



GREAT LAKE TAUPŌ
Taupō District Council

Section 32 Evaluation Report
TAUPŌ INDUSTRIAL REZONING
Plan Change 43

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- ATTACHMENT A – Taupō Future Industrial Land Option Economic Multi-Criteria Analysis (Property Economics, Sept 2022).**
- ATTACHMENT B - Industrial Land Infrastructure Assessment (Taupō District Council, Sept 2022).**
- ATTACHMENT C - High Level Transport Assessment of Proposed Industrial Areas (Abley Transport Engineers, Sept 2022)**
- ATTACHMENT D – Preliminary Geotechnical Assessment and Addendum Report (WSP, Sept 2022)**
- ATTACHMENT E – Descriptions of Industrial Option Areas Considered**
- ATTACHMENT F – Land Area Option Assessment Matrix**
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1 INTRODUCTION

Proposed Plan Change 43 seeks to rezone two areas of land being Broadlands Road West (Site 4 below, 20ha) and Napier Road (Site 7 below, 4.5ha) from Rural Environment to Taupō Industrial Environments (Figure 1).

Figure 1: Rezoning to Taupō Industrial Environment



The purpose of the rezoning is to provide Taupō district with further zoned industrial land supply to assist in meeting forecast demand in the long (30 year) term, as well as provide for a variety of sites suitable for different business sectors (industrial and trade) in terms of location and site size within the district.

With the exception of amendments to Subdivision Rule 4h.3.7 to ensure that appropriate geotechnical assessments are undertaken to support the ultimate configuration of site

development for the Broadlands Road West rezoning, the Plan Change does not involve amendment of performance standards, rules, objectives or policies. The Plan Change therefore largely involves amendment of the Operative District Plan (**ODP**) Maps.

This Section 32 report should be read in conjunction with the plan change document.

2 CURRENT LAND SUPPLY AND DEMAND

Taupō District currently has 1,083ha of industrial zoned land. The majority of that zoned Industrial land (referenced in the District Plan as Taupō Industrial Environment and Centennial Industrial Environment) comprises some 914ha near the main urban township of Taupō, with the main industrial areas being at:

- Miro Street industrial area;
- Centennial Industrial area;
- Crown Road Industrial area;
- Taupō Airport; and
- Wairakei Industrial area.

The balance of the District's Industrial zoned land (referenced in the District Plan as Industrial Environment) is located near the Tūrangi township and as associated with Geothermal development infrastructure / Power Stations.

Figure 2: Taupō Urban Areas main Industrial areas



Source: Property Economics (Attachment A)

Property Economics¹ have calculated the extent of Industrial activity development capacity within Taupō District as approximately 38ha. That is land that is zoned for Industrial activities and is sufficiently infrastructure ready.

As noted in the Property Economics report², based on Statistics NZ medium population projections, there should be an additional 860 net industrial employees in the district by 2053

¹ Attachment A. Property Economics 2022. [Section 4]

² Attachment A. Property Economics 2022. [Section 3]

to provide a total industrial workforce of some 4,800 employees, representing some 22% of the total district workforce.

To accommodate that increase in industrial employees, an additional net 78.6ha of industrially zoned and serviced land will be required **by 2053** to meet long term demand, being 90.4ha with the addition of a 15% long term competitiveness margin³.

Figure 3 shows the short-, medium- and long-term requirements for industrial land in the Taupō district, as based on the requirements of the National Policy Statement – Urban Development⁴.

Accordingly, given the existing (zoned and serviced) 38ha, the Taupō District has sufficient industrial land development capacity to provide for demand for both the short term (3 years) and medium term (10 years). However, to satisfy long term (30 year) supply⁵, the district needs to provide some 52.6ha either zoned land or as otherwise identified within any other relevant plan or strategy⁶.

The purpose of this Plan Change is to partly resolve the deficit of long-term development capacity for Industrial zoned land through the contribution of an additional 24ha of Taupō Industrial Environment (zoned) land⁷.

Figure 3: Taupō District Land Demand short (3yr), medium (10yr) and long term (30yr) projections

Taupō District Industrial	2020	2023	2033	2053
Industrial Employment Base	3,930	3,974	4,119	4,786
Net Additional Land Requirement (ha)	-	4.0	17.3	78.6
Industrial Land Requirement Including NPS Buffer (ha)	-	4.8	19.9	90.4
Current Vacant Industrial Land (ha)	37.8			
Net Supply and Demand Differential (ha)	37.8	33.0	17.8	-52.6

³ NPS-UD. Clause 3.22(2)(c)

⁴ NPS-UD. Clause 3.3(1)(b)

⁵ Inclusive of competitiveness margin of 20% (NPS-UD Clause 3.22) noting that this is not a statutory requirement of Taupo District as a Tier 3 Authority.

⁶ NPS-UD Clause 3.4

⁷ There will be a need to further identify 28.6ha within a further iteration of Taupo District 2050 (TD2050) and associated Council Infrastructure Strategy. (NPS-UD Clause 3.4(1)(c) and (3)(c).

3 CONSIDERATION OF INDUSTRIAL LAND OPTIONS

For the purposes of assessing options for Industrial rezoning, Taupō District Council identified eight (8) initial options (Figure 4), as predicated on proximity to Taupō's urban area, proximity to supporting infrastructure, and constraints.

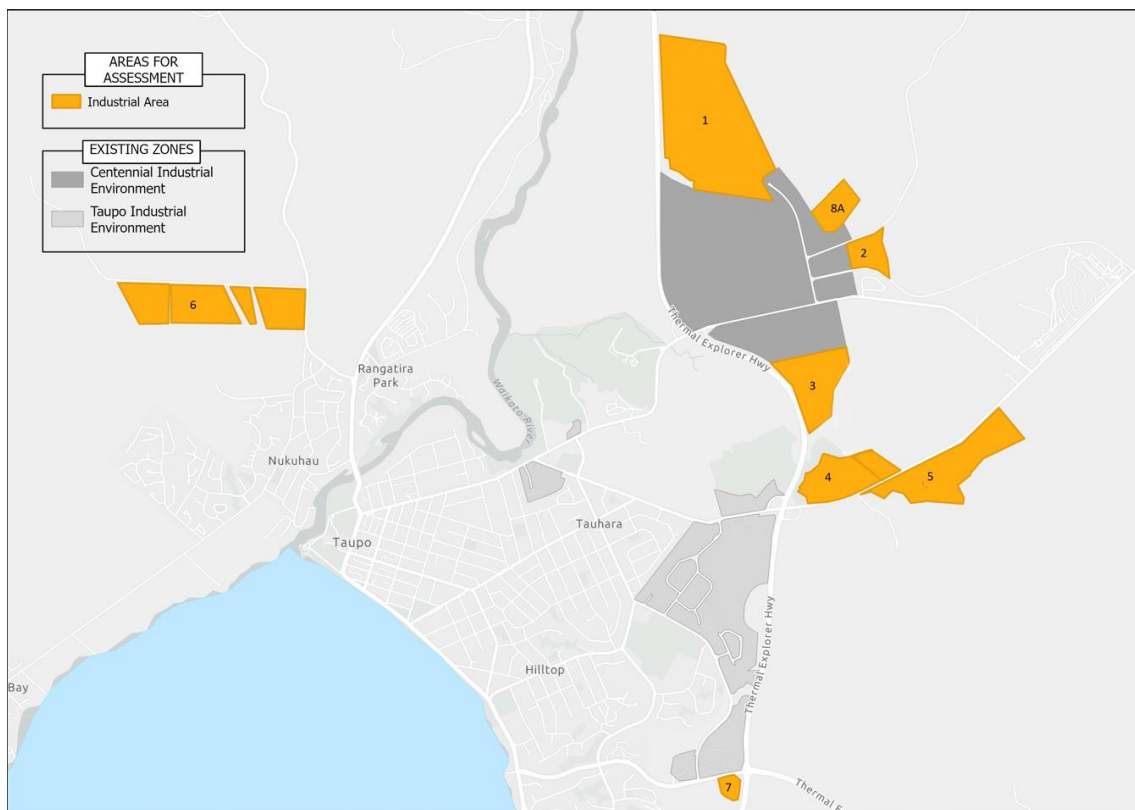
These areas (**Attachment E**) are briefly defined as following:

- Area 1 – Centennial Northern Extension (105ha)
- Area 2 – Centennial Eastern Extension (10ha)
- Area 3 – Centennial Southern Extension (21ha)
- Area 4 – Broadland Road West (20ha)
- Area 5 – Broadlands Road East (42ha)
- Area 6 – RaNgātira E / Scoria Road (57ha)
- Area 7 – Napier Road (4.0ha)
- Area 8 – Aratiatia Road (26ha).

The following technical experts were then commissioned to assess the Industrial Area Options:

- Economic Multi-Criteria Analysis – Property Economics (**Attachment A**).
- Infrastructure (three waters and local transport network) – Taupō District Council (**Attachment B**).
- High level Transport Assessment – Abley Transport Engineers (**Attachment C**).
- Preliminary Geotechnical Assessment: Area 1 to Area 8, and Addendum Report for Areas 3, 4 and 7 – WSP (**Attachment D**).

Figure 4: Industrial Land Options Considered



Attachment F contains a multi-criteria analysis of each of the Options, being a synopsis of the analysis from each of the technical experts and considering the following individual criteria:

Figure 5: Individual Criteria for Assessment of Options

Economics	Constrained Land
	Infrastructure
	Contiguity (proximity and agglomeration to existing urban areas)
	Sufficiency
	Productive Land
	Potential for reverse sensitivity
Infrastructure	Water Supply
	Wastewater
	Local Transport Network
	Stormwater
Geotechnical Assessment (Desktop)	Faults
	Liquefaction
	Land instability
	Geothermal and Hot Ground
	Subsidence
	Uncertified Fill
	Flooding
	Contaminated Land
Geotechnical Assessment Addendum	Walk over site assessment and consideration of existing geotechnical surveys and assessments for Areas 3, 4 and 7.
Transport (as clustered)	Transport Network Capacity
	Road Safety Performance
	Alignment with Taupō District Council Transport Strategy (2020 – 2050).
District Plan and Strategies	Identification in TD2050 (2006) and the Taupō Urban Commercial and Industrial Structure Plan (2011)
	Identification of Taupō District Structure Plan (2004)
	Identification in Chapter 3e of the Operative District Plan as an Urban Growth Area.
	Subject to any notated Operative District Plan Section 6 (RMA1991) constraints.
	Subject to other constraints (Hot Hazard, incised Gullies that would preclude development).
	Consideration of NPS-UD: Objective 1, Objective 6, Policy 1 and Policy 8 (out of sequence).

Each of the criteria has been considered based on the technical assessment (and any associated qualifying statement) and has been provided with a *low*, *medium* or *high* rating

dependent on the extent to which the land area either overcomes or is not impacted by a constraint (e.g. not affected by geothermal or hot ground hazard achieves a *high* rating), or has the potential to realise an opportunity (i.e. accessibility to the East Taupō Arterial transport corridor achieves a *high* rating).

Each of the criterion is measurable, in that it is possible to assess (at least in a qualitative sense) how well a potential option is expected to perform in relation to the criterion. There is also a degree of relativity in a comparison of the same criterion between the Industrial land options considered.

In scoring the areas, no additional weighting has been applied on the basis following:

- Area 4 'Broadland Road West' and Area 7 'Napier Road' provide clear advantages as compared to the other areas.
- The economic and transport assessment have in some instances aggregated areas, which would make disaggregation and assessment considerably complex.
- There would be otherwise be the risk of 'double counting' as for instance the Economic Assessment and Geotechnical Assessment both consider constraints (albeit the former in terms of economic impediments, and the latter in terms of geohazard risk).

Attachment F, the synopsis of the technical reports, and the conclusion as to rezoning Area 4 'Broadland Road West' and Area 7 'Napier Road' has been confirmed with each of the experts.

It should also be noted that the following is relevant to:

Area 1 - Centennial Northern Extension: Located at 887 Rakaunui Road and in the ownership of Taupō District Council is used to dispose of wastewater from the towns reticulated wastewater network. The intention in identifying the site as an Industrial Land option was that the site (or part of the site) would eventually be decommissioned as a wastewater disposal area and Council would then have the ability to either redevelop the land or dispose of the land for industrial purposes.

There is currently no project planned to relocate/replace this site in the current 2021 – 31 Long Term Plan.

However, the site is considered under the Water Services Bill to be a three-waters asset, and whereby would be compulsory acquired by the new regulator/entity. A decision on rezoning would result in substantial complexities with the application of Subpart 4 – Oversight powers of Department within the Water Services Bill (if enacted). Accordingly, this Industrial Option, whilst having a number of merits as outlined in **Attachment F** is not provided for further.

Area 5 – Broadland Road East: Owned by Contact Energy Limited have expressed concerns as to encumbrances to ensure the ongoing operation of geothermal energy infrastructure and the potential for reverse sensitivity effects associated with Tauhara Power Station. Accordingly, there is no desire to see the site rezoned to enable more intensive activities. Accordingly, this industrial option, whilst having a number of merits as outlined in Attachment F is not provided for further.

4 STATUTORY FRAMEWORK

Based on the Technical Assessment, PC43 seeks to rezone Area 4 'Broadland Road West' and Area 7 'Napier Road' as Taupō Industrial Environment.

The preparation of PC43 has been undertaken in accordance with the First Schedule of the Resource Management Act 1991 (RMA).

A summary of the respective statutory requirements in terms of District Plan drafting, referencing *Colonial Vineyards vs Marlborough District Council [2014] NZEnvC 55 [17]* is set out below:

- (a) *Provisions in the District Plan are to assist the Taupō District Council in undertaking its functions under the Act*⁸. Including the function of seeking to achieve the integrated management of the use, development and protection of land and associated natural and physical resources of the (Taupō) District⁹.

An important physical resource in the district is the Industrial land resource. That resource is represented by zoned and serviced areas of land which subsequently promote social and economic wellbeing for the district, including through enabling employment. These areas are also subject to the requirements of s5(2)(c) requiring that adverse effects on the environment be avoided, remedied or mitigated, and that the requirements of Section 6 'matters of national importance', Section 7 'Other Matters' and Section 8 'Treaty of Waitangi' be respectively recognised and provided for, regard had to, and accounted for.

These physical resources (as represented by the Industrial land resource) require consideration in terms of the integrated management of the use, development, and protection of the natural and physical resources of Taupō District, such as integration with infrastructure and the roading network, as well as recognition and accommodation of any constraints to development such as significant indigenous vegetation and habitats, outstanding natural features and landscapes, and for the avoidance and mitigation of natural hazards.

That function is to be fulfilled by *objectives, policies and methods within the District Plan, controlling any actual or potential effects of the use, development and protection of land*¹⁰.

- (b) *The preparation of the District Plan is to be undertaken in accordance with the provisions of Part 2, and any applicable regulations.*
- (c) National Policy Statements are the RMA legislative tool whereby central government can prescribe objectives and policies to address matters of national significance. *The Council must prepare and change its plan in accordance with a NPS (s74(1)) and must give effect to any relevant NPS (s75(3)(a)).* Relevant NPSs to this this Plan Change is predominantly the National Policy Statement on Urban Development (**NPS-UD**), and the National Policy Statement for Freshwater Management (NPS-FM).
- (d) *Effect is to be given to the provisions of the Waikato Regional Policy Statement*¹¹.
- (e) *Regard shall be had to any relevant management plan and strategy prepared under other Acts*¹².
- (d) The approach needs to align with the Council's functions under the Act and other relevant

⁸ Section 74(1)(a) and s31

⁹ Section 31(1)(a)

¹⁰ Section 31(c)

¹¹ Section 75(3)(c)

¹² Section 74(2)(b)(i)

instruments.

- i. That *processes (and provisions that drive processes) are timely, efficient and cost effective and proportionate to the functions being performed, and that plan drafting is clear and concise* (Section 18A); and
- ii. When reaching a conclusion as to which provision is the '*most appropriate*' the requirements of s32, having regard to the *efficiency and effectiveness* of the provision is to be considered.

In this context, an evaluation of an objective to be amended or inserted is to be examined in light of whether such is the most appropriate way to achieve the purpose of the Act¹³. No objectives are amended by PC43.

For an evaluation of provisions (policies and rules) the examination is to consider whether such are the most appropriate to achieve the objectives¹⁴, considering reasonably practicable alternatives¹⁵, and the efficiency and effectiveness of the provisions in achieving the objectives¹⁶.

Sections 74 of the RMA sets out the requirements for changes to district plans, while section 75(3) and section 75(4) sets out the following matters:

(3) *A district plan must give effect to—*

- (a) *any national policy statement; and*
- (b) *any New Zealand coastal policy statement; and*
- (ba) *a national planning standard; and*
- (c) *any regional policy statement.*

(4) *A district plan must not be inconsistent with—*

- (a) *a water conservation order; or*
- (b) *a regional plan for any matter specified in section 30(1).*

These requirements are addressed in the following sections of this report.

Section 74(1) directs that Council must undertake changes to its district plan in accordance with s31, provisions under Part 2 and s32.

PC43 is in accordance with the Council's functions under s31 as relevant to the matters being amended, and the requirements of s32(b)¹⁷.

Clauses 1 to 20A of the First Schedule to the RMA sets out the procedures for a plan change, including consultation and notification requirements.

Clauses 3 and 3B set out the relevant procedures for consultation. Clause 3(1) states that during the preparation of a proposed policy statement or plan, the local authority concerned shall consult with the Minister for the Environment, other Ministers of the Crown who may be

¹³ Section 32(1)(a)

¹⁴ Section 32(1)(b)

¹⁵ Section 32(1)(b)(i)

¹⁶ Section 32(1)(b)(ii)

¹⁷ Section 31(a) is not engaged as there are no amendments to Objectives in the Operative Plan.

affected by the plan change, local authorities who may be so affected, and the tāngata whenua of the area who may be so affected, through iwi authorities.

Clause 3(2) sets out that “a local authority may consult anyone else” in preparing a plan change, subject to Clause 3(4) which requires that such consultation must be undertaken in accordance with Section 82 of the Local Government Act 2002 (‘LGA’). Accordingly, Council must consult with the parties identified in clause 3(1) but retains discretion to consult with anyone else. If Council elects to undertake discretionary consultation, it must do so in accordance with the principles in section 82 of the LGA. Clause 3B relates to consultation with iwi authorities.

Details of the consultation undertaken for PC43 are provided in Section 2.3 of this report with the wider consultation and engagement process set out in the Background and Engagement Report which accompanies this suite of Plan Changes to the District Plan. The consultation meets the requirements of the First Schedule.

Clauses 5 to 11 of the First Schedule set out procedures for notification, receipt of submissions, hearings and notification of decisions in relation to plan changes. In processing the plan change, it will be necessary for compliance to be achieved with the requirements of these provisions.

4.1 Relevant Planning Documents

The relevant planning documents are assessed below¹⁸.

4.1.1 National Policy Statement – Urban Development (NPS-UD)

The NPS-UD, in broad terms aims to ensure that New Zealand’s towns and cities are well-functioning urban environments that meet the changing needs of our diverse communities, and in the context of the Proposed Plan Change (noting that the purpose of the Plan Change is focused on providing appreciable business sector development capacity to the district), that there is ‘*sufficient development capacity to meet expected demand ... for business land over the short term, medium term, and long term*¹⁹’, in a manner that is integrated with infrastructure planning and funding decisions²⁰, and provides well-functioning urban environments²¹.

Taupō District is a Tier 3 local authority²² under the NPS-UD, as the NPS-UD does not identify Taupō District as either a Tier 1 or 2 urban environment. Under clause 1.5 ‘Implementation by tier 3 local authorities’ the Taupō District Council is *strongly encouraged to undertake the functions of Tier 1 and 2 local authorities*, however such actions are not mandated.

In terms of application and interpretation the following is also acknowledged:

¹⁸ It is noted that there are a number of other important statutory documents associated with the District, such as the *Vision and Strategy - Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010*, however for the sake of conciseness this Plan Change focuses on the immediately relevant statutory framework as applicable to the proposed Changes.

¹⁹ NPS-UD Policy 2

²⁰ NPS-UD Objective 6

²¹ NPS-UD Objective 1 and Policy 1

²² NPS-UD Appendix 2, Table 2, Interpretation ‘Tier 3 Local Authority’.

- (a) The Taupō township is deemed an ‘urban environment’²³ for the purpose of the application of the provisions of the NPS-UD.
- (b) Clause 3.32 does not mandate a ‘competitiveness margin’ of development capacity over and above expected demand, as Taupō District is not identified as a tier 1 or tier 2 local authority. However, for the purposes of the assessment Property Economics²⁴ have ascribed the competitiveness margin of 20% (short term), 20% (medium term) and 15% (long term) to the supply deficit forecast.

In terms of the outcomes associated with a consideration of the Plan Change 43, the provisions in the District Plan (including those that contribute to ‘business sectors’²⁵ and business land²⁶) are to contribute to:

Achieving a well-functioning urban environment that enables people and communities to provide for their social, economic and cultural well-being, now and into the future (**Objective 1**).

District Plan’s enable more... business and community services to be located in, areas of an urban environment: (c) there is high demand for ... business land in the area, relative to other areas within the urban environment (**Objective 3**).

New Zealand’s urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people, communities and future generations (**Objective 4**).

Local authority decisions on urban development that affect urban environments are: (a) integrated with infrastructure planning and funding; and (b) strategic over the long to medium term (**Objective 6**).

Local authorities are to have robust and frequently updated information about their urban environments and use it to inform planning decision (**Objective 7**).

New Zealand’s urban environments: (a) support reductions in greenhouse gas emissions... (**Objective 8**).

Well-functioning urban environments are defined in **Policy 1**. In relation to the Proposed Plan Change, the relevant elements are:

Policy 1: Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum:..

- (b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and*
- (c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and*
- (d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and*

²³ NPS- UD Section 1.4 Interpretation.

urban environment means any area of land (regardless of size, and irrespective of local authority or statistical boundaries) that:

(a) is, or is intended to be, predominantly urban in character; and

(b) is, or is intended to be, part of a housing and labour market of at least 10,000 people.

²⁴ Attachment A. Property Economics 2022 (Section 4).

²⁵ NPS-UD Policy 1(b)

²⁶ NPS-UD Policy 2

(e) *support reductions in greenhouse gas emissions; and...*

Policy 2 requires:

Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term.

Policy 6 sets out the matters to be had particular regard to in terms of decisions that affect urban environments.

