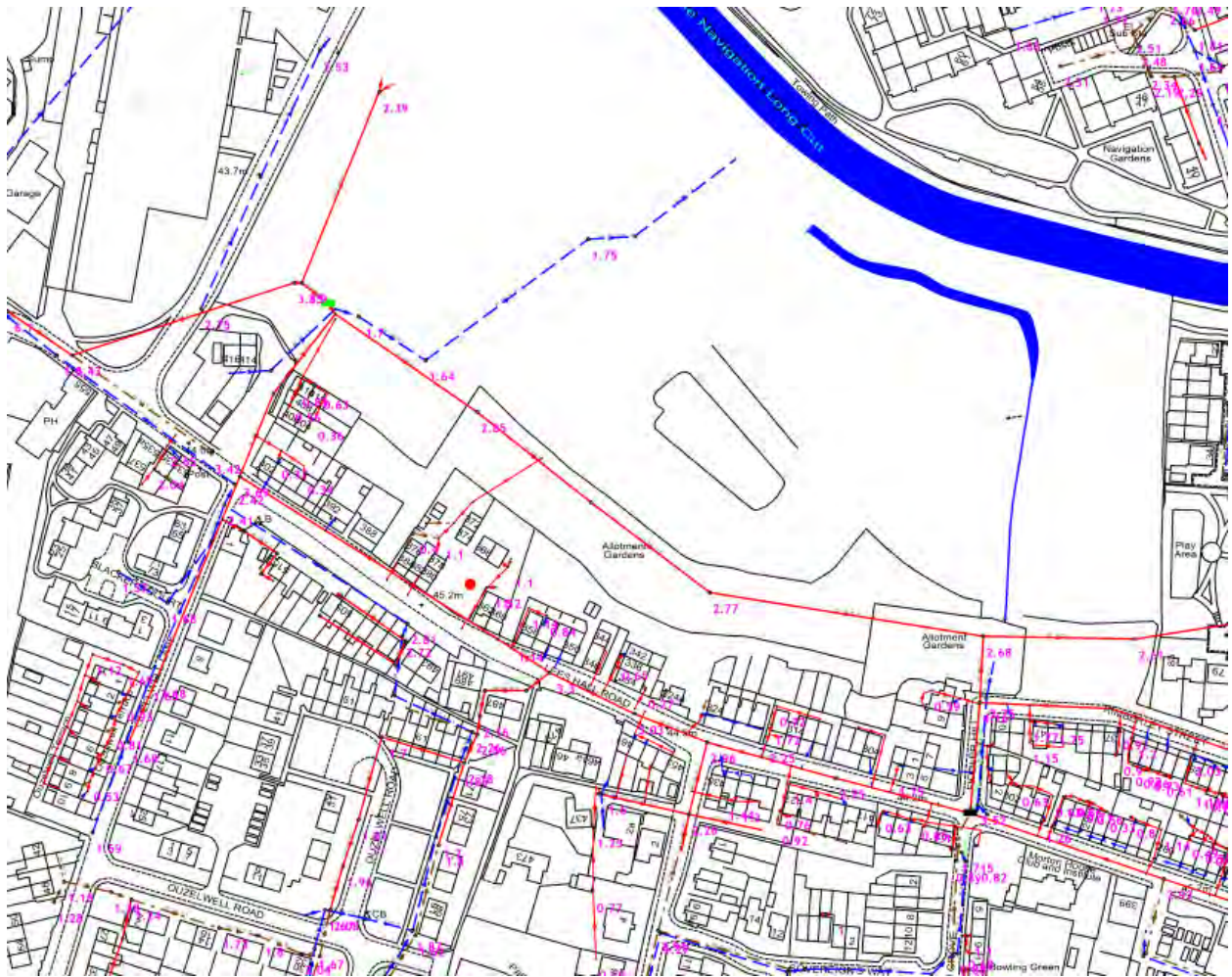
YorkshireWater

Please note that capacity in the public sewer network is not 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 sincerely

A handwritten signature in blue ink, appearing to read 'Chris Roberts'.

