



P5142

Clitheroe Road, Barrow

Outline Drainage Strategy



For

Reilly Developments Ltd



OFFICES AT CHORLEY, LANCASTER, SHREWSBURY & WORKINGTON



REPORT VERIFICATION

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1.0 Brief

Reilly Developments Ltd has appointed Thomas Consulting to undertake an assessment of existing and proposed drainage arrangements at Clitheroe Road, Barrow, Clitheroe, Lancashire.

1.1. Limitations

Opinions expressed within this review are based solely upon the documentation provided and visible evidence observed on site at the time of inspection. Thomas Consulting have not undertaken any special investigations including opening up of covered areas or quantitative assessments.

The report is based upon current guidance and may therefore require revision to incorporate any future changes in guidance or legislation.

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2.0 Site Location and Description

2.1. Location

The site is comprised of open fields split by an existing access road, located immediately to the east of Clitheroe Road between the villages of Barrow and Whalley south of Clitheroe in the Ribble Valley, Lancashire.

The site is roughly rectangular and is centred about Ordnance Survey coordinates 373610, 437770, and covers an area of 1.26 Hectares (3.12 acres).

It is proposed to develop the site in two phases; phase 1 covers an area of 0.46 hectares and phase 2 covers 0.8 hectares.

The site is bounded as follows:-

North – Existing access track and open fields beyond

South - Open land and Whalley Industrial Park beyond

East – Existing farm buildings

West – Clitheroe Road and existing residential dwellings beyond

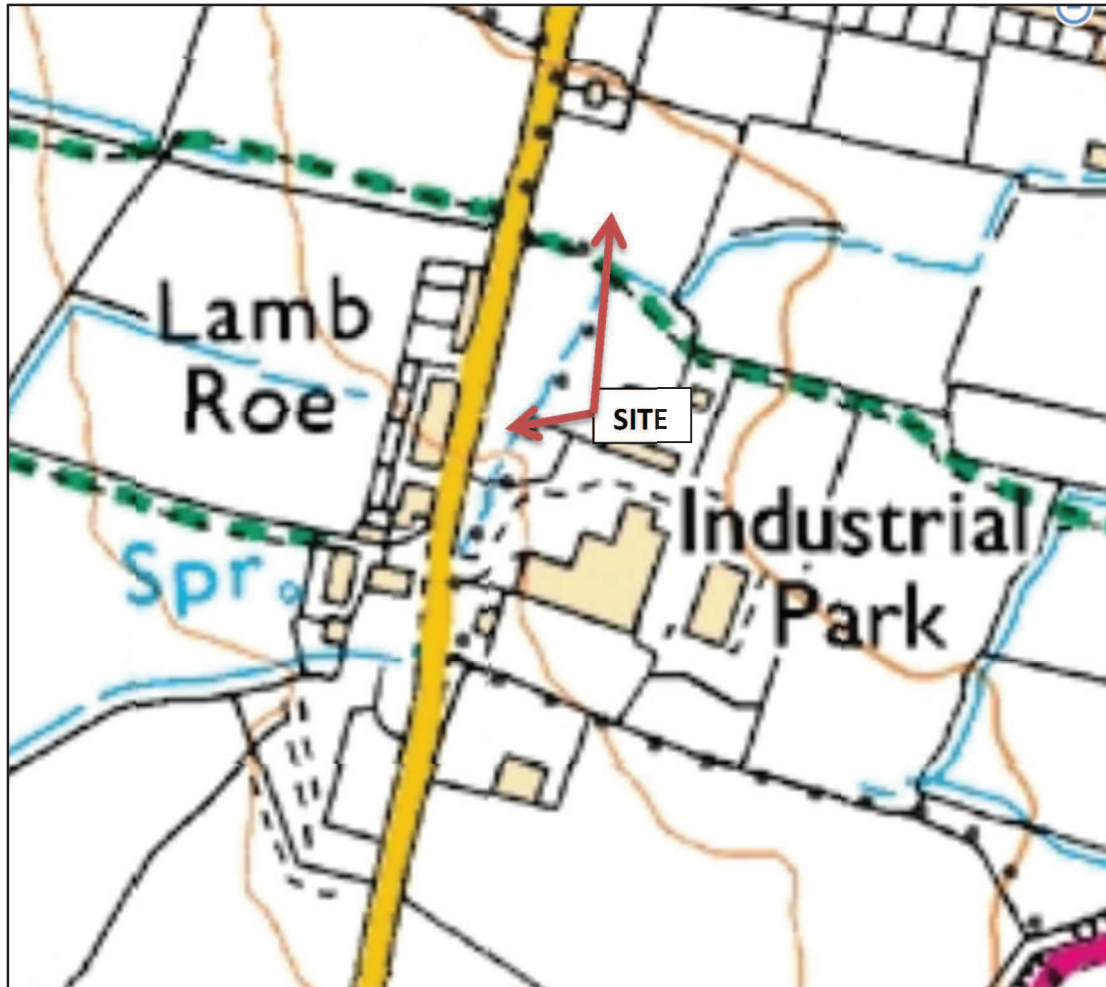


Figure 1 Site Location Plan

2.2. Notable features

The site slopes gently from north to south with average ground levels of between 75 and 70m AOD. An existing open watercourse runs parallel to the eastern boundary before bisecting the southern portion of the site.

A topographical survey has been provided and is included within Appendix A.

3.0 Development Proposals.

Site redevelopment proposals have been provided by the client; it is proposed that the development be split into two phases with the first phase located south of the existing access road comprised of 7 new two storey detached residential dwellings and associated garden areas. The second phase is the area to the north and east of the existing access road and is proposed to be nine detached residential dwellings and associated garden areas.

The current site proposals are detailed in Appendix B.



4.0 Drainage Strategy Development

This drainage strategy aims to examine the current site and its context in terms of any existing drainage regimes.

On the basis of this information and paying due regard to any Environmental / Topographical constraints associated with the site, examination of available options for the satisfactory disposal of foul and surface water flows will be investigated.

