COUNTYWIDE
CONSULTING ENGINEERS

Drainage Design Statement & Specification

Land adjacent 110 Ribchester Road, Clayton-Le-Dale

February 2026

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Revision History

Revision	Revision date	Details	Authorised	Name	Position
P01	28.02.2026	First Issue	✓	Robert Gregg	Director

Distribution List

Hard Copies	PDF Required	Association / Company Name
	X	Mark Skoczen
	X	Judith Douglas Town Planning

1. INTRODUCTION

Countywide Consulting Engineers have been appointed by Mark Skoczen (hereafter referred to as *the Applicant*) to prepare this Drainage Design in support of an application to discharge planning condition number 8 associated planning application 3/2023/0321 located at Land Adjacent to 110 Ribchester Road, Clayton-le-Dale, BB1 9EE.

This Drainage Design Technical Report has been prepared to satisfy Condition 8 by providing full details of the surface and foul water drainage systems and by preventing any surface water from discharging directly or indirectly into the public foul sewer. The design is based upon the sustainable drainage principles and requirements set out in the National Planning Policy Framework, Planning Practice Guidance and Defra Technical Standards for Sustainable Drainage Systems.

Condition 8 requires the submission of full details of the surface water and foul water drainage systems for the development prior to the commencement of works (excluding demolition). The report demonstrates compliance with:

- National Planning Policy Framework (NPPF);
- Planning Practice Guidance (PPG) - Flood Risk & Drainage;
- Defra Non-Statutory Technical Standards for SuDS;
- United Utilities Water for the Northwest requirements;
- Lead Local Flood Authority (LLFA) expectations.

The following documents support this report:

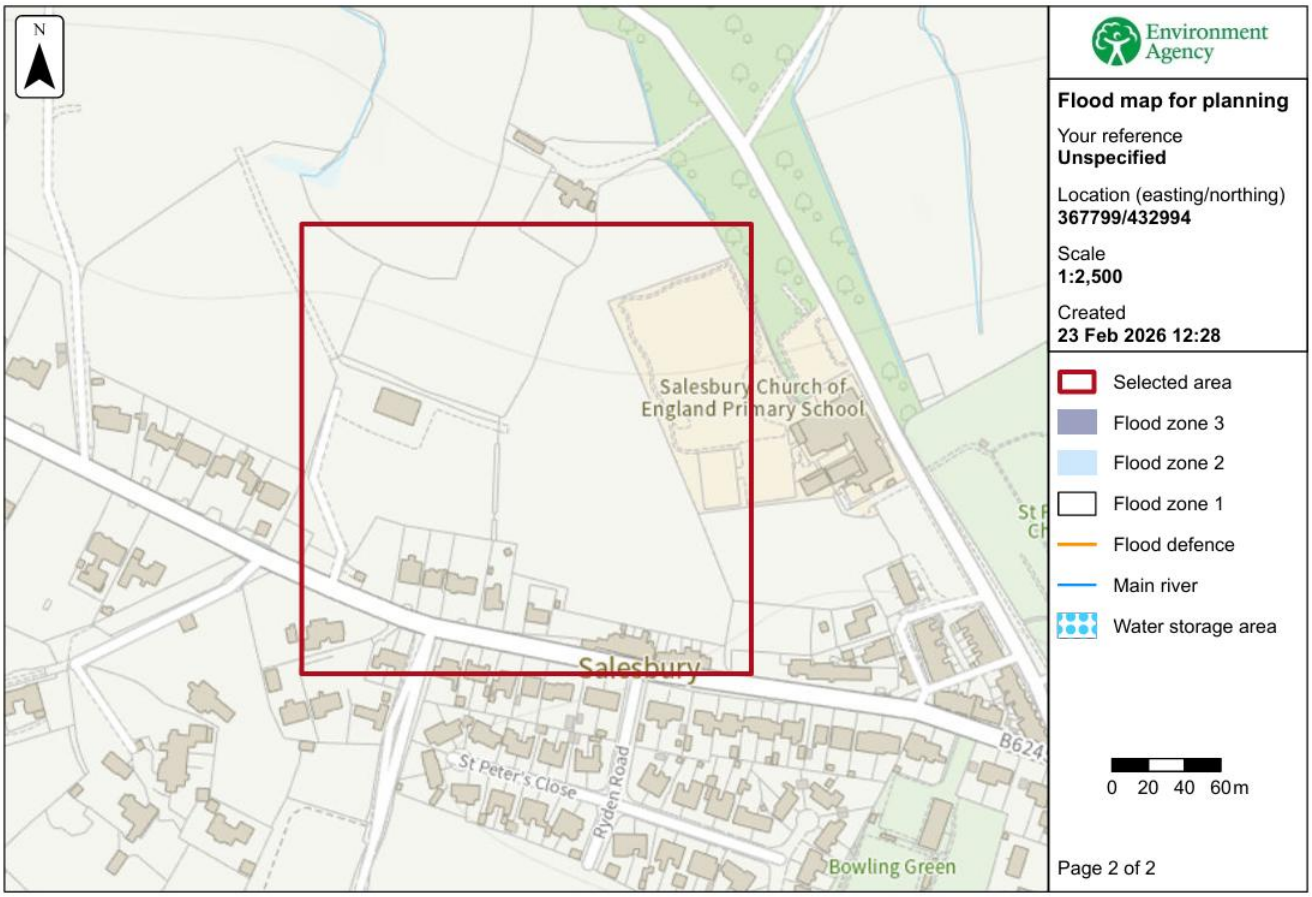
- Surface Water & Foul Drainage Layout (MAS01-CCE-XX-XX-DR-C-0001);
- Drainage Outfall Arrangement (MAS01-CCE-XX-XX-DR-C-0002);
- Site Plan & General Arrangement (MAS01-CCE-XX-XX-DR-C-0003);
- EA Flood Map for Planning extract (Flood Zone 1 classification);
- HR Wallingford Greenfield Runoff Report (FEH2025 method);
- InfoDrainage Report: full hydraulic modelling, pipe sizing, manhole schedule, and design criteria.