- (a) *the planned urban built form anticipated by those RMA planning documents that have given effect to this National Policy Statement*
- (b) *that the planned urban built form in those RMA planning documents may involve significant changes to an area, and those changes:*
 - (i) *may detract from amenity values appreciated by some people but improve amenity values appreciated by other people, communities, and future generations, including by providing increased and varied housing densities and types; and*
 - (ii) *are not, of themselves, an adverse effect*
- (c) *the benefits of urban development that are consistent with well-functioning urban environments (as described in Policy 1)*
- (d) *any relevant contribution that will be made to meeting the requirements of this National Policy Statement to provide or realise development capacity*
- (e) *the likely current and future effects of climate change.*

Policy 8 requires:

Local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is:

- (a) *unanticipated by RMA planning documents; or*
- (b) *out-of-sequence with planned land release*

Policy 10 establishes that:

Tier ... 3 local authorities:

- (b) *engage with providers of development infrastructure and additional infrastructure to achieve integrated land use and infrastructure planning.*
- (c) *engage with the development sector to identify significant opportunities for urban development.*

The implications for consideration of Plan Change 43 in relation to the NPS-UD is that the Taupō District Council is to provide 'at least'²⁷ at any one-time sufficient business development capacity for different business sectors, for the short (3 years), medium (10 years) and long terms (30 years).

However, this is not simply an instance of the provision of additional zoned land. Contributions to Taupō District's zoned business capacity must also contribute to well-functioning urban environments, as set out in **Objective 1** and as a *minimum* achieve the criteria in **Policy 6**,

²⁷ NPS-UD Policy 2.

including promoting good accessibility between housing and jobs, and supporting reductions in greenhouse emissions.

Policy 8 provides a response approach to Plan Changes that seek to add significantly to development capacity, even where that development capacity is unanticipated by RMA planning documents. In this instance Plan Change 43 follows a long strategic approach to the identification and rezoning of additional Industrial land within Taupō District²⁸. In terms of the application of Policy 8 to PC43:

- Strategic planning documents associated with identifying additional Industrial land resource includes the Taupō Urban Structure Plan (2004), and subsequently the Taupō District 2050 (2006) Growth Management Plan, and lastly the Taupō Urban Commercial and Industrial Structure Plan (2011).
- Area 4 Broadlands Road West is identified in these documents. The area is subsequently an anticipated 'Urban Growth Area²⁹' and is therefore anticipated within Section 3e Land Development of the Taupō District Plan, as well as by Policy 6.11 'Implementing Taupō District 2050' of the Waikato Regional Policy Statement.
- Area 7 Napier Road is not identified in these strategic planning documents, nor would it constitute 'significant development capacity' for the purposes of Policy 8. However, as a rurally zoned site, bounded on three sides by Taupō's urban area, and the eastern boundary is demarcated by the East Taupō Arterial, the site is seen as being a co-ordinated and continuous extension of the existing Crown Road Industrial Area, it is therefore considered that rezoning this area to support Business (Industrial) capacity would achieve Objective 1 and Policy 1 of the NPS-UD.

As identified³⁰, Taupō District Council has sufficient business development capacity for Industrial activities for the short and medium term. However, there is a shortfall of 40.6ha for the provision of sufficient industrial zoned and serviced land by 2053 (long term 30-year supply), or with the additional of a 15% competitiveness margin – some 52.6ha. The addition of 24ha of zoned Taupō Industrial Environment through PC43 provides a substantial contribution to meeting this shortfall.

²⁸ Plan Change 29 to the Taupo District Plan

²⁹ Taupo District Plan. Section 3e.6.1 Northern Urban Growth Areas.

³⁰ Attachment A. Property Economics [Table 2]

4.1.2 National Policy Statement – Freshwater Management (NPS-FW 2020)

The NPS-FM introduces the fundamental concept of Te Mana o te Wai, which refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment.

Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

There is a hierarchy of obligations set out in Objective 2.1, which prioritises:

- a) first, the health and well-being of water bodies and freshwater ecosystems
- b) second, the health needs of people (such as drinking water)
- c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Policy 6 refers to there being no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted. **Policy 9** is that the habitats of indigenous freshwater species are protected. **Policy 15** refers to communities being enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.

In terms of Area 4 Broadlands Road West, the eastern boundary of the rezoning is demarcated by a deeply incised gully to prevent development (and associated earthworks). The disposal of stormwater will be via Waikato Regional Council consents and is understood through the Infrastructure Assessment (**Attachment B**) to not be a matter that would foreclose industrial development. In terms of appropriate stormwater management associated with Area 7 – Napier Road, the ability to address these matters through subdivision and Regional Plan consents is also understood to be acceptable.

4.1.3 National Policy Statement – Highly Productive Land (2022)

The NPS-HPL comes into force on 17 October 2022 and will have statutory effect from that date, even prior to specific matters being addressed in the Waikato Regional Policy Statement and Taupō District Plan.

The NPS-HPL Objective is that:

2.1 Objective	Highly productive land is protected for use in land-based primary production, both now and for future generations.
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Respective relevant policies include:

Policy 1:	Highly productive land is recognised as a resource with finite characteristics and longterm values for land-based primary production.
Policy 4:	The use of highly productive land for land-based primary production is prioritised and supported.
Policy 5:	The urban rezoning of highly productive land is avoided, except as provided in this National Policy Statement.

In terms of this Plan Change the following is noted:

- Highly productive land is considered to be Land Use Classes (LUC) 1, 2 or 3 land³¹.
- Tier 3 Territorial Authorities, which includes Taupō District Council may only allow urban rezoning of highly productive land (being LUC 1,2 or 3³²), subject to criteria including:
 - A requirement to provide sufficient development capacity;
 - No other reasonably practicable and feasible options; and
 - The benefits of zoning outweigh the costs associated with the loss of highly productive land for land-based primary production³³.
- Until such time as the Waikato Regional Council has completed its amendment to the WRPS to accommodate the NPS-HPL³⁴ and the Taupō District Council has amended its operative plan to give effect to that change³⁵, the Council must (as a mandatory direction) apply the NPS-HPL as if references to highly productive land were referenced to LUC1, 2 or 3 land³⁶.

Accordingly, for the purposes of PC43 the Plan Change should not be seeking to rezone any land identified as Class 1, 2 and 3 except where there is a specific requirement to meet sufficient industrial land development capacity, and no reasonably practicable option remains.

In this instance, as outlined in the Economic Technical Report (**Attachment A**), Option Area 1, 2 and 6 contain identified LUC 3 classed soils, and therefore should not be considered further³⁷. Area 4 Broadlands Road West and Area 7 – Napier Road which are sought to be rezoned through PC43 do not contain any Class 1, 2 or 3 soils and therefore would give effect to the NPS-HPL (Figure 6).

³¹ Interpretation 'Highly Productive Land', Clause 3.4 'Mapping Highly Productive Land' and Clause 3.5(7).

³² Or as otherwise mapped by Waikato Regional Council. Clause 3.4

³³ Clause 3.6(4)

³⁴ Clause 3.5(1)

³⁵ Clause 3.5(3)

³⁶ Interpretation. 'as mapped by the New Zealand Land Resource Inventory or by any more detailed mapping that uses the Land Use Capability classification'.

³⁷ Attachment A, PEL 2022 [page 22]

Figure 6: Land Area Options Considered – Soil Class

		1 - Centennial Northern Extension		2 - Centennial Eastern Extension		3 - Centennial Southern Extension		4 - Broadlands Road West		5 - Broadlands Road East		6 - Rangatira E		7 - Napier Road		8A - Aratiatia Road	
Soil Class	Class 1	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 3	61.9	59%	4.3	43%	0	0%	0.1	0%	10.1	24%	44.3	77%	0	0%	0	0%
	Class 4	34.7	33%	4.0	40%	0	0%	18.0	100%	2.7	6%	0	0%	0	0%	0	0%
	Class 5	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 6	8.8	8%	1.7	17%	21.3	100%	0.0	0%	27.1	65%	5.5	10%	0	0%	25.7	100%
	Class 7	0	0%	0	0%	0	0%	0	0%	1.9	5%	7.4	13%	3.5	100%	0	0%

Source: Land Care Research NZ, Property Economics.

4.1.4 Ngāti Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010

The overarching purpose of the legislation is to restore and protect the health and wellbeing of the Waikato River for present and future generations. Amongst several significant features of the legislation, it provides co-management arrangements for the Waikato River. The legislation is being given effect to through joint management agreements with the iwi, and through the statutory importance of Te Ture Whaimana o Te Awa o Waikato – The Vision and Strategy for the Waikato River.

The application of the Act to the hierarchy of planning instruments under the Resource Management Act is as follows:

- Section 12 ‘Vision and Strategy is part of the Waikato Regional Policy Statement’ deems the vision and strategy in its entirety is deemed to be part of the Waikato Regional Policy Statement.
- Section 13 ‘Effect...’ deems that the vision and strategy prevail over any consistent provisions in a National Policy Statement, NZ Coastal Policy Statement and any National Planning Standard.

Vision and Strategy for the Waikato River

Te Ture Whaimana o Te Awa o Waikato – The Vision and Strategy for the Waikato River (‘the Vision and Strategy’) was immediately incorporated into the Waikato Regional Policy Statement and has the status of a national policy statement.

The Vision and Strategy is intended by Parliament to be the primary direction-setting document for the Waikato River and activities within its catchment affecting the river. The Vision and Strategy was adopted by the Waikato River Authority (‘WRA’) as part of the

settlement process in accordance with the legislation. The ultimate vision is: “the Waikato River will be safe for people to swim in and take food from over its entire length.” The Vision and Strategy then has thirteen objectives that amplify this overall vision:

In order to realise the Vision, Schedule 1(3) to the Act sets out the following objectives to be pursued:

- a. The restoration and protection of the health and wellbeing of the Waikato River.
- b. The restoration and protection of the relationship of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships.
- c. The restoration and protection of the relationship of Waikato River iwi according to their tikanga and kawa, with the Waikato River, including their economic, social, cultural and spiritual relationships.
- d. The restoration and protection of the relationship of the Waikato region’s communities with the Waikato River including their economic, social, cultural and spiritual relationships.
- e. The integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River.
- f. The adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the Waikato River.
- g. The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within its catchments on the health and wellbeing of the Waikato River.
- h. The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.
- i. The protection and enhancement of significant sites, fisheries, flora and fauna.
- j. The recognition that the strategic importance of the Waikato River to New Zealand’s social, cultural, environmental and economic wellbeing requires the restoration and protection of the health and wellbeing of the Waikato River.
- k. The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.
- l. The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities.
- m. The application to the above of both maatauranga Maaori and latest available scientific methods.

Schedule 1(c) to the Act also establishes twelve strategies to achieve the objectives, of which the following have some bearing on PC43:

- b. Establish what the current health status of the Waikato River is by utilising maatauranga Maaori and latest available scientific methods.
- i. Encourage and foster a ‘whole of river’ approach to the restoration and protection of the Waikato River, including the development, recognition and promotion of best

practice methods for restoring and protecting the health and wellbeing of the Waikato River.

- k. Ensure that cumulative adverse effects on the Waikato River of activities are appropriately managed in statutory planning documents at the time of their review.

Given the Act, and its embodiment in the WRPS, Plan Change 43 is required to ‘*give effect to*’ the Vision and Strategy (as relevant).

It is considered that any urbanisation of the Rural Environment to provide for industrial activities will need to be facilitated by way of subdivision consent as issued from the Taupō District Council, and stormwater management in accordance with consents to be issued by the Waikato Regional Council.

In terms of the former, the Infrastructure Report (**Attachment B**) identifies that there are no explicit constraints in terms of stormwater and wastewater servicing, and accordingly it is not considered that the rezoning of these areas would not achieve the relevant provisions of the Act, in additional Assessment Matters for Rule 4h.3.10 provide for the management, and avoidance of any adverse effects associated with the discharge of stormwater management. In terms of the latter there will be specific requirements associated with any discharge to land.

4.1.5 National Planning Standards

The National Planning Standards (2019) seek to ensure a consistent approach to plan structure format and content.

Section 17 of the Standards sets out the Implementation Standard (or mandatory requirements) for enacting the Standards.

For District Plans, including the Taupō District Plan, the Standard³⁸ requires:

- (a) For matters of structure and format that there is a mandatory requirement to implement the National Planning Standards under (i) or (ii) below whichever is sooner:
 - (i). Amendments to the district plan made by **five years from when the planning standards come into effect.**
 - (ii). Notification of a proposed district plan (but not a proposed change or variation) for submissions under clause 5, Schedule 1 RMA after the planning standards come into effect.
- (b) For definitions (Section 14. Definitions) any amendments to the District Plan made by **seven years from when the planning standards come into effect.**

For PC43 which incorporates changes to the spatial zoning extent, the relevant matters that would need to be considered include:

³⁸ National Planning Standard (Section 17(4) and (7) ‘Territorial Authorities’)

- Zone Framework Standard (Section 8)
- The Mapping Standard (Section 13) – In terms of mapping the above.

As the National Planning Standards were made operative in November 2019, for incremental Plan Changes, the Taupō District Council would need to ensure consistency in terms of requirements for structure and form by November 2024.

Accordingly, for the purpose of this Plan Change **there is not a mandatory requirement to amend provisions to accord with the requirements of the National Planning Standard.** To do so risks unintended consequences within the architecture of the District Plan outside a more fulsome or complete review. These matters are also addressed in Section 1.2 of the Background and Engagement Report accompanying the suite of Plan Changes to the Taupō District Plan.

4.1.6 National Environmental Standards

Relevant National Environmental Standards include:

- National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-Contamination 2011); and
- National Environments Standards for Freshwater (NES-F 2020)

In terms of the NES-Contamination, **Attachment D** identifies that there are no recorded HAIL sites on Area 4 - Broadland Road West or Area 7 - Napier Road that would preclude rezoning.

In terms of the NES-F, certain vegetation clearance, earthworks and land disturbance activities required to be undertaken during the construction phase of any subsequent land development may require additional consents depending on the setback and impact on any wetland. This can be further assessed at that time.

4.1.7 Regional Policy Statement

Pursuant to section 75(3)(c) of the RMA, a District Plan must give effect to any operative Regional Policy Statement (**WRPS**). The Regional Policy Statement of relevance to the Additional industrial land is the Waikato Regional Policy Statement.

The WRPS was amended in March 2022 to account for the requirements of the NPS-UD. The amendment introduced Objective 3.27 as this related to requirements for housing bottom lines. That amendment does not extend to the Taupō District.

The Waikato Regional Policy Statement was made operative in April 2016.

Waikato Regional Policy Statement

The relevant provisions of the Waikato Regional Policy Statement as associated with urban form and growth, including the integration of infrastructure and land use include:

Objective 3.1: Integrated	<i>Natural and physical resources are managed in a way that recognises:</i>
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Management	<ul style="list-style-type: none"> d) <i>the needs of current and future generations;</i> e) <i>the relationships between environmental, social, economic and cultural wellbeing;</i>
Objective 3.10 Sustainable and efficient use of resources	<i>Use and development of natural and physical resources, excluding minerals, occurs in a way and at a rate that is sustainable, and where the use and development of all natural and physical resources is efficient and minimises the generation of waste</i>
Objective 3.12 Built Environment	<p><i>Development of the built environment (including transport and other infrastructure) and associated land use occurs in an integrated, sustainable and planned manner which enables positive environmental, social, cultural and economic outcomes, including by:</i></p> <ul style="list-style-type: none"> a) <i>promoting positive indigenous biodiversity outcomes;</i> b) <i>preserving and protecting natural character, and protecting outstanding natural features and landscapes from inappropriate subdivision, use, and development;</i> c) <i>integrating land use and infrastructure planning, ..</i> e) <i>recognising and protecting the value and long-term benefits of regionally significant infrastructure;</i> g) <i>minimising land use conflicts, including minimising potential for reverse sensitivity; ...</i>
Policy 6.1 Planned and coordinated subdivision, use and development.	<p><i>Subdivision, use and development of the built environment, including transport, occurs in a planned and coordinated manner which:</i></p> <ul style="list-style-type: none"> a) <i>has regard to the principles in section 6A;</i> b) <i>recognises and addresses potential cumulative effects of subdivision, use and development;</i> c) <i>is based on sufficient information to allow assessment of the potential long-term effects of subdivision, use and development; and</i> d) <i>has regard to the existing built environment.</i>
Policy 6.3 Co-ordinating growth and infrastructure	<p><i>Management of the built environment ensures:</i></p> <ul style="list-style-type: none"> a) <i>the nature, timing and sequencing of new development is coordinated with the development, funding, implementation and operation of transport and other infrastructure....</i>
Policy 6.11 Implementing Taupō District 2050	<p><i>Growth in the Taupō District will be managed in a way that:</i></p> <ul style="list-style-type: none"> a) <i>recognises that Taupō District 2050 provides for the management of future growth, including by:</i> <ul style="list-style-type: none"> i. <i>recognising the appropriateness of the urban growth areas as an important resource for providing for new urban land development and as the focus for future urban growth;</i> ii. <i>ensuring patterns of future urban development are consistent with the strategic directions of Taupō District 2050, the identified urban growth areas, and any subsequently adopted structure plans;</i>

- iii. *avoiding urban development in the rural environment outside of the identified urban growth areas to prevent a dispersed pattern of settlement and the resulting inefficiencies in managing resources;*
- iv. *avoiding the cumulative effect that subdivision and consequent fragmented land ownership can have on the role of the urban growth areas in providing the supply of land for urban development;*
- v. *ensuring that staging of development in the urban growth areas is efficient, consistent with and supported by adequate infrastructure; and*
- b) *ensures that urban development of an identified urban growth area occurs by way of a Taupō District 2050 structure plan process and associated plan change process.*
- c) *acknowledges that changes to the Taupō District Plan intended to implement Taupō District 2050 must be considered on their merits under the RMA.*

6A Development Principles (for the purpose of Policy 6.1)

General Development Principles

New development should:

- a) *support existing urban areas in preference to creating new ones;*
- b) *occur in a manner that provides clear delineation between urban areas and rural areas;*
- c) *make use of opportunities for urban intensification and redevelopment to minimise the need for urban development in greenfield areas;*
- d) *not compromise the safe, efficient and effective operation and use of existing and planned infrastructure, including transport infrastructure, and should allow for future infrastructure needs, including maintenance and upgrading, where these can be anticipated;*
- e) *connect well with existing and planned development and infrastructure;*
- i) *promote compact urban form, design and location to:*
 - i) *minimise energy and carbon use;*
 - ii) *minimise the need for private motor vehicle use;*
 - iii) *maximise opportunities to support and take advantage of public transport in particular by encouraging employment activities in locations that are or can in the future be served efficiently by public transport;*
 - iv) *encourage walking, cycling and multi-modal transport connections; and*
 - v) *maximise opportunities for people to live, work and play within their local area;*
- k) *promote positive indigenous biodiversity outcomes and protect*

significant indigenous vegetation and significant habitats of indigenous fauna....

- o) not result in incompatible adjacent land uses (including those that may result in reverse sensitivity effects), such as industry, rural activities and existing or planned infrastructure;*
- q) consider effects on the unique tāngata whenua relationships, values, aspirations, roles and responsibilities with respect to an area. Where appropriate, opportunities to visually recognise tāngata whenua connections within an area should be considered.*

Relevant provisions around specific natural values and features include:

Ecology

**Objective 3.19
Ecological Integrity
and indigenous
vegetation**

The full range of ecosystem types, their extent and the indigenous biodiversity that those ecosystems can support exist in a healthy and functional state.

**Policy 11.1 Maintain
or Enhance
indigenous
biodiversity**

Policy 11.1 Maintain or Enhance indigenous biodiversity

Promote positive indigenous biodiversity outcomes to maintain the full range of ecosystem types and maintain or enhance their spatial extent as necessary to achieve healthy ecological functioning of ecosystems, with a particular focus on:

- (a) working towards achieving no net loss of indigenous biodiversity at a regional scale;*
- (b) the continued functioning of ecological processes;*
- (c) the re-creation and restoration of habitats and connectivity between habitats;*
- (d) supporting (buffering and/or linking) ecosystems, habitats and areas identified as significant indigenous vegetation and significant habitats of indigenous fauna;*
- (e) providing ecosystem services;*
- (f) the health and wellbeing of the Waikato River and its catchment;*
- (g) contribution to natural character and amenity values;*
- (h) tāngata whenua relationships with indigenous biodiversity including their holistic view of ecosystems and the environment;*
- (i) managing the density, range and viability of indigenous flora and fauna; and*
- (j) the consideration and application of biodiversity offsets.*

Method 11.1.1 seeks that district plans should provide for indigenous vegetation when managing land use change.

Amenity and Landscape

**Objective 3.20
Outstanding Natural
Features and
Landscapes**

The values of outstanding natural features and landscapes are identified and protected from inappropriate subdivision, use and development.

**Objective 3.21
Amenity**

The qualities and characteristics of areas and features, valued for their contribution to amenity, are maintained or enhanced

**Objective 3.21
Natural Character**

The natural character of ... lakes and rivers and their margins are protected from the adverse effects of inappropriate subdivision, use and development.

**Policy 12.1
Outstanding Natural
Features and
Landscapes**

Identified values and characteristics of outstanding natural features and landscapes (including seascapes) of regional or district significance are protected from adverse effects, including cumulative effects, arising from inappropriate subdivision, use and development.

**Policy 12.2 Preserve
Natural Character**

Ensure that activities within ... wetlands, and lakes and rivers and their margins are appropriate in relation to the level of natural character and:

- a. *where natural character is pristine or outstanding, activities should avoid adverse effects on natural character;*
- b. *where natural elements/influences are dominant, activities should avoid significant adverse effects and avoid, remedy or mitigate other adverse effects on natural character;*
- c. *where man-made elements/influences are dominant, it may be appropriate that activities result in further adverse effects on natural character, though opportunities to remedy or mitigate adverse effects should still be considered;*
- d. *promote the enhancement, restoration, and rehabilitation of the natural character of ... lakes and rivers and their margins; and*
- e. *regard is given to the functional necessity of activities being located in or near ... lakes, or rivers and their margins where no reasonably practicable alternative locations exist.*

Geotechnical Risk

**Policy 13.1 Natural
Hazard Risk
Management
Approach**

Natural hazard risks are managed using an integrated and holistic approach that:

- (a) *Ensures the risk from natural hazards does not exceed an acceptable level;*
- (b) *..*
- (c) *Avoids the creation of new intolerable risk...*

**Policy 13.2 Manage
Activities to reduce
the risks from natural
hazards**

Subdivision, use and development are managed to reduce the risks from natural hazards to an acceptable or tolerable level including by:

- (a) *ensuring risk is assessed for proposed activities on land subject*

	to natural hazards;
	(b) reducing the risks associated with existing use and development where these risks are intolerable;
	(c) avoiding intolerable risk in any new use or development in areas subject to natural hazards;
Section 6A 'Development Principles'	new development:
	(h) be directed away from ... natural hazard areas.....:

In considering these matters:

- The areas identified by PC43 enable additional provision of Industrial land development capacity to meet the forecast employment needs of Taupō district as aligned with **Objective 3.1**. The spatial extent of the rezonings, and as subject to existing standards under the Taupō Industrial Environment are to appropriately manage the relationship between environmental, economic and social wellbeing, as well as actual or potential adverse effects.
- Technical assessments accompanying the options considered have taken into account the potential for reverse sensitivity effects (**Objective 3.12(g)**) as well as recognition of regionally significant infrastructure (**Objective 3.12(e), Development Principles 6A(o)**) such as through the removal of Area 5 – Broadland Road East from consideration given proximity to Contact Energy infrastructure.
- The spatial extent of the rezonings have considered and taken into account the protection of indigenous biodiversity (**Objective 3.12(a), Development Principle 6A(k)**), as well as preserving and protecting natural character, and protecting outstanding natural features and landscapes (**Objective 3.12(b)**).
- In terms of infrastructure (**Policy 6.3, Policy 6.11(a)(v), Development Principle 6A(d)**), the Infrastructure Technical Report identifies that Area 4 – Broadland Road West and Area 7 – Napier Road, can be efficiently and effectively integrated with supporting infrastructure.
- In terms of **Policy 6.11(a)** Area 4 - Broadlands Road West is identified within TD2050(2006)³⁹ and as an Urban Growth Area in Section 3e of the Taupō District Plan; Area 7 – Napier Road is not, however for the purposes of a consideration of clause (iii) Area 7 is contained within the Taupō urban area and reinforces a clear delineation between urban and rural areas (**Development Principle 6A(b)**), neither does it represent a dispersed pattern of development or generate resource management inefficiencies associated with urban growth. It is considered that the words 'give effect to' in s75(3) of the RMA require a purposive consideration of the Regional Policy Statement framework as a whole, and that any residual tension between Area 7 and Policy 6.11(a)(iii) is resolved through overall achievement with the NPS-UD and consistency with the remaining provisions of the WRPS.
- For the purposes of **Policy 6.11(c)(v)**, as based on the Infrastructure Technical

³⁹ For completeness - TD2050 (2006) was the Council's approved Growth Strategy when the Waikato Regional Policy Statement was made operative. The TD2050 (2018) refresh does not include Broadlands Road West.

