CONTAMINATED LAND INVESTIGATION REVIEW FORM

This review is for reports which form part of a Fast Track Resource Consent Application.

ORC Scope:

- The scope is to review the attached report and to identify areas of agreement as well as any concerns, uncertainties, or gaps in the assessment.
- Focus areas include matters relevant to the ORC consenting requirements:
    - The adequacy of the site history and identification of Hazardous Activities and Industries List (HAIL) activities
    - The scope and methodology of site investigations
    - The suitability of the assessment criteria used
    - The potential for contamination to affect groundwater, surface water (including the Park Burn and Lake Dunstan), and nearby groundwater users
    - The suitability of the proposed remediation approach
    - The adequacy of proposed validation, monitoring and reporting, including any need for ongoing groundwater or cell-integrity monitoring
    - Review of any proposed conditions of consent (if provided)
    - Any other matters relevant to the ORC consenting requirements under the Waste Plan
- Identification of any gaps or additional information that should be requested from the applicant.

CODC Scope:

- As above including assessment against NESCS, human health criteria and applicability.

1. Report Details

Report Title	**Remediation Action Plan for the Parkburn Quarry at 922 Luggate-Cromwell Road (SH6), Cromwell (April 2026) - RAP**
Report Type	Remediation Action Plan with appended combined PSI/DSI report and PSI (e3S), appended in the same PDF package.
Additional Information Source(s)	Preliminary and Detailed Environmental Investigation at 922 Luggate-Cromwell Road (SH6), Cromwell (April 2026) – PSI/DSI Parkburn Quarry Preliminary Site Investigation; e3Scientific (e3S); (Dec 2021) - PSI
Date Produced	11 April 2026.
Report Author (Company)	Claude Midgley, CEnvP, MSc / JKCM Ltd trading as Insight Engineering.

Report Reviewer/Sign Off (Company)	Jana Kruyshaar CMEngNZ, CPEng / Insight Engineering.
Report Reference	24019_3 (DSI) and 24019_RAP (RAP).
Client Details	Fulton Hogan Land Development Ltd c/- Tim James Ltd.
Notes	**Reviewer note**: the uploaded PDF package contains the PSI/DSI, the RAP, and the earlier e3scientific PSI. The PSI/DSI has been used as the principal assessment document for this review, with the RAP providing the proposed remediation and validation framework.
PSI/DSI Report Overview	*"The purpose of this investigation was to assess the suitability of the site for residential subdivision, development and use, from the perspective of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations."* **Reviewer comment**: The package presents a logical progression from PSI to limited DSI and RAP. It identifies HAIL activities, confirms at least one residential exceedance in the cleanfill stockpile, and recognises visually obvious contaminant impacts that require remediation. The main limitation is that the intrusive investigation is intentionally high level and does not fully delineate all operational HAIL areas. Additionally, the remediation is recommended based on only one arsenic concentration being above the Tier 1 SCS guideline value. The very limited number of analysis completed on site along with the use of Tier 1 guidelines and exceedance of these guidelines in only one sample for one metal are not considered sufficient to trigger the need for remediation. Additional investigations are recommended to characterise the 'cleanfill' deposits in depth as well as characterise other potential sources of contamination identified in the initial PSI. Based on the additional results, a comprehensive interpretation of the data should be undertaken based on the conceptual site model and, if required, refining the Tier 1 approach.

2. Property Information

Address	922 Luggate-Cromwell Road (SH6), Cromwell.
Legal Description(s)	Part Sections 62-63 Block IV Wakefield Survey District, Part Section 63 Block IV Wakefield Survey District, Section 1 Survey Office Plan 365897, Section 4 Survey Office Plan 557380 and Sections 64-65 Block IV Wakefield Survey District.
Current Owner	Fulton Hogan Limited.
Territorial Authority	Central Otago District Council (CODC).

