

5B Contaminated Land and Demolition

Evidence

- 5.12 The SDNPA commissioned a number of studies to find out more about contaminated land and demolition. In 2018, JBA Consulting undertook a Preliminary Geotechnical and Geo-Environmental Assessment Report¹² and a Preliminary Building Condition, Safety and Demolition Assessment Report¹³. In 2021, the SDNPA commissioned CGL to undertake a Programme of Works Report for Land Contamination¹⁴. CGL also managed a separate consultant report - Hazardous Materials (Chemical) and Demolition Costings survey¹⁵ undertaken by Aver.



Biodiverse green roofs on residential and commercial buildings to mitigate runoff and provide habitat for various species (Credit: Susdrain)

- 5.13 The information contained within the reports is based on site visits, consideration of historical records, published and unpublished records and information from public authorities.
- 5.14 Within the **Riverside** there is potential for widespread diffuse contamination associated with the made ground plus specific point sources. The underlying geology includes alluvium which has the potential to be a limited source of ground gas. The site operated as a standard wet, water-based process with the kilns being coal-fired so there were no bulk use/storage of petroleum fuels in the process.
- 5.15 The **Bowl** area was licensed as an inert landfill during the latter half of the twentieth century to dispose primarily of cement kiln dust (CKD). This is a significant by-product material of the cement manufacturing process and is characterised by a very high sulphate and alkaline pH; the fill depth of the CKD is likely to be considerable. CKD is unlikely to be suitable for re-use in areas where future users may be exposed to it, for example, public open spaces or where it may pose a risk to controlled waters without capping or treatment to lower the pH of the CKD materials. It is unlikely to be a suitable medium for landscaping and promoting plant growth.
- 5.16 Made ground and alluvium deposits can be a source of ground gas where an appreciable depth / organic content is present. If present, degradation of hydrocarbons/organic chemicals can also produce organic vapours and ground gases.

¹² Preliminary Geotechnical and Geo-Environmental Assessment Report, JBA Consulting, 2018

¹³ Preliminary Building Condition, Safety and Demolition Assessment Report, JBA Consulting, 2018

¹⁴ Programme of Works Report for Land Contamination, Removal of Existing Buildings and Drainage Investigations at Shoreham Cement Works, CGL, 2022

¹⁵ Hazardous Materials (Chemical) and Demolition Costings survey, Aver, 2022

Elevated concentrations of methane and carbon dioxide were recorded in a location above the former lagoon located in the Bowl.

- 5.17 The **Moonscape** is vacant and unused. This area is the highest and most recently quarried and is enclosed to the north, east and west by old quarry walls. Overall, this area is considered to present a low risk of contamination.
- 5.18 In terms of demolition, the survey and report by Aver noted that the buildings generally have tin-sheet roofs, but asbestos-cement cladding to the walls. These surfaces are coated in a layer of solidified cement dust that increases the sheet weights. It is most likely that mechanical demolition of these features will be the appropriate method of asbestos cement sheet recovery. As would be expected for a former cement works, layers of cement dust are present through all of the buildings on ledges/steelwork.
- 5.19 The site has already been stripped of valuables/cable/non-ferrous items, including transformers and switchgear.
- 5.20 No asbestos management plan/file has been received, but it would appear that the bulk of the asbestos hazards, excluding cement sheet, have already been removed. Asbestos cement sheet debris is present in many locations, but no great stockpiles of this material were observed.
- 5.21 No access to the former Laboratory building was possible, but it appears to have been cleared-out/stripped back to a near bare-shell condition. Visually, the former Laboratory building may be reasonably sound, and could potentially be re-used.

Issues

- 5.22 The cost of remediation, the demolition of existing buildings and the protection of the **Clifflands** will impact on viability, the extent of developable land and the type of development appropriate. The reports commissioned by SDNPA do not include ground investigation work nor the analysis of the investigation results as this level of work is not appropriate for an AAP. Therefore, recommendations are made based on desk based and site walk overs and the full extent of made ground, contamination hotspots and ground gases generation is unknown.
- 5.23 The **Moonscape** is unused and presents low risk of contamination but much of it is at risk from rock fall.
- 5.24 The full extent of remediation and clean-up requirements will differ depending on sensitivity of the end user and site layout. The costs of demolishing the existing buildings has been set out in the Aver report but this has been based on a site walkover and not on in-depth survey work.
- 5.25 A large risk for the demolition is the extent/thickness of slabs and foundations. These are usually very thick in cement works, but breaking-out these foundations can be a large commercial risk. Assumptions can be made, but the true extent of

foundations and slab thicknesses will only be identified on break-out and excavation of the materials. Potentially, these slabs and foundations could be retained in-situ and re-used as part of future use of the site, but undoubtedly some re-working of these surfaces would be required

How the Issues Affect the Five Areas

- 5.26 The **Riverside** contains some made ground and has the potential for combination hotspots. There are limited demolition requirements in this area.
- 5.27 The **Cement Works** contains the former cement works buildings and demolition costs are important to the viability of the overall development. There is limited made ground in this location. There is potential for some hotspots of contamination and asbestos containing materials. Further investigation into the potential to re-use slab foundations is required. Detailed ground investigation is recommended at planning application stage to confirm the extent of made ground though the overall risk of contamination is lower than the **Riverside** area. The slope stability levels will need to be considered.
- 5.28 The **Bowl** contains inert landfill areas with a substantial amount of made ground comprising CKD and other by products of manufacturing process. It also contains the site of the former lagoon. New structures may require foundation solutions such as piled foundations and any route infrastructure may need to avoid areas of contaminated infill. Excavation/sorting and screening plus off-site disposal of all material in the top 300mm (commercial/residential without gardens) and 600mm for residential with gardens is a likely requirement for this area.
- 5.29 The **Moonscape** is vacant and unused. There are no sources of contamination. Slope stability and rock fall are important issues. Access to this area will need to be considered.
- 5.30 The potential levels of mitigation and engineering required for highly sensitive land uses (residential) in the **Clifflands** are likely to be greater than those required for less sensitive land uses such as commercial or open space. The **Clifflands** are considered unsuitable for residential uses.

Options

- 5.31 There are a number of options arising from the contamination and demolition evidence:
- It is likely that the **Riverside** area is most suitable for housing development, with or without gardens, or commercial development.
 - The **Cement Works** area is most likely suitable for a mix of housing, with or without gardens, and commercial development.
 - Light industrial uses are recommended towards the **Bowl** end of the **Cement Works** area as rock fall issues may impact on where commercial development with higher footfall/traffic movements is located.

- The **Bowl** area is most likely to be suitable for commercial development.
- The **Moonscape** is most likely to be suitable for public open space.
- The **Clifflands** are unsuitable for any development due to cliff stability.