Report and Transport Technical Report, both Areas 4 and 7 can be efficiently supported by infrastructure.

- In terms of **Policy 6.11(b)** and **(c)** Area 4 - Broadlands Road West is identified within TD2050(2006) and also with the Taupō District Structure Plan (2004). Area 7 – Napier Road was not identified in TD2050, however is of a scale, and contained urban location that a separate structure plan is considered unnecessary. PC43 represents the Plan Change process and associated merit based s32 assessment for the consideration of these areas.
- In terms of geohazard, the Geotechnical Report (**Attachment D**) identifies that neither Area 4 – Broadlands Road West nor Area 7 – Napier Road represent ‘intolerable risk’ for the purposes of the **Policy 13.1(c)**, with any on-site specific geotechnical issues able to be resolved through engineering design. The Technical Report identifies⁴⁰ that the Earthquake Geotechnical Engineering Practice Module 2⁴¹ investigations, including deep geotechnical investigation as required to support subdivision and land use for Area 4. That requirement has been inserted into Rule 4h.3.7 associated with any subdivision for Section 14 SO 40438782 and Lot 1 DP 445148 (Area 4).
- In terms of ecology, neither the spatial extent of Area 4 – Broadlands Road West nor Area 7 – Napier Road are subject to any notations demarcating significant indigenous biodiversity or habitats (**Objective 3.19, Policy 11.1**). However, the spatial extent of Area 4 has been developed in consideration of SNA180 to the north and east of the site, and gully system to the west, as shown in Figure 7 as well as the District Plan Hot Ground Hazard Area.
- In terms of amenity and landscapes, neither Area 4 nor Area 7 are identified as either Outstanding Landscape Areas (OLA) or Amenity Landscape Areas (ALA) in the District Plan (**Objective 3.20, 3.21, Policy 12.1, 12.2**).

In summary, the Proposed Plan Change therefore gives effect to the relevant provisions of the WRPS.

⁴⁰ WSP. Attachment D [Section 1.1]

⁴¹ MBIE & NZGS, Earthquake Geotechnical Engineering Practice Module 2: Geotechnical Investigations for Earthquake Engineering, Rev 1, Nov 2021.

Figure 7: Area 4 Overlain over Ecological Assessment of the Taupō Commercial and Industrial Structure Plan (2004)



4.1.8 Iwi Management Plans

Pursuant to s74(2A) of the Resource Management Act 1991, a change to the District Plan must *take into account* any relevant planning document recognised by an iwi authority and lodged with the territorial authority, to *the extent that its content has a bearing on the resource management issues* of the district. Take into account means that the matter must be addressed with weight and as a matter of judgement based on the facts and merits of the issue.

The relevant *Ngāti Tūwharetoa Iwi Management Plan* for the area, and broad matters raised which have bearing on the use of the built form are outlined below, as are the respective Iwi Environmental Management Plans.

4.1.8.1 Ngāti Tūwharetoa Iwi Management Plan (2003)

Exercising kaitiakitanga / Partnership⁴²: In terms of key principles, the Management Plan seeks to ensure active participation as a partner in the resource management decision-making processes.

Consultation with iwi is outlined below, and it is understood that Panel members to hear and consider PC43 and submissions received should include Panel members nominated by *Tūwharetoa Māori Trust Board*.

⁴² Ngāti Tūwharetoa Iwi Management Plan [pages 11 and 18]

Te Waipuna Ariki - Water⁴³: Advocate for the protection of mauri of water through effective policy and planning instruments. Prohibit all discharge of human waste directly into waterways and promote effluent treatment acceptable to ngā hapū.

Papatuānuku - Land⁴⁴: Advocate for the protection of the mauri of land, including involvement from tangata whenua with regard to the management of reserves, recreation areas.

Ngā Otaota Me Ngā Aitanga Kararehe – Flora and Fauna⁴⁵: Advocate for the protection of the mauri of indigenous flora and fauna.

4.1.8.2 *Iwi Environmental Management Plans*

Whilst not formal Iwi Management Plans, the following also have a bearing on the Plan Change.

Te Arawa River Iwi Trust (TARIT) Environmental Management Plan (2015)

This Environmental Management Plan is a high-level guidance document detailing priority issues and actions to support Te Arawa River iwi in their aspirations.

The TARIT area of interest extends from the Upper Waikato River Catchment area at Huka Falls to Pōhaturoa, and policies and actions in the plan pertain to the health and wellbeing of the Waikato River.

In particular, TARIT considers itself an affected party for any activity that affects, or potentially affects, the Waikato River as regards the following:

1. Water Permits: To dam, divert, take and use from or in the Waikato River as well as surface water activities
2. Discharge Permits: To discharge contaminants into water or onto land where it may enter water
3. Land Use Consents: For riverbed disturbance – structures, drilling, plant introduction or removal, plant or animal habitat disturbance.

Ngāti Tahu - Ngāti Whaoa Iwi Environmental Management Plan (IEMP): Rising above the mist - Te aranga ake i te taimahatanga (2019)

The IEMP is a comprehensive three-part document. Part one sets out the background, vision and overarching ethos for environmental management. Part two compares the historical and current state of the natural environment, as well as setting out principles for environmental management and iwi goals for each environmental resource. Part three is a collation of various action plans and associated implementation strategies.

⁴³ *Ngāti Tūwharetoa Iwi Management Plan [page 22]*

⁴⁴ *Ngāti Tūwharetoa Iwi Management Plan [page 24]*

⁴⁵ *Ngāti Tūwharetoa Iwi Management Plan [page 38]*

The iwi has had customary lands returned and mana whenua established through various Treaty Settlements, making Ngāti Tahu - Ngāti Whaoa iwi one of the largest land holders in the Waikato River catchment. The IEMP details out at length the current state of the environment, iwi issues and proposed strategies for remedying the same over these areas. In particular, the IEMP sets out how Ngāti Tahu-Ngāti Whaoa will exercise kaitiakitanga over the following aspects of their rohe:

1. The waters of the Waikato River from Huka Falls to Pohaturua at Atiamuri
2. Extensive forest areas in Tutukau and the Paeroa ranges
3. The geothermal fields of Rotokawa (Tauhara North), Broadlands (Kaingaroa No.2), Ohaki (Tahorakuri), Nga Tamariki (Tahorakuri), Reporoa (Paeroa East), Waiotapu (Paeroa East), Waikite (Rotomahana Parekarangi), Te Kopia (Rotomahana Parekarangi), Orakei Korako (Tutukau) and Atiamuri (Tatua West). In some of these fields, Iwi Trusts continue to be landowners and joint venture partners. The geothermal habitats also harbour some of the rarest plants in the country.
4. Various wahi tapu and historic sites of significance that dot the landscape, especially alongside rivers and waterways, on high hilltops and in areas of native forest and pine forestry.

4.1.8.3 Summary - Iwi Management Plans

PC43 seeks to provide for an additional 24ha of land to be urbanized to provide for Industrial activities, and consequently has the potential to result in any changes to the management of water quality or discharges, air discharge, use of fisheries, water quality or the management of the geothermal resource. However, it is understood that through existing provisions in both the Waikato Regional Plans and District Plan that these effects will be appropriately considered and managed through subdivision and land use.

It is understood that there are not specific sites or values associated with ancestral lands, sites, waahi tapu and other taonga as represented by Area 4 and Area 7 that would render these areas inappropriate in terms of rezoning.

Subject to inclusivity through consultation and representation and partnership in terms of decision making (through Panel membership), the Plan Change is considered to take into account the matters contained in the iwi management plans in accordance with section 74(2A) of the RMA.

4.1.9 Relevant Management Plans and Strategies

Regard is to be had to the **TD2050 - Growth Management Strategy (2018) and the Taupō Long Term Plan.**

In the context, *'have regard to'* means, giving matters genuine attention and thought, and such weight as is considered to be appropriate. In *Mapara Valley Preservation Society Inc v Taupō*

District Council (A083/07), the Environment Court noted that the Taupō District Council Growth Strategy (TD2050) strategy was not a statutory document, it:

"was publicly notified for consultation with the 2006 – 2016 Long Term Council Community Plan using the special consultative procedures under the Local Government Act 2002. We thus find that the Variations should be given **substantial respect and weight** [when making decisions on a resource consent]".[49]

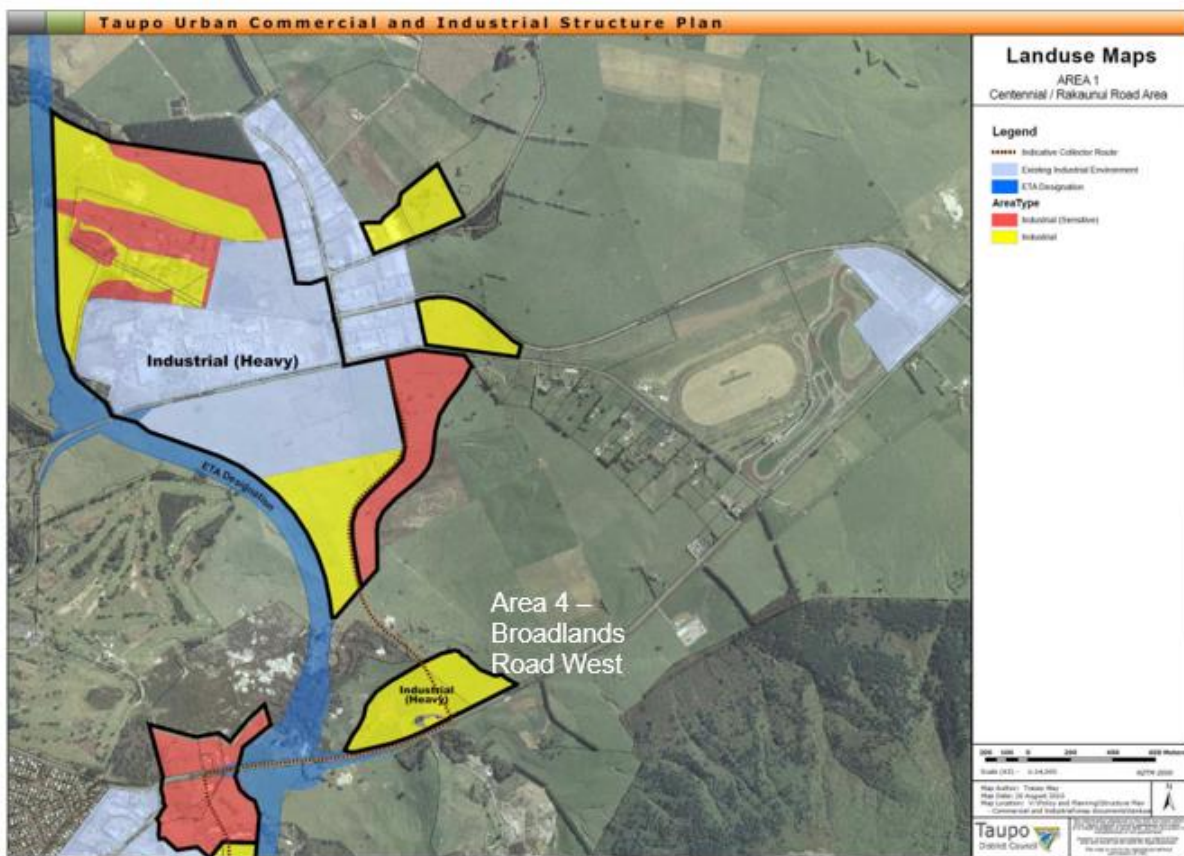
and

"Plan Changes 19, 21, 23, 24 and Variation 25 are based on and informed by a comprehensive Growth Management Strategy, the Taupō District 2050 District Growth Management Strategy, a document which has been the result of an extensive period of research, consultation and a participatory process under the Local Government Act". [58]

4.1.9.1 TD2050 - Growth Management Strategy

Area 4 – Broadland Road East was identified in TD2050 (2006) as well as within the Taupō Urban Commercial and Industrial Structure Plan (Figure 8) for rezoning from Rural Environment to Industrial Environment, but was excluded from the Decisions Version of Plan Change 29 on the basis of excess development capacity. Area 7 – Napier Road was not identified within either TD2050 or the Structure Plan.

Figure 8: Identification of Area 4 – Taupō Urban Commercial and Industrial Structure Plan (2011)



Source: Taupō Urban Commercial and Industrial Structure Plan (2011) Section 3 Implementation

The TD2050 (2018) refresh did not identify any provision for additional zoned Industrial land resource. Goals 16 to 18 were linked to the Action of 'Ensuring adequate industrial land

supply capacity for both light and heavy industrial land use⁴⁶. As noted, Property Economics have identified that for the long term, there is a shortfall of zoned Industrial land resource to provide for forecast employment demand.

In terms of Industrial Land, the direction in the 2018 Refresh of the TD2050 Strategy is that there is sufficient industrial land resource to provide for growth⁴⁷, but regular monitoring of supply and take up would be required.

The Strategy also outlines key visions that include:

Value:	<i>We will retain and attract residents and businesses by ensuring the district remains affordable and ensuring the work we do creates a better life for people and their families.</i>
Vibrant:	<i>The vibrancy of our district will be created by well connected communities who work together to create a positive, fun environment people want to call home.</i>

Associated strategic directions seek to provide the platform for a sustainable economy, integrate sustainable infrastructure provision with land use, and create vibrant and diverse places where people love to live, work, play and invest.

4.1.9.2 Long Term Plan (LTP) 2021 - 2031

The strategic goals of the LTP⁴⁸ are:

- *Growing resilient economies,*
- *Enhancing healthy and sustainable environments, and;*
- *Enabling connected and safe communities.*

4.1.9.3 Summary

PC43 in seeking to rezone Area 4 and Area 7 from Rural Environment to Taupō Industrial Environment has appropriately considered and has had regard to the long history of strategic planning undertaken in the Taupō District relating to business supply.

The Plan Change seeks to ensure a resilient economy and platform for a sustainable economy as sought within the LTP and TD2050 respectively and has based the consideration of rezoning options taking its cues from the TD2050 (2006) and the Taupō Urban Commercial and Industrial Structure Plan (2011).

4.1.10 Regional Plans

In accordance with Section 75(4)(b) of the RMA, an operative plan change must not be inconsistent with a regional plan for any matter under section 31. PC43 is not inconsistent with the Waikato Regional Plan.

The areas sought to be rezoned from Rural Environment to Taupō Industrial Environment through PC43 will need to accord with the provisions of the Waikato Regional Plan,

⁴⁶ TD2050 (2018) [14]

⁴⁷ TD2050 [page 3]

⁴⁸ LTP [page 5]

including for any matters associated with land development and subsequent water takes or discharges (including stormwater), air quality and drilling and excavation.

4.2 Taupō District Operative Plan Approach

PC43 does not seek to amend any Objective or Policy, accordingly the s32A tests for the proposed rezonings and amendments to Rule 4h.3.7 is whether the rezoning is appropriate for achieving the objectives⁴⁹, and implementing the policies⁵⁰.

4.2.1 Land Development

Section 3e of the Plan contains the strategic land development policy framework.

The relevant provisions seek to provide for and manage urban growth (**Objective 3e.2.1**) through recognising the appropriateness of Urban Growth Areas as a *resource* for planned and staged urban growth (of which Area 4 - Broadlands Road West is identified as such – Section 3e.6.3); and ensuring that any new urban development is predicated by way of Structure Plan process and associated plan change (**Objective 3e.2.2**).

OBJECTIVE 3e.2.1

Provide for and manage urban growth so as to achieve the sustainable management of the District's natural and physical resources.

POLICIES

- i. Recognise the appropriateness of Urban Growth Areas as an important resource for providing for new urban land development and as the focus for future urban growth.*
- ii. Ensure patterns of future urban development are consistent with the identified Urban Growth Areas as described in Section 3e.6*
- iii. Prevent urban development in the rural environment outside of the identified Urban Growth Areas.*
- iv. Avoid the cumulative effect that subdivision and consequent fragmented land ownership can have on the role of the Urban Growth Areas in providing the supply of land for urban development.*
- v. Ensure that urban development of an identified Urban Growth Area occurs by way of a Taupō District Structure Plan Process and associated plan change process.*

The subdivision and development of Urban Growth Areas (**Policies 3e.2.2**) is to define the precise location, extent, form and staging of development by Structure Plan and associated plan change, and ensure that the planning and development of Urban Growth Areas

⁴⁹ s32(1)(b)

⁵⁰ s75(1)(c)

adequately takes into account the efficient and effective functioning of supporting and surrounding infrastructure (**Objective 3e.2.3**).

Any development is to avoid degradation of the Lake and waterways (**Objective 3e.2.4**) and not detract from amenity values or the quality of the environment (**Objective 3e.2.5**).

The rezoning of Area 4 – Broadlands Road West achieves these provisions through being identified as an Urban Growth Area in Section 3e.6 and being included in the Taupō Urban Commercial and Industrial Structure Plan (2011), as well as existing ODP provisions as to the management of anticipated industrial land use.

Area 7 – Napier Road is not identified as an Urban Growth Area in Section 3e.6. However, it represents a discrete extension to both the Broadlands and Crown Road Industrial Areas as introduced through PC29, with both of those areas included in Section 3.6e of the District Plan. Area 7 is currently zoned Rural Environment but is contained within the urban boundary as represented by the East Taupō Arterial.

As outlined in the Infrastructure Technical Report, each Area can be efficiently and effectively serviced by supporting community infrastructure.

It is considered that Area 4 wholly achieves Section 3e, with Area 7 resulting in some minor tension with these provisions.

4.2.2 Industrial Provisions

The Taupō District Plan contains three Industrial Environments (zones), the Centennial Industrial Environment (which generally provides for heavy industrial type activities with greater effects); the Taupō Industrial Environment (which provides for both heavy and light industrial activities such as engineering workshops, panel beaters and trade services); and the Industrial Environment captures those activities such as geothermal power stations that are located in parts of the district which are generally rural in nature and includes the industrial areas surrounding the Turangi town centre. Only the Taupō Industrial Environment is relevant to this plan change.

The relevant operative Objectives and Policies are:

OBJECTIVE 3t.2.1

A range of industrial areas which accommodate a diversity of appropriate business activities to meet Taupō townships future growth demands for industrial activity.

POLICY

3t.2.1(i) To provide a range of industrial activity within the Taupō and Centennial Industrial Environments, where the different scale and intensities of effects can be accommodated and managed, having regard to the nature of environments within and adjoining such areas.

OBJECTIVE 3t.2.4

Provide for the subdivision and development of land where the land can be appropriately serviced with community infrastructure.

POLICIES

- 3t.2.4(i) *Ensure that subdivision and development of land does not create any adverse impacts on the future management and development of community infrastructure.*
- 3t.2.4(ii) *Require the subdivision and development of land to be carried out in accordance with the Infrastructure Development Plan.*

OBJECTIVE 3t.2.5

Provide for the subdivision and development of identified sensitive land in a manner that recognises landform limitations.

POLICIES

- 3t.2.5(i) *Manage the environmental effects of land disturbance to ensure a high level of environmental protection in the identified "Sensitive" locations.*
- 3t.2.5(ii) *Recognise landform limitations at the time of subdivision and development in the identified sensitive areas in the Taupō Industrial Environment⁵¹.*

The rezoning of Area 4 and Area 7 achieves these provisions, particularly in terms of providing for a diversity and supply to meet Taupō townships future growth demands (**Objective 3t.2.1**).

The amendments sought to Rule 4h.3.7 to ensure a high level of deep geotechnical investigation to support the final form of subdivision and associated land use (as based on the Geotechnical Report, Attachment 4) is seen as being appropriate in terms of achieving **Objective 3t.2.5**.

Lastly, it is understood from the Infrastructure Technical Report that development can be appropriately serviced with community infrastructure (**Objective 3t.2.4**).

4.2.3 Transport Provisions

The relevant provisions are:

OBJECTIVE 3f.2.1

The safe and efficient operation of the roading network, and movement of traffic, including cyclists and pedestrians within the District.

POLICIES

⁵¹ This policy is implemented by Rule 4h.3.7 which deems *Any subdivision of land identified as "Sensitive" within the Taupō Industrial Environment is a **discretionary activity** and will be subject to the recommendations of appropriate technical assessments.*

- (i) Ensure activities avoid, remedy or mitigate any adverse effects on the operation and function of the roading network, including the movement of traffic cyclists and pedestrians, as accordance with the Rooding Hierarchy.*
- (ii) Encourage activities, including the design and location of new vehicle crossings, to provide for the safe and efficient movement of traffic, including cyclists and pedestrians.*
- (iii) Encourage the use of alternative modes of transport such as cycling and public transport.*

The Transport Technical Report (**Attachment C**) and Infrastructure Technical Report (**Attachment B**) consider matters in relation to effects on the wider transport network, access and safety. The reports conclude that Area 7 – Napier Road promotes a high degree of accessibility and a high safety rating, and Area 4 – Broadlands Road West whilst promoting a comparatively lesser level of accessibility (a moderate rating), would be efficiently and effectively integrated with the supporting transport network. Rezoning Area 4 from Rural Environment to Taupō Industrial Environment would generate less than 220vph (vehicles per hour) in the peak hour, under 4 vehicles per minute or 1 vehicle every 15 seconds on average – that level of generation could comfortably be accommodated on the network.

Accordingly, the rezonings proposed through PC43 will achieve **Objective 3f.2.1**.

