

GENERAL

Do not scale from this drawing.

All dimensions are in millimetres unless noted otherwise.

All setting out to architects drawings.

Drawing to be read in conjunction with all other SEA drawings and architects drawings.

This scheme has been designed using the survey information provided by others. It shall be the responsibility of the contractor to verify levels, boundaries etc prior to commencing any works on site. SEA Structural Engineers Ltd. shall not accept any responsibility for errors resulting from the survey.

All setting to be in accordance with the Architect's drawings, the Contractor is to check all dimensions and levels prior to commencement of work and report any discrepancies to the Engineer, including any encountered during construction works.

All dimensions should be checked on site prior to construction. Please notify the Engineer of any discrepancies before commencing or continuing any work.

HEALTH, SAFETY & THE ENVIRONMENT

In accordance with the Health and Safety at Work etc Act 1973 and the Construction (Design and Management) Regulations 2015, designs and details on this drawing have been the subject of a Designers Risk Assessment, to identify risks in construction, use, or demolition of the scheme.

It is not considered necessary for Designers to highlight obvious and/or common risks (such as deep excavations, manual handling and working around heavy plant) which Contractors should be familiar with.

So far as is reasonably practicable, risks inherent in the design have been eliminated. Where it has been considered that elimination of a risk (or part of a risk) is not reasonably practicable, it has been reduced.

Significant unusual residual risks are identified below, beside the measures which have been adopted to eliminate and/or reduce them:

- Existing services unknown must be confirmed prior to construction

DRAINAGE NOTES

All pipe lengths and gradients are based on centre of manhole to centre of manhole.

The exact position, level, size and use of existing sewers to be confirmed on site and reported to the Engineer prior to the commencement of works.

All pipes are to be laid with level soffits/ or as indicated.

All private drainage works to accord with the requirements of Building Regulations 2000, Part H (drainage and waste disposal).

The invert of each horizontal drain at the base of a stack shall be at least 450mm below the center line of the lowest branch pipe. Set the level to ensure at least 50mm clearance to footings.

All pipes to be bedded and backfilled in accordance with Part H, diagram 10. Shallow pipes shall be protected in accordance with Part H, diagram 11.

Unless otherwise stated, all private drainage to be 100mm diameter. Gradients have been shown where there are pipe capacity issues, however minimum gradients are as below:

- Surface water 100mm diameter pipes shall not be laid flatter than 1 in 100
- Surface water 150mm diameter pipes shall not be laid flatter than 1 in 150
- Foul water 100mm diameter pipes shall not be laid flatter than 1 in 40 unless there is a WC connected upstream at which it can be laid at 1 in 80
- Foul water 150mm diameter pipes shall not be laid flatter than 1 in 150 providing there are minimum of 5 WCs connected.

Pipes which run adjacent to buildings shall be installed in strict accordance with Part h, clauses 2.23 to 2.25 and diagram 8.

All private manholes and inspection chambers subject to vehicular loading must have class D400 covers and frames in accordance with BS EN 124:2015. All private manholes and inspection chambers not subject to vehicular loading must have class B125 covers and frames in accordance with BS EN 124:2015.

All drains near existing or proposed trees shall be constructed in accordance with the requirements of NHBC's practice note 3 'building near trees'.

Excavation of drain trenches must not be lower than the foundation of any nearby buildings. If the trench is within 1m of foundations, the trench needs to be filled with concrete up to the lowest level of the foundation. If the trench is further than 1m away from the foundations, the trench needs to be filled with concrete to a level below the lowest level for the building, equal to the distance from the building, less than 150mm.

An opening needs to be formed where a pipe passes through a wall, with a minimum 50mm clearance. A lintel must support the brickwork above and each side of the opening masked with rigid sheet material.

All pipework with less than 1.2m cover shall have a concrete slab to adopting water company's requirements unless in open space where 0.9m cover is acceptable. Where a pipe requires a concrete surround C20 concrete mix should be used with vertical joints formed at the face of each flexible joint using 18mm thick compressible board.

