

Thames Water Utilities Ltd
Developer Services
Asset Development

3rd Floor West, Clearwater Court, Vastern Road, Reading RG1 8DB



Potable Water Capacity
Flow & Pressure Investigation

Location: Land at Green Lane, Chesterton,
Bicester, Oxfordshire, OX26 1TN

DATE	ISSUE	REFERENCE	AUTHOR	APPROVED
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1. INTRODUCTION

As per your request received 22nd June 2015, this report is to evaluate the results of the flow and pressure test and to ascertain the availability of capacity within the existing local mains network and its ability to supply the proposed new demand profile for the proposed development at Green Lane, Chesterton, Bicester, Oxfordshire, OX26 1TN.

The investigation will also determine whether any enhancement to the existing network is necessary to supply your requirement, while maintaining existing flows and pressures to our present customers.

Should your development proposal change, this report would become invalid and a further test would be required. If other developments are completed within the Water Pressure Zone before your development and depending on their size and location, this may also necessitate the test to be retaken.

2. EXISTING NETWORK

The local mains network is hydraulically dominated by the Ardley Water Pressure Zone.

3. EXISTING DEMAND TYPE

The local demand type is predominately residential and residential amenities, which have an overall peak morning water demand profile from the distribution mains network.

4. DOMESTIC DEMAND

The development will consist of 45 residential dwellings.

Based on data for this type of use, maximum daily consumption will be 20,250 litres per day. By applying diversity factors, this equates to a peak demand profile of 0.93lts/sec.

5. TEST LOCATION

It was essential to select a suitable washout to induce your flow requirements on our existing network. The following three criteria have determined the location of this washout:

- a) must be located on the main proposed to supply your domestic demand;
- b) must be closest to the point of entry of your connection; and
- c) located in such a manner that when the calibrated flow gauge is operated to induce the required flow rates, the discharged water will not cause flooding of existing properties.

The washout selected was on the 6" diameter main in Green Lane, Chesterton, Bicester, Oxfordshire, OX26 1TN, which is supplied via a 3" diameter main. Please refer to appendix for plan of the test location.

6. PRESSURE LOGGER LOCATIONS

Pressure Logger locations are selected to comprehensively monitor the impact of the morning domestic peak demand profile on the existing mains network. Please refer to appendix for pressure logger location plans.

LOGGER 1. 6" MAIN IN ALCHESTER ROAD, CHESTERTON, BICESTER, OX26 1UN
LOGGER 2. 8" MAIN IN THE GREEN, CHESTERTON, BICESTER, OX26 1UU
LOGGER 3. 3" MAIN IN CHURCH LANE, WENDLEBURY, BICESTER, OX25 2PN
LOGGER 4. 100MM MAIN IN MEADOW VIEW, WENDLEBURY, BICESTER, OX25 2PU

See Appendix for the location of the site, test and pressure loggers.

7. INDUCED FLOWS

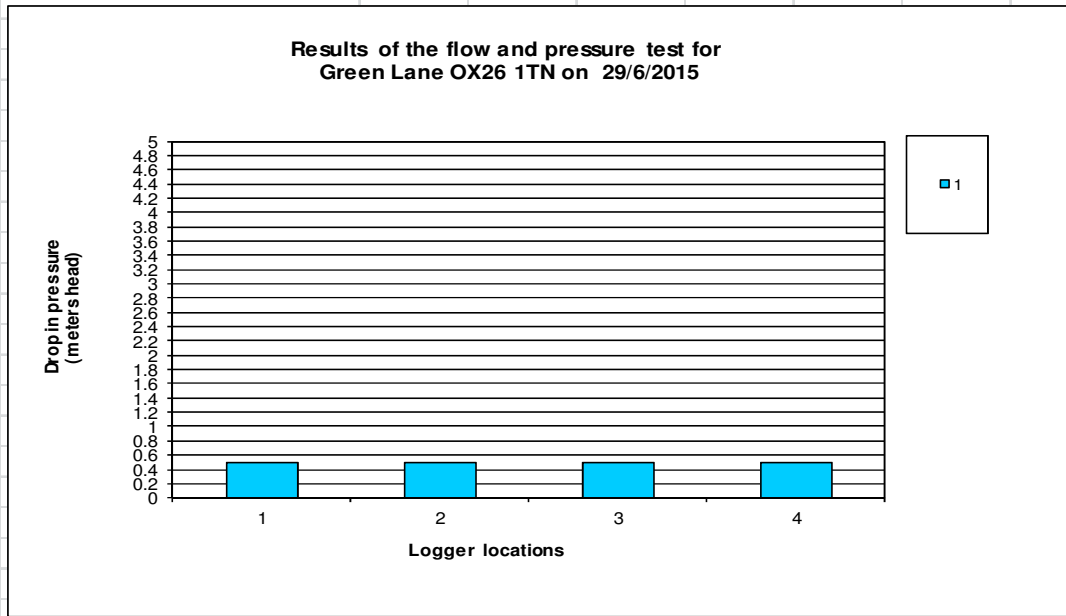
For the domestic demand, flow rate of 1.0 l/s, was induced for a 3-minute period.

The flow rate was induced during the weekday peak morning demand period, Monday to Friday 07:00 - 08:30 inclusive. The pressure loggers monitoring the investigation will show a significant drop in pressure, if the network has insufficient spare capacity to supply the new peak demand.

8. INVESTIGATION RESULTS

The investigation undertaken on 29/6/2015. All four pressure loggers provided the field data for the duration of the investigation. The drops in pressure recorded during the test are represented in the table and graph below.

Flow rates	1
Logger location 1	0.5
Logger location 2	0.5
Logger location 3	0.5
Logger location 4	0.5



These are within acceptable levels and show that the mains network is capable of supplying your proposed development and no offsite main reinforcement is required, however a mains extension from the existing 8” diameter main in Green Lane to the site entrance will be required.

The result of the seven day pressure logger showed the minimum pressure available at the site was 32.50 meters head, (3.2Bar). This occurs at approximately 22.00hrs

It is expected that on completion and occupation of the development, there would be a reduction of approximately 0.5 metres head.

Please note that irrespective of the pressure which currently exists within the local mains network, Thames Water’s minimum level of service is 10 metres head of pressure at the boundary stop valve.

See Appendix for the results graph of the 7 day pressure logger.

9. CONCLUSION

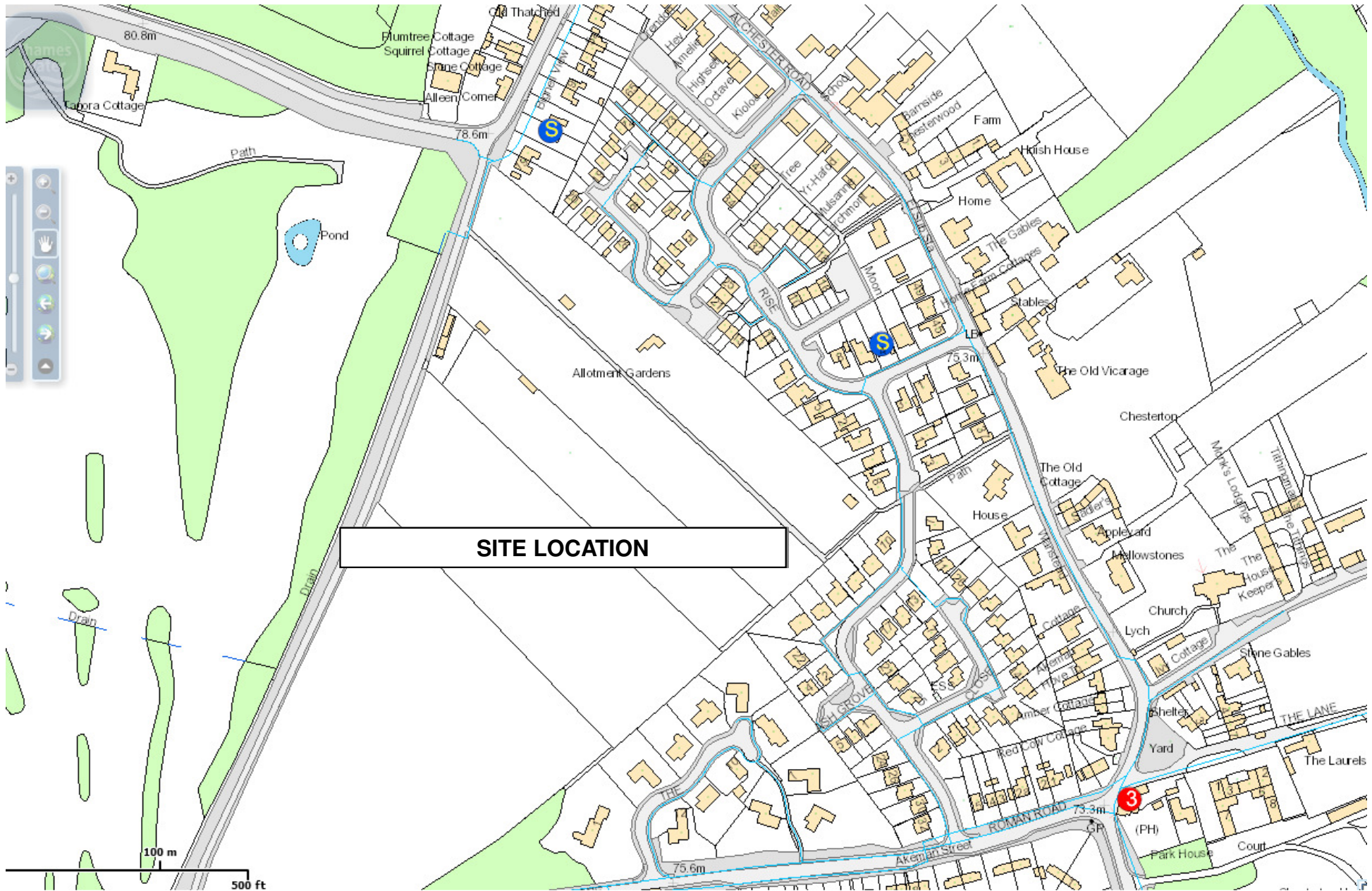
The result of the investigation has established the following: The network has sufficient spare capacity in the distribution mains network to supply your peak demand profile for the proposed development and no mains reinforcement is required at present, if there are any proposed changes to this redevelopment, this report would become invalid and a further test would be required.