Chris Roberts
Sewerage Technician
Developer Services



-----Original Message-----

From: Chris.Roberts@yorkshirewater.co.uk
[mailto:Chris.Roberts@yorkshirewater.co.uk]
Sent: 12 July 2016 13:42
To: Steve Nicoll
Subject: RE: Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees
Dewsbury WF12 - Pre Planning Sewerage Enquiry On R176598 - FAO Chris Roberts

Steve,

If you can prove soakaways do not work I would look at agreeing 5 l/s.

Regards

Chris

From: "Steve Nicoll" <steve.nicoll@cdsconsulting.co.uk>
To: <Chris.Roberts@yorkshirewater.co.uk>,
|

| Date: |
| 12/07/2016 13:38
| Subject: |
| RE: Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees Dewsbury WF12
- Pre Planning Sewerage Enquiry On R176598 - FAO Chris Roberts |

Thanks Chris

That sound acceptable. I wasn't aware of the other storm sewer. It was just off the original sewer record plan. I'll design an outfall to that pipe under a section 106. Are you happy with the 5 l/s rate as detailed earlier?

Kind regards

Steve

-----Original Message-----

From: Chris.Roberts@yorkshirewater.co.uk
[mailto:Chris.Roberts@yorkshirewater.co.uk]

Sent: 12 July 2016 12:32

To: Steve Nicoll

Subject: Re: Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees
Dewsbury WF12 - Pre Planning Sewerage Enquiry On R176598 - FAO Chris
Roberts

Hi Steve,

You are correct I should have said the 375 mm to the north so sorry for the confusion. For some reason I looked at your site being larger than it is.

I have included a larger plan of the network and it does show the 300 mm combined sewer in Lees Hall Road looping up to the 375 mm combined sewer.

Even if its proved that soakaways are not viable we would not agree a discharge into the combined sewer. We would look at connections into the 375 mm SW sewer to the south in Lees Hall Road that would possibly need to be pumped or the 375 mm surface water sewer to the north west of the site via gravity.

(See attached file: roberts4_rad87E9C.PNG)

Regards

Chris Roberts
Sewerage Technical Team

From: "Steve Nicoll" <steve.nicoll@cdsconsulting.co.uk>
To: <Technical_Sewerage@yorkshirewater.co.uk>,
<Chris.Roberts@yorkshirewater.co.uk>,
|
| Date: |
| 12/07/2016 11:05
| Subject: |
| Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees Dewsbury WF12
- Pre Planning Sewerage Enquiry On R176598 - FAO Chris Roberts

Hi Chris

Many thanks for your enquiry response.

I have 2 queries:

Firstly, for the foul outfall, you mention the 375mm combined sewer to the 'south' of the site. Should this read to the 'north'? I personally keep correcting myself on this as the 375 is much lower than Lees Hall Road. The site will fall from the high point at LH Road towards the north. It makes sense for us to have a single system serving the site falling to the low end.

Secondly, does the 300mm pipe in LH Road continue round in a loop and connect to the 375mm sewer in the allotments? The records seem to suggest this but it just runs off the plan.

If this is the case, would you agree that it would be better for the developer to connect both foul and storm to the northern 375 sewer (via separate systems) to ease pressure on the upstream LH Road system by entering further down the network? We may maintain some connections to the upper (southern) foul outfall if levels allow as it will be so close to the new plots at the south end of the site.

We understand from both the Kirklees LLFA and Kirklees Building Regulations officer that SUDS will NOT be viable for this development. We will of course provide you with GI evidence once this is available, but local knowledge suggests that we will have no chance of utilising percolation structures.

