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**FLOOD RISK ASSESSMENT AND SURFACE WATER MANAGEMENT STRATEGY
FOR A PROPOSED DEVELOPMENT
AT
WELLHOUSE LANE, PENISTONE**

**Prepared for
BDW HOMES (WEST YORKSHIRE)**



**iD Civils Design Ltd
The Stables
Aske Hall
Richmond
North Yorkshire
DL10 5HG**

Tel: 01748 889010
Web: id-gsc.co.uk

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Prepared By	Date
Darren Linklater	13.01.20
Checked By	Date
Chris Richardson	13.01.20

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**FLOOD RISK ASSESSMENT AND
SURFACE WATER MANAGEMENT STRATEGY REPORT
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AT
WELLHOUSE LANE, PENISTONE**

1 INTRODUCTION

- 1.1 iD Civils Design Ltd (iD), have been appointed by BDW Homes (West Yorkshire) (BDW) to prepare a Flood Risk Assessment (FRA) and surface water drainage management strategy report for the proposed residential development on land at Wellhouse Lane, Penistone.
- 1.2 This Flood Risk Assessment and Surface Water Management Strategy Report accompanies a full planning application for the redevelopment of the site to provide 459 dwellings, associated infrastructure and creation of new public open space.
- 1.3 The report will be undertaken in accordance with Environment Agency, Barnsley Metropolitan Borough Council (BMBC) and Yorkshire Water development control policies and will focus on:
- Site Use and Current Drainage regime, Flooding History, Ground Conditions and use of SUDS, Impact of development and proposed drainage strategy, pluvial flooding routes and the overall impact of development on the site and surrounds.
- 1.4 The report is for the sole use of BDW and presents comments and conclusions based on information available at the time of writing. iD reserve the right to amend conclusions if further information is made available.

2 BACKGROUND

- 2.1 BDW is seeking planning consent for the construction of 459 new dwellings on the site. The site is greenfield and currently used for grazing of livestock. The site is located south of Halifax Road (A629) and west of Wellhouse Lane to the north of Penistone.
- 2.2 The southern part of the site is constrained by topographic levels. There is also a railway cutting close to the north eastern corner of the site.

2.3 This Flood Risk Assessment has been undertaken with reference to the following reports and documents:

- Environment Agency Flood Zone Maps (EA website)
- Environment Agency Surface Water Flooding Maps (EA website)
- Barnsley MBC Strategic flood risk Assessment
- Barnsley MBC Development Control Standards
- National Planning Policy Framework (NPPF)
- Technical Guidance to NPPF
- Sewers for Adoption 6th edition
- Public Sewer Records and pre-development enquiry (Yorkshire Water)
- Proposed Site Layout
- SuDS Manual (Ciria C753)
- Topographical Survey
- Site Investigation Report provided by BDW and produced by Brownfield Solutions.
- Topographical Survey provided by BDW.
- EA Technical Guidance

2.4 In addition, iD has reviewed commercially available information including aerial photographs and historic ordnance survey maps of the area during the preparation of the report.

2.5 **Site Walkover:** A site walkover survey was undertaken in Summer 2018. During the site walkover, overland flood routes onto and from the site were inspected where possible in order to assess the risk of flooding from external sources.

3 REGULATORY GUIDANCE

- 3.1 National Planning Policy Framework (NPPF), along with the Technical Guidance to NPPF provides the regulatory framework and guidance for planning authorities in relation to Flood Issues for new developments. Any application submitted to a local planning authority will be considered in conjunction with this guidance and local development control policies, and dependant on the nature and location of the application, the planning authority may request a Flood Risk Assessment as part of the planning application submission.
- 3.2 The Environment Agency is a statutory consultee to the Planning Authority in relation to flood risk issues.
- 3.3 BMBC is the Lead Local Flood Authority (LLFA), and has their own internal Flood Management/Drainage Department which would advise on drainage issues and work with the EA on strategic issues within the area.
- 3.4 The Environment Agency has, in April 2015, provided guidance for local planning authorities regarding the relevant consultees to the planning process in terms of flood risk. In summary, this advises that the Lead Local Flood Authority should be consulted for major developments in all flood zones, with the Environment Agency also consulted if the development is within 20 metres of a main river. If the site is more distant to a main river then the Environment Agency should only be consulted for Flood Zone 2 and 3 developments, with the exception of water compatible developments in Flood Zone 2 where consultation is not needed. As this site is greater than 20m from a main river the EA have not been consulted directly, although EA flood risk and surface water flooding plans have been reviewed.
- 3.5 The Environment Agency have undertaken a national study of flood risk across England and published flood maps covering the country. The maps can be viewed on the agency web site at www.gov.uk/government/organisations/environment-agency. Specific locations can be studied by searching either using postcode or address.
- 3.6 The EA flood maps identify 3 zones.

Flood Zone 1: This zone comprises land with a less than 1 in 1000 annual probability of river or sea flooding in any one year (<0.1%)

Flood Zone 2: This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%-0.1%) in any year. This flood zone is denoted by light blue shading on the EA flood zone maps.

Flood Zone 3: The zone comprises land assessed as having a 1 in 100 year or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. This flood zone is denoted by dark blue shading on the EA flood zone maps.

3.7 Flood risk should be assessed from the following sources;

- Tidal and river
- Surface water overland flow
- Groundwater
- Sewers (Pluvial Flooding)
- Artificial sources e.g. canals, reservoirs, water mains.

3.8 Flood zone plans reflect the undefended flood scenario for a particular area. Many flood areas are defended with flood defences of varying types and design life. Areas benefiting from flood protection are shown hatched on the EA plans. The EA have also published additional flood risk mapping, the Risk of Flooding from Rivers and the Sea, which shows the defended scenario.

3.9 The EA has published a series of Surface Water Flood Maps which demonstrate overland flood routes on the basis of a 100-year storm event assuming that the natural drainage system is blocked or at capacity (pluvial flooding). Whilst this premise may have a low risk of occurrence, the plans assist designers in identifying areas at risk so that the necessary flood mitigation measures can be designed to produce a safe development.

3.10 The level of detail and complexity of a Flood Risk Assessment can vary considerably, dependant on the scale, nature and location of the planned development. EA guidance sets out the criteria for the level of information which should be included within the FRA.

3.11 The development site is shown to lie within Flood Zone 1 on the Environment Agency's Flood Map for Planning and on the Risk of Flooding from Rivers and the Sea plan. A copy of this plan is included as drawing 4619-FRA02.

3.12 The Planning Practice Guidance to the NPPF refers to vulnerability classifications, which are based on the sensitivity of different forms of development. In accordance with the guidance (Table 2) the residential end use planned for this development is classed as '*More Vulnerable*'.

- 3.13 Table 3 in the NPPF technical guidance provides information in relation to the appropriate vulnerability classes within each of the flood risk zones. The table is presented below:

Table 4619.1 – Flood Risk Vulnerability and Flood Zone compatibility

Flood Risk Vulnerability Classification (Table 2 NPPF)	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test Required	✓	✓
Zone 3a	Exception Test Required	✓	x	Exception Test Required	✓
Zone 3b	Exception Test Required	✓	x	x	x

- 3.14 Based on the above table it can be seen that the intended use of the development is consistent with NPPF guidance.
- 3.15 **The Sequential Test:** In accordance with NPPF, LPA's allocating land for development should apply the Sequential Test, to demonstrate that there are no available sites in the area with a lower risk of flooding. As the site is in Flood Zone 1 a Sequential Test is not needed.
- 3.16 **The Exception Test:** The exception test is relevant if, following the application of the sequential test; it is not possible for the development to be allocated in zones of lower probability of flooding. The test provides a method of managing flood risk while still allowing necessary development to occur. The development is within Flood Zone 1; thus, the Exception Test will not be required.
- 3.17 Yorkshire Water work within the framework of 'Sewers for Adoption'(SFA), which sets the standard for adoptable surface water and foul water sewers. They also apply development control standards which are consistent with current best practice and Building Regulations. Yorkshire Water is currently working to the 6th edition of SFA.

