ECOtago

Environmental Consultants Otago 2025 Limited

Remedial Action Plan

270 – 292 Dukes Road North
Mosgiel

for
Southern Link Property Limited

March 2026

Task	Responsibility	Signature
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Abbreviations

CSMP	Contaminated Site Management Plan
DCC	Dunedin City Council
DSI	Detailed Site Investigation
Eco-SGV	Ecological Soil Guideline Values
HAIL	Hazardous Activities and Industries List
NESCS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
ORC	Otago Regional Council
OSMP	Ongoing Site Management Plan
RAP	Remedial Action Plan
SCS	Soil Contaminant Standards
SGV	Soil Guideline Values
SLIP	Southern Link Inland Port
SVR	Site Validation Report
XRF	X-Ray Fluorescence Analyser

1 Introduction

1.1 Background

The properties at 270 – 292 Dukes Road North, Mosgiel, comprising a total of approximately 42 ha, is defined as the Site for the purposes of this report. The Site is currently used for a combination of residential, commercial, and farming activities, and is proposed to be redeveloped into the Southern Link Inland Port (SLIP). The properties have a long and varied history of occupation, including 'Holmhead Farm' which was established on 292 Dukes Road North prior to 1901, and the Royal New Zealand Air Force (RNZAF) barracks which were constructed on 270 Dukes Road North in 1939.

The properties are not currently listed on the Otago Regional Council (ORC) Selected Land Use Sites Database[1]. However, a Detailed Site Investigation (DSI)[2] has found that Hazardous Activities and Industries List (HAIL) activities have occurred on parts of the property, including:

- Category A8 (*Livestock dip or spray race operations*) – very high levels of arsenic contamination were reported in the area surrounding a sheep dip in the northern end of the Site. Concentrations of arsenic were reported that present a risk to both human and environmental health under the proposed commercial/industrial land use and during development works.
- Category I (*Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment*) – accidental release of contaminants appears to have occurred surrounding the existing dwellings and sheds where contaminants such as lead from lead paint, arsenic from treated timber or accidental spillages and zinc from building materials has been released to site soils. Additionally, heavy metal contamination has been released to site soils in the location of a burn pile.

As a result of the contamination reported, five separate HAIL sites, and two possible HAIL sites, were confirmed to be present on the Site, and the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NESCS) applies to those parts of the Site.

Consent is required from the Dunedin City Council (DCC) under the NESCS if earthworks in these areas exceed the permitted activity criteria of the NESCS (disturbance of greater than 25 m^3 per 500 m^2 or off-site disposal of greater than 5 m^3 per 500 m^2 per year). Consent will also be required from the ORC for soil disturbance of a contaminated site in areas where contamination was found to exceed the guidelines protective of human health or the environment.

As a result of contamination that exceeds the guidelines protective of human health, Environmental Consultants Otago 2025 Limited (EC Otago) were engaged to prepare this Remedial Action Plan (RAP) for the Site. This RAP and associated Contaminated Site Management Plan (CSMP)[3] have been developed to set out responsibilities for soil handling, management and disposal procedures, and controls to minimise or mitigate the effects of earthworks, in accordance with any consent conditions that will be imposed by the DCC and ORC, and to address the requirements of the NESCS. A statement of EC Otago's experience is attached as Appendix A.

[1] https://experience.arcgis.com/experience/7f3719181fba451a8d256ffad11edb10

[2] Environmental Consultants Otago 2025 Limited, 2026. *Detailed Site Investigation – 270-292 Dukes Road North, Mosgiel v2.*

[3] Environmental Consultants Otago 2025 Limited, 2026. *Contaminated Site Management Plan – 270-292 Dukes Road North, Mosgiel*.

1.2 Site Description

The general location is shown in Figure 1, and the relevant property details are summarised in Table 1. The site extent comprises 42.492 ha across 270 – 292 Dukes Road North, as outlined in turquoise in Figure 2. Ancillary activities are also proposed within the KiwiRail Corridor shown outlined in orange in Figure 2, however are not addressed in this report and are not discussed further.

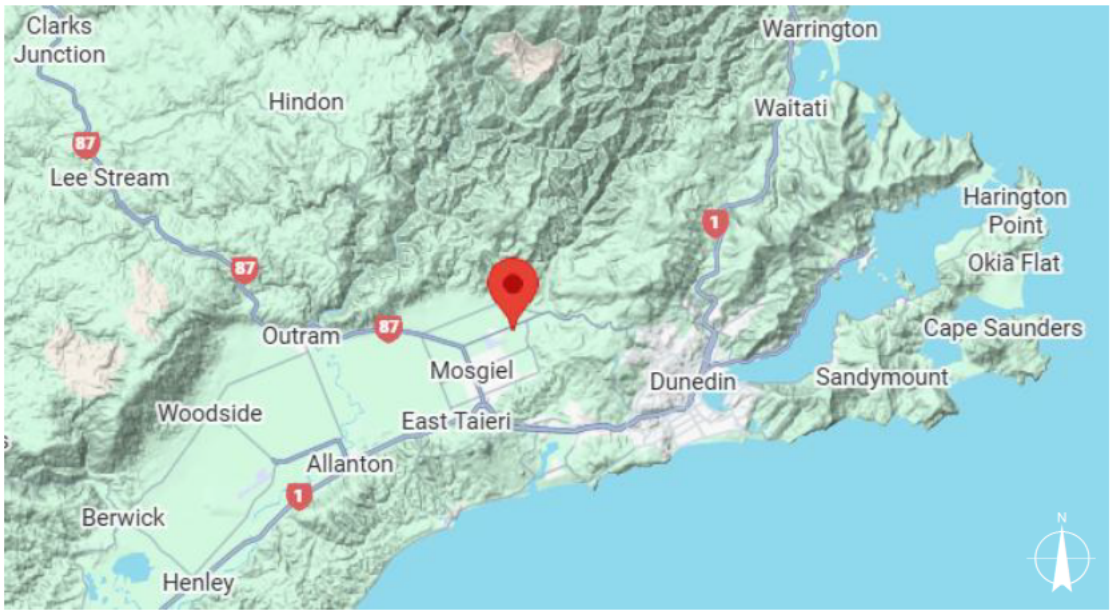

Figure 1: General location of the Site, shown with a red tag (Map Data ©2026; Google Terrain).

Table 1: Summary of relevant property details

Address	270 Dukes Road North	274 Dukes Road North	292 Dukes Road North	292A Dukes Road North
Legal Description	PT SEC 10 BLK V SO 63 EAST TAIERI SD	DP 5579 EAST TAIERI SD	PT SEC 9 BLK V SO 63 EAST TAIERI SD	PT SEC 9 BLK V SO 63 EAST TAIERI SD
Certificate of Title	3C/897	304/127	3C/899	329/233
Total Area	21.2324 ha	0.3068 ha	20.3053 ha	0.6475 ha
District Plan/Zoning	Section 16: Rural (Taieri Plain)			

Figure 2: The Site extent at 270 – 292 Dukes Road North outlined in turquoise with the KiwiRail Corridor outlined in orange (DCC GIS | 2023-2024. Copyright DCC/ORC, CC BY 4.0).

1.3 Proposed Development

The property is proposed to be redeveloped into an Inland Port over three stages, as shown in Figures 3 and 4. Topsoil is proposed to be stripped from the majority of the Site, with an estimated total of 126,090 m^3 of topsoil removed. Figure 5 shows the current estimates of soil to be removed over the three stages of the development.

The following description of the proposed development has been provided by the client:

"*The development will occur as described in the Project Description of SLPL [Southern Link Property Limited]'s Substantive Fast-track Application which should be referred to for a complete description of the Inland Port development. In summary, the Inland Port will include:*

- *A new rail siding off the Taieri Branch Line to enable loading, unloading and operation of a rail freight shuttle service to Port Chalmers and the wider rail network;*
- *Approximately 155,000 m^2 of high stud warehousing (chilled and ambient) and associated yard and canopy areas;*

- *Two road exchange areas for the loading and unloading of container trucks;*
- *A container depot facility enabling the inspection, cleaning, upgrading and repair of containers including for food grade repacking;*
- *Approximately 9 ha of container terminal for storage and movement of empty and full containers including refrigerated containers;*
- *Approximately 1000 m^2 of onsite offices ancillary to the Inland Port;*
- *Road widening and construction of a new intersection onto Dukes Road North;*
- *24/7 operation with flood and road lighting for nighttime operation;*
- *Ancillary activities to support the above including vehicle parking, truck waiting areas, onsite road network, three waters and power infrastructure, flood mitigation, landscaping, security measures, acoustic barriers and lighting; and*
- *Ongoing management and monitoring activities including ensuring establishment of landscaping, stream health monitoring, wildlife management and effects management.*

Construction of the Inland Port is anticipated to be undertaken in three stages however the timing of the delivery of each stage, and discrete works within each stage, may change in response to demand for logistics capacity at the Inland Port. Each stage of works will involve site clearance, earthworks, construction of buildings, hardstanding and access, installation of infrastructure, landscaping and works and management activities necessary to manage environmental effects during construction including erosion and sediment controls and construction management activities:

- *Stage 1 is estimated to be completed 1 to 3 years following commencement of the Project and will include clearance of the southern area of the site and construction of the 'Stage 1' container storage concrete pad, rail siding, container service area, warehouses, internal roading, parking and loading, road widening and construction of the new intersection on Dukes Road North, stormwater attenuation pond, Silver Stream stormwater outlets, servicing infrastructure, flood management measures, landscaping, acoustic barriers and eastern bund, and lighting.*
- *Stage 2 is estimated to be completed 3 to 5 years following commencement of the Project and will include clearance of the northern area of the site and construction of the 'Stage 2' container storage concrete pad, warehouses, ancillary offices, internal roading, parking and loading, emergency egress onto Dukes Road North, expansion of the stormwater attenuation pond, landscaping, extension of the servicing infrastructure and lighting.*
- *Stage 3 is estimated to be completed 5 to 10 years following commencement of the Project and will include clearance of the eastern area of the site, including the eastern acoustic bund, and construction of the 'Stage 3' warehouses, internal roading, parking and loading, landscaping, extension of the servicing infrastructure and lighting*."

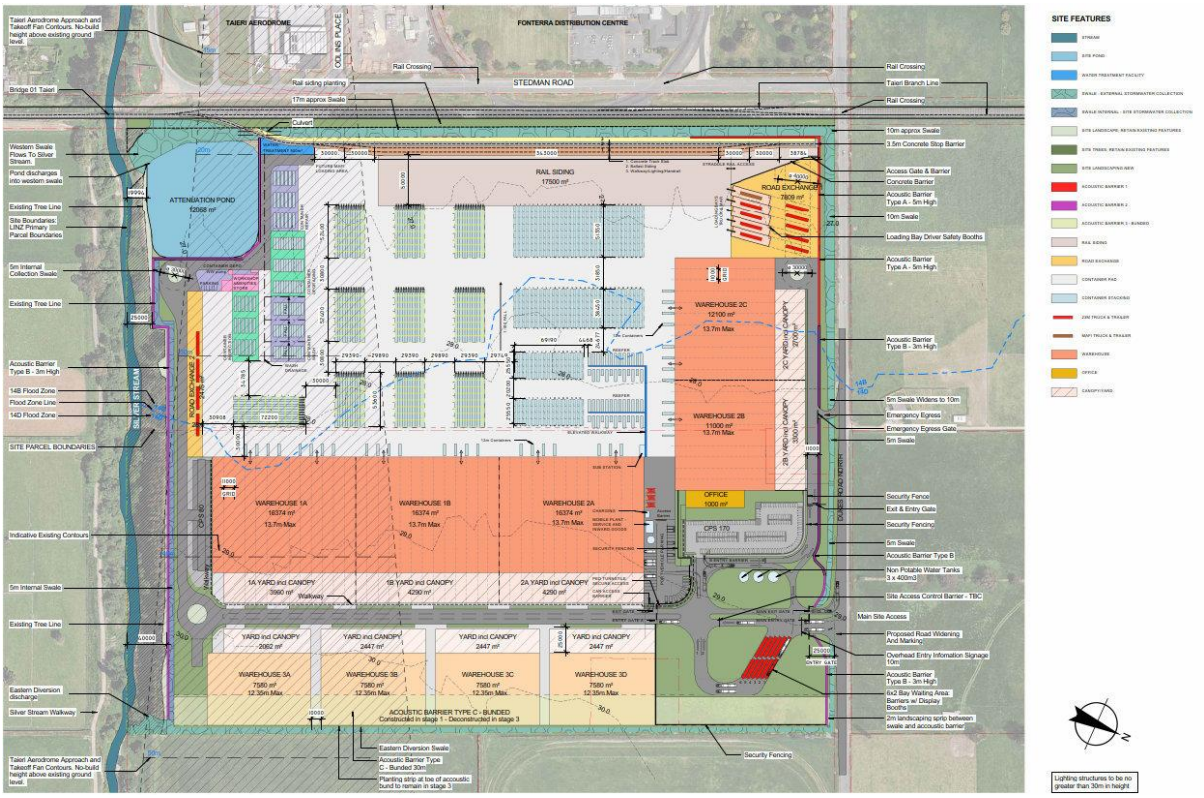

Figure 3: Concept plan of the proposed development (Williams Architects Limited, Master Plan Concept 9.2, dated 20 February 2026).

Figure 4: Proposed stages of the development (Williams Architects Limited, Staging Master Plan, dated 20 February 2026).

Staged Earthworks – Cut / Fill Report				
Stage	**Area (m^2)**	**Cut (m^3)**	**Fill (m^3)**	**Net (m^3)**
Stage 1	262,400	101,600	71,000	30,700 <Cut>
Stage 2	126,800	10,200	32,800	22,600 <Fill>
Stage 3	48,400	40,600	1,100	39,600 <Cut>
Final	420,300	123,000	78,100	45,000 <Cut>

Topsoil / Surface Strip – Cut / Fill Report				
Stage	**Area (m^2)**	**Cut (m^3)**	**Fill (m^3)**	**Net (m^3)**
Stage 1	262,400	78,720	0	78,720 <Cut>
Stage 2	126,800	38,040	0	38,040 <Cut>
Stage 3 (Not Including Bund Area)	48,400	14,520	0	14,520 <Cut>
Final	420,300	126,090	0	126,090 <Cut>

Combined Earthworks Quantities (Incl. Topsoil) – Cut / Fill Report				
Stage	**Area (m^2)**	**Staged Earthworks Net (m^3)**	**Topsoil / Surface Strip Net (m^3)**	**Combined Earthworks Quantities Net (m^3)**
Stage 1	262,400	30,700 <Cut>	78,720 <Cut>	**109,420 <Cut>**
Stage 2	126,800	22,600 <Fill>	38,040 <Cut>	**15,440 <Cut>**
Stage 3 (Not Including Bund Area)	48,400	39,600 <Cut>	14,520 <Cut>	**54,120 <Cut>**
Final	420,300	45,000 <Cut>	126,090 <Cut>	**171,090 <Cut>**

Figure 5: Estimated volumes of earthworks for the entire development over three stages (image provided by client in an email dated 3 February 2026).

1.4 Contamination Summary

The DSI found heavy metal contamination to be present across parts of the Site, identifying five verified HAIL sites, and two unverified (possible) HAIL sites, designated below as Areas A - G. Contaminant concentrations across the remainder of the Site were found to be consistent with predicted background concentrations based on the underlying geology.

These results indicate that HAIL activities have occurred across various parts of the Site. The results from the DSI are highlighted in Figures 6, 7 and 8, where locations reporting exceedances of the *Commercial/Industrial* Soil Contaminant Standards (SCS)/Soil Guidelines Values (SGV) are denoted in red, and locations reporting elevations above the predicted background level but below the *Commercial/Industrial* SCS/SGV are denoted in orange. Locations found to be consistent with predicted background levels are coloured green. Verified HAIL sites are outlined in red, and unverified HAIL sites outlined in orange. A conceptual site model is included in the DSI.

Whilst no asbestos was detected in any of the 15 soil samples analysed from across the Site, note that DCC records indicate that asbestos-containing materials may have been used on parts of the dwellings or sheds on the Site, and an asbestos survey is advised to be conducted prior to the demolition of any buildings. Additional soil sampling and analysis for asbestos may be recommended (potentially post-demolition) depending on the results of the asbestos survey.

1.4.1 Area A

The Central Woolshed/Workshop has been identified as a verified HAIL site under HAIL Category I (*Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment*). Concentrations of heavy metals adjacent to the former woolshed/current workshop in the centre of the Site were found to be elevated above predicted background levels. The concentration of arsenic at one location was found to exceed the *Commercial/Industrial outdoor worker (unpaved)* SCS, and these soils may present a risk to human health under the proposed commercial/industrial land use and during development works.

The average concentrations of zinc surrounding the central woolshed/workshop was found to exceed the Ecological Soil Guideline Values (Eco-SGV)[4] protective of environmental health. The soils may present a risk to environmental health and during development works unless appropriately managed.

This area requires remediation or management.

1.4.2 Area B

The burn pile at location D26 has been identified as a verified HAIL site under HAIL Category I. The concentration of arsenic was reported to exceed the *Commercial/Industrial outdoor worker (unpaved)* SCS, and these soils may present a risk to human health under the proposed commercial/industrial land use and during development works.

The arsenic concentration also exceeds the Eco-SGV, and the soils may present a risk to environmental health during development works.

This area requires remediation or management.

1.4.3 Area C

The sheep dip and yards have been identified as a verified HAIL site under Category A8 (*Livestock dip or spray race operations*). Concentrations of arsenic reported surrounding the sheep dip and yards (locations D44, D45, A – G, I and L) were found to exceed the *Commercial/Industrial outdoor worker (unpaved)* SCS, indicating that this part of the Site presents a risk to human health under the proposed commercial/industrial land use and during development works.

The arsenic and zinc concentrations surrounding the sheep dip and yards were found to exceed the Eco-SGV, and the soils may present a risk to environmental health during development works.

This area requires remediation or management.

1.4.4 Area D and Area E

The dwellings at 274 Dukes Road North (Area D) and 292 Dukes Road North (Area E) have been identified as a verified HAIL sites under HAIL Category I. Concentrations of heavy metals surrounding the dwellings and associated sheds/garages at 274 and 292 Dukes Road North were found to be elevated above predicted background levels. Whilst heavy metal concentrations in these areas were found to be below the *Commercial/Industrial* SCS/SGV, note that concentrations of arsenic and/or lead exceed the *Rural Residential* SCS in some locations (samples D23, D24 and D39), and therefore these soils present a risk to human health under the current land use.

[4] Manaaki Whenua – Landcare Research, 2023. *An implementation framework for ecological soil guideline values.*

The average concentration of zinc surrounding the dwellings exceeds the Eco-SGV, and the soils may present a risk to environmental health during development works.

This area does not require remediation, but appropriate management of the soils is required to avoid accidental cross-contamination of clean soils.

1.4.5 Area F

Location D8 has been identified as an unverified (possible) HAIL site under HAIL Category I. Elevated concentrations of zinc were reported at location D8, which exceed the Eco-SGV, but is well below human health guidelines. This area is highly unlikely to present a risk to human health, however the soils may present a risk to environmental health during development works.

This area does not require remediation, but appropriate management of the soils is required to avoid accidental cross-contamination of clean soils.

1.4.6 Area G

The northern sheds have been identified as an unverified (possible) HAIL site under HAIL Category I. Heavy metal concentrations in soils surrounding the northern sheds were found to be elevated above predicted background concentrations. However, no contaminant concentrations in this area were reported to exceed the *Commercial/Industrial* SCS/SGV, indicating that this part of the Site is unlikely to present a risk to human health under the proposed commercial/industrial land use or during development works.

The average concentration of zinc surrounding the northern sheds is below the Eco-SGV, however the zinc concentration in one location exceeds the Eco-SGV, and the soils may present a risk to environmental health during development works.

This area does not require remediation, but appropriate management of the soils is required to avoid accidental cross-contamination of clean soils.

Figure 6: Sampling locations from the DSI. Red indicates samples that exceed the Commercial/Industrial SCS/SGV, and orange indicates samples above background but below the Commercial/Industrial SCS/SGV. Green indicates samples consistent with predicted background. Areas outlined in red indicate verified HAIL sites and areas outlined in orange indicate unverified HAIL sites (Google Earth, Image © 2025 Airbus).