As such, we have surveyed the existing drainage and find that the existing roof area of 200 sqm contributes plus external area of 400 sqm collected via a deep dish channel. see inserted sketch below. I would be pushing my luck to say this external area contributes fully as the surfacing has long since broken up and has been patch/made using compacted scalpings. Based upon an assumed equivalent catchment of 500 sqm overall, we calculate existing storm runoff to the combined sewer as 7.5 l/s for the 1/1 year storm. We suggest reducing this by 30% and restricting the flow to a minimal 5 l/s for the proposed development. We suggest this figure as it typically yields a minimum suitable orifice size of around 50 - 60mm to

avoid blockages and overland flooding.

Storage would be provided to provide attenuated volume for the 100 year event including for 30% climate change.

We would connect this storm to the 375mm sewer to the north of the site.

I think my logic is sound. Do you agree?

Kind regards

Steve

(Embedded image moved to file: pic10542.jpg)

-----Original Message-----

From: Chris.Roberts@yorkshirewater.co.uk [mailto:Chris.Roberts@yorkshirewater.co.uk] On Behalf Of Technical_Sewerage@yorkshirewater.co.uk
Sent: 23 May 2016 10:25
To: Steve Nicoll
Subject: Land To Rear Of 360-366 Leeds Hall Road Thronhiill Lees Dewsbury
WF12 - Pre Planning Sewerage Enquiry On R176598

Dear Mr Nicoll,

Please find my response below.

(See attached file: leeds.pdf) (See attached file: roberts4_rad0B708.PNG)

In response to your questions

It will be your choice if you would like to put forward your foul sewer system for adoption.

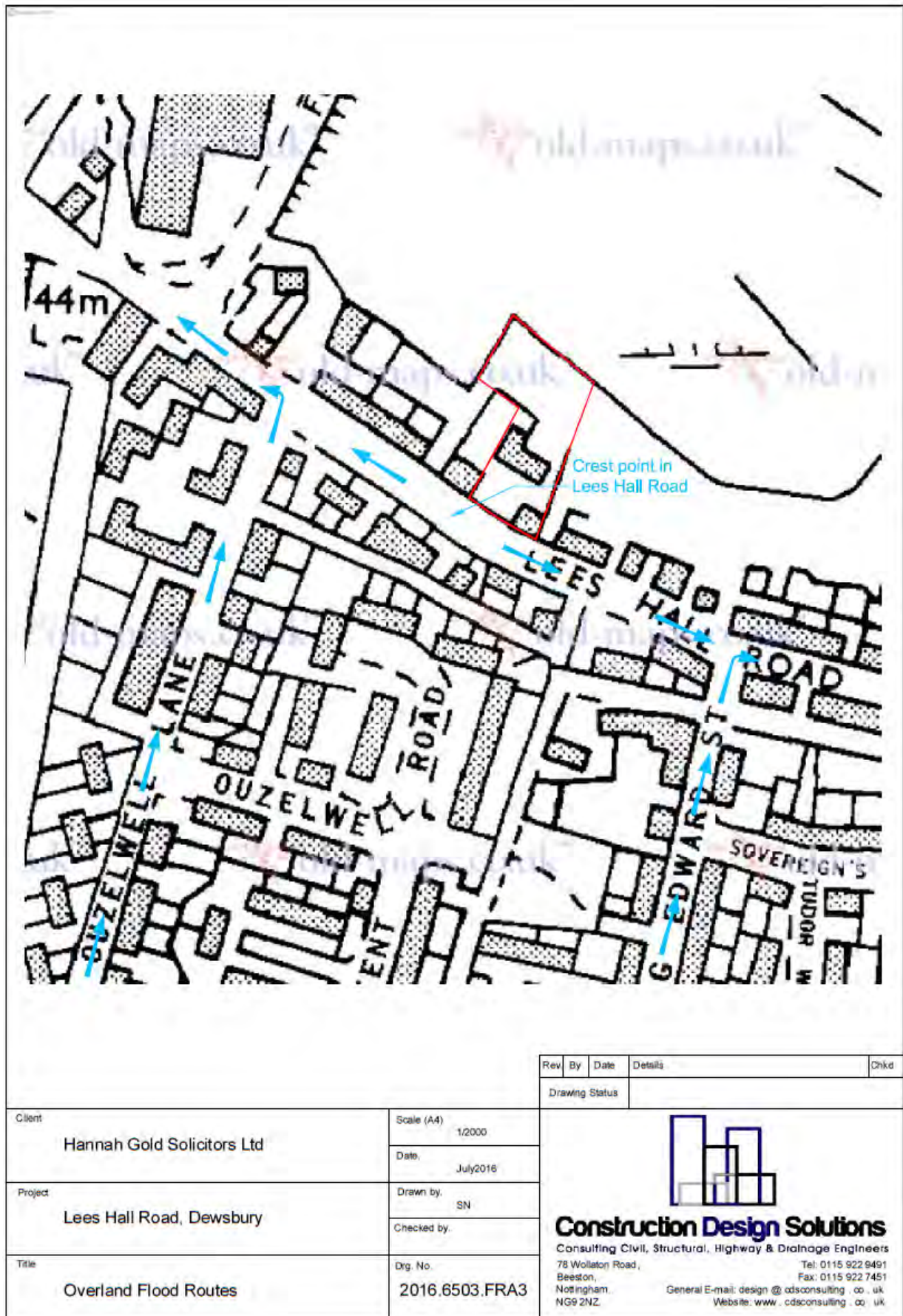
We do not adopt any SUDS systems but we may consider adopting your storm system.