Based on these investigations a preferred drainage strategy is to be developed for later detailed design development.

The basis of this strategy will be to identify a robust and workable drainage solution that can be delivered for the site that is fully compliant with current Planning Policy, Building Regulations and design guidance.

5.0 Existing Site Drainage arrangements & Flood Risk

5.1 Existing Site Drainage

The existing site comprises of open land and a single width access track. There is no evidence of formal foul or surface water drainage of the site.

On the topographical survey it is indicated that twin 400mm diameter culverts carry the watercourse on the east boundary beneath the access track which passes across the middle of the development site.

Clitheroe Road appears to be drained via Road gullies, however an examination of United Utilities records does not indicate any adopted foul or surface water drainage within the carriageway. An adopted sewer is indicated to the rear of the properties fronting onto Clitheroe Road. This is currently shown as a surface water sewer. There is also a combined sewer located in the fields behind the aforementioned properties on Clitheroe Road, 90m west of the access road to the site.

No details of the drainage arrangements of the adjacent farm buildings have been provided; it is presumed that surface water flows from the existing access track and the open fields drain directly to the open watercourse on site.

An additional investigation to determine foul water drainage arrangements for all nearby properties is recommended. It is likely that the existing adopted drainage located to the rear of the existing properties is a combined sewer as opposed to a surface water drain.

A copy of United Utilities' records is included within Appendix C.



5.2 Existing Flood Risk.

The Environment Agency flood risk map for Planning indicates that the site and its surroundings are located within Flood Zone 1 (low risk).

A check on the Environment Agency's fluvial (rivers & sea) flood risk mapping indicates that the site is not within an area identified as being at risk.

The open watercourse on the east side of the site is identified as a risk of surface water flooding on the Environment Agency's pluvial flood risk map - particularly in the south east section of the proposed development site – see Figure 2 below. The map also indicates that there is a “high” risk of surface water flooding occurring along Clitheroe Road to the south of the site. Surface water flooding within the area appears to be constrained to the immediate area of the highway only. It is unlikely that this potential surface water flooding will affect the site.

It is likely that the flood risk identified on site is directly associated with the culverted section of the watercourse as it passes beneath Clitheroe Road.

The above comments do not constitute a full flood risk assessment.

