Operation and Maintenance Manual for the Adoptable Surface Water Drainage SUDS Features

Land of Neddy Lane Billington BB7 2RA

Adopting Water Authority: United Utilities

Included Within Water Authority Adoption: Underground drainage system, Basin and headwalls.

Planning Reference: 3/2024/0257

Site context:

The proposed development site is located off Whalley Road and Dale View, with Neddy Lane forming the central access point. The surrounding area comprises established residential dwellings, with Greenfield land situated to the north. To the west of Calder Grange lies Saint Augustine's Roman Catholic High School.
The nearest settlement is Whalley, with Clitheroe positioned to the north and Blackburn and Accrington to the south. The approximate grid reference for the site entrance is **(372557.0504, 435901.1598)**.

Existing site levels have been established through a detailed topographic survey undertaken by SurveyEng Ltd in December 2019. The survey confirms that the site generally falls from north to south, indicating a gradual slope across the development area.
Levels range from approximately **42.12m AOD** at the northern boundary to **53.71m AOD** at the southern extent. This variation in elevation will be an important consideration in the design process, particularly in relation to drainage strategy, access arrangements, and overall site layout.

Ground conditions across the site were found to be variable. The surface materials consisted of either made ground or topsoil, depending on location. Beneath these layers, the site generally comprised medium dense sand, transitioning into either soft clays or sand and gravel at greater depths. Sand and gravel deposits were concentrated through the central area of the site, while soft clays were more prevalent toward the northern section. No investigations were carried out in the southern part of the main site. As reported by Betts Geo Environmental dated September 2022.

According to the Environment Agency's Flood Map for Planning, most of the site lies within **Flood Zone 1**, which is classified as land with a very low probability of river or sea flooding (less than 0.1% annual chance).
The northern part of the site extends into **Flood Zones 2 and marginally Zone 3**. Flood Zone 2 represents land with a medium probability of river flooding (between 1% and 0.1% annual chance), while Flood Zone 3 indicates areas with a higher probability of flooding (1% or greater annual chance).

The proposed adoptable drainage system for the development will discharge surface water at a controlled rate to ensure compliance with local and national standards. Any flows exceeding this discharge rate will be managed through on-site attenuation measures, designed to accommodate storm events up to and including the 1-in-100-year return period, with an additional allowance for climate change.

The proposed drainage infrastructure is intended to be adopted by United Utilities under a Section 104 Agreement in accordance with the Water Industry Act 1991.

Dale View, Billington (Calder Grange)
Site Overview and Red Line Boundary

Timetable for delivery

Feature	Implementation Timescale	Eastings and Northings (X and Y)	Point of Connection	Connection Method	Adoption Timescale
Construction of Attenuation Basin.	Within 12-20 weeks of site start.	See appendix C – As built Attenuation Basin Drawing	Local Flood Authority Controlled Shaw Brook.	300mm Headwall outfall into watercourse.	To be adopted by united utilities and management company within 24 months of last plot occupation.
Construction of Headwall 1. (HW1)	Constructed 2024	(372453, 435978)	N/A	Connection from attenuation basin to water course.	Pre maintenance booked in with united utilities for January 2026. Maintenance period, January 2026 to January 2027. Formal adoption to proceed in 2027.
Construction of Headwall 2. (HW2)	Constructed 2024	(372450, 435973)	N/A	Connection from attenuation basin to water course.	As above.
Construction of Flow Control.	Constructed 2024	See appendix B S104 As Built Drawing	Scheme as per S104 plans.	N/A	As above.
Adoptable Surface water sewers.	Completion within 24 months of site start.	See appendix B S104 As Built Drawing	Scheme as per S104 Plans.	Surface water sewers to drain to attenuation basins.	To be adopted by united utilities within 24months of last plot occupation.

