RCL Henley Downs Limited

786 KINGSTON ROAD, QUEENSTOWN
PRELIMINARY SITE INVESTIGATION

4 APRIL 2025

CONFIDENTIAL

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PRELIMINARY SITE INVESTIGATION

RCL Henley Downs Limited

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REV	DATE	DETAILS
01	12 May 2023	First draft reviewed, with revisions made 12 July 2023 after anecdotal evidence from farmer.
02	26 July 2023	Final review by SQEP.
03	28 January 2025	Update of report to include Lot 12 DP 364700 (Homestead Bay Rd)
04	03 February 2025	Finalisation of update including RM Planner comments
05	04 April 2025	Final for Issue

	NAME	DATE	SIGNATURE
Prepared by:	Tara Verhulst	27/07/2023	
Reviewed by:	Lisa Bond	27/07/2023	
Approved by:	Lisa Bond	27/07/2023	

REPORT CHECKLIST

SUMMARY CONTAMINATED SITES REPORT CHECKLIST					
Report contained in this document	☒	☐	☐	☐	☐
Report sections and information to be presented	**PSI**	**DSI**	**RAP**	**SVR**	**MMP**
Executive summary	☒	☐	☐	☐	☐
Scope of work	☒	☐	☐	☐	☐
Site identification	☒	☐	☐	☐	☐
Site history	☒	S	S	S	S
Site condition and surrounding environment	☒	S	S	S	S
Geology and hydrology	A	☐	S	S	S
Sampling and analysis plan and sampling methodology	A	☐	X	☐	☐
Field quality assurance and quality control (QA/QC)	N	☐	X	☐	S
Laboratory QA/QC	N	☐	X	☐	X
QA/QC data evaluation	N	☐	X	☐	X
Basis for guideline values	☒	☐	☐	☐	☐
Results	A	☐	☐	☐	S
Site characterisation	☒	☐	☐	☐	☐
Remedial actions	X	X	☐	S	S
Validation	X	X	X	☐	S
Contaminated materials management plan (CMMP)	X	X	☐	S	S
Ongoing site monitoring	X	X	X	N	☐
Conclusions and recommendations	☒	☐	☐	☐	☐

KEY:

PSI - preliminary site investigation report

DSI detailed site investigation report

RAP - site remedial action plan

SVR - site validation report

MMP - ongoing monitoring and management plan

A - Readily available information should be included

S - A summary of this section's details will be adequate if detailed information has been included in an available referenced report

N - Include only if no further site investigation is to be undertaken

X - Not applicable and can be omitted.

(MfE. *Contaminated Land management guidelines No. 1*. (Ministry for the Environment, 2021a)

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APPENDICES

ABBREVIATIONS

CLMG 1	Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand
CLMG 5	Contaminated Land Management Guideline No. 5: Site investigation and analysis of soils
CMMP	Contaminated Materials Management Plan
CoC	Chain of Custody
CSM	Conceptual Site Model
CSMP	Contaminated Site Management Plan
DSI	Detailed Site Investigation
H&S	Health and Safety
HAIL	Hazardous Activities and Industries List
IANZ	International Accreditation New Zealand
ILAC	International Laboratory Accreditation Cooperation
ILAC-MRA	ILAC Mutual Recognition Arrangement
IRB	International Risk Based
LINZ	Land Information New Zealand
LRIS	Land Resource Information Systems
m bgl	meters below ground level
MfE	Ministry for the Environment
MMP	Ongoing Monitoring and Management Plan
N/A	Not applicable
ND	Not derived
NES	National Environmental Standards
NES-CS	National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
NL	No limit - derived value exceeds 10,000mg/kg
NZRB	New Zealand Risk Based
ORC	Otago Regional Council
PoL	Piece of Land
PSI	Preliminary Site Investigation
PSSP	Project Site Safety Plan
QA/QC	Quality assurance and Quality Control
QLDC	Queenstown Lakes District Council

RAP	Remedial Action Plan
SCS (health)	Soil Contaminant Standards for Health
SGV	Soil Guideline Value
SID	Safety in Design
SQEP	Suitable Qualified and Experienced Practitioner
SSL	Soil Screening Level
SVR	Site Validation Report
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxicity Equivalent – indication of the toxicity of a mixture of compounds

EXECUTIVE SUMMARY

WSP New Zealand Ltd (WSP) was initially engaged by RCL Henley Downs Limited to complete a Preliminary Site Investigation (PSI) at 786 Kingston Road, Jacks Point, Queenstown (herein referred to as 'the site'). The site comprises two sections, Lot 8 DP 443832 and Lot 12 DP 364700.

The site is located approximately 9 kilometres south-east of Queenstown town centre in the Jacks Point area; and covers approximately 205 hectares. The Remarkables mountain range is located to the east with State Highway 6 running adjacent to the eastern boundary of the site.

It is understood that the site is currently used as production land for livestock farming with commercial skydiving facilities in the northern part of the site. Part of Lot 12 is also in use as a wastewater treatment plant and disposal field. The client is proposing to develop the site from a rural to an urban/residential end use.

Based on an initial review of the Otago Regional Council's (ORC) Listed Land Use Register, the site has possibly been subject to HAIL activities associated with the airstrip (HAIL F1 and A17) and some uncontrolled landfilling (HAIL G3) along with bulk fertiliser storage (A6) and sheep dips (A8). Site inspections and historical searches have revealed that an additional Sheep dip is present on the site along with a Wastewater Treatment Plant and disposal field (HAIL G6).

As the proposed development would incur a change of land use to a HAIL site, the completion of a PSI is required under the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NESCS) in order to assess the likelihood of Hazardous Activities and Industries List (HAIL) activities and the associated potential risks to human health from contaminants in the soil.

As HAIL activities are considered to have been or be occurring on the site, the NES-CS does apply to the site. Through the desktop study and site walkover, the risks to human health from potential soil borne contaminants associated with the proposed land use change, have been assessed. Areas where HAIL have been noted are assessed to have a moderate to high risk to human health associated with them. Risks to human health on the remainder of the site are Low. Due to the elevated risks associated with HAIL on site, the proposed change in use from rural to urban is considered to be a Discretionary Activity under the NES-CS Regulation (Ministry for the Environment, 2012). Likely conditions associated with the activity status would include the requirement for a Detailed Site Investigation for the pieces of land outlined in Figure 5 prior to any ground disturbance on those parts of the site in excess of permitted activity volumes.

RECOMMENDATIONS

Based on the findings of this PSI report WSP recommends the following:

- This PSI report is submitted to the consenting authority.
- This PSI report is submitted to the regional authority to facilitate updating of the HAIL database.
- Should further ground disturbance to the PoL identified in this report be proposed, a DSI is to be undertaken to categorise the risks to human health and the environment.
- Should any other ground conditions be encountered that are not covered herein, a Suitably Qualified and Experienced Practitioner (SQEP) specialising in contaminated land assessment should be consulted in order to re-assess the risks to human health and sensitive receptors.

1 INTRODUCTION

1.1 OVERVIEW

A Preliminary Site Investigation (PSI) has been undertaken on behalf RCL Henley Downs Limited at Lot 8 DP 443832 and Lot 12 DP 364700; 786 Kingston Road, Jacks Point, Queenstown (herein referred to as 'the site'). The site is located approximately 9 kilometres (km) south-east of Queenstown and is located west of the Remarkables mountain range in the Jacks Point area. The site covers approximately 205 hectares (ha).

It is understood that the client wishes to develop the property from a rural to an urban/residential land use. Lot 8 of the site is currently used for livestock grazing and straw baling, with the northern part of the lot comprising an airstrip for commercial skydiving operations for NZone Queenstown. Lot 12 of the site is also used for grazing, however, also contains the Jacks Point Wastewater Treatment Plant (WWTP) and disposal field along with a small area for sheep management which is likely to include drenching or other stock management activities.

This PSI has been undertaken to assess the potential risks to human health from contaminants in the soil associated with historical site uses taking into consideration the proposed land use change and likely ground disturbance of the property.

1.2 DEVELOPMENT PROPOSALS

The majority of the site is currently used as production land. Commercial skydiving facilities are located in the northern part of the site with a reception area, café and toilet block. The airstrip runs along the northern boundary of Lot 8 with a refuelling pad adjacent the reception area.

It is understood that the client is seeking consent for development of the site from Rural to Urban/Residential via subdivision.

Residential development is proposed as part of the fast-track application.

As such, the subject of this PSI is to understand the risks to human health and the environment associated with the proposed land use change and subdivision.

1.3 OBJECTIVE

Preparation of a PSI under the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NESCS) (Ministry for the Environment, 2011c) will provide information as to whether soil contamination from historical or current day hazardous activities and industries list (HAIL) activities are likely to be present, and if so, whether they are at levels that could adversely impact human health.

This PSI report addresses these requirements in relation to any resource consent application in order to satisfy Queenstown Lakes District Council (QLDC) and Otago Regional Council (ORC) requirements under the NES-CS relating to human health impacts from potentially contaminated land.

As such, the following objectives have been identified:

- Determine whether potentially contaminating activities have been undertaken on the site or its surrounds;
- Assess the risk associated with these potential contaminants to affect human health or the environment;
- Determine the likely impact upon sensitive receptors including site users, occupiers and construction workers on the site; and
- Provide recommendations for future investigations, if required.

1.4 SCOPE OF WORK

This PSI has been prepared in general accordance with the requirements for a PSI referred to in the NES-CS (Ministry for the Environment, 2011c) and *Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand* (CLMG No. 1) (Ministry for the Environment, 2021a) and *Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils* (CLMG No. 5) (Ministry for the Environment, 2021b).

This PSI included the following:

- A site walkover to assess the current condition of the site and its surrounding environment;
- Discussions with the current NZone operations manager and client with knowledge of the site history (if available);
- An assessment of information relating to the site and its, including the review of historical aerial photographs;
- A review of information regarding previous investigations, resource consents and the HAIL status of the site from council records, including searches of the ORC Land Use Register;
- A review of information relating to geological conditions and hydrogeology of the site; and
- Site characterisation indicating the potential health and environmental risks associated with the site development, including recommendations for further assessment should it be required.

This PSI report has been reviewed by a Suitably Qualified and Experienced Practitioner (SQEP), as required by the NES-CS.

1.5 CERTIFYING STATEMENT

WSP confirms that:

- This preliminary site investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the NESCS) because it has been:
- Reported on in accordance with the current edition of *Contaminated land management guidelines No 1 – Reporting on contaminated sites in New Zealand*, and
- The report has been reviewed and approved by a suitably qualified and experienced practitioner.

- Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and certified this report are available on request from WSP.

Table 1: Investigation Management

ITEM	DETAILS
AUTHOR	
NAME	Tara Verhulst
JOB TITLE	Environmental Scientist
YEARS' INDUSTRY EXPERIENCE	2
REVIEWER	
NAME	Lisa Bond CEnvP SC
JOB TITLE	Work Group Manager – Environment and Planning
YEARS' INDUSTRY EXPERIENCE	30

2 SITE DETAILS AND ENVIRONMENTAL SETTING

2.1 SITE IDENTIFICATION

The site is located in Jacks Point, west of the Remarkables mountain range and approximately 9km south-east of Queenstown town centre. The site is accessed off Kingston Road. The majority of the site comprises vacant production land, however, a driveway off Kingston Road leads to a commercial skydiving facility with a grassed runway and refuelling area. The site details and site layout are provided in Table 1 and Figure 1 respectively.