4.2.4 Landscape and zoning interface provisions

Neither Area 4 nor Area 7 are notated as Outstanding Natural Landscape or Amenity Landscape Area in the ODP. Accordingly, provisions in **Section 3h** 'Landscape Values' is not relevant to the proposal.

Appropriate amenity outcomes are expressed in Taupō and Centennial Environment **Objective 3t.2.3** in terms of amenity expectations, and **Objective 3t.2.6** as to managing the interface with other, more sensitive environments (zones). Accordingly, it is considered that the rezonings would be appropriate in terms of achieving these objectives, albeit noting the proximity of the Residential Environment zoning to the southeast of Area 7 – Napier Road albeit that these potential impacts are able to be managed by existing performance standards⁵².

4.2.5 Natural Values

Area 4 – Broadlands Road West is set back 100m from, and does not extend into, SNA180 which is located to the east and north of the rezoning. Area 7 – Napier Road is not proximate to any notated SNA within the Operative District Plan.

⁵² For example: Rule 4h.1.3 which requires a 5m setback from the Residential Environment. Rule 4h.1.8 which requires reduced noise levels as received in any residential environment or the notional boundary of any site within the Rural zone.

OBJECTIVE 3i.2.1

The protection of Significant Natural Areas in the Taupō District from more than minor adverse effects of indigenous vegetation clearance.

POLICIES

- (i) Avoid remedy or mitigate more than minor adverse effects of vegetation clearance on the ecological values of Significant Natural Areas...*

Objective 3i.2.1 seeks to protect Significant Natural Areas from more than minor adverse effects. However, the associated Policies are less directive, seeking that more than minor adverse effects on SNAs should be avoided, remedied or mitigated (**Policy 3i.2.1(i)**). Regardless, the proposed rezoning of Area 4 – Broadlands Road West is suitably separated from SNA180 to provide an appropriate buffer and hence achieve Objective 3i.2.1.

4.2.6 Natural Hazards and Geotechnical Risk

The relevant provisions of the ODP are:

OBJECTIVE 3L.2.1

Protection of activities, development and life from the adverse effects of natural hazards.

Policies

- i. Control the design and location of activities and development within identified natural hazard areas, or areas which have significant potential to be affected by a natural hazard, to avoid or mitigate the effects of the natural hazard.*
- ii. Manage the location, design, and type of new activities and development to avoid or mitigate the adverse effects of erosion, ground rupture and deformation, hot ground and land instability on development and the community.*

OBJECTIVE 3L.2.2

Activities and development do not create, accelerate, displace, or increase the effects of a natural hazard.

Policies

- i. Ensure that activities do not alter or change the nature of a natural hazard event, increase the intensity of a natural hazard event or increase the risk of the event occurring.*
- ii. Ensure that activities and structures do not increase the risk to the community or the environment from the effects of natural hazards.*
- iii. Ensure that where development occurs within areas subject to the effects of natural hazards, property owners and/or occupiers are informed of and manage the risk.*

The analysis contained within the Geotechnical Report (**Attachment D**) does not identify any hazard areas, or areas which have significant potential to be affected by natural hazard. Any remaining geotechnical issues can be reasonably mitigated through engineering design.

However, for Area 4 – Broadlands Road West, it is considered that additional deep geotechnical investigation will be required to support subdivision and land use. That requirement has been inserted into Rule 4h.3.7 for subdivision for Section 14 SO 40438782 and Lot 1 DP 445148 (Area 4). Accordingly, the proposed rezonings are considered to achieve **Objective 3l.2.1** and **3l.2.2**.

4.2.7 Geothermal Activities

Section 3o of the Plan seeks:

OBJECTIVE 3o.2.2

The avoidance of reverse sensitivity effects arising from incompatible land uses establishing or expanding on Geothermal Areas^[1] shown on the maps at the end of this section.

POLICIES

- i. To discourage land uses which are or may be incompatible with the use and development of geothermal based industry in the Geothermal Areas shown on the maps at the end of this section.*
- ii. To ensure that new activities are compatible with existing geothermal based industry.*

Area 4 is located within the Geothermal Area as notated in the ODP. However, it is not considered that activities anticipated by the proposed Taupō Industrial Environment would be incompatible or sensitive to the use and development of the geothermal based industry.

4.2.8 Operative District Plan Summary

There are a significant number of objectives and policies that have some bearing on PC43.

Overall, the Plan seeks to manage the Taupō District's land development and urban growth through recognition of Urban Growth Areas as a resource for providing for such development. Land development and growth is also to provide for a range of Industrial areas to meet Taupō townships future growth demands for industrial activity. Such development is to be: appropriately serviced and integrated with supporting infrastructure; able to manage identified sensitive land in a manner that recognises landform limitations, avoid locations that have significant landscape or ecological values, or that are prone to intolerable risk from natural hazards such as fault lines, flooding or erosion; and avoid the creation of reverse sensitivity effects on the geothermal based industry.

The proposed rezoning of Area 4 – Broadlands Road West and Area 7 – Napier Road is considered to achieve the respective objectives (and implement the policies) of the ODP.

4.3 Taupō District Proposed Plan Approach – Strategic Directions

The package of Proposed Plan Changes being notified includes Strategic Directions. These provisions have no statutory weight until they are notified. They will also be subject to submissions and necessary amendments subject to the merits of evidence and decisions.

Regardless in terms of sections 32(1)(b) and 75(1)(b) and (c), there will be a need to ensure that the provisions introduced through Plan Change 43 to achieve and implement relevant Strategic Directions provisions, and therefore achieve vertical alignment between provisions.

As identified in the 'Introduction' to Strategic Directions:

The following chapter provides an outline of the key strategic and significant resource management matters for the Taupō district. This chapter include objectives and policies to guide decision making at a strategic level.

The strategic objectives set the direction for the District Plan and help to implement the Council's community outcomes. They are indicative of the matters which are important to the Taupō District community and reflect the intended outcomes to be achieved through the implementation of the District Plan. The strategic directions will be particularly relevant for any future changes to the Plan and any significant resource consent applications where there is a requirement to consider District Plan policy.

The Strategic Directions relevant to Plan Change 43 are:

Strategic Direction 1, Tangata Whenua	
Objective 2.1.2.1	<i>The values, rights and interests of Taupō District mana whenua are recognised and protected</i>
Objective 2.1.2.2	<i>Mana whenua are a partner in District Plan planning and decision making.</i>
Policy 2.1.3.1	<i>Recognise and provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu (sacred sites), and other taonga (treasures).</i>
Policy 2.1.3.8	<i>Recognise, in decision making, the importance of iwi environmental management plans in providing important guidance and direction on the sustainable use and development of the environment and natural resources.</i>

Strategic Direction 2, Freshwater Quality / Te Mana o te Wai	
Objective 2.2.2.1	<i>Subdivision and land use is managed in a way that promotes the positive effects, while avoiding, remedying, or mitigating adverse effects (including cumulative effects) of that development, on the mauri, health and well-being of water bodies, freshwater ecosystems, and receiving environments within the Taupō District.</i>
Policy 2.2.3.2	<i>Decisions, policy and planning reflect an integrated land management or ki uta ki tai approach to resource management/landuse planning.</i>

Strategic Direction 3, Urban Form and Development	
Objective 2.3.2.1	<ol style="list-style-type: none"> 1. The district develops in a cohesive, compact and structured way that: <ol style="list-style-type: none"> a. contributes to well-functioning and compact urban forms that provide for connected liveable communities; b. enables greater social and cultural vitality and wellbeing, including

through recognising the relationship of tāngata whenua with their culture, traditions, and taonga;

c. ensures infrastructure is efficiently and effectively integrated with land use; and

d. meets the community's short, medium and long-term housing and business needs.

Objective 2.3.2.4 *Development is serviced by an appropriate level of infrastructure that effectively meets the needs of that development.*

Policy 2.3.3.1 *Identify and zone appropriate areas of land for urban purposes to guide the future provision of infrastructure within the Taupō District.*

Policy 2.3.3.5 *Require urban subdivision and land development to be efficiently and effectively serviced by infrastructure (including development and additional infrastructure), according to the capacity limitations of that infrastructure.*

Strategic Direction 5, Significant and Local Infrastructure

Objective 2.5.2.3 *Land use in the District will not adversely affect the capacity and the safe and effective functioning of nationally and regionally significant and local infrastructure required to service existing and future communities.*

Collectively the provisions seek the following:

- That the district develops in a manner that contributes to well-functioning and compact urban forms, and that the community's short, medium and long term business needs are met (**Objective 2.3.2.1**).
- In doing so, development is to be serviced by an appropriate level of infrastructure (**Objective 2.3.2.4, Policy 2.3.3.5**) and zoned accordingly to guide infrastructure provision (**Policy 2.3.3.1**), in a manner that:
 - Doesn't adversely affect nationally and regionally significant infrastructure (**Objective 2.5.2.3**).
 - Is managed to account for effects on the mauri of water-bodies (**Objective 2.2.21**).
 - Recognises and provides for the values, rights and interests of Taupō District mana whenua (**Objective 2.1.2.1**).

The rezoning of Area 4 and Area 7 through PC43 provides a contribution to appropriately achieve these Objectives and Policies.

4.4 Technical Context

The following technical work was commissioned in addition to staff analysis:

- Taupō Future Industrial Land Options Economic Multi-Criteria Analysis (Property Economics Ltd, 2022). **Attachment A.**
- High Level Transport Assessment of Proposed Industrial Land Areas. (Abley Transport Engineers, 2022). **Attachment C.**
- Taupō Industrial Plan Change. Preliminary Desktop Geotechnical Assessment (2022) and Preliminary Geotechnical Assessment – Addendum Report (2022). WSP. **Attachment D.**

Staff also undertook the following analysis:

- Infrastructure Technical Report. **Attachment B.**

4.4.1.1 *Taupō Future Industrial Land Options Economic Multi-Criteria Analysis (PEL, 2022) – Attachment A*

Property Economics Limited have considered and applied a multi-criteria analysis of future industrial land use options for the district to assist in assessing the most appropriate and efficient location for additional industrial zoned land.

The Technical Assessment identifies that the district has shown steady levels of investment in the Industrial sector over the last 20 years. PEL identifies for the 2020 year, almost \$9million of industrial consents or some 14,000m² of industrial built form (GFA) was provided for⁵³.

In terms of industrial employment, despite a modest decrease following the 2008 Global Financial Crisis, PEL identify that the district has an industrial employment base 50% larger than in 2000⁵⁴, with an annual average growth rate of 136 net additional employees per annum since 2013. By 2053, the total Industrial Sector employment is anticipated to account for some 4,800 employees, around 860 more employees than in 2020⁵⁵.

Importantly, as already identified, Taupō District has sufficient zoned, vacant and serviced land of some 38ha. This extent of land holding is sufficient, based on forecast trends to provide development capacity for the short and medium term (10 years). However, by 2053 (30 years), PEL have identified that an additional 52.6ha of industrial capacity will need to be found⁵⁶.

Clearly an undersupply of industrial land resource represents a reduction in productivity to the Taupō district, as well as: a loss of employment opportunities; a reduction in economic and social wellbeing; and higher rents / land purchase for remaining zoned industrial land. However, there are also positive and negative economic impacts of providing a considerable surplus of industrial land than that required in the long term. At a high level, the costs and benefits can include⁵⁷:

⁵³ Attachment A, PEL 2022 [page 9]

⁵⁴ Attachment A, PEL 2022 [page 10]

⁵⁵ Attachment A, PEL 2022 [page 12]

⁵⁶ Attachment A, PEL 2022 [page 14]

⁵⁷ Attachment A, PEL 2022 [page 15]

- Lower industrial land prices.
- Increased choice in location.
- Increased certainty in future locations on industrial land provision to market.
- Disincentivising ad hoc, out of zone industrial activity.
- Inefficient infrastructure allocation – infrastructure is allocated to an area where it is not yet required or demand.
- Decreased impetus of intensified / efficient industrial development.

PEL have assessed a number of economic criteria against the options provided by Taupō Council, and have concluded that Area 7 – Napier Road, and subsequently Area 4 – Broadlands Road West are ranked as the more appropriate sites to enable industrial activities⁵⁸.

Collectively, these areas account for an additional 24ha of Industrial land development capacity, leaving only 28.6ha of additional land to be rezoned for industrial activities to completely provide for all of the long term (30 year) demand.

4.4.1.2 Infrastructure Technical Report (Taupō District Council, 2022) – Attachment B

Officers for the Taupō District Council have provided a Technical Report on the ability to feasibly service identified potential industrial areas. Assessments include the ability to efficiently provide for wastewater, drinking water and traffic infrastructure as critical to well-functioning industrial areas.

The Report identifies that Area 6 – Rangitira E / Scoria Road and Area 3 – Centennial Southern Extension is highly constrained in terms of the ability to efficiently integrate servicing infrastructure with land use.

The Report identifies that Area 4 – Broadlands Road West and Area 7 – Napier Road can be serviced with supporting infrastructure. Although for Area 4 – additional water supply infrastructure (pumping station) will be required. For Area 7 the report identifies that rezoning is not suitable for wet level industry, accordingly a Taupō Industrial Environment zoning (light industry and trade) has been sought through PC43 and applied to both sites to reduce loadings on wastewater infrastructure.

4.4.1.3 Transport Technical Report (Abley Transport Engineers, 2022) – Attachment C

Abley Transport Engineers have provided a Technical Report on the impact that development of the eight potential Industrial areas would have on the current and likely future transport environment, including safety and accessibility.

The Report identifies that trip generation from the industrial development of Area 7 and Area 4 for Industrial activities respectively can be appropriately managed in terms of transport safety, and efficiently and effectively accommodated into the transport network. The Report identifies that the rezoning of Area 4 - Broadlands Road West (in combination with Area 3 which is not sought to be rezoned) may require localised reductions in speed limits and access management, however these matters can be led and addressed by Council and is unlikely to be a material issue as PC43 is not proposing the rezoning of Area 3.

⁵⁸ Attachment A, PEL 2022 [page 36]

4.4.1.4 Preliminary Desktop Geotechnical Assessment and Addendum Report (Abley WSP, 2022) – Attachment D

WSP have completed a Desktop Report of the eight potential Industrial areas in terms of geotechnical conditions, geohazards and site contamination. In addition, an Addendum Report was prepared which include on site considerations and more specific analysis of Areas 3, 4 and 7.

The Reports present the findings of a desktop investigation carried out for the eight sites and identifies that, with the exception of Area 6 – Rangitira E which has issues associated with land instability, there are no areas of intolerable risk that are not able to be addressed through engineering design, albeit that a number of fault hazards are identified for Areas 1, 3 and 6 that would require buffer distances from development. Similarly, there is no records found of site contamination that would prevent rezoning for the areas.

For Area 4, issues associated with Hot Ground Hazard are identified, although a preliminary geotechnical assessment previously undertaken on the site identified that the site is suitable for commercial development, subject to recommendations. The Report identifies that prior to land use, a more detailed geotechnical assessment is required to inform layout and engineering design. Accordingly, PC43 also amends (for Area 4 only) additional requirements associated with any subdivision of this area to include:

‘deep geotechnical investigation and shall also include, but not be limited to:

- *establishing a ground temperature profile starting from the margins of the Hot Ground Hazard Area (District Plan maps);*
- *determination of the groundwater profile and susceptibility to liquefaction and risk of subsurface water flows;*
- *establishing an understanding of the most likely future state of thermal features; and*
- *a stormwater management plan’.*

For Area 7 – a preliminary geotechnical assessment concluded that *‘there is no geotechnical hazards or considerations and [the site] is geotechnically suitable for .. subdivision’*. It is understood that additional deep geotechnical investigation is not required.

4.5 Engagement

Section 3 of the RMA sets out the consultation requirements as below:

- 3(1) *During the preparation of a proposed policy statement or plan, the local authority concerned shall consult –*
- (a) the Minister for the Environment; and*
 - (b) those other Ministers of the Crown who may be affected by the policy statement or plan; and*
 - (c) local authorities who may be so affected; and*
 - (d) the tangata whenua of the area who may be so affected, through iwi authorities;*

and

(e) any customary marine title group in the area.

3(2) A local authority may consult anyone else during the preparation of a proposed policy statement or plan

Section 3(1) above is mandatory while Section 3(2) is at the discretion of the Council. In this instance, Council undertook discretionary consultation in relation to this amendment.

Community consultation was undertaken in May and June of 2022, closing Monday 13 June 2022. The Background and Engagement Summary Report which accompanies the suite of Plan Changes provides a more detailed description and register of all consultation undertaken with the Plan Change.

Council has consulted with those landowners as associated with the rezoning options. In addition, broad level consultation has occurred with Waka Kotahi NZ Transport Agency and also Contact Energy.

4.5.1 Iwi Authority Consultation

Clause 3 of Schedule 1 of the RMA sets out the requirements for local authorities to consult with tangata whenua through and iwi authorities.

The Background and Engagement Summary Report which accompanies the suite of Plan Changes provides a more detailed description and register of consultation undertaken with iwi in terms of the preparation and issues raised by mana whenua as associated with the Plan Change.

Section 2.1 of the Background and Engagement Summary Report sets out the relevant iwi authorities in the Taupō District, with Table 3 of that Report setting out the key milestones in terms of engagement dating back to June 2019, noting that that engagement was substantially broader than the specific matters associated with Plan Change 43.

Specifically in terms of PC43 a pre-consultation phase (May to June 2022) involved the Industrial 'Plan Change, being issued to relevant Iwi partners for consideration and feedback. It should be acknowledged that the pre-consultation phase (May 2022) on the draft plan changes received no feedback from iwi authorities on the additional industrial land proposal.

5 SECTION 32 EVALUATION

5.1 Key Resource Management Issues

The key resource management issues associated with PC43 are as follows:

The **first** issue is that while there is sufficient development capacity for further industrial development within the Taupō District over the short and medium term, the analysis by Property Economics Limited has identified a shortfall in long term supply to meet the forecast increase in employees by 2053 (long term). Whilst there is no statutory requirement for zoned and infrastructure ready Industrial land for the long-term period⁵⁹, there are clearly benefits in terms of providing certainty to the market in terms of the provision of sufficient industrial development capacity, the location of such areas and ability to service different business sectors.

The provision of additional zoned Industrial land assists in the achievement of **Objective 3t.2.1** which seeks to provide a range of industrial areas and meet Taupō townships future growth demands for industrial activity, as well as proposed Strategic Direction **Objective 2.3.2.1(d)** to develop in a cohesive, compact and structured way that meets the community's short, medium and long term business needs.

The **second** issue is to ensure that the supply of Industrial land in Taupō Township recognises and takes into account varying physical constraints and opportunities (such as the ability to efficiently and effectively integrate with infrastructure, the potential for reverse sensitivity on regionally significant infrastructure, strengthen compact urban forms) and natural values (such as significant natural areas and geohazards). These matters have the potential to limit site options (**Attachment F**), or require site management in terms of final design and additional costs incurred in developing the land as suitable for industrial uses.

5.2 Scale and Significance

The proposed amendments are minor – moderate when considered at a District scale as set out in the table below. There will be a degree of significance on landowners who are enabled by the rezoning to realise industrial development on Area 4 – Broadlands Road West and Area 7 – Napier Road.

Amendments to Rule 4h.3.7 will ensure clarity to the landowner / developer of Area 4 as to additional geotechnical assessments necessary to support industrial development, whilst the costs of that further analysis will be borne by the developer and not the wider community.

The following table identifies the scale and significance assessment as associated with the environmental, economic, social and cultural effects of the provisions.

	Low	Low - moderate	Moderate	Moderate - High	High
Degree of change from the ODP			✓		

⁵⁹ NPS-UD Clause 3.4

Effects on matters of national importance (s6 RMA 1991)	✓				
Scale of effects – local, district wide, national.		✓			
Scale of effects on people (how many affected / landowners).	✓				
Scale of effects of those with particular interests (i.e Tangata Whenua)		✓			
Degree of policy risk – has matters been considered by higher order documents (i.e NPS-UD)		✓			
Likelihood of increased costs or restrictions on individuals, businesses or the community.	✓				

5.3 Evaluation of the Objectives

There are no proposed objectives or amendments to objectives and thus an assessment of the objectives against the Purpose of the Act is not required. Instead, the evaluation relies on the ODP Taupō and Centennial Industrial Environment provisions in Section 3t.

5.4 Assessment of the Provisions

Section 32(1)(b) requires an evaluation of whether the provisions are the most appropriate way to achieve the objectives by identifying other reasonably practicable options, assessing the efficiency and effectiveness of the provisions in achieving the objectives, and summarising the reasons for deciding on the provisions.

It is important to acknowledge that the s32 process is not an assessment of environmental effects similar to that required for resource consent applications, but rather is a process by which any restrictions on land use or the enablement of additional activities (such as through rezoning) is to be justified as being efficient and effective methods for achieving Plan objectives and thereby Part II RMA.

The assessment must identify and assess the benefits and costs of environmental, economic, social and cultural effects that are anticipated from the implementation of the provisions, including opportunities for economic growth and employment. The assessment must if practicable quantify the benefits and costs and assess the risk of acting or not acting if there is uncertain or insufficient information available about the subject matter.

The proposed provisions relevant to PC43 are the following:

- Rezoning of Area 7 – Napier Road (4ha) from Rural Environment to Taupō Industrial Environment.
- Rezoning of Area 4 – Broadlands Road West (20ha) from Rural Environment to Taupō Industrial Environment, including amendments to Rule 4h.3.7 requiring

specific geotechnical investigation (as specific to the development area Section 14 SO 40438782 and Lot 1 DP 445148).

The assessment is in accordance with the following resource management issues:

- The first issue – provision of sufficient development capacity for further industrial development in the district.
- The second issue - taking into account varying physical constraints and opportunities and natural values that require management in terms of the realisation of additional industrial zoned land.

5.5 Assessment of the provisions relating to location and availability of Taupō Industrial Environment zoned land in Taupō

Relevant Objectives

OBJECTIVE 3e.2.1

Provide for and manage urban growth so as to achieve the sustainable management of the District's natural and physical resources.

OBJECTIVE 3t.2.1

A range of industrial areas which accommodate a diversity of appropriate business activities to meet Taupō townships future growth demands for industrial activity.

OBJECTIVE 3t.2.4

Provide for the subdivision and development of land where the land can be appropriately serviced with community infrastructure.

OBJECTIVE 3t.2.5

Provide for the subdivision and development of identified sensitive land in a manner that recognises landform limitations

OBJECTIVE 3f.2.1

The safe and efficient operation of the roading network, and movement of traffic, including cyclists and pedestrians within the District.

OBJECTIVE 3i.2.1

The protection of Significant Natural Areas in the Taupō District from more than minor adverse effects of indigenous vegetation clearance.

OBJECTIVE 3l.2.1

Protection of activities, development and life from the adverse effects of natural hazards.

OBJECTIVE 3l.2.2

Activities and development do not create, accelerate, displace, or increase the effects of a natural hazard.

OBJECTIVE 3o.2.2

The avoidance of reverse sensitivity effects arising from incompatible land uses establishing or expanding on Geothermal Areas^[1] shown on the maps at the end of this section.

