

Longford Park

Foul Water Drainage Strategy

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1. Introduction

1.1. Project Background

- 1.1.1. Allocation for the development of the 'Longford Park' was included in the local Plan issued in 2000.
- 1.1.2. The Land Agent approached Thames Water at that time, to ascertain the potential requirements associated with draining a proposed site within the local Plan allocation.
- 1.1.3. The Land Agent was advised that a connection could be made to a short section of gravity sewer that linked to an existing 500mm rising main passing through the site.
- 1.1.4. In September 2009, Outline Planning Permission¹ was granted for the development of 1,070 residential dwellings at the site of Longford Park.
- 1.1.5. The consortium of developers (comprising Bovis Homes Ltd, Taylor Wimpey and Barratt Homes Ltd and hereafter referred to as the Consortium) received an Initial Requisition Report from Thames Water, outlining a connection to the existing sewerage network.
- 1.1.6. The Thames Water Initial Requisition Report² specified the need for a new off-site foul rising main to Banbury STW and necessitates the crossing of Cherwell River, Oxford canal, Chiltern railway and a disused railway embankment. The report identified budget estimates of £2,248,236 with the on-site pumping station provided by the Consortium, or £2,986,336 with the on-site pumping station provided by Thames Water.
- 1.1.7. The budget estimates provided in the preliminary design report significantly exceed the budget allocated by the Consortium based on the information previously provided and reaffirmed in a letter from Thames Water dated 21 September 2010³.

1.2. Foul Water Drainage Strategy

- 1.2.1. Atkins has been commissioned by the Consortium to undertake a foul water drainage strategy for a residential development at Longford Park, Bodicote, Banbury.
- 1.2.2. Planning Condition 24 of the Outline Planning Permission granted by Cherwell District Council states:
"No development shall commence until a scheme for dealing with foul drainage from the site, including phased works, has been submitted to and approved in writing by the Local Planning Authority. The foul drainage shall thereafter be carried out in accordance with the approved scheme".
- 1.2.3. Accordingly, the purpose of this report is to outline a foul water drainage strategy to a level of sufficient detail to allow for the discharge of Planning Condition No. 24. The foul water drainage strategy is also to inform the detailed design of applications, discussions and agreements with Thames Water.
- 1.2.4. This foul water drainage strategy considers the following aspects;
 - Development site and phasing;
 - Planning conditions to be discharged in relation to the foul water drainage of the development;
 - Discussions with Thames Water to date; and
 - On and off site foul water drainage.

¹ 30th September 2009, Cherwell District Council. Notice of Decision, Application 05/01337/OUT.

² October 2014, Thames Water. Initial Requisition Report X4502/937.

³ 21 September 2010, Thames Water. Letter from Geoff Nokes to Darren Mace.

2. Proposed Development

2.1. Location

- 2.1.1. The proposed development site is situated on Longford Park (grid reference 446 686, 238 959), in the area of Bodicote near Banbury as shown on the site location plan contained within Appendix A. The site covers an area of approximately 75 hectares of railway station, bound to the west by the A4260 (Oxford Road), to the west by the Oxford Canal (partially) and to the south by agricultural land.

2.2. Development Description

- 2.2.1. A plan of the development proposal including parcel size and location is contained within Appendix B.

- 2.2.2. In 2009, Cherwell District Council approved outline planning permission for 1,070 residential properties with associated facilities which include:

- Improvements to existing highway junctions in Banbury;
- Provision of a community hall and park;
- 2,200 sq. m of B1 employment uses;
- Land for a primary school;
- Space for retail units.

- 2.2.3. The proposed development is sub-divided into 6 parcels:

- Parcel A 215 plots Currently housing residents;
- Parcel B 193 plots Currently under construction;
- Parcel C 90 plots Currently under construction;
- Parcel D & E 355 plots Approximate start date of construction April 2016; and
- Parcel F 217 plots Approximate start date of construction April 2017.

