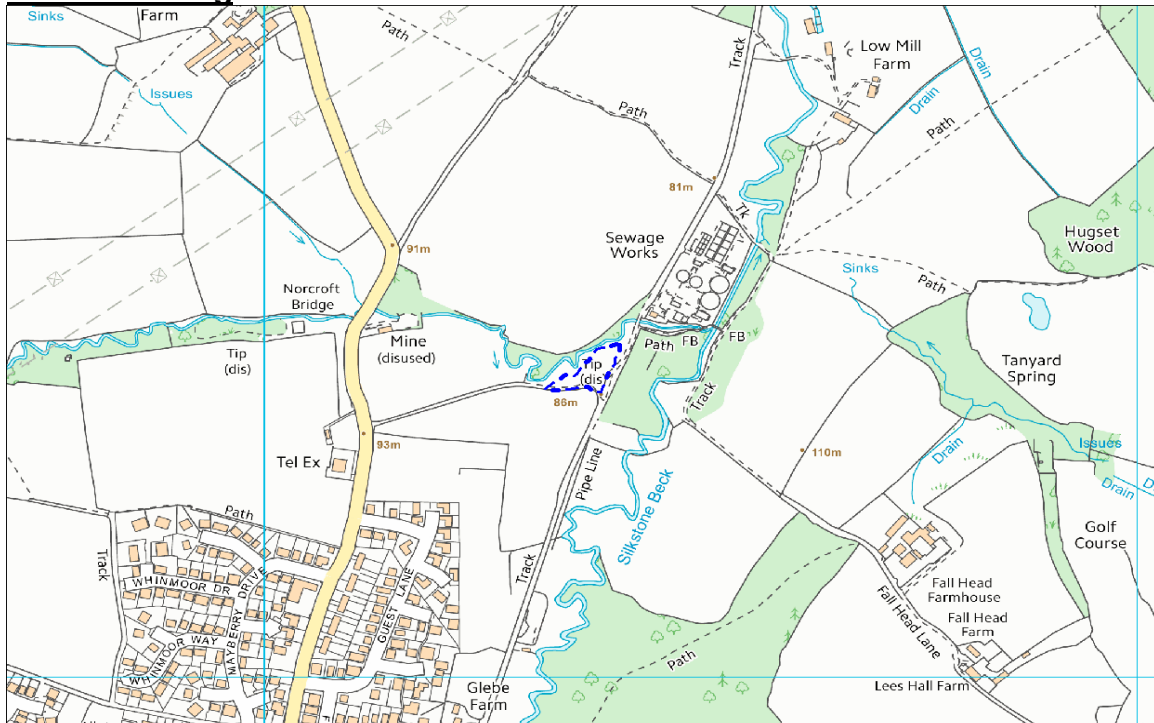


P2-83810-i24 Phase I

<SITE NAME>

Active Layer: B_2000_640

1.0 Site setting



Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. All rights reserved 100022264 (2015)

This site is situated close to the village of Silkstone to the west of the town centre. The site occupies a disused 'Tip' which lies adjacent to Bank Bottom Dike. There is open ground to the south of the site, while similar open ground lies across the dike to the north. There is an area of woodland to the east, beyond which is Silkstone Beck, with the confluence of Beck and Dike next to a sewage works to the northeast. A short distance to the west of the site is a disused mine, while to the southwest is the village of Silkstone

2.0 Site Geology



Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. All rights reserved 100022264 (2015)

This area is situated upon the Lower Coal Measures formation (LCM) which dominates much of the underlying geology in this part of the borough. The site itself lies upon bands of Cyclic Sedimentary Rock, i.e. mudstone and shale (indicated in grey), which is largely overlain by Alluvial Deposits (indicated in yellow) associated with Silkstone Beck. There are bands of LCM Sandstone (indicated in green) to the north and east of the site

3.0 Surface hydrology

There are no surface hydrology features upon the site itself. The nearest surface water feature is Banks Bottom Dike which lies adjacent to the northern boundary of the site

