

Land to Rear of 24 Stone Street, Gravesend, Kent Mains Water Supply – Demand Calculation

13/11/2023 Revision: 01

Outline

MWL has been requested by the client to provide information for the discharge of planning conditions from Gravesham Borough Council, for a new development located at the rear of 24 Stone Street in Gravesend.

Prior to the commencement of the development, impact studies of the existing water infrastructure shall be submitted to and approved by the local planning authority in consultation with Southern Water.

Water load assessment has been carried out and a corresponding Pre-planning Enquiry application had been submitted to Southern Water.

Southern Water have completed their pre-planning assessment on the new development and have confirmed the existing mains water infrastructure in Stone Street is adequate to serve the new development. (See Appendix A for Southern Water's Pre-planning Enquiry Response Letter)

About the development

The new development is a 6-storey building, with the lower ground floor and upper ground floor to be utilised as commercial units and/or office spaces. First to fourth floor will be residential apartments, consist of 3 No. 1-bedroom flat and 11 no. 2-bedroom flat. All apartments are to have one bathroom.

Initial Design Proposal

MWL proposed the lower ground and upper ground commercial units/office spaces are to be supplied directly from the water mains, with water meters to be buried on public footpath.

The residential apartments are to be supplied via a communal freshwater break tank and boost pump set located in the lower ground floor plant room. Water meters are either to be in the mechanical riser on each floor, or within the plantroom.

The water load assessment had been carried out based on the above design proposal

Water Load Assessment

The peak diversified water demand (in litres per second) is calculated based on methodology & design flow rates outlined in the Plumbing Engineering Services Design Guide by The Institute of Plumbing.

The total number of sanitaryware is taken from the architectural floor plans and the results of the calculations are as follow:

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Commerical Units:

Floor	Flat	WC	Basin	Shower	Bath	Sink	WM	DW	Ex. Tap	TOTAL LU	Flow Rate (l/s)	Pipework	Velocity (m/s)	MWS (mm)
Lower Ground	Office Unit 1	3	3	0	0	2	0	1	0	19	0.46	Copper	1.5	28
Upper Ground	Office Unit 2	1	1	0	0	1	0	1	0	9	0.28	Copper	1.5	28
	Office Unit 3	1	1	0	0	1	0	1	0	9	0.28	Copper	1.5	28
		5	5	0	0	4	0	3	0	37	0.65	Copper	1.5	35

Residential Apartments:

Floor	Flat	WC	Basin	Shower	Bath	Sink	WM	DW	Ex. Tap	TOTAL LU	Flow Rate (l/s)	Pipework	Velocity (m/s)	MWS (mm)
Lower Ground	Landlord	0	0	0	0	0	0	0	2	10	0.3	Copper	1.5	28
First	Flat 1	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 2	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 3	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 4	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
Second	Flat 5	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 6	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 7	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 8	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
Third	Flat 9	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 10	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 11	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 12	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
Fourth	Flat 13	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
	Flat 14	1	1	0	1	1	1	1	0	19	0.46	Copper	1.5	28
		14	14	0	14	14	14	14	2	276	2.7	Copper	1.5	54

The diversified peak flow rates for the commerical units and residential apartments are **0.65 & 2.7 L/s** respectively.

Please note that the peak flow rate for the residential apartments is the flow rate out of the storage tank. The tank infill rate & hence demand from the mains is subject to the mains pressure on site.

MWL's calculations are submitted to Southern Water together with the architectural floor plans for their assessment.

Southern Water had accepted the commercial units' peak flow rate as 0.65 L/s, and applied an estimated **continuous** flow rate of 0.11 L/s for the 14 No. of apartments. The combined peak demand for the development is **0.76 L/s**

This residential apartment's flow rate is based on an occupancy rate of 2.4 for each flat, with a water usage of 125 litres per household per day. This flow rate can be viewed as the minimum required infill rate for the communal freshwater tank during peak usage hours.

Southern Water has confirmed their infrastructure on Stone Street can support the extra demand of from the new development. A confirmation letter has been sent to MWL as an approval of the pre-planning enquiry application.

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APPENDIX A – SOUTHERN WATER PRE-PLANNING ENQUIRY & ASSESSMENT CONFIRMATION LETTER

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Edwin Leung
Mendick Waring Limited
Lymehouse Studios
30-31 Lyme Street
London
NW1 0EE

Your ref

Our ref

DSA000025928

Date

07 September 2023

Contact

Tel 0330 303 0119

Dear Mr Leung,

Pre-Planning Application

Development: Rear of 24 Stone Street, Athboy Road, Gravesend, Kent, DA11 0NP.

We have completed the pre-planning assessment for the above development site and the results are as follows:

Water Supply

There is currently adequate capacity at **3" CI** main located in Stone Street to serve the development's water demand of **0.76 l/s**.

New Infrastructure Charging

Please note as of 1st April 2018 we have moved to the "New Connections Services Charging Arrangements". We understand that this may cause uncertainty for customers, particularly where they may have already committed to a development based on previous charging arrangements. We have worked with our stakeholders and Water UK to agree a set of principles by which we will base our charges. Please read through our new charging arrangement documents available at the following link: southernwater.co.uk/developing-building/connection-charging-arrangements

Our charging arrangements also set out costs associated with a Water Main Requisition (S41), budgeting for new water supply connections (S45) and infrastructure charges.

