

Paul Vann

From: Kevin Tracey
Sent: 08 May 2012 15:13
To: Andrew Broadbent
Cc: Allan Burls
Subject: RE: Surface Water drainage Fields Rd Residential Land

Andrew

This was where we got to with Hannah Reed's modelling work which concluded the surface water runoff from the residential land should be sub-divided into two area and drained as detailed below but no formal report has been prepared yet:-

1) Western Area (to drain to Berry Farm ditch)

Overall development area 6.05ha impermeable area (70%) 4.2 ha to drain directly without restriction into Berry Farm ditch. Ponds 1 and 2 (total volume 8000m³) to provide attenuation for the natural runoff from upstream and the residential area.

2) Central and Eastern Areas (to drain to Woburn Road drain via storm water wetlands)

Overall development area 14.7ha impermeable area (65%) 9.5ha. HR have assumed that the residential area will be attenuated on site, within the wetlands with a total required storage volume of 9500m³ and the run-off to Woburn Road drain will be restricted to greenfield run-off rate.

Does the site have Planning Permission now? If so, is there a Drainage Condition? Again, if so, we need to put together a package covering foul and surface water drainage and provide it to Planning (who will consult the IDB who may well seek the views of Hannah Reed)

Many thanks

Kevin Tracey BSc(Hons) CEng MICE



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From: Andrew Broadbent
Sent: 08 May 2012 14:33
To: Kevin Tracey
Subject: Surface Water drainage Fields Rd Residential Land

Kevin

I know there has been an exchange of emails but do you have a report from Hannah Reed on the modeling and proposed solutions to the surface water drainage of the residential land. I need this to be part of the bundle of documents available for prospective purchasers of the land.

Andrew Broadbent FRICS

Property Development Manager

Property Services

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Paul Vann

From: Elaine Taylor
Sent: 12 January 2012 09:26
To: Nigel Faircloth
Cc: Adrian Piper; Peter Wade
Subject: FW: Developments North and South of Fields Road Wootton

FYI

Elaine Taylor
Secretary to Adrian Piper FRICS
Head of Property Services

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From: Andrew Broadbent
Sent: 11 January 2012 17:21
To: Elaine Taylor
Subject: FW: Developments North and South of Fields Road Wootton

From: Åsa Söderberg[SMTP:A.SODERBERG@HANNAHREED.CO.UK]
Sent: Wednesday, January 11, 2012 5:20:50 PM
To: Kevin Tracey; Andrew Broadbent; Paul Vann
Cc: David Bennett; Allan Burls
Subject: RE: Developments North and South of Fields Road Wootton
Auto forwarded by a Rule

Dear Andrew, Paul and Kevin

Just to clarify point one (on the Berry Farm Ditch discharge), in accordance with the principles being promoted by the Marston Vale Surface Waters Plan, the proposals are strategic in nature and therefore benefit the natural catchment as well as the development. The discharge is therefore intended to be direct to the watercourse and not to each pond. We undertook a sensitivity check to prove that the additional flows from future developments entering the drain (i.e. Berry Farm Ditch) do not increase the peak flow or the top water level down stream of the development; in other words we have demonstrated that there is no negative impact on flooding downstream, and the investigations into the watershed ensure that there is no 'foreign water' being discharged. The point of discharge is also not critical allowing some flexibility in the drainage design.

The development would have a direct unrestricted discharge into the water course from a maximum impermeable area of 4.2ha. The proposed ponds provide storage to reduce the peak flow from areas upstream of the development to accommodate for this direct discharge.

There is a fall-back position which is to discharge to the ponds and control to green field rates, as you suggest, but this is more restrictive on the drainage design and does not provide the wider strategic catchment benefit. The principles are much the same but the strategic solution provides greater efficiency from the storage, and would be better received by the IDB as an alternative to the existing 'Marsh Leys Master Plan'.