This report demonstrates that the drainage design is robust, environmentally compliant, hydraulically appropriate, and implementable, meeting the requirements for discharge of Condition 8.

2. FLOOD RISK CONTEXT

The EA Flood Map for Planning confirms that the site lies entirely within Flood Zone 1, representing an area with a low probability of flooding. Flood Zone 1 is suitable for residential development, and no sequential test is required.

The EA mapping notes that Flood Zone 1 only covers fluvial/tidal flooding and does not include other sources, but it remains the correct dataset for planning submissions.



The British Geological Society describes the sites Superficial deposits as Till, Devensian-Diamicton (drift). This is the youngest geological deposit formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.

The bedrock profile consists of Pendle Grit Member-Sandstone (Solid). The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago or older, up to the relatively young Pliocene, 2.6 million years ago.

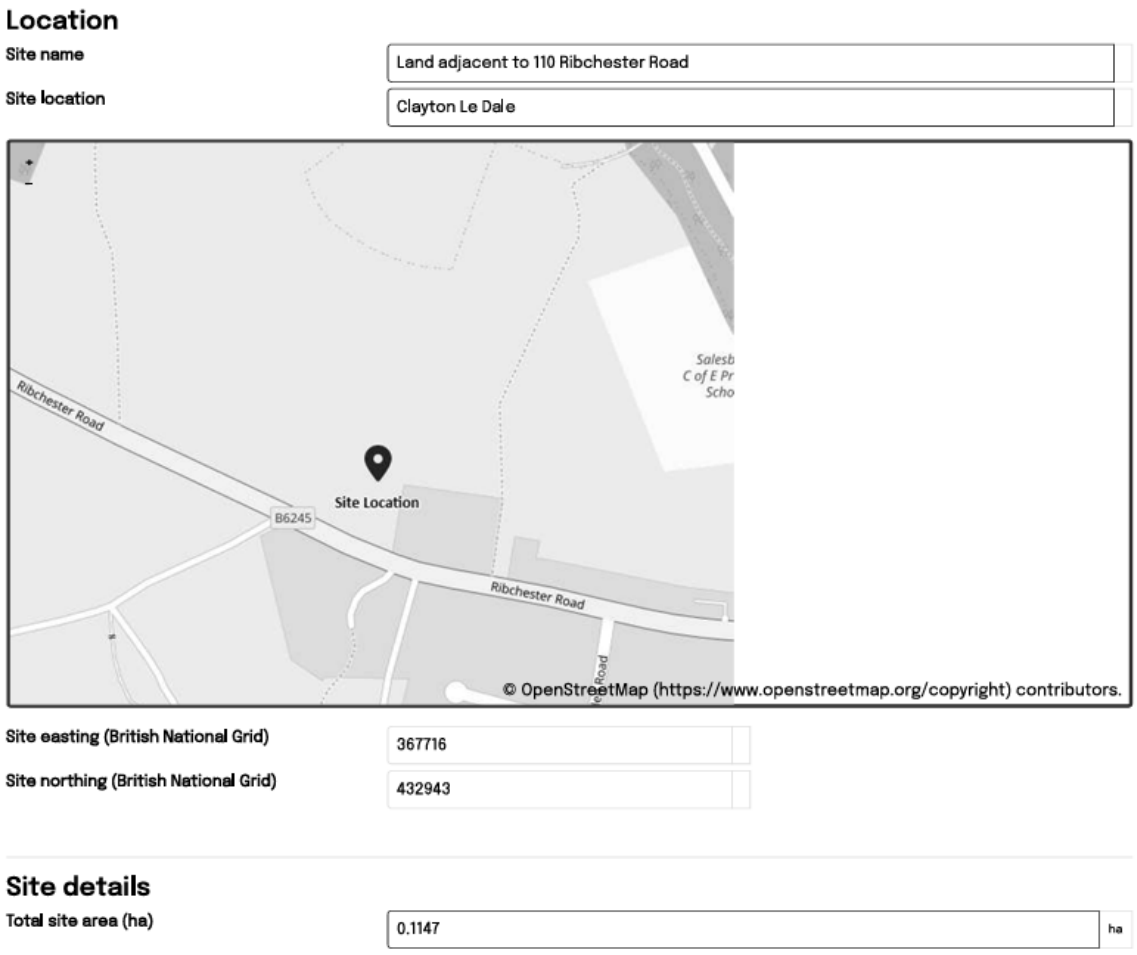
3. GREENFIELD RUNOFF RATES

Greenfield runoff calculations were produced using the HR Wallingford FEH Statistical (2025) method, which is compliant with EA guidance and the SuDS Manual (C753). The output values are:

- QBAR: 1.1 L/s
- 1-year event: 1.0 L/s
- 10-year event: 1.5 L/s
- 30-year event: 1.9 L/s
- 100-year event: 2.3 L/s
- 200-year event: 2.6 L/s

These values provide the allowable discharge benchmark and confirm extremely low natural runoff from the site due to its small area (≈0.1147ha) and high baseflow index.

The design therefore adopts a restrictive discharge of 2.0 L/s, which is hydraulically conservative and aligns with Defra Technical Standards.