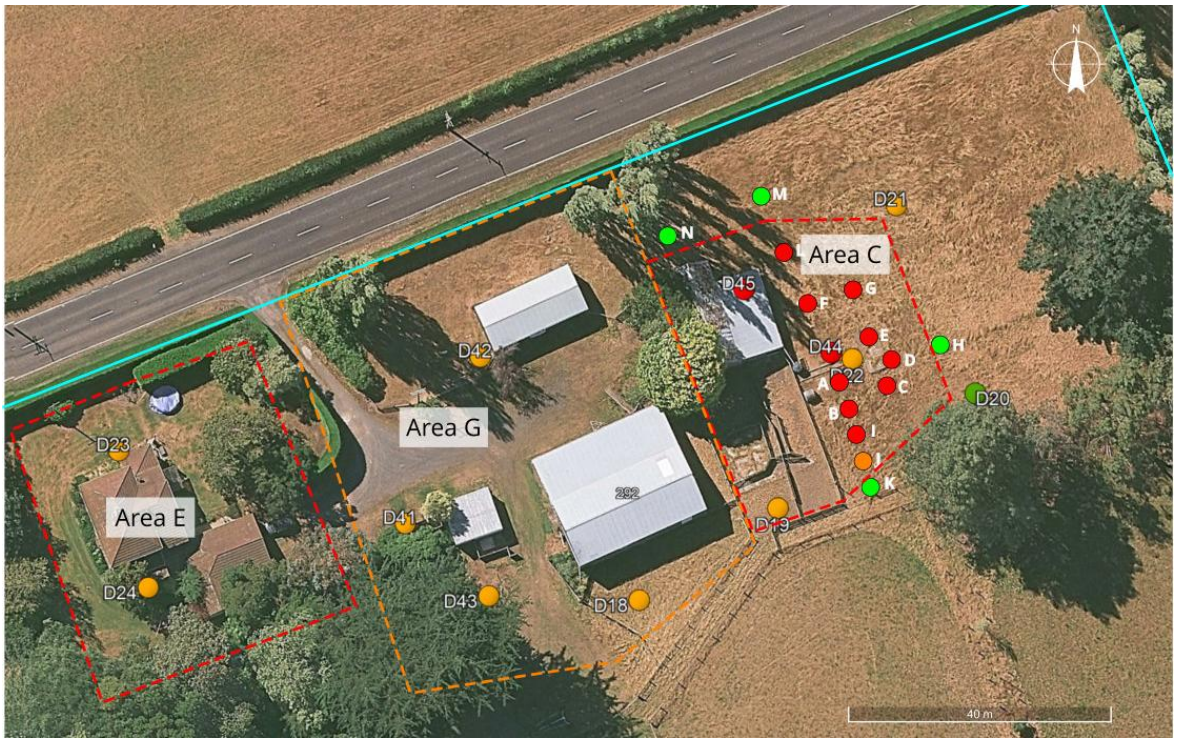

Figure 7: Sampling locations across the northeastern end of the Site. Red indicates samples that exceed the Commercial/Industrial SCS/SGV, and orange indicates samples above background but below the Commercial/Industrial SCS/SGV. Green indicates samples consistent with predicted background. Areas outlined in red indicate verified HAIL sites and areas outlined in orange indicate unverified HAIL sites (Google Earth, Image © 2025 Airbus).

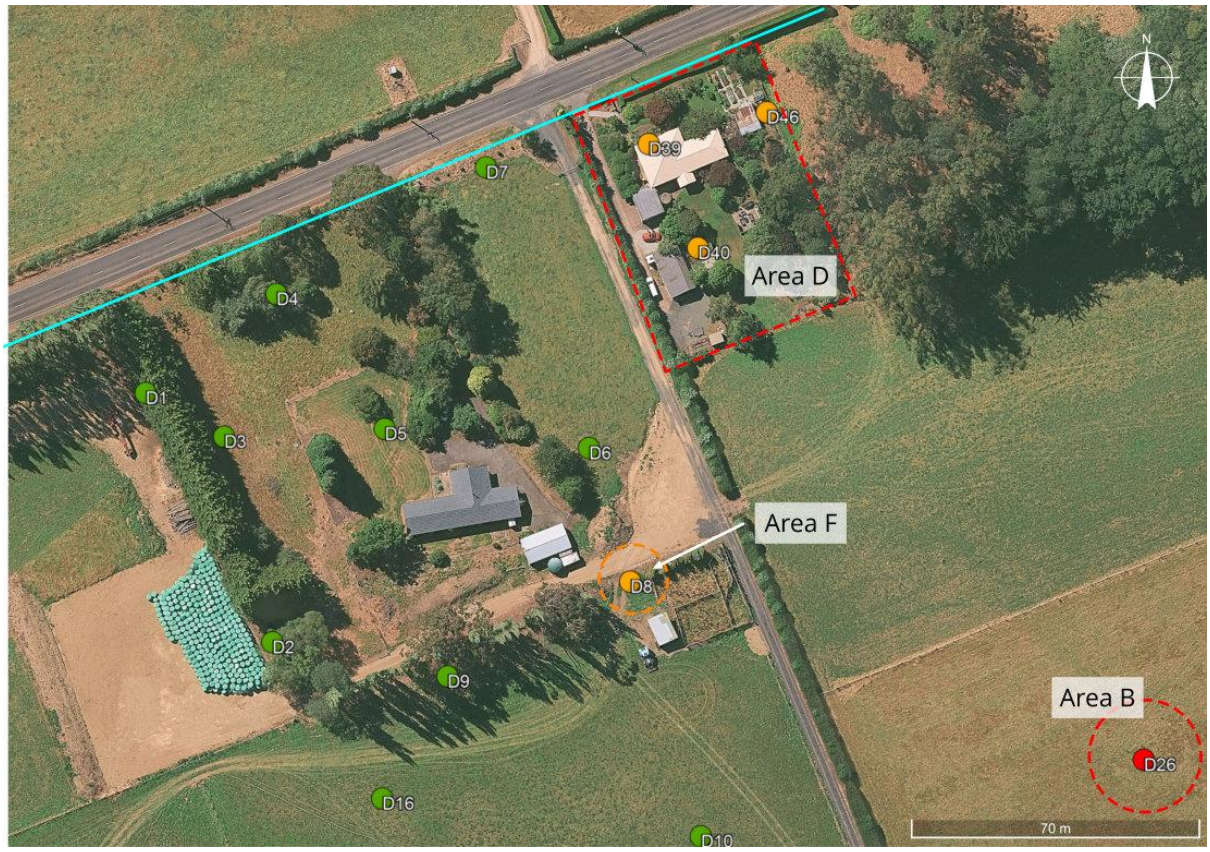

Figure 8: Sampling locations across the northern end of the Site. Red indicatse samples that exceed the Commercial/Industrial SCS/SGV, and orange indicates samples above background but below the Commercial/Industrial SCS/SGV. Green indicates samples consistent with predicted background. Areas outlined in red indicate verified HAIL sites, and areas outlined in orange indicate unverified HAIL sites (Google Earth, Image © 2025 Airbus).

2 Remedial Actions

2.1 Remediation Goal

Based on the results of sampling presented in the DSI and the proposed commercial/industrial land use of the Site, remediation is required at three of the identified HAIL sites (Areas A, B and C). These three locations are highlighted in Figure 9, overlaid on the development plans for the Site. Whilst several additional HAIL sites were identified on the property, contaminant concentrations were only found to exceed the commercial/industrial human health guidelines at the three locations shown in Figure 9, and remediation is not required under a commercial/industrial land use for the remaining HAIL sites. However, soils in the remaining HAIL sites will need to be appropriately managed to segregate clean fill and soils impacted by heavy metal contamination.

The goal of the remedial earthworks is to prevent exposure of future site occupants to contamination that presents a risk to human health (i.e. to prevent contact with, ingestion of, or inhalation of soil containing contaminants that exceed the applicable human health guidelines).

The remediation options include:

- Excavate soil with disposal off-site at a suitable landfill.
- Excavate soil with disposal on-site with appropriate capping/encapsulation.
- Capping/containment of in-situ soil to prevent direct contact and run-off.

Bulk earthworks will be required for the development, with topsoil stripped from the majority of the Site. The remediation strategy will primarily depend on the earthworks required for development

purposes, with excavation for removal where excavation is required for development and capping/containment where filling is required. Validation sampling will be undertaken to confirm that contamination which exceeds the guidelines protective of human health has been removed, where appropriate, and presented in a Site Validation Report (SVR).