Table 2: Site details

Site Address	786 Kingston Road, Kingston, Queenstown 9793	
Legal Description	Lot 8 DP 443832 & Lot 12 DP 364700	
Title	555575 & 262752	
Approximate total site area	Lot 8: 163.5 ha	Lot 12: 41.7 ha
Total:	205.2 ha	
NESCS Permitted Activity threshold volumes: 1) total site disturbance, and 2) yearly off-site movement of soil based on the approximate total site area	 81,732m^3 16,346.4m^3	
Territorial Authority	Queenstown Lakes District Council	
Planning Zone(s)	Jacks Point Zone and Rural	
Current Site Use	Rural and Commercial (airstrip) and WWTP	

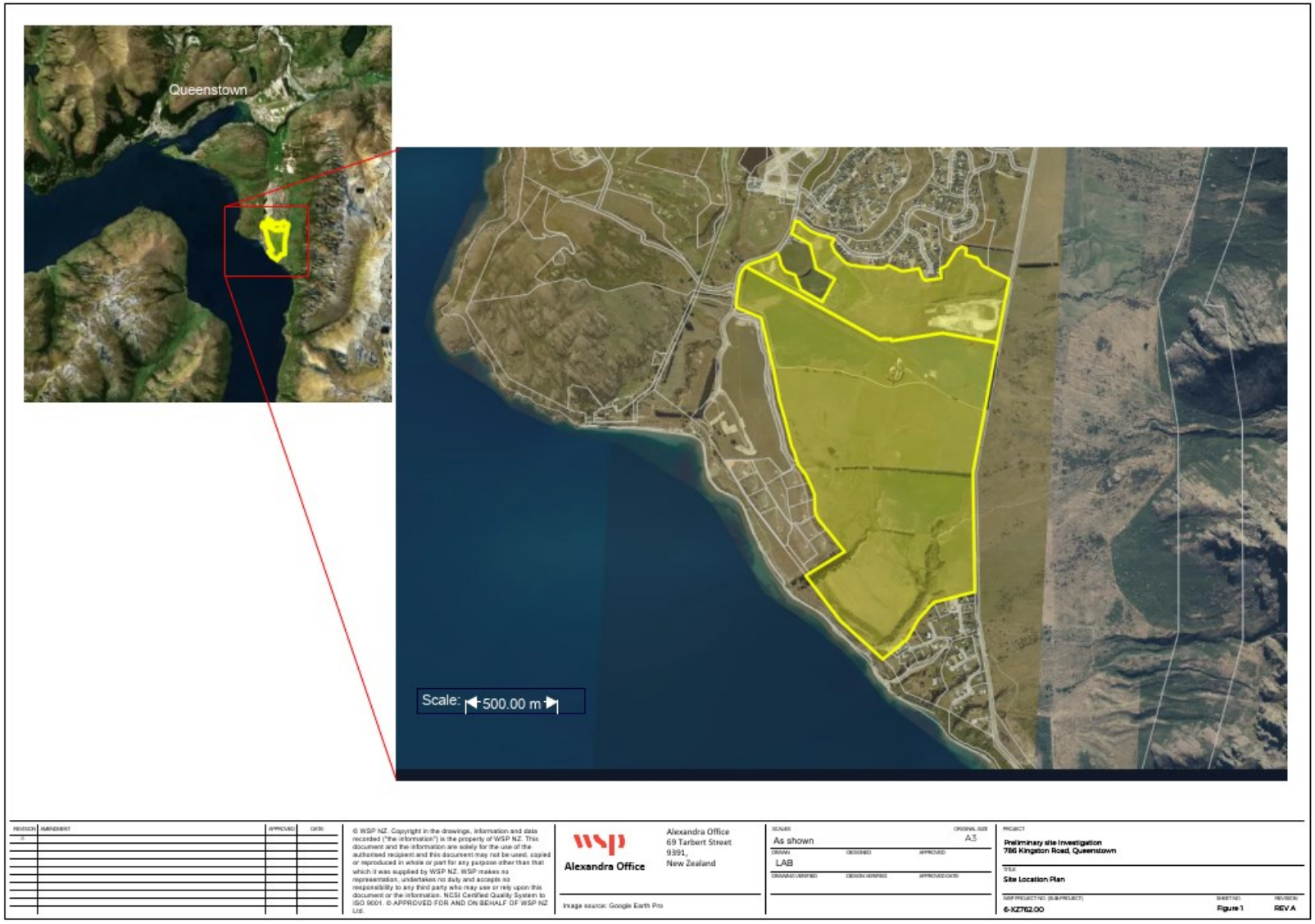

Figure 1: Site location

2.2 GEOLOGY AND TOPOGRAPHY

The geology of the site is shown on the 1:250,000 scale GNS Geology Web Map extract (accessed June 2023) as shown in Figure 2 (GNS Science, 2023).

This map indicates the centre of the site to be underlain by Late Pleistocene glacier deposits with generally unweathered, unsorted to sorted, loose sandy gravel silt and sand (till) in terminal and ground moraines. The northern, eastern and south-western part of the site comprise Holocene lake deposits, with laminated micaceous silt, mud, and sand in old lake deposits.

A review of the GNS Active Faults Database indicates that the nearest active fault is the Nevis Fault (#8466), approximately 15.5km east of the site. The Nevis Fault is reverse with a recurrence interval of >5,000 to <=10,000 years (IV).

The site is located at approximately 350-380m above mean sea level (amsl). The site is generally flat with a slight slope towards the centre of the site. A hill is noted in the centre of the site at 382m amsl.

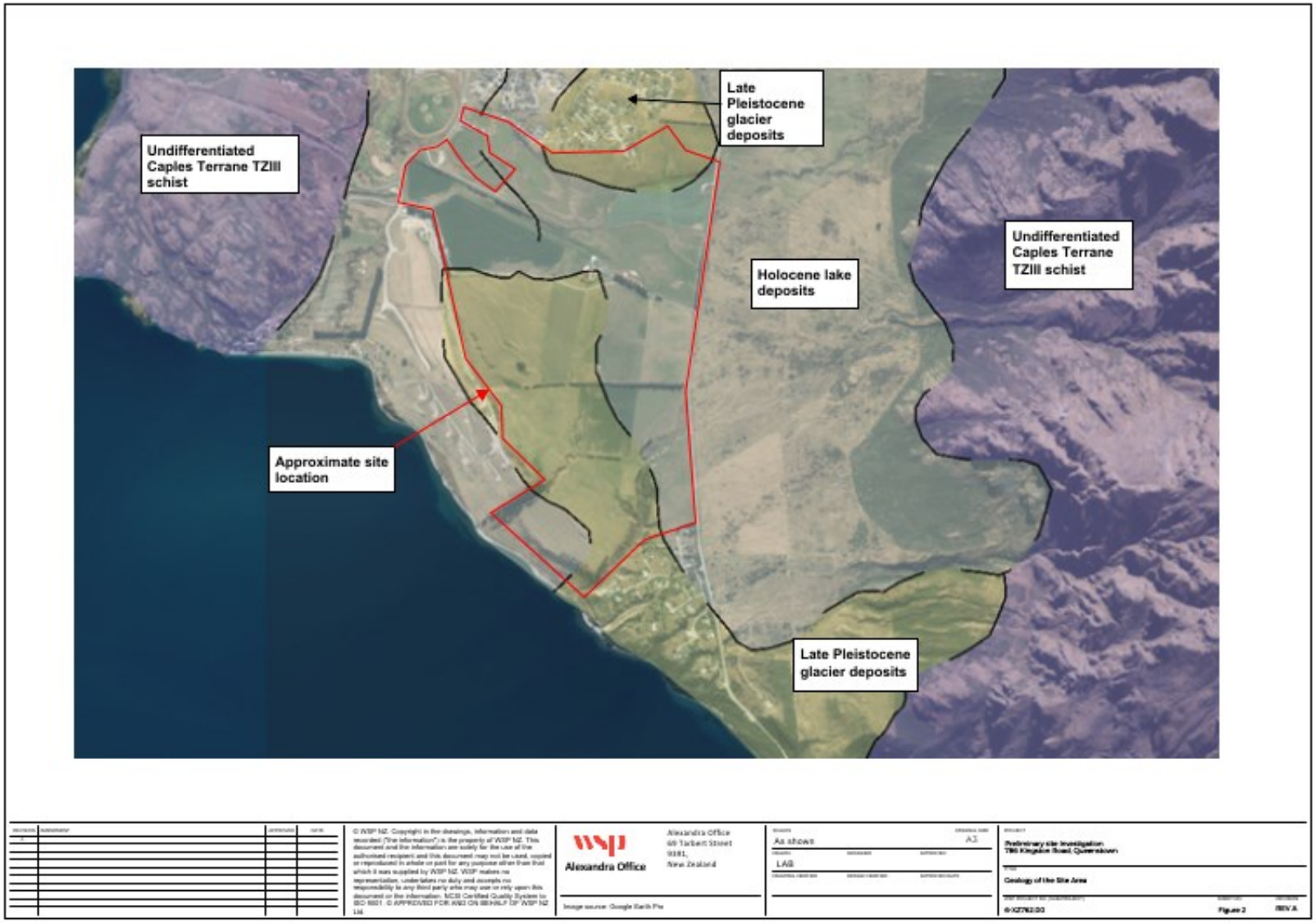

Figure 2: Geology of the site area

2.3 HYDROLOGY AND HYDROGEOLOGY

Details of the site hydrology and hydrogeology have been obtained from a review of sources including Google Earth and a search of council records, refer to Table 2.

The Land Information New Zealand (LINZ) topographic map obtained from QLDC webmaps[1], (refer to Figure 3 below) shows several creeks crossing the southern half of the site from the Remarkables in the east, following the topography in a south-westerly direction and discharging into Lake Wakatipu. As such, the general groundwater flow is inferred to be in a south-westerly direction.

Another creek flows along the northern boundary of Lot 8 separating it from Lot 12, along the boundary of the airstrip. The creek was dry during the January 2025 walkover, however during periods of heavy rainfall, discharges into a pond adjacent to the north-western corner of the site.

The QLDC natural hazards database[2] describes the eastern and northern parts of the site as being located on an Active floodwater-dominated Alluvial Fan (Opus International Consultants Ltd, 2009).

In addition, the natural hazards database suggests the site is predominantly underlain by deep or soft soil which has a low liquefaction potential. The north-western corner of the site comprises shallow soils with a low to moderate liquefaction potential.

The New Zealand Geotechnical Database (LINZ, 2023a) and ORC Listed Land Use Register (Otago Regional Council, 2023)note two known wells approximately 0.5km west of the site. One has a depth of 35.67m bgl and a depth to water of 0.74m bgl was recorded. The other was drilled to a depth of 35.76m bgl and recorded a depth to water of 0.89m bgl. Both water bores are used for domestic purposes.

Table 3: Summary of topographical, hydrological and hydrogeological data

Topography	General slope towards the centre of the site. Slopes on the northern section are steep onto a relatively hummocky plain.
Nearest Surface Water Body	Several creeks flowing in a (south)westerly direction across the site. Creeks are generally ephemeral
Height above Mean Sea Level	Approximately 350-380m amsl
Inferred Groundwater Flow Direction	South-westerly
No. of known Boreholes and wells within 0.5km	Two

[1] QLDC webmaps, obtained from https://experience.arcgis.com/experience/80c97d34e5764669bb9aab99e40d5b8d/page/Map-Navigator/?views=Property.

[2] QLDC webmaps obtained from https://experience.arcgis.com/experience/80c97d34e5764669bb9aab99e40d5b8d/page/Map-Navigator/?views=Hazards.