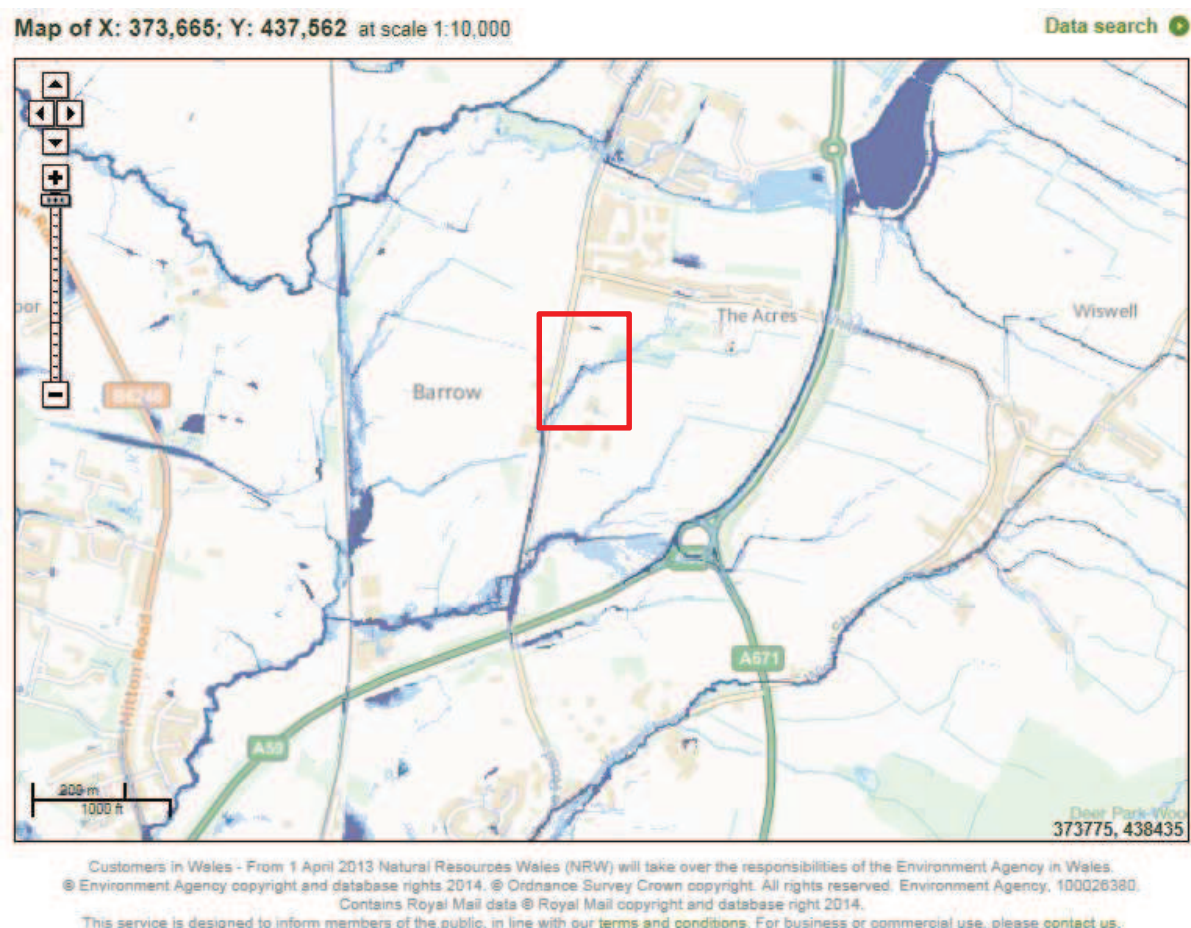


Figure 2 Environment Agency Pluvial Flood Risk extract



6.0 Proposed site drainage arrangements.

The development proposals for the site will result in an increase in the impermeable area and an increase in the peak surface water runoff rates and volume from the site.

The development proposals and their associated drainage implications are discussed below :-

6.1. Foul Water.

The site proposals for the both proposed phases of the development (16 properties) will result in 64,000l/day being directed to the existing foul network.

This equates to an average design flow rate of 0.74l/s.

In respect of foul water flows from the site, there are two possible points of connection to the existing sewerage network; the first is to the rear of the existing properties fronting Clitheroe Road, the second is approximately 90m west of the access road to the site in the fields along a pathway. Both of these would require consent from the landowners or a sewer requisition.

Alternatively a proprietary package treatment plant could be utilised to treat foul drainage before discharge into the open water course on the east boundary of the site.

6.2. Surface Water

An examination of the available BGS data would indicate that the site is unlikely to prove suitable for the installation of infiltration type drainage solutions such as soakaways or other infiltration system.

It is therefore proposed that surface water flows will be attenuated, likely in the form of oversize pipes, before being directed with a controlled discharge to the existing open watercourse on east of the site. An estimate of the required storage for the development using Micro Drainage Quick Storage Estimate for a 100yr storm event +30% climate change would be an average 165m³.

