



Land at Tollgate Road, Colney Heath

Utilities Appraisal Report

On behalf of **Vistry Group**

Project Ref: 332510999 | Rev: - | Date: June 2022

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For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved

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1 Introduction

1.1 The Brief

- 1.1.1 Stantec has been commissioned by Vistry Group (“The Client”) to prepare a Utilities Appraisal Report in support of an outline planning application in relation to the proposed development known as Land at Tollgate Road, Colney Heath, St Albans.
- 1.1.2 A location plan is included as **Appendix A**. The proposed development site is located to the west of the town of Colney Heath, The Site lies within the St Albans City and District. The site currently consists of greenfield (arable) land and is approximately 7.82 hectares. A copy of the Site Location Plan can be found in **Appendix A**.
- 1.1.3 The site comprises two fields of horse grazing and the property known as the White Barn (east of Colney Heath Farm). The existing settlement at Colney Heath extends northwards and eastwards from the Site, with woodland and agricultural land extending to the south and west.
- 1.1.4 The site is bounded by the wooded course of the River Colne to the southwest, a paddock for horse grazing to the northwest, Tollgate Road to the northeast, and the rear gardens of the linear development further south along the road to the east, and further paddocks to the south and southeast. The farmyard at Colney Heath Farm, including the Grade II Listed farmhouse and associated Listed barn, are located within 180m of the north-western site boundary.
- 1.1.5 The proposals are for residential development comprising around 150 dwellings. A copy of the Development Framework Plan can be found in **Appendix B**.

1.2 The Study

- 1.2.1 This Utilities Appraisal will outline and assess the utility issues in relation to the proposed site and will identify the need for new utility infrastructure, potential upgrade/reinforcement works, or the need for further investigation/modelling.

2 Utility Providers

2.1 Introduction

2.1.1 This section provides an overview of the existing utility infrastructure within and adjacent to the site.

2.2 Statutory Undertakers Contact List

2.2.1 The following table identifies the Statutory Undertakers that have been approached for record drawings and summarises the reported presence of utility infrastructure in the vicinity of the site, along with the likely requirement for diversion or protection of any existing infrastructure.

Utility Medium	Statutory Undertaker	Existing Infrastructure On/Near Site	Potential Diversionary Works	Enquiry Date
Electricity	UK Power Networks	Yes	Yes	12/02/22
Gas	Cadent	Yes	No	10/02/22
Gas	GTC	No	No	10/02/22
Oil Pipeline	Prax Fina Pipelines	Yes	No	22/02/22
Telecoms	Openreach	Yes	No	10/02/22
Telecoms	Vodafone	No	No	18/02/22
Telecoms	Virgin Media	No	No	17/02/22
Potable Water	Affinity Water	Yes	Yes	16/02/22
Foul Drainage	Thames Water	Yes	No	16/03/22

Table 2-1: Statutory Undertaker Contact List

2.2.2 An Existing Utility Infrastructure Constraints plan (Drawing No. TGR-STN-EU-XX-DR-C-0001) has been prepared showing the extent of the existing utility infrastructure within and adjacent to the site, and is contained within **Appendix C**.

2.2.3 The information on utilities contained within this report has been derived from data provided by the main public utility companies. No information is provided in relation to “private” utility infrastructure that might be present on site.

2.2.4 The Statutory Undertakers that have services within or near to the proposed development are discussed within the following sections.

3 Electricity Infrastructure

UK Power Networks (UKPN)

3.1 Existing Electricity Infrastructure

- 3.1.1 Mapping obtained from UKPN shows a 33kV cable entering the site boundary in the northwest from Tollgate Road for 17m and then is pot ended as it enters the adjoining field to the west.
- 3.1.2 UKPN have advised their generic easements for the 33kV cable would be 5m centre on the cable i.e. 2.5m either side.
- 3.1.3 There are LV cables along the north and south sides of Tollgate Road.
- 3.1.4 An 11kV cables is present in Fellows Lane and then continues west along Tollgate Road.
- 3.1.5 There are 3 local sub stations one to the east of the development site located north of Tollgate Road (Tollgate – Colney Heath), one to the north of Fellows Lane (Fellows LN) and one to the west of Roestock Lane (Colney Heath).
- 3.1.6 The surrounding area is served by UKPN high voltage (HV) and LV infrastructure.

