



Monckton Development Ltd.

**Proposed Residential
Development on Former
Monckton Coke &
Chemical Works Site,**

off

**Lund Hill Lane, Royston,
Barnsley,**

S71 4BD

Drainage Strategy

Ref-12910-5005

Revision No 01

July 2020

**Professional, Innovative,
Practical Solutions**

Revision Record

Report Ref: 12910-5005-M2-R-C-01 rev01

Rev	Description	Date	Originator	Checked	Approved
00	Initial Report	July 2020	ATK	RJS	BJS

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1.0 INTRODUCTION

- I. We have been requested by Monckton Developments Limited to undertake a Drainage Strategy, on their proposal to provide a residential and commercial development with associated parking and landscaping on land at the former Monckton Coke & Chemical works site off Lund Hill Lane, Royston, S71 4BD, as detailed in Appendix 2. The Drainage Strategy is to support a planning application submission to Barnsley Metropolitan District Council (MDC).
- II. The 16-hectare development site is located to the east of the railway line and to the west of Lund Hill Lane. It is proposed that the site is developed for residential purposes with associated Public Open Space and access road network with 2 No. points of access onto Lund Hill Lane.
- III. The details as provided by the design team for this development type and use form the basis of this assessment.
- IV. The development site which is now vacant previously contained the Monckton Coke and Chemical development works producing coke destined for use in the glass, detergents and steel manufacturing sectors. The development works closed in 2014.
- V. The development site is situated circa 2.0km to the east of Royston village centre, as shown in Appendix 1.
- VI. The site has frontage access onto the public highway of Lund Hill Lane and is outlined on the enclosed location plan (Appendix 1)
- VII. The site lies in Flood Zone 1, less than 1 in 1,000 annual probability of river or sea flooding.
- VIII. The site is shown to be affected by surface water run-off.

2.0 EXISTING DRAINAGE PROVISION

- I. From a review of the Yorkshire Water Drainage records, there are no public sewers within the site, or across the site frontage. The closest sewer lies at the junction of Cross Lane and Midland Road, approximately 140m west of the site boundary. Drainage Investigations have been undertaken and the results are attached in Appendix 5. The previous Coke and Chemical works were largely independent of the main sewer network with Treatment Plants dotted around the facility. These focused their outfalls to the north into a 600mm outfall sewer to the adjacent watercourse. The former Treatment Plant in the North of the site is a Yorkshire Water asset but is not suitable to accommodate any foul water flows from this development.
- II. Surface water from the southern part of the site discharges to a culverted watercourse, at its south eastern corner; with foul water from the southern effluent tanks discharging under the railway line, by a private trade effluent connection, to the public sewer at the Cross Lane/Lund Hill Lane junction. The topography of Lund Hill Lane suggests that this outfall would have been pumped from an installation in the South western most corner of the site.
- III. Historically, substantial areas of the site were laid out to hard standing areas, as evidenced on the Topographic Survey in Appendix 4. At the time of the Drainage Investigations the central core area of the site had restricted access due to ongoing Demolition works and Contamination.
- IV. As the site was demolished and cleared of structures in 2015, the LLFA will require redevelopment to utilise Greenfield run-off rates of discharge from the site
- V. Much of the site is still laid out to concrete hard standing areas but the drainage will now be ineffective from the demolition activities on the site. Surface water will currently be held on the surface in areas, but will predominantly run off to the North and South, finding its way to the watercourse network naturally. Some areas of the site will direct surface water towards Lund Hill Lane but boundary walls leave limited opportunities for water to reach the road itself.