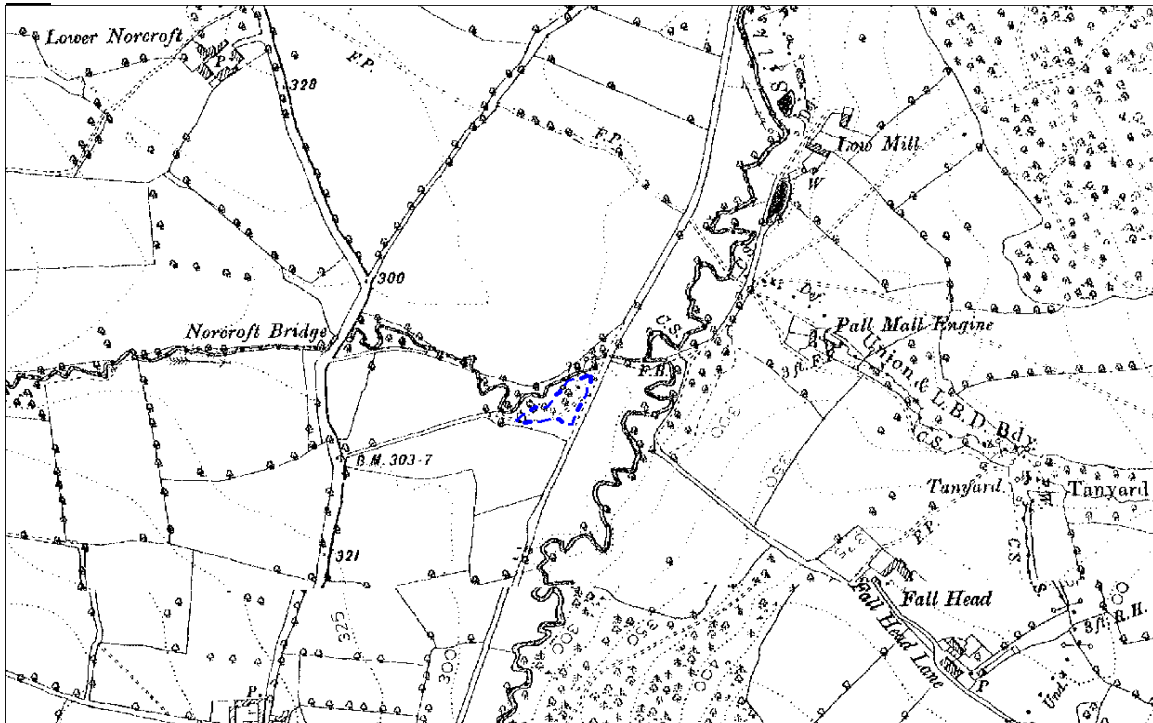
4.0 Site Hydrogeology

Water Environment		Aquifer Designation			
		Principal	Secondary A	Secondary B	Unproductive
Distance to Nearest Surface Water Feature	<50m	HIGH	HIGH	HIGH	MEDIUM
	50-150m	HIGH	MEDIUM	MEDIUM	LOW
	>150m	MEDIUM	LOW	LOW	LOW

This site is situated upon an aquifer designated as **Secondary A**. This refers to the presence of permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. This, combined with the close proximity of surface water features, means that the overall risk to the water environment from potential contamination at this site can be regarded as High

