Dairy Flat Campus

Contaminated Site Management Plan – [FOR CONSENT ONLY]

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Glossary of Abbreviations

Glossary of abbreviations	
ACM	Asbestos containing material
AMP	Asbestos management plan
ARCP	Asbestos removal control plan
COPC	Contaminant of Potential Concern
DP	Dewatering plan
DRAFT CSMP	Draft Contaminated site management plan
DSI	Detailed site investigation
ESCP	Erosion sediment control plan
EMP	Environmental management plan
g / m3	grams per cubic metre
HAIL	Hazardous Activities and Industries List
HDPE	High-density polyethylene
HSP	Health and Safety Plan
LEL	Lower explosive limit
m bgl	metres below ground level
MFE	Ministry for the Environment
NES	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
OCP	Organoclorine pesticides
PAHs	Polycyclic aromatic hydrocarbons
PCBU	Person conducting a business or undertaking
PID	Photo ionisation detector
PPM	Parts per million
PSI	Preliminary Site Investigation
STEL	Short term exposure limit
SPR	Source-receptor-linkages
SQEP	Suitably qualified and experienced practitioner
SVOC	Semi-volatile organic compounds
SVR	Site validation report
TBD	To be determined
TCLP	Toxicity characteristic leaching procedure
TPH	Total petroleum hydrocarbon
VOC	Volatile organic compounds

Contaminated Site Management Plan Revision Process

Revision Process	Discussion	Plan Suitability
For Consent	The plan is prepared to demonstrate that anticipated effects caused by disturbance and removal of contaminated soil and groundwater can be managed through implementation of high-level controls. At this point a design may not be available, a contractor not appointed, and any particular regulatory conditions unknown. The use of such a plan prepared primarily as a regulatory device for physical works on site will potentially carry a number of risks for tendering and construction: – Contamination conditions not fully understood, especially where DSI not completed. – Poorly understood communications, roles, responsibilities. – A number of controls that may not be fit for purpose and overzealous in the context of final works on site (representing significant cost and programme risk). – Lack of detail in specific earthworks handling and dewatering methodologies, which in context of poorly characterised contamination conditions will result in uncertainty or poorly planned implementation.	**Yes**
For Tender	By this point the design will have progressed to the point that a construction phase tender can be released to the market. It may be in some instances that long periods of time have progressed since the consent was obtained. This version of the CSMP will be updated to include: ■ The results of soil investigations. ■ Any comments from Mana Whenua. ■ Any changes to required controls based on results of soil investigations, or changes to design or methodology. ■ Relevant consent conditions. ■ Any outstanding risk items or uncharacterised contamination conditions. At this point the principal contractor is still unknown and it may not be confirmed as to whether the Contaminated Land 'SQEP' appointed to support consenting/tendering will be retained by the client for construction phase, or that risk will be placed on contractor who will need to engage their own SQEP.	**No**
For Earthworks/Construction (Certification and Approval)	The Principal Contractor is appointed, SQEP is confirmed, design complete and methodology agreed. Typically, this version of the CSMP will be finalised, with the following specific information included: ■ Final names and contact information for all roles. ■ Any soil investigation results, if applicable. ■ Any comments from Mana Whenua. ■ Any changes to required controls based on changes to methodology. ■ Dewatering methodology, if applicable. ■ Agreed stockpile laydown areas. ■ Any outstanding risk items or uncharacterised contamination conditions. This version of the CSMP will be sent to the consenting authority prior to main work commencing in accordance with resource consent timeframes for final certification/approval. If the SQEP appointed to manage works through the construction process differs from the SQEP used to procure consent and tender contract, a final CSMP will be prepared by the new SQEP unless agreed as part of the tendering process.	**No**

1 Introduction

Aurecon New Zealand Limited (Aurecon) has been engaged by a Technology Company (the Client) to prepare a draft Contaminated Site Management Plan (CSMP) to support the construction of a data centre at 1350 Dairy Flat Highway, Dairy Flat, Auckland (the site). The objective of this CSMP is to detail procedures for managing unexpected discoveries of contamination during development works at the site. Programme definitions referred to within this CSMP are presented in *Table 1-1*

Table 1-1 Definitions

Programme definitions	Referred to herein as:
Technology Company Data Centre Development	"the Project"
1350 Dairy Flat Highway, Dairy Flat, Auckland	"the Property"
Footprint of the data centre and the access road	"the site"

This report has been prepared with reference to the Ministry for the Environment's Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Revised 2021).

1.1 Site Details

Site identification details are presented in *Table 1-2* and the property and site boundaries are shown in Appendix A.

Table 1-2 Site Identification

Aspect	Details
Site Address	1350 Dairy Flat Highway, Dairy Flat, Auckland
Legal Description	PT ALLT 189 PARO Pukeatua
Record of Title Number	NA579/33
Property Area (ha)	22.5085
Site Area (ha)	10 (approximately)

1.2 Plan Purpose

The key purpose of this CSMP is to ensure that when undertaking the proposed work at the site, potential risks to the following are adequately managed:

- The health of workers;
- The on-site environment;
- The off-site environment (including the health of neighbouring site users, where appropriate).

This report informs the earthworks contractor of the requirements for the management of contaminated materials (if required). It does not describe all issues required to manage earthworks effectively, and it is intended that this plan be incorporated into a relevant works management plan or equivalent by the Principal Contractor.

The CSMP is intended to provide for the management of soil and water during the work. The CSMP covers the following:

- Summary of proposed works, areas of affected materials and remedial objectives (Section 1);
- Contact information and summary of specified roles for Client, Consultant and Contractors engaged to work on this project (Section 2);

- Site management procedures (Section 3);
- Protocols for unexpected contamination discovery (Section 4);
- Health and safety protection measures (Section 5);
- Environmental management procedures (Section 6);
- Testing requirements for imported fill and waste disposal. (Section 7);
- Validation / monitoring of the works and reporting requirements for regulatory authorities (Section 8);
- On-going monitoring and management, should this be required.

This plan should be used to inform the site risk assessment register at the site and should be updated through the life of the project to reflect any change in site conditions.

This plan is restricted to the management of contaminated, or potentially contaminated soil, and should not be used to replace other site management processes that will need to be in place during the construction phase of the project.

Where the processes defined in this plan are in direct conflict with consent conditions, advice should be sought from both the consent issuing authority and the Suitably Qualified and Experienced Practitioner (SQEP).

1.3 Project Description

Technology Company is planning to construct and operate a new data centre in the North Shore area of Auckland. The site will ultimately accommodate a 40MW data centre campus and will provide a clear path-way for future expansion capacity.

The facility shall accommodate associated mechanical and electrical plant space, technology support areas, offices, storage and logistics. The facility shall be capable of meeting the technology company's growth projections for the next 10 years.

The site shall be designed such that capacity can be added or modified as the site develops, and load grows to minimise future design and construction costs. The Data Centre will be constructed in multiple stages, and each stage shall consist of several phases of fit out work as the demand for additional capacity increases over time.

1.4 Explanatory Statement

1.4.1 Review Scope and Use

- This draft report has been prepared by Aurecon for the client, exclusively for its use. It has been prepared in

  accordance with our scope of services, the instructions given by or on behalf of the client, and is for the purpose outlined in section 1.1 of this report only. If a party other than Aurecon is tasked with providing a CSMP with more complete details, then they must produce their own report. All material included in this report should be accurately referenced if it is referred to or quoted.

1.4.2 Limitations

- Only a limited amount of information has been collected and this report does not purport to completely describe all the site characteristics, properties and hazards. Should further information become available regarding the conditions in the site, including previously unknown likely sources of contamination, Aurecon reserves the right to review this plan in the context of the additional information.
- Aurecon accepts no responsibility for any deviations from the plan which may result in harm to the site workers, damage to the environment or breaches of consent.

- The report is based on information provided to Aurecon by the client and other parties. It is provided strictly on the basis that the information that has been provided is accurate, complete and adequate. Aurecon takes no responsibility and disclaims all liability whatsoever for any loss or damage that the client or any other party may suffer resulting from any conclusions based on information provided to Aurecon, except to the extent that Aurecon expressly indicates in the report that it has verified the information to its satisfaction.
- This document does not include any assessment or consideration of potential health and safety issues under the Health and Safety at Work Act 2015.

