

STUD FARM, SPRING LANE, CARLTON, BARNSELY

WHITE AGUS PARTNERSHIP

DRAINAGE STRATEGY

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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 SPRING LANE, CARLTON, BARNSELEY

DRAINAGE STRATEGY

THE SITE:

The site is located on the corner of Spring Lane and Church Street, Carlton and occupies an area of approximately 0.69 hectares. The site is currently a Stud farm with a farmhouse and redundant out buildings. The topography is generally flat with slight falls from the centre of the site towards the North West and south east. The site is bounded by Spring Lane to the south, a church to the north, Church Street to the east and existing dwellings to the west.

A Topographical survey is shown in Appendix A

PROPOSED DEVELOPMENT:

It is proposed to develop the site with 12 new residential properties along with 2 barn conversions and associated infrastructure.

A proposed site layout plan is shown in Appendix B

DRAINAGE CONSIDERATIONS:

A copy of the public sewer record is included within Appendix C

There are no recorded public sewers crossing the site.

There is 225mm diameter surface water and a 225mm diameter public combined sewer within Church Street. There is a 225mm public foul sewer within Spring Lane.

Onsite drainage will 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:

Infiltration testing in line with BRE Digest 365 has been carried out by Eastwood and Partners and confirms that infiltration methods of drainage will only be possible within thick bands of natural sand. The initial infiltration tests carried out were successful but the subsequent tests failed due to siltation of the trial pits. Areas of the site also consist of deep made ground and clays which are unsuitable for infiltration.

It is also understood that Barnsley MBC LLFA do not favour communal soakaways and therefore the use of infiltration methods of drainage for this site are not recommended.

Infiltration test results can be seen in Appendix D

SUDS systems:

SUDS systems are designed to mitigate the impact of development on receiving watercourses or sewers by mimicking pre development conditions as far as possible. New development should not worsen flooding downstream and should attempt to improve flooding wherever practical.

Sustainable Drainage can take many forms dependant on site use, ground conditions and topography. In terms of the hierarchy of sustainable options, infiltration based systems should be considered in the first instance i.e. soakaways/infiltration/swales/basins/rain gardens etc. The use of infiltration systems will be subject to the infiltration characteristics of the natural ground below the site. In areas with cohesive sub soils it is unlikely that sufficient percolation can be provided to allow the implementation of infiltration techniques. It has been confirmed that soils below this site are generally unsuitable for infiltration.

The use of swales is not viable on this development due to the lack of suitable verge areas adjacent to the Highway, and potential conflict with utility crossings.

The use of ponds and basins tend to be more viable for larger developments where there are significant areas of open space. A pond/basin would not be practical on this development due to the lack of public open space.

Watercourses: There are no known watercourses in the immediate vicinity of the site.

Public Sewer: A 225mm diameter public surface water sewer exists within Church Street. It is advised that Yorkshire Water are contacted to agree a surface water connection to this sewer. It is very likely that flows will need to be restricted and attenuation storage will be required. Attenuation would be best provided by utilising oversized pipes/box culverts with a flow control device. The system should be designed and constructed in line with Sewers for Adoption 6th Edition and offered to Yorkshire Water for adoption via a Section 104 agreement.

It is unclear at this stage whether a gravity connection is possible and therefore it is recommended that manhole invert levels are checked to confirm if lifting of site levels or pumping is required.

FOUL WATER

There are public combined and foul sewers adjacent to the site within Church Street and Spring Lane. It is advised that Yorkshire Water are contacted to agree a foul water connection into one of these sewers.

The onsite system should be designed and constructed in line with Sewers for Adoption 6th Edition and offered to Yorkshire Water for adoption via a Section 104 agreement.

It is unclear whether a gravity connection is possible and therefore it is recommended that manhole invert levels are checked to confirm if lifting of site levels or pumping is required.