Civil and Infrastructure Engineering
Structural Engineering
Construction Engineering
BIM
Construction Modelling

Dewsbury and District Hospital

Produced for Darwin Group LTD

Date: 04/09/2024

Drainage Management and Maintenance Report

design4structures.com

Document information

Document data

Project Title	Dewsbury and District Hospital
Project No.	D4S10060
Document Title	Drainage Management and Maintenance Plan
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Revision history

Revision	Date	Prepared by	Checked by	Approved by	Revision notes
P01	04/09/2024	VS	JK	MG	Initial issue

CONTENTS

1.0 INTRODUCTION..... 3
2.0 MAINTENANCE PLAN 4

1.0 INTRODUCTION

D4S has been appointed by Darwin Group LTD to prepare a Management and Maintenance Plan for the proposed below ground drainage of Dewsbury District Hospital project. This plan outlines the necessary procedures and responsibilities for managing both Sustainable Drainage Systems (SuDS) and regular private drainage systems within the development. Effective maintenance of these systems is crucial to ensure long-term functionality and compliance with relevant environmental standards.

The plan provides a detailed maintenance regime categorized by frequency and type of activity, covering routine inspections, infrequent tasks, and remedial actions. Additionally, the plan addresses the responsibilities of riparian owners and considerations for the eventual replacement of certain drainage components over time. The maintenance schedules and actions have been developed in accordance with best practices, as outlined in The SuDS Manual C753.

The below-ground drainage scheme can be found in the attached Appendix A. This maintenance and management plan is prepared specifically for Dewsbury District Hospital project. The report should be read in conjunction with the manufacturer's specific maintenance requirements.

2.0 MAINTENANCE PLAN

The maintenance regime for the proposed development will be split into two main categories, SuDS drainage and regular private drainage. Both elements will be the responsibility of the commissioned maintenance and management company.

Maintenance operations can be divided into the following categories:

• Regular (or routine frequent) - this covers items that are carried out typically with a frequency from monthly to annually. It includes items such as inspection and monitoring, litter removal, grass cutting or other vegetation management, sweeping permeable pavements.

• Infrequent (or routine infrequent) - this covers items that are required typically with a frequency from annually up to 25 years (or possibly greater). It includes items such as wetland vegetation management, silt removal from swales, ponds or wetlands, scarifying and spiking infiltration basins and gravel replacement to filter drains.

• Remedial (or reactive) - this covers maintenance that is not usually required, but may be necessary as a result of vandalism, accidental damage, rainfall that exceeds the design capacity or similar events. Examples include repair of erosion in a swale or repair of permeable surfaces blocked for example by mixing concrete on them.

Riparian Responsibility

If a resident owns land adjoining, above or with a portion of the drainage system running through it, they have certain rights and responsibilities. In legal terms they are a 'riparian owner'. If they rent the land, they should agree with the owner who will manage these rights and responsibilities.

It is recommended that the owner's appointed Management Company handle the maintenance of all underground drainage and all SuDS devices, with the following exceptions:

• Inspecting and cleaning out any surface mounted hard drainage systems (such as channel drains).

• Inspecting and cleaning out (or reporting) SuDS systems on a small scale (such as garden ditches and swales).

Allowing for Replacement

The design life of some SuDS elements and drainage elements of the proposed system is shorter than the predicted design life of the development. Therefore, the design and maintenance regime considers any potential replacement works.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for sediment and debris in catchpit manholes and gullies. Clean out as required	Twice Annually
	Cleaning of gutters and any filters on Downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional Maintenance	Remove sediment and debris from catchpits, gullies, attenuation devices and inside of concrete manhole rings	As required, based on inspections
Remedial Actions	Reconstruct and/or replace components if performance deteriorates or failure/blockage occurs	As required
	Replacement of clogged components (flow restriction)	As required
Monitoring	Inspect silt traps/gullies/catchpits and note rate of sediment accumulation	Monthly in the first year and then annually
	Check flow control chamber and attenuation devices	Annually

Table 1 – Operation and Maintenance Requirements for Surface Water Systems

Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect and identify any areas that are not operating correctly and remove any debris from the inlet/outlet that could restrict flow.	Immediately following construction then every 3 months for the first year then every 6 months.
Infrequent maintenance	Clear Blockages	As required
Remedial Actions	Replace inlet/outlet unit with specified or similar	As required

Table 2 – Operation and Maintenance Requirements for Inlets and Outlets

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial Actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Table 3 – Operation and Maintenance Requirements for attenuation storage tanks

The below ground management and maintenance for the development is for the responsibility of Dawin Group LTD until an official maintenance company is appointed.

APPENDIX A – PROPOSED SITE DRAINAGE PLAN

Health & Safety Information

In Addition to the Hazards/Risks normally associated with the types of work detailed on this drawing, note the following and refer to D4S Risk Assessment

Construction.

Maintenance/Cleaning/Operation.

Decommissioning/Demolition.