3.2 Diversionary Works

- 3.2.1 The 33kV underground cable located within the site can either be diverted to accommodate the proposed masterplan or left in situ with the associated easement adhered to.
- 3.2.2 The diversion will need to be in line with the proposed masterplan and the route agreed with UKPN. It is suggested that where possible the cables are located within the footpath of the proposed public highway.
- 3.2.3 The LV cable along the south side of Tollgate Road may require diversion or protection if affected by the site access design.

3.3 Proposed Infrastructure

- 3.3.1 UKPN have also advised in their budget estimate dated 18 March2022, ref 8500208513, that offsite reinforcement would need to be carried out to provide a supply of 1,417kVA to the new development. This would require 370m of excavation from the site to the HV network in Fellows Lane.
- 3.3.2 1No 1MVA and 1No 500kVA ground mounted electricity substation will need to be established within the proposed development. The proposed substation footprint, excluding external access provision, is 5m x 5m. In addition, 24-hour vehicle access will be required for access and maintenance purposes. The location and detail of the proposed electricity substation will need to be agreed with UKPN and form part of the reserved matters application at detailed design stage.
- 3.3.3 There should be a minimum 10m “stand-off” to any proposed residential dwellings due to potential noise disturbance from the substation enclosure.
- 3.3.4 In addition, low voltage cable feeds would emanate from the substation for supply purposes. The layout of this infrastructure is dependent on the final design of the proposed development.

4 Gas

Cadent

4.1 Existing Gas Infrastructure

- 4.1.1 No Cadent assets are recorded within the proposed site boundary.
- 4.1.2 There is a 4in Low Pressure (LP) gas main in the south side of Tollgate Road for 17m which terminates outside of 42 Tollgate Road.
- 4.1.3 To the west side of the proposed site access is a 125mm LP gas main spur, from the 4in LP gas main, running north across the Tollgate Road and then continues as 125mm LP gas main along the north side of Tollgate Road, and as a 90mm LP gas main in Fellows Lane.

4.2 Diversionary Works

- 4.2.1 The 4in LP gas main in Tollgate Road may require diversion or protection if affected by the site access design.

4.3 Proposed Infrastructure

- 4.3.1 No gas supply is required for the development site.

5 Oil Pipeline

Prax Finaline operated by BPA

5.1 Existing Oil Pipeline Infrastructure

- 5.1.1 There is a Prax Fina 14 inch (355mm) diameter oil pipeline to the southwest of the development site, which is operated by BPA. The oil pipeline is labelled EPP-HMJ.
- 5.1.2 There is a 3m easement either side of the pipeline and any works within the easement need to be supervised and approved by BPA.
- 5.1.3 No tree planting will be allowed within or near to the easement.

5.2 Diversionary Works

- 5.2.1 The oil pipeline has been accommodated within the masterplan and will not require diversion.

6 Telecommunication

Openreach

6.1 Existing Telecommunication Infrastructure

- 6.1.1 No Openreach assets are recorded within the proposed site boundary.
- 6.1.2 Openreach asset records show an underground cable along the southern side of Tollgate Road to the west of the proposed site access, this then becomes an Overhead line crossing to the north and continues along Tollgate Road and also runs along Fellows Lane.

6.2 Diversionary Works

- 6.2.1 Diversion should not be necessary for the Openreach cables to the west in Tollgate Road, however this will depend on the actual location of the cables and the chamber and may require diversion or protection depending on the site access design. Further discussion with Openreach may be required at detailed design stage.

6.3 Proposed Infrastructure

- 6.3.1 It is assumed the supply strategy is likely to be via a new connection to the telecommunications infrastructure from existing duct networks to the west in Tollgate Road at the proposed access location with new infrastructure running through the development in line with the proposed masterplan.
- 6.3.2 A check of the availability and quality of BT Broadband within the area of the proposed development has been undertaken from bt.com, BT's Official Site. The estimated download average speed at present of up to 80Mbps for the Superfast Fibre broadband and 1Gbps for Ultrafast Full Fibre.
- 6.3.3 As of 2017, Openreach only provide fibre optic networks to new residential developments. Therefore, this development will benefit from fibre to the premise (FTTP) to all dwellings.
- 6.3.4 Openreach normally undertake to provide telephone and broadband services to all new developments free of charge with the end user ultimately paying for connection costs. All civils works will typically be undertaken by the developer using free issue Openreach ducts and Openreach specified duct boxes to Openreach confirmed design. Openreach will then pull cables through the newly installed ducts as and when required.
- 6.3.5 Openreach will make payments to the developer for the construction and installation of the Openreach network on new developments on a per unit basis. The payment amounts are agreed between Openreach and the House Builders Federation (HBF). Openreach will make payments for all sites of 11 or more plots, providing standards are met on completion, of £140 per house and £50 per flat. In addition, if the developer has opted to self-install the internal Openreach equipment (Connectorised fibre cable, Optical Network Termination (ONT) and the battery back-up (BBU)), and this has been commissioned by Openreach, then the developer can claim an extra £20 payment per plot.