- 3.18 Developers are encouraged to make 'pre-development' enquiries to Yorkshire Water to ensure that there is sufficient time for the company to fully assess the capacity of their network and treatment works. This process also ensures that drainage strategies are acceptable in principle, prior to planning permission and helps avoid any objections from Yorkshire Water during the planning process. ID submitted a pre-development enquiry to YW with regards to the development followed by a number of emails clarifying matters raised and a copy of their response and subsequent emails is appended to this report in appendix C.
- 3.19 BMBC, as Lead Local Flood Authority, is a statutory consultee to the Local Planning Authority regarding SuDS matters on major developments. At the present time, there is no obligation for local authorities of LLFA's to adopt SuDS features.
- 3.20 BMBC do not adopt SUDS features. Consideration of the type of SUDS features that can be reasonably incorporated into this site has been undertaken and is covered later in this report.
- 3.21 BMBC have minimum development drainage standards that need to be met as part of development proposals.

4 SITE DESCRIPTION AND HISTORY

- 4.1 A site location plan is included as Drawing No. 4619-FRA01. Site details are summarised in the Table below.

Table 4619.2 - Site Location Summary

Detail	Remarks
Location	South of Halifax Road (A629), west of Wellhouse Lane, Penistone S36 7EY.
NGR	SE 24554, 404400
Area	15.08 Ha (planning application boundary). 13.13 Ha Net developed (excluding tree belts and open space areas).
Current Use	Grazing land.

- 4.2 **Topography:** The site is an irregular polygon shape. Halifax road runs along the northern edge of the site with a railway cutting and Wellhouse Road forming the eastern edge of the site. To the south there is a steep valley feature and watercourse beyond. To the west there is an existing farmstead and more grazing land.
- 4.3 The site falls from a high point in the north to the south. The northern half of the site is gently sloping with a typical gradient of around 1:50, but the slope steepens in the southern area to around 1:15. Land to the south of the site drops away to a watercourse/pond some way below the site.
- 4.4 There are no public rights of way through the site.
- 4.5 **Existing Hardstanding:** There are no areas of hardstanding within the site.
- 4.6 **Hydrology:** Ordnance Survey mapping shows that the nearest watercourse, Scout Dike, is around 30m from the southern boundary. Scout Dike flows into the river Don south of the site.
- 4.7 From liaison with the LLFA, there is a known culverted watercourse in the north eastern corner of the site which flows through the site and crosses wellhouse Lane to the east. The route of this watercourse is shown on the drainage strategy plan.
- 4.8 **Groundwater:** Initial trial pit logs from the intrusive investigation available at the time of writing this report indicate that groundwater seepage occurred in a small number of trial pits at between 1.0m and 2.8m in depth.

- 4.9 **Existing Drainage:** A review of Yorkshire Water records reveals that there are no adopted sewers within the site. There is a 150mm diameter combined sewer within Wellhouse Lane to the east and also a 225mm diameter combined sewer along Barnsley Road to the south.
- 4.10 There was no evidence of land drainage within the site found during the site investigation but that does not preclude the presence of land drainage which may only be located after works have commenced.
- 4.11 **Ground Conditions:** The geoenvironmental investigation by Brownfield Solutions indicates approximately 0.3m of topsoil over firm to stiff clay over weak to strong mudstone. Made ground was encountered in a single pit to the north east of the site.
- 4.12 Environment Agency mapping shows that the site does not fall within a source protection zone. There are no groundwater abstractions within 500m of the site.
- 4.13 **Site History:** The site is greenfield with no previous development. Mapping from 1848 indicates a possible mineshaft in the north east. There are a number of quarries within proximity of the site shown on old OS maps.

5 EXISTING SITE DRAINAGE

- 5.1 iD has obtained a copy of Yorkshire Water's Sewerage Record plans for the area. A summary of sewers present within and adjacent to the site is presented below, and a copy of the sewer record is included within Appendix B:

Table 4619.3 – Existing Drainage

Drainage	Description
Surface Water Sewer	Yorkshire Water records indicate that there are no surface water sewers crossing or within close proximity of the site.
Foul Water Sewer	There are no foul sewers crossing or within close proximity of the site.
Combined Water	There are no combined sewers passing through the site. There is a combined sewer running within Wellhouse Lane to the east of the site. This sewer is 150mm and flows through existing development down to Barnsley Road to the south where it is 225mm diameter.
Highway Drainage	IDC has no records of any highway drainage in the area, however there may be drains in Wellhouse Road which are not shown on the sewer maps.
Land Drainage	During the walkover, there were no signs of land drainage on site, however this does not rule out the possibility of land drainage and care should be taken during construction works to identify any unrecorded land drainage and reinstate any disturbance.
Watercourses/Culverts	As described previously there is a culverted watercourse in the north eastern corner of the site. The watercourse has not been accurately located but it is shown on old OS plans as an open watercourse. The route of the culvert is shown on the drainage strategy plan.

- 5.2 The existing site does not feature any hardstanding areas and is totally greenfield. The joint Environment Agency and DEFRA R&D Technical Report W5-074/A/TR/1 'Preliminary Rainfall Runoff Management for Developments' reviews the methodologies for the derivation of greenfield runoff from development sites. The report recommends (Table 9.1) that for catchments of less than 50ha the methodology set out in the Institute of Hydrology Report 124 should be followed, with greenfield rates for small sites based on a 50ha area with linear interpolation to the site size.

- 5.3 The LLFA have been contacted and they have confirmed that they apply a 5 l/s greenfield rate across the whole borough. This rate is very close to the rate derived from IOH124. The rate should be applied only to developed parts of the site i.e. should exclude open space and landscape buffers etc. The developed part of the site is 13.13 Ha and therefore the greenfield rate used for the purposes of this report is 65.6 l/s from the whole site. A catchment area plan is included as Dwg. 4619-FRA05.

6 PROPOSED DEVELOPMENT

- 6.1 It is proposed that the site is developed to provide 459 new dwellings. The site has two access points, one from Halifax Road to the north and one from Wellhouse Lane to the east. There is a looping system of estate roads through the site.
- 6.2 There are large open space areas within the site, particularly within the south and central area. The southern open space is also utilised as SUDS area as discussed later in this report.
- 6.3 A detailed assessment of the catchment area is beyond the scope of this report and may well change through the planning process, however a catchment of 55% of the developed area (excluding open spaces and tree belts) has been assumed for the derivation of storage volumes. This figure is regarded as reflective of this type of development. The total drained catchment assumed is therefore 7.22 ha.
- 6.4 The new highways within site will be offered for adoption under a section 38 agreement with the highway authority (BMBC).
- 6.5 Foul and surface water sewers, pumping station and storage within the site will be adopted by Yorkshire Water under a section 104 agreement on completion.
- 6.6 Open space areas within the development will be adopted by a site management company formed by the residents of the estate.

7 FLOOD HISTORY AND SITE VULNERABILITY

- 7.1 Flooding can occur from a variety of sources, including tidal, rivers, watercourses, overland run-off, sewers and culverts. NPPF and BMBC guidance requires flood risk from all sources to be evaluated and suitable mitigation provided where required.
- 7.2 Environment Agency mapping shows that the site is located within Flood Zone 1 and the risk of flooding from surface water plans, which map likely overland flow routes, shows that the site is at a low risk of surface water flooding. Flood maps are included in this report and the risks associated are discussed in detail below.
- 7.3 The SFRA does not identify the site as a flood risk area.
- 7.4 **Climate Change:** NPPF provides guidance with respect to the implications of climate change and suggests appropriate additional allowances for climate change with respect to rainfall intensities.
- 7.5 Subsequent to the NPPF the Environment Agency have, in February 2016, provided updated guidance on climate change allowance. In terms of peak river flow this guidance varies by river basin district and provides central, higher central and upper end allowances based on the 50th, 70th and 90th percentiles respectively.
- 7.6 Liaison with BMBC confirms that the authority adopts a climate change factor of 30% for new developments of this type. EA guidance in terms of peak river flows is not relevant to this application as it is not adjacent to a main river.
- 7.7 All storage volume figures quoted in this report are reflective of 30% climate change factor.

8 FLOOD IMPACT AND MITIGATION MEASURES

8.1 NPPF guidance requires the risk from a range of potential sources to be evaluated. The range of flood sources identified in NPPF is reviewed below:

8.2 **Flood Risk General:** Based on the site walkover survey, a review of Ordnance Survey level data and EA fluvial and surface water flood maps, the risk of flooding to the development is considered to be **low**.

8.3 **Flood Risk from Rivers/Watercourses or the Sea – Fluvial Flooding:** Environment Agency mapping shows that the site is located within Flood Zone 1 and there is no known history of fluvial flooding on the site.