4. EXISTING SITE DRAINAGE

The site naturally drains north-eastwards into an existing vegetated swale, shown on Drawing 0003. The swale:

- Contains dense reeds and natural vegetation;
- Provides a biodiverse linear habitat;
- Maintains a gentle, continuous fall toward an Ordinary Watercourse;
- Discharges via an existing culvert;
  as annotated within the Outfall Arrangement.

The swale is therefore an ideal receiving SuDS component for both controlled surface water discharge and tertiary polishing of treated foul effluent.

5. SURFACE WATER STRATEGY

Design Principles

The drainage strategy complies with:

- The surface water hierarchy (SuDS first);
- Defra Technical Standards (peak flow, volume control, treatment, and conveyance);
- LLFA requirements;
- No connection to foul sewer (Condition 8).

Network Layout

The proposed system (Drawing 0001) includes:

- 100mm & 150mm surface water pipework;
- Pipe gradients between 1:13 and 1:120;
- A 100mm ACO drain intercepting driveway runoff;
- Conveyance through a gravity network to the outfall headwall;
- A discharge control restricting outflow to 2.0 L/s, matching the InfoDrainage specification.

Outfall to Swale

Surface water discharges into the swale via:

- Althon AH3-150 precast headwall;
- Installed at 45° angle to flow (EA-compliant);
- With geotextile bedding, toe apron and scour protection.

Compliance with Defra SuDS Standards

The design meets the standards through:

- Source control: ACO channel;
- Conveyance: Gravity pipework;
- Treatment: Vegetated swale;
- Peak flow control: 2.0 L/s;
- Biodiversity: Retention/enhancement of natural vegetation;
- Amenity: Low-visual-impact SuDS feature.