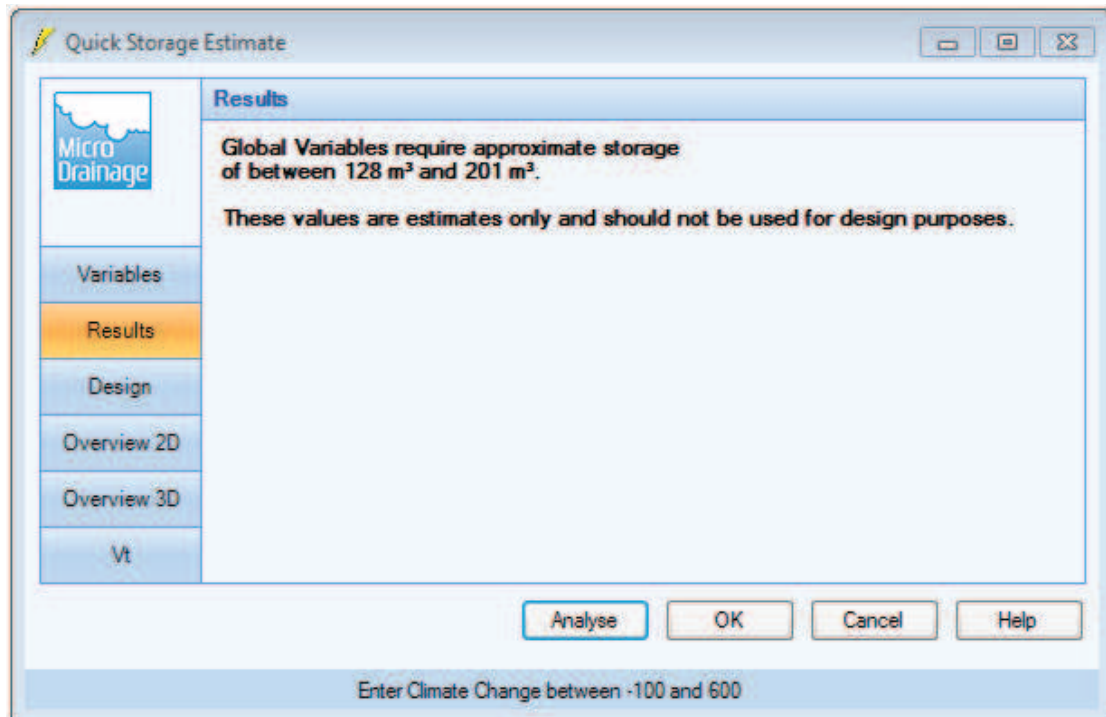


Figure 3 Micro Drainage Quick Storage Estimate

Discharge into the watercourse would be restricted to ensure that flood risk as a result of the development is not increased downstream.

6.3. Flood Risk

The development proposals are not currently located within areas identified by the Environment Agency as being at risk of flooding.

An increase in impermeable area on site will result in increased flows (volume) of surface water to the existing open watercourse.

On the basis of being able to satisfactorily deal with surface water flows from the site it is considered that the development proposals do not impact upon the current flood risk areas or increase flood risk off site.

The above information does not constitute a formal flood risk assessment.

7.0 Summary

It is proposed that a proprietary package treatment plant be utilised to treat foul drainage before discharge into the open water course on the east boundary of the site.

The proposed flow rate of 0.74l/sec is unlikely to be materially different from current foul water flow rates.

Development of the site is not considered to represent an increased flood risk to the site or the wider area. Whilst impermeable areas on site will increase, it will be possible to manage effectively



the surface water flow rates through the introduction of attenuation measures – likely oversized pipes - and a restricted discharge into the existing open watercourse.