Mitigation: None required.

8.4 **Flooding from Overland Surface Water:** The Environment Agency's risk of flooding from surface water plans shows no surface water flooding through the site or crossing the boundaries of the site.

Mitigation: None required other than proposals to mitigate any surface water flows to the south of the site during construction. Flows may increase as a result of topsoil stripping and flow to the watercourse to the south. Standard construction practice can be used to prevent offsite pollution due to silt suspended in surface water runoff and these should be detailed in the Construction Environment Management Plan.

8.5 **Flooding from Sewers:** Yorkshire Water record plans show that there are no sewers across the site and therefore the risk of flooding from sewers is low.

Mitigation: None required for existing sewers. New sewers within the site will be built to the standards prescribed in 'Sewers for Adoption' and local planning policy so will not flood during a 1 in 100 year plus climate change event.

8.6 **Flooding from Artificial or Other Sources:** Environment Agency mapping shows that the site is not at risk from reservoir flooding.

There are no large water mains through or adjacent to the site which could pose a flood risk.

Mitigation: None required.

8.7 **Groundwater:** As discussed previously only a limited number of trial pits indicated seepage of groundwater and no high water table was established across the site as a whole. Groundwater is not considered a risk to the development.

Mitigation: None required.

9 SUDS

- 9.1 Building Regulations (Part H), the National Planning Policy Framework, Yorkshire Water and BMBC development control policies and Environment Agency advice notes, require the consideration of sustainable drainage techniques for new developments.
- 9.2 Surface Water drainage should be considered in accordance with a prescribed hierarchy aimed at minimising the impact of development. Surface Water flows should be designed to discharge to:
1. Infiltration based or sustainable drainage systems
 2. Watercourses
 3. Surface water Sewers
 4. Combined water sewers

Guidance on SUDS techniques can be found in the SUDS Manual (Ciria 2015). There are various forms of technique available as summarised below:

Table 4619.5 – Forms of SuDS Drainage

Technique	Description
Trenches	Shallow excavations filled with rubble or stone that create temporary storage and either filter into the ground or convey water to an outlet. Known as 'French drains'
Swales	Shallow linear vegetated drain ditches which can either convey flows to an outlet or infiltrate via a granular sub base to the sub strata.
Pervious Pavements	Material which allows water to permeate into underlying sub strata – best utilised on flat sites with permeable sub strata. Permeable paving can be used on clay sub strata but will require a piped drainage outlet from the sub base to a positive system.
Geocellular Systems/Tank systems	Modular plastic geocellular systems which have a high void ratio and allow water to be storage below ground. Large diameter pipework or purpose designed tanks to allow below ground storage.
Infiltration Basins	Vegetated depressions which allow water storage and slow infiltration into the ground.
Detention Basins	Surface water storage basins which remain dry when not in use and allow flood water to collect and discharge to a

Technique	Description
	design flow rate.
Ponds	Ponds can provide both attenuation and treatment, together with landscape and ecology value. Run off from storms is attenuated in an upper level above ambient pond depths.

- 9.3 The use of SUDS techniques is 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.
- 9.4 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 etc. The use of infiltration systems will be subject to the infiltration characteristics of the natural ground below the site and any environmental constraints which may apply i.e. sensitivity of the groundwater or risk of increasing water flow through the ground.
- 9.5 In areas with cohesive sub soils (such as this development), it is unlikely that sufficient percolation can be provided to allow the implementation of infiltration techniques.
- 9.6 Sustainable Drainage in areas of cohesive sub soils can be provided by a range of flow attenuation devices to suit the site constraints, policies of adopting authorities and planning authority requirements. Attenuation ponds and swales can provide ecological benefits by the creation of wetland habitats and also improve the quality of water by adding a treatment element to the drainage process.
- 9.7 Site constraints, both topographical and financial can influence the provision of SUDS, particularly measures to enhance water treatment. This site is very steep and the use of swales to drain the public highway would be impossible due to exceeding the recommended maximum gradients. The use of swales also lowers the net development density which may impact on a planning authorities housing allocation numbers. This delicate topographical and financial constraint has been factored into our assessment of the SUDS measures which are able to be included in the final drainage design.

- 9.8 An assessment of the available SUDS source control, pre-treatment and components mentioned in the SUDS Manual has been completed and is summarised in the table below:

Table 4619.6 – Site Specific SuDS Consideration

Source Control Feature	Included Y/N	Comment
Green Roof	N	Not appropriate to the form of development which is traditional steep pitched roofs. Householders or landlords do not have the appropriate specialist knowledge to maintain this form of roof covering.
Soakaways	N	The phase 2 investigation has proven the site to be underlain by stiff clays which are unsuitable for infiltration drainage.
Water Butts	Y	Water butts promote the re-use of water for non-potable use, however do not add significantly to volume control in significant storm events where the butt rapidly reaches capacity.
Rainwater Harvesting	N	High capital cost and high maintenance and running costs make this form of SuDS inappropriate for this development. The development can be served by new water mains so there is not restriction to supply in this area. Harvesting tanks need to be on an individual property basis therefore it is unlikely that householders will be sufficiently aware of their ongoing maintenance obligations and it is considered that in the long terms they will be less effective.
Pre-Treatment Feature		
Silt Traps/Sumps	Y	Plot drainage and driveway drainage will feature trapped gullies and sumps which will collect silts and sediments as a pre-treatment feature. Householders will need to maintain the system within their property curtilage.
Vortex Separator	N	The form of development is low risk and there is no requirement under EA Pollution Prevention Guidance to install such features on a plot basis. Separators would not be adopted by any of the regulators or water authority.
Filtration System	N	The form of development is low risk and there is no requirement under EA Pollution Prevention Guidance to install such features on a plot basis. Filtration systems would not be adopted by any of the regulators or water authority.

Oil Separators	N	<p>The form of development is low risk and there is no requirement under EA Pollution Prevention Guidance to install such features on a plot basis.</p> <p>Separators would not be adopted by any of the regulators or water authority.</p>
SuDS Component		
Filter Strips	N	Not appropriate to the form of development and layout as these systems deal with sheet runoff and require large areas to accommodate. Mainly used for car parking and large hardstanding areas.
Trenches	N	<p>Not appropriate in a residential setting. Their use would be limited as runoff from driveways tends to be towards the footway or plot and gravel filled trenches could not be accommodated in these locations.</p> <p>Not appropriate for adopted estate roads.</p>
Swales	N	<p>Not appropriate for the housing or roads within the development as SUDS Manual advice states that swales should not be used where gradients are steep. A significant proportion of the roads on this site will be designed at gradients in excess of 1:15 and to a maximum of 1:12, making the use of swales impractical.</p> <p>The layout design, which features multiple drive crossing points will result in very limited scope for roadside swales even if gradients were deemed acceptable due to the lengths of culvert required for each driveway.</p>
Bio retention	N	Unsuitable for this form of residential layout. There are very few opportunities within the layout to create this form of SuDS component.
Permeable Paving	N	Predominantly used where soils can infiltrate to the groundwater. Infiltration systems are not appropriate for use on the site due to ground conditions. In addition, given the topography of the site, a large percentage of driveways will be laid to falls (1:12-1:20). Permeable paving should be used on areas with shallow gradients to allow adequate infiltration down the jointing in the paving.
Geocellular Systems	N	These types of systems are not adoptable by the water authority or LLFA and are therefore not suitable for use on the adoptable elements of the drainage infrastructure.
Infiltration Basin	N	Ground conditions not suitable for the use of infiltration basins.
Detention Basin	N	<p>Detention basins are features that can be offered for adoption to Yorkshire Water. Basins cannot be efficiently used on steeply sloping areas due to the maximum batter slope requirements and the maximum depths which results in the basins being a significant size.</p> <p>Assessment of the open space in the south of the site has been undertaken and, given level and spatial constraints it is not possible to accommodate an adoptable basin.</p>

Ponds	N	BMBC do not adopt ponds. Ponds cannot be efficiently used on steeply sloping areas due to the maximum batter slope requirements and the maximum depths which results in the ponds being a significant size when draining sites of this size. Assessment of the open space in the south of the site has been undertaken and, given levels constraints it is not possible to accommodate an adoptable pond and ancillary pumping station in the area available.
Wetlands	N	BMBC do not adopt wetlands. This site is steeply sloping and therefore unsuitable for a wetland area.
Tanks/Oversized Pipes	Y	Can be adopted as part of the Yorkshire Water Section 104 network and Yorkshire Water will therefore maintain in perpetuity. Significant storage volume can be achieved in relatively small areas due to the height of the structure which can be designed. Given the sites topography and the space available in the south, storage via an adoptable tank system is considered to be appropriate for the site.