Natural SuDS Treatment Train:

The drainage system achieves a three-stage SuDS treatment sequence:

1. **Primary treatment**: sediment capture via ACO drain and pipe network
2. **Secondary treatment**: vegetated swale providing filtration and sedimentation
3. **Tertiary treatment**: natural polishing within the swale before entering the Ordinary Watercourse

InfoDrainage hydraulic modelling confirms no pipe surcharge under FEH rainfall (including CC uplift).

6. FOUL WATER STRATEGY

Foul Treatment

Foul sewage is treated onsite within a Klargester BioTec+ Package Treatment Plant (location on Drawing 0001).

Foul Discharge Arrangement

The treated effluent is conveyed via a 100mm foul line to the swale through:

- Althon AH3-100 angled headwall;
- Installed at ~45°;
- Fitted with a flap valve to prevent backflow;
- (See Drawing 0002).

Foul Discharge Rate

The final 100 mm foul discharge pipe operates at a gradient of approximately 1:20, giving a theoretical full-bore gravity capacity of approximately 4.6 L/s, calculated using Manning's Equation for uPVC pipework. The package treatment plant does not release effluent at this rate; instead, treated flows are smoothed and attenuated within the PTP, producing a controlled, continuous discharge.

The modelled outfall restriction of 2.0 L/s therefore remains conservative and hydraulically robust, ensuring no impact to the swale or downstream Ordinary Watercourse under peak conditions.

This makes the foul discharge rate:

- Hydraulically controlled;
- Environmentally appropriate;
- Far below natural greenfield surface water runoff rates (1.0–2.6 L/s);
- Fully compliant with PTP manufacturer expectations;
- Safe for the receiving swale.

Environmental Treatment

Swale vegetation provides:

- Tertiary polishing;
- Nutrient uptake;
- Filtration;
- Ecological enhancement.

This meets the requirement for treated effluent discharge to a vegetated natural channel.

The foul drainage layout and cover/invert levels have been designed in full accordance with Building Regulations Part H (Drainage and Waste Disposal)

7. HYDRAULIC MODELLING SUMMARY

The InfoDrainage model confirms:

- All pipes operate under gravity with adequate falls;
- Velocities satisfy 1.0–3.0 m/s criteria;
- Manhole sizing matches the schedule (450mm–1500mm chambers);
- Foul system outlet limited to 2.0 L/s;
- Surface water discharge limited to 2.0 L/s;
- Outfall is a Free Discharge at MH8;
- FEH rainfall and climate change uplift included.

These outcomes collectively validate the drainage design as hydraulically robust.

8. CONSTRUCTION REQUIREMENTS

The following requirements support construction, operation and Maintenance:

- Install drainage strictly to Drawings 0001–0003;
- Pipe bedding: minimum 150mm granular surround;
- All manholes to match InfoDrainage schedule levels and dimensions;
- Headwalls installed per Drawing 0002 (angle, apron, geotextile);
- Swale banks reinstated and reseeded following installation;
- All outlets to be left unobstructed and accessible;
- The contractor must provide as-built drainage drawings and update the digital model upon completion, including all invert levels, pipe diameters, outfall structures, and PTP connections.

Surface Water

- Clear ACO drain: quarterly;
- Inspect headwall & apron: bi-annually;
- Remove silt/debris from swale inlet zone;
- Vegetation management: annual cut, staged to preserve habitat.

Foul

- Maintain PTP per manufacturer schedule;
- Inspect flap valve twice per year;
- Desludge treatment plant per Klargester recommendations.

9. COMPLIANCE STATEMENT

The proposed drainage design:

- Fully complies with NPPF, PPG, Defra SuDS Standards;
- Discharges surface water to the highest feasible point in the hierarchy: existing swale to Ordinary Watercourse;
- Ensures no surface water discharges to foul sewer (Condition 8 requirement);
- Demonstrates controlled outflow of 2.0 L/s, below greenfield QBAR and major event rates;
- Provides robust foul discharge management with treatment, flap valve protection, and tertiary polishing;
- Enhances biodiversity through use of a natural swale system;
- Is supported by hydraulic modelling, greenfield runoff calculation, and flood mapping evidence.

Therefore, the drainage design fulfills the requirements for discharge of Planning Condition 8.