If you are building multiple domestic or commercial properties on a site that will have new road access you will probably need a new water main. This main, and the services to each property, can either be laid by ourselves or by accredited self-lay providers (SLPs) under a Self-Lay (S51) application. We support mains laid by SLPs and adopt independently installed mains and services once they are commissioned.

If soil contamination is or was present at your site, we will require a copy of your soil report to enable us to assess any risks to the water supply network before a detailed design can be undertaken.

Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX
southernwater.co.uk

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Alternatively, New Appointees and Variations (NAVs), also known as 'inset' companies, can provide new connection services or take ownership of the new water and wastewater connection infrastructure provided for a new development. NAVs are appointed by Ofwat and replace the regional water company. It is for the developer to choose whether to use a NAV or the regional water company to supply services for new sites, according to certain legal criteria.

Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing water network and does not grant approval for a connection to the public water supply. A formal Water Supply (S45) connection application, or Water Main Requisition (S41), Self-Lay (S51) or NAV application as appropriate, is required to be completed and approved by Southern Water Services. To make an application visit: developerservices.southernwater.co.uk

Please note the information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter.

Should it be necessary to contact us please quote our above reference number relating to this application by email at southernwaterplanning@southernwater.co.uk

Yours sincerely,

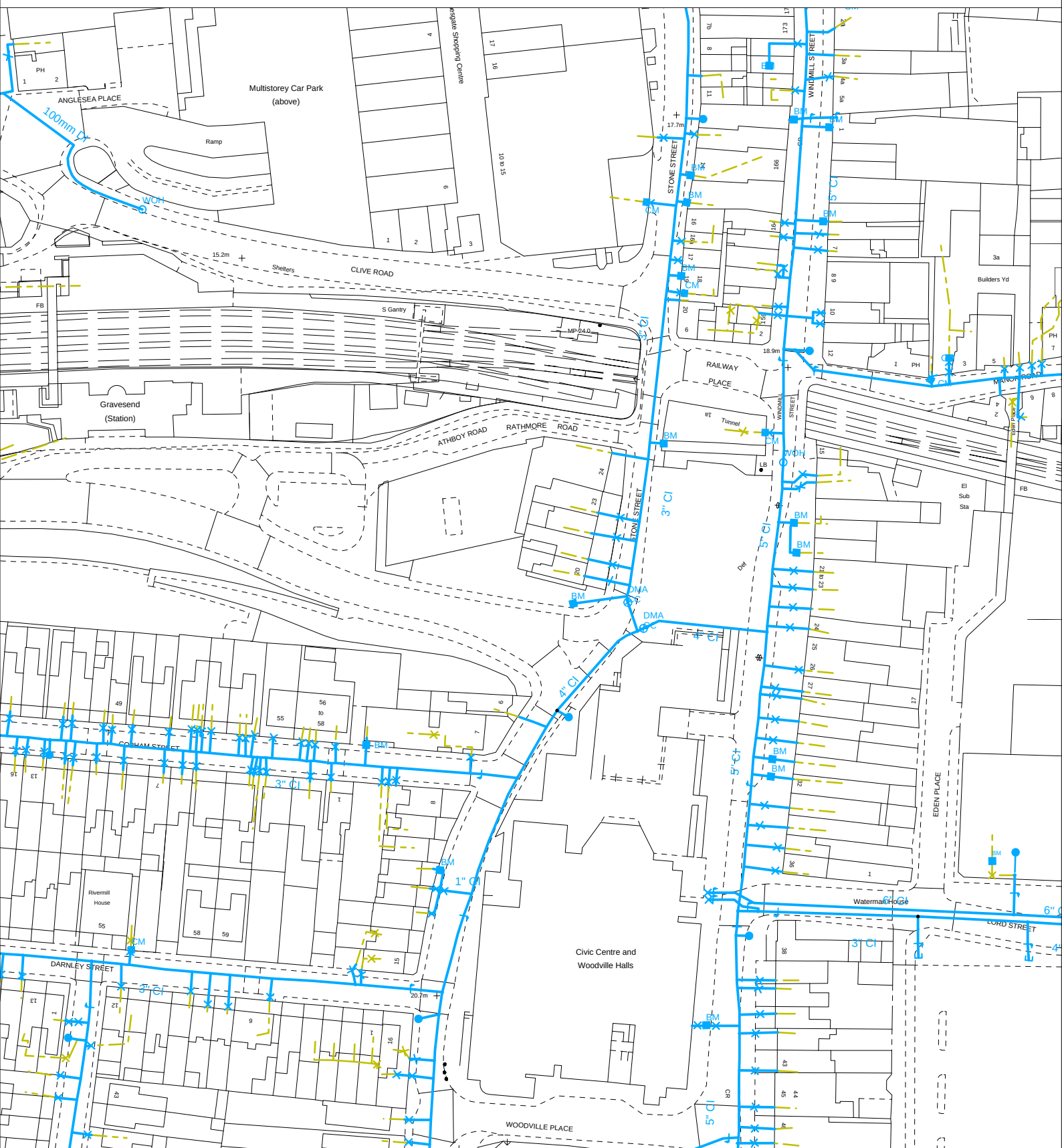
Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

APPENDIX B – SOUTHERN WATER ASSET MAP IN THE VICINITY OF THE NEW DEVELOPMENT

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SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

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O.S. REF: TQ6473NE

Scale: 1:1250

Water Plot

WARNING: BAC pipes are constructed of Bonded Asbestos Cement

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement



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Site Location Plan

Requested By:

