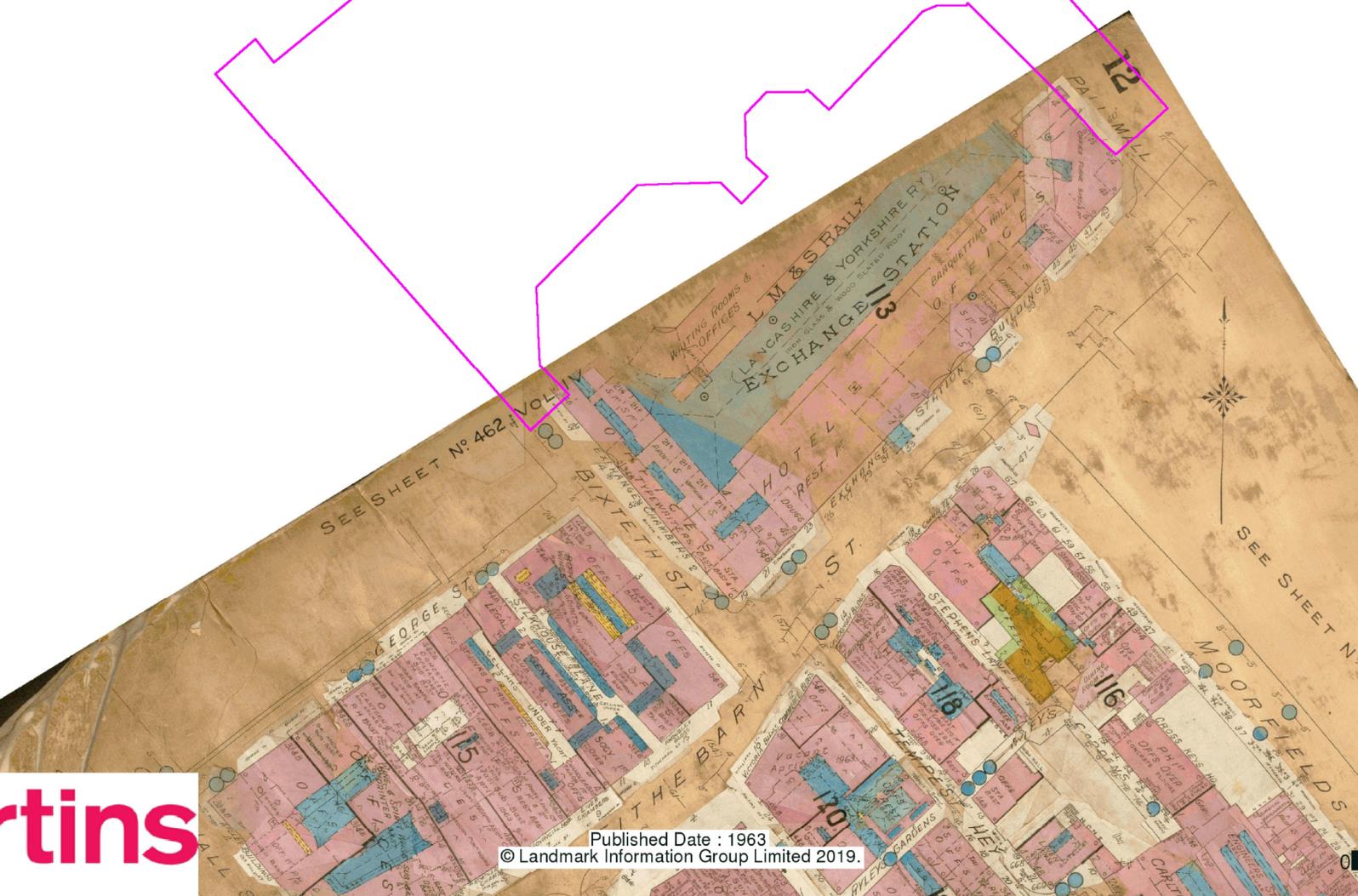