2.0 PROPOSED DRAINAGE STRATEGY

- I. Foul drainage from the proposed development will need to discharge south east to the head of the existing 225mm diameter Foul sewer in Cross Lane. Sewer records show this sewer to be around 4m deep and this previously accepted a trade waste outfall from the site via a pump station in the south east corner of the site. Whilst the site sits at a higher elevation, the topography falls to the North and Lund Hill Lane drops to 52m AOD to cross under the existing rail line. This precludes drainage by gravity from the site. Foul water will therefore be pumped from an adoptable foul water pump station located at the northern public open space. A copy of the sewer record map is attached in Appendix 8.
- II. Some investigations into the existing drainage network has been undertaken, and this is presented in Appendix 5. This was fairly limited due to Demolition activities and areas of contamination in the central area of the site, but does determine outfall routes for the current site
- III. A substantial area of the site is still laid out to concrete hardstanding areas, however, much of the sites existing drainage will have become ineffective through the previous demolition activities on the site.
- IV. Building Regulations stipulates a hierarchy for the disposal of Surface water from developments where developers should seek firstly to utilise soakaway's, secondly, a watercourse, and thirdly, a surface water sewer. Only when these options are evidenced as not viable, will consideration be given to disposal of surface water to Sewer.
- V. Yorkshire Water and the Lead Local Flood Authority will follow this hierarchy and require evidence to be presented demonstrating why each step of the hierarchy is not feasible. Only when the earlier step of the hierarchy can be evidenced as unsatisfactory, may developers consider the next step.
- VI. Intrusive Ground Investigations have been undertaken on the site by Patrick Parsons in August 2015, and this specifically states that soakaways are not appropriate on this site due to impacted (contaminated) made ground and relatively shallow rock (Secondary A Aquifer)

- VII. The site currently drains to the watercourse adjacent to the western boundary of the site through two outfalls. One to the North (600mm diameter), and one to the south (unknown). This watercourse flows to the North and through Cold Hiendley Reservoir.
- VIII. There are no public sewers within the vicinity of the site, but a drainage survey has been carried to determine the discharge points from its former use.
- IX. Surface water from the northern part of the site discharged to a reservoir in the northwest part of the site, whereas foul water appeared to discharge to a Treatment Works to the north of the northern site boundary. The Treatment Works, not fully operational, are the responsibility of Yorkshire Water Services, but not suitable to accommodate any foul water flows from this development.
- X. Surface water from the southern part of the site discharges to a culverted watercourse, at its south eastern corner; with foul water from the effluent tanks discharging under the railway line, by a private trade effluent connection, to the public sewer at the Cross Lane/Lund Hill Lane junction.
- XI. A copy of the drainage survey and extracts of the records from Yorkshire Water Services are attached as Appendix 8 to this report.
- XII. As the site has remained vacant for around 5 years the LLFA will require the site to return to green field rates of run-off.
- XIII. Recognised Industry Standard software has been used to Simulate the 30 year and 100 year +40% Climate Change rainfall events on the proposed Drainage Network attached in Appendix 2.
- XIV. Climate Change has been based on the Upper End Assessment to year 2115 at 40%. This event is fully contained within the proposed network.
- XV. Catchment areas include an additional 10% uplift for Urban Creep.
- XVI. Catchment Area Plans are attached in Appendix 3, however due to the outline nature of the scheme this outlines areas of development and applies a 60% impermeable percentage area, with an additional 10% added for Urban Creep. A further more detailed assessment is likely to reduce impermeable areas and the flows generated.
- XVII. The sites discharge rate will be controlled through the use of a Vortex Flow Control device located adjacent the storage tank and pond area where adequate maintenance access is available.
- XVIII. All the above indicates that the development will require an underground Storage Tank of 3294m³ capacity to cater for the 30 year storm event, and a dry pond over with a capacity of 1875m³ to cater for the 100 year +40% Climate Change event.

3.0 CONCLUSIONS

- I. Foul drainage from the proposed development will need to discharge to the existing 225mm diameter foul at the junction of Cross Lane and Midland Road, south west of the site. Due to the topography of the site, and the falls to Lund Hill Lane between the site and Cross Lane, this will need to be pumped. A copy of the Sewer record map is attached in Appendix 8. A prospectively adoptable pump station will be provided within the Public Open Space to the North as indicated on the Drainage Strategy plan attached in Appendix 2.
- II. The Ground Investigation report produced by Patrick Parsons in August 2015 does not recommend the use of Soakaways for the disposal of surface water due to impacted (contaminated) made ground and relatively shallow rock (Secondary A Aquifer).
- III. In order that it can be demonstrated that the development proposal is sustainable in terms of Surface Water disposal this report has followed the SuDs hierarchy and demonstrates that the drainage proposal for the site will be similar to how the site currently drains but will provide additional benefits by considerably reducing flows and storing surface water to fully contain the 100 year + Climate Change storm event.
- IV. Surface Water discharge rates are assessed using Wallingford Greenfield run off software and this indicates the peak 1 year run off rate to be 60L/second. Results files are attached in Appendix controlled to
- V. The proposed drainage network will be designed in accordance with Sewers for Adoption and offered to Yorkshire Water, including the Pump Station, Pond, vortex control, and attenuation storage.
- VI. Flows will be controlled through the incorporation of a Vortex flow control device that will be offered for adoption by Yorkshire Water as part of the Drainage network serving the site.
- VII. The site is at very low risk of flooding from rivers or sea.
- VIII. Redevelopment of the site in the manner outlined in this report will reduce the risk of flooding to the site and its upstream and downstream catchment