2 Management approach

2.1 Contamination risks

Aurecon conducted a Preliminary Site Investigation (PSI) (*523578-0000-REP-KF-0001_PSI_V*) at the site in May 2023. The key findings of the PSI, as related to contaminated land risk, are as follows:

- The site has a limited development history and has predominantly been used for agricultural purposes. Limited earthworks are understood to have taken place, with some minor reworking for drainage purposes.
- It was considered highly unlikely that activities or industries listed on the Hazardous Activities and Industries List (HAIL) had been conducted on the site.
- Some localised areas of potential burning were noted during the site walkover.
- Potentially there may be some impact to groundwater from agricultural land use, and from upgradient source sites such as the North Shore Airfield. Groundwater contamination is not expected to restrict the development from occurring, but some controls may be required where dewatering and off-site discharges are required.
- While no specific contaminating land uses are identified which represent human health or ecological risk, there may be some impact from the use of fertilisers, raising the level of heavy metal contamination above adopted regional background levels, which may influence disposal.
- Any remaining site buildings pre-dating 2000 are recognised as a potential asbestos risk under the Health and Safety at Work Act (2015).

2.2 Management approach

To address the risks associated with contamination in the context of the site for construction activities, we identify the following actions to be implemented through this CSMP:

- Soils from within and surrounding the small area of burning can be excavated and removed from the site as a Permitted Activity in accordance with Regulation 8(3) of the NESCS. Soils excavated from the burn area will need to be disposed of to a Class A or Class 1 landfill facility;
- Any remaining site soils are suitable for retention onsite. Prior soil sampling and laboratory testing will be required to be undertaken by the Suitably Qualified and Experienced Person (SQEP) if required to be disposed off-site, to confirm final disposal location;
- Where dewatering is proposed, prior testing of groundwater by the SQEP shall be undertaken to inform disposal and discharge requirements; and
- Any removal of asbestos containing material from site buildings will need to be undertaken in accordance with the Approved Code of Practice for the Management and Removal of Asbestos (ACOP) (WorkSafe New Zealand, 2016) and the Health and Safety at Work (Asbestos) Regulations (MBIE, 2016). Clearance certificates shall be provided by the contractor to the SQEP prior to any soil disturbance activities occurring within the footprint or immediate surrounds (10 m) of the buildings.

2.3 Sustainable Practice

It is uncertain at this stage whether the project will be undertaken in accordance with any sustainability frameworks (i.e. NZ Green Building, ISCA) however we recommend that any decisions made regarding the management of soils on site, through the design consenting and construction process should be considered with the lens of sustainability in an effort to reduce costs and carbon footprint associated with off-site soil disposal. As set out within the Infrastructure Sustainability Technical Manual (ISCA, Version 1.2, 2018) the sustainability hierarchy for remediation and management of soils is set out as follows:

1. *If practicable, on-site treatment of the contamination so that it is destroyed or the associated risk is reduced to an acceptable level.*
2. *Off-site treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which soil is returned to the site.*
3. *Consolidation and isolation of the soil on site by containment with a properly designed barrier.*
4. *Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material.*
5. *Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.*

No defined contamination has been identified on site to date, however we recommend every effort is undertaken to retain materials on site as is practicable.

3 Roles and Responsibilities

All employees engaged in field activities and under the direct control of the Principal Contractor shall comply with the requirements of this plan.

Roles assigned to key project personnel are identified in *Table 3-1* Project Roles and Contact Information. Further clarity on the roles is provided in Appendix B.

Table 3-1 Project Roles and Contact Information

Tasks	Organisation	Name	Email	Phone
Distribution of this plan to the lead contractor & ensuring compliance with the plan	The Client	TBD		
Providing guidance for unexpected discoveries Contaminated Land Technical Reporting Updating CSMP	Environmental Consultant (SQEP)	Andrew Barr	[redacted]	[redacted]
Implementation of CSMP	Principal Contractor	TBD		
	Site Manager	TBD		
	Earthworks Contractor	TBD		
Review of CSMP Production of a site-specific erosion and sediment control plan	Earthworks Environmental Manager	TBD		
Emergency Response Contact Information				
Auckland Council – Compliance Officer				09 354 8700
Auckland Council Pollution Response Hotline				09 377 3107

WorkSafe NZ	info@worksafe.govt.nz	0800 030 040
National Poisons Centre	https://poisons.co.nz/	0800 764 766

4 Site Management Procedures

This section provides guidance on the site-specific measures required to control the site and to protect the environment during activities on the site that disturb contaminated or potentially contaminated soils or groundwater.

The procedures should be referenced and/or included in a site-specific over-arching environmental management plan.

