



Flood Risk Assessment

Roy Kilner Road Wombwell

On behalf of Barnsley Metropolitan District Council

Report 140257/01/JS
September 2013

Report Issue Record

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Client:	Barnsley Metropolitan District Council
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Appendices

- A Existing Site**
- B Proposed Site**

1 Introduction

1.1 Context

Robson Liddle Limited has been commissioned to undertake a Flood Risk Assessment in support of the design for a new housing development in Wombwell, Barnsley, South Yorkshire.

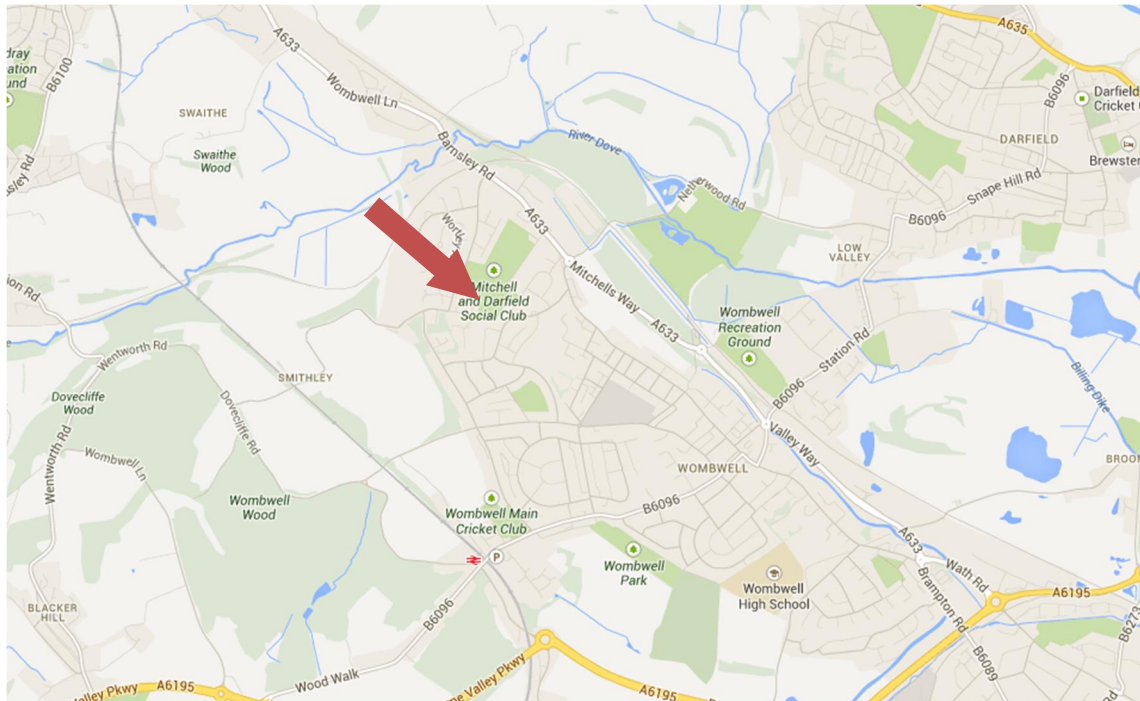
This assessment has been undertaken to assess the impact of the proposals with respect to flood risk.

1.2 Site Location and Features

Details of the site location are shown below:

Grid Reference: SE 39017 03825

Eastings/ Northings: 439017, 403826



A detailed plan of the site is available in Appendix A

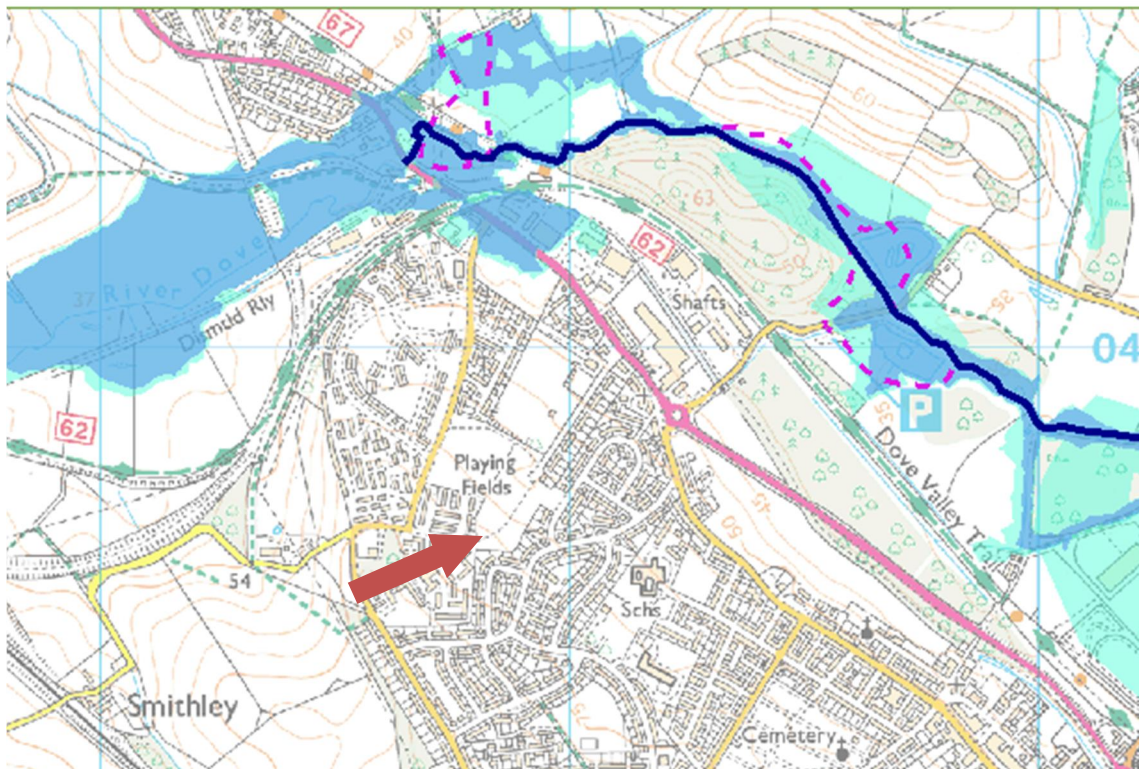
The area proposed to be developed is approximately 1.52 hectares in area, access will be via Roy Kilner road to the north east of the site. The site is currently green field bounded by residential areas to the west, south and east and playing fields to the north.

1.3 Development Proposals

Current proposals for the site are to construct a new residential development served by new adoptable highways. It is proposed to build 27 houses and a residential unit. The highway and associated FFLs of the property will follow the existing gradient of the site as far as practicable. Approximately 0.261Ha of the site will be impermeable highway and footway with 0.091 hectares of roof area.

1.4 Flood Zone Allocation

Based on the latest Flood Zone Mapping available from the Environment Agency (EA) the site is within flood zone 1, i.e. not at risk of fluvial flooding in rainfall events up to the 1000 year return period. See map below



1.5 Appropriateness of Development Proposals

Table 2 of the Technical Guidance to the National Planning Policy Framework (TGNPPF) provides information of the vulnerability classification of various developments. The site is within Flood zone 1, sequential and exception tests are not required.

1.6 Influence of Climate Change

When considering surface water runoff from a site the increase in peak rainfall intensity varies over the lifetime of the development. In line with guidance from TGNPPF and the code for sustainable homes a 30% increase in rainfall intensities should be applied in calculations

2 Sources of Information

2.1 Flood Zone Maps and Flood Defence Data

A copy of the flood risk map from the EA website is included in this report in section 1.4. As the site is within Flood Zone 1 no further information is required.

2.2 Watercourses and Ponds

The nearest water course to the development is Bulling Dike approximately 700m north of the site. The nearest major water course is the River Dearne, approximately 1.3km to the north of the development.

