R G PARKINS
Meadowside | Shap Road | Kendal | Cumbria | LA9 6NY
Tel:01539 729393
Email: mail@rgparkins.com

Construction Management Plan for Sustainable Drainage Systems

Proposed Residential Development, Griffin Close, Frizington

Thomas Armstrong and Home Group

Ref: K41128.CMP/003

Version	Date	Prepared By	Checked By	Approved By
Original	28th June 2024	C. Abram	T. Melhuish	T. Melhuish
A	22nd October 2024	C. Abram	T. Melhuish	T. Melhuish

INDEMNITIES

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RG Parkins & Partners Ltd are not qualified to advise on contamination. Any comments contained within this report with regards to contamination are noted as guidance only and the Client should appoint a suitably qualified professional to provide informed advice. The absence of any comments regarding contamination does not represent any form of neglect, carelessness, or failure to undertake our service.

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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 Griffin Close, Frizington.

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

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:

- K41128-10 Foul and Surface Water Drainage Layout
- K41128-12 Typical Drainage Details Sheet 1 of 2
- K41128-13 Typical Drainage Details Sheet 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. The site is also not 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. 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 the southern and western boundaries potentially causing siltation and flooding in this area. Silty run-off could also be directed towards existing access roads.

In order to proactively deal with this risk, it is proposed that temporary works will be installed at the start of the construction phase. These works are included on RGP drawing K41128-14 (included in Appendix A) and include the following measures:

- **Temporary Bunding** – a 300mm high by 1000m wide earth bund will be formed along the western boundary to prevent uncontrolled silty run-off entering through the tree line and into the neighbouring agricultural fields.

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- **Temporary Filter drain** – a 500mm wide by 1000mm deep stone-filled filter drain will be installed near the site entrance to act as a cut-off drain to prevent silty run-off spilling onto Greenvale Court Road. A temporary asphalt berm will be installed in front of the filter drain to help slow down run-off and direct it into the filter drain.

Thomas Armstrong will undertake continuous monitoring of these temporary works once work has commenced and will take appropriate remedial measures as required.

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 fore

cast.

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 the main access road 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 access road 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.

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 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 system will comprise of a 1.2m deep tank. The attenuation tank 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.

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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 allowable.

Piled foundations may be a requirement for Plots 10-11 pending further geotechnical investigation and suitable provisions should be made if 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 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 CONSTRUCTION

Bulk earthworks for the driveways 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 final driveways construction 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.

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7 REFERENCES

[1] CIRIA, *The SUDS Manual*, Report C753, 2015.

APPENDIX A

General

1. This drawing should not be scaled - use figured dimensions only. If in doubt, ask.
2. All dimensions are in millimetres unless stated otherwise.
3. This drawing is to be read in conjunction with all relevant Architects drawings as well as all other drawings by RG Parkins (refer to RG Parkins drawing register).
4. The Contractor is responsible for verifying all dimensions on site prior to commencing works.
5. Any specified proprietary products are to be installed in strict accordance with manufacturers guidelines. No specified product should be substituted without gaining approval from RG Parkins.

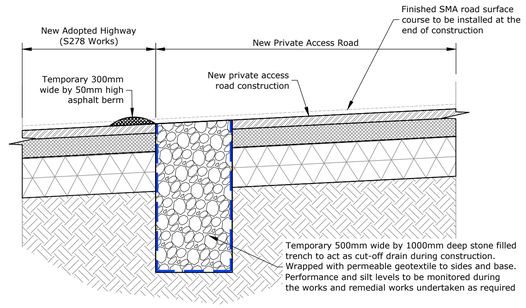
Temporary 1000mm wide by 300mm high earth berm/bund formed with suitably selected clay-rich material well compacted in 100mm thick layers. To intercept run-off and prevent silt migration

Mineshaft building exclusion zone

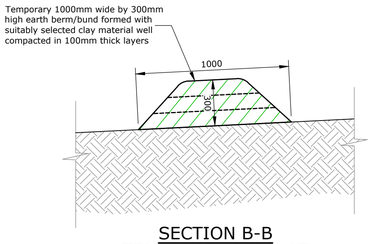
500mm wide by 1000mm deep stone filled trench to act as temporary cut-off drain to intercept run-off from site during construction. Performance of cut-off drain to be monitored during rainfall events and remedial works undertaken as required. Stone to be removed and cleaned where silt accumulation is affecting performance

Temporary 1000mm wide by 300mm high earth berm/bund formed with suitably selected clay-rich material well compacted in 100mm thick layers. To intercept run-off and prevent silt migration

Temporary 300mm wide by 50mm high asphalt berm to be formed in front of stone cut-off drain to help slow down overland flows and act as silt trap



SECTION A-A
TEMPORARY CUT-OFF DRAIN & BERM AT SITE ENTRANCE
SCALE 1:20



SECTION B-B
TEMPORARY BERM AT SITE BOUNDARIES
SCALE 1:20

Rev	Description	Date	Revised by	Checked by	Approved
A	Updated to suit layout alterations	18/10/24	CA	TM	TM

Issue Purpose: PLANNING

Do not scale from this drawing

R G PARKINS
Kendal | 01539 729393 Lancaster | 01524 32548

Client: Thomas Armstrong	Scale @ A1: 1:200	First Issue: 28/06/2024	Office of Origin: Kendal
Project: Griffin Close, Frizington	Drawn by: CA	Checked by: TM	Approved:
Drawing Title: Construction Phase Surface Water Run-Off Mitigation	Project No: K41128	Drawing No: 14	Rev: A
	BIM No:		