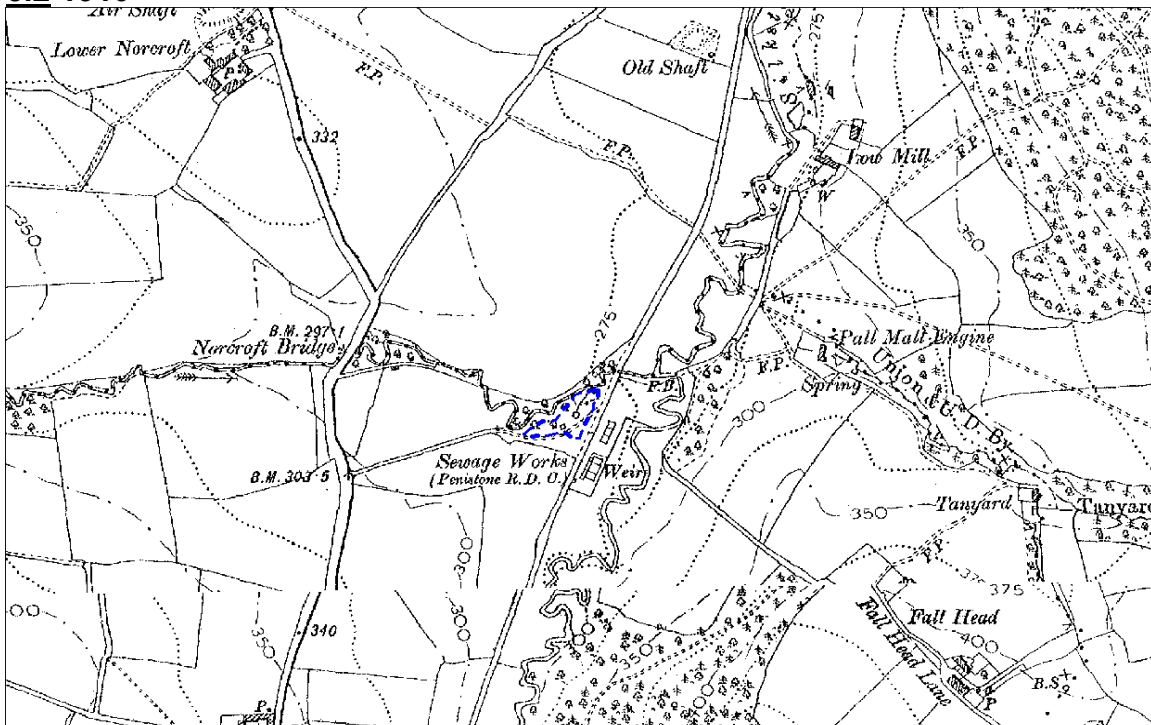
5.0 Site History

5.1 1895



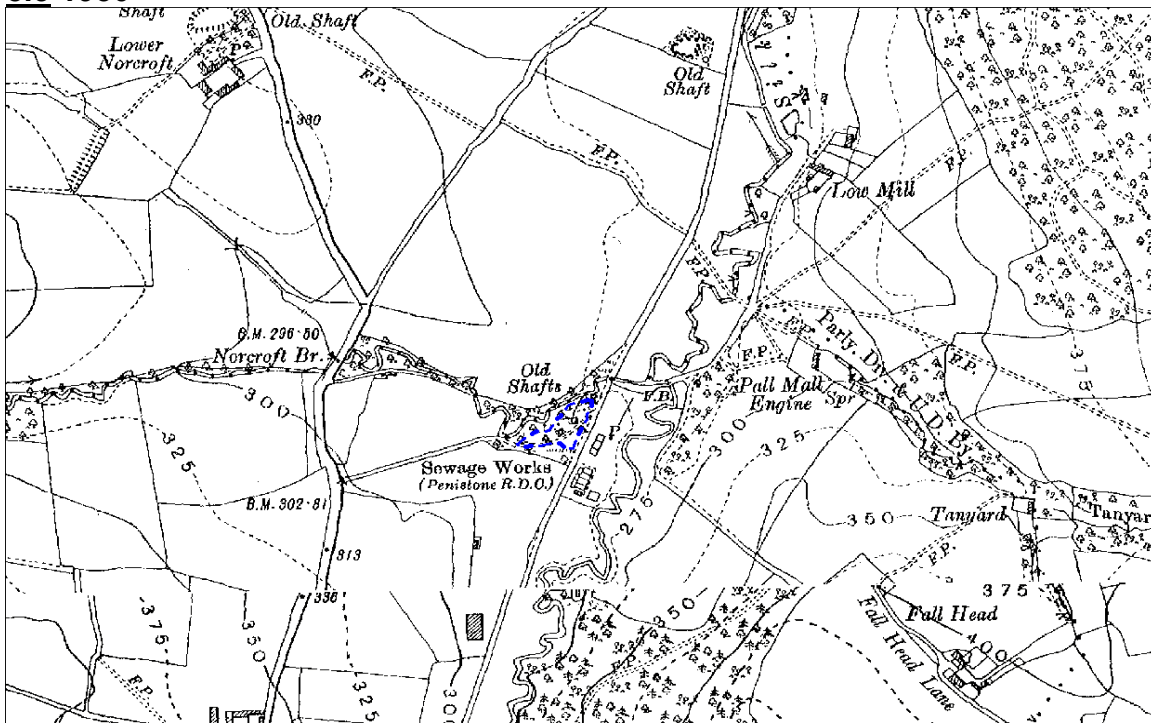
The site occupies a small area of woodland or shrub adjacent to a small stream. The surrounding area is overwhelmingly agricultural in use