2.3 Historic Flooding

There is no known history of flooding on this site

2.4 Public Sewer Records

The Yorkshire Water public sewers in the vicinity can be summarised as follows

A 225mm combined sewer running through the back gardens of the properties along Wilson St and Rose Grove flowing north

A 150mm foul sewer from the end of Longfield Close into the playing fields flowing west.

A 300mm surface water sewer from the end of Longfield Close into the playing fields flowing west.

Yorkshire Water sewer records are available in Appendix A

2.5 Topographical Data

A topographical survey has been carried out and is included in Appendix A. The levels vary from approximately 71.5m in the south west corner of the site to 61.0m at the north east where the site meets Roy Kilner Road.

2.6 Barnsley Council Flood Risk Management

Barnsley Metropolitan District Council have no historical records of the site flooding

3 Flood Risk Assessment

3.1 Flood Risk Assessment Methodology and Objectives

It is recognised that developments that are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. Current guidance on development and flood risk¹ identifies several key aims for a development to ensure that it is sustainable in flood risk terms. These aims are as follows:

- The development should not be exposed to flood risk such that the health, safety and welfare of the users of the development, or the population elsewhere, are threatened;
- The development should not be at significant risk of flooding and not be subject to damage due to flooding
- Safe access to and from the development should be possible during flood events;
- The development should not increase flood risk elsewhere;
- The development should not prevent safe maintenance of watercourses or maintenance and operation of flood defences;
- The development should not be associated with an onerous or difficult operation and maintenance regime to manage flood risk. The responsibility for any operation and maintenance required should be clearly defined;
- Future users of the development should be made aware of any flood risk issues relating to the development;
- The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues;
- The development should not lead to degradation of the environment; and
- The development should meet all of the above criteria for its entire lifetime, including consideration of the potential effects of climate change.

¹ CIRIA, 2004, Funders Report CP/102 Development and Flood Risk – Guidance for the Construction Industry.

This Flood Risk Assessment is undertaken with due consideration of these sustainability aims, and has been prepared to inform the proposed scheme. A development lifetime of 100 years has been assumed.

3.2 Project Scope

In order to achieve the aims outlined above, this Flood Risk Assessment has been undertaken in accordance with current best-practice guidance, including TGNPPF. The report has been undertaken with due regard to the EA's National Standing Advice on Development and Flood Risk².

3.3 Potential Sources of Flooding

All potential sources of flooding must be considered for any proposed development. Using the EA flood risk zone mapping, public sewer records, topographical survey and Ordnance Survey maps a summary of the potential sources of flooding for the site have been reviewed and summarised in the table below.

Table 1: Potential Risk Posed by Flooding Sources

Potential Source	Potential Flood Risk to Site?	Comment
Fluvial flooding	No	The land is 1.3km away from the River Dearne and falls on higher land. If the River did overflow it is unlikely to affect the site
Tidal flooding	No	Not close to the coast
Flooding from rising / high groundwater	No	No issues known
Overland flow flooding	Yes	The site is located on a steep slope and therefore is only susceptible to flooding should the drainage system at the junction of Roy Kilner Road and Storeys Gate fail.
Flooding from piped drainage systems	No	The site may be at risk of flooding resulting from surcharging of the local drainage system. However, the surrounding sewers are owned and maintained by Yorkshire Water. We are unaware of any capacity issues or flood risk associated with these systems.
Flooding due to infrastructure failure (Reservoirs, lakes etc)	No	No
Increase in flood risk due to urbanisation of the catchment	No	No

An assessment has been undertaken which considers each of the potential flood risks identified above.

An assessment has been undertaken which considers the flood risks identified above

² Environment Agency, March 2007, National Standing Advice to Local Planning Authorities for Planning Applications – Development and Flood Risk.

In the unlikely event that the gullies at the junction of Roy Kilner Road and Storeys Gate become inundated, the water level could possibly overtop the kerbs. There is then a dwarf wall which would stop the flood flows from entering the development.

In conclusion the site is deemed not at risk of flooding

4 Drainage Strategy

4.1 Surface Water

This section of the report is supported by Yorkshire Water sewer records, the topographic survey and the existing and proposed drainage layouts available in the appendices.