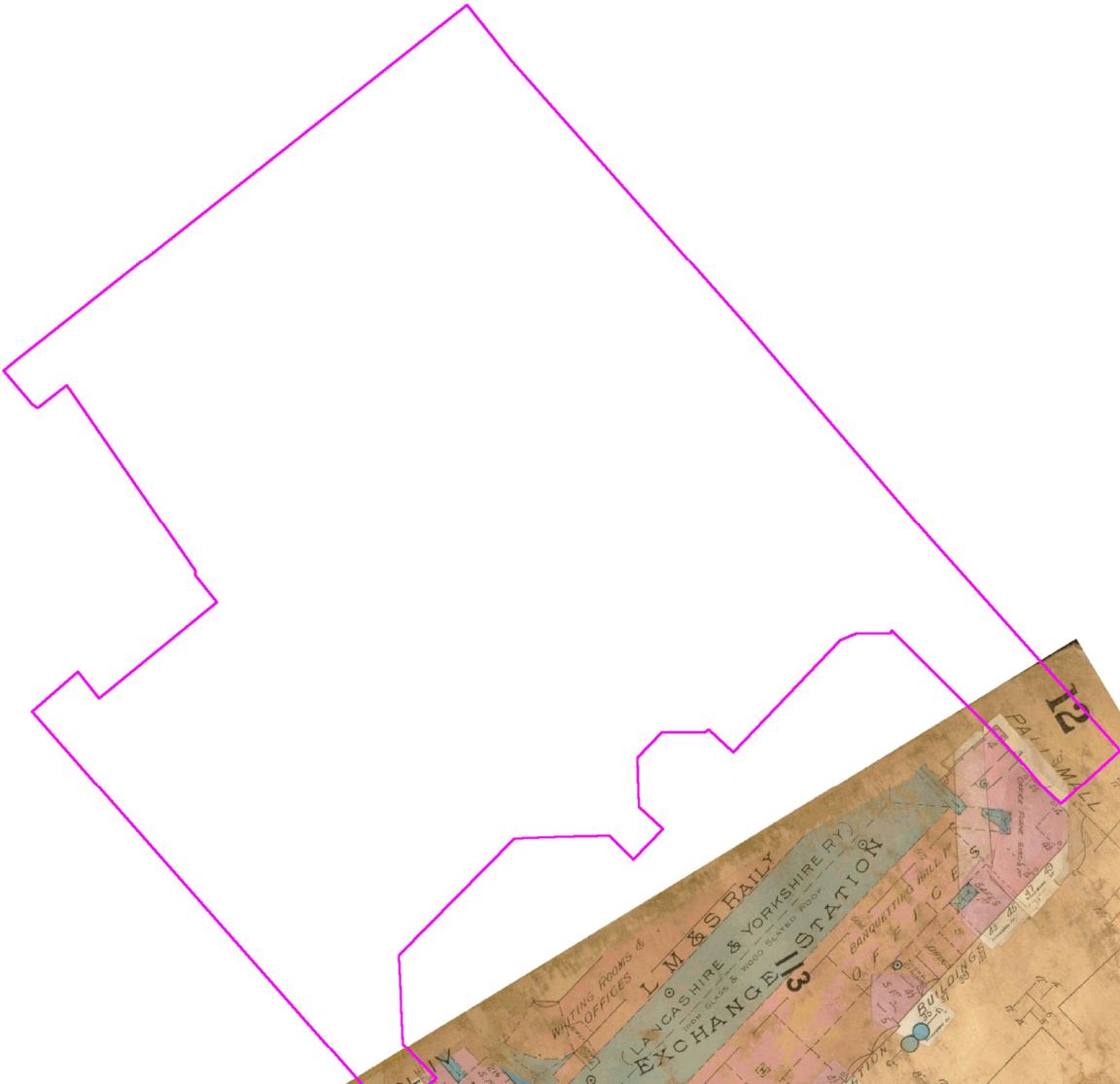
