

**ROUGHBIRCHWORTH LODGE,**  
**ROUGHBIRCHWORTH LANE, OXSPRING**

**DRAINAGE REPORT**

**MAY 2018**

**S H A U N T O N G E**  
**E N G I N E E R I N G**

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# **DEVELOPMENT AT ROUGHBIRCHWORTH LODGE, OXSPRING**

## **DRAINAGE REPORT**

### **THE SITE:**

The site is currently part of Roughbirchworth Lodge and has an area of approximately 0.83 hectares.

The site is currently utilised as residential premises with numerous buildings, driveway and garden.

The site is bordered by the Trans Pennine trail to the north, Roughbirchworth Lane to the east, existing housing and fields to the south and the remainder of Roughbirchworth Lodge to the west.

The topography has a slope from the south to the north at an approximate gradient of 1:15.

A location plan is shown in Appendix A

A copy of the topographical survey is overlaid the layout in Appendix B

### **PROPOSED DEVELOPMENT:**

G Brearley & Daughters Ltd are seeking to develop the site with 22 residential properties and associated infrastructure.

A proposed site layout plan is shown in Appendix B

### **FLOOD RISK:**

The site is within flood zone 1. This is land assessed as having a less than a 1:1,000 annual probability of river or sea flooding.

A copy of the Flood risk map can be seen in Appendix C.

## **DRAINAGE CONSIDERATIONS:**

A copy of Yorkshire Water's public sewer record and pre development enquiry is included within Appendix D.

There is an existing 150mm culverted watercourse crossing the site. The approximate location of the culvert can be seen in Appendix E. A 3m easement to each side of the culvert will be required.

Onsite drainage should be designed with separate systems for foul and surface water.

## **SURFACE WATER**

Current best practise requires that a hierarchical approach to surface water disposal is undertaken. These being in order of preference:-

1. Infiltration based or Sustainable drainage systems
2. Watercourses
3. Public sewer

Infiltration based systems: A British Geological society report has been commissioned and is included in Appendix F. The use of infiltration methods of surface water disposal seem favourable but may be hampered by seasonally high ground water. It is recommended that infiltration testing is carried out in line with BRE 365 to confirm the infiltration rate and the potential of seasonal high ground water. Discussions with Barnsley MBC drainage department confirmed that infiltration methods of drainage would be the favoured option but a hydrogeological report should be carried out to confirm that any water from soakaways would not percolate into the disused railway cutting.

Watercourses: A 150mm diameter culverted watercourse crosses the site. The approximate position of this is shown in Appendix E.

Public surface water Sewer: There are public surface water sewers within the vicinity of the site but these are on the "high side" of the proposed development. Any connection to them from the existing buildings on the site is highly unlikely and therefore Yorkshire Water would not allow a connection to them from the proposed development.

## **FOUL WATER**

There is a 225mm diameter combined sewer within Roughbitchworth Lane.

## **DRAINAGE PROPOSALS:**

### **SURFACE WATER**

It is proposed to utilise soakaways for surface water disposal subject to achieving satisfactory infiltration testing results and hydrogeological report. Soakaways should be designed in line with BRE 365 and have storage capacity for the 1:100+30% climate change event. Any soakaway should be located a minimum of 5m from buildings.

If infiltration testing proves negative then surface water flows should be attenuated to 5l/s prior to discharging to the culverted watercourse crossing the site. Attenuation can take many forms, examples are ponds and basins, oversized pipes, box culverts and cellular crates.

It is not clear from the information available if the whole site could drain by gravity to the culverted watercourse. It may be necessary to lift levels or provide a pump station.

### **FOUL WATER**

Foul water from the development should discharge to the 225mm combined sewer within Roughbitchworth Lane. It is unclear whether a gravity connection can be made and it may be necessary to lift levels or install a pumping station.