Routine inspection and maintenance are critical to ensuring the effective performance of surface water attenuation ponds. Where practicable, monitoring points should be incorporated to facilitate ongoing assessment. Responsibility for the maintenance of an attenuation pond must be assigned to a suitably qualified and accountable organization. In addition, sufficient access should be provided to all areas of the pond to accommodate necessary equipment and maintenance vehicles. The operational and maintenance requirements for attenuation ponds, as outlined in *CIRIA C753 – The SuDS Manual*, are presented below.

Maintenance Type	**Required Action**	**Typical Frequency**	**Pre-Adoption Responsible Party**	**Post Adoption Responsible Party**
Regular Maintenance	Remove Litter and debris	Monthly	Landscape Contractor	Management Company
	Cut Grass – Grass in and around basin	Half Yearly (Spring – Before nesting season and autumn)	Landscape Contractor	Management Company
	Manage other vegetation and remove nuisance plants	Monthly	Landscape Contractor	Management Company
	Inspect inlets, outlets, and overflows for blockages and clear if required	Monthly	Groundworks Contractor	Management Company/ United Utilities
	Inspect banksides, structures, pipework ect. for evidence of physical damage	Monthly	Groundworks Contractor	Management Company
	Check any penstocks and other mechanical devices	Annually	Groundworks Contractor	United Utilities
	Remove sediment from inlets, outlet, headwalls, silt pits and flow controls	Annually	Groundworks Contractor	United Utilities
Occasional Maintenance	Reseed areas of poor grass growth	As required	Landscape Contractor	Management Company
	Check for siltation build up within basin area and establish removal frequencies	Every 2 years or as required. Likely to be required more often during the earlier construction phases.	Groundworks Contractor	Management Company

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Inspection Pro-forma

Inspection Area	Date of Last Check (DD/MM/YYYY)	Date of Check (DD/MM/YYYY)	Comments and Remedial Actions
Remove Litter and debris (Monthly)			
Cut Grass – Grass in and around basin (Bi-Annual)			
Manage other vegetation and remove nuisance plants (Monthly)			

Inspect inlets, outlets, and overflows for blockages and clear if required (Monthly)			
Inspect banksides, structures, pipework ect. for evidence of physical damage (Monthly)			
Check any penstocks and other mechanical devices (Annual)			

Remove sediment from inlets, outlet, headwalls, silt pits and flow controls (Annual)			
Reseed areas of poor grass growth (Every Visit)			
Check for siltation build up within basin area and establish removal frequencies (As Required)			

Emergency Contact Details

During Construction and Pre-Adoption

FOA: Technical Director
Redrow House,
Brunel Rd,
West Yorkshire,
Wakefield
WF2 0XG

Telephone: 01924 970977
Email: rr-yorkshire.customerservice@redrow.co.uk

SUDS Features Operational Guidance

Site-specific Risk Assessments and Method Statements (RAMS) must be prepared and reviewed by a suitably qualified person prior to the commencement of any works, to ensure that all site conditions are properly assessed and appropriately addressed. General guidance to maintenance and operation of SUDS features are listed below.

Basins

1. Scope of Works
    - To safely access and carry out routine maintenance within an attenuation basin constructed with 1:3 side slopes.

2. Responsibilities
    - Site Supervisor: Ensure all safety measures are in place and followed.
    - Operatives: Carry out maintenance tasks as instructed and report any hazards.

3. Access Method
    - Access will be via a designated maintenance track or reinforced grass crete path leading to the basin.
    - A safe entry point will be established at the shallowest section of the basin, with a graded ramp or steps if necessary.
    - Where required, temporary edge protection or barriers will be installed at the crest of the slope.

4. Equipment Required
    - Strimmer or brush cutter
    - Litter picking tools
    - Mobile access platform or tracked vehicle (if required)
    - PPE: Hi-vis clothing, gloves, boots, hard hat, and fall protection if working near steep edges or water

5. Maintenance Activities
    - Vegetation management (grass cutting, removal of invasive species)
    - Litter and debris removal
    - Inspection of flow control devices and inlets/outlets
    - Silt level checks and removal if necessary

6. Safety Measures
    - Slopes of 1:3 are generally walkable but may become slippery when wet—non-slip footwear is mandatory.
    - No lone working—minimum of two operatives on site.
    - Weather conditions to be assessed before entry; no access during or immediately after heavy rainfall.
    - Emergency egress route to be identified and kept clear.