6.4 TV and DAB Services

- 6.4.1 The proposed development site is predicted to receive a terrestrial TV signal from the Crystal Palace transmitter. This area should receive 140 Freeview channels.
- 6.4.2 The above information has been sourced online from freeview.co.uk.

7 Potable Water

Affinity Water (AW)

7.1 Existing Potable Water Infrastructure

- 7.1.1 AW record mapping indicate there are no water mains within the site boundary.
- 7.1.2 There are AW 4in diameter Cast Iron (CI) and 20in diameter (CI) water mains in the south side of Tollgate Road.

7.2 Diversionary Works

- 7.2.1 The 4inch diameter and 20inch diameter CI watermains in Tollgate Road, may require diversion or protection depending on the site access design. Further discussion with AW may be required at detailed design stage.

7.3 Proposed Infrastructure

- 7.3.1 AW have confirmed in their Pre-development report ref DS0048376, dated 15 March 2022, that at the time of enquiry there is insufficient capacity within the local network to supply the site, and offsite reinforcement will be required at AW's expense.
- 7.3.2 A preliminary POC is anticipated off the 4inch diameter CI water main located within Tollgate Road, with a 90mm main, and the houses metered from 25mm supplies with 15mm internal meters.
- 7.3.3 New mains infrastructure to serve the development will be requisitioned from AW via Section 41 of the Water Industry Act.

7.4 Water Quality

- 7.4.1 The water supply in this area is classed as "very hard". A copy of AW water quality parameters report can be found in **Appendix D**.
- 7.4.2 The above information has been sourced online from affinitywater.co.uk.

8 Foul Water

Thames Water (TW)

8.1 Existing Foul Sewer Network

- 8.1.1 TW record mapping indicates there are no foul sewers within the site boundary.
- 8.1.2 There is a 150mm diameter foul sewer within Tollgate Road.
- 8.1.3 There is a 300mm diameter surface water sewer in Fellows Lane.

8.2 Diversionary Works

- 8.3 No foul sewers recorded within the proposed site.

8.4 Proposed Infrastructure

- 8.4.1 TW have confirmed in their Wastewater Pre-planning report ref DS6093339, dated 30 March 2022, that at present there is available capacity within their existing foul water sewer network to support the development proposals.
- 8.4.2 At this stage, it is anticipated that the site will drain by half via gravity sewers and half by pumped discharge at 3.8l/s to the 150mm diameter foul sewer in Tollgate Road, manhole ref TL20058601.
- 8.4.3 When a connection is required, if there is no longer capacity within the foul network to accommodate the additional flows, it will be the responsibility of TW to upgrade the network. Under the connection's regulations now in force, the Sewerage Company is obliged to provide a point of connection for new developments at "the nearest reasonably practicable point" on its network where the parent sewer is the same diameter, or greater, than that of the connection from the development. Should the Company require the connection to be made elsewhere on its network, for capacity reasons, it will be responsible for any works required to provide that capacity downstream of "the nearest reasonably practicable point" of connection meeting the condition on respective pipe sizes. Any network reinforcement costs required shall be recovered by the Company through the infrastructure charges levied on new connections, and/or its own capital program allocation.
- 8.4.4 The onsite drainage will be constructed under Section 104 agreement of the Water Industry Act 1991.

