



HORNING STATEMENT OF FACT

Issue Date: April 2022

Summary

A conventional sewerage network in the Riverside area of Horning has proven to be unsustainable due to changes in ground conditions and prevailing hydrology in the area.

Ground conditions in this area are the cause of structural failures of both the public sewerage network managed by Anglian Water and privately-owned drainage network. Soil in the area is predominantly peat over laying crag (sand and gravel), which is porous and has low cohesion and as such is subject to continual movement. This results in displaced pipe joints and collapse due to lack of ground support. This is endemic in the area and will affect both the public sewerage and private networks. When combined with the permanently high-water table this results in a high level of groundwater infiltration.

Also, in times of river flooding much of the area is underwater resulting in inundation to the public and private foul water (FW) drainage networks through multiple and various points.

It should be noted that much of this excess surface water ingress is not intentionally connected but enters the system through defects and overland flooding.

Horning Knackers Wood Water Recycling Centre (WRC)

The river flooding and groundwater infiltration into the network results in the WRC being flow non-compliant. However, an assessment of legitimate flows to the WRC based on both potable water supplied to the area and on the population it serves shows the WRC would be compliant with its permit without the excess surface water ingress. If circumstances allowed for the FW sewerage network to operate within the intended parameters, the WRC would be compliant with its permit.

Historic Investigations

Date	Investigations by Anglian Water
2000	Groundwater/surface water Infiltration along Ferry View Road found that large scale groundwater/surface water inundation was present as a result of damage to private laterals.
2002	CCTV survey was undertaken
2014	Sewer rehabilitation scheme completed
2015	Excess flows still an issue at Ferry View Terminal Pumping Station
2016	Survey identified infiltration into both public and private systems together with surface water connections
2017	Horning Flooding Assessment undertaken – conclusion; continued settlement of the ground leads to more operational issues.
2018	Horning Road sewer collapse, refurbishment of subsided sewer on Ferry Road completed Feb 2018
2018	Requests made to property owners to remove surface water connections
July 2021	CCTV surveyed the sewers connecting in Ferry View Road and Ferry Road
Aug 2021	Further survey work in Ferry View Road

Rainfall Data

From the investigations completed it is likely that the amount of rainfall is not the most significant influence on the sewerage system. There are some direct surface water connections to the FW network, however, the impact of these is insignificant compared to the impact of river/ground water infiltration.

Groundwater Levels

The groundwater level is directly linked to the river level. Much of the public sewerage network is below the low water level of the river and the surrounding soil type is porous

Highway Drainage

The road gully on Ferry Road is connected to the foul sewer. Various discussions have taken place with the Norfolk County Council as Local Highway Authority and Lead Local Flood Authority, North Norfolk District Council as Local Planning Authority, businesses and the Environment Agency regarding its removal. The highway at this location is unadopted and the ownership of the gully has not been established.

Long-term Flooding Vulnerability

Climate change observation and predictions indicate increases in high river levels and the frequency of high flow conditions. This will expose more of the FW networks to surface water inundation and may also increase ground movement around pipework, leading to more points of infiltration.

Next Steps

Anglian Water will continue to operate and maintain the public sewerage network in Horning and will respond to loss of services as appropriate.

We will continue to discuss with the Environment Agency and look at other possible interventions in relation to WRC compliance and the operation of the public sewerage network.

We would like to address the following issues related to privately owned drainage, which can only be achieved through continued partnership working:

- Ferry Road, 2No. private chambers to be sealed
- Ferry Cott Lane manhole 5702 seal chamber to prevent infiltration
- Ferry View Road manholes 6401 and 6504 and 1No. private chamber to be sealed to address ground water infiltration
- Ferry View Road connection of private lateral and sewer to be repaired to eliminate source of groundwater infiltration
- Ferry View Road pumping station, raise cover level and install new sealed cover to prevent surface water entering the wet well

Our Water Recycling Long Term Plan (WRLTP) outlined a scheme, then proposed in business plan, to increase dry weather flow (DWF) at Horning Knackers Wood WRC. However, this will not improve the existing issues of infiltration. Consequently, we have not committed to the increase of DWF at the WRC, as we need to understand the impact of the infiltration removal work to be able to correctly design for the increase in capacity. Whilst recognising the challenges of the geology and hydrology the increase in permit DWF will be reviewed alongside other actions.

However, as the issues are predominantly related to river flooding, it involves assets outside of our ownership and prevailing environmental conditions that compromise standard drainage techniques / practices. Therefore, there is no immediate engineering solution available to Anglian Water that can provide effective mitigation of the impact of the excess surface water ingress. Furthermore, Anglian Water does not have the remit under WIA 1991 to entirely fund all solutions.

New Development

When assessing planning applications, we comment on the capacity within the foul sewerage network on the basis of catchment and flows it was intended and designed to accommodate. When necessary and appropriate, we may request planning conditions for development sites connecting to the public foul network, that reflects practicable limits that a developer could implement to ensure the addition flow can be accommodated at the agreed point of connection. The provision of additional capacity downstream of the point of connection is the responsibility of Anglian Water.

All opportunities to prevent and reduce the amount of surface water ingress to the foul sewerage network will also be taken and we will collaborate with developers to exploit these opportunities where practicable.

We will also work with other organisations to ensure that the impacts on the FW sewerage are understood by those tasked with managing surface waters.

We are keen to ensure the FW sewerage infrastructure is adequately considered upfront without unduly blocking development, whilst continuing to safeguard operational performance.

Conclusion

Groundwater and surface water infiltration continually occurs to both the public sewer and private drainage systems, despite various attempts to rectify. The higher the river level the more drainage network is below the water table and the worse infiltration becomes. In high river level conditions flooding to the riverside area occurs and the sewerage system is inundated. The continued infiltration results in the WRC breaching its Dry Weather Flow Permit.

Climate change is likely to affect prevailing environmental and hydrological conditions, which will further adversely impact the FW drainage networks.

Ownership of the highway drain has yet to be confirmed and whether it drains directly to the foul sewer or pumped direct to the river continues to be unresolved.

We have a duty to protect our assets and we have already gone beyond this duty to ensure options have been considered and investigated. Anglian Water have held various meetings between all interested parties including the Lead Local Flood Authority, Environment Agency, Local Planning Authority and members of the public.

There is no single engineering solution which can be provided by Anglian Water and the issues being experienced primarily relate to continued existing infiltration and inundation. Also, as the effected assets included private drainage and the impacted roads are in private ownership, the *need* does not easily meet investment criteria for either Anglian Water or other stakeholders. Therefore, identifying partnership funding has proven difficult.

As stated above we will work with developers and all interested parties to ensure a suitable drainage strategy is developed which mitigates any flooding and environmental risk from proposed development sites. We will work within both the Water Industry Act 1991 and Town Planning legislation and request planning conditions where appropriate.