4.1.1 Method of Discharge

The Building Regulations Part H prescribes a hierarchical approach to surface water discharge. In order of preference, surface water should be discharged:

- Via infiltration.
- To watercourse.
- To public sewer.

Discharge via Infiltration

Building Regulations Part H requires all infiltration devices to be a minimum of 5m away from buildings, this is achievable within the layout of garden space to the rear of the properties. The Ground Investigation Report NE3205 details infiltration tests that have been carried out on site. These test results indicate infiltration is a viable means of surface runoff elimination.

Decision: Method of discharge is appropriate.

No other means of surface water elimination requires investigation. Runoff from the impermeable areas will discharge into soakaways and infiltrate into the ground.

4.2 Disposal of Foul Water Runoff

Foul flows from the development will drain to the 225mm combined sewer crossing the site at the rear of the new properties on Rose Grove. The invert and condition of this sewer will require confirmation via CCTV survey.

5 Summary and Conclusion

Robson Liddle Limited has been commissioned by NPS Ltd to undertake a Flood Risk Assessment in support of a design for a new housing development in the Wombwell area of Barnsley. This assessment has been undertaken to ascertain the constraints to the development of this site, and to assess the impact of the proposals with respect to flood risk.

The site lies within Flood Zone 1 when considered against EA flood zone maps and as such is not at risk from fluvial flooding. Further assessment has found that the risk of flooding to the site is minimal.

The additional surface water runoff from the development will be eliminated from the site via infiltration.

The foul flows from the site will discharge into the public combined sewer running at the rear of the properties on Rose Grove. Additional CCTV survey will be required to determine the invert level of the sewer and condition.

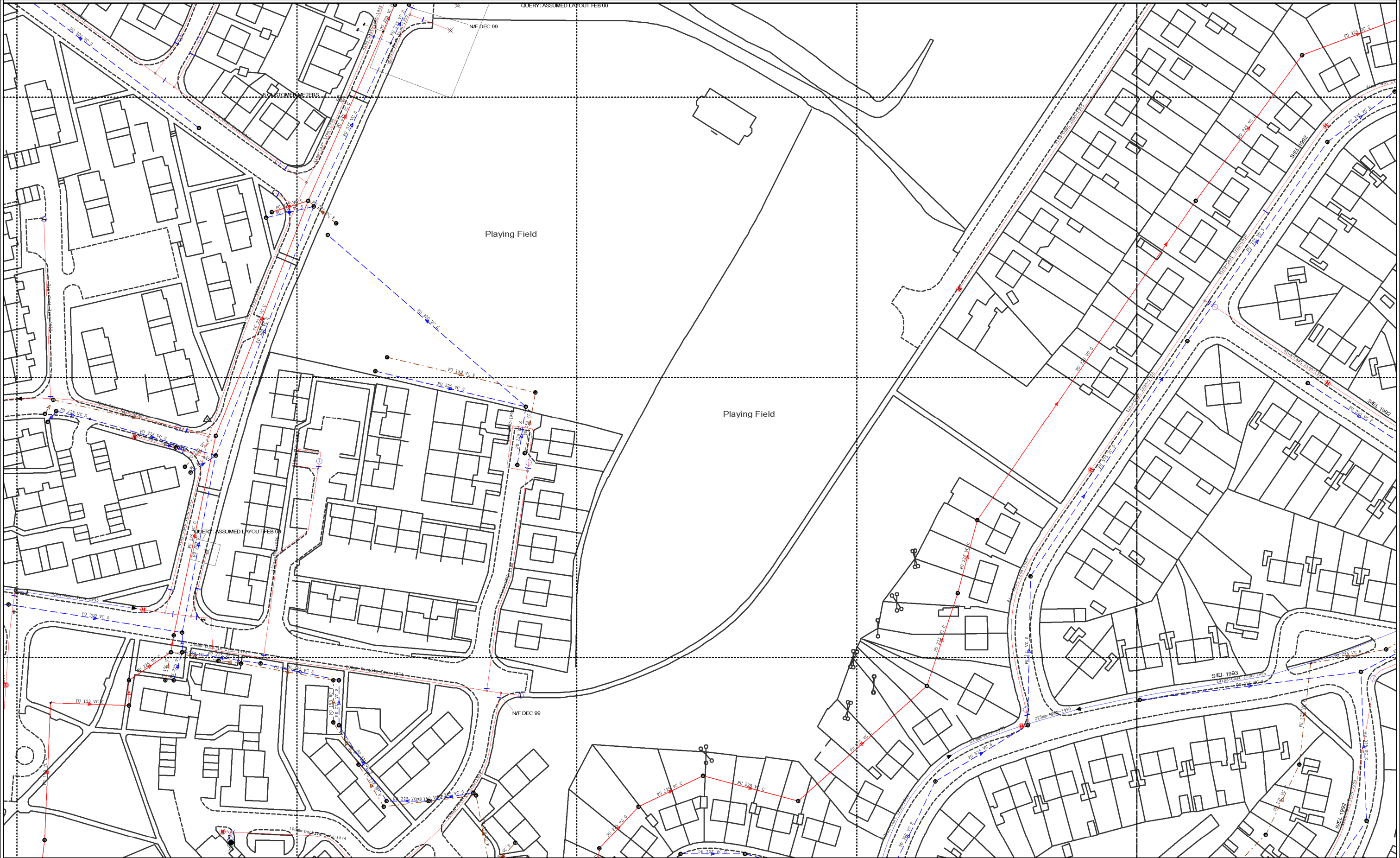
If this site is developed as proposed within this FRA it will not increase the flood risk in the vicinity of the site or affect other properties downstream.