Rezoning Areas 4 and 7

Benefits and Costs of Effects (s32(2)(a))

Benefits	Costs
Environmental	
<ul style="list-style-type: none"> The rezonings agglomerate urban development proximate to Taupō's urban area. The application of the Taupō Industrial Environment (rather than the Centennial Industrial Zone) provides for a wide range of lighter industrial and trade related activities, and results in less loadings on wastewater networks. 	<ul style="list-style-type: none"> The Taupō Industrial Environment will allow for a greater range of activities on these areas (compared to the Rural Environment) and a much higher density of built form. There are a range of effects that these activities will have on the environment. However, these effects have been considered in the technical reports, with Area 4 and Area 7 being considered appropriate to enable Industrial development and the associated effects of activities. The existing ODP standards (and the amendment to Rule 4h.3.7 requiring additional geotechnical assessment for Area 7) appropriately mitigate and manage resultant effects (such as noise, light and access to the transport network). There is a change from rural amenity and character to one that is more urbanised, however this is cost associated with any urban rezoning, and is considerably reduced for Area 7 – Napier Road given that this site is both modest in size and already contained within an urban context.
Economic	
<ul style="list-style-type: none"> Provides increased opportunities for Industrial development in Taupō township. Increased choice in location to support a wider range of Industrial activities. Contributes to long term capacity to meet forecast increases in Industrial employees to 2053. Increased certainty in future locations of industrial land provision to market. 	<ul style="list-style-type: none"> No community economic costs identified. Developer costs associated with realising development and additional geotechnical assessment for Area 4.
Social	
<ul style="list-style-type: none"> Development of the area will have flow on social benefits (from employment) for Taupō township. 	<ul style="list-style-type: none"> None identified.
Cultural	
<ul style="list-style-type: none"> There are opportunities for recognition of values in the manner in which the site is developed (although these are not mandated through specific rules in the ODP), such as acknowledgment and enhancement of bank treatment. 	<ul style="list-style-type: none"> Care will be needed through authorising resource consents associated with land form development and associated servicing (such as stormwater) to manage the mauri of water quality and integrity of Papatuānuku (land) and Ngā Otaota Me

	<p>Ngā Aitanga Kararehe (Flora and Fauna). However, these costs are able to be avoided / managed through: the Areas identified and their spatial extent (including Area 4 being setback from SNA180); and existing ODP and Regional Plan standards including for the management of stormwater.</p>
<p>Economic Growth and Employment Opportunities (s32(2)(a)(i)(ii))</p>	
<p>The proposed change enables an additional 24ha of Taupō Industrial Environment, in terms of providing a meaningful contribution to the additional 860 Industrial employees forecast for the district by 2053⁶⁰.</p>	
<p>The efficiency and effectiveness of provisions (s 32(1)(b)(ii))</p>	
<p><i>'Efficiency' to be the measure of whether the provisions will be likely to achieve the objectives at the lowest total cost to all members of society, or achieves the highest net benefit to all of society</i></p>	
<p><i>'Effectiveness' is considered as the measure of contribution new provisions make towards achieving the objectives of the plan, and how successful they are likely to be in solving the problem they were designed to address⁶¹</i></p>	
<p>The efficiency and effectiveness of provisions (s 32(1)(b)(ii))</p>	
<p><u>Efficiency:</u></p>	
<p>The environmental, economic and social benefits of the rezoning, as compared to the Option of 'do nothing' to both individuals (landowners) and the community as a whole significantly outweigh the costs. Wider community costs as they are, are associated with a change from rural amenity and character to one that is urbanised and provides for industrial activities, albeit that change in character is less for Area 7 which already exhibits an urban context.</p>	
<p>There are costs associated with additional geotechnical assessment for Area 4 – Broadlands Road West to ensure the appropriate layout, configuration and land use of eventual industrial development. The amendments to Rule 4h.3.7 are to ensure that those (development) costs are to be met by the developer / landowner rather than the wider community.</p>	
<p><u>Effectiveness:</u></p>	
<p>The proposed Taupō Industrial Environment zoning is considered to be the most effective means of achieving the objectives as it:</p>	
<ul style="list-style-type: none"> • Addresses the key resource management issues. • Assists in the achievement of by: <ul style="list-style-type: none"> ○ seeking to provide for and manage growth to achieve sustainable management and provide a range of industrial areas which accommodate a diversity of appropriate business activities to meet Taupō townships future growth demands. ○ Area 4 – Broadlands Road West and Area 7 – Napier Road as shown in the accompanying Technical Reports being appropriate in terms of the integration of infrastructure, the safe and efficient operation of the roading network, and the management of activities as associated with potential reverse sensitivity effects on significant infrastructure. ○ Managing issues associated to onsite and adjoining amenity through adherence to the existing ODP provisions with regard to effects at the interface between Environments (zones). 	

⁶⁰ Attachment A, PEL 2022 [page 12]

⁶¹ Mfe.govt.nz Guide to Section 32 of the Resource Management Amendment Act, pg 18

- Are able to be developed subject to engineering design (as is required through subdivision provisions), additional matters and assessment are included for Area 4 – Broadlands Road West to ensure that activities do not create, accelerate, displace, or increase the effects of a natural hazard as required by Objective 3I.2.2.
- Contributes to giving effect to the NPS-UD in that it provides for a wider choice and capacity of Industrial zoned land, which responds to economic evidence of the need to provide additional capacity to meet long term capacity.
- Gives effect to the WRPS in that the areas identified by PC43 enable additional provision of Industrial land development capacity to meet the forecast employment needs of Taupō district as aligned with **Objective 3.1**, and for Area 4 is aligned with the TD2050 Strategy **Policy 6.11(a)**, and are able to be efficiently supported by infrastructure (**Policy 6.11(c)**).

Options less or not as appropriate to achieve the objective(s)

Option 1: Status Quo

Under this option, the existing Rural Environment (zoning) and related provisions applying to the sites would be retained.

Continuing to apply Rural Environment (zone) provisions to the identified areas of land will not assist in achieving the ODP’s objectives relating to ensuring sufficient industrial development capacity, and providing for sustainable growth.

Option 2: Remaining Zone Options considered in Attachment F

Under this option, the existing Rural Environment (zoning) and related provisions applying to Area 4 and Area 7 would be retained, and additional capacity would be provided through either individual or a combination of Areas identified in Attachment F.

As identified in the Technical Reports and summary in Attachment F these sites are not (as immediately) appropriate as Area 4 and Area 7 as considered against a range of technical opportunities and constraints.

Risk of acting or not acting if there is uncertain or insufficient information (s32(2)(c)):

There is no uncertainty or insufficient information. Additional geotechnical information to support development of Area 4 – Broadlands Road West has resulted in the amendment to Rule 4h.3.7, but there is sufficient information to support rezoning.

Appropriateness:

The amendments are considered appropriate to achieve the Objectives.

Reasons for deciding on the provisions (s32(1)(b)(iii))

The proposed rezonings are seen as being the more appropriate in terms of identifying areas that are not overly constrained or would have material implications in terms of the management of the natural and physical values of the District.

The proposed rezonings assist in providing for the long-term Industrial growth needs of the district, in a manner and at a rate that provides for greater employment opportunities that:

- contributes to well-functioning and compact urban forms, and that the community’s short, medium and long term business needs are met,
- and is able be serviced by an appropriate level of infrastructure and zoned accordingly to guide infrastructure provision.

The proposed amendment will assist the Council in achieving its functions under s31 of the RMA1991 and the purpose of the Act by enabling people and communities to provide for their social, economic, and cultural well-being and for their health and safety.

6 CONCLUSION

This evaluation has been undertaken in accordance with Section 32 of the Act in order to identify the need, benefits and costs relating to the zoning of additional Taupō Industrial Environment zoned land in Taupō District and the appropriateness of the proposed methods and rules relating to this land, having regard to their effectiveness and efficiency relative to other means in achieving the purpose of the Act.

The proposed approach is considered to be the most appropriate because it addresses the identified issues, gives effect to the direction in the WRPS, and will assist in achieving the Operative objectives in the Taupō District Plan.

In particular, the zoning of the Areas as additional Taupō Industrial Environment zoned land is considered to be an efficient and effective method of achieving the Plan's objectives.

Development of Area 4 – Broadlands Road West under the Taupō Industrial Environment provisions is generally considered appropriate, an additional site-specific controls for additional geotechnical assessment has been identified through Geotechnical Report **(Attachment D)**.

The changes will assist the Council in terms of achieving its functions under the Act, and the purpose of the Act.

**APPENDIX A – TAUPŌ FUTURE INDUSTRIAL LAND OPTION
ECONOMIC MULTI-CRITERIA ANALYSIS
(PROPERTY ECONOMICS, SEPTEMBER 2022)**

PROPERTY **E**ECONOMICS



TAUPŌ FUTURE INDUSTRIAL

LAND OPTIONS ECONOMIC

MULTI-CRITERIA ANALYSIS

Client: Taupō District Council

Project No: 52167

Date: September 2022



SCHEDULE

Code	Date	Information / Comments	Project Leader
52167.12	September 2022	Report	Tim Heath / Phil Osborne

DISCLAIMER

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1. INTRODUCTION

Property Economics has been engaged by Taupō District Council (TDC or 'Council') to undertake an economic assessment in the form of an economic multi-criteria analysis (MCA) of future industrial land options for the district as part of a broader, multidisciplinary MCA for the same industrial land options to assist in assessing the most appropriate and efficient location(s) for additional industrial zone land in the district.

This report is designed to also assist Council meet its NPSUD¹ obligations in terms of land supply sufficiency over the short, medium, and long term (3-, 5- and 30-year timeframes respectively) and provide increased certainty around future infrastructure provision and long-term strategic planning for the district.

This analysis is intended to provide Council with a broad recommendation as to the suitability of each identified land option to accommodate industrial development, from an economic perspective, across a suite of economic criteria and provide details of the cardinality of ranked options to be used in a weighted matrix of criteria. This will result in a ranked order of the nine identified industrial land options.

This assessment is intended to be used with other expert assessments in determining the suitability of each land option for industrial zoning and is not intended to be an exhaustive or superseding recommendation.

1.1. OBJECTIVES

Key objectives in this assessment are:

¹ National Policy Statement on Urban Development 2022

- Delineate the nine identified future industrial options geospatially.
- Identify Taupō District demand and sufficiency for industrial land over short-, medium- and long-term time frames.
- Assess recent trends in industrial investment in the district, including consented value and floorspace of industrial use consents.
- Assess industrial employment trends across the district.
- Identify and assess key economic criteria for industrial land in Taupō District.
- Undertake an economic MCA of each option relative to each other.

1.2. DATA SOURCES

Data sources used in this report are from the following sources:

- 2006, 2013, 2018 Census Data – Stats NZ
- Business Demography Data – Stats NZ
- ESRI Dark Map – ESRI
- Geographic Boundaries – Stats NZ
- Land Use Classifications – Land Care Research
- Location Names – LINZ
- Population and Household Projections – Stats NZ
- Road Network Centrelines – NZTA
- Satellite Imagery – ESRI
- Taupō District Plan – Taupō District Council
- Taupō Proposed District Plan Review – Property Economics

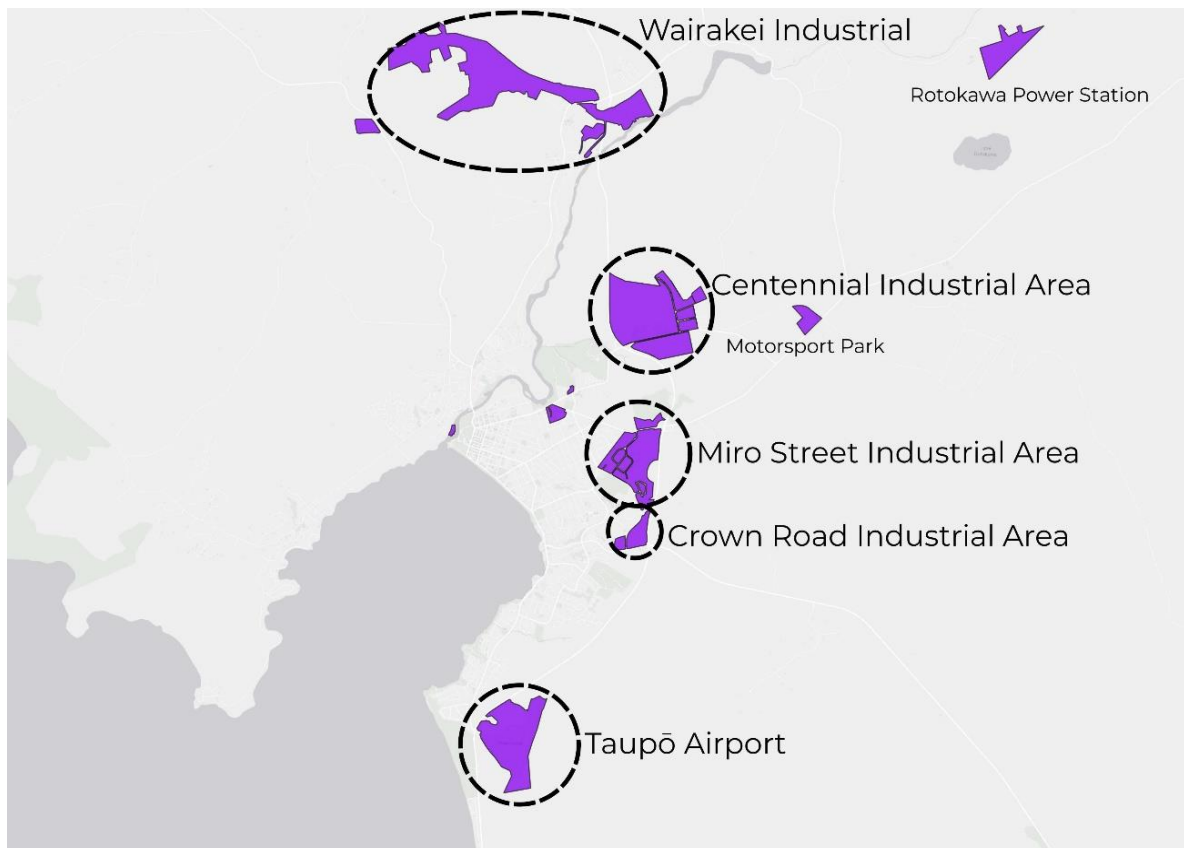
2. INDUSTRIAL LAND OPTIONS

The following figure identifies the current distribution of industrial land in and around the main urban area of Taupō township. In total, Taupō District has 1,083ha of industrial zone land with most of it, 914ha (or 84%), in close proximity to the main urban township of Taupō, pictured in the figure below. The balance is in and around Tūrangi.

The main industrial areas identified in the figure are:

- Miro Street Industrial Area
- Centennial Industrial Area.
- Crown Road Industrial Area
- Taupō Airport.
- Wairakei Industrial Area

FIGURE 1: GEOSPATIAL DISTRIBUTION OF ZONED INDUSTRIAL LAND



Source: ESRI, Taupō District Council.

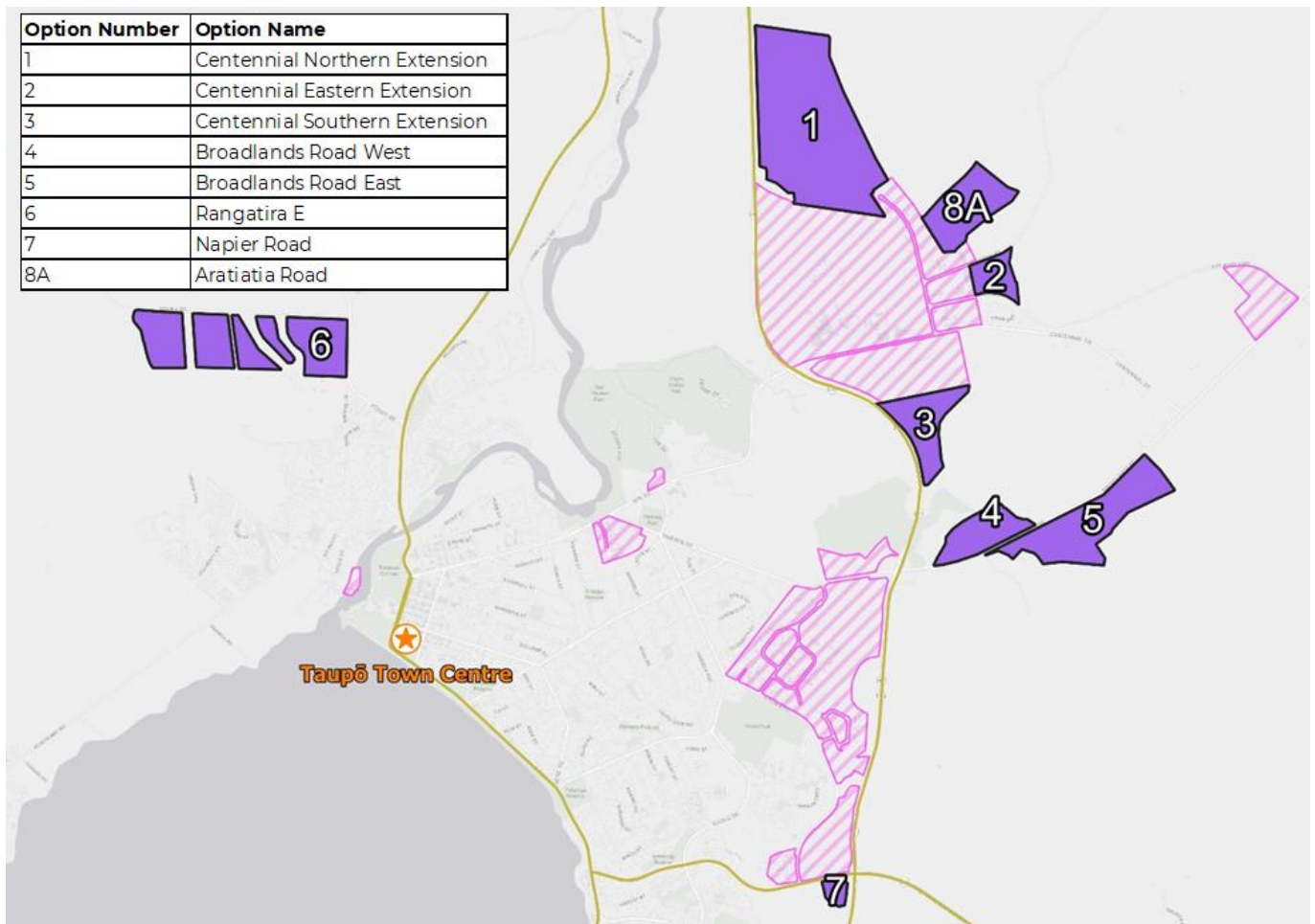
The following figure outlines the nine options identified as possible extensions to Taupō's industrial land network in relation to the existing industrial network (refer Figure 1). The indicated boundaries of the identified extension areas should be regarded as indicative only.

The nine options are referred to as:

1. Option 1: Centennial Northern Extension (105.5ha)
2. Option 2: Centennial Eastern Extension (10.0ha).
3. Option 2: Centennial Southern Extension (21.3ha).
4. Option 4: Broadlands Road West (20ha).
5. Option 5: Broadlands Road East (41.8ha)
6. Option 6: Rangatira E(57.2ha).
7. Option 7: Napier Road (3.5ha)
8. Option 8A: Aratiatia Road (25.7ha)

Other industrial areas exist within Taupō District but are a significant distance from the main urban township (Taupō Township) and the proposed industrial areas that they do not form part of the general landscape of industrial activity that could substitute effectively for the identified potential net additions.

FIGURE 2: IDENTIFIED INDUSTRIAL LAND OPTIONS



Source: ESRI, Taupō District Council.

3. TAUPŌ INDUSTRIAL MARKET OVERVIEW

This section outlines the current health of Taupō's Industrial market as a cross check on an assessment of industrial land demand. This section uses broad economic indicators to assess Taupō's industrial sector.

Building Consents

The following table shows the number of industrial building consents granted across the district over the 2001 – 2020 period.

The district has shown a fair amount of resilience in its industrial sector with steady levels of investment over the period shown. While the number of industrial consents was generally lower over the most recent decade, it was not substantially lower and the total value was, on average, higher in the most recent 10-year period than over the whole period shown (partly driven by higher build costs). The 2020 year, for example, had almost \$9m of industrial consents, or around 14,000sqm of industrial GFA.

TABLE 1: TAUPŌ INDUSTRIAL SECTOR CONSENTED FLOORSPACE

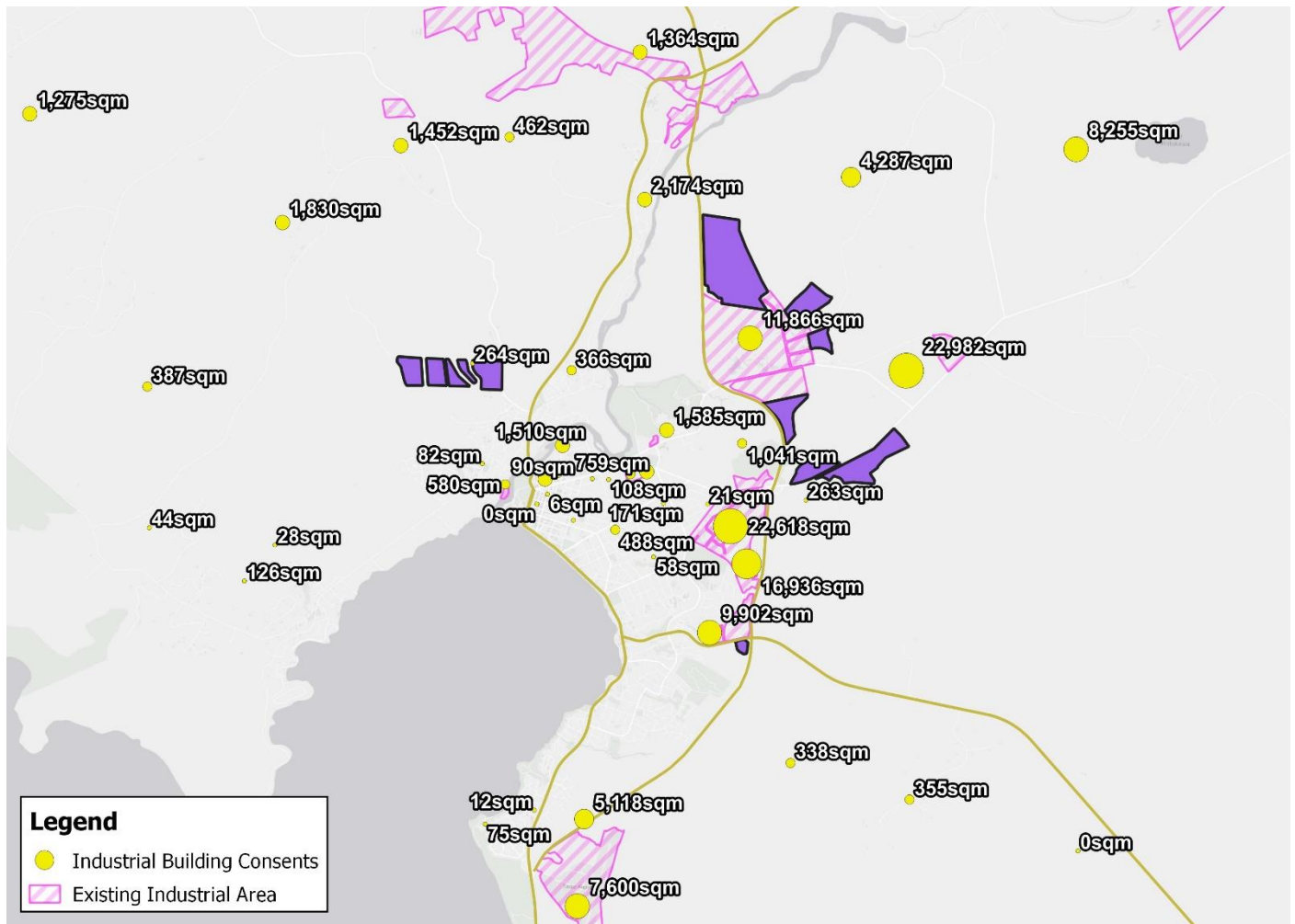
Years	Number	Value (\$000)	Floor Area (sqm)
2001 - 2005	113	\$14,149	40,716
2006 - 2010	114	\$29,990	48,255
2011 - 2015	79	\$36,931	41,480
2016 - 2020	70	\$21,687	28,095
Total	376	\$102,756	158,546

Source: Stats NZ

The following figure shows the geospatial distribution of the total floor area (sqm) of industrial building consents granted over the past 20 years. These consents are aggregated to the meshblock² level for publication each point on the figure represents the centre of a meshblock (meshblocks do not align perfectly with zoning). Note, the size of the dot indicates the total amount of floorspace consented over this period.