9 Conclusion

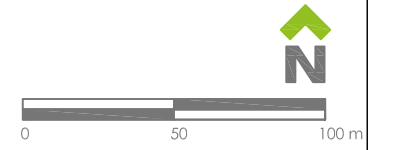
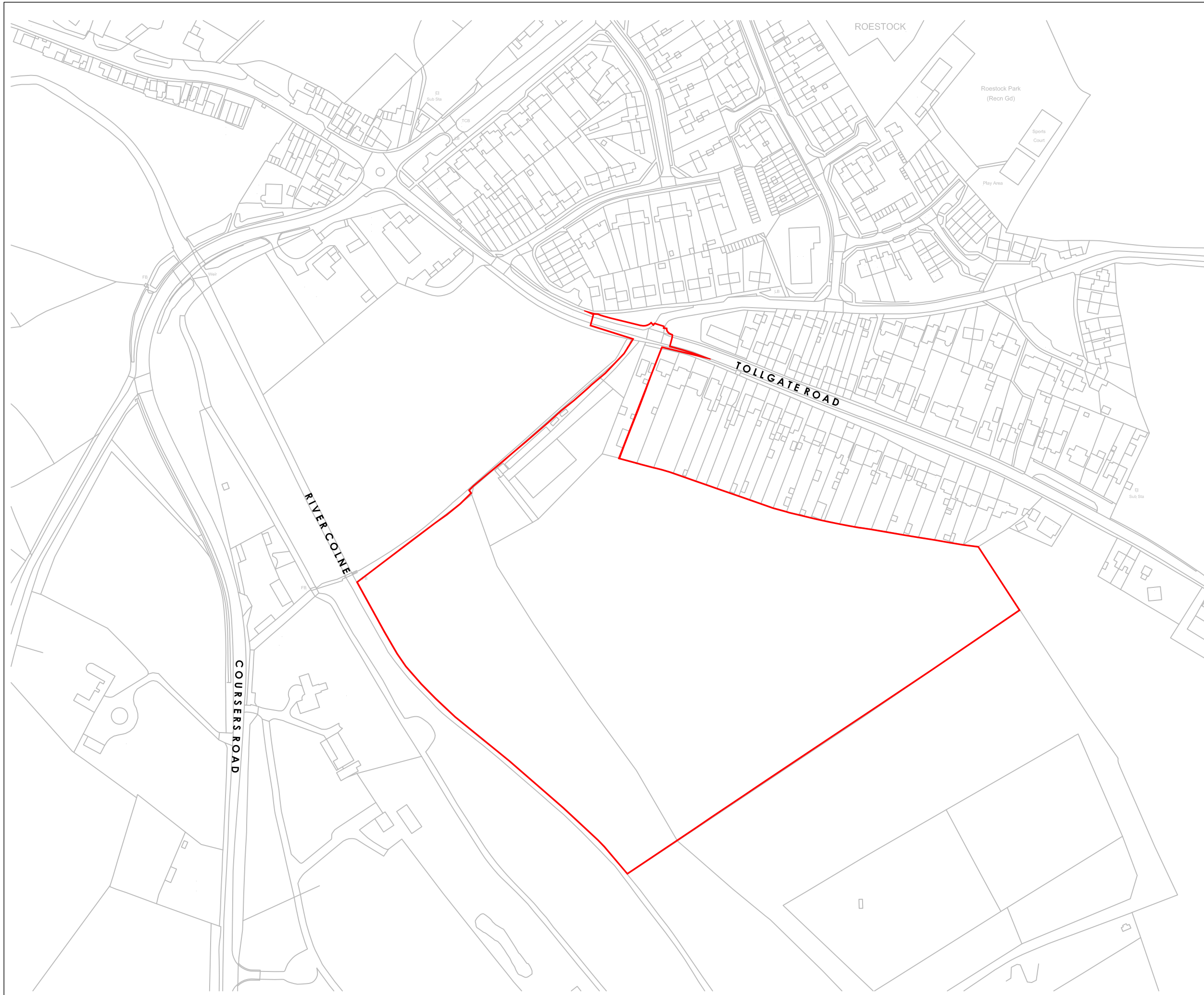
9.1 Summary

9.1.1 The following table summarises the results of the investigations undertaken by Stantec in respect of utility services and foul drainage and outlines the likely requirements in terms of diversions and or new infrastructure to support the development proposals.

Statutory Undertaker	Existing Utility Infrastructure		New Utility Infrastructure
	Onsite / Near Development	Diversion Requirements	Requirements
UK Power Networks	33kV underground cable crosses the northwest corner for 17m, although is pot ended in the adjacent field to the west. LV cables present in the north and south sides of Tollgate Road.	33kV underground cable to be accommodated within the masterplan. LV cables to be diverted or protected if affected by the site access.	370m of reinforcement to the HV network in Fellows Lane. 2No onsite ground mounted distribution substations will need to be established on site.
Cadent Gas	No infrastructure onsite. 4in dia LP gas main for approximately 17m to the east in Tollgate Road.	LP gas main to be diverted or protected if affected by the site access.	No gas connection required
Prax Fina	14in dia Oil pipeline to southwest of the site	No diversions required.	N/A
Openreach	Telecoms cables and Overhead line in Tollgate Road	Diversions may be required to accommodate site access.	Assumed connection to infrastructure along Tollgate Road at the location of the proposed access junction.
Affinity Water (Potable)	No infrastructure onsite. 4in dia and 20in dia water mains in Tollgate Road.	Diversions may be required to accommodate site access.	Insufficient capacity within local network to serve the proposed development, offsite reinforcement required at the cost to AW. Preliminary POC off existing main in Tollgate Road.
Thames Water (Foul)	No infrastructure onsite. A 150mm dia foul sewer crosses serves Tollgate Road.	No diversions required.	The site to drain half via gravity sewers and half by pumped discharge at 3.8l/s to the 150mm diameter foul sewer in Tollgate Road, manhole ref TL20058601