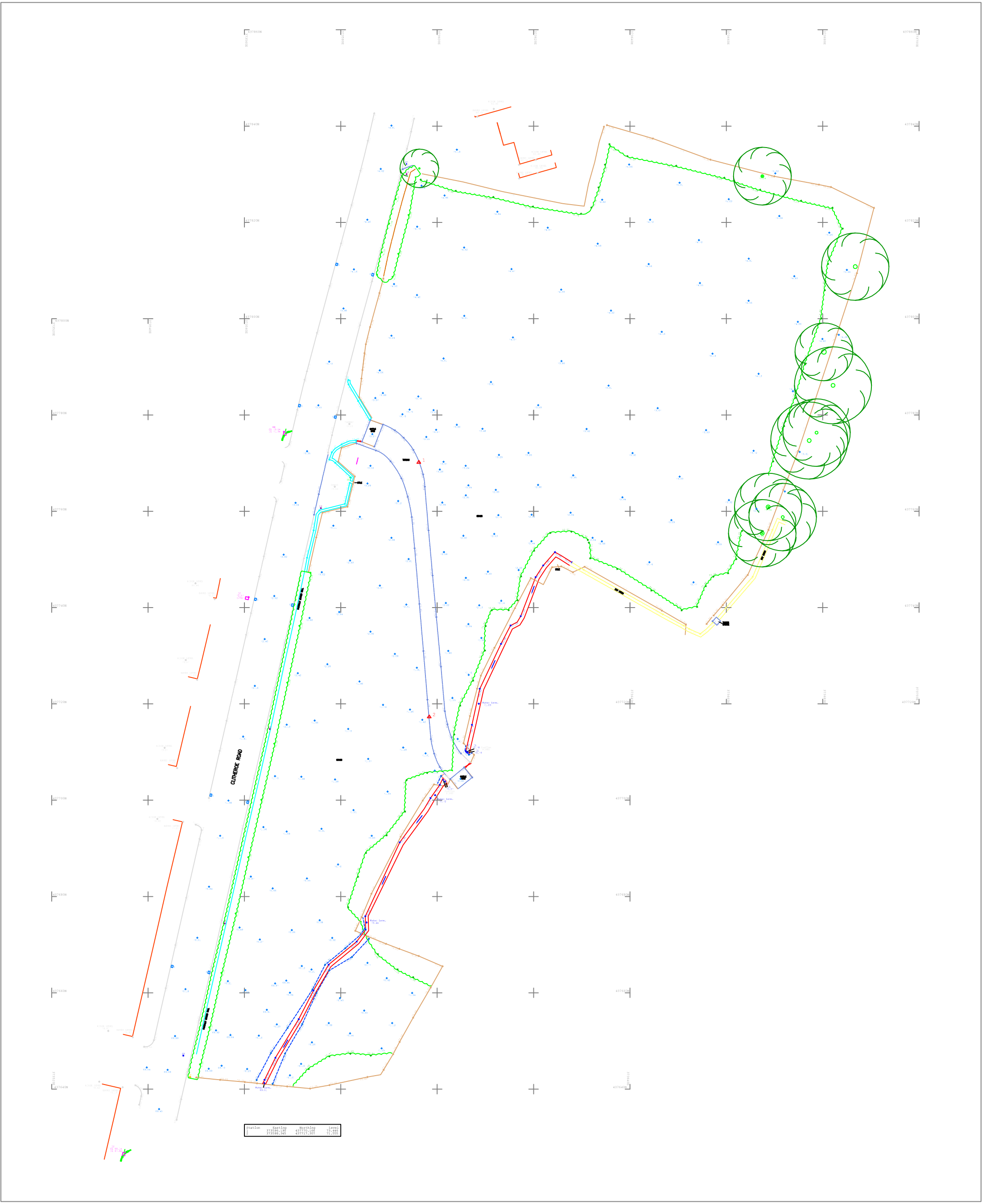
The size and location of the attenuation and discharge measures would be subject to detailed design.

The site is unlikely to be suitable for the installation of additional sustainable urban drainage measures such as soakaways.

Environmental improvements such as Rainwater harvesting and green roof systems do not fall within the scope of this document.



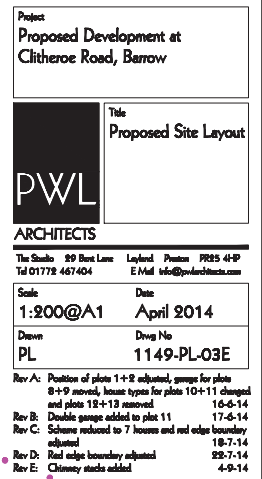
APPENDIX A Topographical Survey



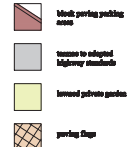


APPENDIX B

Proposed Site Plans



Materials:



Clitheroe Road, Barrow





APPENDIX C

United Utilities Records

UU Maps for Safe Dig



Extract from maps of United Utilities' Underground Assets

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

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