All UPVC pipes with less than 600mm cover need concrete protection. Where two pipes cross with less than 300mm separation, surround each with a C20 concrete mix. Where centered on the crossing point, extend the concrete surrounds as necessary to within 150mm of the next nearest flexible joint.

Adequate surface water drainage systems shall be provided to prevent unregulated discharge of water from a private drive onto the highway. These measures shall be implemented before the development in brought into use.

Perforated pipework to be used for distributor runs within permeable block paved areas.

Trapped road gullies to be used for all gullies designed within he access road

DRAWING KEY:

- Existing UU combined drainage
- Existing 900mmØ brick culverted watercourse
- Proposed storm drainage
- Proposed storm road gully
- Proposed permeable block paving extent - ALL PIPE WORK WITHIN PERMEABLE SUBBASE TO BE PERFORMED
- Proposed storm attenuation tank
- Proposed foul drainage
- Existing Combined drainage Not UU

E	25.11.24	WRA	Storm outfall amended
D	24.11.24	WRA	Interceptor added
C	28.10.24	WRA	Storm outfall route amended
B	27.10.24	WRA	Text made clearer to avoid confusion
A	11.10.24	WRA	Foul outfall routes amended

Rev.	Date	By	Description
------	------	----	-------------

SEA
CONSULTING ENGINEERS

[CONSULTING CIVIL & STRUCTURAL ENGINEERS]
E: warren@seace.co.uk
T: 07976310054

PROJECT
**RESIDENTIAL DEVELOPMENT
CHAPEL LANE
LEVENHULME, MANCHESTER**

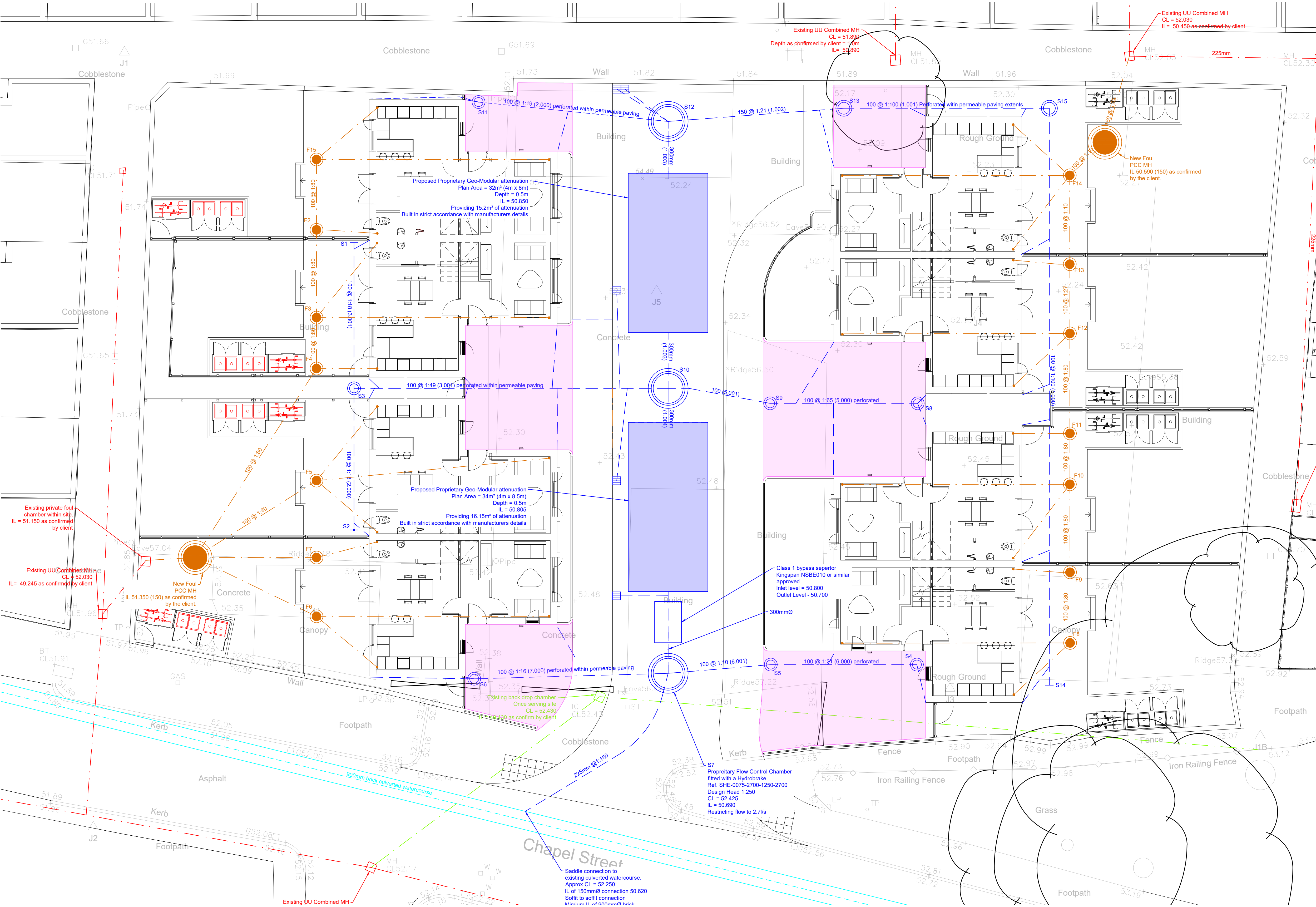
DRAWING
PROPOSED DRAINAGE LAYOUT

SCALE: 1:100@A1	DATE: 20.03.2024
DRAWN BY: WRA	REV: E

STATUS: FOR APPROVAL

DWG No: 00142/E02

E



CELLULAR STORAGE NOTES

The structural design of the cellular storage tanks shall be in accordance with 'Structural design of buried pipelines under various conditions of loading' BSEN 1295, 'Highways Agency Specification for Highway Works', and Sewers for Adoption, 6th Edition. The design of the cellular storage shall be undertaken by the specialist supplier who will take design responsibility.

SEA Structural Engineers takes no responsibility for the design of the cellular storage, other than providing the required capacity. Full design responsibilities for all other aspects lies with the designer of the cellular storage. SEA shall be provided with all construction drawings to allow the drawings to be co-ordinated. SEA will not approve the details.