Piece

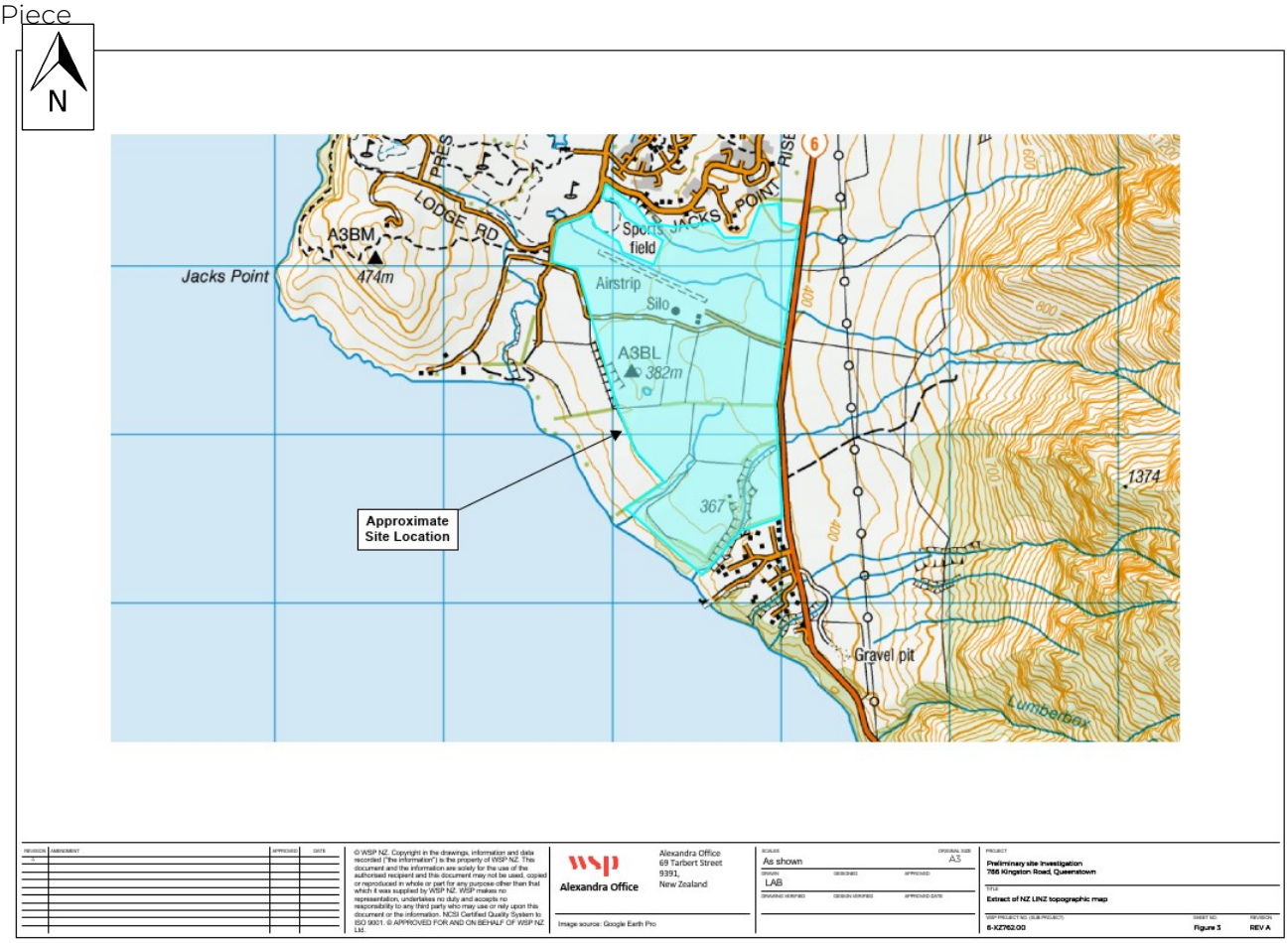

Figure 3: Extract of NZ LINZ topographic map

3 DESKTOP REVIEW

3.1 HISTORICAL AERIAL IMAGERY

Details of the site history have been obtained from a review of multiple sources including historical aerials sourced from Google Earth (Google, 2023) and Retrolens (LINZ, 2023b), historical topographical maps from Maps Past (Maps Past, 2023) and a review of the QLDC databases.

A summary of the observations made following the review of historical aerials is presented in Table 3. The maps and aerial imagery are presented in Appendix A.

Table 4: Summary of historical aerial imagery

YEAR	OBSERVATIONS
1959 Retrolens	The site and surrounding area comprise a rural land use. The site has been divided into several production land parcels. Kingston Road is an established road along the eastern boundary. Two fan channels are noted in the southern part of the site and an ephemeral channel is noted within Lot 12. Lake Wakatipu is located along the western part of the site.
1984 Retrolens	Available for Lot 12 and the top of Lot 8 only. Farmland predominates with a roadway clearly visible cutting across the northern section of Lot 8. Ephemeral stream visible along the boundary of Lots 8 and 12,
1986 Retrolens	Two distinct rows of trees have been planted, one along the western boundary and one in the north-eastern corner of the site. A dwelling has been constructed at the end of the latter row. A small pond is noted near the centre of the site.
1996 Maps Past	Topographic map of the site shows the site is located at approximately 380m amsl. The topography increases towards the centre of the site, with a small hill at 382m amsl. Two tanks are indicated, one adjacent the hill and a second to the north of the site on the rise towards the high ground north of the site. Several rows of trees are noted, and two creeks cross the site in the southern half. A gravel pit is located south-east of the site.
2001 Retrolens	Coloured aerial of the site. A gravel driveway is noted, crossing the northern half of Lot 8 from east, off Kingston Road, to west. A storage shed is noted on Lot 8, in the vicinity of the eastern fan channel. An airstrip seems to have been established along the northern boundary of Lot 8. The large ephemeral stream is located between the boundary of Lots8 and 12 along with another channel cutting east to west through the centre of Lot 12. Some more rows of trees have been planted along the site boundaries.
2006 Google Earth	Largescale earthworks are ongoing north-west of the site for residential development, with the western corner of Lot 12 noted to be undergoing development for the sports field and associated tracks around it. No discerning changes are noted to the site. Two silos have been placed west adjacent the northern building on Lot 8.. The storage shed in the southern end of the site may have been replaced, however this is unclear from the aerial.
2010 Google Earth	The airstrip is clearly defined in the northern end of Lot 8. A larger parking area has been created in front of the current reception building for the airstrip. The remainder of Lot 8 maintains a rural end use. Areas within Lot 12 appear to have been disturbed with lighter patches of ground visible. The WWTP is visible near the boundary of Lot 8 with an access track leading to it from Homestead Bay Road. The laydown area has been established on the southwestern corner of Lot 12. The storage shed in the southern part of the site has been removed.

YEAR	OBSERVATIONS
2011 Google Earth	Lot 8 only: A small sickle-shaped pond has formed in the north-eastern corner of the site. No discerning changes are noted to the site.
2013 Google Earth	Agricultural activities have been undertaken on Lot 8, south and east of the skydiving facilities. Hay bales are being stored near the western pond. A refuelling pad has been constructed. A small shed or storage area is noted in the southern part of Lot 8 where the former shed was located. Significant ground disturbance is noted on Lot 12 with a lot of the grassed areas looking brown. The eastern side of Lot 12 is notable for being greener.
2015 - 2018 Google Earth	Some ground disturbance is noted east adjacent the skydiving facilities. The storage in the southern end of the site has been removed. Lot 12 shows ground disturbance occurring on the eastern part of the lot with tracks leading onto and across the area. The 2018 google earth photo shows sheep holding pens in a fenced off paddock (Appendix A, 2018-A)
2016 Maps Past	A driveway has been constructed off Kingston Road, crossing the site from east to west. The airstrip is noted with the skydiving facilities and a silo. A fan channel is noted along the south-eastern corner of the site. The sports field is noted on the western side by Lot 12.
2019 Google Earth	Extensive earthworks are noted on the north-eastern part of Lot 12. And the sport field has been developed in between the eastern prongs of Lot 12. The ground disturbance east adjacent the skydiving facilities is larger. Two channels are noted in the north-eastern corner of the site. Trees have been removed along the southern boundary of the site. A. A large area of ground disturbance is seen, where trees have been removed along the driveway east of the skydiving facilities. A small area north of the airstrip is noted with possibly some waste disposal to land. B. An additional small holding pen to the 2018 one for sheep can be seen in a fenced off paddock (Appendix A, 2019-B).
2022 Google Earth	No discerning changes are noted to Lot 8. A. The area east of the skydiving facilities, where trees have been removed, is now used as a sheep paddock. The area with disposal to land, north of the facilities, seems overgrown. B. The sheep holding pen is clearly seen with some mobile machinery. Significant earthworks are noted on the eastern side of Lot 12 with the cleanfill site undergoing significant movement and a settling pond present adjacent to the works area. The central part of Lot 12 is noted to be hillocky with sections of raised ground in linear bunds running east-west.
2023 & 2025 Google Earth	Lot 8 Only (2023): No discerning changes are noted to the site. The land looks very dry. A. The paddocks used for sheep in 2022 seems to be overgrown. Some bare patched are still noted. The area north of the skydiving facilities comprises a disposal pit of some form. B. The sheep holding pen is currently in use with two vehicles parked up. Lot 12 Only (2025): The cleanfill site has had the settling pond removed on the eastern side and the ground level appears to have raised due to the importation of cleanfill. Storage of materials such as bailage is apparent in the central part of the cleanfill area or further windrows of soil. The WWTP is notable on the boundary with Lot 8 along with the access

YEAR	OBSERVATIONS
	track from Homestead Bay Rd along with the raised ground (bunds) within the central part of the site which may be part of the WWTP disposal field.

3.2 HERITAGE NZ

The Heritage New Zealand Pouhere Taonga Act 2014 makes it unlawful for any person to modify or destroy, or cause to be modified or destroyed, the whole or any part of an archaeological site without the prior authority of Heritage New Zealand.

In order to establish the heritage status of the site, the Heritage New Zealand database was reviewed (Heritage New Zealand Pouhere Taonga, 2023). The site was not found on the database.

3.3 COUNCIL RECORDS

A review of the public information held by the QLDC has revealed that the site is currently split zoned as Rural and Jacks Point Zone. It is understood that the client is proposing to develop the land from Rural to Urban.

The QLDC eDocs revealed three resource consents, and one certificate of acceptance were submitted to council for Lot 8 and seven resource consents for Lot 12. Details can be found in Table 4 below.

Table 5: Summary of council consents.

CONSENT	SUMMARY	NOTES
Lot 8		
RM181401 – Coffee Bros Limited	To operate a commercial activity from a mobile trailer at Kingston Road, Queenstown.	
RM160616 – D&J Jardine	Proposed cleanfill at Kingston Road, Queenstown.	Cleanfill (30,000m3) to be deposited in a gully in the south-western corner of the site.
RM000663 - Parachute Adventure Ltd	To construct an aircraft hangar at Remarkables Station	
RM020061 - Skydive Queenstown Ltd	To store 19,000 litres of Jet A1 fuel in an above ground storage tank to be used for refuelling aircraft at Kingston Road	A Site Management Plan for the storage facility and refuelling activities was required to be submitted for approval Containment area to be of sufficient capacity to contain 120% of the maximum volume of the amount of substance to be stored within that area. That is, 19,000 litres times 120% being 22,800 litres. Service and inspection records up to 2011.

RM160734 – A Town	To undertake a sporting event with up to 410 participants for one year at Kingston Road Kingston Rural.	On Jacks Point Sports Ground with access over the north-western corner of the site.
CA0422 – Lot 8 Kingston Road	Application for COA for constructed tearoom for skydiving customers to replace caravan.	Building work restricted due to prior resource consents needed. Development contribution to be paid.
Lot 12		
RM140800 – Lakes Edge Development Ltd	To undertake earthworks deposition of fill to create mounding at Kingston Road, Kingston	Cleanfill site area adjacent to SH6 on eastern side of site. Decision granted May 2015.
RM160491 - Lakes Edge Developments Limited	S127 Application To Change Condition 9 Of Rm140800 To Allow An Extension Of The Completion Date For Works Associated With The Construction Of Earth Mounds To 31 November 2016	Decision granted July 2016.
RM181131 - RCL Henley Downs Limited	Use An Existing Site To Deposit Cleanfill Earthworks At Kingston Road, Kingston.	Deposition of approx. 189,600m^3 clean fill material extracted as part of the earthworks in the Hanley's Farm subdivision. Granted subject to conditions, Oct 2018
RM181192 - Jacks Point Residents & Owners Association Incorporated	Land Use Consent To Construct An Infrastructure Building To Be Used In Conjunction With The Jacks Point Wastewater Disposal System At Māori Jack Road, Jacks Point	Building with area of 20.16m^2.
RM200595 - RCL Jack's Point Limited	Subdivision Consent To Create Four Lots And A Balance Lot At Homestead Bay Road, Jack's Point,	Awaiting further information
RM210047 - RCL Henley Downs Limited	Withdrawn Land Use Consent For The Mining Of Gravel And To Cancel Condition 7E Of Rm181131 At Kingston Road, Jacks Point	

RM211262 - RCL Henley Downs Limited	Subdivision To Enable The Vesting Of Additional Parcels To Jack Tewa Park At Kingston Road	Decision Granted March 2022

3.4 ORC LAND USE REGISTER

The Ministry for the Environment (MfE) created a list of potentially contaminating activities and industries in October 2011. This Hazardous Activities and Industries List (HAIL) is a compilation of the activities and industries likely to cause land contamination resulting from hazardous substance use, storage or disposal(Ministry for the Environment, 2011b).

A review of the online Land Use register held by ORC was completed initially in May 2023 and again in January 2025. The updated review has revealed that parts of the site are recorded as HAIL, some verified (red) and some unverified (pink)(Otago Regional Council, 2023). Details of the HAIL activities can be found in Table 5 below, with the HAIL locations indicated on Figure 4.

No other HAIL sites are noted within 1km of the centre of the site.

Table 6: HAIL details as recorded in the ORC Listed Land Use Register (Jan 2025).

HAIL ID	HAIL CATEGORY	SUMMARY	NOTES
HAIL.00855.01 NZone Skydiving Refuelling Pad	F1: Airports including fuel storage, workshops, washdown areas, or fire practice areas. A17: Storage tanks or drums for fuel, chemicals or liquid waste.	Current consent for discharge of stormwater from refuelling pad.	Verified HAIL - Not investigated.
HAIL.00855.04 786 Kingston Road Spray Race	A8: Livestock dip or spray race operations	Evidence suggests a mobile spray race was used on-site for livestock treatment. As such, the HAIL applies to the area where the spray race was used as well as the surrounding area where migration may have occurred as result of drip drying.	Verified HAIL - Not investiEgated.
HAIL.00855.03 786 Kingston Road Landfill	G3: Landfill sites	The area north of the skydiving facilities is earmarked as an area with possible landfilling activities and burned areas were noted.	Unverified HAIL – Not Investigated
HAIL.00855.02 786 Kingston Road Fertiliser Storage	A6: Fertiliser manufacture or bulk storage	Anecdotal evidence suggests that bulk storage of fertiliser may have occurred within HAIL.00855.02.	Unverified HAIL – Not Investigated

Figure 4: Extract of ORC LLUR

4 CURRENT SITE CONDITION AND SURROUNDING ENVIRONMENT

A site inspection of Lot 8 was carried out by a WSP Environmental Engineer on 30 June 2023, with a subsequent inspection of Lot 12 carried out by a SQEP on 15 January 2025. Photos were taken of the site and its surrounds during these visits, a selection of which can be seen within Appendix B. A summary of the site conditions is given in Table 4 below.

Access to Lot 8 is via a private sealed road off Kingston Road. This part of the site is described below generally as north and south of this access road, which leads to the skydiving facilities. Access to Lot 12 is via an access track to the west leading from Homestead Bay Road or via a gate from SH6 onto the Cleanfill area on the eastern side of the site. Site Descriptions for Lot 12 are described as either Homestead Bay access or Cleanfill site.

Lot 8: North of Access Road:

The area to the north of the access road is generally flat and grassed. The eastern area (east of the skydiving facilities) comprises grazing paddocks. A small man-made pond is present, and in the north-easternmost corner of the site a channel of an alluvial fan from the Remarkables Mountains is present, generally running from east to west. No water was present within the channel at the time of the inspection.

Immediately north of the access road bare patches of land were present with what appears to be burnt material. These areas were devoid of grass, and material such as burnt wood was present within the cleared patches.

The central and westward areas to the north of the access road contain the skydiving facilities. A warehouse-like structure and associated buildings are present which are used to facilitate customers and storage of skydiving gear. Surrounding this structure is associated landscaping, including carparking, picnic areas and a grassed viewing area. The airfield facilities are also located in this area, which include a paved washdown bay, refuelling tank and airplane parking. To the west of this area is generally flat grassed land, which is used as both the runway and for growing crops. Two large silos are present, which have been used for seed storage.

In the northern-most area of the site, a composting/disposal area is present. Longer grass and a mound is present in this area, and the land use beneath this grass is unknown. It is possible that landfilling activities have occurred historically.

Lot 8: South of Access Road:

The area south of the access road is generally used for grazing and comprises mixed flat, undulating and steep terrain.

The paddocks immediately south of the access road are generally clear of structures and are grassed. A small lake/pond is present in the western paddock, which appears to be used for duck hunting. A small shed like structure is present on the banks of this lake, which is likely used for shooting (mai-mai).

Moving south, the paddocks are separated by a hedge line comprising mature trees. These paddocks are a continuation of the northern paddocks, being grassed, clear of structures and other notable features.

In the central southern area of the site, a paddock containing a mobile sheep pens and wooden pallets is present. These can be seen within the aerial imagery (Appendix A, 2019-B). To the east of this field is a steep sided gully which drops into a ephemeral stream. The stream generally runs from north to south, following the topography. The gully contains a mix of grass and dense vegetation and was flowing during the time of the site visit in June 2023. Another ephemeral stream runs along the northern boundary of Lot 8 with Lot 12 which generally runs from east to west. This stream contained some water in June 2023, however was dry during the 2025 site visit.

The southern part of the site is comprised of gently southward sloping grassed fields. Two burn patches were noted near the southern boundary, which appear to have been used to burn off cleared vegetation.

Lot 12: Homestead Bay Access

The site area accessed via Homestead Bay road generally comprises grassed pastureland which has livestock (sheep) grazing across it. Adjacent to Homestead Bay Road is a laydown area where there is parking of vehicles. Along the access track, through a gate is located an area where semi-permanent fencing has been erected for sheep drenching and or spraying. Empty plastic containers of various chemicals were noted during the site visit including insectides (neonicotinoides) and oral drenches. To the south of the access track was located a deep channel which was dry at the time of the inspection, however appears to flow rapidly during times of high rainfall.

Following the track to the east, through a series of gates leads to the Jacks Point Wastewater Treatment Plant (WWTP) which is fenced off and contains a building on the eastern corner of the plant. The plant itself is covered over with very little odour. The central area of the plant site is at a lower elevation with a series of covers present on the northern and southern sides of the plant site. Some soil mounds are present on this part of the site which appears to show some recent soil movement having occurred within the plant site. The WWTP is surrounded on the northern, eastern and western sides by raised ground which was grassed with the track continuing (but less used) on the southern side.

To the north of the WWTP is located the disposal field area which comprises grassed hummocky ground with green coarse vegetation. This area of the site is underlain by a series of drip lines which run from the WWTP. At the eastern part of the disposal field were noted stop taps which appear to have recently been placed (the ground was ungrassed and appeared disturbed) which ran in an east west line across this part of the site. To the north and east of the disposal field, beyond fence lines) the ground rose steeply up to residential development at Jacks Point (north) and to the Cleanfill site (east).

Lot 12: Cleanfill Site

The Cleanfill site was accessed via a gated entrance from State Highway 6 to the east of the site. A large volume of livestock was present grazing within the site during the site walkover.

The access track followed the fence line to the north before turning south and rising steeply onto the cleanfill area. The western side of the cleanfill site was significantly elevated compared to the disposal field to the west with the area level and containing dried vegetation. To the east of this flat

area further cleanfill had been deposited in rows which were also beginning to grow weeds. No visual or olfactory evidence of contaminants was noted on any area of the cleanfill site with soils appearing to have been well managed with compaction of older deposits having occurred prior to placement of the more recent soils.

Table 7: Summary of site conditions.

SITE ACCESS	KINGSTON ROAD AND HOMESTEAD BAY ROAD
Current site uses	Livestock grazing and associated semi-permanent pens. Airstrip and associated buildings. Wastewater Treatment Plant and Disposal Field Cleanfill deposition site
Existing structures	Storage shed and gear facilities for Skydiving operations, fuel tanks. Derelict hut. Building within the WWTP
Existing vegetation	Grass, tree hedges, trees throughout the site and weeds or rough uncontrolled vegetation in places.
Adjoining site uses	Rural residential and pasture.
Site observations	The site comprises a variety of landscapes ranging from undulating hills to flat open fields and steep sided creek gully's. Skydiving operations are ongoing in the northern area of Lot 8, while the southern/remaining parts of the site are generally used for livestock grazing. WWTP is present in the central section of Lot 12 with drainage field having stop taps present.
HAIL activities that are considered under NESCS guidance	- Spray race operations (HAIL A8 – Livestock dip or spray race operations); - Fuel storage (HAIL A17 – Storage tanks or drums for fuel, chemicals or liquid waste); and - Fertiliser manufacture or bulk storage (A6) - Airports including fuel storage, workshops, washdown areas, or fire practice areas (F1) - Landfill sites (G3) - Wastewater treatment (G6)

5 CONCEPTUAL SITE MODEL

5.1 PROPOSED LAND USE

For contaminated site assessments the hierarchy of reference documents containing guidelines for soils and waters, the MfE *Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values (Revised 2011)* (CLMG No. 2) (Ministry for the Environment, 2011a) is referred to.

The site is currently used as a rural end use with commercial skydiving facilities in the northern part of Lot 8. The proposal would include a change in use to residential and commercial activities.

As such, a residential land use defined in the NES-CS is considered the most appropriate and conservative end use of the site, as detailed within Table 7. The recommendations outlined in this report must therefore be considered when developing this land.

The primary human health receptors have been determined to be site workers, along with residential users and visitors following any future development of the site.

Table 8. Land use scenario

Scenario	Description
Rural / lifestyle block	Rural residential land use, including home-grown produce consumption (25 per cent). Applicable to the residential vicinity of farm houses for protection of farming families, but not the productive parts of agricultural land. Note: Consumption of eggs, milk and meat from animals raised on site is excluded. Produce consumption is limited to home-grown vegetables. Sites for which consumption of home-grown eggs, milk or meat is important will need to be evaluated on a site-specific basis.
Residential	Standard residential lot, for single dwelling sites with gardens, including home-grown produce consumption (10 per cent).
High-density residential	Urban residential with limited soil contact, including small ornamental gardens but no vegetable garden (no home-grown produce consumption); applicable to urban townhouses, flats and ground-floor apartments with small ornamental gardens, but not high-rise apartments.
Parks / recreational	Public and private green areas and reserves used for active sports and recreation. This scenario is intended to cover playing fields and suburban reserves where children play frequently. It can also reasonably cover secondary school playing fields but not primary school playing fields.
Commercial / industrial outdoor worker (unpaved)	Commercial / industrial site with varying degrees of exposed soil. Exposure of outdoor workers to near-surface soil during routine maintenance and gardening activities with occasional excavation as part of maintaining subsurface utilities (ie, a caretaker or site maintenance personnel). Also conservatively applicable to outdoor workers on a largely unpaved site.

5.2 SITE-SPECIFIC CONCEPTUAL SITE MODEL

Based on the site history and desk-based information presented, the following preliminary conceptual site model (CSM) was developed. The CSM, presented in Table 8, is used to support the decision-making process for contaminated land management by connecting potential contamination sources to receptors.

The five basic activities associated with developing a conceptual site model are:

- Identification of potential contaminants;
- Identification and characterisation of the source(s) of contamination;
- Identification of potential migration pathways through environmental media, such as groundwater, surface water, soils sediment, biota, air, service lines;
- Identification and characterisation of potential receptors (human, ecological or building infrastructure); and
- Determination of the limits of the study area or system boundaries.

Data gaps and uncertainties are identified during the preparation of the conceptual site model, which assists in designing any detailed investigation that may follow. For there to be an effect on receptors there must be a contamination source and a mechanism (pathway) for contamination to affect human health or the environment (receptor).

A possible pollutant linkage between the contaminant source and receptor is defined as one that has the potential to represent unacceptable risks to human health or the environment. The following CSM has been identified based on land use of residential. This may need to be amended in light of any further development proposals in the future.