2.3. Existing Wastewater Infrastructure

- 2.3.1. Banbury Sewage Treatment Works (STW) lies approximately 1km from the north east corner of the development site. The majority of existing properties in the area are served by a sewerage system, operated and maintained by Thames Water, connecting to Banbury STW.

- 2.3.2. Due to the topography of the development area, direct connection via a gravity sewerage system to Banbury STW is not possible. Existing properties adjacent to the development area are served by a gravity sewerage system that follows a route south of Bodicote for approximately 2km to the Adderbury Sewage Pumping Station (SPS). From Adderbury SPS all flows are pumped approximately 4.7km north to Banbury STW.

- 2.3.3. The 500mm ductile iron (DI) rising main from Adderbury SPS to Banbury STW crosses the development site in two locations at its eastern boundary.

- 2.3.4. According to the Thames Water Initial Requisition Report the *“condition of the existing rising main is at a state of failure and Thames Water cannot accept a direct connection of pumped flow”* to the pipe.

2.4. Existing Site Foul Drainage

2.4.1. Thames Water advised in the letter dated 21 September 2010 that:

“...the site connection proposed to be pumped can be connected via a short gravity section to the existing 500mm diameter sewer which crosses the site.”

No site drainage is currently connected to this sewer. However, with ongoing occupations to Parcel A and an imminent start to Parcels B and C, an alternative discharge was negotiated.

2.4.2. Thames Water provided consent to connect to a public sewer under Section 106 of the Water Industry Act 1991⁴. Section 106 provides a general and conditional right to connect or communicate with a public sewer for the purposes of draining premises.

2.4.3. The Section 106 provided by Thames Water consents to a 150mm diameter connection into an existing 225mm diameter public foul sewer via a new manhole located at the junction of Oxford Road and Canal Lane. According to Thames Water, the Section 106 consent was given:

“...for the legal right of communication with the public sewer and does not guarantee capacity exists with our (Thames Water's) network.”

2.4.4. An on-site pumped storage solution currently connects into the existing gravity network as per the Section 106 consent provided. Discharge currently occurs into the gravity sewer only during low flows. A telemetry system installed in the network inhibits pumped discharge from the site during high flows in the existing network.

⁴ 01 July 2014, Thames Water. Notice of Consent to Connect To A Public Sewer. Ref 50016705/CW/DWAK

3. Foul Water Drainage Strategy

3.1. The Consortium's On-site Foul Water Drainage Strategy

- 3.1.1. The on-site proposed foul water drainage layout is contained within Appendix C. (PDF provided separately for clarity).
- 3.1.2. The foul water from properties within Parcels A, B, C, D and E will discharge to an existing on-site pumping station located near the southern boundary of the development site. The foul water discharge will be pumped via the existing on-site rising main to the point of current connection on Oxford Road.
- 3.1.3. The foul water from properties within Parcel F will discharge to a proposed on-site pumping station on the north eastern boundary of the development site. The foul water discharge will be pumped via the existing on-site rising main to the same point of connection on Oxford Road used for Parcels A, B, C, D and E.
- 3.1.4. Thames Water have approved the Parcel A Section 104 which includes the aforementioned rising mains and the pumping station associated with Parcels A, B, C, D and E drainage.
- 3.1.5. The properties within Parcel A are currently utilising the on-site pumping station on the southern boundary of the site, using the existing S106 for connection into Oxford Road.
- 3.1.6. The existing pumping station and rising mains currently in use are to be adopted under Section 104 of the Water Industry Act 1991.
- 3.1.7. The proposed pumping station serving Parcel F and the associated rising main to the point of connection are to be adopted under Section 104 of the Water Industry Act 1991.
- 3.1.8. The discharge flow rates have estimated in accordance with Sewers for Adoption 7th Edition⁵ and are based on a discharge of 4000 litres per dwelling day. The total figure derived is in agreement with the discharge figure stated in the Thames Water Initial Requisition Report.