10. BUDGET COSTS

Lay approximately 330 metres of 125 mm diameter HPPE water main from the existing 8" diameter water main in Green Lane to site laid within the carriageway.

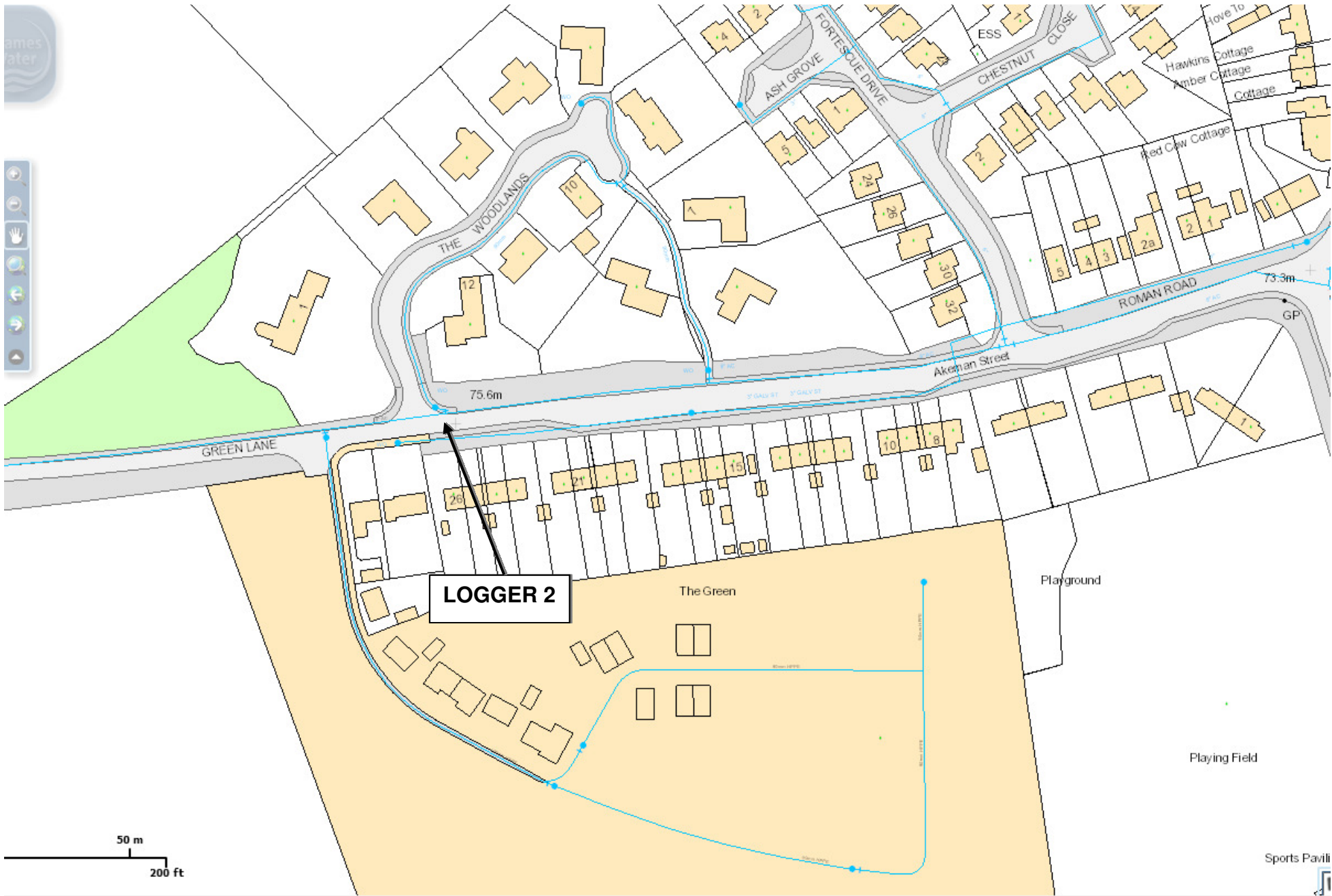
Budget full costs £82,500.00 however a Lump Sum Contribution of £14,830.00 will be applicable based on the 45 proposed dwellings.