Table 9: Conceptual Site Model

Likely sources of impact	A review of all data sources and anecdotal evidence indicates that part of Lot 8 is currently being used as a skydiving facility with an airstrip and refuelling pad. Accidental spillage of fuel during refuelling may have occurred, causing ground contamination via run-off or stormwater discharge off the pad. In addition, if firefighting has occurred on the site, contaminants in the foam have possibly been discharged. An area north of the facilities has had some potential landfilling undertaken on it, with several burned areas noted. Anecdotal evidence suggests this area was used for storage of fertilisers flown in by helicopter. A sheep holding pen was noted on the central area on the southern part of Lot 8 with a mobile spray race used for livestock treatment. A second holding pen is noted to have occurred to the east of these pens adjacent to the gully on the south-eastern part of Lot 8. A further sheep pen holding and treatment area with empty containers was also present on the western portion of Lot 12. A community Wastewater treatment plant is present in the central area of Lot 12 with the disposal field taking up a good proportion of the centre of Lot 12. A cleanfill site is located on the eastern side of Lot 12.
Potentially impacted media	Impacts are generally likely to be limited to shallow soils (the upper metre). Groundwater is likely to be impacted by the drainage field for the WWTP.
Contaminants of concern	The potential contaminants of concern associated with the identified sources comprise: Airfield: — Heavy metals from refuelling, including lead, zinc and copper; — Hydrocarbons (Total Petroleum Hydrocarbons (TPH); Polycyclic Aromatic Hydrocarbons (PAH); Benzene, toluene, ethylbenzene, xylene (BTEX)) associated with refuelling of vehicles and airplanes, and setting objects and the ground alight during firefighting practice; — Per-and polyfluoroalkyl substances (PFAS) originating from firefighting foam; Sheep pens: — Heavy metals and/or organophosphate pesticides (OPPs) associated with livestock treatment; Neonicotinoids associated with drenching chemicals. Other sources: — Fertilisers bulk storage; and — Hydrocarbons (PAH) and heavy metals associated with the potential landfilling and burned areas. — Biological contaminants (eColi), organic and inorganic chemical and microplastics associated with wastewater treatment and disposal

Migration pathways	Potential migration pathways for the contaminants of concern comprise: — Surface runoff containing impacted soil or dissolved contaminants; — Infiltration of contaminants in soil; and — Groundwater transport through soil, including in preferential pathways (service trenches, through higher permeability soils and/or high groundwater levels).
Potential exposure pathways	Potential exposure pathways comprise: — Ingestion or dermal contact with impacted soil, including surface soils including during excavation work; and — Ingestion or dermal contact with impacted surface water or groundwater during excavation work. — Inhalation of dust, vapours or fibres — Ingestion of organics grown in impacted soils eg. vegetable gardens etc.
Potential sensitive receptors	Identified sensitive receptors comprise: — Workers and visitors at the site during the proposed site works; — Residents and visitors following the development of the site; and — Groundwater and surface water ecosystems.

5.3 DISCUSSION AND ASSESSMENT OF HAIL ACTIVITIES

5.3.1 LOT 8

SKYDIVING FACILITIES

The ORC Land Use Register has identified a portion of the site as being affected by HAIL activities. The desk study and site walkover undertaken as part of this PSI found that the following HAIL activities associated with the skydiving operations have likely occurred on the site:

- F1: Airports including fuel storage, workshops, washdown areas, or fire practice areas.
- A17: Storage tanks or drums for fuel, chemicals or liquid waste.

The potential contaminants of concern may include heavy metals (incl iron, copper, lead, zinc) and hydrocarbons associated with accidental spillages during refuelling and discharge of stormwater from the refuelling pad.

In addition, if firefighting has occurred as part of a training exercise or emergency, the presence of per-and polyfluoroalkyl substances (PFAS) should be considered originating from firefighting foam. Hydrocarbon fuel may have soaked into the ground when applied to objects or the ground when setting them alight for practice. Anecdotal evidence and aerial photography, however, shows that it is unlikely that firefighting has occurred on the site.

LANDFILLING

An area north of the skydiving facilities was earmarked as an area with possible landfilling activities and burned areas were noted. Hydrocarbons could have been used for setting the burn piles alight. The nature of the waste is likely limited to green waste, however, as this is unsure the following HAIL should be considered to be present unless evidence otherwise comes to light:

- G3: Landfill sites.

FERTILISER STORAGE

Anecdotal evidence suggests that bulk storage of fertiliser may have occurred in the north-eastern part of the site. WSP understands that fertiliser was flown in by helicopter and stored on site. Broadacre application of fertiliser in sufficient quantity as to pose a risk to human health on the site is considered unlikely, however, spillages of bulk materials may have occurred during storage. As such, the following HAIL category applies to that part of the site:

- A6. Fertiliser manufacture or bulk storage.

LIVESTOCK GRAZING AND HANDLING

A review of photographic aerials confirmed the site is currently being used for sheep grazing. A sheep holding pen was noted on the site since 2019. During the site walkover no dip or spray race operations were noted. However, anecdotal evidence suggests a mobile spray race was used on site for livestock treatment. As such, the following HAIL applies to the area the spray race was used and the surrounding area migration may have occurred due to drip drying:

- A8: Livestock dip or spray race operations.

5.3.2 LOT 12

SHEEP PENS

The site walkover revealed a semi-permanent site of sheep pens which showed significant evidence of recent use for sheep drenching and treatment applications of insecticides. As such, the following HAIL applies to the area where the drenching activities have occured and the surrounding pens area where livestock are held following application:

- A8: Livestock dip or spray race operations.

WASTEWATER TREATMENT PLANT AND DISPOSAL FIELD

The community wastewater treatment plant on the southern part of Lot 12 drains into a large disposal field to the north and east of the plant itself. Whilst the plant only treats wastewater from the Jacks Point community, there is a significant population present and water from residental properties will more likely than not contain both inorganic contaminants and microplastics alongside organic contaminants which are subject to biological treatment during the treatment process. This part of the site has therefore been subject to HAIL activities associated with:

- G6: Waste recycling or waste or wastewater treatment

CLEANFILL SITE

The cleanfill site has been subject to controls in terms of deposition of soils and appears to have been well managed. On the basis of the current data, HAIL activities are not considered to have occurred on this part of the site.

As it is considered more likely than not that HAIL activities have (historically) occurred on various parts of the site, several Pieces of Land (PoL) have been delineated in accordance with Regulation 5(7)(c) of the NESCS (Ministry for the Environment, 2011c) refer to Figure 5 below.

Figure 5: Pieces of Land.

6 SITE CHARACTERISATION

The purpose of this preliminary site investigation was to provide an assessment of the historical and current land uses to determine whether activities have more likely than not resulted in contamination of the soil that may be hazardous to human health.

Based on a review of information currently available, as well as observations made during the site inspection, our assessment of the site is as follows:

- The site is classified as rural and part of Jacks Point Zone; and is generally used as production land, wastewater treatment and a commercial skydiving facility;
- The site is surrounded by rural land with Jacks Point residential area north of the site;
- The site is proposed for land use change from rural to urban/residential;
- The underlying geology comprises Late Pleistocene glacier deposits and Holocene lake deposits;
- HAIL activities were noted to be or have been occurring on site; and
- Signs of vegetation dieback were noted within the fertiliser storage area.

Potential human health risks have been evaluated using the Likelihood and Consequence scales tabulated in Table 9, to determine a risk level – low, moderate, high, very high or extreme. The assessed risk level allows prioritisation of investigations and assessment measures.

Table 10: Likelihood and consequences scale

	Consequence				
Likelihood	Insignificant	Minor	Medium	Major	Catastrophic
Almost certain	Moderate	Moderate	Very High	Extreme	Extreme
Likely	Low	Moderate	High	Very High	Extreme
Possible	Low	Moderate	Moderate	Very High	Very High
Unlikely	Low	Low	Moderate	High	Very High
Rare	Low	Low	Low	Moderate	High

Human Health and Environmental Risk Assessment

The risks to human health have been assessed based on the historical activities which may have occurred on specific areas on the site. Assessment is based on a land use change from rural to a more sensitive residential use with no proposed ground disturbance at the current time (ie. no development of housing on the site):

- Refuelling of aircrafts: A refuelling pad for the aircrafts associated with the skydiving operations is located in the northern part of the site. Accidental spillages during refuelling are likely to have occurred and caused hydrocarbon soil contamination. In the context of a land use change the consequence associated with these spillages are considered to be minor at most. As such, the risk to human health associated with land use change is assessed to be MODERATE.

In terms of risk to the environment, accidental spillages of fuel may have impacted the soils locally with some migration laterally through near surface soils. Based on a likely occurrence and a minor to medium consequence, the risk to the local environment is considered to be *MODERATE*.

- Use of PFAS containing firefighting foam: Given the sites nature as a commercial airstrip it is possible that firefighting practice activities have been conducted onsite, in the vicinity of the washdown area. While no evidence of this activity has been noted during this investigation, WSP cannot rule out the potential for this activity to have occurred. The consequence of soil contamination arising from this activity is considered to be minor to medium. Risks to human health arising from this activity are therefore considered to be MODERATE.

  Environmental risks are considered to be similar to human health risks and are dependent on concentrations of contaminants within the soils. Risks to the environment are therefore also considered to be *MODERATE*.

  Should investigation find PFAS to be present within soils, assessment of the risks to groundwater will need to be undertaken as risks associated with PFAS contamination of controlled waters are considered to be Very High.

- Landfilling: Possible landfilling areas have been identified during the site walkover and from the desktop study. In addition, several burned areas were noted. As the nature of the landfilled waste and burned materials is unknown, the consequence of soil contamination is considered *Medium to Major* with a *Possible* likelihood. The risks to human health are therefore considered to be MODERATE.

  Environmental risks are considered to be similar to human health risks and will depend on the nature of the landfilled waste materials on site. Risks to the environment are therefore also considered to be *MODERATE*.

- Spray race operations: Anecdotal evidence suggests that a mobile spray race may have been used on the site for sheep treatment which is backed up with two locations having sheep pens. The likelihood of associated soil contamination is assessed as *Likely* with the consequences on site considered to be *Medium.* Risks to human health associated with these activities are therefore assessed to be HIGH.

  Spray race operations are likely to have used liquid contaminants which infiltrate readily into the near surface soils. Environmental risks associated with these activities are therefore also considered to be *HIGH*.

- Fertiliser storage: It is understood the north-eastern part of the site has been used to fly in fertiliser via helicopter. As such, accidental spillages could have occurred and caused soil contamination. The likelihood is considered to be *Possible* at most with consequences to human health assessed as *Medium*. Risks to human health are therefore assessed as MODERATE.

  Environmental risks associated with the storage of fertilisers are associated with the infiltration of leachable contaminants into the near surface soils. Consequences associated with these materials on the environment are considered to be minor at most. Risks to the environment are therefore considered to be *LOW* to *MODERATE*.

- Wastewater Treatment: The central area of Lot 12 is currently in use for wastewater treatment and disposal. Whilst well managed and maintained there is a risk associated

with the disposal of treated water across a large disposal field which is likely to contain heavy metals and potentially other inorganic contaminants. In its current form the risks are considered to be minor, however should this part of the site be considered for future development the likelihood of exposure would rise to likely with consequences minor to medium. Risks to human health are therefore considered to MODERATE to HIGH.

Environmental risks associated with wastewater treatment and disposal are associated with the migration of contaminants within the disposal effluent and/or treated water. Groundwater levels in the vicinity of the site are noted to be at approximately 1m below ground level and will be in continuity with Lake Whakatipu with domestic abstractions noted to be occurring to the west of the site. Whilst significant dilution of contaminants is likely to occur before groundwater flow reaches the lake, nearby surface water features may be impacted by contaminant migration. It is considered possible for contaminants to reach nearby surface water bodies with the consequences minor to medium at most. Environmental risks associated with contaminant migration from the WWTP and disposal field are therefore *MODERATE*

Should any ground disturbance occur on the Pieces of Land identified in Figure 5 further investigation in the form of a Detailed Site Investigation will be required to further characterise the contamination risks of these areas.

7 CONCLUSION AND RECOMMENDATIONS

A Preliminary Site Investigation was undertaken for the proposed development of Lot 8 DP 443832 and Lot 12 DP 364700, 786 Kingston Road, Jacks Point, Queenstown.

As HAIL activities are considered to have been or be occurring on the site, the NES-CS does apply to the site. Through the desktop study and site walkover, the risks to human health from potential soil borne contaminants associated with the proposed land use change, have been assessed. Areas where HAIL have been noted are assessed to have a moderate to high risk to human health associated with them. Risks to human health on the remainder of the site are Low. Due to the elevated risks associated with HAIL on site, the proposed rezoning from rural to urban is considered to be a Discretionary Activity under the NES-CS Regulation (Ministry for the Environment, 2012). Likely conditions associated with the activity status would include the requirement for a Detailed Site Investigation for the pieces of land outlined in Figure 5 prior to any ground disturbance on site in excess of permitted activity volumes.

RECOMMENDATIONS

Based on the findings of this PSI report WSP recommends the following:

- This PSI report is submitted to the consenting authority;
- This PSI report is submitted to the regional authority to facilitate updating of the HAIL database;
- Prior to disturbance to the Pieces of Land identified as HAIL sites in this report, a DSI should be prepared and submitted to the consent authorities outlining the risks to human health and the environment along with recommendations regarding remediation works to be undertaken should they be required to ensure that the site is suitable for residential development.
- Should any other ground conditions be encountered that are not covered herein, a Suitably Qualified and Experienced Practitioner (SQEP) specialising in contaminated land assessment should be consulted in order to re-assess the risks to human health and sensitive receptors and determine whether any additional pieces of land are present across the site.

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9 LIMITATIONS

This report ('Report') has been prepared by WSP New Zealand Limited ('WSP') exclusively for RCL Henley Downs Limited ('Client') in accordance with the Short Form Agreement with the Client dated 1 June 2023 ('Agreement') and Project Change Notice PCN1 dated 13 January 2025.

Permitted Purpose

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Appendix A

Historical Imagery

Preliminary Site Investigation

Lot 8 DP 443832, Kingston Road, Queenstown

1959

Approximate Site Location

1986

N

Approximate Site Location

1996

Approximate Site Location

2001

N

Approximate Site Location

2006

N

