10.0 Qualitative Risk Assessment

The land use considered is as follows;

Residential with home-grown produce

The land use of a site dictates the pathways present from contaminant sources to receptors. The pathways for each land use being considered by this Report are outlined in Table 1 and are summarised below.

Following the completion of the site investigation, laboratory testing and field monitoring; the Phase 1A Preliminary Conceptual Site Model (Drawing 72054/9005, Appendix 1) can be updated based upon these findings. The Updated Conceptual Site Model is provided below:

10.1. Source Characterisation

The potential sources of contamination identified from a review of historic land uses and the recent phases of ground investigation have been updated. The revised sources of contamination are as follows:

Soils: Made Ground/Natural Deposits

- Elevated concentrations above limits of detection of Heavy Metals (Arsenic, Chromium, Copper, Lead, Nickel and Zinc)
- Poly Aromatic Hydrocarbons (PAH's)
- pH and Sulphate
- Ground Gases (Carbon Dioxide)
- Depleted Oxygen

Waters (WBH06)

- Elevated concentrations above limits of detection of Heavy Metals (Arsenic, Cadmium, Copper, Lead, Mercury, Nickel, Selenium and Zinc)
- Poly Aromatic Hydrocarbons (PAH's)
- pH and Sulphate

10.2. Pathway Characterisation

Human Health

- Inhalation of dusts or ground gas/vapours;
- Ingestion of dusts or soil either by hand-to-mouth activity or by eating plants grown in contaminated soils;
- Dermal (skin) contact with contaminated soils and waters and transfer of contaminants through the skin into the body; and
- Ingress of contaminants into water-supply pipes contaminating drinking water supplies.

Buildings, Property and Services

- Soil gas or vapour pooling in voids within or beneath structures;
- Direct contact of building fabric with contaminated soils; and
- Service trenches acting as preferential migration pathways.

Water Environment

- Leaching of contaminants from the soil to on-site groundwater; and
- Migration of contaminated groundwater to off-site groundwater

Flora

- Direct contact with contaminated soils or groundwater or;
- Uptake of contaminants into the plant leading to adverse impact.

10.3. Receptor Characterisation

- Human Health: Site users
- Construction and Maintenance Workers
- Buildings, Property and Services
- Flora (landscaped areas)

10.4. Qualitative Risk Assessment of potential pollutant linkages

Following the findings of the site investigation, this Section discusses the effectiveness of the potential pollutant linkages for each receptor identified above.

Table 16 details the Qualitative Risk Assessment of potential pollutant linkages for identified sources of contamination as presented in Section 3.0.