Table 4-1 Site Management

Item	Requirement
Consents and Plans	Prior to commencing works, the following should be conducted: ■ Confirm that all necessary consents have been obtained; and ■ Ensure the approved and certified Contractor H&S documents are utilised for the Works.
Site record keeping and monitoring requirements	Records which should be kept on site during the Works include: ■ Site conditions; ■ Condition and replacement of erosion and sediment control measures; ■ Record of sampling undertaken and laboratory results; ■ Any further requirements for analysis for disposal acceptance purposes (refer *Section 6*); ■ Environmental discussions, incidents and non-compliance issues; ■ Third party complaints lodged regarding the works, as well as all corrective measures implemented to limit such complaints from reoccurring; ■ Waste disposal records/tipping dockets of all soil and water transported off site; and ■ Information of the source/ site /sample results from any imported clean fill material for the Works.
Induction and awareness	The contractor shall ensure the following: ■ Induct all site workers onto the approved CSMP; ■ Ensure staff are aware of **soil** tracking requirements, including retaining disposal records/tipping dockets; ■ Ensure a site plan, identifying where exactly the temporary stockpile is to be stored is clearly identified; and ■ Record all details of unexpected contamination and hazardous materials discovery on an incident form.

Item	Requirement
Site Control, Access and Egress	The contractor shall ensure the following: ■ Define the site ingress and egress arrangements, haulage routes within the site, the location of any uncontaminated areas and location of site support/rest/decontamination facilities. ■ Access to the site shall be restricted using security fencing, with access to contaminated areas within the site further restricted to authorised personnel. ■ Personnel shall be authorised following completion of appropriate site induction procedures and following donning of required personal protective equipment (PPE). ■ The contractor shall establish exclusion zones around excavation areas, clearly delineating, isolating and securing these areas as required. The location of these areas will be established by the Contractor and visibly displayed within the work area.

4.1 Unexpected Discoveries

The unexpected discovery protocols detailed in Table 4-2 are to be implemented in the event unexpected contamination is discovered during the Works. The procedures outlined below provide the Contractor with protocols to address unforeseen contamination and take appropriate action to avoid the dispersion of potential contaminants into the surrounding environment.

Table 4-2 Unexpected Contamination Discovery

Item	Requirement
Contamination Indicators	Contamination discoveries include the following: ■ Presence of discoloured surface water (including sheens or slicks); ■ Unusual odours; ■ Gas bubbles in pooled surface water; ■ Oily substances; ■ Intact or broken drums/containers; or ■ Fibrous materials such as fibre cement which may contain asbestos. These discoveries differ significantly from the expected ground conditions such that additional management, as described in this section, is required.

Item	Requirement
Process	During the Works, the Contractor shall actively monitor ground conditions for the conditions/materials specified above. If newly discovered contaminated material is encountered, the Works must immediately stop in the area. The material must remain in situ until the SQEP has had the opportunity to assess and test the material, and to provide advice on how to proceed. The SQEP shall: ■ Notify the regulatory authority/authorities, if required; ■ Characterise the contaminated material by collecting samples for laboratory analysis; ■ Prepare a Remedial Action Plan (RAP), if required; ■ If appropriate, advise the contractor to excavate the suspected contaminated material into a covered and contained receptacle to allow works to continue with minimum delay; ■ When the material or water characteristics have been established by the SQEP, they will advise the site supervisor as to whether the: – Controls within this CSMP are suitable for the management of the materials identified; or – The additional controls required to suitably manage the material for the protection of human health and the environment.

4.2 Environmental Management Procedures

Table 4-3 provides the environmental controls required to minimise any adverse effects on the environment.

Table 4-3 Environmental management

Item	Requirement
Excavation, Transportation and Disposal of Potentially Contaminated Soils	The following shall be adhered to during the excavation and transportation of excavated soils across the site: ■ Sediment and erosion controls shall be in place prior to the commencement of earthworks; ■ Trucks shall be loaded within the confines of the environmental controls, where runoff and potential spills during loading are able to be controlled and contained; ■ All materials removed from site will be transported to a suitably licensed facility for disposal; ■ All trucks will be securely covered with close fitting tarpaulins; and ■ All materials leaving the site will be tracked by way of weighbridge dockets which include the disposal location and the weight of the load. The primary mechanisms for sediment spreading on the site is spillage during excavation and tracking by machinery. Any soils tracked beyond the site boundary should be swept up promptly and appropriately disposed of.

