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 17.05.2024
Millers - Received 01.05.2024

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
- 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

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

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 48.5 l/s
Flow Control Discharge Rate 50 l/s
Flow Control Discharge Rate 70l/s

SW OUTFALL TO EXISTING WATERCOURSE

Foul Water Outfall
- Outfall to STW network in accordance with developer enquiry response dated 4th December 2018.
- Outfall level to be confirmed
- Outfall is acceptable for 50% of 600 unit development
- Proposed outfall for 231 units
- Developer enquiry to be submitted to confirm numbers

Foul Water Outfall
- Outfall to STW network in accordance with developer enquiry response dated 4th December 2018.
- Outfall level to be confirmed
- Outfall is acceptable for 50% of 600 unit development
- Proposed outfall for 322 units
- Developer enquiry to be submitted to confirm numbers

Foul Water route subject to approval by STW and land owner

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 |
|---|---|---|---|---|
| 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 RPA's | MA | KA | 26.03.24 |
| 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: I
SHEET SIZE: A0
DRAWING SCALE: 1:500

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