7. Environmental Considerations
    - All waste to be removed from site and disposed of in accordance with local regulations.
    - Care to be taken to avoid disturbing wildlife or damaging vegetation outside the basin footprint.

Flow Control Manholes

1. Scope of Works
    - To safely access a flow control manhole for inspection, maintenance, and servicing of the flow control device and bypass valve.

2. Responsibilities
    - Site Supervisor: Ensure all safety procedures are followed, and equipment is in good condition.
    - Operatives: Carry out maintenance tasks and report any defects or hazards.

3. Access Method
    - Access to the manhole will be via a designated maintenance route or hardstanding area.
    - Manhole cover to be lifted using appropriate lifting keys and equipment.
    - Confined space entry is not permitted unless a full confined space risk assessment and permit-to-work system is in place.

4. Equipment Required
    - Manhole lifting keys
    - Gas detector (for confined space atmosphere testing)
    - Tripod and harness (if confined space entry is required)
    - Tools for valve and device maintenance (e.g., spanners, grease, cleaning tools)
    - PPE: Hi-vis clothing, gloves, safety boots, hard hat, eye protection

5. Maintenance Activities
    - Visual inspection of the flow control device and bypass valve
    - Removal of debris or blockages
    - Functional check of the bypass valve (open/close operation)
    - Lubrication and cleaning of moving parts
    - Record findings and any defects

6. Safety Measures
    - Area to be cordoned off with barriers and signage
    - Gas detection to be carried out before opening the manhole
    - No lone working—minimum of two operatives on site
    - Weather conditions to be assessed; avoid work during heavy rain or flooding
    - Emergency procedures to be briefed before starting work

7. Environmental Considerations
    - Prevent any discharge of contaminated water or debris into the drainage system
    - All waste to be removed from site and disposed of in accordance with regulations