The areas with the largest total consented floorspace are those in the established Miro Street and Crown Road industrial Areas as well as the Centennial Industrial Area, around the Motorsport Park and close to / at Taupō Airport. Industrial consents correlate highly with the industrial zoned areas.

² Meshblocks are the smallest geographic unit Stats NZ publishes geographic data at and are approximately the size of a city block in urban areas and get progressively larger into rural areas.

FIGURE 3: CONSENTED INDUSTRIAL FLOORSPACE OVER THE PAST 20 YEARS


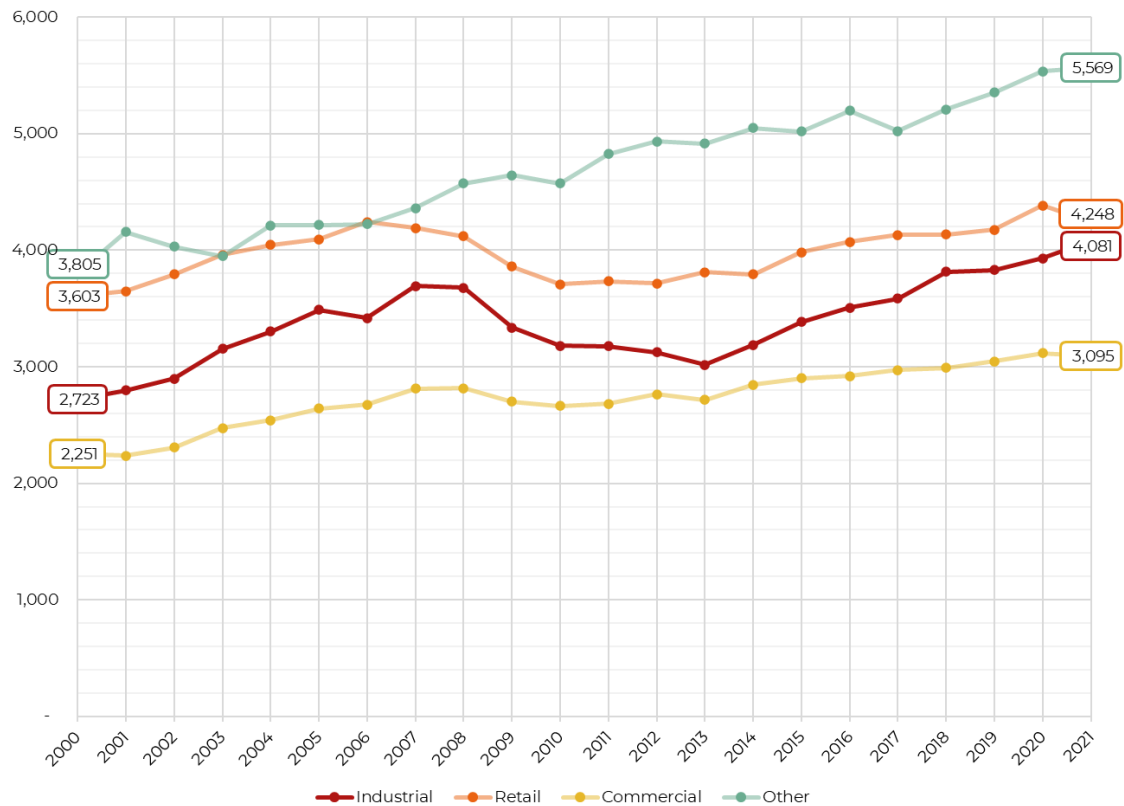
Source: Stats NZ, Taupō District Council.

Industrial Sector Employment

The following figure shows the nominal employment figures for industrial employment across Taupō District over the 2000 – 2021 period.

Growth in industrial sector employment has been strong over the most recent past; Industrial sector employment has been increasing year-on-year in Taupō District since 2013 after experiencing a drop off following the 2008 Global Financial Crisis. On average, industrial sector employment has grown by 136 net additional employees per annum since 2013 and the district has an industrial employment base 50% larger now than in 2000.

Industrial sector employment in Taupō appears to be strong which reflects positively as a geographic location for industrial activity, on growth prospects for the sector and demand for industrial land moving forward.

FIGURE 4: TAUPŌ DISTRICT EMPLOYMENT BY SECTOR (2000 – 2021)


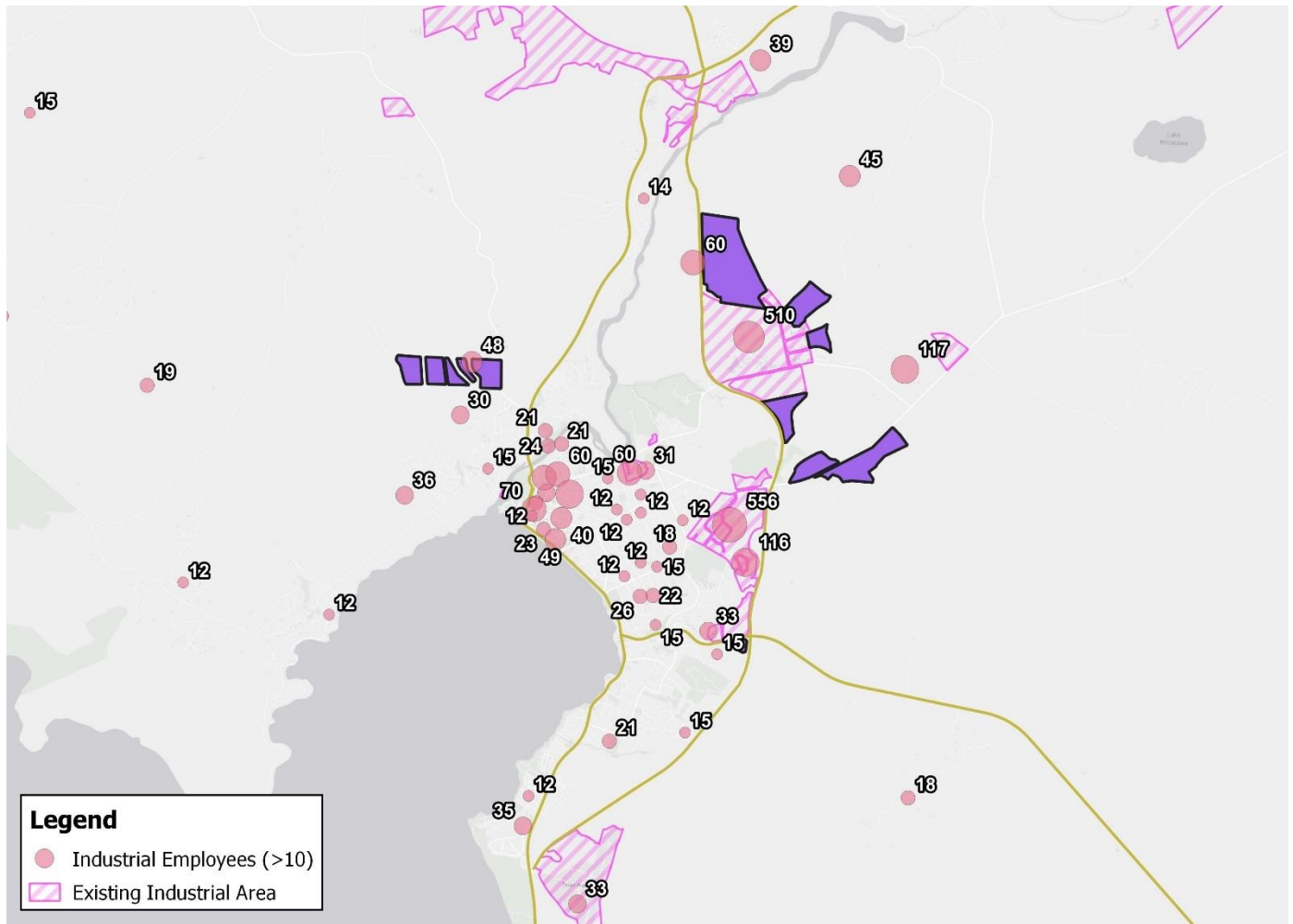
Source: Stats NZ

The following figure shows the location and number of industrial employees currently employed in and around the main Taupō settlement by meshblock³ (meshblocks with fewer than 10 industrial employees were suppressed). This shows the geospatial distribution of key employment nodes for industrial employees. Meshblocks with no industrial employees were suppressed.

The main nodes of industrial employment mostly line up with the locations of industrial zoning with the area north of Spa Road to the lakefront, corresponding with the town's centre, also showing a significant number of industrial sector employees mainly in Construction, Wholesale Trade and Transport, Postal and Warehousing.

There is existing industrial employment near all the new potential industrial areas though there is less of a presence at the Rangatira E and Broadlands Road sites.

³ Meshblocks are the smallest geographic bounds used by Stats NZ to publish geographic information. They are roughly the size of a city block in urban areas and get larger in less urbanised areas.

FIGURE 5: DISTRIBUTION OF INDUSTRIAL SECTOR EMPLOYMENT IN TAUPŌ DISTRICT (2021)


Source: Stats NZ, Taupō District Council.

The following figure shows the anticipated growth in employment by broad sector over the 2021 – 2053 period. These projections are based on the latest Stats NZ Medium growth (2018 census base) scenario projections using the 2018 Census as a base. These projections are the same as those presented in the Taupō District Plan review process at the broad sector level.

Industrial employment in Taupō is anticipated to continue growing out to 2053, albeit at a more subdued rate than the recent 20-year period. In total, Industrial Sector employment is anticipated to account for almost 4,800 employees, around 860 more employees than in 2020. As a proportion of total employment, Taupō's Industrial sector is anticipated to represent 22% of total employment in 2053, compared to 24% in 2021.

This more muted growth is anticipated for a variety of reasons: advances in technology (automation), change in job preference (service sector), increased levels of technical expertise, outsourcing to foreign countries, reduced demand for some industrial products, etc.



There is a strong correlation between business zone land and industrial employment, and no reason to suggest that this relationship would breakdown over the next 30-years. For this reason, we would anticipate the existing industrial nodes with capacity to continue to grow in employment numbers and any proposed new nodes to also absorb a portion of the projected industrial employment growth.

FIGURE 6: TAUPŌ EMPLOYMENT PROJECTIONS BY SECTOR (2021 – 2053)

Sector	2020	2033	2053	Growth (2020 - 2053)	
				Nominal	Percentage
Industrial	3,930	4,118	4,786	856	22%
Retail	4,380	4,448	4,554	174	4%
Commercial	3,115	4,157	5,397	2,282	73%
Other	5,535	6,597	7,302	1,767	32%
Total	16,960	19,320	22,040	5,080	30%

Source: Stats NZ, Property Economics

4. TAUPŌ DISTRICT INDUSTRIAL LAND SUFFICIENCY

The following table identifies anticipated demand for industrial land and current industrial land sufficiency enabled within the Taupō District Plan⁴.

There is currently just under 38ha of industrial land enabled by the District Plan that is vacant and ready for industrial use. This figure is based on zoned, vacant, and unencumbered industrial land across Taupō district from the Taupō District Plan review process. This figure likely understates the total supply of industrial land to some degree and is therefore considered a conservative estimate.

Based on Stats NZ Medium population projections, there will be almost 860 net additional industrial employees in the district by 2053, as shown in Figure 6 above.

This level of industrial employment translates into demand for net additional industrial land of around 78.6ha. After accounting for additional land using buffers outlined in the NPS-UD to provide for a range of choice in location, price, etc., the total amount of net additional land required in the district by 2053 is a little over 90ha.

This level of demand, and the current industrial land capacity, suggest an insufficient level of district wide industrial land of almost 53ha over the long term. i.e., there will be a shortfall in industrial land of almost 53ha by 2053.

TABLE 2: TAUPŌ DISTRICT INDUSTRIAL LAND DEMAND

Taupō District Industrial	2020	2023	2033	2053
Industrial Employment Base	3,930	3,974	4,119	4,786
Net Additional Land Requirement (ha)	-	4.0	17.3	78.6
Industrial Land Requirement Including NPS Buffer (ha)	-	4.8	19.9	90.4
Current Vacant Industrial Land (ha)	37.8			
Net Supply and Demand Differential (ha)	37.8	33.0	17.8	-52.6

Source: Taupō District Council, Stats NZ, Property Economics.

Of the identified potential net additions to Taupō's industrial land pool, Options 1 and Option 6 would provide sufficient net additional industrial land to overcome anticipated long-term demand by themselves.

Option 6 provides approximately the same as the current anticipated long-term land deficit. Option 1 provides significantly more capacity, in the order of 53ha, than what would be needed to meet the long-term sufficiency for the district.

Options 2, 3, 4, 5, 7 and 8A with extant vacant supply would yield net long-term deficits of 42.6ha, 31.3ha, 32.6ha, 10.8ha, 49.1ha and 26.9ha respectively, if enabled on their own. In combination together, or with one of the large Options, these could provide additional geospatial diversity that may add diversity to the industrial land supply pool.

⁴ This table was provided in a previous report on Taupō's PDP process, "Taupō Proposed District Plan Review Economic Assessment". Property Economics (2021).

Generally, there are greater gains to clustering / agglomerating industrial activity, however, some efficiency can be gained by having a number of small industrial land options for smaller enterprises and enabling short travel time from residential areas for workers.

The following table identifies the net sufficiency enabled by each option, assuming 100% of the land is otherwise unconstrained and developable. Property Economics has used indicative boundaries to identify each potential option area which may skew the indicated land area and the exact size of each area may differ slightly from that indicated in the table.

TABLE 3: TAUPŌ DISTRICT INDUSTRIAL LAND POTENTIAL OPTIONS LONG TERM SUFFICIENCY (2053)

	1 - Broadlands Road West	2 - Centennial Southern Extension	3 - Scoria Road	4 - Centennial Northern & Eastern Extension	5 - Broadlands Road East	6 - Rangatira E	7 - Napier Road	8A - Aratiatia Road
Gross Additional Land Provided by Option	+105.5	+10.0	+21.3	+22.0	+41.8	+57.2	+3.5	+25.7
Estimated Current Industrial Capacity	+37.8							
Total Land Supply Provision	143.3	47.8	59.1	59.8	79.6	95.0	41.3	63.5
Long-term Industrial Sufficiency including NPS-UD buffer (ha)	52.9	-42.6	-31.3	-30.6	-10.8	4.6	-49.1	-26.9

Source: Taupō District Council, Property Economics.

There are both positive and negative economic impacts of providing more industrial land than is anticipated to be required over the long term. Some of the high-level costs and benefits include

- ⊕ Lower industrial land prices.
- ⊕ Increased choice in location.
- ⊕ Increased certainty in future location of industrial land provision to market.
- ⊕ Disincentivising ad hoc, out of zone industrial activity.
- ⊖ Possible inefficient infrastructure allocation – infrastructure is allocated to an area where it is not yet required or demanded.
- ⊖ Decreased impetus of intensified / efficient industrial land development.

While these are not principal determining factors for the purpose of this MCA, significantly excess industrial land provision is worth considering.

5. HIGHLY PRODUCTIVE SOILS

The anticipated NPS-HPL will likely identify the areas with high grade soils (Class 1, 2 & 3 Land Use Classification (LUC)) as soils that need protection. These soils need protecting from an economic point of view as they are a meaningful representation of a precious land resource that is invaluable and contributes substantially to the regional and national economy through its productive capacity.

High class soils are / could be used for efficient agricultural use with little to no improvement needed. They are regarded as the best soils for such purposes and are anticipated to have higher yields than other soils. These soils represent the highest soil uses and are described in the Land Use Capability Handbook (3rd Edition) as:

Class 1 is the most versatile multiple-use land with minimal physical limitations for arable use. It has high suitability for cultivated cropping (many different crop types), viticulture, berry production, pastoralism, tree crops and production forestry.

Class 2 is very good land with slight physical limitations to arable use, readily controlled by management and soil conservation practices. The land is suitable for many cultivated crops, vineyards and berry fields, pasture, tree crops or production forestry. The most common physical limitations which may occur include:

- Slight susceptibility to erosion under cultivation
- Moderate soil depth (45-90cm)
- Slight wetness after drainage
- Occasional flood overflow
- Unfavourable soil structure and difficulty in working
- Very weak to weakly saline
- Slight climatic limitations

Class 3 land has moderate physical limitations to arable use. These limitations restrict the choice of crops and the intensity of cultivation, and / or make special soil conservation practices necessary. Class 3 land is suitable for cultivate crops, vineyards and berry fields, pasture, tree crops or production forestry. The most common limitations that may occur include:

- Moderate susceptibility to erosion under cultivation
- Rolling slopes (8°-15°)
- Shallow (20-45 cm) or stony soils
- Wetness or waterlogging after drainage
- Occasional damaging overflow
- Low moisture holding capacity
- Moderate structural impediments to cultivation
- Low natural fertility
- Weak salinity
- Moderate climatic limitation.

Other soils classes, classes 4-7, are unlikely to be included as highly productive in the NPS-HPL as the physical limitations for arable use are more than moderate. Class 8 soils are associated with non-rural land use (villages, towns, cities, etc.) and are for all intents and purposes non-arable.

The following figures identify the nine sites in relation to the underlying and surrounding soils classes.

FIGURE 7: OPTION 1 – CENTENNIAL NORTHERN EXTENSION LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 8: OPTION 2 – CENTENNIAL EASTERN EXTENSION LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 9: OPTION 3 – CENTENNIAL SOUTHERN EXTENSION LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 10: OPTION 4 – BROADLANDS ROAD WEST LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 11: OPTION 5 – BROADLANDS ROAD EAST LUC SOIL CLASSES



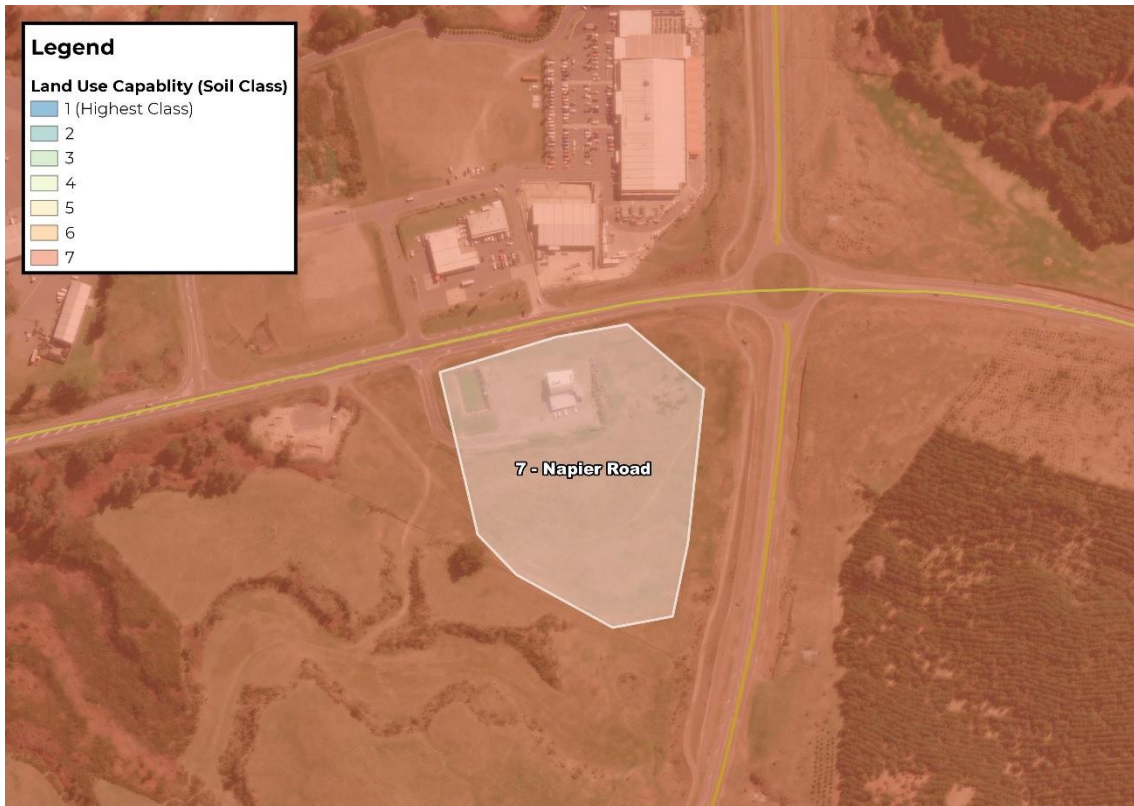
Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 12: OPTION 6 – RANGATIRA E LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 13: OPTION 7 – NAPIER ROAD LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

FIGURE 14: OPTION 8A – ARATIATIA ROAD LUC SOIL CLASSES



Source: Bing, Land Care Research NZ, Taupō District Council, Property Economics.

There is only a limited overlap between the identified potential industrial land options and high-class soils (Class 1, 2 & 3). The following table summarises each area by the amount and proportion of the underlying lands land use classification soil class. Class 1, 2 & 3 soils have been highlighted to show areas where there is overlap between an identified option and high-class soils.