Item	Requirement
Erosion and sediment control	During earthworks, rainwater has the potential to contact exposed soil and transport sediment and contamination off-site. Erosion and sediment controls shall be put in place to ensure that the generation of potentially contaminated sediment and stormwater is minimised and appropriately managed. Protection of nearby surface water bodies and receiving ecosystems is a primary consideration of all works on-site All earthworks will be completed in accordance with guidelines in: ■ Auckland Council's 'Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05)'. Priority is to be given to protection of any adjacent watercourses and storm water drains. A site-specific erosion and sediment control plan will be prepared by the Contractor and provided to the client and to the regional council. This will detail the location(s) and nature of the erosion and sediment control device(s), having regard to the anticipated extent and quantity of earthworks, along with the site layout. The site-specific plan is to be available on site at all times during the earthworks and is to be reviewed and amended if required upon the commencement of, and during, the works. Earthworks areas are to be stabilised as soon as is practical to minimise erosion potential on site. Any areas that are significantly contaminated must have specific sediment and erosion control measures
Stockpiling	Stockpiling of contaminated / odorous soil should be avoided where possible during the course of works. The following management options are considered appropriate for the mitigation of potential hazards arising from the creation of potentially contaminated stockpiles at the site: ■ Heavy duty plastic, such as high-density polyethylene (HDPE), will be placed on any unsealed surface in a designated area prior to placing stockpiled material in that area. ■ Soil stockpiles will be kept clean and tidy, no more than 4 m in height and with a compacted stable slope. ■ Stockpiles will not be placed within 20 m of the coast or waterways (including dry stream channels/ephemeral waterways and overland flow paths, if known) and vehicular movement over stockpiled soil will not be allowed. ■ Bunds or sediment fences will be constructed or installed around the edges of the stockpile management area to prevent storm water run-off from carrying contaminated or potentially contaminated soil away from the stockpile management area. ■ At the end of each day, or prior to forecast rainfall, stockpiles shall be covered to prevent discharges form the stockpiles. Imported fill required for backfilling excavations may be temporarily stockpiled in a designated, clean area on site. All imported fill is required to be free of contaminants
Odour and Dust Management Controls	Excavation, stockpiling, movement of plant and transport of soils may generate dust and/or release odours. Dust must be managed during the Works in accordance with the Good Practice Guide for Dust Emissions. The generation of dust and odour will be minimised during the Works by the following: ■ Suspending stockpiling and transport of soils during periods of high wind. ■ Limiting speed of travel on site. ■ Limiting transport routes across site to designated haulage routes. ■ Using a water spray to dampen exposed and stockpiled soils. ■ Ensuring trucks transporting material from the Site are covered and that vehicles are adequately cleaned of dirt before leaving site. Additional dust suppression measures may be required when asbestos is present.

Item	Requirement
Groundwater / Surface Water Management and Dewatering	Should groundwater and/or surface water pool within excavations, this water can be allowed to soak back to the excavation naturally. However, should volumes exceed the capacity to soak naturally and off-site disposal is required, the following options are available: ■ Testing for chemical and physical contaminants (e.g. turbidity, temperature) to determine if it is acceptable for discharge to the council's stormwater reticulation network in compliance with any associated council plan requirements, and/or whether a consent may be required; or ■ Testing for chemical and physical contaminants (e.g. turbidity, temperature) to determine if the water may be discharged to trade waste with appropriate permits / asset holder approval; or ■ Removal by a licensed contractor to a suitably licensed disposal facility. If it is known that excavations will require dewatering, a dewatering plan including disposal arrangements will be developed prior to excavation earthworks commencing. Records of this disposal shall be kept and maintained on site
Imported Material	Any soil materials that are to be imported to site for the purpose of reinstating the ground should be: ■ Suitable to comply with the definition of 'cleanfill', as per the Waste Management Institute New Zealand (WasteMINZ) document titled 'Technical Guidelines for Disposal to Land – Revision 3' (2022)'; or ■ Demonstrated by a SQEP to be fit for purpose in consideration of the proposed land use as a data centre, will not present an ongoing environmental or ecological risk. No material shall be imported to site without prior review and approval by the SQEP.

5 Health & Safety Controls

All works shall be undertaken in accordance with the contractor's health and safety plan, which should include reference to the requirements in this plan. Inductions should discuss actions that need to be taken for handling/managing potentially contaminated soil as described in this plan. Table 5-1 sets out the health and safety measures required for the Works.