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**367799/432994**	**23 February 2026 12:27**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
367799/432994

Scale
1:2,500

Created
23 Feb 2026 12:28

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

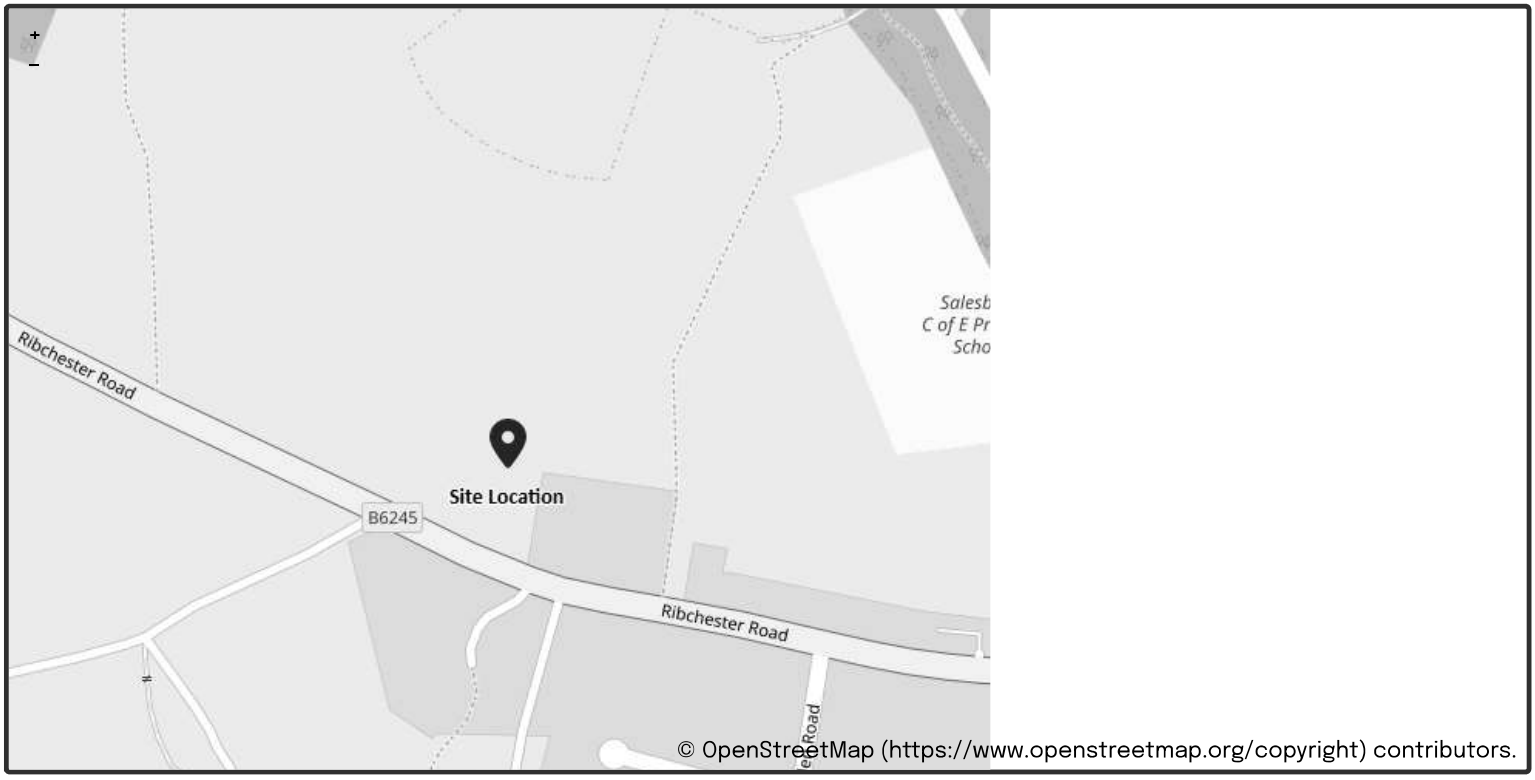
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	23/02/2026
Calculated by	Robert Gregg
Reference	CCE005503
Model version	2.2.2

Location

Site name	Land adjacent to 110 Ribchester Road
Site location	Clayton Le Dale



Site easting (British National Grid)	367716
Site northing (British National Grid)	432943

Site details

Total site area (ha)	0.1147 ha

Greenfield runoff

Method

Method	FEH statistical (2025)

FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	1181 mm		
BFIHOST19scaled	0.441		
QMed-QBar conversion	1.075		1.075
QMed (l/s)	1 l/s		
QBar (FEH statistical 2025) (l/s)	1.1 l/s		

Growth curve factors

	My value		Map value
Hydrological region	10		10
1 year growth factor	0.87		
2 year growth factor	0.93		
10 year growth factor	1.38		
30 year growth factor	1.7		
100 year growth factor	2.08		
200 year growth factor	2.37		

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	1.0 l/s
Flow rate 2 year (l/s)	1.0 l/s
Flow rate 10 years (l/s)	1.5 l/s
Flow rate 30 years (l/s)	1.9 l/s
Flow rate 100 years (l/s)	2.3 l/s
Flow rate 200 years (l/s)	2.6 l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Junctions Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
Manhole	Manhole	367711.373	432938.835	137.810	0.700	137.110	Circular	0.450
Manhole (1)	Manhole	367712.286	432944.427	137.810	1.210	136.600	Circular	0.450
Manhole (3)	Manhole	367720.191	432944.775	137.810	2.160	135.650	Circular	1.500
Manhole (4)	Manhole	367715.987	432931.214	137.810	1.000	136.810	Circular	0.450
Manhole (5)	Manhole	367720.140	432930.537	137.810	1.110	136.700	Circular	0.450
Manhole (6)	Manhole	367726.010	432930.664	137.810	1.210	136.600	Circular	0.450
Manhole (7)	Manhole	367727.841	432941.890	137.810	1.460	136.350	Circular	0.450
Manhole (2)	Manhole	367724.506	432953.660	136.970	1.670	135.300	Circular	1.500
Manhole (8)	Manhole	367759.613	433017.666	133.000	0.500	132.500	Circular	0.450

Name	Access Required	Intersection Easting (m)	Intersection Northing (m)	Lock
Manhole	☑	367711.373	432938.835	None
Manhole (1)	☑	367712.286	432944.427	None
Manhole (3)	☑	367720.191	432944.775	None
Manhole (4)	☑	367715.987	432931.214	None
Manhole (5)	☑	367720.140	432930.537	None
Manhole (6)	☑	367726.010	432930.664	None
Manhole (7)	☑	367727.841	432941.890	None
Manhole (2)	☐			None
Manhole (8)	☐			None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
Manhole	Inlet	Catchment Area (2)	(None)	No Restriction
Manhole (1)	Inlet	Pipe 1.1 Catchment Area	(None)	No Restriction
Manhole (3)	Inlet	Pipe 1.2 Pipe 2.4	(None)	No Restriction
Manhole (5)	Inlet	Pipe 2.1 Catchment Area (6) Catchment Area (7)	(None)	No Restriction
	Inlet (2)	Catchment Area (10)	(None)	No Restriction
Manhole (6)	Inlet	Pipe 2.2	(None)	No Restriction
	Inlet (1)	Catchment Area (3)	(None)	No Restriction
Manhole (7)	Inlet	Pipe 2.3 Catchment Area (1)	(None)	No Restriction
Manhole (2)	Inlet	Pipe 1.3	(None)	No Restriction
Manhole (8)	Inlet	Pipe 1.4	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
Manhole	Outlet	Pipe 1.1	Free Discharge
Manhole (1)	Outlet	Pipe 1.2	Free Discharge
Manhole (3)	Outlet	Pipe 1.3	Free Discharge
Manhole (4)	Outlet	Pipe 2.1	Free Discharge
Manhole (5)	Outlet	Pipe 2.2	Free Discharge
Manhole (6)	Outlet	Pipe 2.3	Free Discharge
Manhole (7)	Outlet	Pipe 2.4	Free Discharge
Manhole (2)	Outlet	Pipe 1.4	Orifice
	Diameter (m)	0.027	
	Coefficient of Discharge	0.600	
	Invert Level (m)	135.300	

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Connections Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe 1.1	5.666	Pipe	11.110		0.6	150	137.810	137.110
Pipe 1.2	7.913	Pipe	8.329		0.6	300	137.810	136.600
Pipe 1.3	9.877	Pipe	28.221		0.6	650	137.810	135.650
Pipe 1.4	73.002	Pipe	26.072		0.6	150	136.970	135.300
Pipe 2.1	4.208	Pipe	38.253		0.6	150	137.810	136.810
Pipe 2.2	5.871	Pipe	58.714		0.6	150	137.810	136.700
Pipe 2.3	11.374	Pipe	45.497		0.6	150	137.810	136.600
Pipe 2.4	8.176	Pipe	11.680		0.6	300	137.810	136.350