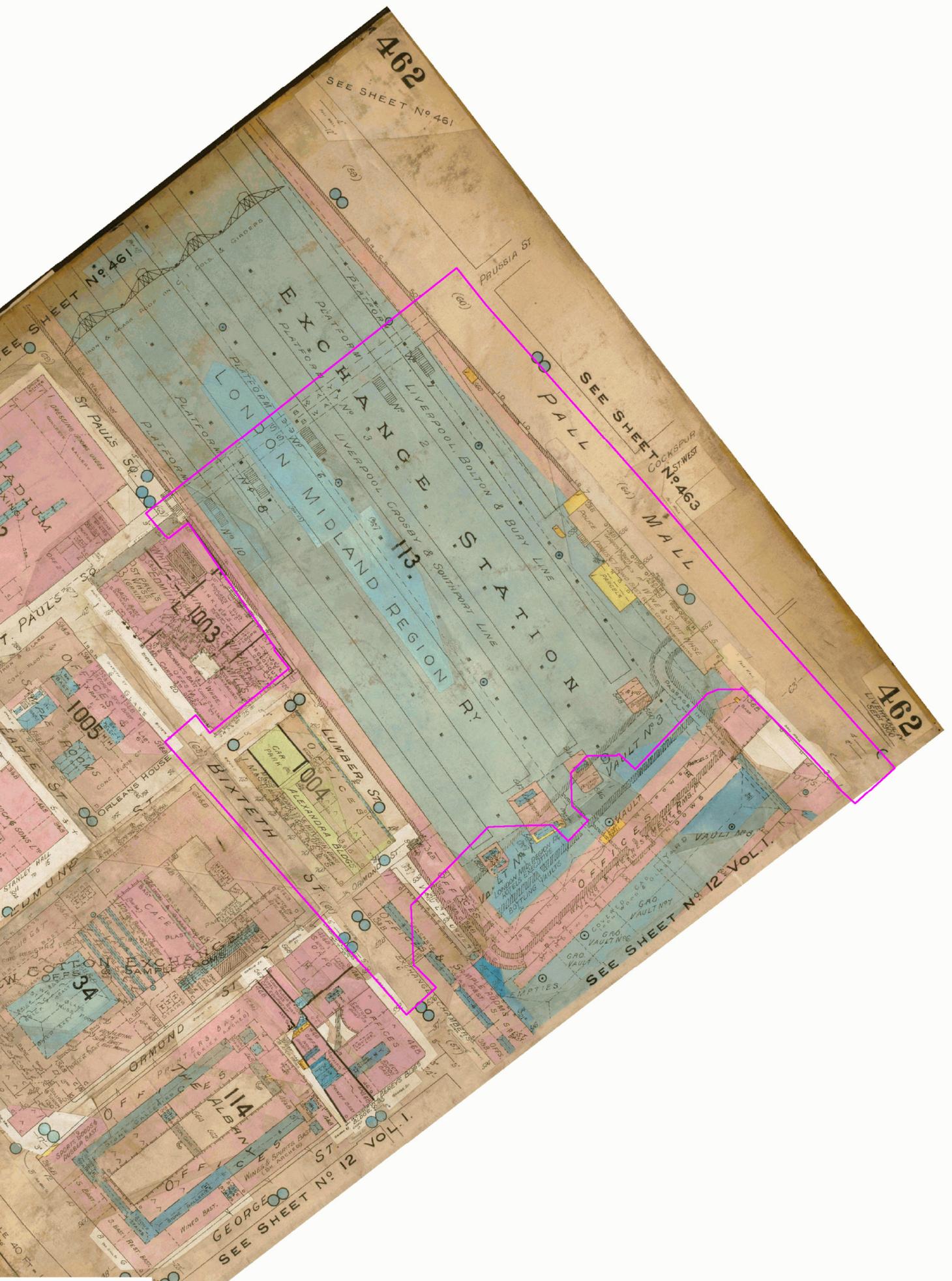