10 PROPOSED DRAINAGE STRATEGY

10.1 The development will require new drainage system designed to suit the final approved layout, and in compliance with current Building Regulations and Sewers for Adoption. The pipe drainage networks and the below ground attenuation will be adopted by Yorkshire Water under a section 104 agreement.

10.2 A predevelopment enquiry was submitted to Yorkshire Water to ascertain suitable points of discharge and rates for foul and surface water drainage. Yorkshire Water made the following comments with regards to the drainage of the site;

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

Phase 1 - 'Foul domestic waste should discharge to the 150mm diameter public foul sewer recorded in Wellhouse Lane to the east of the site.'

Phase 2 - 'Foul domestic waste should discharge to the 225mm diameter public foul sewer recorded in Wellhouse Lane to the east of the site.'

'As the proposed site is currently undeveloped no surface water is known to have previously discharged to the public sewer network.'

'As such the local public sewer network does not have capacity to accept any surface water from the proposed site.'

- 10.3 **Foul Water:** Yorkshire Water has confirmed that foul water flows from the development can be discharged to the sewer network in Wellhouse Lane and Barnsley Road to the east and south of the site. The enquiry stated that the site may be built in two phases, however the current proposal is for a single phase and outfall to Barnsley Road. As the previously requested connection points both drain into the 225mm sewer in Barnsley Road there will be no issue in taking the whole site to Barnsley Road.
- 10.4 Due to site topography part of the site will require pumping up to the new sewer to be laid down Wellhouse Lane to the connection. The design should ensure that the maximum number of plots can be drained by gravity and should seek to minimise plots passing through the pumping station.
- 10.5 **Surface Water:** In accordance with the hierarchy contained within Part H of the building regulations, NPPF and the SuDS guidance, the surface water strategy should be considered in order of the sustainable hierarchy. The hierarchy and ability of the site to support the particular elements of the hierarchy are discussed below:
- 10.6 **Discharge to infiltration drainage/soakaway:** The ability of any development to discharge to infiltration drainage is wholly reliant on the ground conditions across the site. The site investigation report confirms that the site is underlain by firm/stiff clay strata and as such will be unsuitable for infiltration drainage. Extracts from the report are contained in appendix E.
- 10.7 **Discharge to Watercourse:** Scout Dike flows to the south of the site and the site is naturally within this catchment. This should be the outfall point for surface water drainage from the site.
- 10.8 **Discharge to a Surface Water Sewer:** There are no suitable surface water sewers which could be used to discharge flows from the site.
- 10.9 **Strategy Outline:** It is proposed that surface water flows from the development are drained to Scout Dike to the south of the site. In order to reflect the current greenfield flow rate and ensure that the watercourse does not receive further flows following development, the flow rate would be restricted to the equivalent of greenfield rate from the areas of the site to be developed which has been calculated, based on LLFA greenfield rate policy, as 65.6 l/s.
- 10.10 This rate reflects the Qbar storm event. Storm intensities greater than Qbar (approx. 1 in 20 months) will generate higher rates. The new surface water system will be designed to limit flows in all events up to the 100-year event (plus climate change) to the Qbar rate, therefore there will be a net reduction in flow rate to the watercourse in these events post development.

- 10.11 **Storage Required for New Development:** A summary of the storage volumes required to achieve the policy requirements is set out below;

Table 4619.7 – Storage Summary for varying storm intensities

Storm intensity (years)	Storage Volume required (m3)
1 in 30	2427
1 in 100	3378
1 in 100 +30%	4806

- 10.12 **Network Design Parameters:** Yorkshire Water and BMBC require that the sewer network is designed so as not to surcharge in the 1 in 2-year storm event and not to flood in the 30-year event.
- 10.13 **Planning Requirements:** Flooding from the 1 in 100-year event plus 30% climate change factor should be stored in the site.
- 10.14 Due to the sites topography, the potential for storage within the site at a safe location is limited, therefore it is proposed that the 1 in 100-year event plus climate change is stored within a storage tank below the open space to the southern edge of the site as illustrated in the drainage strategy plan.
- 10.15 **Exceedance Route** Safe exceedance routes for flows should be provided through the site in the event of the system being overwhelmed. Exceedance routes have been illustrated on the drainage strategy plan attached and can be created by careful highway design. This can be conditioned and detailed following granting of planning consent once full longitudinal sections are available.
- 10.16 **Maintenance of the drainage system:** All sewers, pumping station and the storage tank will be adopted by YW under a section 104 agreement. The maintenance of the system will be subject to Yorkshire Waters standard maintenance procedures as public sewers. All maintenance in the period prior to formal adoption will be undertaken by the developer.
- 10.17 Access for maintenance purposes has been provided by an access road to the hydrobrake which allows YW to park their vehicle off road and access the hydrobrake.
- 10.18 **Culverted Watercourse:** There is a culverted watercourse in the north east of the site. The watercourse should be retained and diverted through the site to a route which is accessible for future maintenance. All work should be agreed with the LLFA who will need to provide a formal consent to divert.

- 10.19 Proposals for the routing of the diversion are shown on the drainage strategy plan and it is proposed that the pipe size will be no smaller than the existing culvert. The culvert will need accurately locating and the size should be determined via excavation. Final design details to be covered by condition for agreement with the LLFA.

11 IMPACT OF DEVELOPMENT AND RESIDUAL RISK

- 11.1 A detailed Flood Risk Assessment and outline drainage management plan has been undertaken with respect to the planned development on land at Wellhouse lane, Penistone.
- 11.2 The FRA has been undertaken in accordance with Environment Agency, Yorkshire Water and Barnsley Metropolitan Borough Council development control guidance, and considers the setting of the development and likely impact on surrounding areas. A surface water and foul water drainage strategy has been outlined in the report.
- 11.3 It has been established that the site is located within fluvial Flood Zone 1 and there is a low risk of surface water flooding.
- 11.4 The assessment has identified the current site drainage characteristics and also established the current level of risk from flooding. A summary of the risks and mitigation identified is presented below:

Table 4619.8 - Summary of Main Issues

Issue	Summary	Residual Risk
Flood Zone	The development area of the site is located within Flood Zone 1. The proposed development is compatible to the flood setting.	Low
Fluvial Flooding	The development is not located in an area at risk of fluvial flooding.	Low
Pluvial Flooding	Environment Agency mapping shows that there is a low risk of surface water flooding across the site.	Low
Artificial Sources	No flood risk from artificial sources known.	Low
Groundwater	No significant groundwater flood risk.	Low

Surface Water Management	<p>The use of soakaways for this development is considered unfeasible due to the underlying ground conditions. A positive piped system is therefore recommended as the most practical and feasible option. The most sustainable option is considered to be to discharge to Scout Dike to the south of the site.</p> <p>The rate of surface water runoff discharged from the development will be restricted to greenfield runoff for the developed area only. Using LLFA technical standards the rate for the site as a whole has been calculated as 65.6 l/s.</p>	Low
---------------------------------	---	------------