Associated Costs

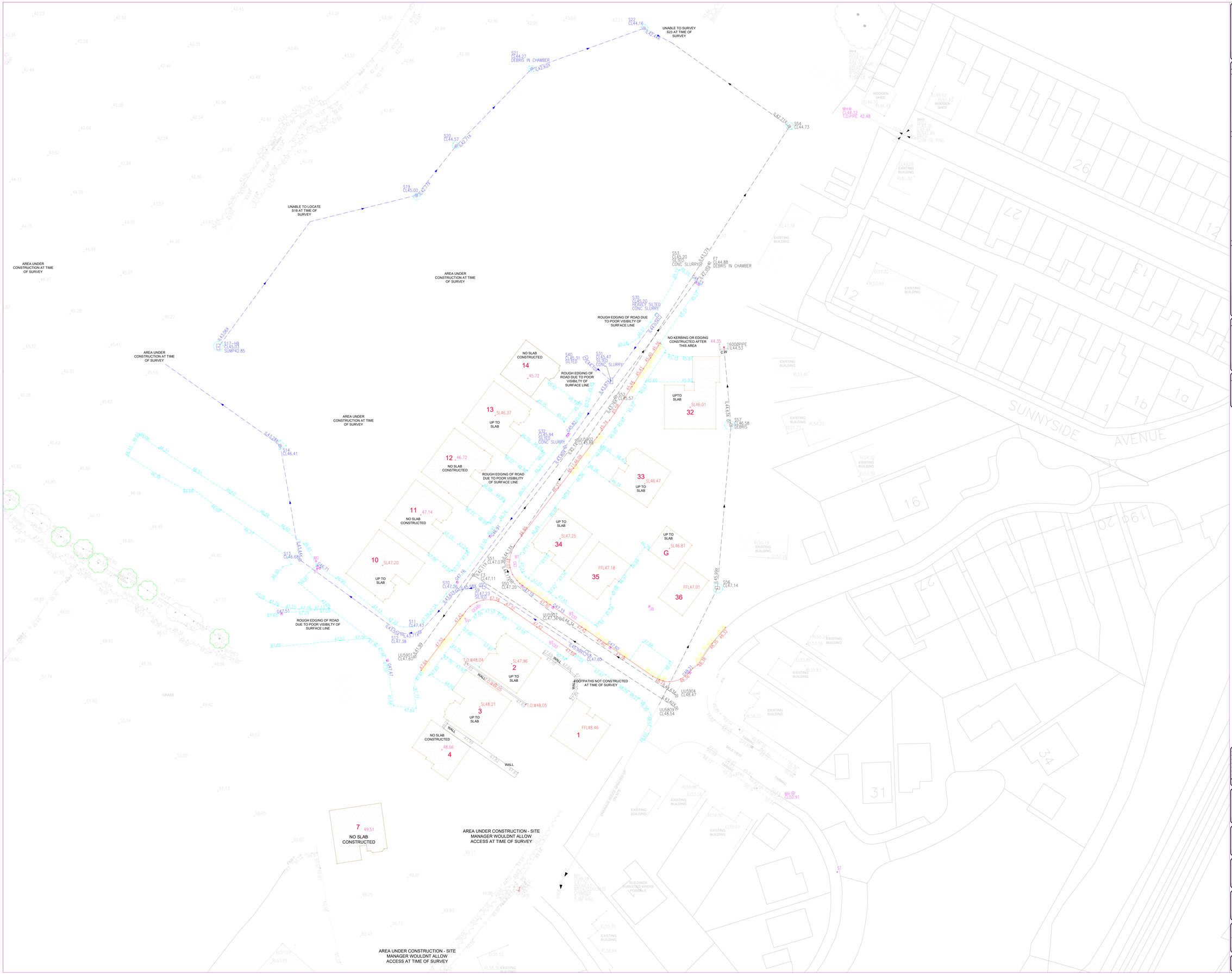
Component	**Asset Owner (Benefactor)**	**Payee**	**Estimated Fee**
Basin and Public Open Space Maintenance. Design Life 100+ years	Management Company	Redrow Resident/Rate Payer	Subject to Management company review and confirmation.
Drainage and SUDS Devices. Design Life 100+ years.	United Utilities	Redrow Resident/Rate Payer	To be included in water rates. Subject to United utilities confirmation.

Appendix A - Images of Headwalls and Attenuation Basin

Headwall 1 – Reference HW1 (Left hand side of Attenuation Basin)

Attenuation Basin (Pond)

Headwall 2 – Reference HW2 (Right hand side of Attenuation Basin)



NORTH

WEST EAST

SOUTH

SURVEY ORIENTATED TO OS GRID (OSGB36-15)

SURVEY LEGEND

FEATURES

TOP OF BANK
BOTTOM OF BANK
SURVEY STATION
TREE
HEDGE
TREE CANOPY
BUSHES
VEGETATION

BOUNDARY ANNOTATIONS

BARB WIRE FENCE	BW F
CHAIN LINK FENCE	CL F
CONC POST AND PANEL FENCE	CP&PF
CONC POST TIMB PANEL FENCE	CP&TP F
ELECTRIC FENCE	EL F
HERAS FENCE	HER F
IRON RAIL FENCE	IR F
KNEE RAIL FENCE	KR F
MISCELLANEOUS FENCE	MISC F
POST AND WIRE FENCE	P&W F
RANCH STYLE FENCE	RS F
SECURITY FENCE	SEC F
TIMBER FENCE	T F
BRICK WALL	B W
BLOCK WALL	BL W
CONCRETE WALL	C W
GABION WALL	G W
MISCELLANEOUS WALL	MISC W
RETAINING WALL	R W
RETAINING LOG WALL	RL W
STONE WALL	S W