Regional Authority	Otago Regional Council (ORC).
Relevant Consents	■ ORC consent 99664 for solid fill to land within the operating gravel quarry. ■ ORC consent RM15.108.02.V2 for discharge of silt, sediment and water to land for aggregate washing, processing aggregate, asphalt and concrete, truck washing and dust suppression. ■ ORC air discharge consents for the asphalt plant, including RM18.376.01.V2. ■ Historic Z Energy UPSS removal reported to ORC in 2015, with residual contamination acceptable for commercial/industrial land use. **Reviewer comment**: These consents are relevant for operational discharges and site management, but they do not remove the need for separate contaminated land approvals under NESCS and ORC contaminated site / discharge rules where contaminated soil is disturbed, retained, or disposed of.
Relevant Findings from Site Walkover	*"Visible signs of contamination Bitumen residue, engine oil stains and waste asphalt millings were observed in the eastern half of the site."* *"Water in the Park Burn creek was clear and free flowing, with no evidence of contamination impacts such as chemical odours, discolouration or hydrocarbon sheen."* **Reviewer comment**: The walkover appropriately identified obvious source areas and sensitive receiving environments. The observations around clarity of the creek are useful but should not be treated as evidence that no contaminant migration has occurred historically or subsurface. Walkover completed by peer reviewer noted that the cleanfill stockpile is at a significant elevation above ground level (possibly up to 6m) and the volume of cleanfill present is considerable. Historic filling operations are unlikely to have been as well regulated as they are to date and the composition of the cleanfill cannot be considered sufficiently assessed from the findings in the DSI alone. The asphalt plant is located in proximity to the Park Burn Creek.
Site Plan from DSI Report (with sample locations if relevant)	Figure 2 shows sample locations CF1 to CF8 along the cleanfill stockpile and marks out the principal HAIL areas including the asphalt plant, concrete block manufacturing, glass recycling, cleanfill dump, contractors' yards, former orchard, generator, fuel storage and bitumen storage. **Reviewer comment**: The figure is suitable for review-level understanding. The RAP however should be updated in the next stage to include surveyed remediation area plans, containment cell extents, and notation of any residual management areas.

3. Summary of Environmental Site Assessment

Site History	*"Information obtained as part of this investigation [...] indicates that the site was used for agricultural purposes, likely as grazing for livestock and / or production of hay prior to establishment of a quarry and associated contractors' yards during the late 1980s."* *"The site also contains offices for the quarry operators [...], a concrete plant, an asphalt plant, a glass recycling area, equipment storage areas and a large stockpile of imported 'cleanfill'."* *"Approximately 1,000 m² of orchard was present on the site from at least 1958 until 1985."* **Reviewer comment**: The historical review (particularly the e3S PSI) is reasonably comprehensive and supports HAIL identification. The report appropriately links agricultural/orchard history and later industrial/quarry uses to current site risk. This is consistent with MfE CLMG No. 1 expectations for a site history review.
Identified on-site HAIL Activities	■ Asphalt or bitumen manufacture or bulk storage (E2) – asphalt plant / bitumen storage areas / visually obvious bitumen residue. ■ Commercial concrete manufacture or cement storage (E4) – concrete block manufacturing and batching areas. ■ Storage tanks or drums for fuel, chemicals or liquid waste (A17) – diesel, kerosene, waste oil, concrete additives / retardants, generator fuel storage. ■ Persistent pesticide use (A10) – former orchard area. ■ Wood treatment or preservation / bulk storage of treated timber (A18) – treated timber pole storage in the yard area. ■ Waste disposal to land (G5) – cleanfill / hardfill disposal areas and localised waste asphalt / oil / bitumen impacts. ■ Transport depot or yard type activity (F8) – contractors' / civil yards with refuelling and storage. **Reviewer comment:** HAIL identification is robust and well supported by the PSI, PSI/DSI and site observations.
Identified off-site HAIL Activities (within 200 m)	No specific off-site HAIL activity inventory within 200 m is provided in the report package. **Reviewer comment:** Neighbouring land to the north is described as quarry / commercial-industrial land, and off-site bores / discharges are documented. However, the report does not provide a formal off-site HAIL screening table. A targeted off-site source review within 200 m would be useful, particularly where groundwater or surface water pathway arguments are relied on.
Comments	**Reviewer conclusion**: The environmental site assessment is generally adequate at a planning / fast-track support level. It identifies

	the relevant HAIL activities and principal source areas. For a final residential consenting position under NESCS, the remaining operational HAIL areas and identified potential areas of contamination will still require intrusive investigation to identify any contamination at the site and, if required, their delineation, once current works are decommissioned. Based on the additional investigation, the RAP will require an update . A Site Management Plan is likely to be required.