Kind regards

Åsa Söderberg
Principal Engineer

Hannah-Reed

Hannah, Reed and Associates Limited, Telford House, Fulbourn, Cambridge, CB21 5HB
Tel 01223 882000 - Fax 01223 881888 (Registered office at above address. Registration no 1860196)

From: Kevin Tracey [mailto:Kevin.Tracey@bedford.gov.uk]
Sent: 10 January 2012 15:48
To: Andrew Broadbent; Paul Vann
Cc: David Bennett; Allan Burls; Åsa Söderberg
Subject: FW: Developments North and South of Fields Road Wootton

Andrew and Paul

I confirm the following development/impermeable areas have been allowed in the modelling by Hannah Reed (HR):-

a) Residential Areas

1) To ponds 1 and 2 (to drain to Berry Farm ditch)

Overall development area 6.05ha impermeable area (70%) 4.2 ha to ponds 1 and 2 for attenuation and released at greenfield runoff rate to Berry Farm ditch.

2) To Stormwater wetlands (to drain to Woburn Road drain)

Overall development area 14.7ha impermeable area (65%) 9.5ha. HR have assumed that the residential area will be attenuated on site, within the wetlands area with a total required storage volume of 9500m³ and the run-off to Woburn Road drain will be restricted to greenfield run-off rate.

b) Innovation Area (to drain to Woburn Road drain via canal)

Overall development area 8.5 ha (from DLA masterplan) impermeable area (90%) 7.65ha to be attenuated by the canal and the run-off to Woburn Road drain will be restricted to greenfield run-off rate.

Many thanks

Kevin Tracey BSc(Hons) CEng MICE



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From: Åsa Söderberg [mailto:A.Soderberg@hannahreed.co.uk]
Sent: 06 December 2011 12:33
To: Kevin Tracey
Cc: Simon Darch
Subject: RE: Developments North and South of Fields Road Wootton

Dear Kevin
I have added my comments below in red.

If you wish to discuss please do not hesitate to give me a call.

Kind regards

Asa Söderberg

Principal Engineer

Hannah-Reed

Hannah, Reed and Associates Limited, Telford House, Fulbourn, Cambridge, CB21 5HB

Tel 01223 882000 - Fax 01223 881888 (Registered office at above address. Registration no 1860196)

From: Kevin Tracey [mailto:Kevin.Tracey@bedford.gov.uk]

Sent: Monday, December 05, 2011 11:55 AM

To: Simon Darch

Cc: Åsa Söderberg

Subject: Developments North and South of Fields Road Wootton

Simon/Asa

Many thanks for the details provided in your letter of 17.11.11. I am preparing an overview of the sw disposal options for BBC's land (the residential and the innovation (employment) areas) for Andrew. Please can you confirm the following development/impermeable areas have been allowed in the modelling:-

a) Residential Areas

1) To ponds 1 and 2 (to drain to Berry Farm ditch)

Overall development area 6.05ha impermeable 4.0ha This has been reviewed and the total impermeable area has been adjusted to assume approximately 70% to be impermeable, which should be more than adequate for a residential development.

2) To Stormwater wetlands (to drain to Woburn Road drain)

Overall development area 14.7ha impermeable 9.5ha This is not included in our revised model as it has been assumed that the residential area will be attenuated on site, within the wetlands area with a total required storage volume of 9500m³, and hence the run-off is restricted to greenfield run-off rate.

b) Innovation Area (to drain to Woburn Road drain via canal)

Overall development area 12.9ha impermeable 8.5ha The DLA masterplan is indicating a total development area of 8.5ha, of which we have assumed 90% to be impermeable; hence the total impermeable area allowed for in our model is 7.65ha.

Regards

Kevin Tracey BSc(Hons) CEng MICE

Project Engineer



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A Brief Guide to Space, Design and Other Technical Issues in Providing for the Bedford Milton Keynes Waterway



Introduction

This guide has been produced to provide guidance on appropriate space, on design and on other technical issues in relation to provision for the Bedford Milton Keynes Waterway as required by the three planning authorities covering the route of the waterway.

A companion guide, 'A Brief Guide to the Value of Providing for the Bedford Milton Keynes Waterway in Development', introduces the Waterway and provides information on its value to developments along the route.

General Design Matters



The majority of the route will be an open aspect Waterway with a 15m minimum navigable channel and 1 in 3 sloping sides that are planted margins.