Appendix A

1. Site Location Plan and Topographical Survey
2. Yorkshire Water Sewer and Water Main Records

Appendix B

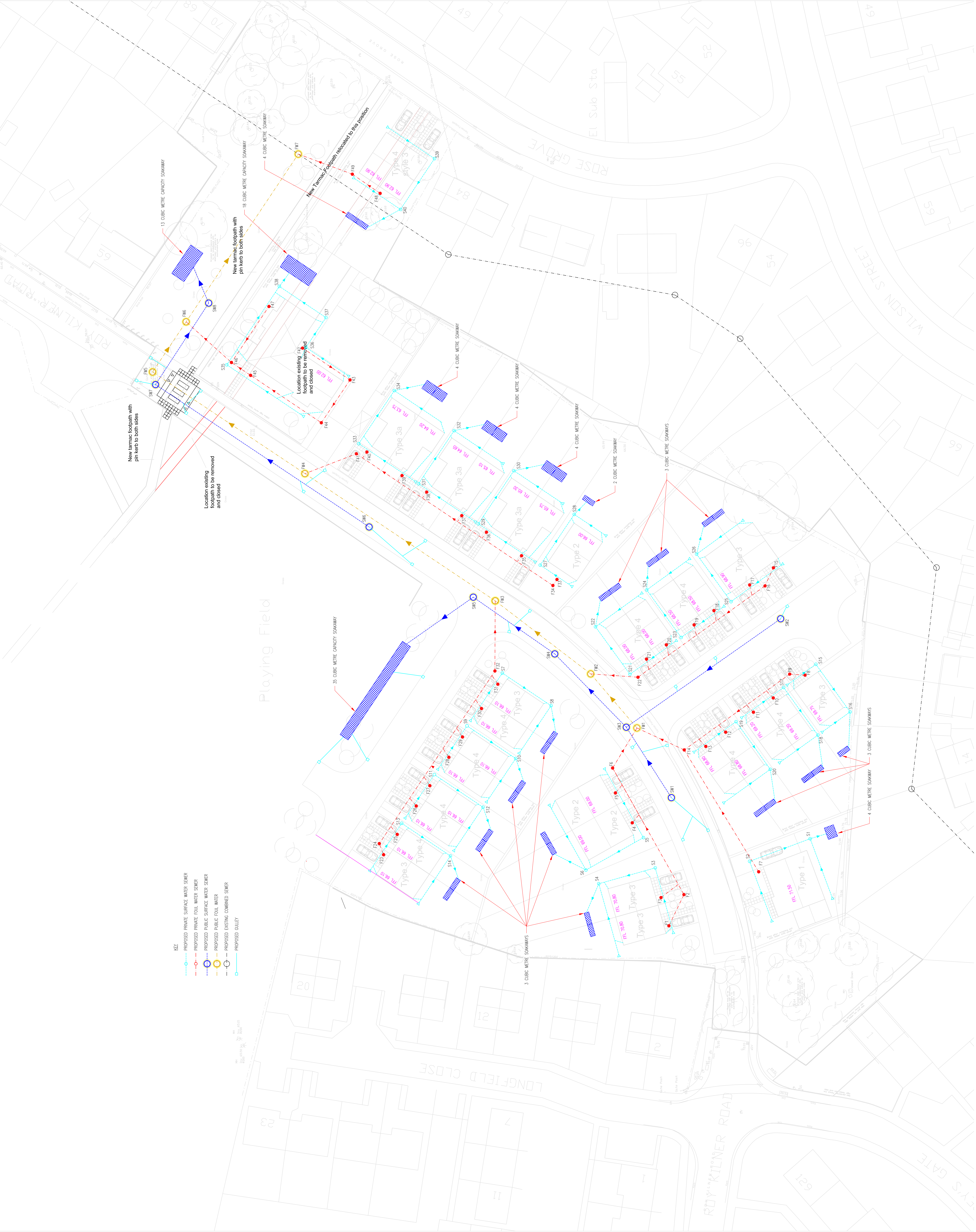
1. Proposed Drainage Layout



	Bottom-left: 438595, 403528 Scale: 1250	Map Name : SE3803NE	Notes	Partial Key		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 connection
	Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Contact Tel : Yorkshire Water Web Mapping System			Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS		
			(Ody) Based upon Ordnance Survey map data with the permission of the Controller of Her Majesty's Stationery Office, (c) Crown Copyright. Licence No. WU298581.	Date Req :		Last Data Update20/09/2012 13:42:00
				Source :		

Appendix B

1. Proposed Drainage Layout



This drawing is not to be scaled work to figured dimensions only.
Any discrepancy on this drawing to be reported immediately to Robson Liddle Ltd. for clarification.

NOTES

1. CONNECTION TO EXISTING YORKSHIRE WATER SEWER AND EXISTING DRAINAGE SYSTEM.
