

Construction Management Plan for Sustainable Drainage Systems

Proposed Residential Development

Barfs Road

Distington

Thomas Armstrong and Home Group

Ref: K42601.CMP/003

Version	Date	Prepared By	Checked By	Approved By
Original	11 August 2026	T. Melhuish	C. Abram	T. Melhuish

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1 INTRODUCTION

1.1 TERMS OF REFERENCE

R. G. Parkins & Partners Ltd (RGP) has been appointed by Thomas Armstrong on behalf of Home Group to provide a Construction Management Plan for the Sustainable Drainage Systems (SuDS) for the proposed housing development at Barfs Road in Distington.

The following plan gives an overview of the SuDS construction methodology proposed. Reference should be made to the following publication, which provides the framework to the following document.

- CIRIA C768 – Guidance on the Construction of SuDS, 2017 ^[1]

Methodology is subject to change during construction and following contractor involvement. SuDS construction by a competent and experienced contractor shall mitigate risk associated with silt mobilisation and unacceptable compaction of ground at SuDS locations. The following report is provided to demonstrate a feasible construction methodology which shall ensure the functionality of SuDS components following construction.

This document has been prepared in support of the Planning Application as per the requirements of the LLFA. It has been undertaken prior to construction. Thomas Armstrong and their appointed groundworks subcontractor will directly undertake the construction of all earthworks, SuDS and below ground drainage. Reference should be made to the Construction Traffic Management Plan produced by Thomas Armstrong when reviewing the enclosed information.

Reference should be made to the following RGP drawings when reviewing this plan:

- K42601-42 Outline Foul & Surface Water Drainage Plan – 1 of 3
- K42601-43 Outline Foul & Surface Water Drainage Plan – 2 of 3
- K42601-43 Outline Foul & Surface Water Drainage Plan – 3 of 3
- K42601-44 Typical Drainage Construction Details – 1 of 2
- K42601-45 Typical Drainage Construction Details – 2 of 2

2 GENERAL CONSTRUCTION

The management of soils / silt and construction materials must be undertaken with due consideration of the potential for contamination or adverse impacts to drainage locations which could result in a reduction in performance. The following measures shall therefore be implemented throughout all phases of construction:

- Soil Strip – A minimum turf and topsoil strip shall be undertaken at all times, sufficient to allow the programmed activity, with grass and soils to be retained wherever possible. Reinstatement of grassed areas shall be undertaken at the earliest opportunity.
- Stockpiles – All material stockpiles are to be capped when not in use and when adverse weather is forecast.
- Compaction of soil – Compaction of attenuation areas by construction plant is to be avoided as far as is practical. Construction management to limit plant size / movements over such areas is required. Attenuation structures to be excavated to formation level immediately prior to geocellular crate attenuation tank installation.
- Cement – Cement dust has the potential to alter the soil matrix and could run-off into the existing sewer network adjacent to the site. Wherever possible pre-cast components are specified. It will be necessary to provide concrete surrounds to manholes and cement would also be required for mortar. Larger quantities of cement are to be provided to site ready mixed. Where required, smaller batches are to be mixed in a designated area underlain by an impermeable surface. Dust suppression should be considered as appropriate.
- Dewatering – Dewatering operations should not be required. In the extremely unlikely event that perched groundwater is encountered on the site the Engineer is to be notified as this may necessitate re-design. Any dewatering operation must be discharged to a grassed area a minimum distance of 10m from all excavations / exposed soils.
- Wheel washing – to be employed as and when require to minimise transportation of silt from the site onto the surrounding highways network.

3 STAGE 1 - SITE SETUP

3.1 PRE-START SURVEY

A pre-start survey of the development site, including accesses, third party right of way, routes of existing services and all trees and boundaries shall be undertaken by the contractor prior to commencement. The survey shall be documented with photographic evidence and stored within the site office.

No other potential significant hazards have been identified.

3.2 CONTRACTOR'S COMPOUND AND SITE ACCOMMODATION

The main site offices, welfare and contractors' compound will be identified in the Construction Traffic Management Plan prepared by Thomas Armstrong. The offices shall be provided with a metered mains power supply, mains water supply and electric heating and will comply with CDM regulations (2015). Proprietary storage tanks will be initially required to serve the foul drainage, which will be inspected and emptied as required. Mobile toilet blocks are envisaged. Following foul drainage construction and connection to the public sewer site welfare shall be connected.