5.2 1910



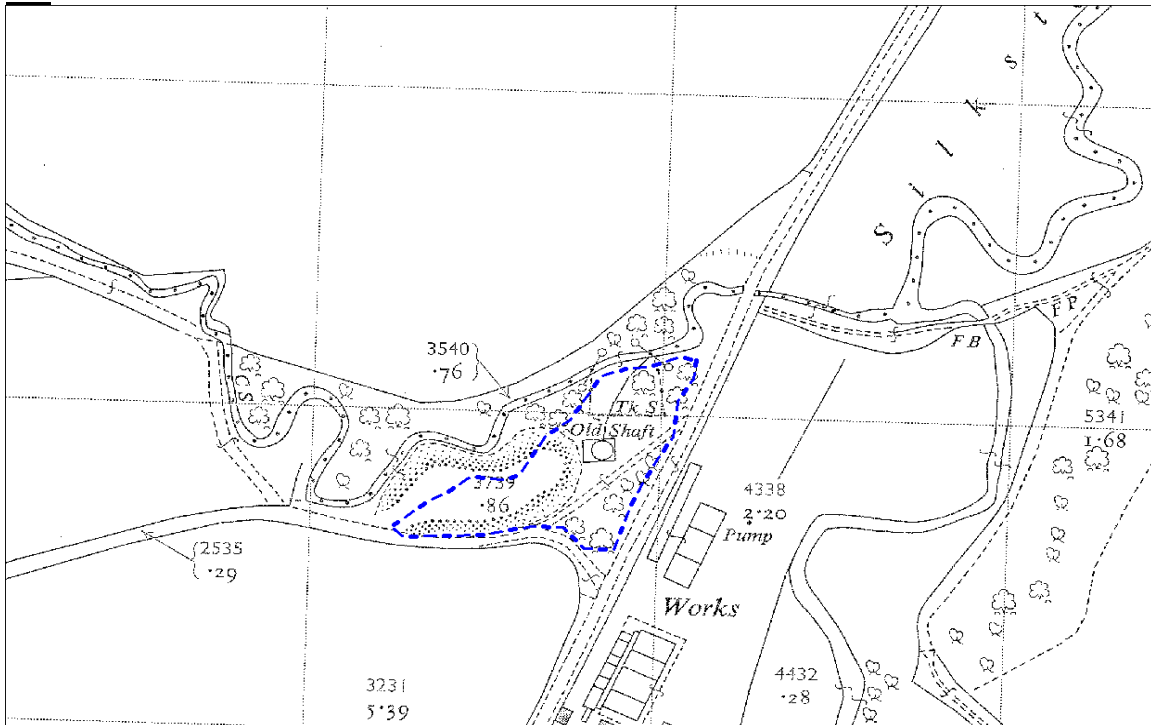
There is now a sewage works to the east of the site, but little other change is apparent

5.3 1930



The site now features a number of 'Old Shafts' indicating mining activity in the area