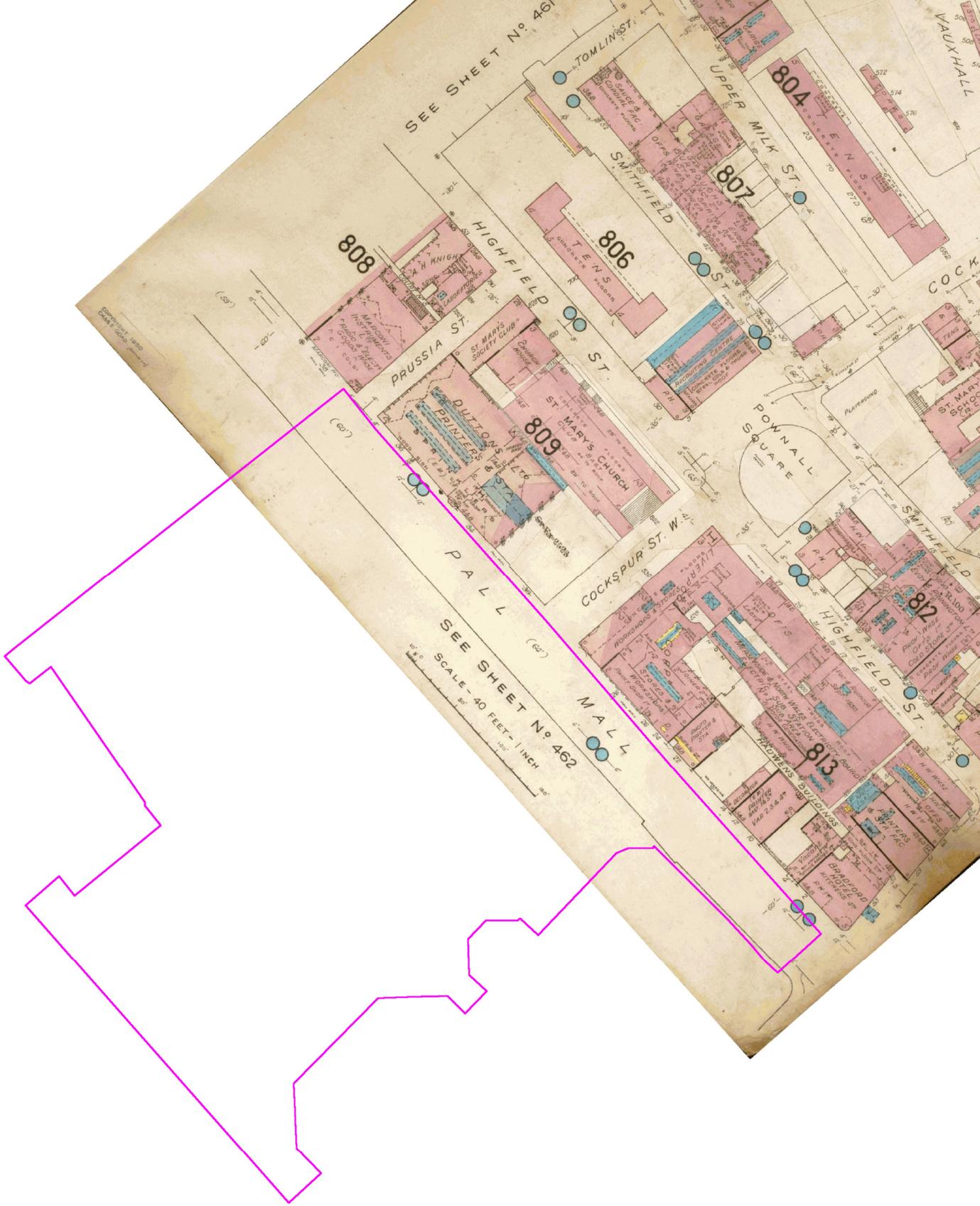
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Appendix C – Qualitative Risk Assessment Rationale