LEVEL PREFIX ANNOTATIONS

ASL	ARCH SPRING LEVEL
BL	BED LEVEL
BD	BACK DROP
CL	COVER LEVEL
DH	TOP OF DOOR
DTC	DEPTH TO CROWN
EL	EXISTING GROUND LEVEL
IL	INVERT LEVEL
PL	PARAPET LEVEL
RL	ROOF/RIDGE LEVEL
SL	SOFFIT LEVEL
TOF	TOP OF FENCE
TOP	TOP OF PIPE
TOW	TOP OF WALL
TRH	TREE HEIGHT
THR	THRESHOLD LEVEL
WL	WATER LEVEL
WS	WINDOW SILL
WSF	WINDOW SOFFIT

SURVEY ANNOTATIONS

AV	AIR VALVE
B	BOLLARD
BS	BUS STOP
BT	BRITISH TELECOM IC
CPS	CONCRETE PAVING SLABS
CP	CATCH PIT
DR	DRAIN
EB	ELECTRIC CONTROL BOX
EL	ELECTRICAL IC
EP	ELECTRICITY POLE
ER	EARTH ROD
FH	FIRE HYDRANT
FP	FLAG POLE
G	GULLY
GH	GREENHOUSE
GP	GATE POST
GV	GAS VALVE
IC	INSPECTION COVER
JB	JUNCTION BOX
JKW	JAPANESE KNOT WEED
KO	KERB OUTLET
LH	LAMP HOLE
LP	LAMP POST/LIGHT COLUMN
MH	MANHOLE
MP	MONITOR POINT
NP	NAME PLATE
OHC	OVERHEAD CABLES
PB	POST BOX
PM	PARKING METER
PS	POST
PYL	ELECTRICITY PYLON
RE	RODDING EYE
RS	ROAD SIGN
RWP	RAIN WATER PIPE
ST	STOP TAP
SM	SERVICE MARKER
SP	SPRINKLER
SV	STOP VALVE / SLUICE VALVE
SVP	SOIL VENT PIPE
TB	TELEPHONE BOX
TL	TRAFFIC LIGHTS
TM	TELEPHONE MAST
TP	TELEGRAPH POLE
TPS	TACTILE PAVING SLABS
VP	VENT PIPE
WM	WATER METER
WO	WASH OUT
UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY

GEOTECHNICAL INFORMATION

TRIAL HOLE / PIT TH
BORE HOLE BH
WINDOW SAMPLE WS
MONITORING POINT MP
PROBE HOLE PH

DISCLAIMER:

ONLY MANHOLES AND SERVICES SHOWN WERE VISIBLE AT THE TIME OF SURVEY.

MAN-ENTRY TO SEWERS HAS NOT BEEN UNDERTAKEN, DEPTHS, PIPESIZES ETC ARE MEASURED FROM GROUND LEVEL.

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED PRIOR TO ANY WORK COMMENCING.

BOUNDARIES SHOWN ARE PHYSICAL AND MAY NOT REPRESENT LEGALLY CONVEYED OWNERSHIP.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE AVERAGE SPREAD, THE TREE CANOPY LAYER DENOTES THE TREES EXTREMITY.

SURVEY NOTES

ALL LEVELS ARE RELATED TO O.S DATUM (OSGB36-15)
ESTABLISHED AT SE1 USING THE LEICA SMARTNET GPS NETWORK

IL45.99X = (X) OUTGOING PIPE

DESCRIPTION	REV	DATE	DRWN	APPR
-				

SurveyEngLtd
Land Surveyors & Engineers
14 GREEN MILL
WESTHOUGHTON
BOLTON
LANCS
BL5 3GE
TEL/FAX: 0800 772 3046
MOB: 07550069693
info@surveyeng.co.uk