Table 8-1: Summary of Investigations

Appendix A Site Location Plan



Site Boundary: **7.82ha**

D	24.06.2022	JC	project name update
C	21.06.2022	JC	Minor Red Line Update
B	21.06.2022	JC	Highways land included
A	08.02.2022	JC	Additional land included

Rev	Date	By	Description
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Project Land at Tollgate Road
COLNEY HEATH

Title Site Location Plan

Client Vistry Group

Scale	1:2500 @ A3	Drawn	SG
Date	March 2021	Checked	RR
Drawing No.	CSA/3925/109	Rev	D

Appendix B Development Framework Plan



Site Boundary: 7.82ha

Developable Area

Proposed residential area: 3.75ha (Up to 150 dwellings @ 40 dph)

Movement & Circulation

- Proposed primary vehicular access point
- Proposed spine street through the development
- Proposed secondary streets
- Proposed lanes and private drives
- Recreational routes and Trim-Trail Stations
- Mown paths
- Potential pedestrian links
- Public Rights of Way

Green & Blue Infrastructure

- Public open space to serve the new development
- Avenue street tree planting
- Proposed new boundary hedgerow planting
- Proposed play provision for children and young people
- Proposed sustainable drainage basins and swales (SuDS)
- Existing vegetation
- Potential seating/picnic area
- Proposed location for pumping station and 15m cordon sanitaire

Surrounding Context

- Existing waterbodies and water courses
- Listed Buildings
- Colney Heath Local Nature Reserve
- Existing bus route and bus stops

Rev	Date	By	Description
A	16/06/2022	KP	Pumping station added, landscaping within LWS amended

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Project Land at Tollgate Road
COLNEY HEATH

Title Concept Masterplan

Client Vistry Group

Scale 1:2500 @ A3 **Drawn** KP

Date June 2022 **Checked** JC

Drawing No. CSA/3925/117 **Rev** A

Appendix C Existing Utility Infrastructure Constraints Plan

Appendix D Water Hardness

Water Supply Zone: Hatfield/Potters Bar (AF023)