4. Site Investigation Findings

4.1 Sampling and Analysis

Investigation Purpose	*"The objective was to determine if potentially contaminating historical activities pose an unacceptable risk to human health, or the health of ecological and environmental receptors, during and post site development."*
Investigation Location	Eight discrete soil samples (CF1–CF8) were collected from eight locations within the cleanfill stockpile in the eastern portion of the site.
Was Sampling methodology appropriate?	*"The Fast Track application does not require an exhaustive assessment of the extents of contamination impacts at the site, but rather a high-level assessment. Therefore, a limited detailed environmental investigation was undertaken."* **Reviewer comment**: The PSI is considered appropriate to support planning, however the DSI is considered insufficient to identify whether further remediation is needed, even at a high level. Investigation should be required at all HAIL areas intended for residential end use. Sampling of surface soils within the cleanfill area does not provide a representative picture of the soil contaminant profile for this part of the site. Obvious contaminant areas were not sampled because they were visually / olfactorily obvious; that is reasonable for identifying the need for investigation, but not enough to define the extents and degree of remediation required or disposal classification.
Was laboratory analysis appropriate?	*"Submit 8 soil samples to Hill Labs for analysis of either a suite of common heavy metals (As, Cd, Cr, Cu, Pb, Ni and Zn) or a suite of common heavy metals and mercury."* Metals suite: Yes, for general screening of the cleanfill stockpile. TPH / PAH / BTEX: Not analysed in the intrusive programme, despite petroleum hydrocarbons and PAHs being contaminants of concern in other source areas. OCP: Not analysed in the intrusive programme; the former orchard area is deferred to remediation-stage sampling if excavation is required. Asbestos: Not reported in the DSI intrusive programme. Other: Mercury was added at CF8 only.

	Reviewer comment: Considering the potential for uncontrolled fill within the stockpile, the lab programme is considered insufficient and should have include at least asbestos and PAH based on the material description. This contaminant suite has also not been completed for all identified HAIL areas. This should be stated clearly if the report is used beyond the current planning stage. Data Quality objectives set out in the PSI/DSI report were not met on the basis of the investigation programme completed.
Comments	*"The arsenic concentration in sample CF1 [...] exceeds the SCS for residential land use, as well as the expected background concentration and the Eco-SVG for residential land."* *"None of the concentrations of contaminants measured in other samples from the 'cleanfill' stockpile pose significant risks to human health or ecological receptors."* **Reviewer comment**: The analytical results show that at least one sample from the cleanfill stockpile exceed the Tier 1 SCS for arsenic for a residential land use. Tier 1 values are designed as screening criteria that are well below concentrations at which risk or adverse effect would actually occur. The exceedance of the Tier 1 criteria should not trigger a need for remediation without prior completion of a more comprehensive assessment of the potential risk. Based on the PSI and DSI findings, the need for remediation and appropriate option are still to be assessed. However management is likely to be required before residential use. Because only eight samples were collected from a large and variable stockpile, the findings should be treated as indicative rather than exhaustive. Further assessment would be required to provide information to inform remediation of the cleanfill area.

4.2 Ground Conditions

Soil Logs	*"Soil encountered in the 'cleanfill' stockpile was extremely variable and included silty sandy gravel with bricks, metal, plastic, textile, waste asphalt and concrete inclusions."* *"The cleanfill stockpile consists of uncontrolled fill described as 'Sandy silty GRAVELS with cobbles and occasional extraneous materials (wood, plastic, concrete)' [...] over a 1 m thick layer of pea gravel."*
Observations	*"Groundwater flows [...] through the highly permeable Late Pleistocene river deposits [...] underlying the site. Groundwater ultimately reaches Lake Dunstan, east of the site."* *"Groundwater depths in those wells ranged between 10.6 m bgl and 16.47 m bgl."* **Reviewer comment**: The combination of uncontrolled mixed fill, highly permeable gravelly soils and a sensitive downgradient receiving environment is important.

	Any proposal to retain contaminated material on site should be undertaken with caution without additional contaminant information to determine likely risks from migration or leaching of contaminants. The need for robust stormwater and containment controls are pertinent in this respect.

5. Identified Receptors

5.1 Human Health

Current Land Use	Industrial / commercial quarry support uses, asphalt production, concrete manufacture, storage yards, cleanfill disposal, and undeveloped pasture / quarry areas.
Current Surface Cover	Mixed hardstand, gravel, stockpiled fill / cleanfill, bare earth, pasture / turf and capped or reclaimed areas.
Proposed Land Use	Residential subdivision and development, with supporting commercial / community activities across the wider project.
Proposed Surface Cover	Residential finished surfaces and imported / reinstated clean soils are more likely than not to be present based on the initial plans for the site.
Soil Type / Underlying Geology	Late Pleistocene river / outwash deposits of sandy to silty gravel, with a small area of Holocene fan deposits; locally uncontrolled fill and pea gravels are present.
Comments	*"Potential risks associated with contaminants identified on site relate to dermal contact, ingestion and inhalation of soil particles (dust)."* *"Future Residential Land Use – No: Contamination impacts that pose significant risks to human health are located within the site boundaries. Remediation is required prior to residential development in those areas."* **Reviewer comment**: The report appropriately identifies the residential end use as the critical human health driver. However nuance is required as the risk statement is based only on one arsenic concentration from a very limited amount of investigation.