The only higher-class soils that overlap with the identified areas are some areas with class 3 soils. While class 3 soils are considered arable, for agricultural use, as indicated above, they have more limited use than class 1 and 2 soils. As a result, the associated cost from losing these soils to a non-productive (soil usage) purpose is significantly more limited.

In nominal terms, the Option 1 and Option 6 show the largest loss of high-class soils of the identified options with 61.9ha and 44.3ha of class 3 soils, respectively. These losses translate to 59% and 77%, respectively, of each options total land area provision. This is potentially a substantial cost to the supply of high-class soils in Taupō.

Based on the soil status identified by NZ Land Resource Inventory (NZLRI), Option 1 (Class 3 part) is identified as flat terraces with yellow-brown pumice soils developed on coarse-textured Taupō flow tephra or water-sorted Taupō tephra. Soils are subject to periods of moisture deficiency and are of low natural fertility.

Option 6 (Class 3 parts) is undulating slightly dissected slopes with yellow-brown pumice soils developed on coarse Taupo flow tephra. Soils are of low fertility and subject to periods of severe moisture deficiency. There is a potential for very severe gully and streambank erosion, and severe sheet erosion.

As such, these two options are considered to represent a small amount of productive land use loss if actioned.

Option 2 and Option 4 also show some nominal losses of high-class soils – 4.3ha, 0.1ha and 7.5ha, respectively. These losses represent 43%, 0% and 14%, respectively, of each options total land area provision. This likely represents only a small cost to the supply of high-class soils in Taupō.

While the quantum of high-class soils that could potentially be lost through rezoning may not be large for any individual option, the cumulative effect of high-class soil loss or degradation should also be considered carefully by Council.

TABLE 4: LANDED AREA BY SOIL CLASS

		1 - Centennial Northern Extension		2 - Centennial Eastern Extension		3 - Centennial Southern Extension		4 - Broadlands Road West		5 - Broadlands Road East		6 - Rangatira E		7 - Napier Road		8A - Aratiatia Road	
Soil Class	Class 1	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 3	61.9	59%	4.3	43%	0	0%	0.1	0%	10.1	24%	44.3	77%	0	0%	0	0%
	Class 4	34.7	33%	4.0	40%	0	0%	18.0	100%	2.7	6%	0	0%	0	0%	0	0%
	Class 5	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Class 6	8.8	8%	1.7	17%	21.3	100%	0.0	0%	27.1	65%	5.5	10%	0	0%	25.7	100%
	Class 7	0	0%	0	0%	0	0%	0	0%	1.9	5%	7.4	13%	3.5	100%	0	0%

Source: Land Care Research NZ, Property Economics.

6. LAND CONSTRAINTS AND ENCUMBERANCES

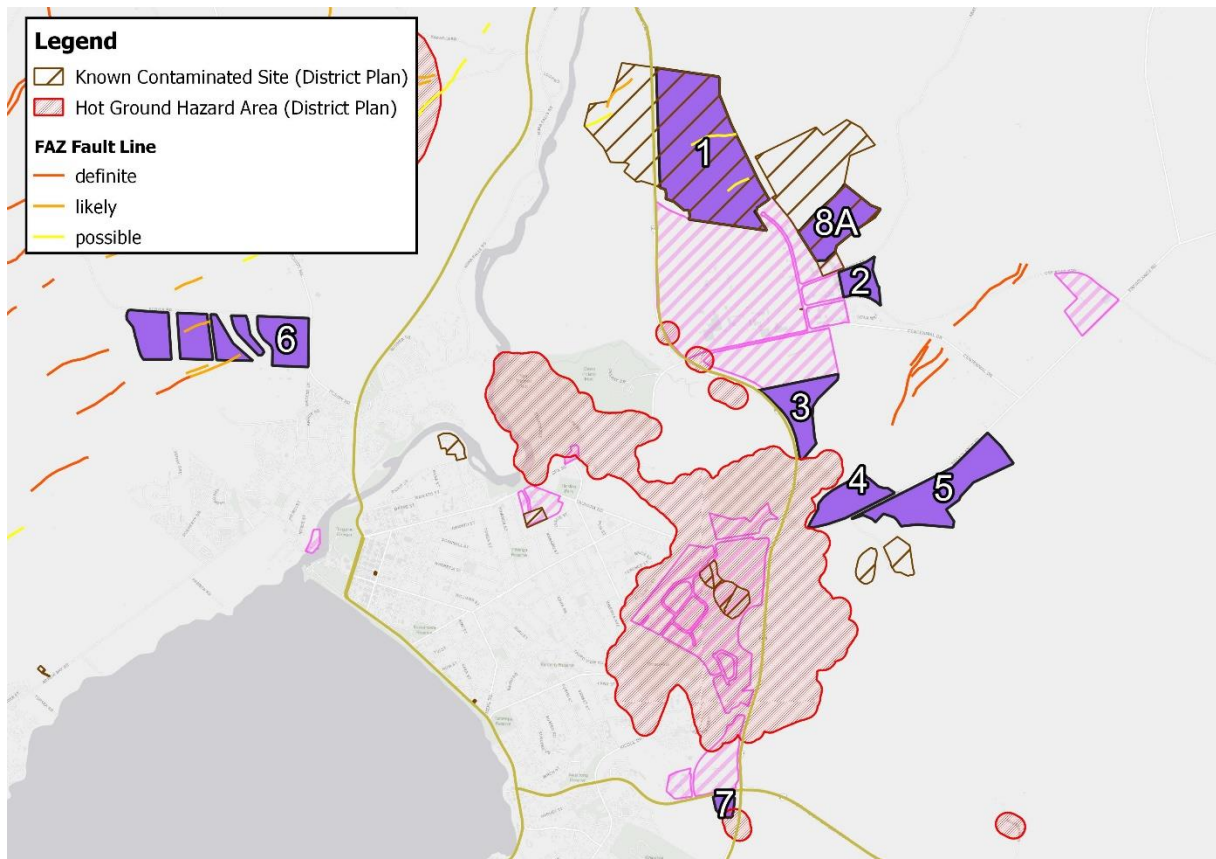
The following figures show the location of known, potentially constraining factors that may impede the development of the identified land options for industrial use. The following constraints have been mapped:

- Known Contaminated Ground
- Hot Ground Hazard Areas
- Fault Lines
- Amenity Landscape Areas
- Outstanding Landscape Areas
- Significant Natural Areas
- Land Contours
- State Highways / High-Capacity Road Network

It is assumed that all identified land options are all geotechnically possible locations for industrial land options as no technical reports or recommendations have been provided as part of this analysis

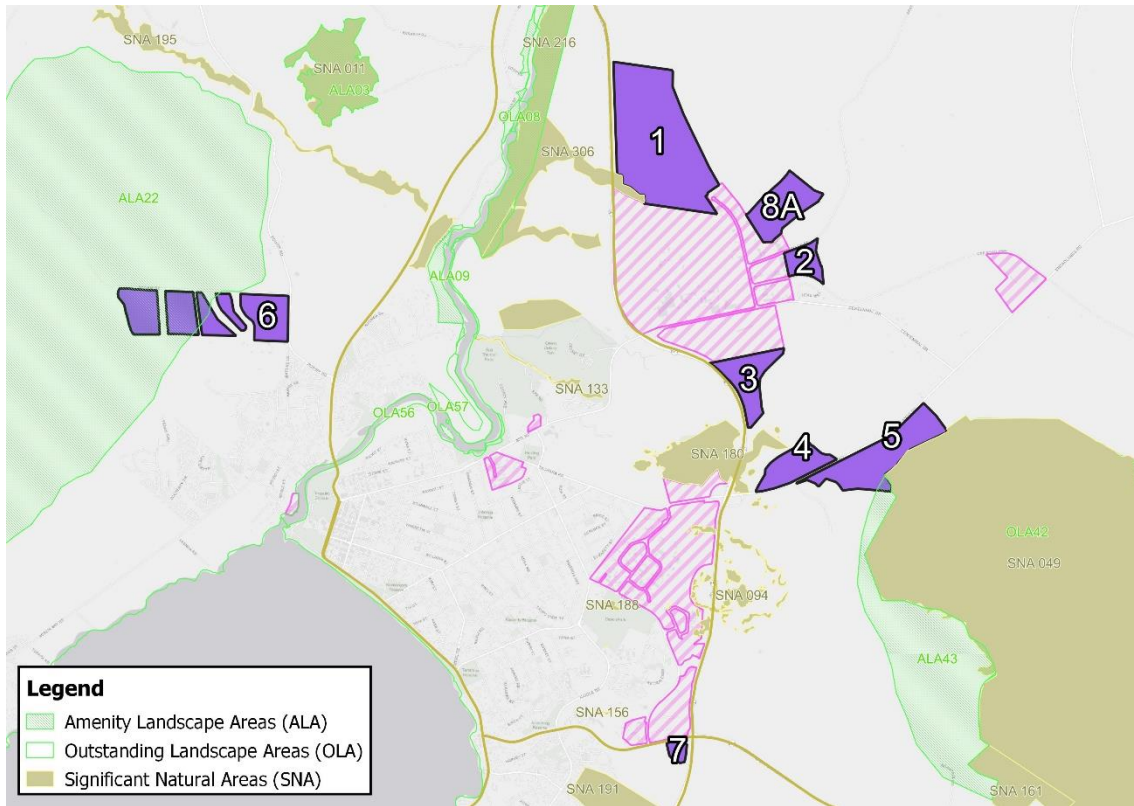
The only exceptions to this that are known to Property Economics is the three waters constraints related to the northern areas of Option 1 (Northern Centennial Extension). These constraints at this point in time are considered fatal to this option being progressed.

FIGURE 15: KNOWN CONTAMINATED SITES, HOT GROUND HAZARD AREAS AND FAULT LINES IN TAUPŌ DISTRICT



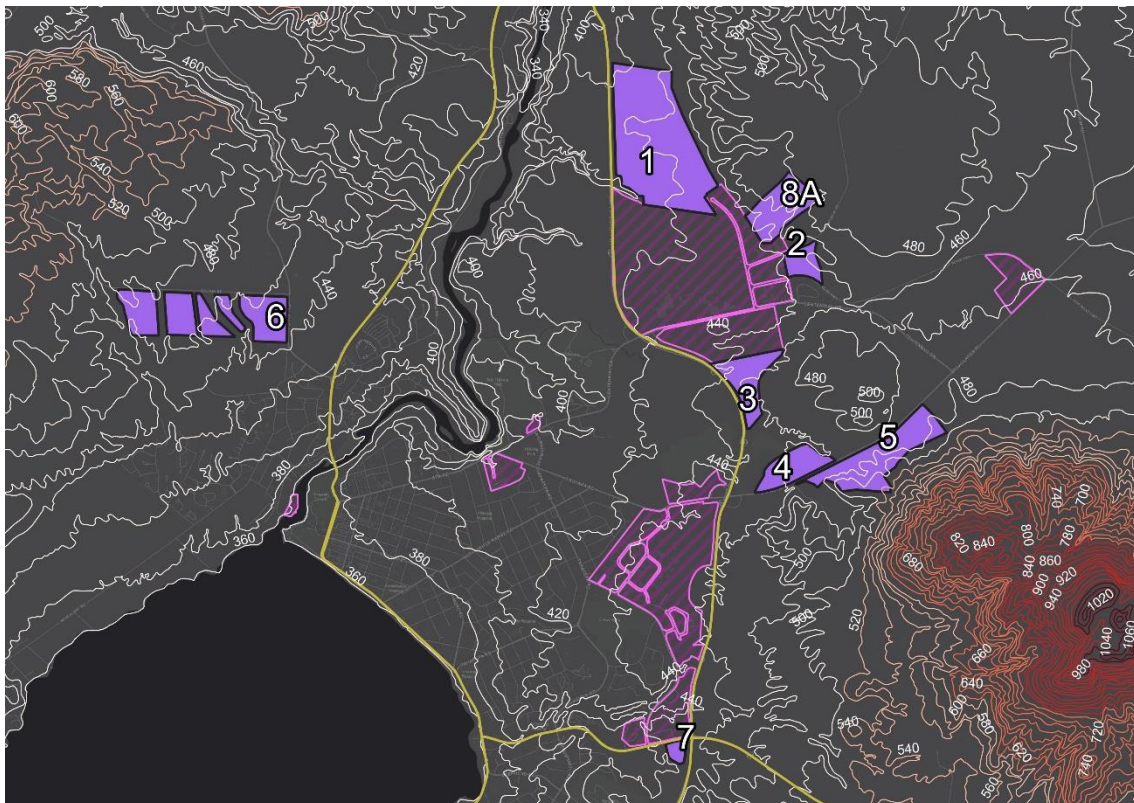
Source: LINZ, ESRI, Taupō District Council, NZTA, Property Economics.

**FIGURE 16: AMENITY LANDSCAPES, OUTSTANDING LANDSCAPES AND SIGNIFICANT NATURAL AREAS
IN TAUPŌ DISTRICT**



Source: LINZ, ESRI, Taupō District Council, NZTA, Property Economics.

FIGURE 17: LAND CONTOURS AND STATE HIGHWAY / HIGH CAPACITY ROAD IN TAUPŌ DISTRICT



Source: LINZ, ESRI, Taupō District Council, NZTA, Property Economics.

All the identified areas are relatively flat with only gentle sloping gradient, as indicated by elevation contours.

Option 1 borders the “Waikato River Conservation Area” and has a small amount of overlap with it, though this is unlikely to impede development significantly or cause damage to the Conservation Area with proper development techniques. However, Three Waters constraints are fatal in the MCA to this option being realised in the foreseeable future.

All industrial land options are either adjacent to an existing industrial node or very close by, except for Option 6: Rangatira E. Most of the industrial land close to Taupō’s main urban area is on the eastern side of the Waikato River, Option 6 is on the western side away from other industrial or commercial activity. This represents both a detriment and a benefit as proximity to existing areas could yield additional agglomeration and dynamic synergies across industrial sub-sectors but geospatial distancing allows for greater accessibility for a wider labour force base.

All existing industrial activity is close to a State Highway or other high-capacity road. The potential Option 6 industrial area is the furthest from the network though it is only a 1-2 minute drive from Rangatira E to Wairakei Drive. This road would take industrial traffic through an existing residential area which may yield some negative externalities relating to noise, smoke, dust, etc. that could lower amenity.

Option 6 has some minor streams running through it which may restrict the use of the land for some industrial activity. Option 1: Centennial Northern Extension, similarly, has a minor stream in the Significant Natural Area adjacent to it which may limit the use of the land nearby.

The identified options are mostly flat or have a slight incline with the exception of the Option 3: Centennial Southern Extension which has a western border lined with trees that is more undulating and has a steep drop off to the contiguous State Highway 1 and the Option 5: Broadlands Road East option also has rolling hills on its western flank. Option 8A: Aratiatia Road also has a slightly elevated pitch but can likely be managed with correct urban design such as the use of terraces.

While these likely do not preclude the land from industrial use they likely limit it somewhat as flat land is generally preferred for industrial use and provides the greatest flexibility in industrial land development. The more constraints that land has to overcome the more limited the land use options and the less feasible the land is to develop. This lower level of feasibility in and of itself is a constraint as many industrial activities rely on large amounts affordable land to operate such as warehousing, storage and logistics.

7. MULTI CRITERIA ANALYSIS TABLE OF ECONOMIC RESULTS

The multi-criteria analysis is undertaken with six key variables identified as being the most salient for the decision-making process of ranking preferred options.

Each criterion is given a percentage weighting indicating its ranked importance to the process in determining best placement for future industrial land.

Each option's criteria is scored from -5 to +5 (0 inclusive) independently of one another, where -5 corresponds to areas that scored poorly in a criteria and +5 corresponds to areas that scored well in a criteria.

Each option is summed by its Weighted criteria and ranked in order of best option to the least preferred option.

Criterion	Weighting
Constrained Land – how constrained is the land for development (hills, valleys, swamps, floodplains, etc.) or encumbered with regulatory constraints?	30%
Infrastructure – does the land have infrastructure, or is it infrastructure ready? Are there significant impediments / costs to getting infrastructure for the land?	25%
Contiguity – does the geospatial position of the land make sense in the context of other industrial areas and other zones?	20%
Sufficiency – does the proposed option provide sufficient industrial land to meet demand over the life of the district plan / 30-years?	10%
Productive Land Opportunity Cost – Is the industrial land use likely to result in the loss of productive land or high-class soils (NPS-HPL)?	10%
Likelihood of generation of reverse sensitivities – how likely is the option to generate reverse sensitivities with the surrounding environment and is it likely to prevent future growth?	5%

Some criteria have overlap with other criteria, for example, the determination of soil classes (determining if soil is suitable for arable land use) considers the slope of the land which is also accounted for in the constraints on the land as industrial activity, similarly, does not occur on heavily sloping land. These overlaps cause a minor bias in our recommendations, but Property Economics has been careful to minimise any potential double counting.

A detailed explanation of each of the criteria is provided in Appendix 1.

Additional commentary is provided on known cultural or preservation considerations that may need specific assessment and / or interventions. These considerations were not included in the MCA explicitly as the evaluation of these criteria falls outside the scope of this assessment.

These considerations are, however, important and should be included in ultimate evaluation and decision of options to ensure appropriate environmental and cultural recognition is maintained to consider the environment and people.

The following table summarises the scoring and ranking of options of the MCA. The weighted total represents the ordinality of preferences with a cardinal ranking following. This cardinal ranking represents, from an economic perspective, the best industrial land options to unlock in order. This analysis does not consider the joint unlocking of multiple parcels.

The top scoring option was Option 7: Napier Road followed by Option 4: Broadlands Road West and Option 2: Centennial Eastern Extension.

TABLE 5: SUMMARY OF MCA AND RANKED OPTIONS

	1 - Centennial Northern Extension	2 - Centennial Eastern Extension	3 - Centennial Southern Extension	4 - Broadlands Road West	5 - Broadlands Road East	6 - Rangatira E	7 - Napier Road	8A - Aratiatia Road	Applied Weight
Constrained Land	-5 (fatal)	+3	0	+5	0	0	+5	+1	30%
Infrastructure	+3	+3	-2	+4	+2	-3	+5	+3	25%
Contiguity	+5	+5	+3	+2	+2	-3	+1	+5	20%
Sufficiency	+5	+1	+1	+1	+3	+5	0	+1	10%
Productive Land Opportunity Cost	-4	0	+5	0	-1	-4	+5	+5	10%
Likelihood of Generating Reverse Sensitivities	+5	+5	+5	+5	+5	+2	+2	+5	5%
Weighted Total	+0.6	+3.0	+1.0	+3.3	+1.4	-1.2	+3.6	+2.9	-
Rank	7	3	6	2	5	8	1	4	-

Source: Property Economics

7.1. OPTION 1: CENTENNIAL NORTHERN EXTENSION

Criterion and Reason for Score	Score (-5 - +5)
<p>Constrained Land – this area has a gentle slope and a number of possible fault hazard zones. It is also understood that this area may have issues surrounding infrastructure placement due to ground / soil issues that will require further testing. Additionally, this area is owned by the Council and used for wastewater disposal purposes. As such it is considered a three waters asset and subject to the Water Services Bill whereby it will be compulsory acquired by the new regulator / entity. This is a fatal constraint of the option and reflects that there is no certainty on the land that it could be realised for industrial uses.</p>	<p>-5 (Fatal)</p>
<p>Infrastructure – The area directly adjoins the existing centennial industrial area with the existing infrastructure that is put in place to service business activities in and around the industrial zone. This means that the infrastructure costs associated with this option would be relatively lower in contrast to some of other options which have no existing industrial activities around the site.</p> <p>This is consistent with the Infrastructure Assessment results that three waters and transportation servicing can be accommodated at this site with no particular issues identified.</p>	<p>+3</p>
<p>Contiguity – The area would form part of the northern and eastern expansion areas of the centennial industrial area. This would help further establish the area and improve the area's agglomeration potential and industrial intensification.</p>	<p>+5</p>
<p>Sufficiency – The area provides additional 105.5ha of industrial land which meets the district's long-term industrial land demand and provides a surplus of almost 53ha. This provides the industrial land market with sufficient security of provision.</p>	<p>+5</p>
<p>Productive Land Opportunity Cost – The option covers 61.9ha of land with class 3 productive soils. This is a significant quantity of high-class soils that would be lost, and the greatest nominal amount among the identified options, and accounts for 59% of the total options land area.</p>	<p>-4</p>
<p>Likelihood of generation of reverse sensitivities – The option is unlikely to result in significant generation of reverse sensitivities as there are no nearby residential or commercial areas that would be disrupted through this lands utilisation for industrial.</p>	<p>+5</p>
Weighted Total	+0.6
Rank	7th (Fatal)

There is a small area of overlap between the northern tranche and an area of natural significance, Waikato River Conservation Area. Further consultation would be needed but it assumed that some protective barriers (green barriers, buffer areas, open space, fencing, etc.) would be needed in order to prevent adverse effects on the area. No other known cultural or preservation criteria apply to this land.