Period: 01-Jan-2021 to 31-Dec-2021

Population: 78364



Parameter	Units	No. of Samples	PCV	No. of Samples >PCV	% of Samples >PCV	Min.	Mean	Max.
Microbiological Parameters								
Coliform bacteria	No./100ml	192	0	1	<1	0	0	4
E coli	No./100ml	192	0	0	0	0	0	0
Clostridium perfringens	No./100ml	52	0	0	0	0	0	0
Enterococci	No./100ml	8	0	0	0	0	0	0
3 day plate count 22 °C	No./1ml at 22 °C	52	No abnormal change	0	0	0	28	380
Customer Parameters								
Alkalinity	mgHCO ₃ /l	1	No PCV	0	0	336	336	336
Calcium	mgCa/l	1	No PCV	0	0	147	147	147
Chlorine (Residual)	mgCl ₂ /l	192	No PCV	0	0	0.05	0.28	0.9
Colour	mg/l Pt/Co	52	20	0	0	<2.5	<2.5	7.8
Fluoride	mgF/l	8	1.5	0	0	0.121	0.171	0.237
Hardness (Total)	mgCaCO ₃ /l	1	No PCV	0	0	368	368	368
Hydrogen Ion (pH)	pH value	52	6.5-9.5	0	0	6.9	7.2	7.5
Quantitative Odour	Dilution No.	52	Abnormal & unacceptable to consumers	0	0	0	0	0
Quantitative Taste	Dilution No.	51		0	0	0	0	0
Temperature	°C	192	No PCV	0	0	6.9	13.5	20.6
Turbidity	NTU	52	4	0	0	<0.10	0.11	0.25
Chemicals								
Metals								
Arsenic	µgAs/l	8	10	0	0	<1.0	<1.0	<1.0
Aluminium	µgAl/l	52	200	0	0	<5.0	<5.0	<5.0
Antimony	µgSb/l	8	5	0	0	<0.20	<0.20	0.3
Cadmium	µgCd/l	8	5	0	0	<0.20	<0.20	<0.20
Chromium	µgCr/l	8	50	0	0	<0.5	<0.5	<0.5
Copper	mgCu/l	8	2	0	0	<0.019	0.051	0.256
Iron	µgFe/l	52	200	0	0	<15.0	<15.0	88.1
Lead	µgPb/l	8	10	0	0	<1.00	<1.00	<1.00
Manganese	µgMn/l	52	50	0	0	<1.0	<1.0	4.9
Mercury	µgHg/l	8	1	0	0	<0.10	<0.10	<0.10
Nickel	µgNi/l	8	20	1	13	<2.0	17.1	129
Sodium	mgNa/l	8	200	0	0	22.8	29.6	39.2
Pesticides								
Atrazine	µg/l	8	0.1	0	0	<0.013	<0.016	<0.016
Carbetamide	µg/l	8	0.1	0	0	<0.013	<0.017	<0.017
Clopyralid	µg/l	8	0.1	0	0	<0.024	<0.025	<0.025
Glyphosate	µg/l	8	0.1	0	0	<0.005	<0.005	<0.005
Mecoprop	µg/l	8	0.1	0	0	<0.011	<0.013	<0.013
Metaldehyde	µg/l	8	0.1	0	0	<0.021	<0.021	0.04
Metazachlor	µg/l	8	0.1	0	0	<0.011	<0.015	<0.015
Propyzamide	µg/l	8	0.1	0	0	<0.019	<0.026	<0.026
Simazine	µg/l	8	0.1	0	0	<0.017	<0.022	<0.022
Total Pesticide	µg/l	8	0.5	0	0	0	0.02	0.048
2,4-D	µg/l	8	0.1	0	0	<0.014	<0.016	<0.016
Additional Parameters								
Ammonium	mgNH ₄ /l	8	0.5	0	0	<0.05	<0.05	0.12
Benzene	µg/l	8	1	0	0	<0.03	<0.07	<0.07
Benzo (a) Pyrene	µg/l	9	0.01	0	0	<0.002	<0.002	<0.002
Boron	mgB/l	8	1	0	0	<0.100	<0.100	<0.100
Bromate	µgBrO ₃ /l	8	10	0	0	0.6	1.2	2.1
Chloride	mgCl/l	8	250	0	0	41	51	63
Electrical Conductivity at 20 °C	µS/cm at 20 °C	52	2500	0	0	578	645	733
Nitrate	mgNO ₃ /l	8	50	0	0	21.9	25.8	28.3
Nitrite	mgNO ₂ /l	8	0.5	0	0	<0.007	0.011	0.056
Nitrite Nitrate Formula		8	1	0	0	<0.51	<0.55	0.57
Selenium	µgSe/l	8	10	0	0	<1.0	<1.0	<1.0
Sulphate	mgSO ₄ /l	8	250	0	0	57	76	110
Sum of Tri & Tetrachloroethene	µg/l	8	10	0	0	0	0.1	0.3
Tetrachloromethane	µg/l	8	3	0	0	<0.1	<0.2	<0.2
Total Cyanide	µgCN/l	8	50	0	0	<2.7	<2.7	<2.7
Total Organic Carbon	mgC/l	8	No abnormal change	0	0	1.4	2.2	3.5
Total PAHs	µg/l	9	0.1	0	0	0	0	0
Total Trihalomethanes	µg/l	8	100	0	0	9.13	15.4	25.2
1, 2 dichloroethane	µg/l	8	3	0	0	<0.09	<0.14	<0.14

Notes

PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality

Coliform bacteria were detected in a sample taken from a customer's property in zone 023 in May. Our investigation identified that the most likely cause of the failure was the condition of the tap where the sample was taken. The customer was informed of the situation and actions to take to prevent contamination of taps. Coliforms do not pose a risk to public health.

During June, Nickel was detected at a concentration above the standard in a sample taken from a property in zone 023. Our investigation established that the supplying treatment works were operating satisfactorily and there were no significant activities on the local distribution network. We identified the kitchen tap was the source of the nickel and have advised the customer accordingly.