5.2 Ecological / Controlled Waters Protection

Nearest Surface Water Course	Park Burn creek, discharging to Lake Dunstan / Te Wairere.
Surface Water Uses	Lake Dunstan is described as used for potable water supply, recreation, irrigation and electricity generation.
Depth to Groundwater	Reported groundwater depths range from 10.6 m to 16.47 m bgl in the DSI package; e3scientific also records on-site bore depths to water from 9.9 m to 12.6 m bgl.
Groundwater Flow Direction	East towards Lake Dunstan.
Aquifer Type	Pisa Groundwater Management Zone; unconfined, highly permeable sandy gravel / cobble aquifer likely hydraulically connected to Lake Dunstan.
Groundwater Used?	Yes. The e3S PSI states there are 36 recorded bores within 1 km of the site, including irrigation, domestic, community supply and commercial / industrial uses.
On-site Sensitive Ecological Receptors	Park Burn creek, Lake Dunstan / Te Wairere, associated riparian zones, plants, soil microbes, soil invertebrates and wildlife.
Comments	*"The Park Burn creek, Lake Dunstan and the associated riparian zones are considered sensitive environments."* *"Contamination impacts that pose significant risks to ecological receptors are located in the eastern portion of the site."* *"Laboratory results below the Eco-SVGs provided in the report are considered acceptable for the protection of ecological receptors at the site"* **Reviewer comment:** The site overlies permeable gravel, and part of the site drains towards Park Burn with Lake Dunstan the final destination of any groundwater flow from site. Any containment, stockpiling or earthworks management measures should be demonstrably effective at preventing contaminant discharge to land where it may enter water. The existing report addresses this at a conceptual level through the management plan and stormwater controls, but tighter performance criteria would be required within contractor documents . We note that the 95% Eco-SGV target value was adopted in the DSI without explanation. Based on Cavanagh & Harmsworth[1], the 80% Eco-SGV target value "might be relevant to use to identify contaminated land for all land uses except commercial/industrial'. Based on the Eco-SGV selection, the likelihood of soil disturbance as part of the side redevelopment and the 95% Eco-SGV exceedance being limited to one sample for arsenic, it is considered that the risk to

[1] An implementation framework for ecological soil guideline values, Envirolink Tools Grant C09X2206, Jo Cavanagh, Garth Harmsworth, Manaaki Whenua – Landcare Research; July 2023

	ecological receptors should be refined based on additional investigation and a more robust assessment.

6. Risk Assessment

Sources Identified	■ Heavy metals in cleanfill / fill and treated timber storage areas. ■ Petroleum hydrocarbons, PAHs and bitumen associated with the asphalt plant, fuel storage and visibly stained areas. ■ Potential organochlorine / heavy metal pesticide residues in the former orchard area. ■ Localised waste asphalt, engine oil stains and other visually obvious contamination sources.
Pathways	*"Inhalation of dust; Dermal absorption (direct contact); Ingestion of soil and / or produce grown in the soil; Wind-blown dust; Sediment migration via stormwater; Leaching via stormwater infiltration."*
Identified Receptors	■ Maintenance and excavation workers. ■ Site workers and future residents / visitors. ■ Soil microbes, soil invertebrates, plants and wildlife. ■ Park Burn creek, Lake Dunstan / Te Wairere, groundwater users and neighbouring properties as potential receiving environments.
Site Characterisation	*"The contamination impacts that could pose significant risks to human health are located in well defined areas and can be easily remediated prior to, or as part of the bulk subdivision earthworks."* **Reviewer comment**: The source-pathway-receptor assessment within the Conceptual Site Model is considered appropriate as a high-level PSI Conceptual Site Model. The DSI investigation are not sufficient to assess the level of risk for future residential use as well as relevant remediation. The characterisation within the report is robust for identifying where potential risk exists, however does not provide much detail on level of contamination, lateral / vertical delineation and waste classification for each source area. The report is particularly weak in assessment of risks associated with potential risks to controlled waters which are present on and adjacent to the site. Whilst likely acceptable for the initial fast track consenting process, further information should be provided on these risks and should be considered as a condition for consenting as along with a review of the remediation need and proposed options.