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)	Culvert Type	Culvert Entrance
Pipe 1.1	137.810	136.600		None		(None)	(None)
Pipe 1.2	137.810	135.650		None		(None)	(None)
Pipe 1.3	136.970	135.300		None		(None)	(None)
Pipe 1.4	133.000	132.500		None	2.0	(None)	(None)
Pipe 2.1	137.810	136.700		None		(None)	(None)
Pipe 2.2	137.810	136.600		None		(None)	(None)
Pipe 2.3	137.810	136.350		None		(None)	(None)
Pipe 2.4	137.810	135.650		None		(None)	(None)

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Manhole E:367711.373 N:432938.835	137.810 137.110 0.700	Diameter / Length: 0.450					Manhole - Access Required
			{a} Pipe 1.1	Pipe	137.110	Diam/Width:150	Not Applicable
Manhole (1) E:367712.286 N:432944.427	137.810 136.600 1.210	Diameter / Length: 0.450	{1} Pipe 1.1	Pipe	136.600	Diam/Width:150	Manhole - Access Required
			{a} Pipe 1.2	Pipe	136.600	Diam/Width:300	Not Applicable
Manhole (3) E:367720.191 N:432944.775	137.810 135.650 2.160	Diameter / Length: 1.500	{1} Pipe 1.2 {2} Pipe 2.4	Pipe Pipe	135.650 135.650	Diam/Width:300 Diam/Width:300	Manhole - Access Required
			{a} Pipe 1.3	Pipe	135.650	Diam/Width:650	Not Applicable
Manhole (4) E:367715.987 N:432931.214	137.810 136.810 1.000	Diameter / Length: 0.450					Manhole - Access Required
			{a} Pipe 2.1	Pipe	136.810	Diam/Width:150	Not Applicable
Manhole (5) E:367720.140 N:432930.537	137.810 136.700 1.110	Diameter / Length: 0.450	{1} Pipe 2.1	Pipe	136.700	Diam/Width:150	Manhole - Access Required
			{a} Pipe 2.2	Pipe	136.700	Diam/Width:150	Not Applicable

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Manhole (6)	137.810 136.600	Diameter / Length: 0.450	{1} Pipe 2.2	Pipe	136.600	Diam/Width:150	Manhole - Access Required
E:367726.010 N:432930.664	1.210		{a} Pipe 2.3	Pipe	136.600	Diam/Width:150	Not Applicable
Manhole (7)	137.810 136.350	Diameter / Length: 0.450	{1} Pipe 2.3	Pipe	136.350	Diam/Width:150	Manhole - Access Required
E:367727.841 N:432941.890	1.460		{a} Pipe 2.4	Pipe	136.350	Diam/Width:300	Not Applicable
Manhole (2)	136.970 135.300	Diameter / Length: 1.500	{1} Pipe 1.3	Pipe	135.300	Diam/Width:650	Manhole
E:367724.506 N:432953.660	1.670		{a} Pipe 1.4	Pipe	135.300	Diam/Width:150	Not Applicable
Manhole (8)	133.000 132.500	Diameter / Length: 0.450	{1} Pipe 1.4	Pipe	132.500	Diam/Width:150	Manhole
E:367759.613 N:433017.666	0.500						Not Applicable

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Network Design Criteria Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Pipe Size Library

Default

Add. Increment (mm)	75
Max. Diameter (mm)	0

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
100	0.00	0.00
150	0.00	0.00

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Details: Type: Network Design Criteria Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Manhole Options

Apply Offset	☐

Manhole Size Library

Default

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
0	1.200	0.000
375	1.350	0.000
500	1.500	0.000
750	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	1.050	0.000
1.500	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by: RG	Checked by: VL	Approved By: RG
Report Details: Type: Outfall Details Storm Phase: Phase	Company Address: Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
Manhole (8)	Free Discharge			

Project:	Date:		
CCE005503 Ribchester Road Clayton Le Dale	28/02/2026		
	Designed by:	Checked by:	Approved By:
	RG	VL	RG
Report Title:	Company Address:		
Rainfall Analysis Criteria	Countywide Consulting Engineers Ltd Unit 27b Mitton Road Business Park Mitton Road, Whalley, BB7 9YE		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☑
Rainfall Depth (mm)	1.0
Run Time (mins)	1440