Undertakings & Authorised Departures

No Authorised Departures applied to this water supply zone during 2021.

An Undertaking is in place for this zone relating to Metaldehyde & Total Pesticides from North Mymms Water Treatment Works (WTW) & from Anglian Water Services' (AWS) Grafham WTW. The Company has agreed to: implement a monitoring strategy; engage in catchment management activities, including support for voluntary initiatives to influence Metaldehyde use, in order to reduce concentrations in untreated waters; to engage with & provide data to relevant stakeholders; review possible alternative supply arrangements; optimise removal through current treatment processes; investigate new, sustainable treatment processes; and to continually review & appraise the risk from these hazards as part of the Regulatory process. AWS has agreed to: implement a monitoring strategy; to engage with relevant stakeholders & provide regular updates on data; investigate new, sustainable treatment processes, supporting national research programmes where appropriate; and to continually review & appraise the risk from these hazards as part of the Regulatory process.

Glossary

Drinking Water Standards

The report above show all regulatory parameters which are monitored in accordance with the current Water Supply (Water Quality) Regulations. Some non-regulatory

Regulatory Parameters		
Parameter	What it means	Standard
Microbiological Parameters		
Coliform bacteria	These bacteria are widely distributed in the environment and provide a sensitive measure of the microbiological quality of the water supply. They are removed during the treatment process. However, if any coliform organisms are detected in drinking water immediate action is taken to investigate the source of the bacteria. Nearly all instances of coliforms in samples taken from customers' taps are due to microbiological growths in the domestic cold taps.	0 per 100ml
E coli Clostridium perfringens Enterococci	Bacteria which are indicative of possible faecal contamination. Immediate action is taken if these organisms are detected in drinking water.	0 per 100ml
2 day plate count 37 °C 3 day plate count 22 °C	A range of harmless bacteria that may be present in water supplies. These are monitored to ensure the efficiency of the treatment process and the cleanliness of the distribution system.	No specific standard (increasing trends are investigated)
Customer Parameters		
Alkalinity	Alkalinity is normally due to bicarbonate salts of calcium and magnesium, but very occasionally sodium bicarbonate may contribute. In the former case the alkalinity is sometimes called the "temporary hardness" as it is removed by boiling.	No specific standard
Calcium	Occurs naturally in water after passage through mineral deposits and rock strata. Calcium contributes to the total hardness of water.	No specific standard
Chlorine (Residual)	Affinity Water disinfects some of our water supplies using chlorine. The concentration of chlorine used is carefully controlled and is set to ensure that water is adequately disinfected, while minimising any taste or odour issues for consumers.	No specific standard
Colour	Water should be clear and bright, but natural organic matter or pipework corrosion products may occasionally impart a slight tint. The standard is set for reasons of appearance and requires water to be virtually colourless.	20 mg/l Pt/Co
Fluoride	Occurs naturally in many water sources. The standard is set to ensure no adverse effects. Affinity Water does not artificially fluoridate the water supplies.	1.5 mg F/l
Hardness (Total)	Hardness is due to calcium and magnesium salts dissolved in the water. Hard water is perfectly safe and there is evidence that it can even be good for your health, unless there are specific requirements to do so there is no need to soften the water. Almost all Affinity Water supplies are hard due to the natural geology of Southern England.	No specific standard
Hydrogen Ion (pH)	A measure of the acidity or alkalinity of water; pH <7.0 is acidic and pH >7.0 is alkaline. Excessively acidic or alkaline water can contribute to corrosion of pipes and fittings.	Min. 6.5 to max 9.5
Quantitative Odour Quantitative Taste	Specialist tasting panels examine the water for taste or odour. These standards are measure of the aesthetic quality of drinking water. Unusual odours or tastes may indicate a problem which needs investigating.	Abnormal & unacceptable to consumers
Temperature		No specific
Turbidity	The standard requires that there should be no haziness caused by fine particles. Sometimes minute air bubbles give the supply a milky appearance but on standing for a few minutes these will clear from the bottom of the glass upwards.	4 NTU
Chemicals		
Metals		
Antimony	Very low levels of these substances may occur naturally, but in higher amounts could be associated with industrial pollution. The standards are health-related and have a large safety factor built in.	5 µg Sb/l
Arsenic		10 µg As/l
Cadmium		5 µg Cd/l
Chromium		50 µg Cr/l
Mercury		1 µg Hg/l
Nickel		20 µg Ni/l
Aluminum	Occurs naturally in many water resources. Aluminum compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process.	200 µg Al/l
Copper	Any significant amount of copper is likely to come from corrosion of customers' pipes and fittings. An excess of copper can cause a metallic taste.	2 mg Cu/l
Iron	Iron may be associated with corrosion of old iron water mains. Iron based compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process. The standard for iron has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water.	200 µg Fe/l