7. NESCS Activity Status

Report Findings	*"Contamination impacts identified in isolated parts of the Project confirm that the soil contamination exceeds the applicable standard in Regulation 7. Therefore, the proposed activities of subdividing land, changing land use and disturbing soil do not qualify as Controlled Activities pursuant to Regulation 9."* *"Consent will be required under the NES-CS for Restricted Discretionary Activities (Regulation 10) or Discretionary Activities (Regulation 11) [...]"* *"The proposed remediation of the site does not meet the requirements of Regulation 8(3) [...] As a result, the activity would, under normal circumstances, require consent under the NES-CS for a restricted discretionary activity [...] However [...] the activity would need to be undertaken as a Discretionary Activity pursuant to Regulation 11."*
Comments	**Reviewer comment**: The report package correctly concludes that permitted and controlled activities criteria are not met by the proposed residential development under the NESCS. Based on the information provided, as detailed in the report, the most appropriate NESCS consent would be the discretionary activity consent. The current high-level DSI does not provide sufficient information for the application to be considered a restricted discretionary activity without more detailed information to support it.

8. Remediation Action Plan

Objectives	*"Review past site investigation report(s) to assess contaminant distribution [...] Recommend one, or several, methods that could adequately reduce the risk to human health at the site; and provide procedures required to complete the remedial work in a safe and sustainable manner."*
Remedial Options Assessment	Options assessed include electrokinetics, phytoremediation, solidification / stabilisation, soil washing, do nothing, off-site disposal, containment / encapsulation, and capping. *"Of the available options, on-site containment / encapsulation of the impacted material, supplemented by capping with at least 2 m of clean material, is considered to be the most effective way to eliminate risks to human, environmental and ecological health for the vast majority of the contaminated material at the site."* **Reviewer comment**: The main concern is the development of the Remedial Option Assessment without a comprehensive assessment of the risk at the site (very limited soil analysis and based on one exceedance of Tier 1 screening criteria). The options assessment is logical and transparent. It balances practicability, future land use and volume. The preference for minimising off-site disposal is also broadly consistent with sustainable remediation principles, provided containment performance is robustly

	demonstrated. It would be valuable to understand why the capping is recommended to be 2 m thick. There are questions however around the geotechnical suitability of the placement of cleanfill at depth, for example due to potential differential settlements. As such the proposals outlined for encapsulation of the cleanfill may not be fit for purpose without more robust considerations and discussions with engineers.
Summary of proposed remediation methodology	■ Excavate and stockpile impacted material from identified areas. ■ Confirm significance of contamination from asphalt, fuel storage and former orchard areas through laboratory testing during remediation. ■ Screen the cleanfill to remove large inclusions. ■ Re-place and compact cleanfill / marginally impacted material after pea gravel excavation in the north eastern area. ■ Cap retained impacted material with at least 2 m of clean material. ■ Dispose of significantly impacted material off site at an appropriate facility. ■ Prepare a Works Completion Report.
Remedial Goals	*"The remedial goals are proposed to make the site suitable for residential use."* *"For this site, significant contamination impacts are conservatively set at twice the applicable criteria for the protection of human health [...] on residential land."* **Reviewer comment**: The residential end-use objective is clear. However, the phrase "twice the applicable criteria" is a project-specific trigger for off-site disposal and not a substitute for regulatory compliance criteria. The RAP has not separated management triggers from acceptance criteria relevant to end use and long-term residual risk. Furthermore, the Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health[2] stipulates that the '*SCSs(health) may be applied […] as conservative clean-up targets to inform on-site management actions'*. These values being already conservative, there is no need to add an additional factor of conservatism.
Validation methodology	*"The extents of the encapsulation / containment cell will be professionally surveyed [...] to confirm the thickness of the capping layer."* *"Given the fact that marginally impacted material will be encapsulated deep below the finished site surface, no laboratory testing of that*