If I can be of any further assistance please contact me on 03451 20 84 82.

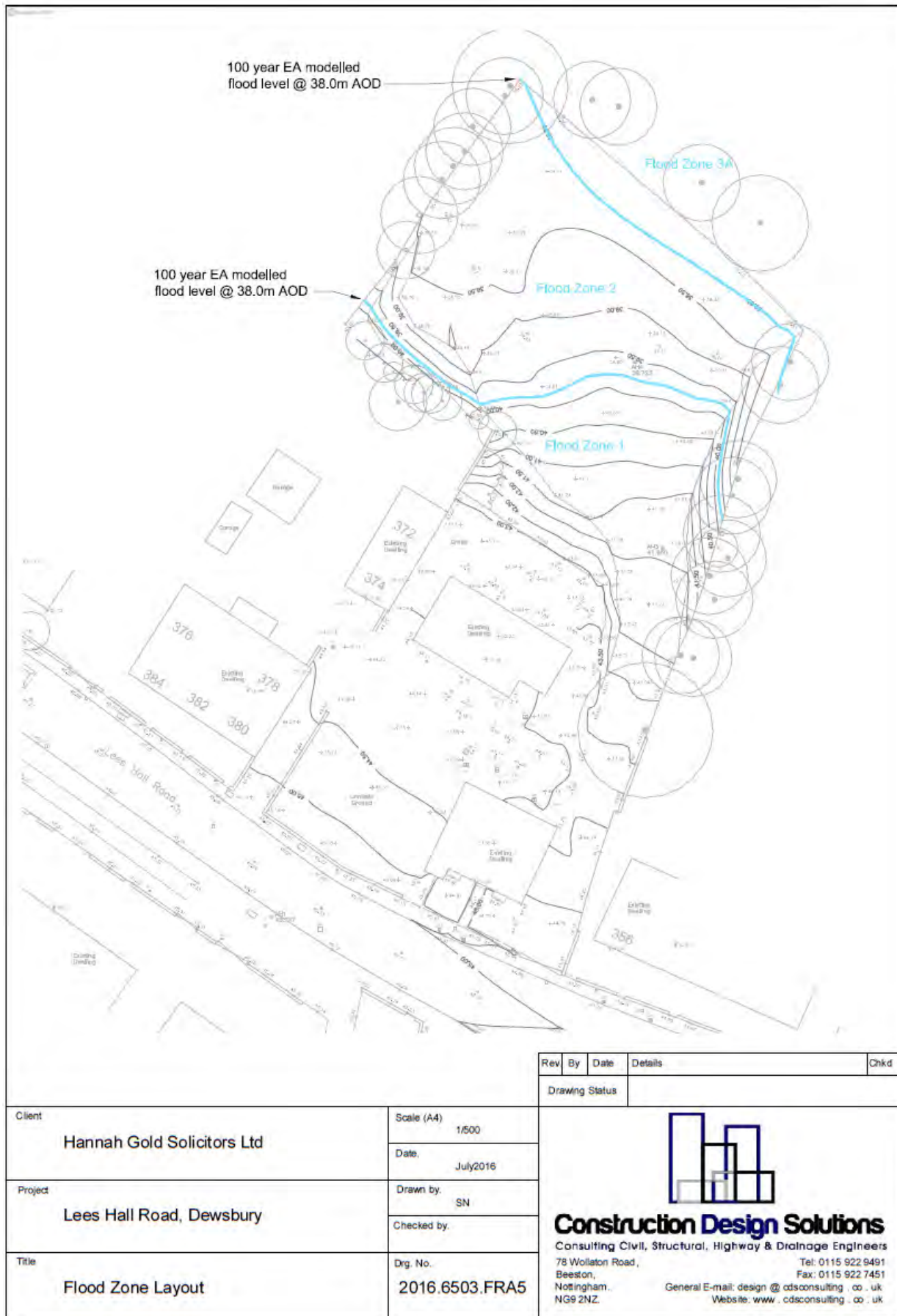
Regards

