5.0 CONTAMINATION APPRAISAL

5.1 Outline Conceptual Model

The development proposals for this site will include the construction of new residential properties, with associated gardens and areas of hard landscaping.

Historically, the site has been occupied by farm and mill buildings since the earliest historical maps in 1851. A mill race and mill dam were present crossing the northern section of the site until the 1960s when they were infilled. Contaminants could arise from the infilling of the mill race and mill dam on site. These could include metals/metalloids, sulphates and hydrocarbons.

During the site walkover, above ground tanks were noted in the northern area of the site which showed some spillage of fuel onto the ground beneath the tanks. It is therefore expected that some localised hydrocarbon contamination will be encountered. Fuel spillages or leakages may also have occurred around the existing farm buildings where vehicles have been stored. A petrol station is also located around 50 m south west of the site which could result in hydrocarbon contamination of the ground due to groundwater flow, although this is generally considered unlikely.

The site and surrounding land is has been predominantly agricultural or residential in nature for the past 100 years at least. It is possible that some naturally occurring slightly elevated concentrations of heavy metals such as lead, arsenic or nickel may be present. It is also possible that elevated concentrations of PAHs such as benzo(a)pyrene may also be present in near surface soils due to atmospheric fallout. Such contaminants may pose a potential risk to human health.

The groundwater table is expected to be at shallow depth. The site overlies a Secondary A aquifer, and does not lie within a groundwater source protection zone. A potential risk to the aquifer is unlikely to be presented. However, a potential risk to surface water may be presented if contaminated materials are present and if those contaminants are found to be potentially mobile, where they could enter the River Don or the Scout Dike.

The site may be at risk of ground gases such as methane or carbon dioxide if significant volumes of biodegradable wastes or organic materials are present within the former mill dam or mill race, or if these features are of significant depth.

No radon precautions are required.

5.2 Possible Pollutant Linkages

Contaminant	Pathways	Receptor
• Elevated concentrations of hydrocarbons or PAHs in the area surrounding the above ground fuel tanks. • Localised fuel spillages around existing buildings where farm machinery has been stored. • Elevated concentrations of heavy metals and PAHs within any made ground present. • Naturally elevated concentrations of heavy metals and PAHs in the natural soils.	• Ingestion, inhalation, direct contact.	• Future residents and visitors. • Construction workers.
	• Leaching and migration	• River Don • Scout Dike
	• Root uptake	• Plants
• Sulphates within soils.	• Direct contact.	• Below ground concrete.
• Ground gases including methane or carbon dioxide from historical mill race and mill dam on site if biodegradable or organic materials are included within the infill	• Migration through ground	• Future residents and buildings.