Parcel	Dwellings (no.)	Peak flow (l/s)
Parcel A	215	9.95
Parcel B	193	8.94
Parcel C	90	4.17
Parcel D and E	355	16.44
Parcel F	217	10.05
Total	1,071	49.55

⁵ Sewers for Adoption, WRc, contains guidance for the design and construction of sewers that will be adopted by Sewerage Undertakers in England and Wales in accordance with Section 104 of the Water Industry Act 1991.

3.2. **Thames Water's AMP 6 Off-Site Foul Water Drainage Strategy**

- 3.2.1. A diagram of the off-site foul water drainage strategy proposed within a Thames Water Sewer Impact Study⁶, is contained within Appendix D.
- 3.2.2. Foul water from the development site will discharge to a connection point on Oxford Road. A consent to connect to this point was provided by Thames Water under a Section 106 notice⁷. Occupied properties in Parcel A currently discharge to this point.
- 3.2.3. The foul water will flow downstream along to Adderbury SPS via the existing Thames Water sewerage network. The foul water will be pumped from Adderbury PS to Banbury STW using the existing rising main which passes through the eastern boundary of the development site.
- 3.2.4. The hydraulic modelling undertaken as part of the Thames Water Sewer Impact Study predicts flooding and surcharge to occur at a number of locations, downstream of the connection point, during 1 in 20 year return period storm events prior to the application of any additional flows from the development site.
- 3.2.5. The Thames Water Initial Requisition Report states that the (downstream) sewers are fully utilised during dry weather conditions and that there is confirmed flooding near Adderbury SPS during storm events.
- 3.2.6. As a result, in order to accommodate a proposed full flow from the development site of 49 l/s, off-site works are required to ensure no adverse flood risks result from the connection. The scope of these off-site work have been identified in the Thames Water Sewer Impact Study.
- 3.2.7. The report identifies the necessity for upsizing of the pipeline between the site connection point (at manhole SP46384101) and Adderbury SPS. The upsizing and online storage requirements identified are as follows:
- Divert flows from manhole SP46372701 along East Street and Lower Close. Provide an online storage tank with an approximate capacity of 596m³ between manholes SP46372701 and SP46372504 via a 1,500mm diameter sewer for a length of 337m, with a limiting discharge on the pass-forward flow of 60 l/s;
 - Upsize existing 225mm diameter sewers to 300mm diameter, between manholes SP46384102 and SP46382001 at Broad Gap, for a total length of 214m;
 - Upsize existing 225mm diameter sewer to 300mm diameter, between manholes SP46372957 and SP46372701 at Rhydes Close and East Street, for a total length of 297m;
 - Upsize existing 150mm, 225mm and 300mm diameter sewers between manholes SP46373101 and SP46359302 running through farmland and meadow view to a diameter of 375mm, for a total length of 2.84km; and
 - Upsize existing 300mm diameter sewer between manholes SP46359302 and SP46359101 at Meadow View, Water Lane and Mill Lane to 450mm diameter, for a total length of 216m.