An Ongoing Site Management Plan (OSMP) will be prepared for applicable areas if contamination that exceeds the applicable human health guidelines remains on Site.

2.2 Remediation Methodology

Prior to earthworks commencing, the areas affected by contamination, as shown in Figures 6 – 8, will be clearly marked, and the extent of the contamination will be confirmed via additional sampling where required. This is to ensure that no accidental cross-contamination occurs between clean and contaminated soils. The remediation works may be undertaken in stages concurrent with the staged development of the inland port, however areas of contaminated soils must be protected from disturbance if adjacent to access routes for other stages of the development.

Where excavation and/or topsoil stripping is required within the areas requiring remediation, the earthworks within the affected areas should be undertaken prior to bulk earthworks if possible. Where contaminated soils are to be removed off-site, these will be transported to a suitably consented landfill for disposal. Subject to appropriate consent, soils may also be placed within a designated disposal area on-site which shall be subject to appropriate capping/encapsulation.

It is anticipated that contamination in most of the areas affects only the surface soils, based on the nature of the contaminating activity. In contrast, Area C is known to contain contamination that exceeds the guidelines protective of human health to a depth of at least 0.6 m directly adjacent to the sheep dip. Therefore, capping rather than removal is likely to be most suitable for Area C. Removal of contaminated topsoil is likely to be the most suitable approach for all other areas.

Where excavation is undertaken, additional sampling and analysis is proposed across the cut surface after the initial excavations to determine the contamination status of the remaining soils. If the validation sampling indicates that no exceedances of the *Commercial/Industrial* SCS/SGV remain in the applicable areas, no capping or ongoing site management will be required for that area.

Where contamination exceeding the applicable human health guidelines remains, additional soils may be excavated and removed to landfill, or to an on-site disposal location, or may be remediated by being capped in permanent hard surfaces such as roading, pavements and building footprints, or capped with a permeable soft cap for landscaped areas.

For each area, the remediation method may differ depending on the specific development plan and the stage of development works. The staging master plan shown in Figure 9 indicates that hard surfaces are likely in Areas A and B, which will form permanent hard capping if required, whilst soft capping may be implemented for Area C as the area will be landscaped. Figures 10 and 11 show the Cut/Fill plans for proposed Stages 1 and 2, which encompass Areas A – G.

Where soft capping is implemented, the soft cap will generally consist of a permeable geotextile layer (such as Bidim®) to separate the contaminated soil from the capping material. The capping material may consist of clean fill (reused or imported clean soil, mulch, clean washed aggregate, river stone, etc), or may consist of site-won lightly contaminated soils that do not contain exceedances of the applicable human health or environmental guidelines. Soils from Areas D – G are suitable for reuse in this manner, and soils from Areas A and B may be suitable if remediated on-site as part of the works by dilution and mixing with clean soils. Alternatively soils from Areas A and B may be placed in the parts of Area C that require filling, and capped (subject to appropriate

consent). The required depth of soil for capping will depend on the proposed landscaping. A minimum depth of 300 mm is recommended given the high levels of arsenic present in Area C, and is suitable to maintain a grass lawn and small shrubs. However, the thickness of the capping may need to be increased if plants with larger root systems are intended, to ensure that the roots do not penetrate the geotextile barrier layer. If edible plants or fruit trees are proposed, contamination levels in the capping soils should be below the *Residential* SCS/SGV to ensure any edible produce is unlikely to present a risk via consumption.

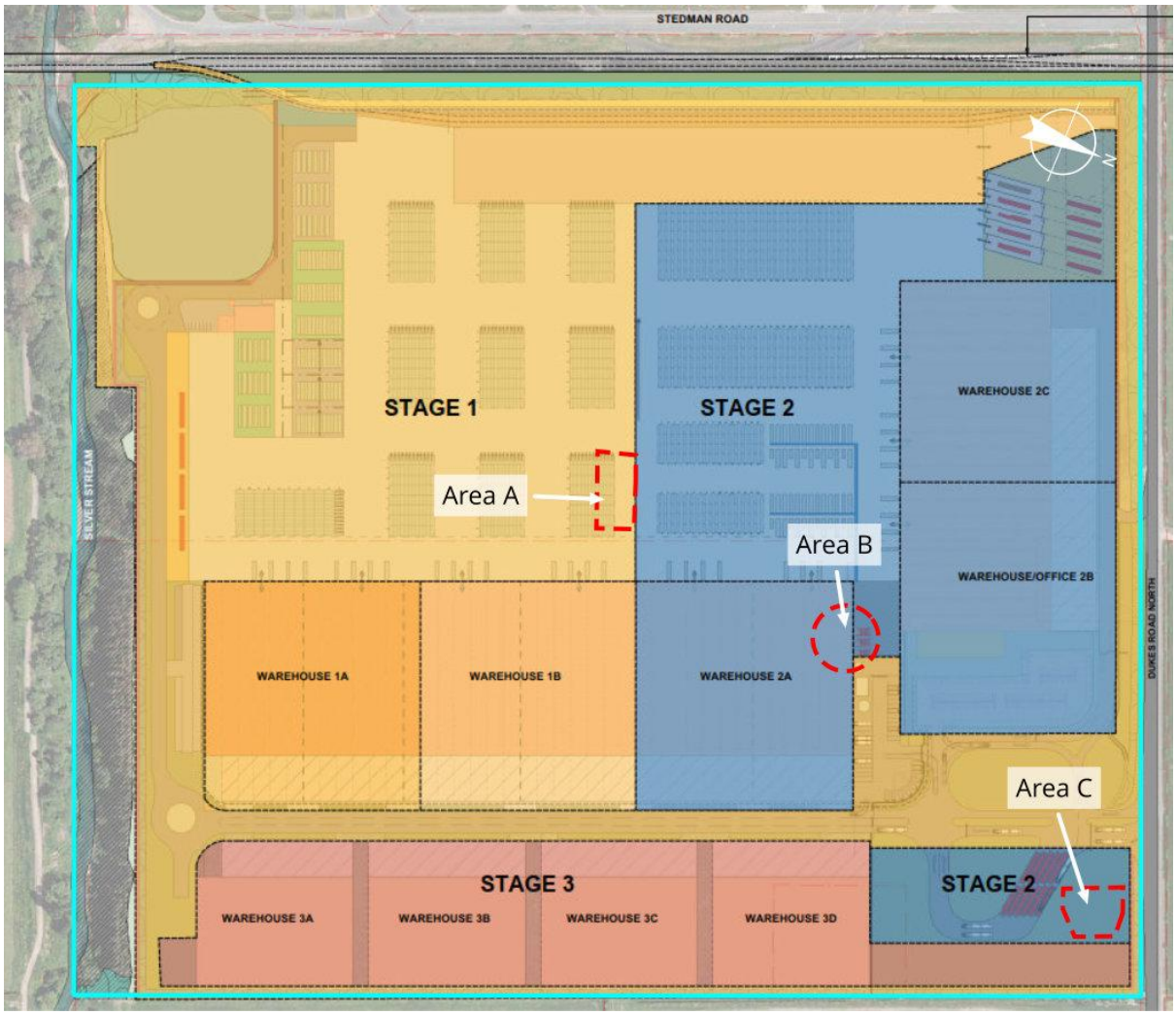

Figure 9: The proposed development plan overlain with the three areas which require remediation (Williams Architects Limited, Staging Master Plan, dated 20 February 2026).