Lead	Absent in the water entering supply but variable concentrations of lead may be found in water at the customer's tap in older properties built at a time when lead was commonly used in domestic plumbing systems. The standard recognises that the intake of lead should be minimised for public health reasons.	10 µg Pb/l
Manganese	Occurs naturally in many waters but is usually removed during treatment. The standard is set for aesthetic reasons as black deposits of manganese dioxide can cause discoloured water.	50µg Mn/l
Sodium	May be naturally present after passing through certain mineral deposits and rock strata or introduced by some water softening processes. The standard is set well below the level which could affect health.	200 mg Na/l
Pesticides		
Atrazine	Associated with the use of these substances by agriculture, industry and local authorities. The standards are set well below the levels that might cause health problems, but levels should be minimised by good practice and appropriate controls. We measure the wide range of substances that may be present.	0.1 µg/l
Carbetamide		0.1 µg/l
Clopyralid		0.1 µg/l
Glyphosate		0.1 µg/l
Mecoprop		0.1 µg/l
Metoldehyde		0.1 µg/l
Metazachlor		0.1 µg/l
Propyzamide		0.1 µg/l
Simazine		0.1 µg/l
2,4-D		0.1 µg/l
Total Pesticide		0.5 µg/l
Additional Parameters		
Ammonium	May be naturally present in some water sources and is not harmful.	0.5 mg NH ₄ /l
Benzene	Benzene may be introduced into source water by industrial effluents or atmospheric pollution. Benzene can migrate through plastic pipework if petrol is spilled nearby.	1 µg/l
Benzo (a) Pyrene	Benzo(a)pyrene belongs to a group of compounds known as polycyclic aromatic hydrocarbons (PAHs). If detected in drinking water, the usual source is as a result of deterioration of coal tar linings in water mains. Benzo(a)pyrene is seldom detected in drinking water as a result of extensive water mains refurbishment and renewal.	0.01 µg/l
Boron	Very low levels of boron may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	1 mg B/l
Bromate	Can be associated with industrial pollution or can occur as a by-product of the disinfection process.	10 µg BrO ₃ /l
Chloride	Occurs naturally in most water sources. Levels above the standard could give rise to taste issues and contribute to corrosion.	250 mg Cl/l
Electrical Conductivity at 20 °C	A measure of the ability of water to conduct an electric current and therefore a measurement of the mineral salts dissolved in the water.	2500 µs/cm at 20°C
Nitrate	Nitrate arises from the use of fertilisers from agricultural and may be minimised by good practices and appropriate controls. The standard is set well below concentrations that could be harmful.	50 mg NO ₃ /l
Nitrite	Nitrite may be associated with nitrate or with the use of ammonium in water disinfection. Careful control of the disinfection process reduces formation of nitrite. The standard is set well below concentrations that could be harmful.	0.5 mg NO ₂ /l
Selenium	Very low levels of selenium may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	10 µg Se/l
Sulphate	Dissolves in water after contact with certain mineral deposits and rock strata. Excess levels can contribute to corrosion.	250 mg SO ₄ /l
Sum of Tri & Tetrachloroethene	This standard is the sum of the concentration of trichloroethene and tetrachloroethene. The presence of these organic solvents is an indication of industrial pollution.	10 µg/l
Tetrachloromethane	The presence of this organic solvent is an indication of industrial pollution.	3 µg/l
Total Cyanide	Very low levels of cyanide may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	50 µg CN/l
Total Organic Carbon	This parameter provides a measure of the total amount of organic matter in water.	No abnormal change
Total PAHs	Associated with the deterioration of old coal tar linings which were used until the mid 1970s. The standards are set well below the levels of significance to health.	0.1 µg/l
Total Trihalomethanes	THMs are formed by the reaction of chlorine added as a disinfectant with naturally occurring organic compounds in the water. The standards are set well below the levels of significance to health.	100 µg/l
1, 2 dichloroethane	The presence of this organic solvent is an indication of industrial pollution.	3 µg/l

Further information can be found on the Affinity Water and Drinking Water Inspectorate websites:
<https://www.affinitywater.co.uk/index.aspx>
<http://dwi.defra.gov.uk/>