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**ASSESSMENT OF SURFACE WATER MANAGEMENT
(SURFACE WATER DISCHARGE TO LAND)
FOR
RESIDENTIAL DEVELOPMENT AT ROTHERHAM TOP FARM,
PRESTON ROAD, WHITTLE LE WOODS,
CHORLEY, PR6 7PG.**

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1.0 Brief

John Bethwaite has been engaged to undertake an assessment of the site at Rotherham Top Farm, Preston Road, Whittle le Woods in support of evaluating the hierarchy for surface water discharge via soakaway and, if conditions are acceptable, undertake a percolation test in accordance with BRE 365.

1.1 Limitations.

The opinions expressed are based upon information received and contained in other third-party reports and data referred to.

2.0 Site Location

Located at National Grid Reference 358086 (E), 420192 (N) the site is currently a single residence comprising of a detached house, ancillary detached buildings, associated hardstanding, garden and driveways. The site is irregular in shape and covers approximately 0.46Ha. Fig 1 identifies the location of the site.

2.1 Site Proposal

It is proposed to develop part of the site, that occupied by outbuildings, garden area and driveways, with the construction of 6No new dwellings and subdivide the existing property into 2 dwellings. See Fig 2.

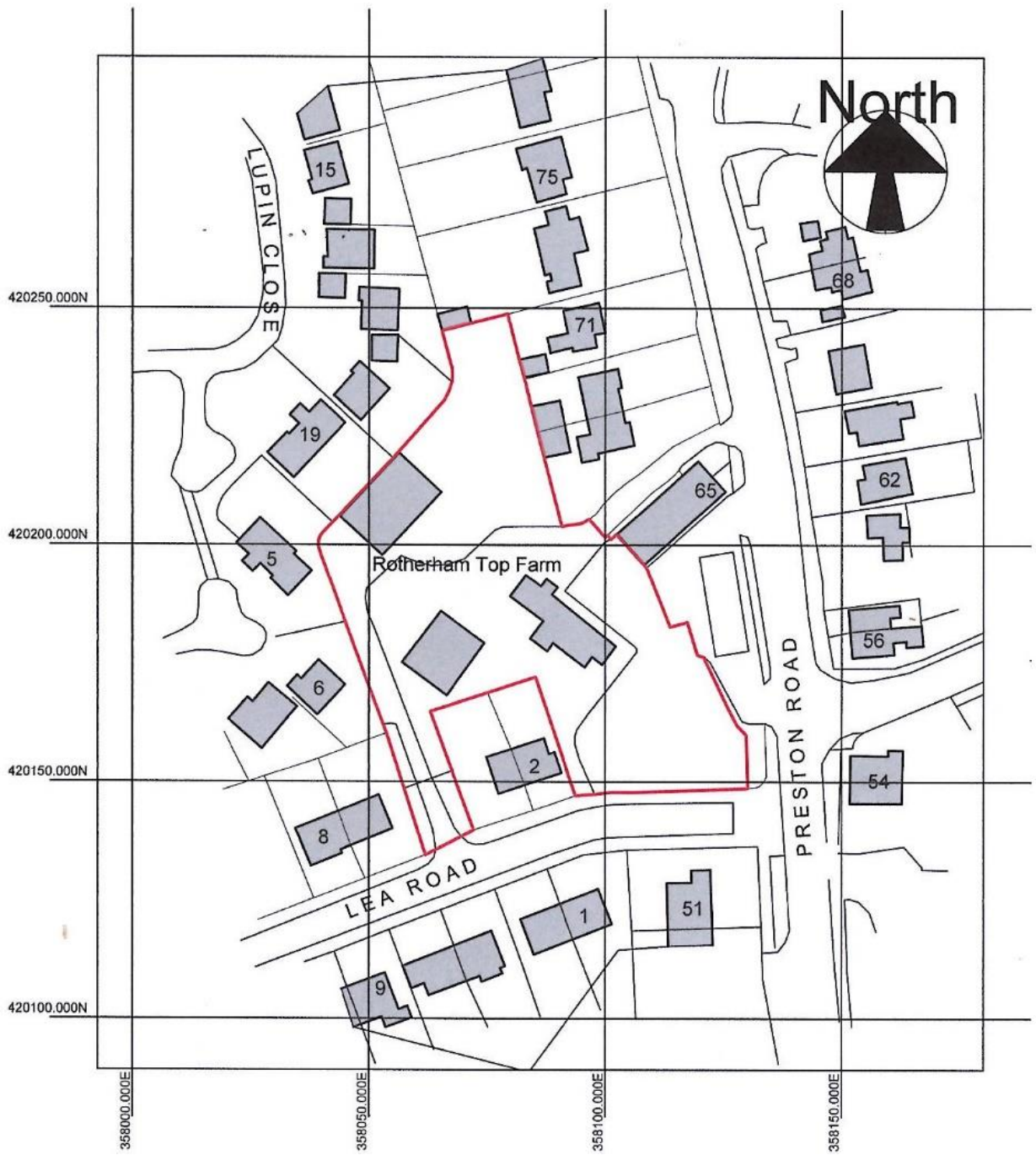


Fig.1



Fig.2

3.0 Surface Water Management

It is intended to follow the hierarchy of drainage solutions for sustainable drainage systems contained within Building Regulations and Planning Policy, however only discharge to ground, via filtration, is under consideration within this report.

4.0 Site Evaluation and Constraints.

4.1 Ground Conditions.

The site is that of a dwelling with associated garden and ancillary out buildings. A 225mm/300mm sewer crosses the site running South to North. The current garden areas and driveway are not believed to have been previously developed.