Table 5-1 Health and Safety

Item	Requirement
Health and Safety Plan	In accordance with the provisions of the Health and Safety at Work Act[1] , it is the responsibility of the Principal Contractor to communicate to their workers undertaking work on the site the nature and extent of the contamination and associated hazards and recommended management practices. This CSMP is intended to support this process and does not relieve the Principal Contractor of their responsibility for the health and safety of workers. All works are to be undertaken in accordance with the contractors Health and Safety Plan for the Works.
Site Control Information Required	The Health and Safety Plan will define the site ingress and egress arrangements, haulage routes for the Works, and location of site support/rest/decontamination facilities.

[1] Health and Safety at Work Act, 2015. Public Act No.70. Version as at 28 October 2021.

Item	Requirement
Identification of Hazards and Management	The following contaminated land related hazards may be encountered during the works if contaminated soil is encountered: ■ Dermal skin contact with contaminated soil or groundwater; ■ Inhalation of contaminated dust; and ■ Ingestion of contaminated soil or groundwater. The primary hazard management method is minimising exposure to contaminated soil during excavations and transportation. Further unspecified hazards may be identified during the course of the works. The hazards identified above will be managed through the wearing of appropriate personal protective equipment (PPE) and the procedures set out in *Table 4-1* and *Table 5-1*. Maintenance of earthworks controls is a key component of contaminated soil hazard management.
Personal Protective Equipment	During site induction, potential hazards associated with exposure to potential contaminants will be communicated to all site workers, and the following PPE made available for use by site workers, as required: ■ Chemical-resistant gloves. ■ Safety boots. ■ Full length clothing. Should unexpected contamination or asbestos be present additional PPE or Respiratory Protective Equipment (RPE) requirements may be required as directed by a SQEP and may include: ■ Eye protection; ■ Type 5/6 Coveralls ■ P2 Dust mask; ■ Half Face P3 Respirator; and ■ Flame Retardant Overalls.
Hazard Minimisation Procedures & Hygiene Controls	The following procedures to minimise hazards related to contaminated soils will be implemented by the contractor: ■ Dust controls, according to the procedures set out in *Table 4-3*. Dust Control Procedures; ■ Minimise contact with potentially contaminated material through excavations using machinery. However, as a precautionary measure, any worker that is required to manually handle any contaminated soil will be required to wear appropriate PPE identified above; and ■ Maintaining good personnel hygiene, including: – No eating, drinking or smoking/vaping in the works area, whilst potentially contaminated soils are being excavated to prevent contaminated soil contacting food or being ingested directly through soiled hands; – Avoiding hand to mouth and hand to face contact during work with potentially contaminated soils; – Washing boots if contaminated soil has been contacted; – Disposing of gloves that have contacted contaminated material; and – Hands and face will be washed before eating, drinking and smoking, which is only permitted where site personnel are off-site or in designated areas.

6 Testing and Disposal Requirements

6.1 Soil and Water Testing

Table 6-1 sets out the additional testing requirements.

Table 6-1 Soil and Water testing requirements

Item	Test Required (Y/N)	Requirement
Additional Soil Characterisation	**Y**	Soil sampling and analysis is to be undertaken by a Suitably Qualified and Experienced Person (SQEP) to support disposal options for soils that require off-site disposal.
Water Testing	**Y**	Where dewatering is proposed, recommend prior testing of groundwater to be undertaken to inform disposal and discharge requirements.
Soil Disposal	**Y**	The additional testing data will be screened against landfill acceptance criteria(s). The results will determine whether further TCLP testing is required for leachable concentration of metals to meet Class A TCLP criteria.
Imported Material	**Y**	For any imported material, the following applies: ■ Imported material directly from quarries (virgin excavated natural material) does not require testing. ■ Any imported material acquired from an alternative source should be assessed by a SQEP to determine its appropriateness for use on the site and to identify any potential discharge consent requirements. ■ Where no analytical data exists, the SQEP is likely to require sampling and testing at a minimum rate of one sample for every 500 m^3 with not less than three samples tested per source, testing shall as a minimum include: – Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn); – Asbestos presence/ absence; and – Total petroleum hydrocarbons (TPH). ■ Testing on materials with a major component (i.e. 50% or more by mass) with a particle size greater than 2 mm may differ from that prescribed above, and will be determined by the SQEP. ■ Analysis of samples shall be undertaken at an International Accreditation New Zealand (IANZ) accredited laboratory.

6.2 Project Specific Disposal Options

A summary of soil re-use and disposal requirements is presented in *Table 6-2*.