In cases where space is limited, visibility good and no obstructions, the width can be reduced (eg to 9m) for short distances in consultation with the Canal & River Trust.

These dimensions along with a 2m channel depth (1.5m water depth) and verge and multi-user, Equality Act compliant, towpath requirements suggest a minimum 35m overall corridor. See over for more details/illustrations.

However, in some sections and approaching bridges, locks and other structures, the traditional vertical hard sided canal construction may be required.

The minimum water width requirement is still as set out above for open aspect channel, reducing to 4.5m for locks and 6m for underpasses. See over for more details/illustrations.

There are a number of relevant standards and legal documents, including in particular:

- Code of Practice for works affecting British Waterways 2010 - engineering, design and construction manual. Contact Canal & River Trust at www.canalrivertrust.org.uk
- Flood & Water Management Act and Land Drainage Act. Contact Internal Drainage Board at www.idbs.org.uk
- Equality Act compliant multi-user foot-and-cycleway ie towpath (see the Environment Agency's Access for all design guide at www.environment-agency.gov.uk/research/library/publications/141756.aspx)
- Town and Country Planning Association Policy Advice Note 'Inland Waterways'. See www.tcpa.org.uk/data/files/InlandWaterways.pdf



Access for Maintenance



Access for maintenance of the navigation is a particular requirement.

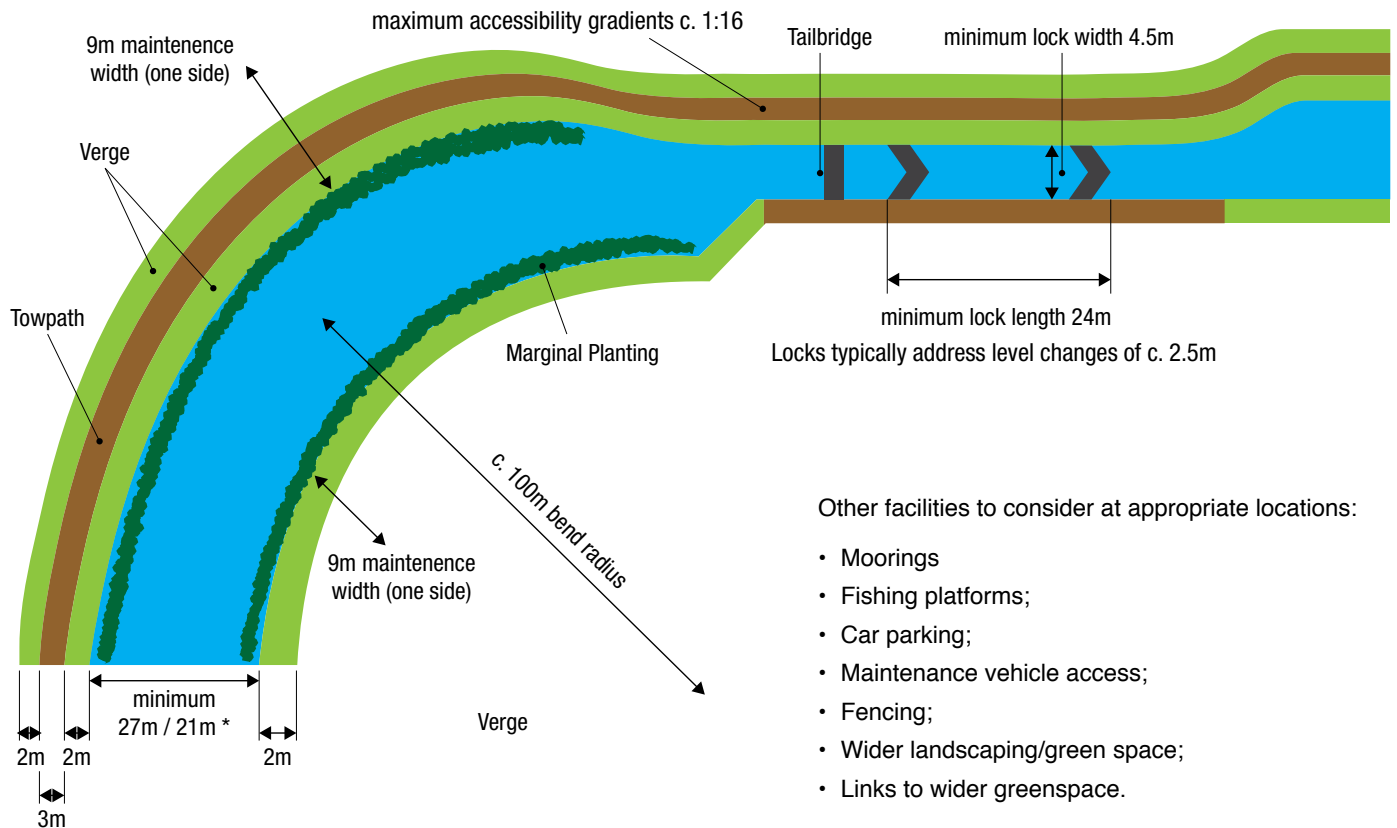
Machines capable of dredging a channel up to 15m wide are of necessity large – usually a 360 excavator.