Site Area: 15.08 ha
Postcode: S36 7EY
OS Ref: SE 24554 04400



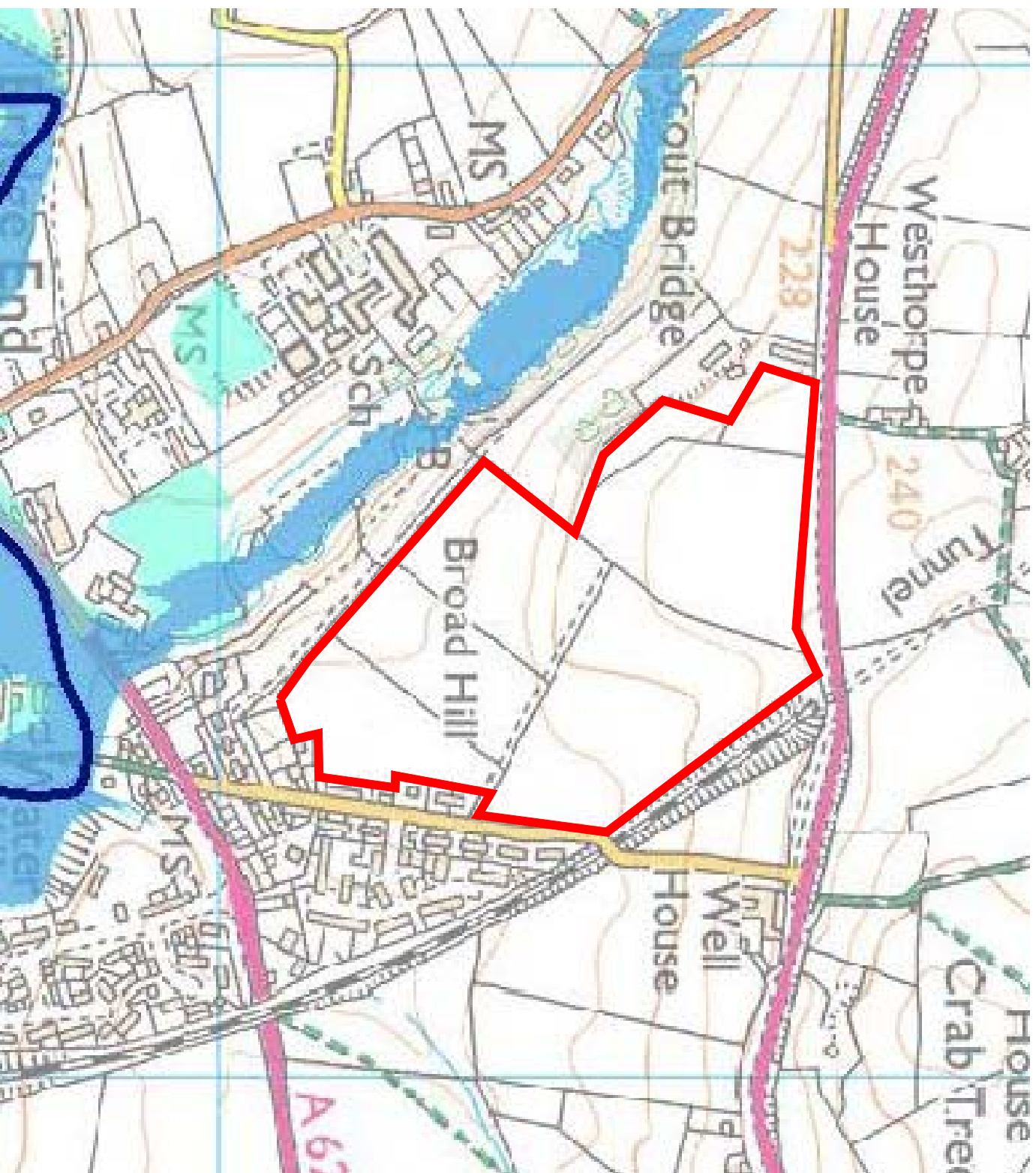
North East & Yorkshire:
Aske Stables, Aske, Richmond,
North Yorkshire, DL10 5HG
t: 01748 889015
f: 01565 740263

North West & Midlands
Caledonian House,
Tatton Street, Knutsford,
Cheshire, WA16 6AG
t: 01565 755557
f: 01565 740263

Rev	Description	By	Date
Scale			
As Shown @ A3		Jan 2020	

Client:
BDW Yorkshire West
Project Title:
Wellhouse Lane Penistone

Drawing Title:		
Location Plan		
Drawing No	Revision	Status
4619-FRA-01	0	Final



-  Flood Zone 3
-  Flood Zone 2
-  Flood defences
(Not all may be shown*)
-  Areas benefiting from
flood defences:
(Not all may be shown*)

Client:

Drawing Title:

BDW Yorkshire West

Flood Zone Plan

Project Title:

Wellhouse Lane Penistone

4619-FRA-02

0

Final



Geo

Structures

Civils

North East & Yorkshire:
Aske Stables, Aske, Richmond,
North Yorkshire, DL10 5HG
t: 01748 889015
f: 01565 740263

t: 01748 889015
f: 01565 740263

North West & Midlands:

**iD Civils Design
Consulting Engineers**

Rev	Description	By	Date
Scale			
NTS @ A3		Jan 2020	

Client:		Drawing Title:		
BDW Yorkshire West		Flood Zone Plan		
Project Title:				
Wellhouse Lane Penistone		Drawing No	Revision	Status
		4619-FRA-02	0	Final



**Geo
Structures
Civils**

North East & Yorkshire:
Aske Stables, Aske, Richmond,
North Yorkshire, DL10 5HG
t: 01748 889015
f: 01565 740263

North West & Midlands:
Caledonian House,
Tatton Street, Knutsford,
Cheshire, WA16 6AG
t: 01565 755557
f: 01565 740263

Rev	Description	By	Date
Scale			
NTS @ A3			Jan 2020

Client:
BDW Yorkshire West
Project Title:
Wellhouse Lane Penistone

Drawing Title:		
Surface Water Flood Zone Plan		
Drawing No	Revision	Status
4619-FRA-04	0	Final



**Geo Structures
Civils**

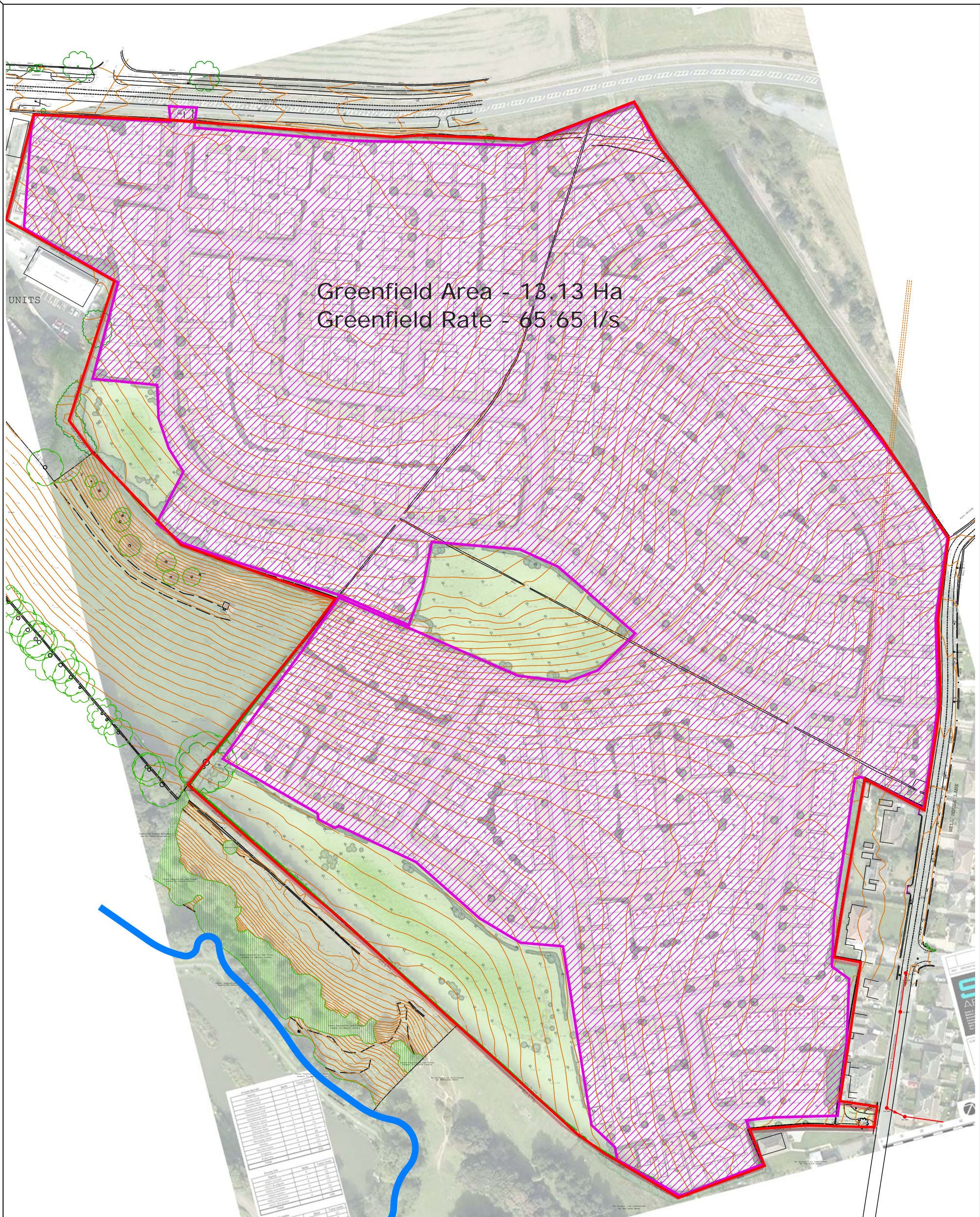
North East & Yorkshire:
Aske Stables, Aske, Richmond,
North Yorkshire, DL10 5HG
t: 01748 889015
f: 01565 740263