Rainfall

FEH

Type: FEH

Site Location	GB 367716 432943 SD 67716 32943
Rainfall Version	2022
Summer	☑
Winter	☐

Return Period

Return Period (years)	Increase Rainfall (%)
30.0	40.000
100.0	50.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120

Wastewater Treatment Solutions

Klargester

BioTec+ Sewage Treatment Plant

3.5mg/l phosphate

Total P Removal 60.8%

TNb 75.5% 15mg/l nitrate

UP TO 3 YR WARRANTY PERIOD*

The BioTec+ is the newest addition to our sewage treatment plant portfolio. Our most economically priced plant in the range offers customers all the benefits of a Klargester product without the price tag. With flexible installation options to suit a variety of domestic sites, low visual footprint and suitable for shallow dig applications, the Klargester BioTec+ is a cost-efficient choice for your domestic wastewater treatment solution.

KNECT PRO
POWERED BY
SMART MONITORING

With Klargester, your BioTec+ is monitored, serviced and cared for by the experts who know it best, giving you total peace of mind.

*Terms and conditions apply. View online at: https://water.kwe.kingspan.com/warranty

klargester.co.uk

How it Works

1

Stage 1:

Crude sewage enters the system through an inlet pipe on the side of the BioTec+.

2

Stage 2:

Compressed air comes from the blower to the diffuser leg through a cable duct. Sewage is aerated via a diffuser at the bottom of the reactor. 8 min ON /2 min OFF /9H Total.

3

Stage 3:

Naturally occurring micro-organisms form part of this aerated mixture and will efficiently break down the pollutants in the sewage.

4

Stage 4:

After 9 hours, aeration stops and solids will settle in the bottom of the tank. Clearwater removal is airlifted from the tank to the outlet pipe.

Klargester

Product Features

98.5%
Improved effluent quality – BOD_5 98.5%

EN 12566-3

Easy to install and operate

Low Profile Cover

Lightweight no crane needed

Low running costs

Specifications

BioTec+	Model	BioTec+ 2	BioTec+ 3	BioTec+ 4	BioTec+ 5	BioTec+ 6	BioTec+ 7	BioTec+ 8	BioTec+ 9
Population Equivalent	Unit	6	9	12	16	20	25	35	50
Daily Flow Q_{10}	m^3/d	0.90	1.35	1.80	2.40	3.00	3.75	5.25	7.50
Daily Load	kg BOD_5/d	0.36	0.54	0.72	0.96	1.20	1.50	2.10	3.00
Daily Flow Q_{10}	m^3/h	0.09	0.135	0.18	0.24	0.3	0.375	0.525	0.75
Measurements									
Inlet invert (Gravity / IPS)	mm	645-1430/ 845-1430	730- 1420/ 930 -1420	500-2000/ 1000-2000	500-2000/ 1000-2000	500-2000	500-2000	500-2000	500-2000
Discharge Option		Gravity/IPS	Gravity/IPS	Gravity/IPS	Gravity/IPS	Gravity	Gravity	Gravity	Gravity
Outlet Invert (Gravity / IPS)	mm	745-1500/ 580-1165	830-1520/ 580-1070	600-2100/ 500	600-2100/ 500	600-2100	600-2100	600-2100	600-2100
Diameter	mm	1540	1690	1420	1920	1920	1920	1920	1920
Length	mm	2480	2480	4274	3238	3963	4752	6640	9315
Installation Depth	mm	1995-2780/ 2195-2780	2250-2940/ 2450-2940	1835-3335/ 2335-3335	2250-3750/ 2750-3750	2250-3750	2250-3750	2250-3750	2250-3750
Inlet Pipework	mm	Ø110	Ø110	Ø110	Ø110	Ø110	Ø110	Ø160	Ø160
Outlet Pipework (Gravity /IPS)	mm	Ø110/Ø50	Ø110/Ø50	Ø110/Ø50	Ø110/Ø50	Ø110	Ø110	Ø160	Ø160
Material Construction	MDPE/GRP	MDPE	MDPE	GRP	GRP	GRP	GRP	GRP	GRP
Unit Weight	kg	175/185	195/210	260/290*	350/360*	405	460	690	890

*Tank weight based on 500mm invert

For more information on any of our products: GB:
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