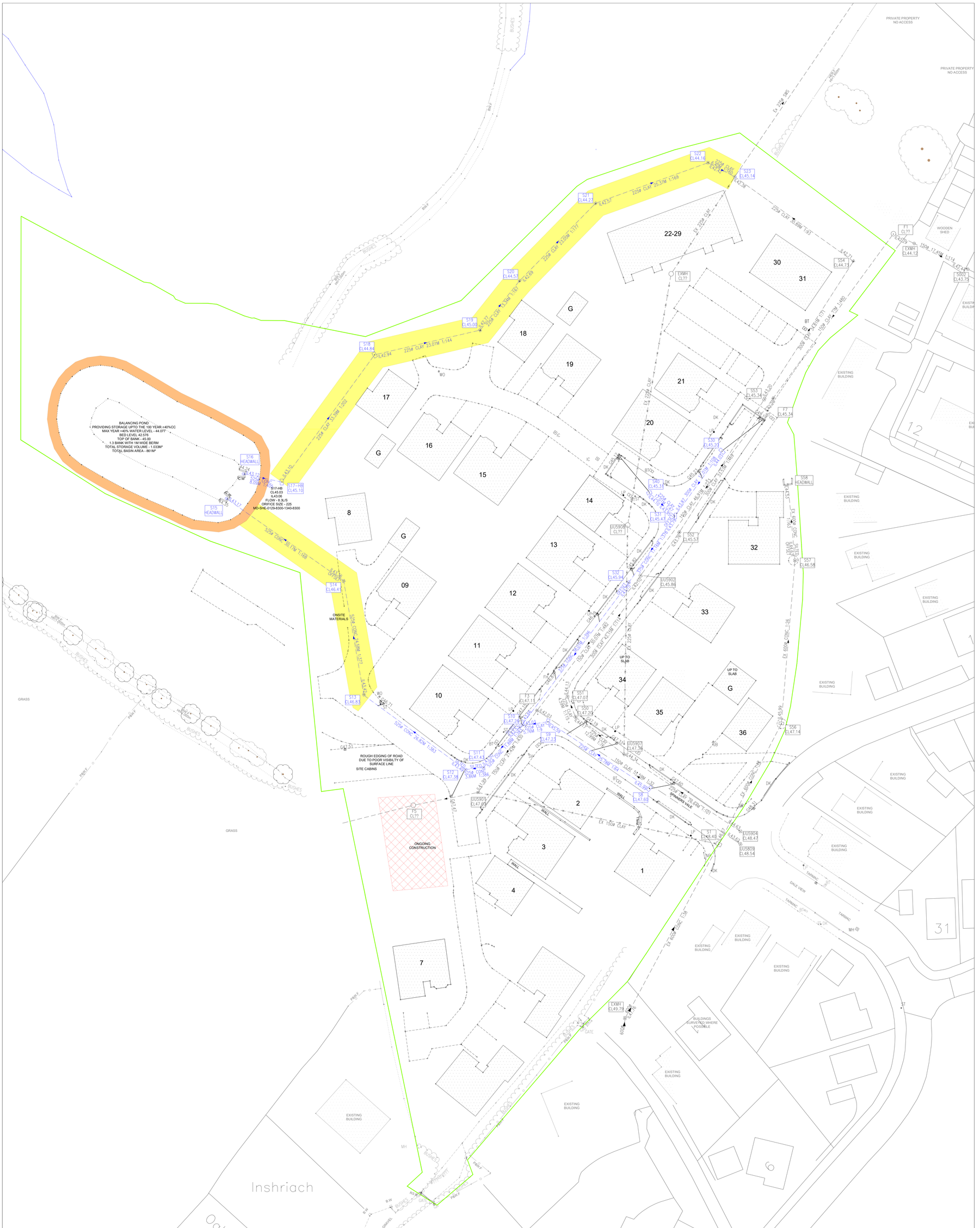
CLIENT
REDROW HOMES

PROJECT TITLE
NEDDY LANE, BILLINGTON

DRAWING DETAIL
AS BUILT UPDATE

PROJECT ENGINEER	JW	DATE	25.03.2024
DRAWN	LM	SCALE	1:250@A0

DRAWING NUMBER	REVISION
RH.AB.46	-



N
W E
S

SURVEY ORIENTATED TO OS GRID (OSGB36-15)

SURVEY NOTES

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SURVEY LEGEND

FEATURES

TOP OF BANK
BOTTOM OF BANK
SURVEY STATION
TREE
HEDGE
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BOUNDARY ANNOTATIONS

BARB WIRE FENCE	BW.F	SECURITY FENCE	SEC.F
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CONC POST AND PANEL	CPP.F	BRICK WALL	B.W
CONC POST TIMB PANEL	CPN.TP.F	BLOCK WALL	BL.W
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IRON RAIL FENCE	IR.F	MISCELLANEOUS WALL	MISC.W
KNEE RAIL FENCE	KR.F	RETAINING WALL	R.W
MISCELLANEOUS FENCE	MISC.F	RETAINING LOG WALL	RL.W
POST AND WIRE FENCE	PW.F	STONE WALL	S.W
RANCH STYLE FENCE	RS.F		

LEVEL PREFIX ANNOTATIONS

ASL	ARCH SPRING LEVEL	IL	INVERT LEVEL		
BL	BED LEVEL	PL	PARAPET LEVEL	TRH	TREE HEIGHT
BD	BACK DROP	RL	ROOF RIDGE LEVEL	THR	THRESHOLD LEVEL
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DH	TOP OF DOOR	TOF	TOP OF FENCE	WS	WINDOW SILL
DTC	DEPTH TO CROWN	TOP	TOP OF PIPE	WSF	WINDOW SOFFIT
FFL	FINISHED FLOOR LEVEL	TOW	TOP OF WALL		

GEOTECHNICAL INFORMATION

TRIAL HOLE / PIT	TH		
BORE HOLE	BH		
WINDOW SAMPLE	WS		
MONITORING POINT	MP		

SURVEY ANNOTATIONS

AV	AIR VALVE	OHC	OVERHEAD CABLES
B	BOLLARD	PB	POST BOX
BS	BUS STOP	PM	PARKING METER
BT	BRITISH TELECOM I/C	PS	POST
CPS	CONCRETE PAVING SLABS	PYL	ELECTRICITY PYLON
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JB	JUNCTION BOX	VP	VENT PIPE
JKW	JAPANESE KNOT WEED	WM	WATER METER
KO	KERB OUTLET	WO	WASH OUT
LH	LAMP HOLE	UTL	UNABLE TO LIFT
LP	LIGHTING / FLIGHT COLUMN	UTS	UNABLE TO SURVEY
MH	MANHOLE		
MP	MONITOR POINT		
NP	NAME PLATE		

S104 DRAINAGE PREFIX ANNOTATIONS

- S104 SURFACE WATER SEWER
- S104 FOUL WATER SEWER
- S104 EXISTING SURFACE WATER SEWER
- S104 EXISTING FOUL WATER SEWER
- S185 ABANDONED FOUL WATER SEWER
- S185 ABANDONED SURFACE WATER SEWER
- GULLY CONNECTION
- S104 BOUNDARY
- S104 EASEMENTS
- S104 POND ACCESS STRIP
- S104 UNITED UTILITIES LAND PUMPING STATION

CLIENT
REDROW HOMES

PROJECT TITLE
DALE VIEW, BILLINGTON

DRAWING DETAIL
SECTION 104 AS BUILT

DRAWING NUMBER
RH.AB.46

REVISION
C

PROJECT ENGINEER	JW	DATE	25.03.2024
DRAWN	LM	SCALE	1:250@A0

DESCRIPTION	REV	DATE	DRWN	APPR
S104 SURVEY ADDED / AS BUILT UPDATE	C	15.08.25	DH	-
POND SURVEY ADDED	B	23.03.24	GI	-
S185 ADDED	A	21.05.24	DH	-

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