Notes

1. This drawing should be read in conjunction with all relevant architect, landscape architect, engineer and specialist drawings and specifications.
2. Do not scale from this drawing. Work to figured dimensions only.
3. Any discrepancy shall be referred to the designer before work commences.
4. All dimensions are in millimetres unless otherwise stated.
5. This drawing is based on:
   - Topographical survey Drg. No. 03 Dewsbury Topo A_USP;
   - Utilities report DRG. No. 04 Dewsbury Topo A_USP.
7. Architect responsible for setting out, levels and finishes.
8. Proposed services to be coordinated with drainage layout.
9. It is the contractor's responsibility to check and verify the location and levels of all services and drainage prior to work commencement. Any discrepancy and/or unrecorded services located during the works must be carefully recorded. All relevant information should be provided to the CDM Coordinator and the engineer prior to agreeing a course of action.
10. Contractor responsible for the design, installation and maintenance of all necessary temporary works to ensure the strength and stability of the building/s throughout the course of the works.
11. Contractor responsible for obtaining all necessary approvals before work commences.
12. All existing redundant drainage manholes/chambers and/or pipes to be capped off and filled with mass concrete.
13. All drainage to be installed in accordance with Building Regulations Part H and NHBC Guidance.
14. All connections at manholes/chambers to be made soffit to soffit unless specified otherwise. Refer to manhole schedule for details.
15. All drainage pipe to be 100mm diameter unless specified otherwise. Where not noted, minimum gradients to be as follows:
    - 100mm DIA @ 1/40 for foul water drainage or 1/100 for surface water drainage;
    - 150mm DIA @ 1/100 for foul water drainage or 1/150 for surface water drainage.
15. All internal drainage pipes to have above ground rodding access for maintenance.
16. Where pipe soffit level under buildings is less than 600mm below the bottom of the concrete slab, cast iron pipes with concrete surround should be used.
17. Where pipes are to be cast into the concrete foundation, a minimum 150mm of concrete is to be maintained between the outside of the pipe and the top or bottom reinforcement of the foundation.
18. Rocker pipes to be provided at every interface with structures/manholes/inspection chamber etc.
19. All proprietary products/systems to be verified by manufacturer and installed in accordance with the manufacturer's specifications and details.

For porposed drainage drawings refer to:
10060-D4S-XX-XX-DR-C-1000 (SHEET 1),
10060-D4S-XX-XX-DR-C-1010 (SHEET 2),
10060-D4S-XX-XX-DR-C-1020 (SHEET 3),
10060-D4S-XX-XX-DR-C-1200 ,
10060-D4S-XX-XX-DR-C-1500

For proposed drainage diversion works refer to:
10060-D4S-XX-XX-DR-C-2000 (SHEET 1),
10060-D4S-XX-XX-DR-C-2010 (SHEET 2),
10060-D4S-XX-XX-DR-C-2200

LEGEND

- PROPOSED ATTENUATION STORAGE
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED SURFACE WATER DRAINAGE MANHOLE
- PROPOSED SURFACE WATER CHANNEL DRAIN
- PROPOSED FOUL WATER PIPE
- PROPOSED FOUL WATER DRAINAGE MANHOLE
- DRAINAGE PIPE TO BE CAST IN THE GROUND BEAM
- EXISTING SURFACE WATER DRAINAGE
- EXISTING FOUL WATER DRAINAGE
- EXISTING COMBINED WATER DRAINAGE
- EXISTING DRAINAGE MANHOLE
- FW PROPOSED FOUL WATER DRAINAGE MANHOLE
- SW PROPOSED SURFACE WATER DRAINAGE MANHOLE
- SWDIV SURFACE WATER DIVERSION
- FWDIV FOUL WATER DIVERSION
- RWP PROPOSED RAINWATER PIPE
- FG PROPOSED FLOOR GULLY
- SO PROPOSED CHANNEL SUMP OUTLET
- SS PROPOSED STUB STACK
- SVP PROPOSED SOIL VENT PIPE

Rev	Date	Description	Drn	Chk	Apd
P5	21/09/2023	UPDATED DRAINAGE WITH REVISED FOUNDATIONS	JK	CE	ALC
P4	17/08/2023	MINOR UPDATES. DRAFT	JK	CE	ALC
P3	13/07/2023	UPDATED DRAWING FOR LLFA REPSONE, MINOR CHANGES	JK	CE	ALC
P2	07/07/2023	ISSUED FOR STAGE 4	JK	CE	ALC
P1	17/04/2023	ISSUED FOR INFORMATION	JK	ALC	ALC