Appendix 1

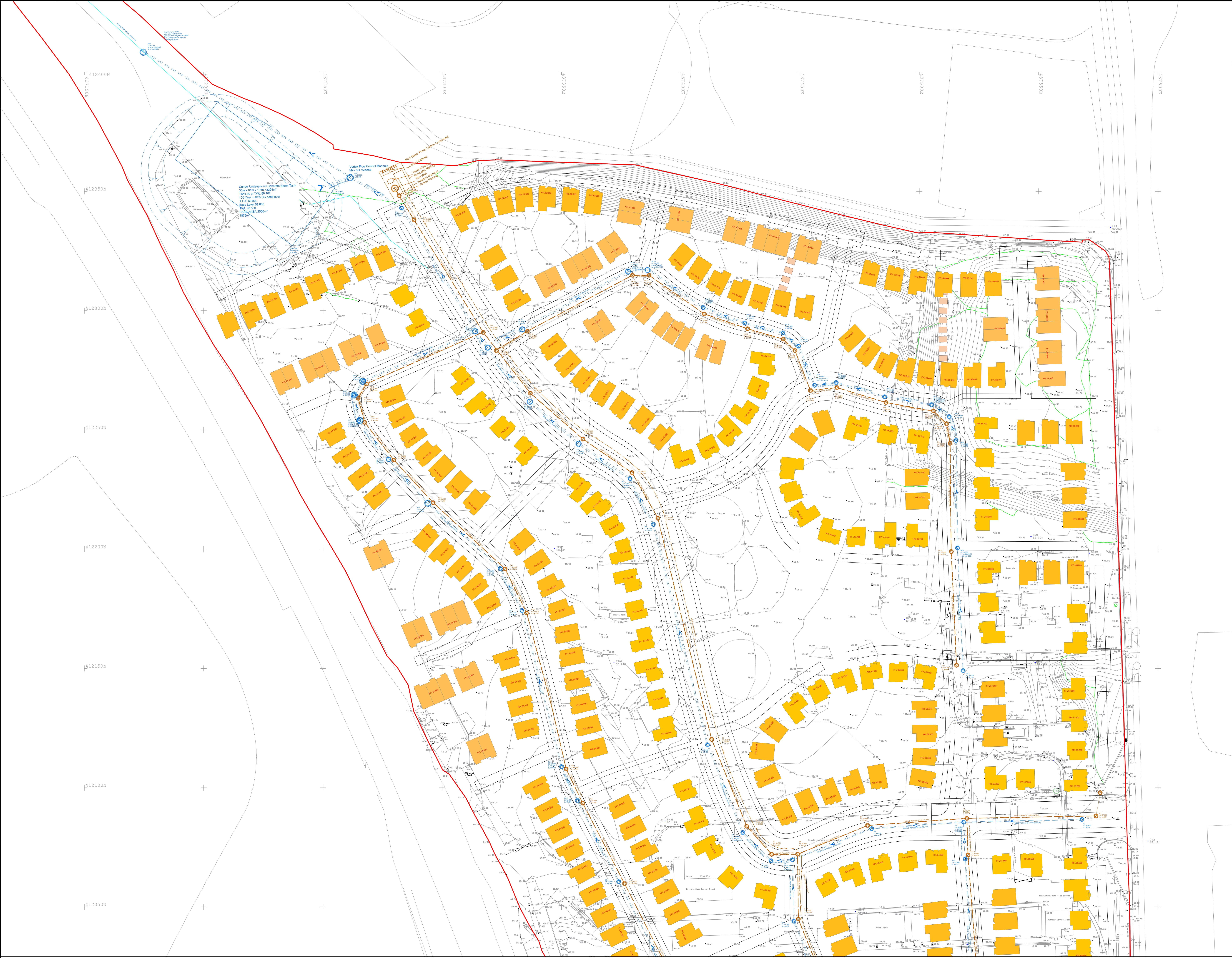
Site Location Plan





Appendix 2

Drainage Strategy Plan

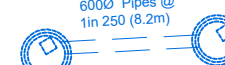




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5. Main Contractor to provide a detailed method statement for all works prior to commencement on site.