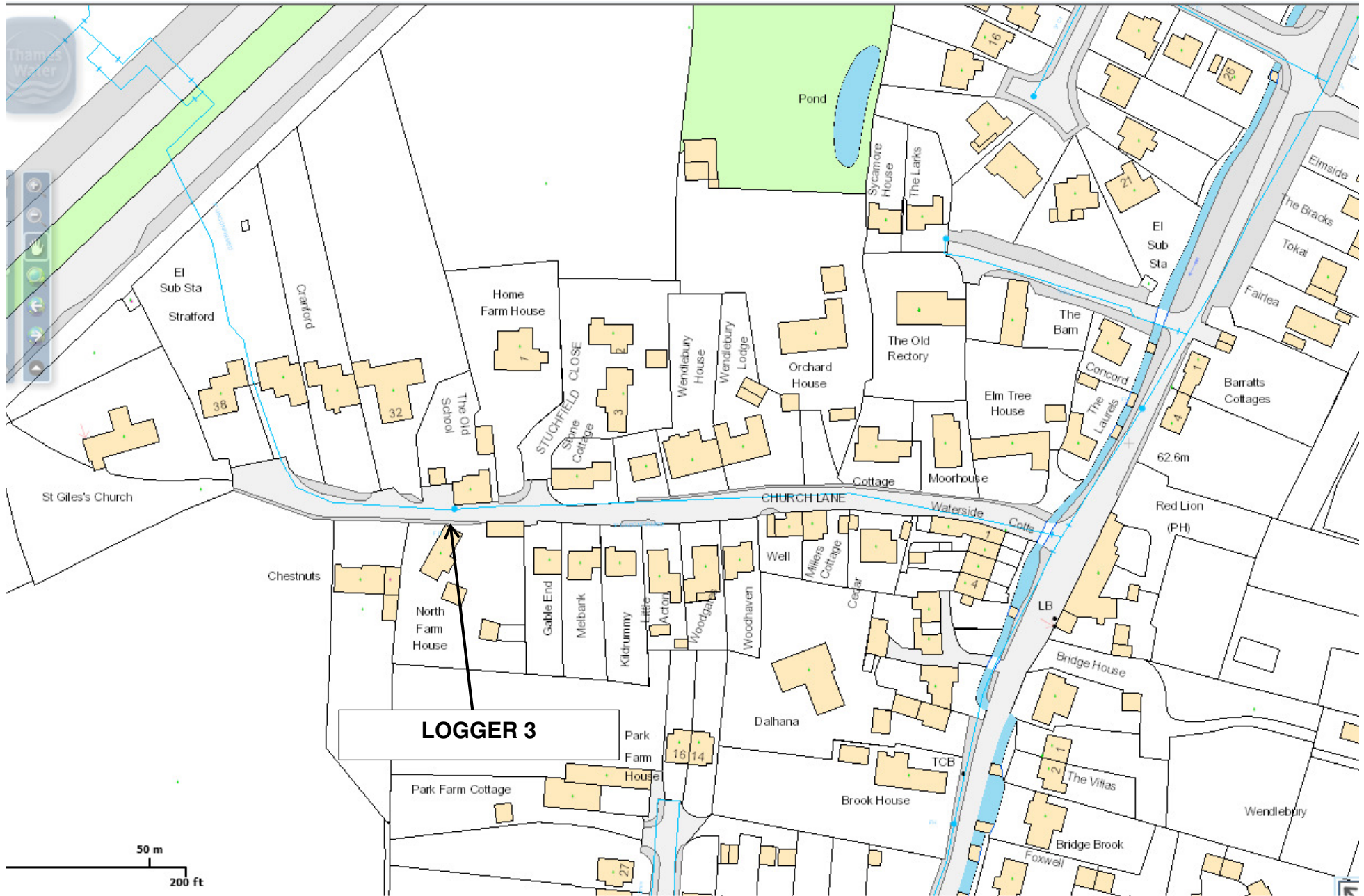
APPENDIX

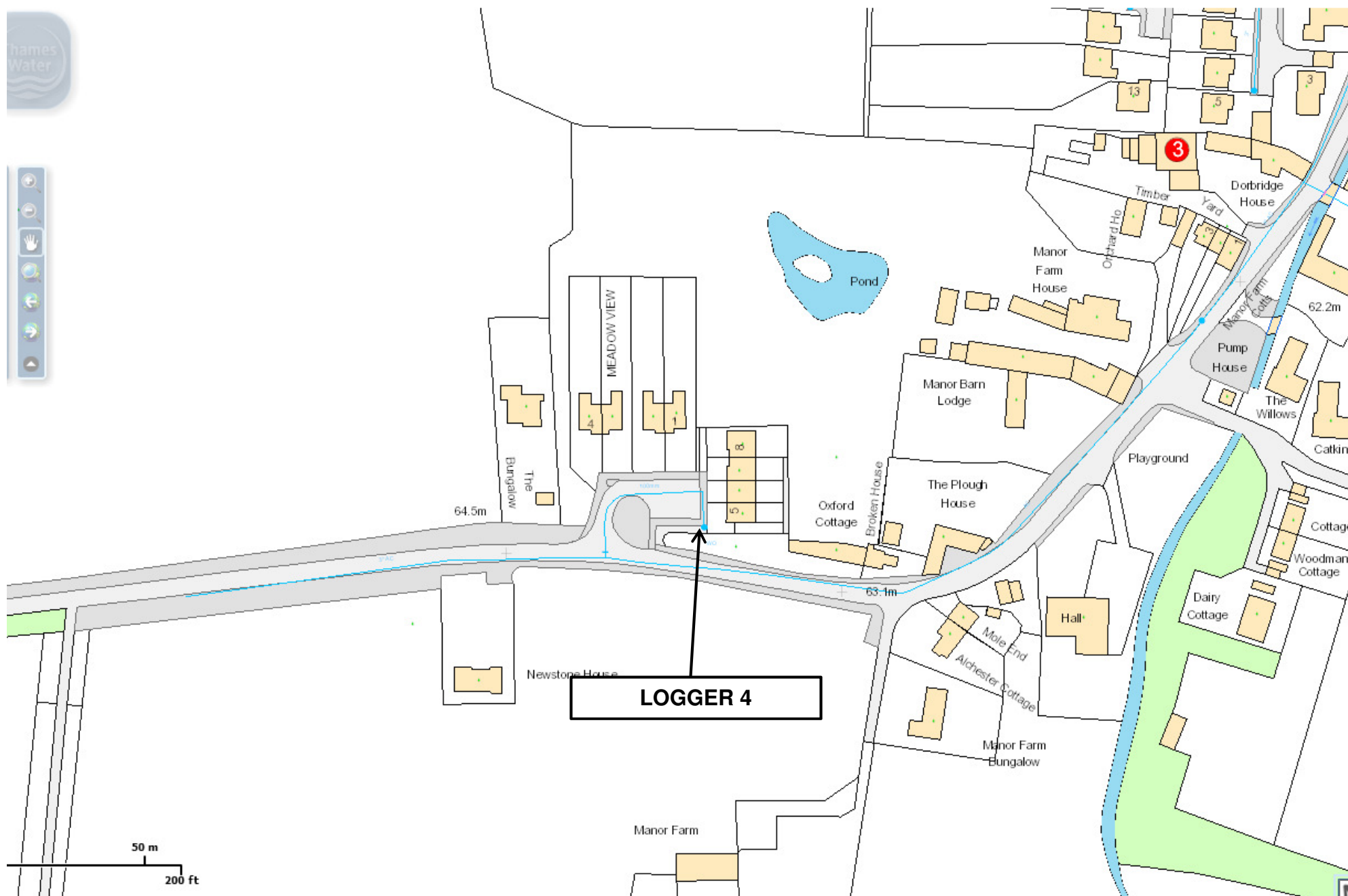




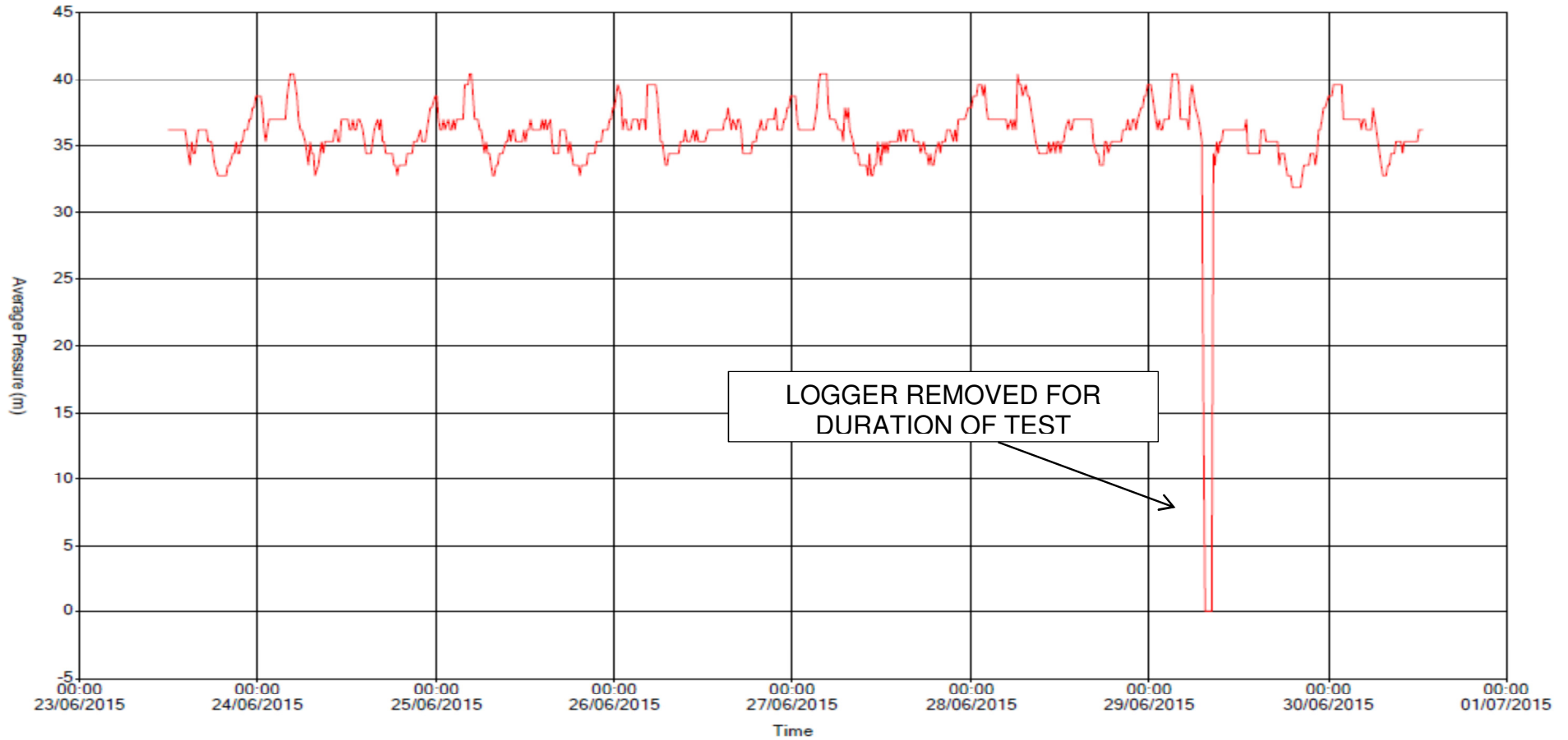








7 DAY PRESSURE TREND FOR GREEN LANE CHESTERTON OXFORDSHIRE OX26 1TN.
MINIMUM PRESSURE 32.50 METRES HEAD MAXIMUM PRESSURE 40.50 METRES HEAD



PLEASE NOTE THAMES WATER'S MINIMUM LEVEL OF SERVICE IS 10 METRES HEAD AT THE PROPERTY BOUNDARY VALVE