An allocated car parking area shall also be formed within the site compound. All temporary paving shall be permeable and all roof runoff from cabins shall be directed to the permeable subbase underlying the units to ensure runoff is distributed over an equal surface area.

All chemicals and fuels will be stored in an appropriately sized bunded area and a designated re-fuelling area is to be provided. Spill kits will be available.

All necessary works will be subject to detailed design and installation prior to commencement of the project construction phase.

3.3 MANAGING RUNOFF DURING CONSTRUCTION

The site is located in Flood Zone 1 and is not predicted to be at risk of fluvial flooding. Part of the site is considered to be at risk of surface water flooding and ground investigations have confirmed that the site is at a low risk of groundwater flooding.

It is understood that the construction of the dwellings will be undertaken in a phased manner and each area of construction would be suitably controlled.

Following the initial site strip and during construction, it is recognised that run-off containing silt and other construction-related contaminants will migrate towards the lowest levels located along these construction areas.

Silty run-off could be directed towards the existing access road in places. However, as there is an existing footway running along the full length of the road in all proposed construction areas, existing upstands at the back of the footway will provide a natural restraint barrier and prevent any overland flows from migrating on to the highway. It is therefore recommended that in areas where the footway will need to be lowered to formulate new access points to driveways that this is undertaken towards the end of the construction phase to tie in with any final surfacing works proposed (Section 4.1 & 5.3).

Whilst the majority of the site is relatively low risk a watching brief should be applied in order to monitor and proactively deal with any issues identified. Thomas Armstrong will undertake continuous monitoring once work has commenced and will take appropriate remedial measures as required, i.e. cleaning out existing road gullies and road sweeping.

3.4 LAYDOWN AREA

A designated laydown area will be identified in the Construction Traffic Management Plan. Site-won material shall be stored in this area for future use, all material is to be capped to protect stockpiles from the weather when not in use or if adverse weather is forecast.

All excess material shall be removed from site as required to a licensed tip or taken to an exemption site subject to the relevant testing. Some of the materials may be processed on site for re-use.

3.5 SIGNAGE / SITE DELINEATION

Prior to construction, vulnerable areas shall be marked to exclude construction traffic. Sensitive areas include geocellular tank locations as indicated on the drainage layout plan.

4 STAGE 2 - MAIN DRAINAGE CONSTRUCTION

4.1 ROAD CONSTRUCTION

Bulk earthworks for private access roads shall be undertaken during the early stages of construction. Site strip is to be limited to the area under construction and associated dwellings. It is envisaged that the private access roads will be fully constructed up to the dense bitumen macadam layer and used as temporary running surface during construction. Final asphalt surfacing will be installed at the end of the construction phase.

In order to manage and minimise silty run-off from the new private access road onto the existing highways network (Rectory Place) it is proposed that a temporary filter drain and berm is installed at the site entrance, across the full width of the new access road. Refer to Figure 4.1 below for details. This offers a practical solution that can be easily maintained to protect the downstream highways drainage network from siltation and exceedance events. The performance of this solution will be monitored during the initial construction phase and after periods of wet weather and remedial action taken as required. At the end of the construction period the temporary filter drain will be removed and the access road reinstated and surfaced as per the specification.