North West & Midlands:
Caledonian House,
Tatton Street, Knutsford,
Cheshire, WA16 6AG
t: 01565 755557
f: 01565 740263

Rev	Description	By	Date
Scale			
As Shown @ A3		Jan 2020	

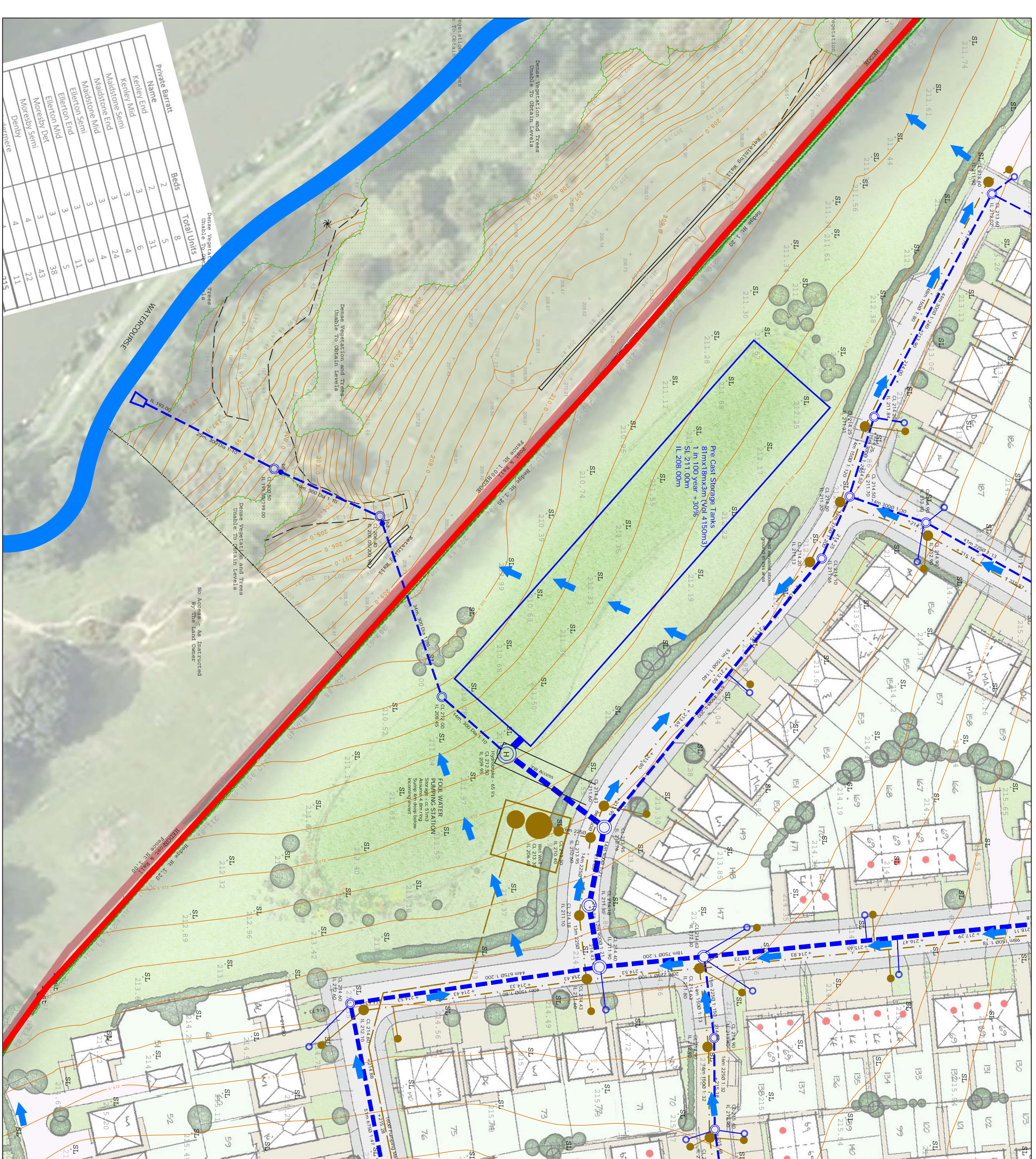
Client:	
BDW Yorkshire West	
Project Title:	
Wellhouse Lane Penistone	

Drawing Title:			
Aerial View			
Drawing No	Revision	Status	
4619-FRA-03	0	Final	



Rev	Description	By	Date
Client:			
BDW (West Yorkshire)			
Scale		Date	
NTS @ A3		March 2020	

Project Title:		
Penistone		
Drawing Title:		
Greenfield Rate - Catchment Area Plan		
Drawing No	Revision	Status
4619-FRA05	0	Final



Health and Safety Executive (HSE) investigations, 2015

Figure 1 illustrates the evolution of a water molecule through several stages, starting from a proposed combined molecule and ending with an existing ocean. The stages are represented by colored circles and labels:

- Proposed combined molecule:** Represented by a red circle labeled C_1 .
- Proposed final water molecule and Proposed final water rising state:** Represented by a yellow circle labeled F_1 .
- Proposed surface water molecule and snow:** Represented by a blue circle labeled S_1 .
- Proposed surface water lateral drain:** Represented by a blue circle labeled D_1 .
- Proposed final water lateral drain:** Represented by a blue circle labeled D_2 .
- Existing Ocean to be awarded:** Represented by a blue circle labeled O_1 .

The evolution route is indicated by a large blue arrow on the left, labeled "Evolution Route".

Rev	Description	By	Date
C	Layout updated/Issued for planning	Dk	08.03
B	Layout updated with existing drainage unaltered	Dk	10.09
A	Layout updated	Dk	25.07

Client: _____

BDW Homes

Wellhouse Lane, Penistone

	Drawing Title:

Drainage Strategy Plan

1.500 @ AO	July 2018	
Drawing No	Revision	Status
4619-FRA06	C	Draft

Appendix A

Private Barratt		
Name	Beds	Total Units
Kensley End	2	8
Kensley Mid	2	31
Maddstone Semi	3	6
Maddstone End	3	4
Maddstone Mid	3	24
Ellerton Semi	3	4
Ellerton End	3	3
Ellerton Mid	3	11
Moorby Det	3	5
Moorby Semi	3	38
Densby	4	43
Windermere	4	22
Aldeby	4	11
Total		215

Private DW		
Name	Beds	Total Units
H433 Cornhill	4	10
H437 Brookgate	4	25
H456 Avoirdale	4	10
H469 Holden	4	23
H497 Chaworth	4	19
H421 Winslowe	4	19
Total		106

Affordable		
Name	Beds	Total Units
Kensley	2	13
Maddstone	3	9
Ellerton	3	15
Type 67	2	61
Type 69	3	40
Total		138
Total		459

REV: DESCRIPTION:BY: DATE:

STEN

ARCHITECTURE

Sten & Co Ltd,
Station Office Park,
Barnby Avenue,
Huddersfield,
West Yorkshire
WF4 5BA
Tel: 01484 669454

Web: www.stenarchitecture.co.uk

Tel: 01484 669454

Twitter: @STEN_arch

Facebook: stenarchitecture

LinkedIn: Sten Architecture

CLIENT:Barratt Homes and David Wilson Homes
Yorkshire West
(Trading names of BDW Trading Limited)

SITE:Penistone

TITLE:Planning Layout

SCALE AT A3:1:500

DATE:11.02.20

DRAWN:TS

CHECKED:SL

PROJECT NO:2001

DRAWING NO:2001.01

REVISION:B













Appendix B

YORKSHIRE WATER PROTECTION OF MAINS AND SERVICES







1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the **general** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline on 0845 124 24 24 for both water and sewerage.
2. The public sewer and water network is lawfully retained in its existing position and the sewerage and water undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful. The provisions contained in Section 185 of the Water Industry Act 1991 state that where it is reasonable to do so, a person may require the water supply undertaker to alter or remove a pipe where it is necessary to enable that person to carry out a proposed change of use of the land. The provisions contained in Section 185 also require the person making the request to pay the full cost of carrying out the necessary works.
3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will **generally** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense. Water mains and services will **generally** be laid with a minimum of 750mm depth of cover however some mains and services usually those installed over 50 years ago may have less ground cover.
4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.
5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45° and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter (*see illustration below*). Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.
6. All excavation works near to YW apparatus should be by hand digging only.
7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.
8. Adequate support must be provided where any works pass under YW apparatus.
9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.
10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 24.
11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.
12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.
13. **Under no circumstances** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.
14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversions Works).