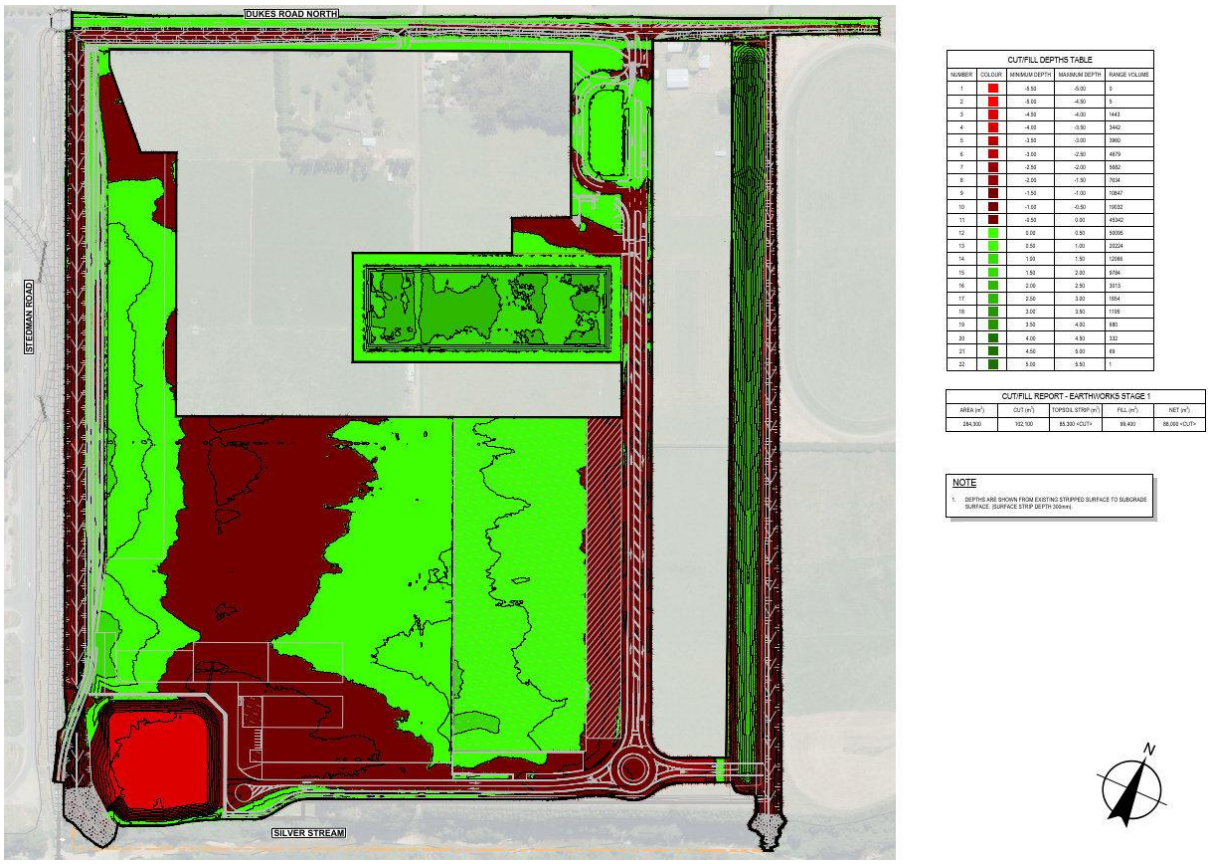

Figure 10: Earthworks Plan Stage 1 (Stantec, dated 5 February 2026).

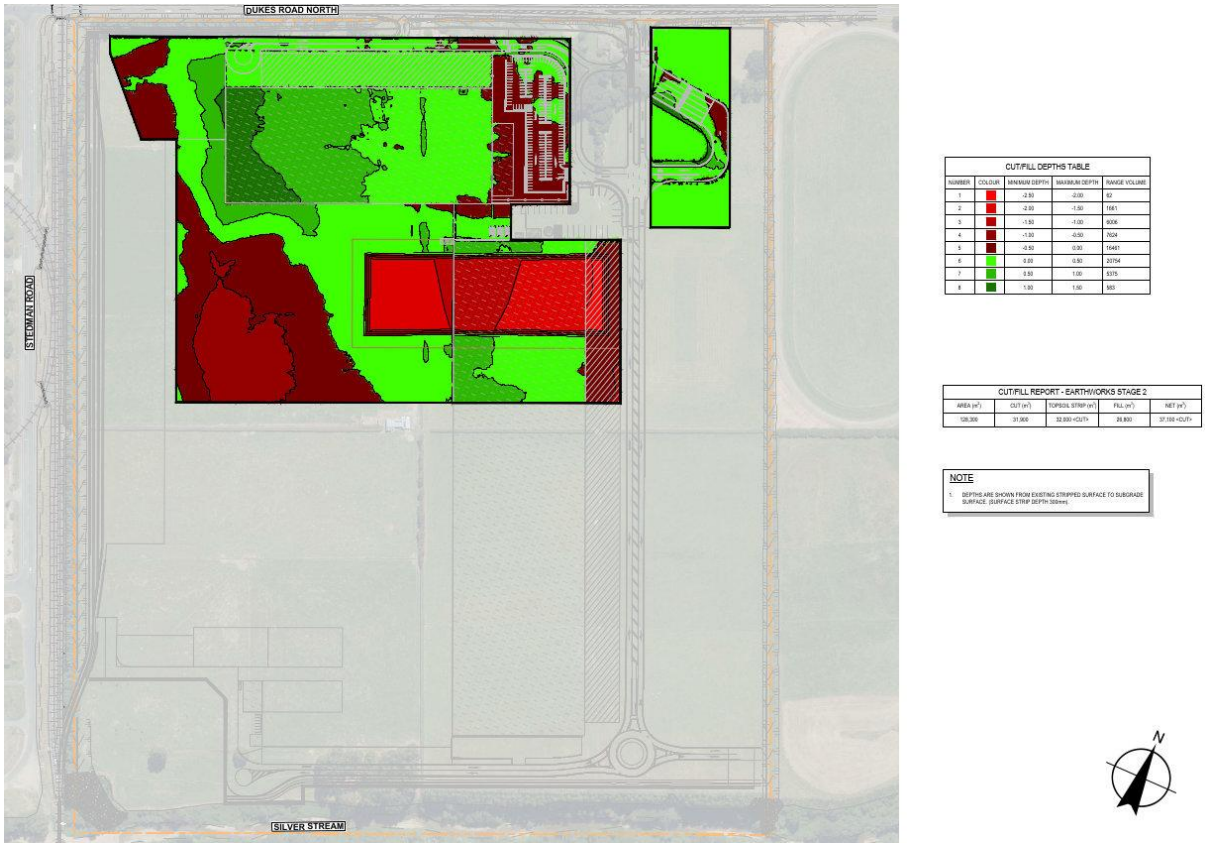

Figure 11: Earthworks Plan Stage 2 (Stantec, dated 5 February 2026).

2.3 Disposal

Where contaminated soils are removed for off-site disposal, they shall be excavated and loaded directly on to a truck for transport, if possible. If stockpiling is required, the excavated material will be subject to the stockpiling procedures detailed in the CSMP (attached as Appendix B).