Geological data indicates that the area is of clayey soils with impeded drainage and the clay being light sandy to heavy clay.

A trial hole was excavated, "A" on the Plan Fig 3 (page 10) down to a depth of 1.8m where the upper 400mm is soil layer and the lower 1.4m being clay with no change in the strata to that depth. Left open the hole filled to 1.5m below ground level with water.

4.2 Percolation Test

Geological data indicates the area to be of clayey soils with impeded drainage and the clay being of medium to light silty to heavy clay.

The excavation of a trial pit was undertaken 1.2mx1.2mx1.0m deep, this confirmed the geological data to be correct with the upper 300mm being a top soil medium and the remaining strata down to 1.0m being firm clay.

As a result of the clay conditions a small-scale test was undertaken in accordance with BRE365 with a further 300x300x300 excavation to the bottom of the trial pit. The clay at this point being soft to firm. The 300mm deep hole was filled with water and left 24 hours. At 24 hours the water level had not reduced. See Pics 1-3.

After 2 days the hole was cleared of water and the 300mm deep hole extended, by mechanical auger, down to 1.8m below ground level and a further test undertaken. After 24 hours the water level had increased by 100mm. This may be a result of the water table. See Pics 4-8. The pictures show the waterline at the beginning of the test at 1350mm below ground level. 24 hours later the water line was at 1150mm below ground level.

Given the clay present for the whole excavation the results were expected and added weight to the ground not being suitable for land irrigation.

The carrying out of a trench test was not undertaken given the nature of the subsoil conditions encountered and the results obtained by the lesser test. The excavation identifying that any trench soakaway would have no permeability to the trench sides for at least a 1.8m depth. It is presumed that the water table at this current time could be at a depth of 4m.



