DRAINAGE STRATEGY

SURFACE WATER

1. Drainage Principles
   Single SW drainage system for Private areas and Adoptable highway. Network to be offered for adoption by STW.

   Gravity system with multiple attenuation basins prior to outfall to watercourse within site boundary.

2. Existing Site Conditions
   Greenfield development, with ponds and watercourse within the fields to the north of the site.

   Site falls steeply from south to north, with approximately 32m of level difference from the southern boundary to the SW outfall to the north of the site.

3. SW Outfall
   Connection to existing SW basin.

4. Infiltration
   Infiltration is not feasible on site, due to underlying geology.

5. SW Drainage Design
   A system of gravity sewers and is proposed to convey surface water catchment to the existing basin sewer in the northern portion of the site.

   The SW discharge is to be restricted to QBAR (48.5l/s) and attenuated via tiered online detention basins.

   The detention basin is to include features to control the pollutant risk, including , on line basin, sediment forebay, reed beds and bio-retention areas.

   The gravity network system and attenuation basins are to be offered for adoption by STW.

6. FW Drainage Design
   FW outfalls to be split to 2no outfall locations (Aldersgate and Embankment Close) as per agreement with STW. Outfall locations situated within highway extents.

7. Maintenance
   Maintenance of each of the SW features shall be in accordance with the SuDS manual. Maintenance regimes are shown on his drawing for clarity.

8. Pollution Control
   Simple index method assessment as per Suds Manual C753.
   Total mitigation indices exceed pollution hazard indices.
   Proposed SW strategy adequately mitigate pollutant risk

NOTES

General

1. Do not scale from this drawing.
2. All dimensions are in meters unless otherwise noted.
3. Proposed FFL's are subject to change by +/- 450mm during detailed design.
4. This drawing is produced for planning application purposes only.

PLANNING LAYOUT DRAWING REF
Redrow - Received 21.08.2025
Millers - Received 14.01.2025

THIS DRAWING HAS BEEN PRODUCED FOR PLANNING PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION

KEY

- Site Boundary
- FW Sewer and Manhole
- SW Sewer and Manhole
- Existing STW FW Sewer
- SW Headwall
- Sewer Easement
- Existing STW Sewer Easement
- Proposed Adoptable Extents
- Junction Visibility Splay
- Forward Visibility Splay
- 1200 Major Retaining Features and height in mm
- Attenuation Pond/Swale
- 97.750 FFL ??.???? Finished Floor Level
- Tree and Root Protection Area
- Veteran Tree and Root Protection Area

POND No.1
Overall depth: 2.0m
Top of Bank: 89.000m
Water Level: 88.600m
Invert Level: 87.000m
Volume: 5,692m³
Batters: 1:4
Features: Low flow channel, Sediment forebay, Reed beds

PERMANENT POOL No. 1
Plan Area: 246.53m²
Depth: 0.45m
Embankments: 1:4

FOREBAY No. 1
Contributing Area: 8.589ha
Volume of Sediment: 106.50m³
R Sediment Removal: 0.993
Forebay Area: 355.01m²
Clean out frequency: 5 years
Berm Height: 0.3m
Embankments: 1:1

POND No.2
Overall depth: 2.0m
Top of Bank: 86.000m
Water Level: 85.600m
Invert Level: 84.000m
Volume: 8,521m³
Batters: 1:4
Features: Low flow channel, Sediment forebay, Reed beds

PERMANENT POOL No. 2
Plan Area: 457.90m²
Depth: 0.45m
Embankments: 1:4

FOREBAY No. 2
Contributing Area: 4.012ha
Volume of Sediment: 49.75m³
R Sediment Removal: 0.990
Forebay Area: 165.83m²
Clean out frequency: 5 years
Berm Height: 0.3m
Embankments: 1:1

POND No.3
Overall depth: 2.0m
Top of Bank: 84.500m
Water Level: 84.100m
Invert Level: 82.500m
Volume: 1,205m³
Batters: 1:4
Features: Low flow channel, Sediment forebay, Reed beds

Flow Control Discharge Rate 701/s

Flow Control Discharge Rate 48.5 l/s

Flow Control Discharge Rate 50 l/s

SW OUTFALL TO EXISTING WATERCOURSE

Cut Line A-A

Cut Line B-B

Inset 1.2A

Sheet 1.1

Sheet 1.2

Foul Water Outfall
- Outfall to STW network in accordance with developer enquiry response dated 4th December 2018.
- Outfall level to be confirmed by survey
- Outfall is acceptable for 50% of 600 unit development
- Proposed outfall for 213 units
- Developer enquiry to be submitted to confirm numbers

COVER LEVELS WITHIN S278 EXTENTS TO BE CORRELATED WITH PEP DESIGN

Foul Water route subject to approval by STW and land owner

Foul Water Outfall
- Outfall to STW network in accordance with developer enquiry response dated 4th December 2018.
- Outfall level to be confirmed by survey
- Outfall is acceptable for 50% of 600 unit development
- Proposed outfall for 338 units
- Developer enquiry to be submitted to confirm numbers

PUBLIC OPEN SPACE

21-011 Mackworth	Land Use	Total Suspended Solids	Metals	Hydrocarbons
Site Hazard Risk	Commercial yard and delivery areas non-residential car parking with frequent change (eg hospitals, retail) all roads except low traffic roads and trunk roads/motorways	0.7	0.6	0.7
Mitigation indices of proposed SW strategy	Detention Basin - No 1	0.5	0.5	0.6
	Detention Basin - No 2	0.5	0.5	0.6
	Total Mitigation	0.75	0.75	0.75
Is Total Mitigation greater than Risk?		TRUE	TRUE	TRUE

Detention Basin Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove Litter and debris	Monthly
	Cut Grass - for spillways and access routes	Monthly (during growing season), or as required
	Cut Grass - meadow grass in and around basin	Half yearly (spring - before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal. frequency	Monthly (for first year), then as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided.	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlet, forebay and main basin when required	Every 5 years, or as required
Remedial Actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

REV	AMENDMENTS	DRN	CHK	DATE
K	Retaining updated	KA	MA	02.09.25
J	Revised layout. Millers received 2025.01.14. Redrow received 2025.08.21.	KA	MA	22.08.25
I	Updated to latest Redrow layout and adoptable extents added	MA	KA	17.05.24
H	Updated to latest client layouts	MA	KA	08.05.24
G	Tree survey updated to Revision D, Miller and Redrow layouts updated to minimise impact on RPAs	MA	KA	10.04.24
F	Updated to composite layout received 2024.01.30	MA	KA	12.02.24
E	Forward Visibility Added	KA	MA	11.08.23
D	Junction radii and straight lengths added as per comments.	KA	MA	09.08.23
C	Pond 2 shape amended	MA	KA	25.07.23
B	Revised layout. Millers received 2023.06.28. Redrow received 2023.06.06.	KA	MA	07.07.23
A	Redrow private drive adj plot 136 amended	MA	KA	06.04.22
-	First issue	KA	MA	04.04.22

PROJECT NAME:
Radbourne Lane
Mackworth

CLIENT NAME:
Miller Homes
Redrow Homes East Midlands Ltd

DRAWING TITLE:
Planning
Engineering Layout
Sheet 2 of 2

DRAWING NUMBER: 21-011_02_01.2
CURRENT REVISION: K
SHEET SIZE: A0
DRAWING SCALE: 1:500

Allsopp Avery Partnership
kelly@allsoppavery.co.uk 07816 841 305
mike@allsoppavery.co.uk 07879 881 647