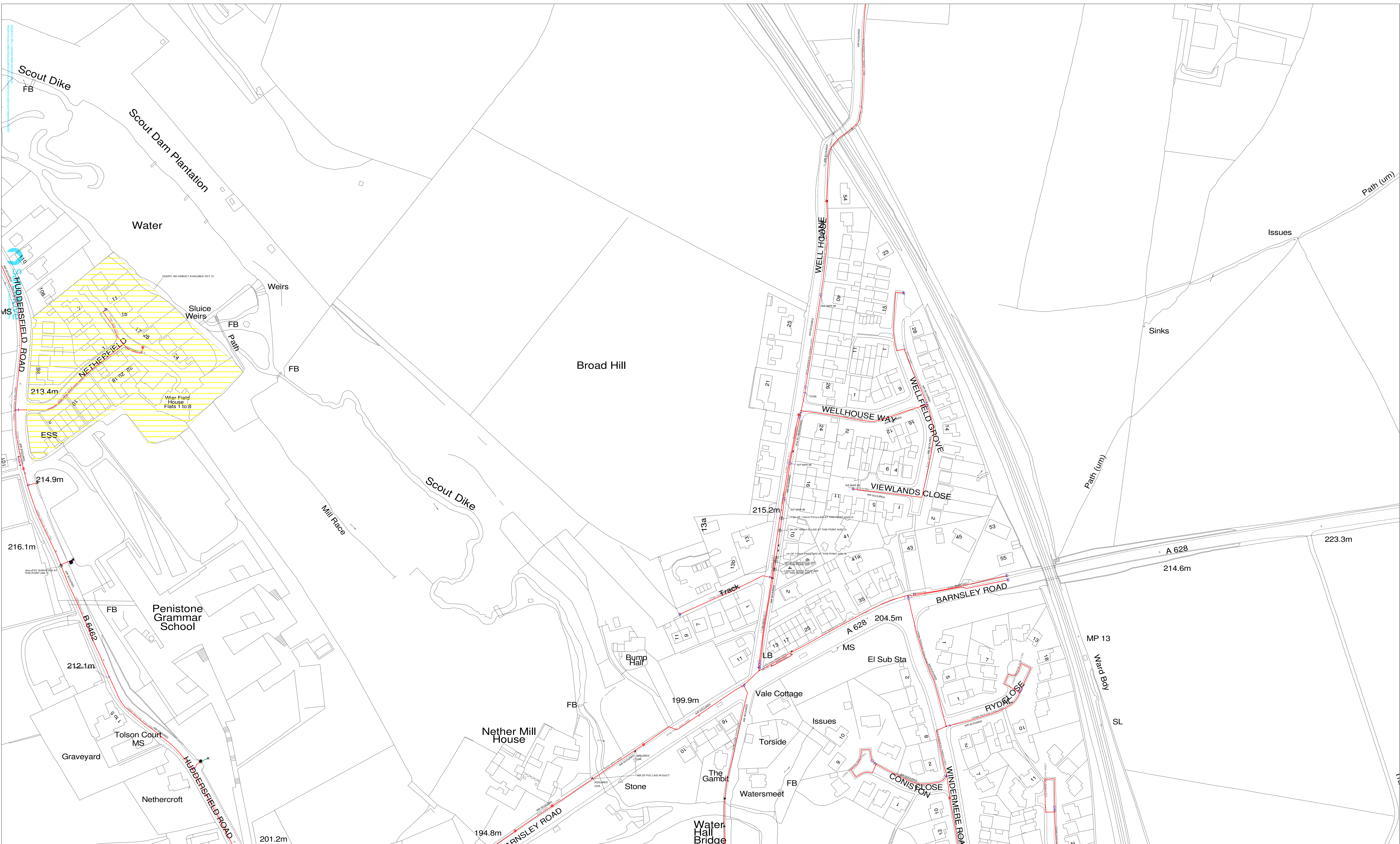
15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.
16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.
17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available* " should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.
18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011. Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).
19. Please note that the information supplied on the enclosed plans is reproduced from Ordnance Survey material with the permission of the Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence Number 1000019559.
20. This information is for guidance only and the position and depth of any YW apparatus is approximate only. Likewise, the nature and condition of any YW apparatus cannot be guaranteed. YW has no responsibility for recording the locations of privately owned apparatus. As of 1 October 2011, there may be some lateral drains and/or public sewers which are not documented on YW records but may still be present. For the avoidance of doubt, this information is not a substitute for appropriate professional and/or legal advice. YW accepts no responsibility for any inaccuracy or omissions in this information. The actual position of YW apparatus must be determined on site by excavating trial holes by hand. YW requires a minimum of two working days' written notice of the intention to excavate any trial holes before any excavation can be undertaken. If there are any queries in this respect please contact Yorkshire Water on 0845 124 24 24.