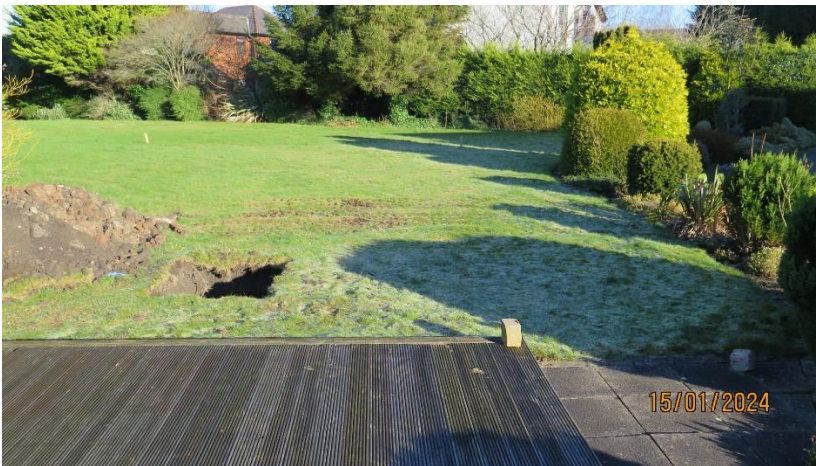
Pic 1



Pic 2



Pic 3



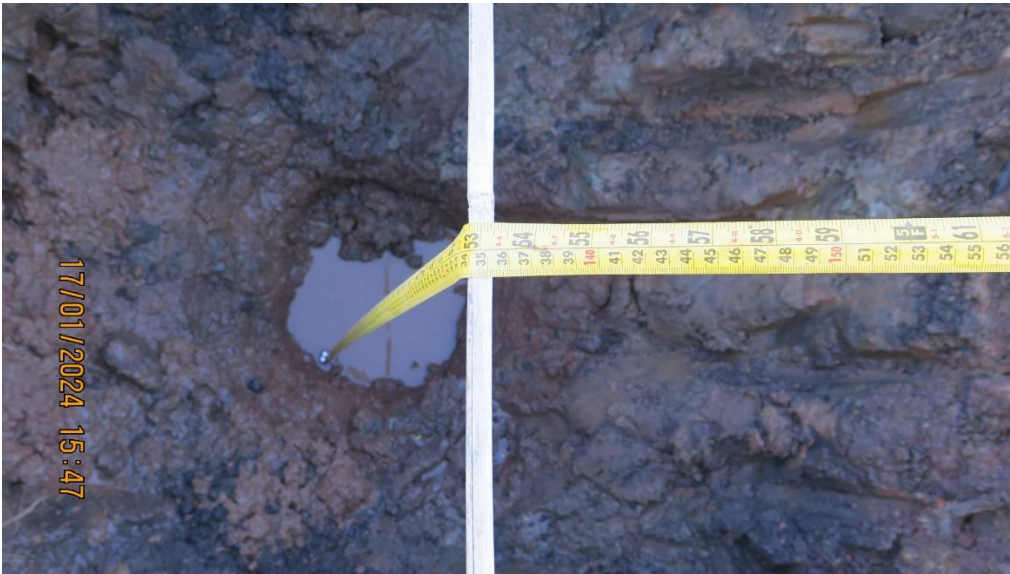
Pic 4



Pic 5



Pic 6



Pic 7



4.3 Site Constraints

4.3a Buildings.

The site is compact and comprises of 6 new dwellings which are shown in Fig 2. and it can be seen that the individual plots are limited in size.

Legislation requires that the location of the soakaway or soakaways be a minimum 5.0m from foundations of buildings.

Figure 2 shows the foundation constraint with a green broken line.

4.3b Boundaries.

The current recommendation is for soakaways to be a minimum 2.5m from any site boundary. This is indicated with a red broken line on See Fig 2.

4.3c Trees.

An Arboriculture survey and report has been undertaken as part of the Planning application and this has identified the trees both within and adjacent to the site together with their respective tree root protection zones.

Excavations within the Tree Protection Zones are not permitted and this will impact on the positioning of any soakaway. These are indicated with a purple solid line on Fig 2.

4.3d Roads.

Building Regulations requires that soakaways are located a minimum 5.0m from any road. Indicated with a blue broken line on Fig 2.

The cumulative impact of the site constraints can be clearly seen on Fig2 and the only areas not impacted by constraints, and thus able to facilitate soakaways are shown in a light blue hatch.

The existing sewer and its associated easement are highlighted in a light brown hatch on Fig 2.