[2] Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment

	material is considered necessary. Instead, periodic XRF scans will be undertaken [...]" *"If the vapour concentration exceeds 100 ppm, samples will be collected for laboratory analysis [...]"* *"If pesticides are found at concentrations above the laboratory limits of detection, additional excavation will be undertaken until the remaining soil does not contain detectable concentrations of persistent pesticides."* **Reviewer comment**: Survey control of the containment cell is good. However a reliance on periodic XRF in lieu of laboratory testing for retained encapsulated material is not considered appropriate to document remediation works on site. Robust QA processes should be documented to ensure that the field screening completed is providing appropriate defensible data as per best practice based on the sensitive hydrogeological setting. It is noted that the remediation strategy of using laboratory limits of reporting for pesticides is hugely conservative (LoR are generally in the order of 0.1 mg/kg) with residential soil acceptance criteria for DDT being 70 mg/kg. This remediation proposal could potentially cause additional movements and burial of soils which would otherwise be suitable for use on site.
Comments	**Reviewer comment**: the RAP is pragmatic and generally fit for purpose, however it would benefit from explicit long-term management provisions for any residual contained contamination, including processes around the recording of containment cell extents, future disturbance controls, integrity of the capping layer and clear discharge-prevention performance standards for earthworks, stockpiles and washwater management. The need for remediation and most suitable option should be reviewed after additional investigation are undertaken at the site for a more comprehensive understanding of the volume of contamination and associated risk levels. As a commercial area is also planned for the site, consideration regarding capping of any contaminated materials within these less sensitive areas, depending on geotechnical requirement, volume of material and location and extent of the area could also be made.
Remediation Plan	*"The potential risks associated with the chosen remedial method [...] shall be undertaken in accordance with the protocols outlined in this RAP, as well as under a robust EMP to ensure stormwater, sediment and dust are controlled to the maximum possible extents."* *"At the completion of the remediation and validation works a Works Completion Report will be prepared outlining the remediation works undertaken and presenting the laboratory results of the soils tested during the remedial works."* **Reviewer comments**: The general remediation framework is credible, however the consent and associated conditions should ensure that the EMP / WCR requirements provide appropriate information which

	should include containment geometry, validation testing density and any residual land management controls.

9. Conclusions

Conclusions	*"This investigation has therefore confirmed that contaminants in soil, within the parts of the proposed residential use areas, pose significant risks to human health, environmental health or ecological health until such time that remediation earthworks are completed and validated."* *"Contamination impacts at the site appear to be relatively isolated and should be easily remediated prior to, or during bulk subdivision earthworks occurring."* **Peer review conclusion**: The statement that parts of the site '*pose significant risks to human health, environmental health or ecological health'* is considered baseless due to the very limited number of soil analysis undertaken and should be nuanced. Additional investigation will be required to undertake a comprehensive risk assessment of the site and support the update of the RAP. However, these could be part of any conditions of consent. As such, the Parkburn report package can be considered generally suitable as a planning-stage contaminated land assessment and remediation framework as it clearly identifies HAIL areas, confirms that one residential criteria is exceeded at least locally, and proposes a workable (with a couple of exceptions) remediation strategy. The key limitations are that the DSI is intentionally narrow, only one potential contaminated area has been investigated, none of the contaminant source areas are delineated, and some retained-material validation relies heavily on screening rather than laboratory evidence. Subject to those limitations being addressed at the implementation stage, the package is broadly consistent with the intent of MfE NESCS, and it is considered sufficient for resource consent application. Recommendations associated with the reports are: ■ A concise table linking each HAIL area to its investigation status, remediation status, and proposed validation method should be provided. ■ Clarity provided whether any off-site HAIL screening within 200 m has been completed; if not, state that explicitly. ■ Strengthen the justification for XRF-only validation of retained encapsulated material or add in provision for confirmatory laboratory testing which will provide more robust QA of results. ■ Provide commentary as to the geotechnical consideration associated with the reuse and deposition of cleanfill.

	■ Outline long-term management controls for the containment cell and any future excavation within that area. ■ State how EMP controls will prevent contaminant discharge to land and water during remediation, in a form that aligns with groundwater discharge expectations. It is recommended as part of the consent conditions are outlined which require the following: ■ Additional investigation to target of all potential contaminant source areas and the cleanfill stockpiled material at depth. ■ Update of the risk assessment, considering, if possible, a more advanced layout of the coming project to allow a more detailed conceptual site model. ■ Update of the Remediation Action Plan, especially the volume to be remediated, the targeted concentrations and best options available.

Reviewer



Lisa Bond CEnvP SC
Technical Principal – Contaminated Land

Verification



Sophie Bagard
Senior Contaminated Land Scientist

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