Table 6-2 Summary of proposed testing requirements for off-site disposal

Material type identified	Untested areas (the site)	Natural	Groundwater
Material Description	Topsoil	Unknown	-
Depth (m bgl)	Typically, 150 - 500 mm	1.2 - 9.88	0 - 0.6
Re-use suitability (contaminated land only)	Suitable for re-use onsite	Suitable for re-use onsite	Suitable for ground soakage

Current off-site disposal suitability	Unknown	Cleanfill	Unknown
Action needed	Testing	None	Testing

7 References

Auckland Council 2016, Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05)'.

Auckland Regional Council 2001, Background Concentrations of Inorganic Elements in Soils from the Auckland Region. Technical Publication No 153. Auckland Regional Council, Auckland.

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Appendix A Site Location Plan

NOTES:
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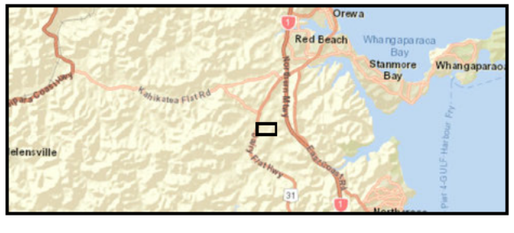
Legend

- Site Boundary
- Property Boundary

80 40 0 80 160 Meters



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CLIENT	REV	DATE	REVISION DETAILS	APPROVED
	A	20/04/2023	FOR ISSUE WITH 523578-00-RPE-KF-0001	

SCALE	SIZE
1:3,150	A3

DRAWN: G.WOOD
DESIGNED: A. BARR
CHECKED:

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 20.04.23

PROJECT: DATA CENTRE DEVELOPMENT
TITLE: SITE PLAN

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUM	REV
	523578 -	000 -	SKT -	KF -	0001 -	A

Appendix B Roles and Responsibilities

This table summarises the recommended roles and assumed responsibilities for the management of contaminated or potentially contaminated soil during earthworks. The appointed contractor may wish to appoint sub-consultants or contractors to assume certain responsibilities on their behalf. The roles and responsibilities are suggested only, but shall be finalised as part of the final CSMP. All identified roles should include clear lines of communication between all key project stakeholders.

Table B.1: Roles and Responsibilities

Role	Responsibility
The Client	The Client is the principal for all works and for the purposes of the Health and Safety at Work Act 2015 is the person conducting a business or undertaking (PCBU). The Client is responsible for appointing the Principal Contractor and the Principal Consultant. The Client may elect to appoint a project manager to represent their interests in addition to these parties.
Principal Consultant	The Principal Consultant is responsible for observing the works to provide reassurance that they are being carried out in accordance with the proposed design and that any variations to the design are documented and fit for purpose. The Principal Consultant is responsible for advising on the need for and reasonableness of any changes to the contract for the works. The Principal Consultant recommends an Environmental Consultant to deliver specialist services related to contaminated land within the CSMP.
Environmental Consultant (Suitably Qualified Environmental Practitioner)	The Environmental Consultant and their nominated Suitably Qualified Experienced Practitioner (SQEP) will be responsible for activities associated with inspection and/or sampling of soil, such as: ▪ Identifying areas of potential soil contamination; and ▪ Review of soil data and provision of advice with respect to appropriate management and/or off-site disposal of material. The SQEP will be available to provide on-going environmental advice and support to the Earthworks Contractor as needed. Where necessary, the SQEP (with the Site Manager) will be responsible for on-going liaison with regulatory authorities and the community in relation to environmental issues. The role of SQEP is outlined in both the Ministry for the Environment (MfE, 2012) and also the NES. The determination as to who may qualify as a SQEP is defined in MfE 2012 and also by WasteMINZ[2]. The minimum requirements of a SQEP suitable for performing this role as interpreted by WasteMINZ is the following: ▪ Accreditation as a Certified Environmental Practitioner Site Contamination Specialist; ▪ NES Users' Guide SQEP guidance; ▪ Ask your local council for advice.
Principal Contractor	The Principal Contractor for the project is ultimately responsible for the overall compliance with prescribed legislation and guidelines relevant to the project. This is the company who hold the contract to complete the physical works. The Principal Contractor is responsible for finalising the CSMP and submitting it for certification by relevant legislative authorities.
Site Manager	The Site Manager will ensure that the appointed Earthworks Contractor (Principal) is prepared to implement environmental protection programmes, appropriate to their activities, and to cooperate in any environmental management plans implemented on the Project. The Site Manager will be the main contact and conduit for ongoing liaison between regulatory authorities. Advice from the Earthworks Contractor may be sought as required. The Site Manager is responsible for ensuring that the works are completed in accordance with the contract.