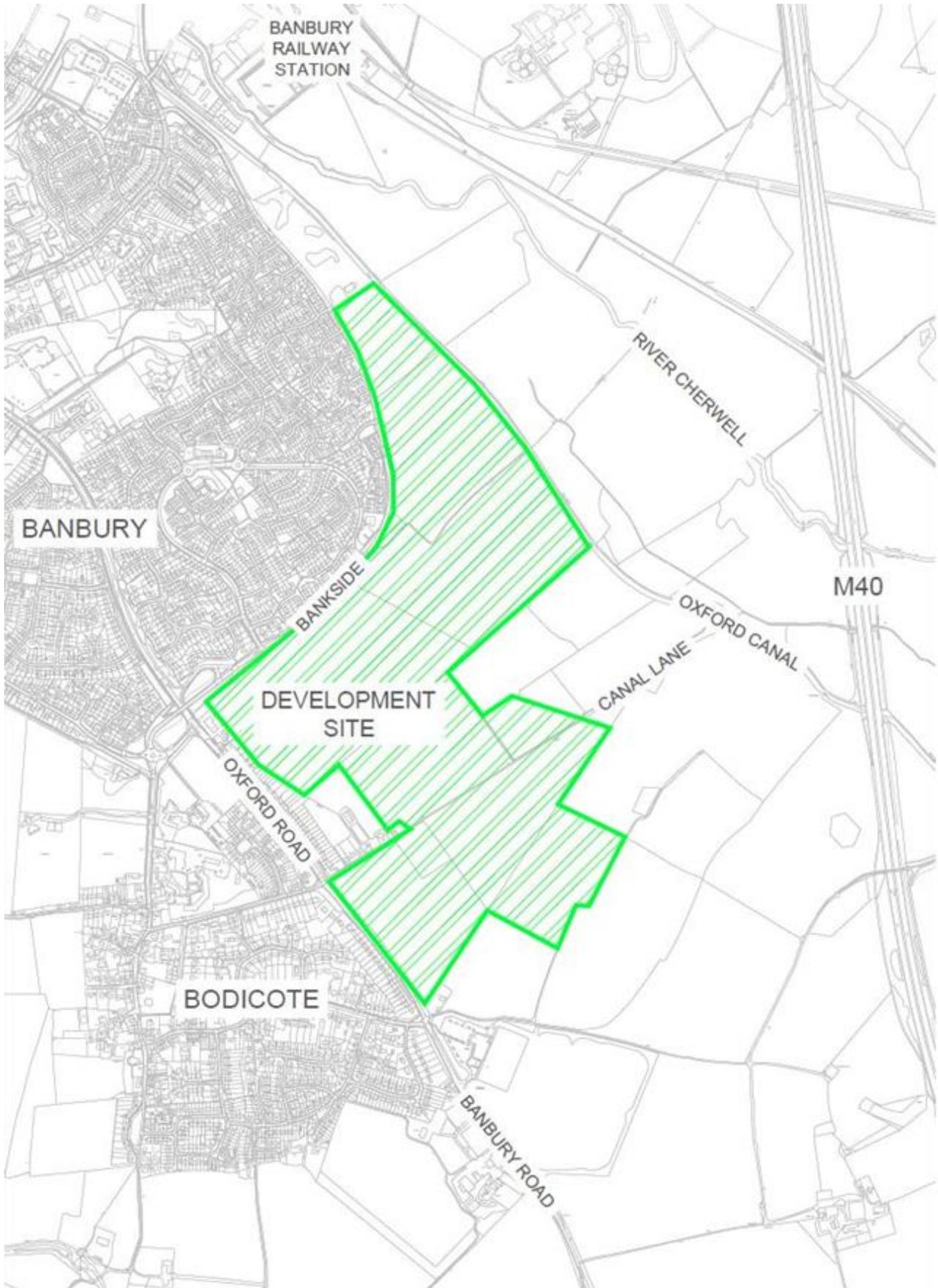
⁶ March 2014, Thames Water, Sewer Impact Study. Ref X4503-586 SMG1382.

⁷ See Footnote 4.

4. Conclusion

- 4.1. This report sets out the foul water drainage strategy for the proposed development at Longford Park and has been prepared following the correspondence and discussions to date with Thames Water and the Consortium.
- 4.2. Options for permanent foul water drainage strategies have been identified with input from Thames Water and it is demonstrated that viable strategic solutions are available to progress the development.
- 4.3. The foul water drainage strategy has been set out to a sufficient level of detail to inform the detailed design of the scheme, and to allow the discharge of planning Condition No. 24 of Outline Planning Permission 05/01337/OUT.

Appendix A. Location Plan



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Appendix B. Proposed Development