As well as needing access routes to the waterside, the practicable space is a 9m wide access area either side of the water also ensuring that trees, structures and furniture do not obstruct operations.

Key Dimensional Data

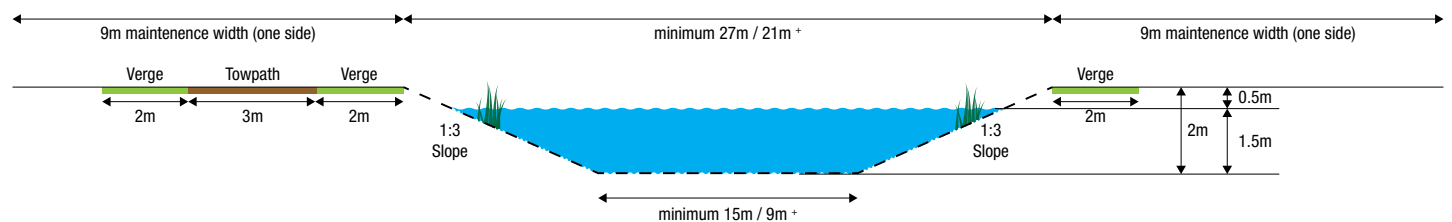
The following diagrams (not to scale) provide key indicative dimension data for the waterway itself and related facilities (including of channels, bends, towpaths, verges, locks, underpasses etc.)

1. Vertical Perspectives (widths, lengths, bends and facilities)



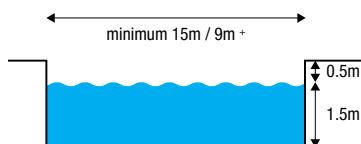
2. Elevations and Cross-Sections (widths, heights, depths)

• Open Aspect Waterway

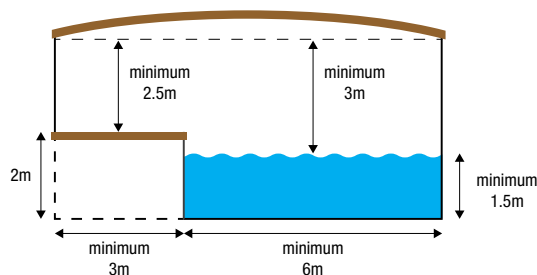


• Vertical Hard Sided Waterway

• Two boat Width Waterway



• One Boat Width Underpass



* Towpaths should be multi-user (footpaths and cycleways) and Equality Act compliant with surfacing appropriate to their location – see Equality Act reference above and Sustrans Technical Note 8 re surfacing:

[www.sustrans.org.uk/assets/files/design_and_construction/Technical_Note_8_-_Path_surfaces\(1\).pdf](http://www.sustrans.org.uk/assets/files/design_and_construction/Technical_Note_8_-_Path_surfaces(1).pdf)

+ The larger 'minimums' (27m and 15m at full depth) apply to unconstrained open aspect waterway sections. The lower 'minimums' (21m and 9m at full depth) can be applied to shorter (eg less than 500m) constrained sections with good visibility and no moorings.