Approximate Site Location

2010

N

Approximate Site Location

2011

N

Approximate Site Location

2013

N

Approximate Site Location

2015

N

Approximate Site Location

2016

N

Approximate Site Location

2018

N

Approximate Site Location

2018-B

N

Approximate Site Location

2019

N

Approximate Site Location

2019-A

N

Approximate Site Location

2019-B

N

Approximate Site Location

2022

N

Approximate Site Location

2022-A

N

Approximate Site Location

2022-B

N

Approximate Site Location

2023

N

Approximate Site Location

2023-A

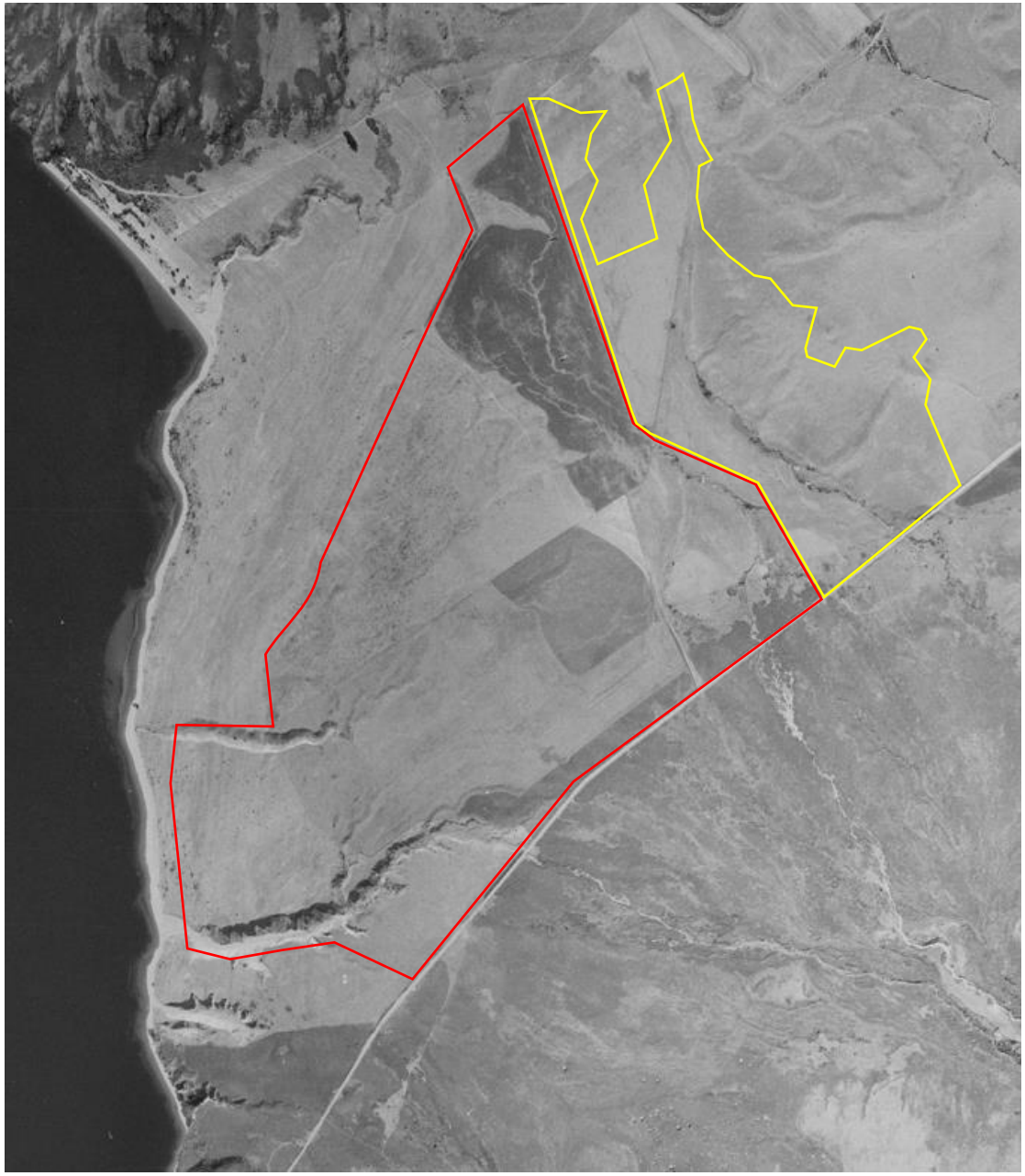
N

Approximate Site Location

Preliminary Site Investigation

Lot 12 DP 364700, Kingston Road, Queenstown

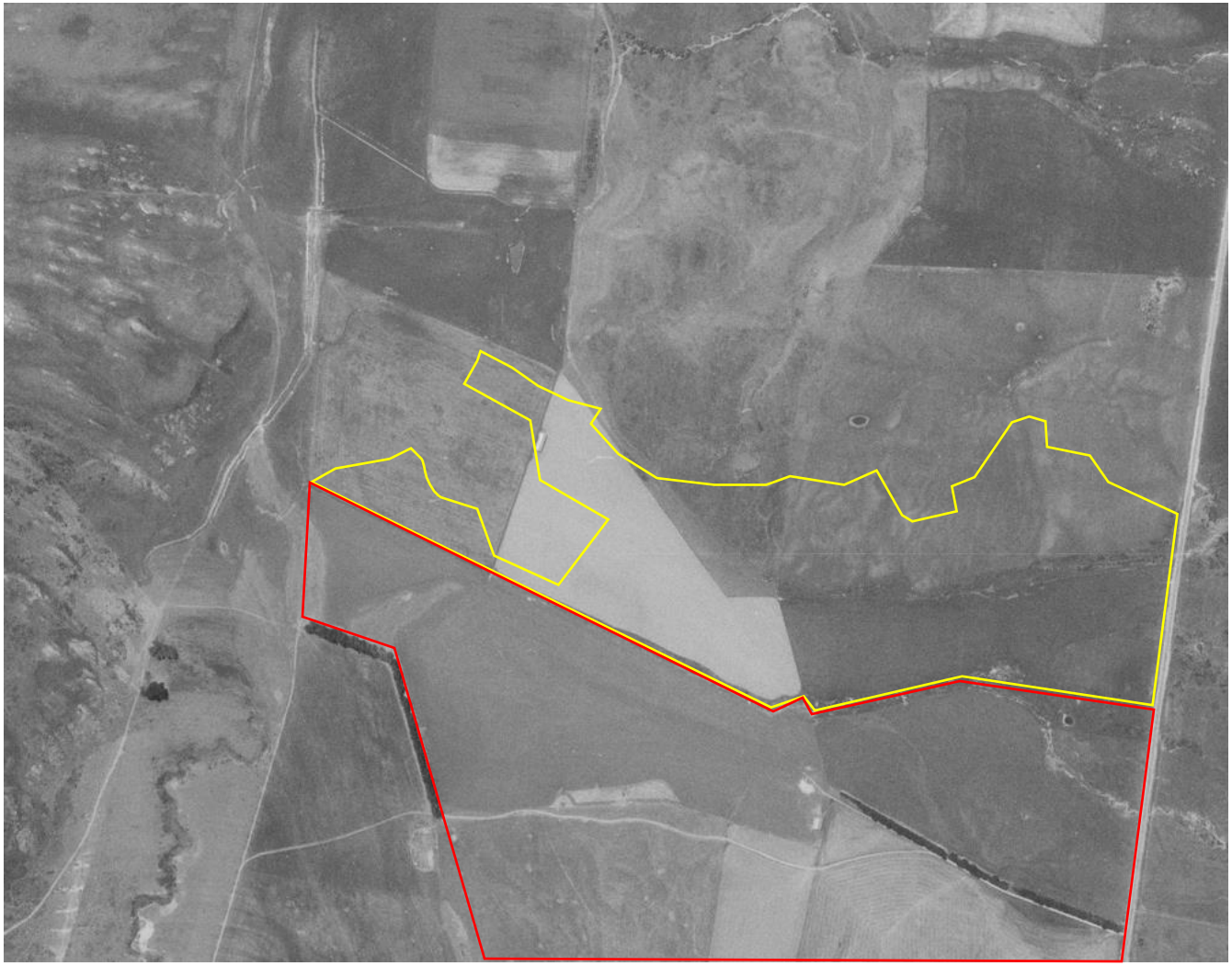
1959



Lot 12 site Location

Lot 8 site Location

1984



N

Lot 12 site Location

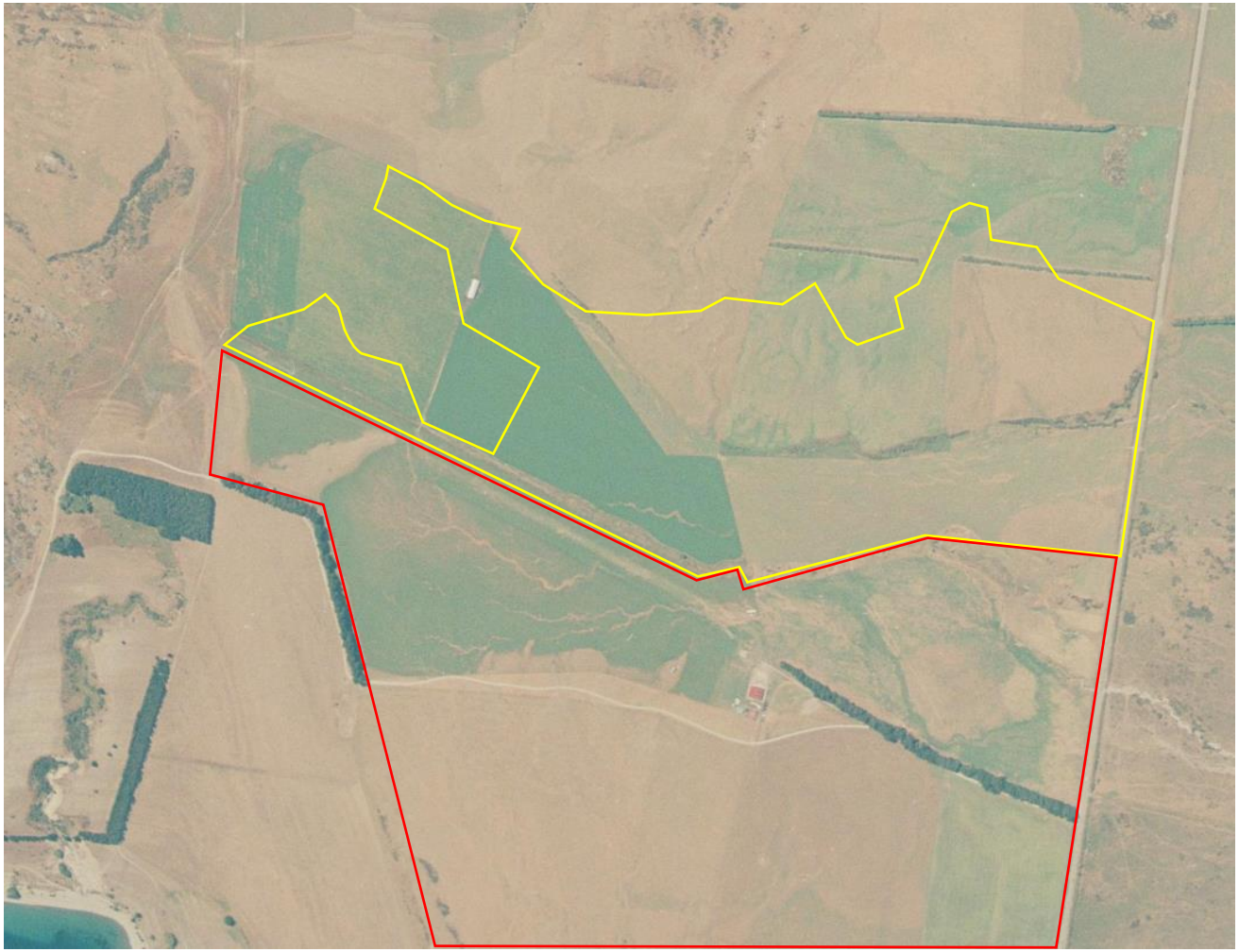
Lot 8 site Location

1996

Lot 12 site Location

Lot 8 site Location

2001



N

Lot 12 site Location

Lot 8 site Location

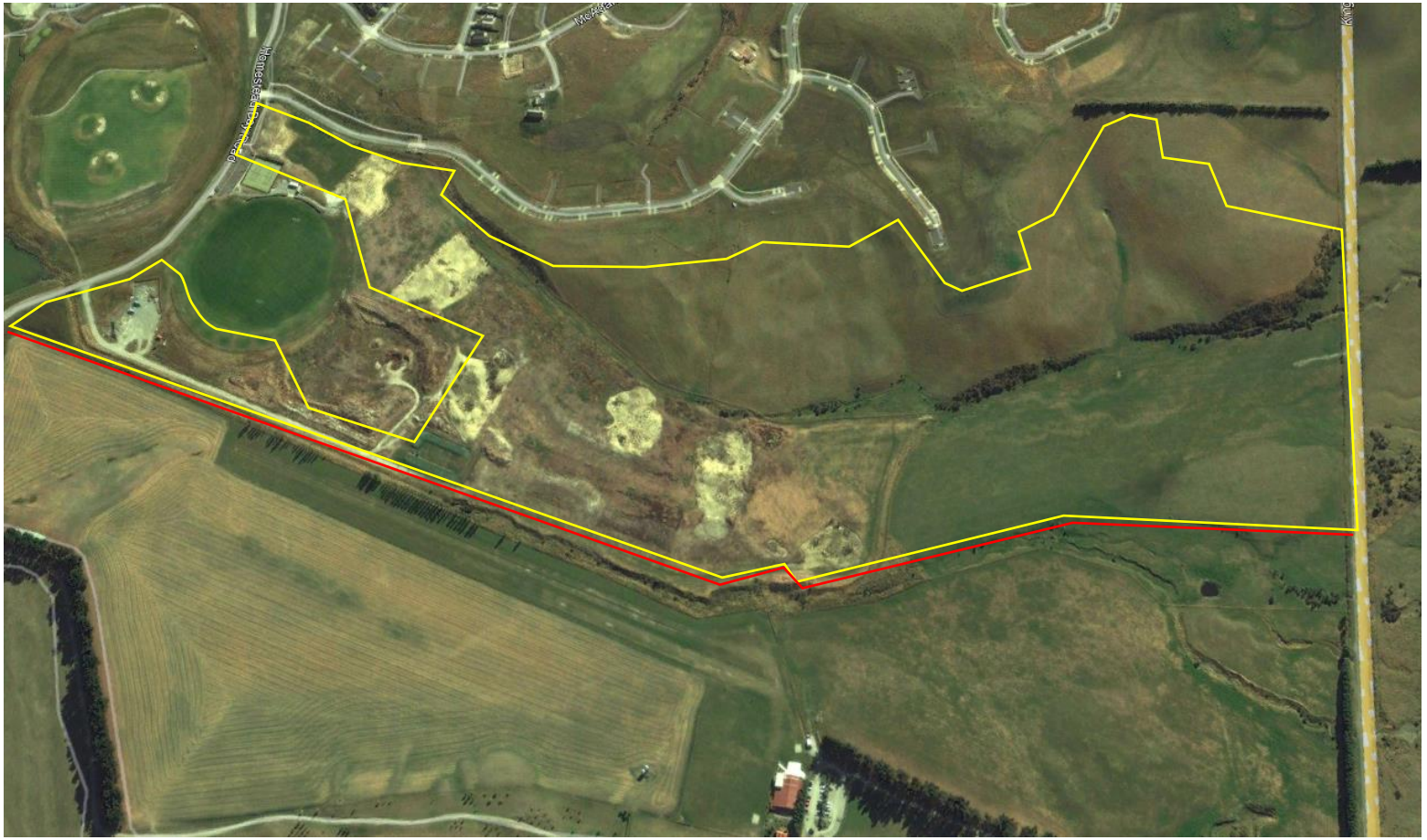
2006

N

Lot 12 site Location

Lot 8 site Location

2010

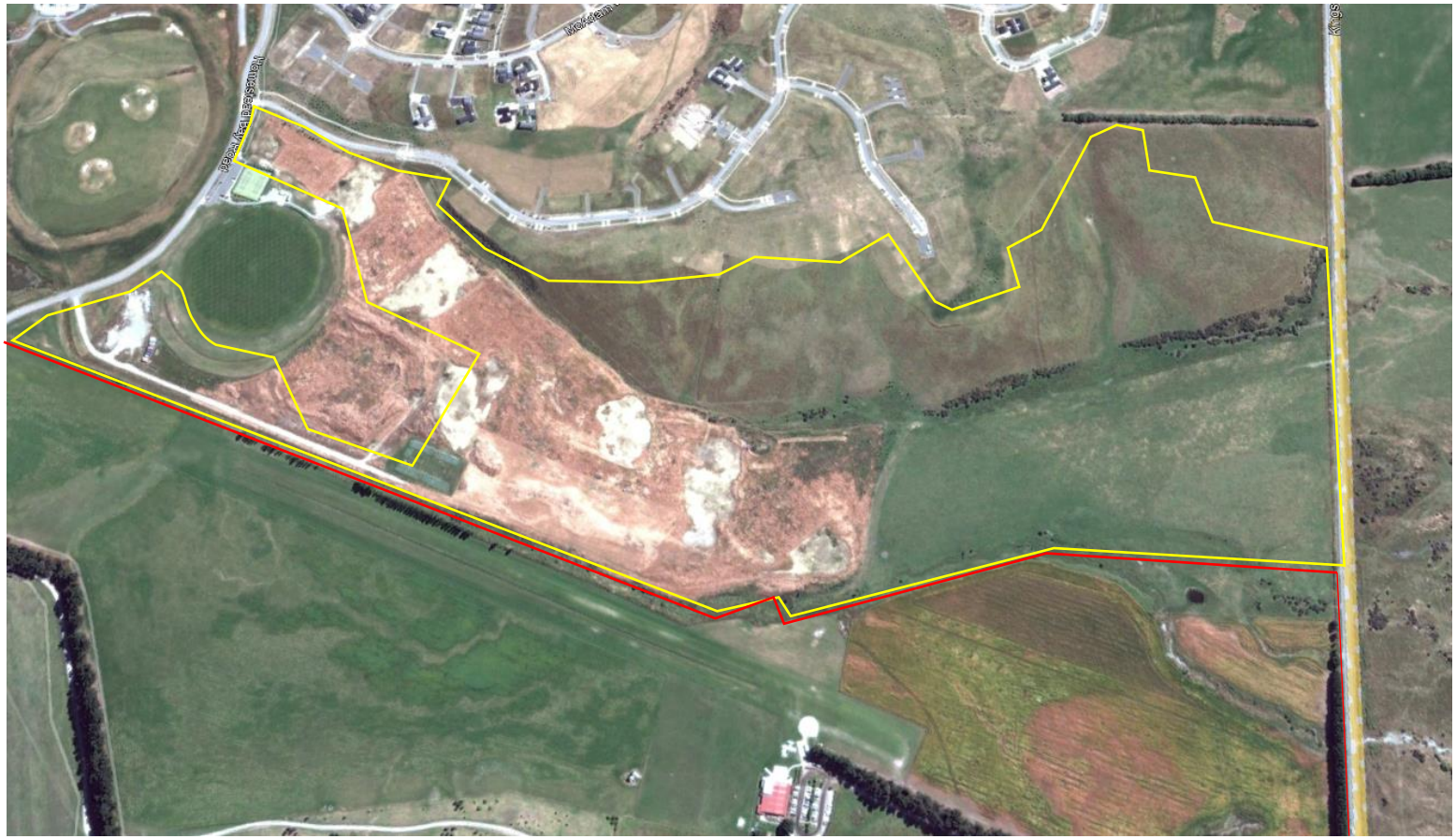


N

Lot 12 site Location

Lot 8 site Location

2013



N

Lot 12 site Location

Lot 8 site Location

2015

N

Lot 12 site Location

Lot 8 site Location

2019

N

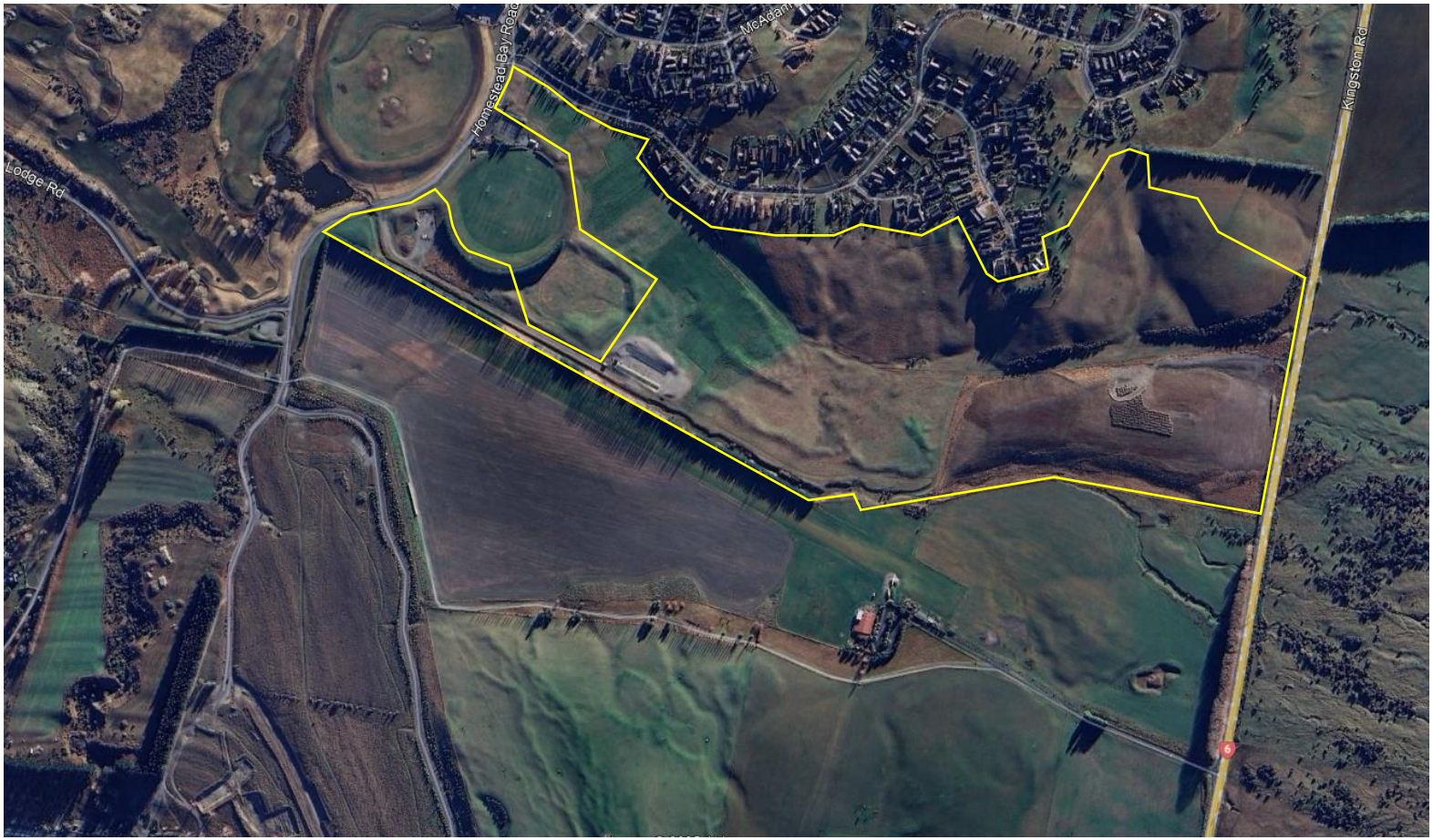
Lot 12 site Location

Lot 8 site Location

2022

Lot 12 site Location

Lot 8 site Location



N

Lot 12 site Location

Lot 8 site Location

Appendix B

Site Photographs

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
1	30/06/2023

Description

The site investigation took place on 30 June 2023 by a WSP Environmental Engineer.

