

LITTLEWORTH LANE, MONK BRETTON, BARNSELY

DRAINAGE STRATEGY

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SHAUN TONGE
ENGINEERING

11 Broomhead Road, Wombwell, Barnsley

M: 07528 278070

DEVELOPMENT AT LITTLEWORTH LANE, MONK BRETTON

DRAINAGE STRATEGY

THE SITE:

The site is located off Littleworth Lane, Monk Bretton and occupies an area of approximately 0.16 hectares. The site is currently used as for vehicle repairs with a hard surfaced forecourt. A topographical survey hasn't been carried out to date but a visual inspection suggests the site is gently sloping towards Littleworth Lane.

The site is bounded by Littleworth Lane to the north, a care home to the east, a small wooded area to the south and a surface water balancing pond serving a large residential development to the west.

A location plan is shown in Appendix A

PROPOSED DEVELOPMENT:

Outline planning permission is sought to develop the site for residential purposes.

FLOOD ZONE LOCATION:

The Environment Agency flood map shows the site lies within flood zone 1. The site is therefore "low probability" where the annual risk of fluvial flooding is less than 0.1%. There are no known open watercourses within vicinity of the site and therefore there is no potential for fluvial flooding.

DRAINAGE CONSIDERATIONS:

A copy of the public sewer record and Yorkshire Water pre-development assessment is included within Appendix B.

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 systems
2. Watercourses
3. Public sewer

Infiltration based systems:

No Infiltration testing has been carried out on the site.

Information held on the Planning portal for the adjacent residential development confirms that natural strata is firm to stiff clay, and therefore, infiltration is not expected to be an option for surface water disposal.

Watercourses: There are no known watercourse's within the immediate vicinity of the site.

Surface water sewer: There is a 225mm surface water public sewer crossing the site frontage. Where the sewer is located within the development curtilage the appropriate easement or build over agreement should be agreed with Yorkshire Water.

FOUL WATER

Yorkshire Water have confirmed that foul water from the development can discharge to the 450mm diameter public combined sewer located to the south of the site. This sewer is positioned outside the site boundary and therefore an agreement with the land owner(s) would be required prior to making a connection. Alternatively, a drainage survey could be carried out to confirm if the existing foul connection from the garage could be utilised.

DRAINAGE PROPOSALS:

SURFACE WATER

Infiltration tests haven't been carried out on the site. Information available on the planning portal for the adjacent residential development confirms the natural strata is firm to stiff clay and therefore it is highly unlikely that infiltration methods of drainage will be an option.

Consultation with Yorkshire Water has confirmed an existing 225mm surface water sewer to the frontage. It seems likely that the building and forecourt are connected to the surface water sewer but this should be confirmed by a detailed survey. Any future discharge should be reduced by 30%.

The site impermeable area is approx. 880m² – Please refer to Appendix C.

Surface water run off with a rainfall intensity of 50mm/hr would equate to 12l/s. Once this is reduced by 30% it would give a design discharge rate of 8.4l/s. The discharge rate should be confirmed by a detailed drainage survey and agreed with Yorkshire Water.

The surface water system should be designed to cater for a 1:100 year +40% storm event. An Initial estimate based upon a discharge rate of 8.4l/s and a proposed impermeable area of 50% suggests approx 23m³ of attenuation would be required. Microdrainage calculations can be seen within Appendix D.

The current planning application is for outline permission only and therefore a site layout is not available. Depending on the final layout configuration, the surface water attenuation required could be provided by a number of methods eg. oversized pipes, geo-cellular tank or grassed detention basin.

The future maintenance of the constructed drainage system would also depend on the final approved site layout. Drainage assets could potentially be transferred to Yorkshire Water, Highway Authority, Management company or remain in private ownership.

FOUL

A detailed drainage survey should be carried out to ascertain if the existing foul connection is suitable for re-use.

If the existing connection is unsuitable then agreement will need to be sought from the adjoining landowner to connect to the 450mm diameter combined sewer. As a last resort a sewer could be requisitioned by Yorkshire Water under Section 98 of the Water Industry Act 1991.