Key Plan

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Client
DARWIN GROUP LTD

Project
Dewsbury and Distric Hospital
- Theatre and Outpatient Complex

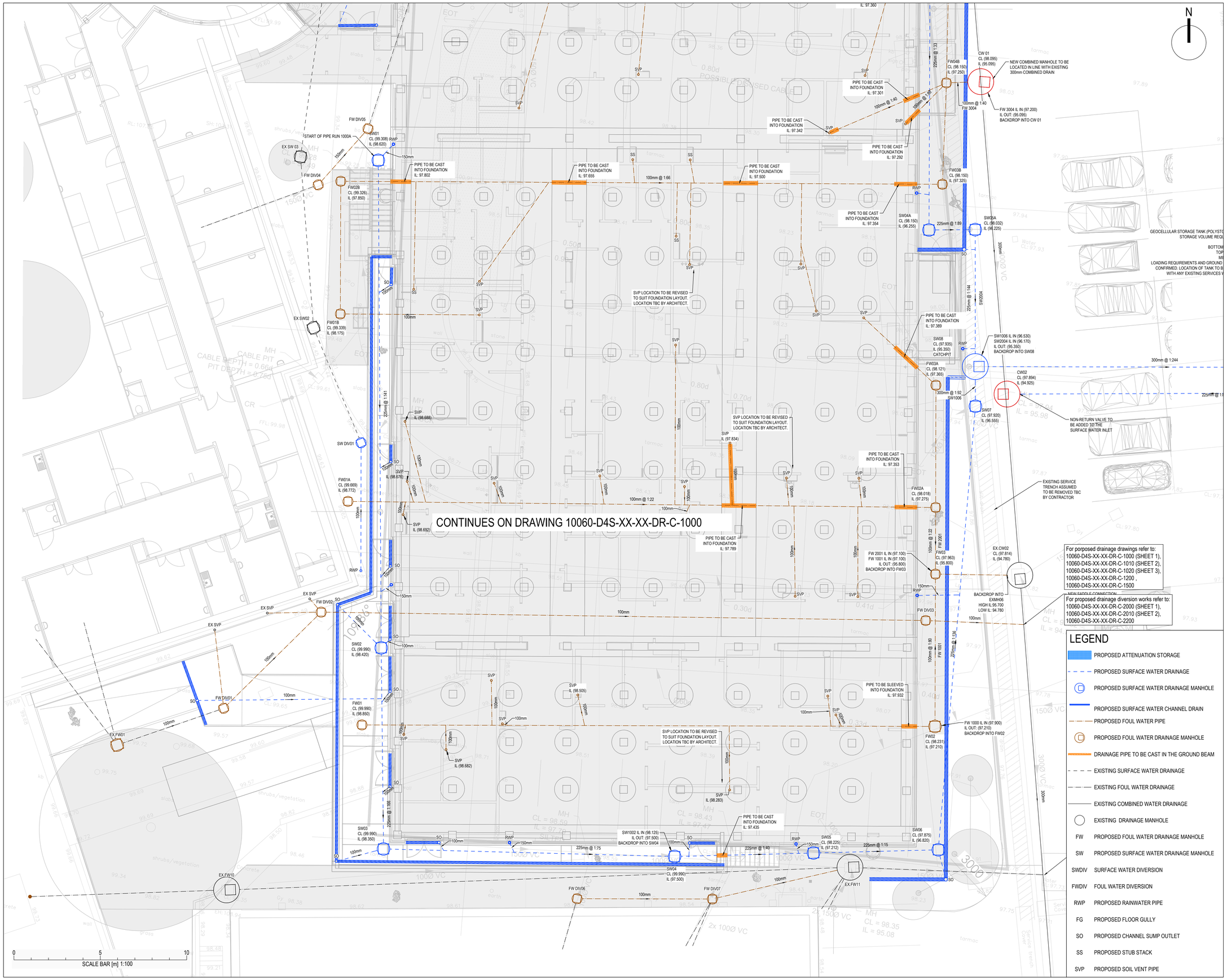
STAGE 4

Drawing Title
PROPOSED DRAINAGE LAYOUT
SHEET 2

Date	Scale @A1 - @A3	Drawn By	Checked	Approved
11/04/2023	1:100	JK	ALC	ALC

Drawing No.
10060-D4S-XX-XX-DR-C-1010

Revision
P5



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P1	16/08/2023	ISSUED FOR TENDER	JK	ALC	ALC

Key Plan

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STAGE 4

Drawing Title
PROPOSED DRAINAGE LAYOUT
SHEET 3

Date	Scale @A1 - @A3	Drawn By	Checked	Approved
10/08/2023	1:100	JK	ALC	ALC

Drawing No.
10060-D4S-XX-XX-DR-C-1020

Revision
P2

CONTINUES ON DRAWING 10060-D4S-XX-XX-DR-C-1010

CONTINUES ON DRAWING 10060-D4S-XX-XX-DR-C-1020

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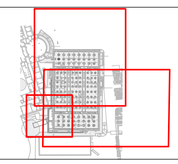

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STAGE 4

Drawing Title
PROPOSED DRAINAGE LAYOUT
SHEET 1

Date	Scale @A1 - @A3	Drawn By	Checked	Approved
11/04/2023	1:100	JK	ALC	ALC

Drawing No.
10060-D4S-XX-XX-DR-C-1000

Revision
P5

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