Soils removed from the Site must be sent to an appropriately consented disposal location for the levels of contamination reported. The results of sampling and analysis indicate that the material is suitable to be disposed to the Burnside Landfill.

Alternatively, excavated materials may be retained on Site in a designated disposal location (subject to appropriate consent) or remediated by dilution and mixing with clean soils to be suitable for re-use on the Site. Note that a consent for disposal to land is only required for soils that present a risk to human health or the environment, and therefore reuse of soils from Areas D – G does not require consent, however the location should be recorded if placed outside of Areas A – G as these soils are not considered clean fill.

2.4 General

The Site Manager shall maintain records to demonstrate that any imported material is obtained from a quarry or other certified source. Any material not meeting this criterion shall be demonstrated to be acceptable to the client and relevant regulatory authorities subsequent to high-density sampling and analysis by a Suitably Qualified and Experienced Practitioner in contaminated land management. The results of sampling and analysis contained within the DSI have shown that contaminant concentrations in the majority of site soils including Areas D – G are below the commercial/industrial human health guidelines, and these soils may be reused on the Site as capping material. Soils from Areas A and B may be suitable for reuse if remediated and subject to additional sampling. If any unexpected contamination is encountered during earthworks, the Contaminated Land Advisor should be consulted.

2.5 Site Management Plan

All works will be undertaken in accordance with the CSMP attached as Appendix B.

2.6 Validation Testing and Reporting

Validation sampling, if undertaken, may consist of analysis via handheld X-ray fluorescence analyser (XRF) to determine the heavy metal concentrations in remaining soils. Systematic (grid) sampling with analysis at 2 - 5 m spacings should be undertaken in the applicable areas. If XRF analysis is undertaken, a physical sample should be collected on average at every 10th location scanned by XRF for validation of the heavy metal results by laboratory analysis. Alternatively, samples shall be collected across the applicable areas for laboratory analysis of heavy metals, at a sufficient density as determined by the Contaminated Land Advisor. Validation sampling must be undertaken prior to the importation of clean soil/fill.

An SVR will be prepared at the completion of the works to confirm the details of the works undertaken, including the remediation strategy applied and details of any capping (if applicable) for each area, the volume of soil removed from Site, the destination landfill, any on-site disposal, the volume and source of clean fill materials imported, incidences and/or complaints that occurred during the earthworks, and report on any additional sampling undertaken during the works. If imported clean fill materials were not obtained from a quarry or other certified source, the SVR will also report on the sampling and analysis conducted to confirm that the imported material meets the applicable human health guidelines. If contamination exceeding the applicable human health guidelines remains on Site and has been capped, OSMPs for the applicable areas will be provided as part of the SVR.

2.7 Regulatory Requirements and Procedures

Given that the NESCS applies to the Site, consent is required from the DCC as a Restricted Discretionary activity for the proposed change of use and if the proposed earthworks within the verified HAIL sites exceed the disturbance of more than 25 m^3 per 500 m^2 or disposal off-site of more than 5 m^3 per 500 m^2 per year.

As contaminant concentrations were reported to exceed the applicable human and/or environmental health guidelines within Areas A - G, consent is required from the ORC under the Regional Plan: Waste for Otago for a Discretionary activity for the disturbance of a contaminated site within these areas. If on-site disposal of contaminated soil is planned, consent for disposal to land will also be required.

Prior to off-site disposal, the contractor shall obtain approval from the chosen landfill for disposal based on the soil composition.

Prior to disturbance of the contaminated soils, a pre-earthworks site meeting will be held and attended by staff involved with the earthworks to discuss the risks associated with the works, the RAP and CSMP, the safe handling of contaminated soils, and the Health and Safety Plan requirements.

Load registers and weigh bridge dockets must be maintained for all soil disposed of at the landfill, together with details of imported clean fill materials.

2.8 Roles and Responsibilities

The following responsibilities shall be assigned at the start of the project:

Site Manager

The appointed earthworks contractor will assign a Site Manager to the project, who will be responsible for the implementation of the RAP and CSMP on the Site and for notifying the Contaminated Land Advisor of any contamination-related complications that may arise during site works.

Contaminated Land Advisor

A Suitably Qualified and Experienced Practitioner in the area of contaminated land management (Contaminated Land Advisor) will be appointed to provide advice to the contractor on contaminated land issues encountered. The advisor will also be responsible for soil sampling, disposal recommendations, and validation reporting.

3 Limitations

Services for this project have been performed in accordance with current professional standards for environmental site assessments. No guarantees are either expressed or implied. This report meets the requirements of the NESCS as it has been undertaken in accordance with the *Contaminated Land Management Guidelines (No. 1 and No. 5)* and is certified by a suitably qualified and experienced practitioner. A statement of EC Otago's experience is attached as Appendix A. This report does not attempt to fulfil the requirements of legal due diligence.

There is no investigation that is thorough enough to preclude the presence of materials at the Site that presently, or in the future, may be considered hazardous. As regulatory criteria are subject to change, a status with respect to contamination that is presently considered to be acceptable may, in the future, become subject to different regulatory standards that cause the Site to become unacceptable for existing or proposed land use activities. Any recommendations, opinions or findings stated in this report are based on circumstances, facts and assessment criteria as they

existed at the time that we performed the work and on data obtained from the investigations and site observations as detailed in this report.

Opinions and judgments expressed in this report, which are based on an understanding and interpretation of assessment standards should not be construed as legal opinions. This report, and the information it contains have been prepared solely for the use of Southern Link Property Limited. Any reliance on this report by other parties shall be at such party's own risk without prior agreement to the contrary.

4 References

Environmental Consultants Otago 2025 Limited, 2026. *Detailed Site Investigation – 270-292 Dukes Road North, Mosgiel v2.* Reference E-062.

Environmental Consultants Otago 2025 Limited, 2026. *Contaminated Site Management Plan – 270-292 Dukes Road North, Mosgiel*.

Manaaki Whenua – Landcare Research, 2023. *An implementation framework for ecological soil guideline values.*

Appendix A - EC Otago Statement of Experience

Environmental Consultants Otago Limited (EC Otago) was originally established in Dunedin in 2014 when the principal, Ciaran Keogh, recognized the need for a dedicated environmental consultancy in the region. Following Ciaran's retirement in 2025, the company continues to operate as Environmental Consultants Otago 2025 Limited. The company is particularly focused on contaminated land issues, with more than 400 site investigations completed. EC Otago undertakes the preparation of Preliminary and Detailed Site Investigation Reports, Assessments of Environmental Effects, Site Remedial Action Plans, Soil Disposition Reports and Site Validation Reports, working together with other environmental consultancies when a broader range of experience is required.

Bernice Chapman - Senior Contaminated Land Consultant

CEnvP, PhD in Biochemistry.

Berni is a Certified Environmental Practitioner (Certification Number 1376) who has worked in consultancy firms for over 20 years in the waste management, waste-to-energy and contaminated land sectors, with a focus on contaminated land management with EC Otago since 2017. She has a strong ethos of waste minimisation, containment and management, the effective operation of existing resources with beneficial reuse where possible, protection of the environment and overall sustainability coupled with a pragmatic approach from direct involvement in day-to-day operations. Her experience includes preliminary and detailed site investigations, sampling and analysis, site remediation, feasibility studies, problem solving and process design. This work includes the management of a range of environmentally polluting industrial effluents, contaminated land investigations and site remediation.