FFL 66,200 Finished Floor levels are provisional and provided to demonstrate Drainage Strategy only. No account has been taken of the Remediation Strategy, or any ground remodelling proposals



Proposed Surface water Sewer and Manholes



Proposed Foul water Sewer and Manholes



Proposed Foul water Pump Man

1	31/7/20	AK	Initial Issue	---
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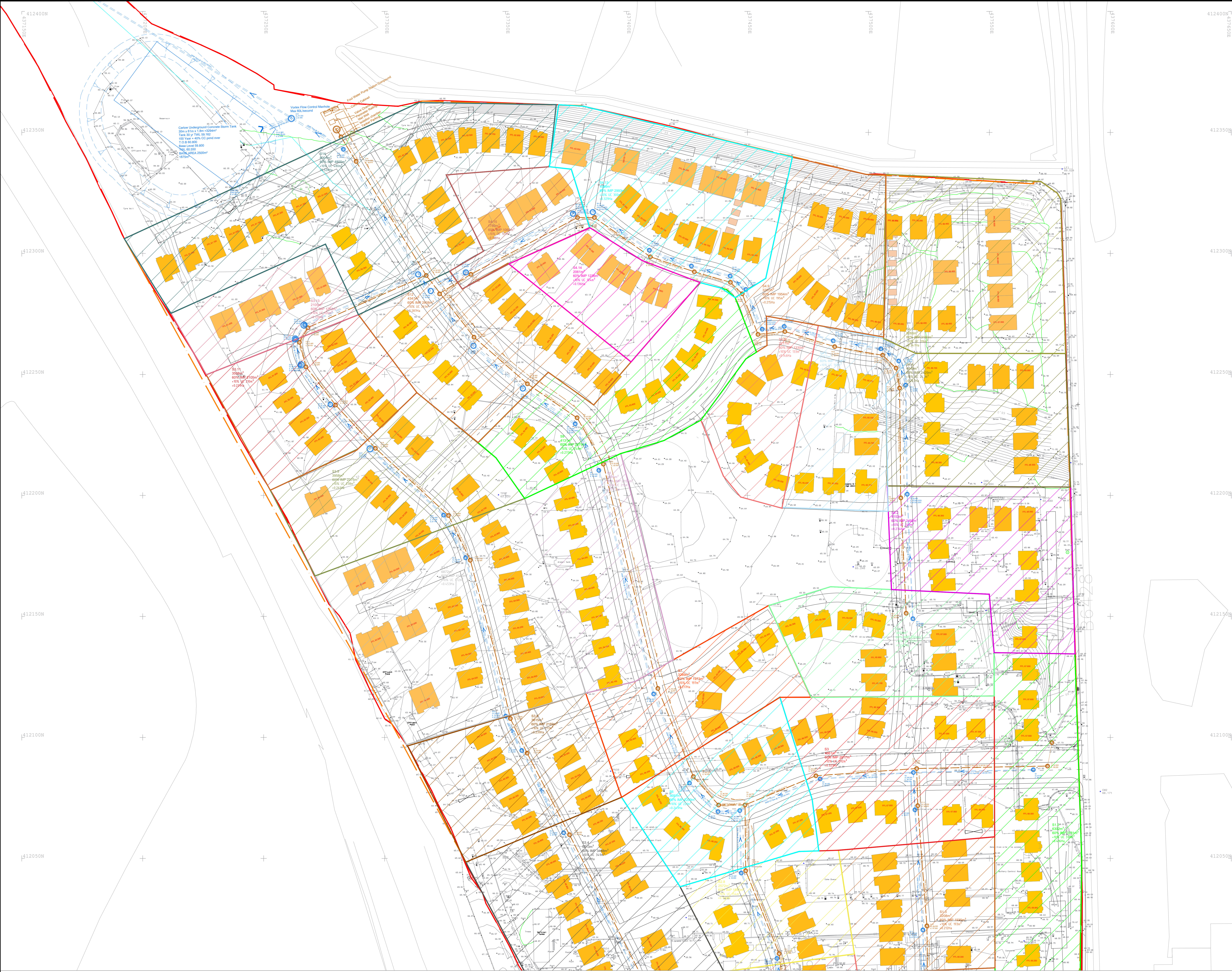
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Appendix 3