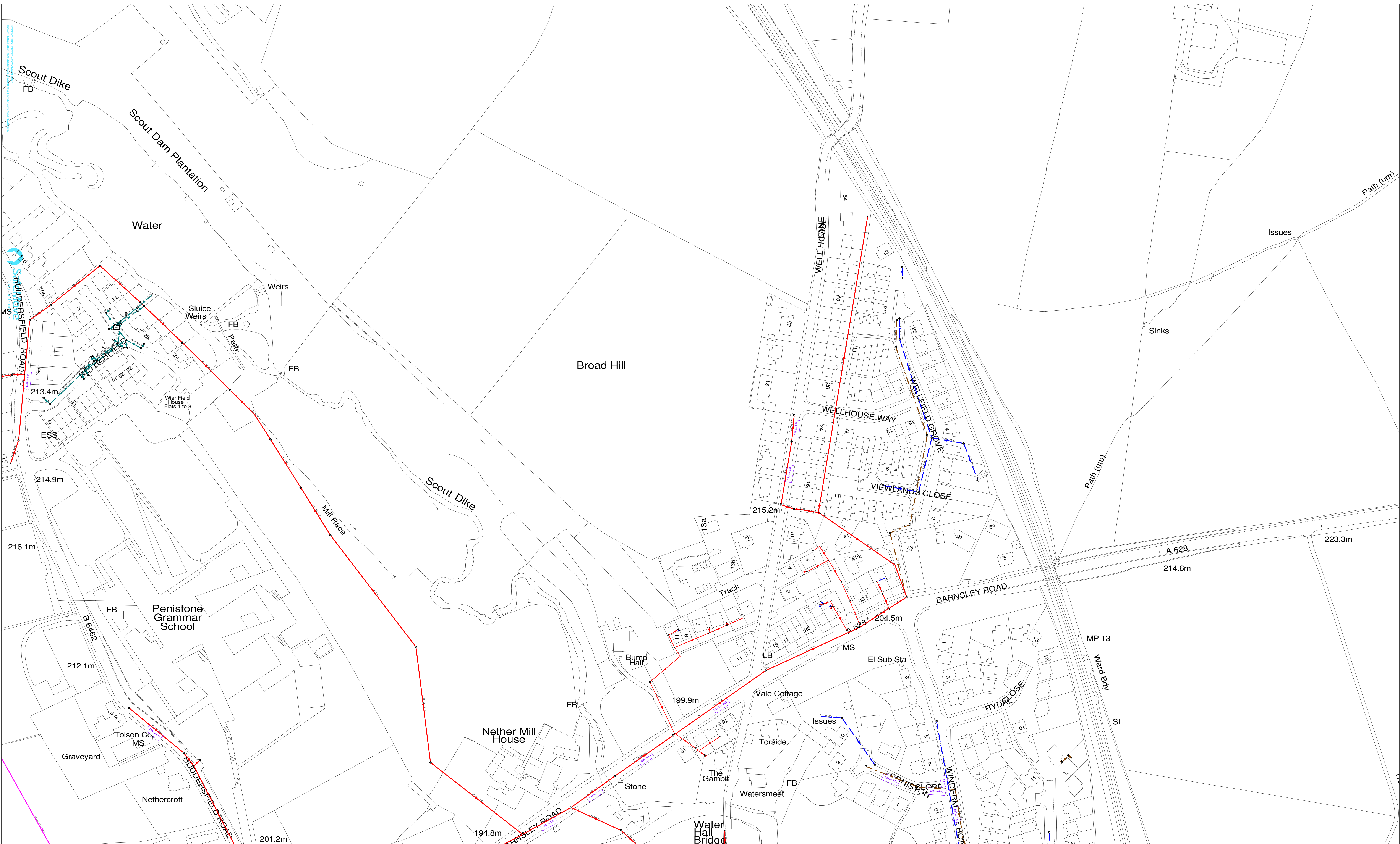
Sewer Legend

	Combined Sewer		S24 Combined Sewer
	Surface Water Sewer		S24 Surface Water Sewer
	Foul Sewer		S24 Foul Sewer
	Section 104 Sewer		Public Rising Main
	Pumping Station		Abandoned Sewer
	Public Sewage Treatment Works		Syphon Sewer & Vacuum Sewer
		+	Property Identifier

Water Legend

	Water Main 4" and below
	Water Main 4" and above
	Raw Water Main
	Private Water Main
	Fire Hydrant
	Pumping Station





Appendix C



YorkshireWater

Mr D Linklater
I D Civil Design Ltd
5 The Stables
Askehall
Richmond
North Yorkshire
DL10 5HG

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

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

Your Ref:
Our Ref: U009051

Email:
Technical.Sewerage@yorkshirewater.co.uk

For telephone enquiries ring:
Chris Roberts on 0345 120 8482

10th June 2018

Dear Mr Linklater,

Wellhouse Lane. Penistone. - Pre Planning Sewerage Enquiry - Domestic - T009708

Thank you for your recent enquiry. Our charge of £158.93 (plus VAT) will be added to your account with us, reference MMi096. You will receive an invoice for your account in due course.

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.

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

Phase 1

Foul water domestic waste should discharge to the 150 mm diameter public combined sewer recorded in Wellhouse Lane, at a point to the east of the site.

Phase 2

Foul water domestic waste should discharge to the 225 mm diameter public combined sewer recorded in Barnsley Road, at a point to the south east of the site.

Please note formal agreement will be required via application to the Local Planning Authority.

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.



Sustainable Drainage Systems (SuDS), for example the use of soakaways and/or permeable hardstanding etc, may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SuDS in this instance from the appropriate authorities.

As the proposal site is currently undeveloped no surface water is known to have previously discharged to the public sewer network

As such, the local public sewer network does not have capacity to accept any surface water from the proposed site. If SuDS are not viable, the developer is advised to contact the Environment Agency/local Land Drainage Authority/Internal Drainage Board with a view to establishing a suitable watercourse for discharge.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority/Internal Drainage Board, with regard to surface water disposal from the site.

It is understood that Scout Dike is located to the west of the site. This appears to be the obvious place for surface water disposal (if SuDS are not viable).

Other Observations

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0345 120 84 82.

Under the provisions of section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes fat, oil, nappies, bandages, syringes, medicines, sanitary towels and incontinence pants. Contravention of the provisions of section 111 is a criminal offence.

An off-site foul and surface water sewer may be required which may be provided by the developer and considered for adoption under Section 104 of the Water Industry Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 6th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Developer Services Team (telephone 0345 120 84 82) for further information.

The site is within an area that may be affected by river, coastal or estuarine flooding. We would advise you to contact the Environment Agency for details.

All the above comments are based upon the information and records available at the present time. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith.



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 grey ink, appearing to read 'Chris Roberts'.

Chris Roberts
Sewerage Technician
Developer Services

Appendix D

Darren Linklater

From: Bell , Derek <DerekBell@barnsley.gov.uk>
Sent: 08 August 2016 11:05
To: Darren Linklater
Subject: RE: Proposed Development at Wellhouse Lane Penistone

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Darren,

Please the responses to your queries as highlighted below ...

Regards ~ Derek

Derek Bell

Principal Network Resilience Manager

Environment & Transport

Barnsley Metropolitan Borough Council, Westgate Plaza 1, PO Box 601, Barnsley, S70 9FA *

* Sat Nav Reference - **S70 2DR**

Tel: Ext - 01226 787654 Int - 6654
Mob: 07773 783184
Fax: 01226 772196
E-mail: DerekBell@barnsley.gov.uk

From: Darren Linklater [<mailto:darren.linklater@id-gsc.co.uk>]
Sent: 13 July 2016 10:05
To: Bell , Derek
Subject: Proposed Development at Wellhouse Lane Penistone

Hi Derek,

We have been appointed by Barratt Homes to produce a Flood Risk Assessment for the proposed residential development at Wellhouse Road Penistone. In order to assist us in our report I would be very grateful if you could reply to the queries below;

1. Is the authority aware of any previous flooding of the site? **NO.**
2. If previous flooding is recorded, are the authority aware of the flood source/extents/depths. **The Council is not aware of flooding events affecting this site.**
3. Is the authority aware of any potential sources of flood risk i.e. overland flows, groundwater, reservoirs, land drainage systems, culverts etc **None known.**
4. Is the authority aware of any culverted watercourses crossing the site? **NO. We have no records of watercourses at the proposed development site**
5. Is the authority aware of any flood alleviation works downstream of the site either planned or recently completed?. **None known.**
6. Is the authority aware of any flooding constraint to development? **None known.**

7. Would the authority accept a Greenfield rate derived via IoH124 as the basis for the assessment or do the authority have a generic Greenfield rate which is applied across the region. ***Greenfield runoff for this site should be based on 5ltrs/sec/ha***
8. Are the authority willing to accept the adoption of SUDS ponds or drainage features if incorporated into the layout. If so, would a commuted sum be levied?. ***NO. The ongoing management and maintenance of all SuDS and all associated surface water drainage features would be the responsibility of the developer and NOT the Council. Appropriate maintenance plans and schedules would need to be submitted as an integral part of the drainage proposal prior to drainage conditions being signed off for the planning application. You should also note that any relevant legal agreements required for the establishment of a Management Company to undertake the management/maintenance of the SuDS would also need to be submitted, where applicable.***
9. Do the authority have any current SUDS guidance standards or will the authority accept the principles outlined in the SUDS Manual? ***YES. The Councils guideline are based on the CIRIA SuDS Manual C753, however you should seek specific advise on your proposal to confirm their viability.***
10. Do the authority have any specific point/points of connection to the surface water system which they would prefer. ***No. However, one possible option you may wish to consider would be to discharge into the Scout Dike watercourse to the south west of the site, this flows this south and discharges into the nearby river Don. Scout Dike's management falls to the LLFA (ie, Barnsley MBC) and as such any connection and/or works on it will need consent for works in ordinary watercourse from the LLFA who will in due course consult the Environment Agency who manage the river Don. To pursuit this option you will also need to cross third party land and a connection to this watercourse will require you to negotiate the appropriate access and easements to facilitate this as a viable option.***

Thanks for your assistance.

Kind Regards

Darren Linklater
Director
For and on behalf of
iD Civils Design Ltd

Mobile: 07947 616534
E-mail: darren.linklater@id-gsc.co.uk
web: www.id-gsc.co.uk



NORTH EAST &
YORKSHIRE

The Stables
Aske Hall
Richmond
North Yorkshire
DL10 5HG

Tel: 01748 889010
Fax: 01565 740 263

NORTH WEST &
MIDLANDS

Caledonian House
Tatton Street
Knutsford
Cheshire
WA16 6AG

Tel: 01565 755557
Fax: 01565 740 263

***** Barnsley MBC Disclaimer:**

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