Berni has previously worked as Laboratory Manager for Waste Solutions Ltd, an Associate for CPG New Zealand Ltd, and a Wastewater Treatment Specialist for ADI Systems.

Aleasha King – Contaminated Land Consultant

Graduate diploma in Geology, Master in Geophysics.

Aleasha is a Contaminated Land Consultant with a background in geology and geophysics and a strong commitment to the environment. Her experience includes contaminated land investigations with EC Otago from 2021 undertaking preliminary and detailed site investigations, sampling, data analysis and site remediation.

Aleasha has previously worked in Engineering Geology with experience in site soils investigations and bearing capacity assessments. For her master's degree, she studied the structure of the Alpine Fault at a formerly unmapped location on the West Coast of New Zealand.

Appendix B – Contaminated Site Management Plan

Contaminated Site Management Plan: 270-292 Dukes Road North, Mosgiel

EC Otago

Management Zones	270-292 Dukes Road North, Mosgiel
Known/ potential contaminants	Heavy metal concentrations were found to be elevated at the five verified HAIL sites (Areas A – E) and two unverified HAIL sites (Areas F & G) identified in Figure 1. Concentrations of arsenic in Areas A - C exceed the *Commercial/Industrial* guidelines and are a risk to workers. Concentrations of arsenic and/or zinc within all 7 areas exceed the environmental guidelines.
General Earthworks Requirements	Dust management and prevention of cross-contamination and silt/sediment discharges to storm water are key. **Within HAIL sites**: Consent is required from Dunedin City Council to disturb a HAIL site. Consent is required from Otago Regional Council to disturb a contaminated site.
Disposal	Soils within Areas A - G cannot be considered clean fill. Contaminated soil removed from the site must be taken to an appropriate landfill for disposal. Soils meet the Burnside Landfill acceptance criteria. Soil from Areas D - G may be kept for reuse onsite. Soils from Areas A - C may be placed within a designated disposal location, subject to consent. All other areas are clean fill.
Records	Maintain records of the following (to be available for council inspection on request): • Consents • All excavations and placement of fill • Any incidents or complaints • Any signs of unexpected contamination • The volume of soil removed for disposal • The disposal location (including on-site location)

Figure 1: The properties at 270-292 Dukes Road North outlined in turquoise showing Areas A – G containing heavy metal contamination (DCC GIS | 2023-2024. Copyright DCC/ORC, CC BY 4.0).

Contamination Risk Assessment

Elevated heavy metals were reported in Areas A – G. Areas to be marked prior to bulk earthworks.

Areas A – C: Concentrations of arsenic surrounding the sheep dip (locations D44, D45, A – G, I and L), within the burn pile (D26) and adjacent to the central sheds (D37) exceed the *Commercial/ Industrial outdoor worker (unpaved)* guidelines indicating that these soils may present a risk to human health during development works and under a commercial/industrial land use. ***Concentrations of arsenic reported at Area C are extremely high and pose a particularly high risk.*** Careful handling and dust management is required.

Areas D – G: Concentrations of arsenic and/or zinc at some locations exceed the environmental guidelines and site soils may present a risk to environmental health. Accidental discharges must be avoided, particularly to surface water / storm water and tracking onto the road.

Contaminated Site Management Plan: 270-292 Dukes Road North, Mosgiel

EC Otago

Site Controls

Dust

Works must comply with the *Good Practice Guide for Assessing and Managing Dust* (Ministry for the Environment, 2016)

- Stop works if wind speeds exceed 10 m/s (36 km/h), or wind screens are in place or a suppressant/stabiliser is applied
- Limit vehicle speeds on excavated surfaces to 10 km/h
- Limit exposed surfaces as much as possible
- Maintain soil to be excavated in a damp (not wet) condition during excavation and cartage
- Use of water sprays to dampen soils must not cause erosion or run-off, or saturated soils
- Cover loads during transport

Stockpiles

- If contaminated soil is placed outside of the identified HAIL sites, it must be placed on low permeability material (e.g. Bidim®, polyethylene sheet or paved surface) to avoid cross-contamination
- Stockpiles must not be located where run-off can leave the site
- Stockpiles must be covered when not actively worked to prevent rainwater ingress, run-off and dust discharges

Groundwater, Storm Water, Silt and Sediment

- Install erosion and sediment controls as per *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* (Auckland Council, 2018) to prevent run-off
- Avoid earthworks during rain or when free water is present in excavated areas
- Any surface water entering excavations is allowed to soak into the ground
- Surface water in contact with exposed earthworks is contained and prevented from entering storm water drains or Silver Stream
- If discharge of accumulated water is required, the water shall be contained and treated as contaminated. A temporary trade waste consent is required to discharge to municipal sewer following settling. No discharge is to occur to the storm water network.
- Tracking of silt off-site must be prevented

Silt and Sediment (continued)

- Vehicles entering/exiting the site are to remain on clean aggregate roadways formed to provide all-weather access (stabilised entranceway)
- Wheels that contact with site soils shall be swept down or washed in a designated area with silt containment before leaving site

Unexpected Contamination

If unexpected buried material or waste is encountered, works shall stop and the Contaminated Land Consultant contacted.

Signs of potential contamination:

- Uncontrolled fill
- Unusual odours
- Discoloured soils, stained water seeps or an oil sheen
- Suspected petroleum hydrocarbon contamination
- Putrescible or hazardous waste, refuse, or combustion by-products
- Intact or broken drums or other containers
- Suspected asbestos containing materials or pipes

Health & Safety

Access to the earthworks site is restricted to authorised personnel who have undergone an induction and are aware of the potential hazards relating to contaminated soil at the site.

General safety procedures to be followed by all staff entering or working in the immediate area of the earthworks:

- Site workers shall avoid unnecessary contact with site soils (especially Areas A – C).
- Hands are to be washed in a dedicated area prior to eating, drinking or smoking.
- Appropriate personal protection equipment (PPE) and first aid points are in place
- All incidents shall be reported to the main contractor's health and safety advisor

PPE to be available and used as required:

- Overalls
- Disposable gloves or construction gloves
- P2 respiratory protection (in case of a breach of dust control)

Records

- Copies of consent to be held on site during works
- Location and extent of earthworks to be recorded
- Records of reuse of soils within the site, particularly from Areas A - G
- Volume of surplus soil removed off-site to be recorded
- Soil disposal location
- Incidents/unexpected contamination
- Complaints are to be recorded and response noted

Additional Consulting

The Contaminated Land Consultant shall be advised of any unexpected signs of contamination and undertake additional sampling as required

If discharge of water from site is required, water sampling will be undertaken to determine a suitable disposal location

Contaminated Site Management Plan

Site Contact Details

Address	270-292 Dukes Road North, Mosgiel	
Site Owner	Name	
	Phone	
	Email	
Contractor	Company	
	Name	
	Phone	
	Email	
Site Manager	Name	
	Phone	
	Email	
Health & Safety Officer	Name	
	Phone	
	Email	
Environmental H&S Officer (if different from above)	Name	
	Phone	
	Email	
Contaminated Land Advisor	Name	Berni Chapman / Aleasha King
	Phone	[redacted] / [redacted]
	Email	[redacted] / [redacted]
Emergency/After Hours Contact	Name	
	Phone	