The site-specific risk assessment, presented in this report, follows the principle of establishing whether there is a viable linkage between a contaminant source to a potential receptor, via an exposure pathway.

The risk assessment corresponds with the total site area and incorporates both descriptive (qualitative) and, where available, numerical (quantitative) lines of evidence.

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risk to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected to the source by one or several exposure pathways such as direct contact for example. Risks are generally managed by isolating the receptor or intercepting the exposure pathway or by isolating or removing the hazard.

Without the three essential components of a source, pathway and receptor there can be no risk. Therefore, the presence of contaminant source on a site does not necessarily mean there is a risk.

The risk assessment considers the likelihood of a particular event taking place (accounting for the presence of the source and receptor and the viability of the exposure pathway) in conjunction with the severity of the potential consequence (accounting for the potential severity of the hazard and the sensitivity of the receptor).

In the risk assessment the consequence of the hazard has been classified as severe or medium or mild or minor and the probability (likelihood) of the circumstances actually occurring classified as high likelihood or likely or low likelihood or unlikely.

The consequences and probabilities are subsequently cross-correlated to give a qualitative estimation of the risk using Department of the Environment risk classifications as detailed in the table below and as referenced in CIRIA C552.

| | | Consequence | | | |
|-----------------------------|-----------------|-------------------|-------------------|-------------------|-------------------|
| | | Severe | Medium | Mild | Minor |
| Probability (Likelihood) | High Likelihood | Very High Risk | High Risk | Moderate Risk | Moderate/Low Risk |
| | Likely | High Risk | Moderate Risk | Moderate/Low Risk | Low Risk |
| | Low Likelihood | Moderate Risk | Moderate/Low Risk | Low Risk | Very Low Risk |
| | Unlikely | Moderate/Low Risk | Low Risk | Very Low Risk | Very Low Risk |

In accordance with DoE guidance, the following categorisation of **consequence** has been developed.

| Classification | Definition | Examples |
|----------------|--|---|
| Severe | Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem. | <p>High concentrations of cyanide on the surface of an informal recreation area.</p> <p>Major spillage of contaminants from site into controlled water.</p> <p>Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).</p> |
| Medium | Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of such ecosystem. | <p>Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria.</p> <p>Leaching of contaminants from a site to a Principal or Secondary A aquifer.</p> <p>Death of a species within a designated nature reserve.</p> <p>Lesser toxic and asphyxiate effects</p> |
| Mild | Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment. | <p>Pollution of non-classified groundwater (inc. Secondary B aquifers).</p> <p>Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).</p> |
| Minor | Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services. | <p>The presence of contaminants at such concentrations that protective equipment is required during site works.</p> <p>The loss of plants in a landscaping scheme.</p> <p>Discoloration of concrete.</p> |

Phase 1 Preliminary Risk Assessment

In accordance with DoE guidance, the following categorisation of **probability** has been developed.

| Classification | Definition |
|-----------------|---|
| High Likelihood | There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution. |
| Likely | There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term. |
| Low Likelihood | There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term. |
| Unlikely | There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term. |

In accordance with DoE guidance, the following categorisation of **risk** has been developed.

| Classification | Definition |
|----------------|--|
| Very High Risk | There is a <i>high probability</i> that <i>severe harm</i> could arise to a designated receptor from an identified hazard at the site without appropriate further action. |
| High Risk | <i>Harm is likely to arise</i> to a designated receptor from an identified hazard at the site without appropriate further action. |
| Moderate Risk | <i>It is possible</i> that without appropriate further action <i>harm could arise</i> to a designated receptor. It is relatively <i>unlikely</i> that any such harm would be <i>severe</i> , and if any harm were to occur it is <i>more likely</i> that such harm would be <i>relatively mild</i> . |
| Low Risk | <i>It is possible</i> that <i>harm could arise</i> to a designated receptor from an identified hazard. It is <i>likely</i> that, at worst, if any harm was realised any effects would be <i>mild</i> . |
| Very Low Risk | The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor. |

The term 'risk' in this instance refers to the risk that the source, pathway, receptor linkage for a given source of contamination is complete. It does not refer to immediate risk to individuals or features present on the site from potential contaminants and is intended to be used as a tool to assess the necessity of further investigation.

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