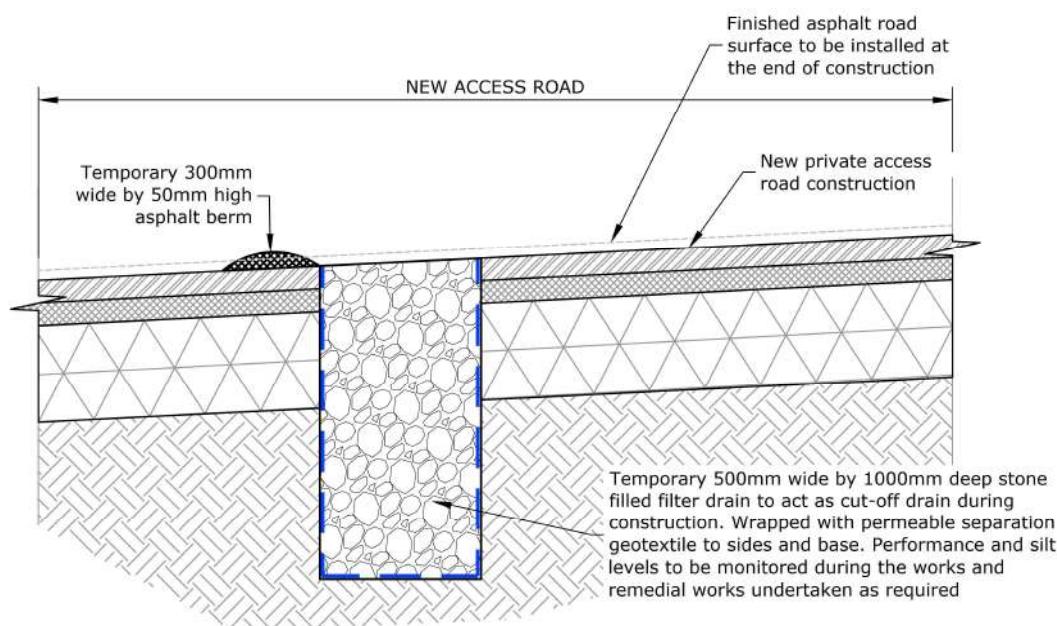


Figure 4.1 Typical construction detail for temporary filter drain & berm at site entrance

4.2 MAIN DRAINAGE

The proposed foul and surface water sewers shall be constructed through the site to form a connection with the existing sewers.

New private road drainage will be via a series of conventional gullies and channel drains discharging into the new site conveyance pipes.

The proposed foul water gravity sewers will be conventional piped systems constructed and backfilled using established materials and jointing methodology to adoptable standards and the specification for DCG.

4.3 GEOCELLULAR ATTENUATION TANKS

The private geocellular attenuation tank systems will comprise 1.6m deep tanks. The attenuation tanks will be wrapped in an impermeable geomembrane to provide a watertight tank. Silt trap manholes will be located directly upstream of the tank and will help to intercept silt that may be conveyed by the upstream pipe network into the tank. The formation of the tank is to be undisturbed natural ground and all hard/soft spots are to be excavated and backfilled with well compacted DfT Type 1 sub-base. The formation will be protected during inclement weather to ensure a consistent, firm foundation to the tank.

4.4 GROUND PROFILING

Site strip is to be limited to the area under construction only. Selected site won material is to be used wherever possible. Any imported material shall be of high permeability.

5 STAGE 3 - PLOT CONSTRUCTION

5.1 FOUNDATION CONSTRUCTION

Plot construction shall commence in a phased manner, and topsoil strip shall be minimised. Foundations will likely comprise conventional concrete strip and trench footings where required.

External retaining walls in rear gardens will be constructed as per Thomas Armstrong's construction programme.

5.2 PLOT DRAINAGE

Plot drainage works will commence after the geocellular attenuation tanks and main drainage runs have been constructed and connections made as required. Private plot drainage will be constructed in accordance with Part H of the Building Regulations and will be subject to inspection by Building Control.

Plot construction shall be undertaken in a timely manner. Once groundworks and external works are complete the area shall be seeded / landscaped as appropriate and the plot connected to the drainage system as required. Silt traps and inspection chambers shall be monitored and maintained throughout construction. Pipework will be jetted and cleaned at the end of the works as required.

5.3 DRIVEWAY & VISITOR PARKING CONSTRUCTION

Bulk earthworks for the driveways and visitor parking areas shall be undertaken during the early stages of construction. Site strip is to be limited to the area under construction and associated dwellings. It is recommended that the installation of final surface finishing is undertaken towards the end of the construction phase to avoid silty run-off affecting other areas of the site.

6 STAGE 4 - CONCLUSION OF MAIN WORKS

Following the completion of all significant groundworks and plots, the areas of external construction and landscaping shall be completed.

Following completion of all external works and plot construction, silt traps and drainage is to be inspected, cleaned and defects identified and rectified.

Thereafter, all SuDS components should be inspected and maintained in accordance with the recommendations listed within the SuDS Operation and Maintenance Plan prepared by RGP.

7 REFERENCES

- [1] CIRIA C768 – Guidance on the Construction of SuDS, 2017