Proposed Catchment Area





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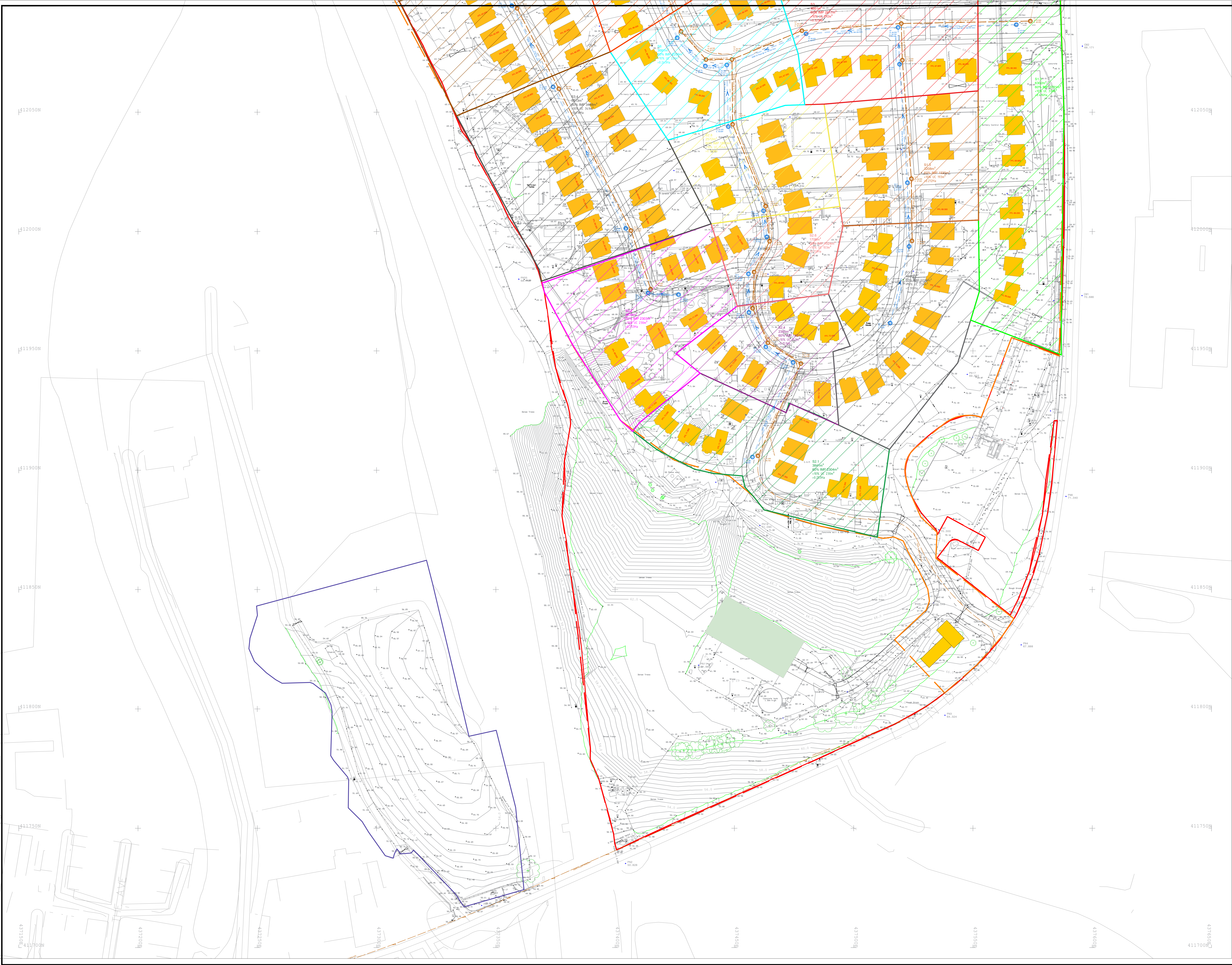
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Title
Catchment Area Plan
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Title

Catchment Area Plan
Sheet 2

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