Chris Roberts
Sewerage Technical Team

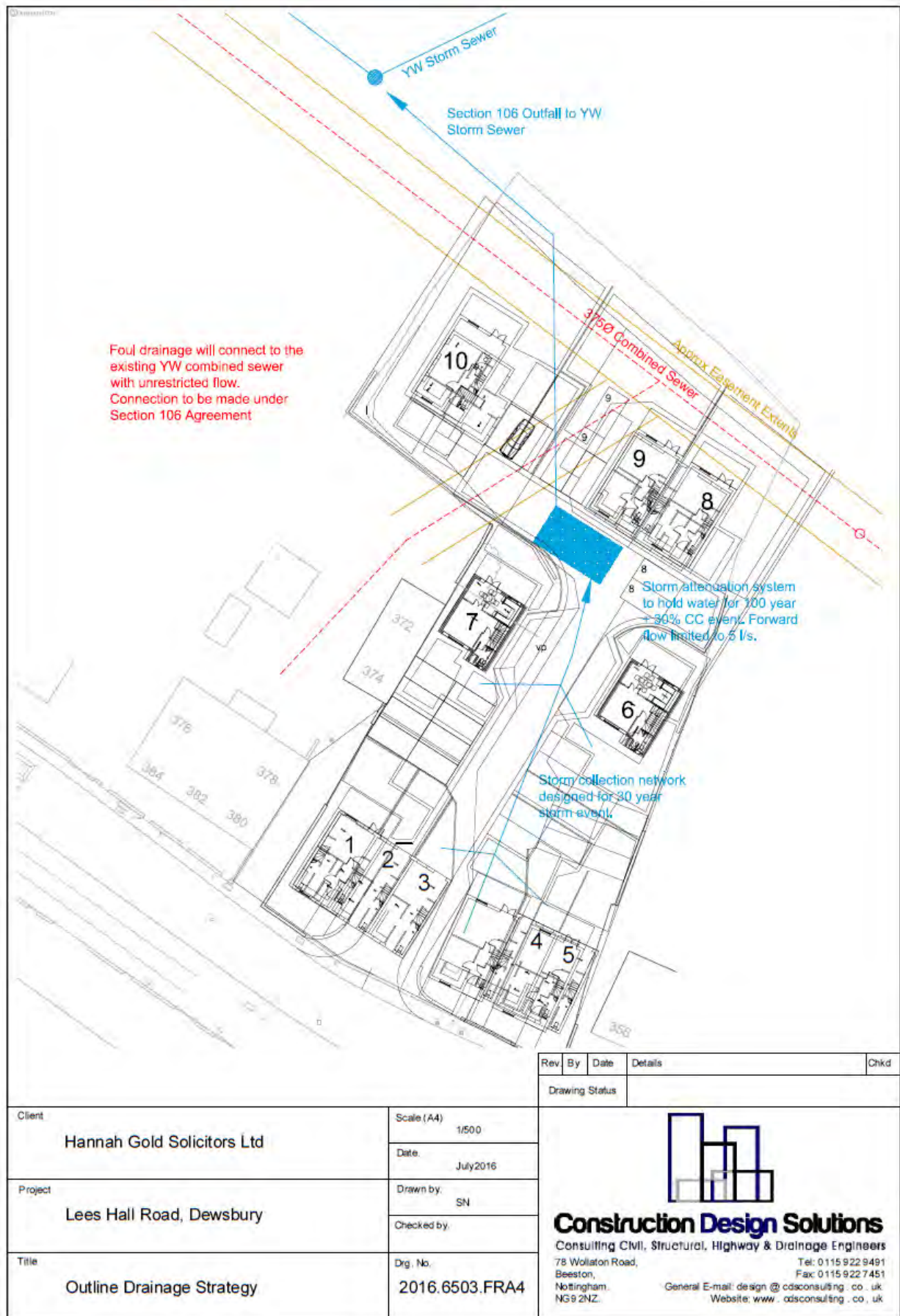
Appendix F - CDS Local Overland Flow Plan