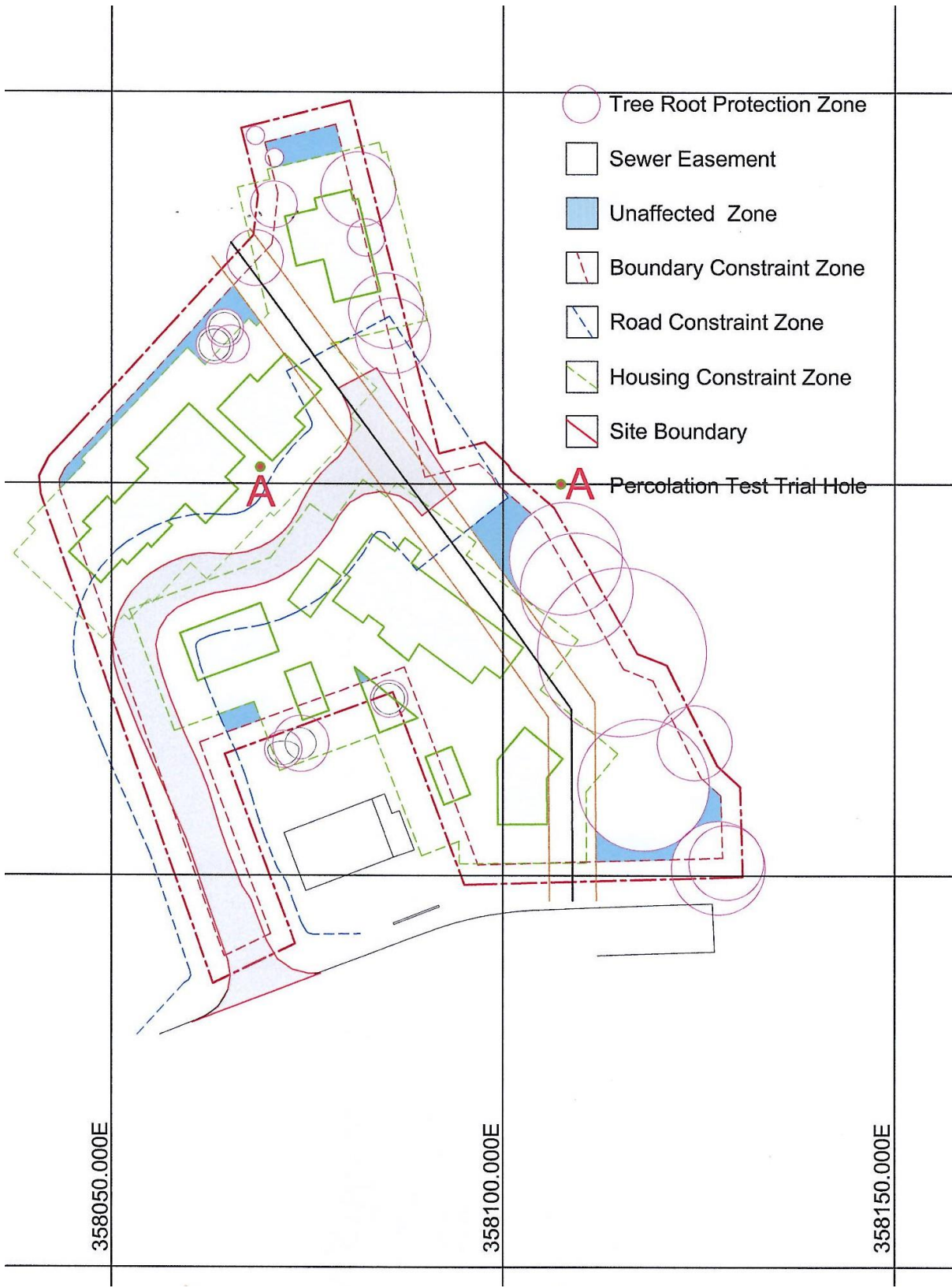


Fig 3.

5.0 Conclusion.

Figure 3. shows the impact of the collated dimensional constraints imposed on the location of any soakaway and it can be seen that the area available for a soakaway is limited. A token percolation test in conformity with BRE 365 has been attempted however as a result of the clay subsoils and ground water, the test proved negative.

At this time, I can only conclude that the site is not suitable for the surface water drainage being discharged to land. There are no nearby water courses to facilitate surface water discharge and I would conclude that the next option to investigate would be by way of the onsite combined sewer. Consultation with United Utilities should be undertaken to further this possible option in accordance with the hierarchy for sustainable drainage systems.