The Cellular storage shall be designed to receive:
Distributed load = 10kN/m²
Concentrated load = 100kN
Dynamic factor = 2
Material factor = 1.5
unfactored
in addition to the dead load of the ground

The cellular storage shall be designed not to float. Groundwater levels are unknown.

The contractor shall provide to the designer of the cellular storage the type of construction plant likely to be used in the area of the cellular storage prior to construction.

For online storage it is essential that pipe work through the cellular storage is provided in order to allow the system to be maintained. Any proposals that do not show how the system can be rodded will not be adequate.

It is essential that construction sediments are not allowed to enter the cellular storage system and the contractor shall provide adequate protection to the drainage network to prevent this.

Maintenance Schedule	Required Action	Recommended Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, and then six monthly
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Where rainfall infiltrates into blocks from above, check surface of filter for blockages by silt, algae or other matter. Remove and replace surface infiltration medium as necessary. Remove sediment from pre-treatment structures.	Monthly (and after large storms)
Remedial actions	Repair/ rehabilitation of inlets, outlet, overflows and vents.	Annually, or as required.
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are all in good condition and operating as designed.	Annually and after large storms

The designer of the cellular storage shall provide full details of how the cellular storage shall be maintained during the life time of the system.

Installation of the cellular storage shall be carried out by competent personnel only and strictly in accordance with manufactures requirements.

Reference shall be made to CIRIA C698, site hand book for the construction of SUDS, prior to construction.

The design of the cellular storage shall demonstrate compliance with Ciria C680, structural design of modular geocell and drainage tanks

The main contractor and the supplier/installer of the cellular storage shall ensure that the design and installation are co-ordinated with other site works to include, but not limited to, understanding what construction plant may traffic close to or over the cellular storage.