The site is accessed via a driveway off Kingston Road (SH6).

Picture shows the skydiving facilities located in the northern part of the site.

Photo No.	**Date**
2	30/06/2023

Description

A refueling pad with above ground fuel storage tank where noted associated with the skydiving facilities.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
3	30/06/2023

Description

The Remarkables mountain range can be seen east of the site.

The majority of the site comprises rural land used for livestock grazing and hay baling.

Photo No.	**Date**
4	30/06/2023

Description

Photograph no.4 shows the area along the northern boundary of the site (area B as referred to in the historical aerials 2019-current).

Green waste disposal is noted.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
5	30/06/2023

Description

Adjacent the pile of green waste, a small plant nursery is seen. Some barbed wire and timber posts are noted.

Photo No.	**Date**
6	30/06/2023

Description

Garbage bins are stored adjacent the plant nursery and the green waste.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
7	30/06/2023

Description

Photograph taken looking south. The skydiving facilities can be seen on the left side of the picture. Two silo's are noted on the right.

Photo No.	**Date**
8	30/06/2023

Description

Photograph taken along the airstrip, north of the site. Access to water supply is noted in the center of the airstrip.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
9	30/06/2023

Description

Overview of the northern part of the site, looking east. The north-western part of the site is being used for straw baling.

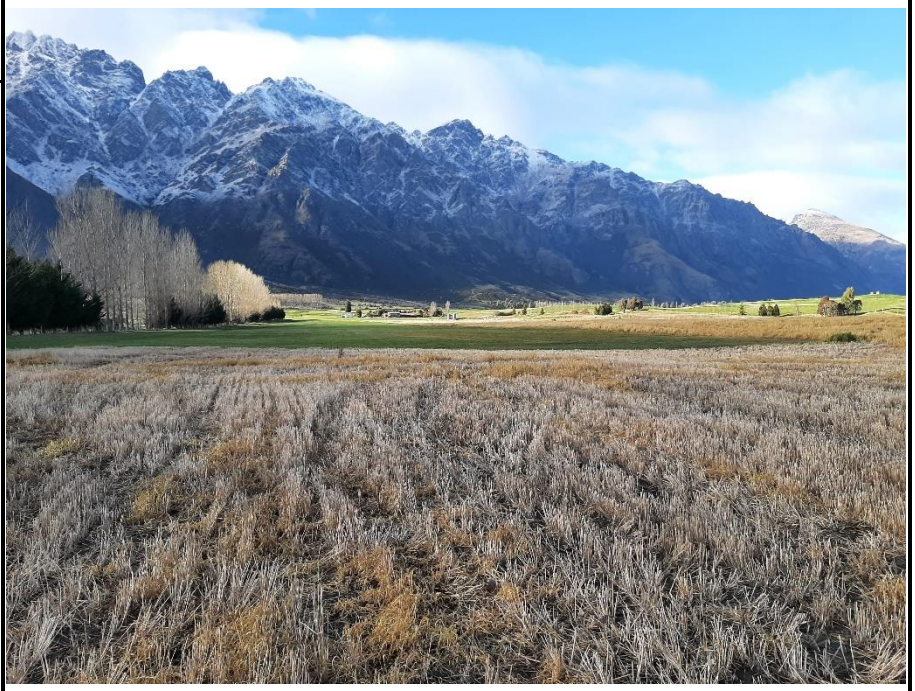


Photo No.	**Date**
10	30/06/2023

Description

A gravel road crosses the site from Kingston Road in the east to Maori Jack Rd in the west. Photograph taken looking southeastwards.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
11	30/06/2023

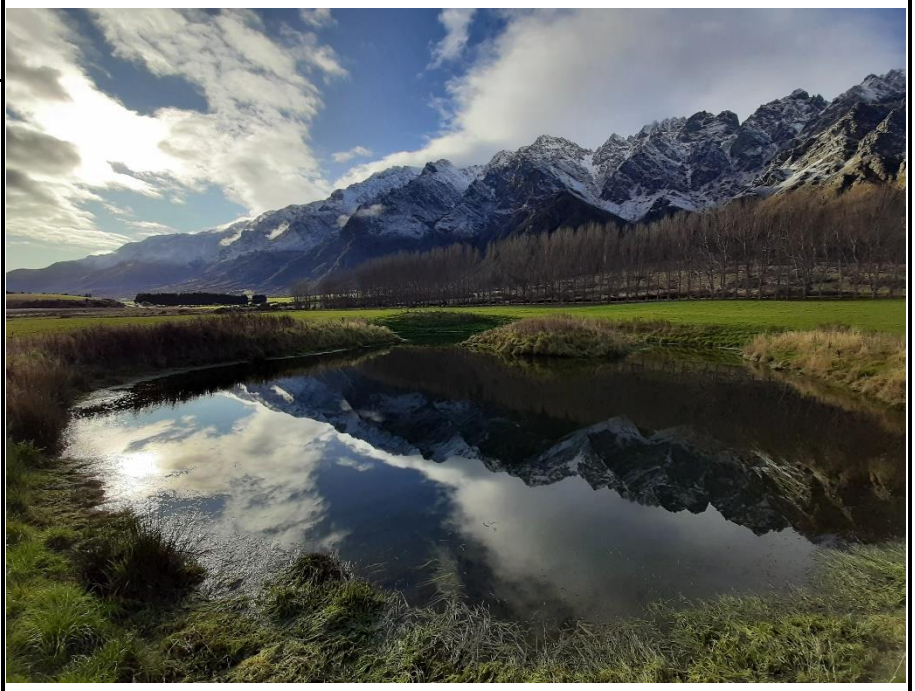
Description

Picture showing the carpark area for the skydiving facilities.

Photo No.	Date
12	30/06/2023

Description

A pond is seen in the north-eastern part of the site.



	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
13	30/06/2023

Description

Some areas with burn spots were noted in the north-eastern part of the site. Several wood stockpiles were seen.

Photo No.	**Date**
14	30/06/2023

Description

Picture showing the north-easternmost corner of the site. A small retention pond was seen.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
15	30/06/2023

Description

Picture taken in the center of the site, looking south-westwards towards Lake Wakatipu.

Photo No.	Date
16	30/06/2023

Description

The southern paddocks are currently used for cattle grazing.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
17	30/06/2023

Description

A gully (fan channel) runs along the south-eastern boundary of the site.

Photo No.	Date
18	30/06/2023

Description

A small wooden shed was seen in between the trees in the gully along the north-eastern boundary. The shed seemed to be in a disused condition.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
19	30/06/2023

Description

Picture shows the sheep holding pen.

Photo No.	**Date**
20	30/06/2023

Description

The sheep holding pen seems to be in a near new condition.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
21	30/06/2023

Description

The paddocks in the western part of the site are currently vacant. An area with rock and former irrigation was seen.

Photo No.	Date
22	30/06/2023

Description

An embankment is seen along the southern boundary of the site which leads to Lake Wakatipu.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
22	30/06/2023

Description

A large gully (fan channel) is seen along the south-western boundary of the site leading towards the lake.

Photo No.	**Date**
23	30/06/2023

Description

The western part of the site is more undulating with rolling hills across the landscape.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
24	30/06/2023

Description

A small pond is noted with a duck shooting hut (maimais) on the bank.

Photo No.	**Date**
25	30/06/2023

Description

Two water storage tanks are seen in the western part of the site.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
26	15/01/2025

Description

Homestead Bay section of site.

Access road leading from Homestead Bay Road. Set down area and contractor storage area adjacent to road.

Photo No.	Date
27	15/01/2025

Description

To east of set down area along gravel access track is located an area of sheep pens with treatment pens.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
28	15/01/2025

Description

Sheep treatment pens (footbath or drenching) with numerous empty chemical containers stored alongside the fenceline

Photo No.	Date
29	15/01/2025

Description

Chemical containers along fence line (empty)

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
30	15/01/2025

Description

Semi-permanent fencing with containers strewn around pens

Photo No.	**Date**
31	15/01/2025

Description

More empty containers

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
32	15/01/2025

Description

Access track and drainage channel along the southern boundary leading from Homestead Bay Rd, past sheep pens towards sewage disposal field and treatment area.

NZone skydiving runway to south of the trees (right of picture).

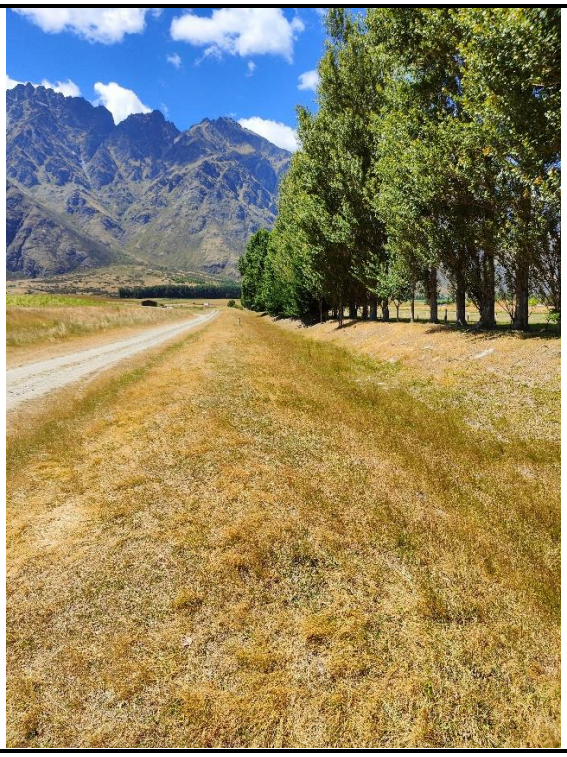


Photo No.	Date
33	15/01/2025

Description

Jacks Point Wastewater Treatment Plant

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
34	15/01/2025

Description

Likely disposal field to the north of the WWTP.

Photo No.	Date
35	15/01/2025

Description

Looking east across open fields of Homestead Bay area of the site with SH6 and Remarkables in background.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
36	15/01/2025

Description

Looking west across Homestead Bay site area with open grassed paddocks (some sheep grazed in fields)

Photo No.	**Date**
37	15/01/2025

Description

Irrigation (or disposal) line junctions on eastern part of the Homestead Bay site.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
38	15/01/2025

Description

Looking east with Remarkables in background.
Raised area of land where cleanfill has been placed (Base Contracting site)

Photo No.	Date
39	15/01/2025

Description

Base Contracting Cleanfill site, accessed from SH6

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	**Date**
40	15/01/2025

Description

Deposited soil on raised area of site (Base Cleanfill site)

Photo No.	**Date**
41	15/01/2025

Description

Base Cleanfill site adjacent to SH6 with lots of sheep roaming.

	PHOTOGRAPHIC LOG	
Client Name RCL Henley Downs Limited	**Site Location** 786 Kingston Road, Jacks Point, Queenstown	**Project No.** 6-XZ762.00

Photo No.	Date
42	15/01/2025

Description

Looking west with multiple levels of cleanfill

Photo No.	Date
43	15/01/2025

Description

Looking west from Cleanfill site over remaining Homestead Bay site (Lake Whakatipu in background)