[2] https://www.wasteminz.org.nz/wp-content/uploads/2019/11/SQEP-information-for-WasteMINZs-website-12Nov19.pdf/

Role	Responsibility
Earthworks Contractor	The Earthworks Contractor will report directly to the Site Manager and will be responsible for implementing the plan with assistance and direction from the Site Manager or the Principal Consultant. The Earthworks Contractor nominates an Earthworks Environmental Manager. The Earthworks Contractor has responsibility to ensure activities under their direct control are completed in compliance with this plan and related Work Procedures, Inspection Plans, Procedural Checklists, and Environmental Management Plans, as applicable.
Earthworks Environmental Manager	The responsibility for day-to-day site management lies with the Earthworks Environmental Manager. The manager will be assisted by the nominated SQEP as necessary. The Earthworks Environmental Manager is responsible for ensuring that all employees and earthworks subcontractors are fully cognisant of, and abide by, this plan. The Earthworks Environmental Manager will ensure all employees and subcontractors put into practice this plan and shall ensure that the factors that may compromise the achievement of overall project or environmental objectives are brought to the attention of the Site Manager and the SQEP. The Earthworks Environmental Manager will: ■ Be responsible for ensuring employee and Earthworks Contractor adherence to this plan; ■ Maintain the content and implementation of induction training and tool box sessions; ■ Keep records of who has been inducted; ■ Be responsible for reporting all incidents in breach of this plan to the Site Manager and SQEP; ■ Maintain a log of earthworks operations and associated management and/or off-site disposal of material; ■ Periodically inspect pollution management features and equipment to confirm availability and completeness; and The Earthworks Environmental Manager and SQEP shall, in conjunction, be responsible for the following: ■ Inspection of excavations to determine extent of earthworks; ■ Identification of access controlled work areas; and ■ Review and management of imported materials and/or waste materials.

Appendix C Soil Classification

A contaminated site is a site where hazardous substances occur at a level which could cause an immediate or long-term hazard to human health and/or the environment. With regard to soil, there are four basic categories:

- Contamination is present above human health guideline values or contaminant standards.
- Contamination is present above ecological guideline values.
- Possible contamination is present above guideline values or contaminant standards.
- No contamination is present above guideline values.

There are three categories of soil classification: Clean fill, Managed fill, and Landfill (defined in the table below). Site soils should be managed in accordance with their known or suspected level of contamination to mitigate any risks posed to the environment or human health.

Table C.1: Soil Classification

Classification	Definition
Clean Fill Material (Class 5 landfill)	Defined by Technical Guidelines for Disposal to Land (2018): Virgin excavated natural materials (VENM) such as clay, soil and rock that are free of: ■ Combustive, putrescible, degradable, or leachable components; ■ Hazardous substances or materials (such as municipal solid waste) likely to create leachate by means of biological breakdown; ■ Products or materials derived from hazardous waste treatment, stabilisation or disposal practices; ■ Materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health if excavated; ■ Contaminated soil and other contaminated materials; ■ Liquid waste. In simpler terms, cleanfill includes materials such as uncontaminated soils, cured asphalt, bricks, unreinforced concrete, fibre cement building products (excluding asbestos) and glass. Non-cleanfill materials would include soils with analytical results showing detectable hydrocarbon compounds and/or exceedance of regional background concentrations of metals, asphalt (new), green waste and household refuse. Waste soil meeting cleanfill criteria and requiring removal from site is able to be disposed of in a landfill permitted for acceptance of cleanfill.
Managed Fills (Class 2, 3 and 4 landfill)	Managed fill makes up material, contaminated clay, soil, rock and other inert materials that may have contaminants that exceed background concentrations. ■ Soil containing metal contaminants above regional background concentrations. ■ Soil containing detectable concentrations of hydrocarbon compounds. ■ Soil containing contaminants of concern above ecological risk based guideline values. Soil that does not contain hazardous substances or materials in the form of household and industrial waste, organic waste or asbestos containing material.
Landfills (Class 1 landfill)	Landfills involve the disposal of material not suitable for diversion or clean fills and managed fills. ■ Hazardous materials in the form of household and industrial waste, organic waste or asbestos containing material. Soil with contamination present above Tier 1 assessment values.

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