Appendix G - Site Plan with Flood Extents



Appendix H - CDS Drainage Strategy Plan



Appendix I - Kirklees Flood Management Dept Informal Advice.

From: Paul Farndale [Paul.Farndale@kirklees.gov.uk]
Sent: 18 May 2016 15:56
To: Steve Nicoll
Subject: RE: Land Off Lees Hall Road, Thornhill Lees, Dewsbury.

Hello Steve,

Main River Flooding – Flood Zone 1 – Low Risk

Surface Water Flooding – 1 in 100 year mapping (3rd generation) shows ponding around a property at the junction of Ouzelwell Lane and Lees Hall Road. Stronger flow paths away from this area are created in 1 in 1000 year event but no shading is shown for the site itself highlighting low risk. There is great surface water flood risk in land to the north.

A series of flood incidents are recorded to properties on Ouzelwell Road to the south of the site. This includes sandbag requests to give a flavour of severity. Nothing is recorded closer to the site.

BGS data indicates severe constraints for SUDS infiltration for the area around the site.

There are several local systems draining land from the north. We are aware from local anecdotal evidence that records are incomplete and that some diversion work by persons unknown may have linked surface water systems to the public sewer network. I would therefore investigate fully any systems you become aware of to ascertain condition and ultimate outfall.

Public surface water sewers are located in the vicinity of the site, notably running at the opposite side of Lees Hall Road. It is not clear whether a gravity connection can be achieved from site. Kirklees Flood Management would object to pumping.

We have records of a watercourse of unknown condition and size running into land to the north some 90+m from the site.

We believe however that 1854 plans indicate an open watercourse much closer to the site and possible in line with the reported flood incidents described above. Although I cannot state with certainty by any means that this is still available or indeed related to the flood incidents. It is suggested that this is an avenue of investigation. Maps can be provided on request.

An analysis of the positive drainage on the site will be required to determine any discharge rates to local systems in line with Kirklees guides. Buildings may have occupied the site in the past (no.370 on 1960's maps). However buildings demolished for some time are regarded as having lost their place in the system.

Kind regards

Paul Farndale
Principal Engineer
Flood Management & Drainage
Investment & Regeneration Service
Kirklees Council
01484 221000



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