MANHOLES FWT TO FWT TO BE ADOPTED.
2. SURFACE WATER MANHOLES SERVING HIGHWAY AND SOAKWAYS TO BE ADOPTED AND MAINTAINED BY LOCAL HIGHWAY AUTHORITY.
3. DEPTH OF EXISTING COMBINED SEWER TO BE CONFIRMED VIA DRAINAGE SURVEY.
4. FINISHED FLOOR LEVELS AND COVER LEVELS STATED IN ASSOCIATED SCHEDULE ARE INDICATIVE ONLY TO BE CONFIRMED DURING DETAILED EXTERNAL LEVELS AND HIGHWAY DESIGN.
5. SIZES OF SOAKAWAY BASED ON INFILTRATION RATED STATED IN GROUND INVESTIGATION REPORT NE3205 AND ASSUMPTIONS MADE. SIZES MAY VARY. DESIGN PHILOSOPHY TO BE CONFIRMED BY LOCAL INTERNAL DRAINAGE BOARD.
6. SOAKWAYS TO BE CONSTRUCTED FROM CELLULAR UNITS. POLYPIPE POLYSTORM UNITS OR SIMILAR.

Rev	By	Date	Revision
Drawing Status			
PRELIMINARY			

Robson Liddle

consulting engineers

Part of nps group

nps group

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Job Title:	ROY KILNER ROAD WOMBWELL
Dwg Title:	PROPOSED DRAINAGE STRATEGY
Client:	NPS NOPRTH EAST
Scale:	1/250
Date:	05/09/13
Checked:	
Drawing no:	140257-601
Rev:	