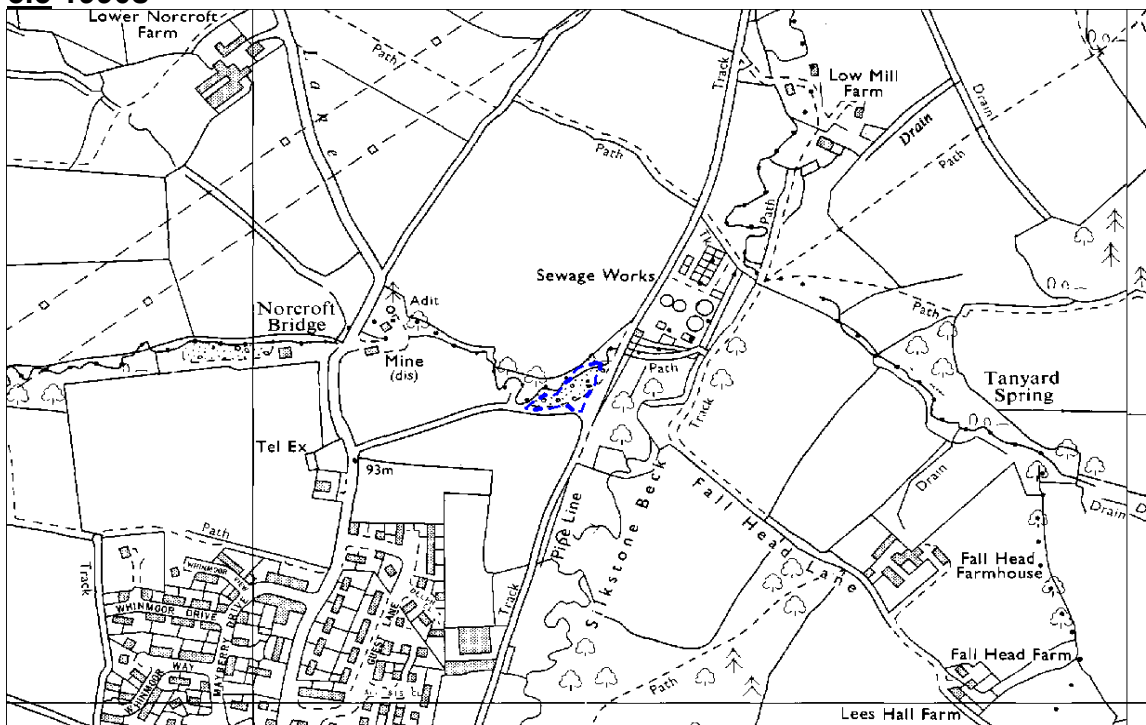
5.4 1960s



Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. All rights reserved 100022264 (2015)

There are now spoil deposits on the site, but little change to the surrounding area

5.5 1990s



Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. All rights reserved 100022264 (2015)

The site is now completely covered in spoil, while a mine has been established and abandoned to the west. The sewage works have been redeveloped and moved to the north

Summary

The site does not appear to feature any specific use on the earliest maps, while the surrounding land was also largely undeveloped. The 1910 map indicates that a sewage works was established to the east of the site, while by 1930 there are 'Old Shafts' labelled on site indicating some mining activity. By 1960 there are also spoil deposits present, with spoil covering the whole of the site and a mine being established and abandoned by 1990. Planning records indicate that the site may have been part of a joinery operation in 1991, but this is unlikely to have directly affected the site

6.0 Conceptual Model

Sources

There are several potential sources of contamination to be considered for this site. The site appears to feature spoil deposits, most likely associated with the Mine which operated to the east. This spoil will contain elevated concentrations of heavy metals such as arsenic and chromium as well as PAHs like benzo[a]pyrene. There is also evidence of mine shafts on the site itself and this could result in mines gas being generated in the workings below the area and

migrating to the site using the abandoned shafts as preferential pathways. Gas may also be present from the adjacent former sewage works site which is likely to have processed significant quantities of organic waste. If that residual waste were subjected to anaerobic decay, methane and carbon dioxide gas may be generated

Pathways

The pathways that must be considered for this site include ingestion, dermal contact, direct contact, inhalation, asphyxiation and explosion. There may be a period of migration from source to receptor via the air or the unsaturated zone prior to the activation of individual pathways

Receptors

The receptors that must be considered for this site include site users, adjacent site users and controlled waters

Linkages

Source	Receptor	Pathway	Risk	Comments
Spoil	Site users, Adjacent site users, Controlled waters	Ingestion, Dermal contact, Direct contact, Inhalation(dust)	LOW	While spoil deposits remain present upon the site, there is little to suggest that a pollutant linkage is present. There are no identifiable receptors that would come into sustained contact with the site and there is no evidence of a water quality problem in the nearby watercourses
Mines gas	Site users, Adjacent site users	Inhalation, Asphyxiation, Explosion	LOW	There is no evidence of mines gas being an issue in this area and certainly not in shallow workings such as the ones found here. Even if gas were to arise on the site, there are no buildings in which gas can accumulate either on the site or nearby
CH ₄ & CO ₂ from the decay of buried organic matter	Site users		LOW	There is nothing to suggest that such gas is being generated at the adjacent former sewage works site. Even if such gas was to arise on the site, there are no identifiable receptors to be affected

7.0 Conclusion

Part IIA of the Environment Act 1990 defines contaminated land as being;

“any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that-

- (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) pollution of controlled waters is being, or is likely to be, caused”

It is unlikely, given the current land use and ground cover, that this statement could be applied to this site. While there is an extensive history of potentially contaminative activity on this site and spoil material remains uncapped, there is nothing to suggest that a pollutant linkage exists given the current use of the site. Any redevelopment would require further investigation