7.2. OPTION 2: CENTENNIAL EASTERN EXTENSION

Criterion and Reason for Score	Score (-5 - +5)
<p>Constrained Land – the site has a gentle slope towards the east but is generally free of constraints and encumbrances. The slope may limit some activities or impose additional costs in order to be fully developable for industrial purposes.</p>	+3
<p>Infrastructure – The option is contiguous with the existing centennial industrial area and will likely be relatively easy to fully infrastructure. The road access is via the existing industrial area which may impose some cost on the transport network through increased traffic.</p> <p>These observations are consistent with the results of the Infrastructure Assessment that no particular issues are associated with the Wastewater, Transportation and Stormwater servicing at the site. However, a pump station would likely to be needed to ensure appropriate fire flows for industrial land at this site. Property Economics considers this requirement a minor water servicing constraint of the site and would not materially undermine the economic viability of the option.</p>	+3
<p>Contiguity – The area would form part of the northern and eastern expansion areas of the centennial industrial area. This would help further establish the area and improve the area’s agglomeration potential and industrial intensification.</p>	+5
<p>Sufficiency – The area only provides additional 10.0ha which is a small amount of the 30-year demand (circa 90ha). In combination is a number of other small options, or a larger option, this option could go some way in providing sufficient industrial capacity to the district.</p>	+1
<p>Productive Land Opportunity Cost – The option covers land with 4.3ha of class 3 productive soils. This is only a small portion of high class soils, though represents a significant portion of the total area of the option, approximately 43%. On a nominal, relative basis, however, this cost is likely to be small and can be managed for cumulative effects if other options have sufficiently small quantum of high class soils.</p>	0
<p>Likelihood of generation of reverse sensitivities – The option is unlikely to result in significant generation of reverse sensitivities as there are no nearby residential or commercial areas.</p>	+5
Weighted Total	3.0
Rank	3rd

There are no other known cultural or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

7.3. OPTION 3: CENTENNIAL SOUTHERN EXTENSION

Criterion and Reason for Score	Score (-5 - +5)
<p>Constrained Land – The land appears to have a fairly steep hill on its far eastern edge (though it is not known if this is intended to be zoned as part of the area). The area appears to be accentuated with rolling hills that may limit some industrial activity. There are no other known constraints or encumbrances on the land.</p>	0
<p>Infrastructure – The option has inferior infrastructure access compared to other options albeit it is contiguous with an existing but largely underutilised industrial zone in close proximity to SH1. There may be issues accessing the site as the industrial zone to the north is unlikely to be developed in the foreseeable future and therefore is land locked unless options to the south are rezoned.</p> <p>Additionally, as identified in the Infrastructure Assessment, this option would require significant pipework and pumping upgrades, extension of public sewer, road form and function development, and further stormwater management to accommodate industrial activities at this site.</p>	-2
<p>Contiguity – The land is to the direct south of the centennial industrial area and would form part of a natural expansion path for that area, though this site may not be developed in the near future. The site is adjacent to another option that could generate a large contiguous industrial land block and generate its associated benefits.</p>	+3
<p>Sufficiency – The option provides 21.3ha of net additional industrial land. This is a small amount of additional provision and does not meet the long-term sufficiency target by itself. This option, in combination with other options could provide sufficient industrial land to meet long-term demand. The option does provide additional industrial land options and choice.</p>	+1
<p>Productive Land Opportunity Cost – The area does not occupy any high-class soils and is not nearby high-class soils. There are anticipated to be no significant productive land opportunity costs.</p>	+5
<p>Likelihood of generation of reverse sensitivities – The option is not near densely urbanised residential land uses and forms part of the gradient between the existing centennial industrial area and the rural landscape. The land is unlikely to generate reverse sensitivities based on existing urban form patterns.</p>	+5
Weighted Total	+1.0
Rank	6th

There are no other known cultural or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

7.4. OPTION 4: BROADLANDS ROAD WEST

Criteria and Reason for Score	Score (-5 - +5)
<p>Constrained Land – The land is not known to have any constraints or encumbrances that would prevent efficient industrial development.</p>	+5
<p>Infrastructure – From an economic perspective, there is good infrastructure access as the area is close to a SH1 interchange and existing industrial zones but not contiguous with them. There may be some expense in running additional three waters, telecommunications and electricity through to the area, but it is unlikely to be prohibitive and this is somewhat offset by the existing high-capacity road. The area is not known to already have infrastructure.</p> <p>The Infrastructure Assessment suggests that wastewater servicing extension is achievable at this site. However, this option would require pump station upgrade, road form and function development, and some stormwater management at the site.</p>	+4
<p>Contiguity – The area is non-contiguous with existing industrial land but is only a short distance away. The gap is bridged by land occupied by the existing road network and land that is unlikely capable being used for industrial purposes itself. There are other options that, if enabled, could also facilitate in contiguity and generating a critical mass of industrial zoned land.</p>	+2
<p>Sufficiency – The option provides around 20ha of net additional industrial land. This is a small amount of additional provision and does not meet the long-term sufficiency target by itself. The option does provide additional industrial land options and choice, and this may be reflected in a lower cost of industrial land if a sufficient quantity is unlocked.</p>	+1
<p>Productive Land Opportunity Cost – The land occupies mostly non-productive soils with only a small overlap with class 3 productive soils. The area is near productive soils that may limit future expansion potential or expose productive soils to pollutants from the site.</p>	0
<p>Likelihood of generation of reverse sensitivities – There is limited opportunity for the area to generate reverse sensitivities as the area is close to the existing industrial area and forms a gradient to a rural area. There is no dense urbanised residential nearby.</p>	+5
Weighted Total	+3.3
Rank	2nd

There are no other known cultural or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

7.5. OPTION 5: BROADLANDS ROAD EAST

Criterion and Reason for Score	Score (-5 - +5)
<p>Constrained Land – The land appears to be made up of rolling hills across its western border which limits some of the industrial activity that could otherwise occur on the site but flattens out to the east. There are no other known constraints or encumbrances on the site. This area is currently owned by Contact Energy, and it is understood that they have no intention of releasing this land to the market or developing the land for industrial purposes. This suggests that the land is not suitable for rezoning as it would not result in additional industrial activity or realisable industrial capacity.</p>	0
<p>Infrastructure – The site is a short distance from other industrial zones and urbanised areas, i.e., the site is not contiguous with other urbanised areas but is across the road from Options 1 and 7.</p> <p>The Infrastructure Assessment indicates that extension of public sewer to this area is achievable. However, this option would require pump station upgrade and other network upgrades, and road function development at the site. Development for flow paths off Mt Tauhara would also be required. The site is located in the catchment of some of the geothermal vegetation to the north of Broadlands Road and therefore would require some stormwater management.</p>	+2
<p>Contiguity – The area is non-contiguous with existing industrial land but is only a short distance away. If Option 1 land is also unlocked for industrial use this will be contiguous with it, separated only by Broadlands Road.</p>	+2
<p>Sufficiency – The proposed option provides additional capacity of +41.8ha which represents a significant step towards meeting the projected long-term shortfall. With the proposed option there would still be an anticipated shortfall of around 10.8ha, though this could be compensated for with additional industrial land in another identified option area e.g., Option 1.</p>	+3
<p>Productive Land Opportunity Cost – The proposed industrial land option covers approximately 10.1ha of class 3 soils, or 24% of its total industrial zone area covers class 3 soils. This is a small area of productive land loss, and these soils are on the lower end of productive land use.</p>	-1
<p>Likelihood of generation of reverse sensitivities – the area is distant enough from urbanised residential areas that it is unlikely to generate reverse sensitivities.</p>	+5
Weighted Total	+1.4
Rank	5th

There may be some overlap or interference with a Significant Natural Area, Mt Tauhara. This may limit the land somewhat to protect this with greenspace boundaries or fencing.

7.6. OPTION 6: RANGATIRA E

Criterion and Reason for Score	Score (-5 - +5)
Constrained Land – The land appears to be broken up by a number of rivers / ditches / valleys that may limit the land's industrial use. The land only has a gentle slope but likely has a number of active faults running through it as identified by the fault avoidance zones.	0
Infrastructure – The land is a small distance away from the urbanised area of Taupō township so may have additional infrastructure costs associated with providing sufficient infrastructure to the land. This high-level observation is consistent with the infrastructure constraints identified by the Infrastructure Assessment which suggests this option would require a new high pressure zone including network extension / pump station, significant transportation servicing and stormwater management. The Assessment also suggests that the site would not be suitable for wet industry particularly given the wastewater treatment capacity restrictions over the bridge.	-3
Contiguity – The option is not contiguous with any existing industrial zone or known industrial activity. The potential option would, however, form its own industrial node in an area of the district where none is currently provided (west of the main urban township).	-3
Sufficiency – This option provides additional 57.2ha of industrial land to Taupō District which is anticipated to leave a long run net surplus of industrial land of around 4.6ha. This meets the sufficiency target for long-term demand by itself.	+5
Productive Land Opportunity Cost – The land covers a tranche of class 3 soils, circa 44.3ha, that would be lost. While this is the lowest of the high-class soils likely to appear in the NPS-HPL it represents a significant loss as around 77% of the total potential options land area covers these class 3 soils.	-4
Likelihood of generation of reverse sensitivities – The area is some distance from urbanised residential areas but may generate reverse sensitivities through its connectors to the transport network. The presence of lorries, vans, and other heavier work vehicles may impose some negative externalities on the nearby residential and anticipated future residential growth path.	+2
Weighted Total	-1.2
Rank	8 th

There are no known culture or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

7.7. OPTION 7: NAPIER ROAD

Criterion and Reason for Score	Score (-5 - +5)
Constrained Land – The land is mostly flat with a gentle slope and not known to have any geo-constraints or encumbrances that would make the land difficult to develop for industrial purposes. The land is suitable for industrial development.	+5
Infrastructure – The site is contiguous, across Napier Road, with an existing industrial area and it is assumed that there would not be significant infrastructure investment required to unlock this land for industrial activity. The land is also adjacent to a key SH1 interchange which is a major benefit for industrial accessibility. These observations are in line with the result of the Infrastructure Assessment that there are no particular infrastructure issues associated with this site for industrial activities. Three waters and transportation servicing can be easily achieved / upgraded at this site.	+5
Contiguity – The area is contiguous with an existing large industrial area and would likely act as a small extension to this area proving additional capacity and agglomeration benefits of industrial activity.	+1
Sufficiency – This option provides only 3.5ha of land for a total long-term deficit of almost 50ha. By itself this option is insufficient for providing long-term industrial land supply to Taupō District. This option could be included with a collection of other options or a large option to provide sufficient industrial land for the districts long-term requirements. This would also enable more geospatial locations for additional industrial land development and activity.	0
Productive Land Opportunity Cost – The identified land covers an area with poor soil quality (Class 7 soils) that is unlikely to be useful for soil productive purposes. This means there is no loss of productive soils.	+5
Likelihood of generation of reverse sensitivities – The area is a separate from residential activity but there is a small possibility that some activities may generate reverse sensitivities as the EUL expands in the future, albeit this is risk is considered low and manageable.	+2
Weighted Total	+3.6
Rank	1st

There are no known culture or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

7.8. OPTION 8A: ARATIATIA ROAD

Criterion and Reason for Score	Score (-5 - +5)
Constrained Land – This land has a slightly elevated pitch that may limit its industrial use slightly, but this can likely be managed with efficient engineering and urban design. The land is otherwise not known to be constrained.	+1
Infrastructure – The land is adjacent to a major existing infrastructure ready, industrial area. There are no known reasons why this land would not be suitable for industrial infrastructure. Note that the Infrastructure Assessment has not reviewed this option.	+3
Contiguity – The land is a large extension to one of Taupo District's major industrial nodes, the Centennial Industrial Area.	+5
Sufficiency – The area of land provides 25.7ha of land which does not meet the existing anticipated shortfall in industrial land for the district. This land does represent a significant portion of industrial land capacity shortfall that would be alleviated by its enablement and could be unlocked with other land parcels to fully ameliorate the projected supply and demand of the district.	+1
Productive Land Opportunity Cost – The area is entirely over class 6 soils, one of the lowest soil classes that has very little to no opportunity for productive soil use.	+5
Likelihood of generation of reverse sensitivities – The area is significantly distant from other non-industrial activity, outside of rural land use. It is unlikely to generate reverse sensitivities.	+5
Weighted Total	+2.9
Rank	4th

There are no known culture or preservation criteria that apply to this land. No archaeological, heritage, viewshafts or outstanding natural landscapes.

8. CONCLUSION

The results of the economic MCA show that the best option, given the current and future anticipated industrial land requirements of Taupō, based on economic considerations, is Option 7: Napier Road followed by Option 4: Broadlands Road West and Option 2: Centennial Eastern Extension.

In combination these three identified industrial land options ameliorate a significant portion of the existing shortfall, though a shortfall in the order of 21ha still exists in the long run.

Unlocking the 4th best option (from an economic perspective) option 8A: Aratiatia Road would provide a sufficient quantity of land to Taupō district to meet their long-term industrial land needs with a surplus of around 4.7ha after 2053.

On balance, given the outcome of the economic MCA, it is likely that unlocking a number of the assessed industrial land options would represent the most appropriate outcome for the district. This is because some of the smaller industrial land options performed better than the larger ones, using these economic criteria, and would likely generate more economic benefits for the district. This may mean Council's best option, from an economic perspective, is to unlock a number of the smaller parcels to provide sufficient capacity to the industrial land market.

Council will likely have other considerations and directions, beyond the pertinent economic considerations mentioned in this report – such as known cultural approbation or heritage values not previously identified. These considerations may impact the overall preference order indicated in this economic MCA and the ultimate order of land use enablement of the identified options.

Most of the options identified appear to have many notable characteristics that make them generally amenable for industrial land use, so such a reordering would be unlikely to agitate the market from an economic efficiency point of view.

Council should, however, remain vigilant with regards to the level of industrial land capacity as the sector is of vital importance to the district's employment base and economy. Planning the unlocking of sufficient industrial land should remain high on Council priorities and regular revision and assessment should be maintained to ensure an efficient and competitive industrial land market exists.

Should industrial land become significantly scarce or concentrated inefficient market outcomes may arise – unstable prices, anti-competitive behaviour, deadweight losses, etc.

9. APPENDIX 1: DETAILED CRITERIA

This appendix details each of the criteria used in this economic MCA in determining the appropriateness, and subsequent economic order of preference for industrial land use, for each of the identified parcels.

Criterion	Explanation
<p>Constrained Land – how constrained is the land for development (hills, valleys, swamps, floodplains, etc.) or encumbered with regulatory constraints?</p>	<p>Physical constraints or regulatory constraints that impact the degree to which land can be used for its intended (zoned) purpose are considered in comparison to ideal industrial land (flat, unbroken land with regulatory rules that impact the development or operation of industrial activity).</p> <p>Land that is constrained for industrial activity in some way is less useful, by definition, than land that is unconstrained for industrial activity.</p>
<p>Infrastructure – does the land have infrastructure, or is it infrastructure ready? Are there significant impediments / costs to getting infrastructure for the land?</p>	<p>Industrial land needs to have industrial infrastructure readily available in order to be useful. This includes electricity, telecommunications, transport (road, rail, water, air) and three waters (wastewater, stormwater, freshwater). Infrastructure is also a condition of the NPS-UD in order to be considered as serviced.</p> <p>While not all infrastructure layers are provided, or within Property Economics area of expertise, basic principles of contiguity are applied. Where identified options are contiguous, or within a short distance or, existing industrial areas it is assumed that the area can be readily provided with necessary infrastructure at a comparatively low cost compared to an area further away.</p> <p>Industrial land generally requires access to high-capacity transport networks (state highways, rail, sea and air). This is because the sector is heavily reliant on interconnectedness to function efficiently and often has stringent timeframes for project completion that rely on the movement of physical goods.</p> <p>Land areas closer to prominent transport nodes tend to be more highly prized by many industrial firms because of the relative discount applied to their transport costs.</p>
<p>Contiguity – does the geospatial position of the land make sense in the context of other industrial areas and other zones?</p>	<p>New industrial land that is contiguous with existing industrial areas provides a benefit beyond the generally lower cost of infrastructure and mitigation of reverse sensitivities. Industrial activity benefits from the agglomeration of industrial activity through enhanced synergies and returns to scale as well as expansion potential for existing businesses.</p>

<p>Sufficiency – does the proposed option provide sufficient industrial land to meet demand over the life of the district plan / 30-years?</p>	<p>As part of Central Government policy (NPS-UD) Council must provide sufficient business land capacity over short-, medium- and long-term timeframes. This policy is aimed at allowing markets to operate efficiently and provide opportunity for businesses.</p> <p>Insufficient business land capacity exposes the business land market to unnecessary market failure risk, such as monopoly pricing, which generate perverse incentives and rent-seeking behaviour. These are inefficient outcomes from an economic land use lens.</p> <p>Taupō District currently has a long-term constraint on industrial land. This means sometime after 10 years and before 30 years there is likely to be a shortfall in industrial land to meet anticipated demand. While this timeframe is the least pressing (compared to short- and medium-term), in terms of policy and economic outlook, weight must be given to industrial land options that meet this outcome.</p>
<p>Productive Land Opportunity Cost – Is the industrial land use likely to result in the loss of productive land or high-class soils (NPS-HPL)?</p>	<p>Opportunity cost is an important consideration for any land use outcome as land use planning outcomes are particularly sticky (once one land use is decided it rarely, if ever, changes back). This is particularly true of greenfield land that has an existing productive land use.</p> <p>The NPS-HPL has, at time of publication, not yet been finalised but will likely add regulatory weight to the protection of soils with highly productive land uses (or soils with land use classifications of a high enough order (1, 2 or 3)). These soils represent an important land resource for New Zealand as a highly agrarian country and are the most productive soils available.</p>
<p>Likelihood of generation of reverse sensitivities – how likely is the option to generate reverse sensitivities with the surrounding environment and is it likely to prevent future growth?</p>	<p>The location of industrial land in relation to other land use is important to protect that other land and the existing land use environment. As industrial activity may generate obnoxious odour, noise, light, soot / smoke, etc. it is important that these activities are contained to areas where they do not impact existing areas.</p> <p>Ideally, industrial zones will be set away from residential and amenity driven commercial areas as well as natural landscapes and aesthetic land features and may form part of a gradient to the rural environment. This is to shelter these areas from the externalities generated by common industrial activity.</p>

APPENDIX B - INDUSTRIAL LAND INFRASTRUCTURE ASSESSMENT



GREAT LAKE TAUPŌ
Taupō District Council

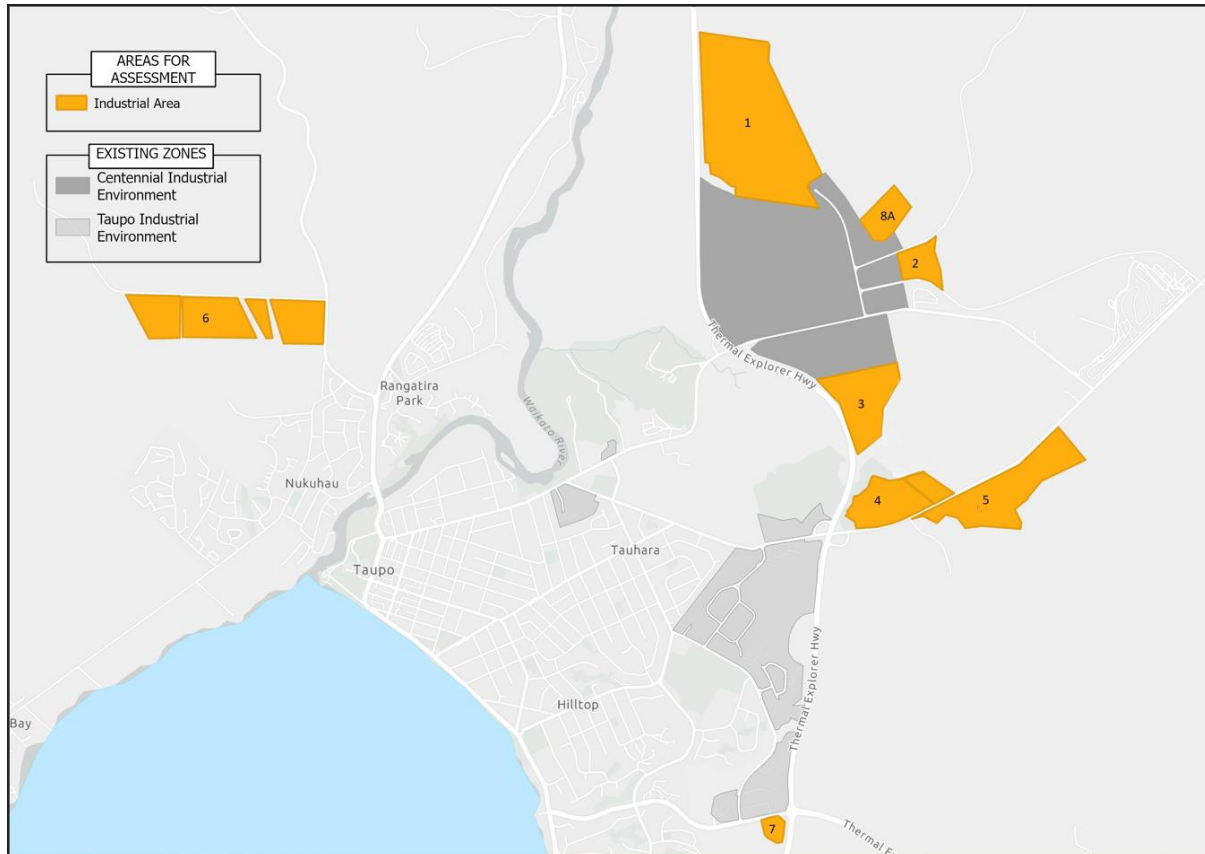
INFRASTRUCTURE ASSESSMENT PLAN CHANGE 43

September 2022

1. Introduction

This paper provides a high-level assessment of the ease of servicing identified potential industrial areas. Efficient wastewater, drinking water and traffic infrastructure are critical to well-functioning industrial areas. This assessment has been undertaken by Taupo District Council asset managers.

The potential sites are identified in yellow on the map below. Site 8A has not been included in the assessment.



2. Infrastructure Servicing for Potential Sites

Site	Water servicing	Wastewater Servicing	Transportation Servicing	Stormwater
1. 887 Rakaunui Road, Taupō	Easy - Main outside block ready to go.	No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents.	This would be fine. This would link in fine with current road layout. Might need to investigate whether the increase traffic movements will trigger an intersection upgrade on Rakanui/Centennial Road	No particular stormwater issues known. Area 1 is relatively level, with a fall toward the west. There are hills to the east which shed stormwater across the land, provision needs to be made for this water to continue to flow across the land to continue within its natural catchment.
2. 40 Aratiatia Road, Taupō	Medium – Pipeline is nearby this block however pressure would be low due to elevation of land. A pump station would likely be needed to ensure appropriate fire flows for industrial land	No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents.	This would be fine. This would link in fine with current road layout. Might need to investigate whether the increase traffic movements will trigger an intersection upgrade on Rakanui/Centennial Road	No particular issues known, will need to allow for any Stormwater runoff from the land to the east.
3. 261 Broadlands Road	Hard – this block is in between Taupo and Centennial Schemes. Feed from Taupo would need significant pipework and pumping upgrades. Feed from Centennial would require development of land closer to Rakanui Rd first and would also likely need a new pressure zone due to land elevation in the area.	No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents. Extension of public sewer to this area looks achievable but likely more expensive than 4 or 5.	There would need to be some work done on Broadlands Rd to reduce vehicle speeds. Would suggest limited access onto Broadlands Road. The current development on the town side of the ETA is causing some safety issues. There are planned to multiple entrances (with higher than current volumes) being developed. Road form and function under the ONF needs to be decided and then developed/graded based on that.	Land is not flat and has flowpaths over it that need to be accommodated. Any development masterplan would need to show how the site levels would change and how the Stormwater can be managed without off site impacts. Doesn't lend itself so easily to intensive development with large flat floorplans due to the topography.

<p>4. 63 Broadlands Road, Taupō</p>	<p>Medium – Watermain runs past block but users in this pressure zone are on restricted supply. To enable full flow supply for this industrial development with fire protection etc would require a pump station upgrade and possible other network upgrades</p>	<p>No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents.</p> <p>Extension of public sewer to this area looks achievable.</p>	<p>Same as above.</p>	<p>Stormwater disposal to be carefully considered due to known hot ground in the vicinity. The sensitive geothermal vegetation is prone to environment changes and at risk if runoffs increase or sediment is discharged offsite. Development rules should be based on no adverse effects on protected land/vegetation, including changing offsite hydrology or ambient temperatures.</p>
<p>5. 254 Broadlands Road, Taupō</p>	<p>Medium – Watermain runs past block but users in this pressure zone are on restricted supply. To enable full flow supply for this industrial development with fire protection etc would require a pump station upgrade and possible other network upgrades</p>	<p>No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents.</p> <p>Extension of public sewer to this area looks achievable.</p>	<p>Same as above</p>	<p>Development must allow for flowpaths off Mt Tauhara. It's also in the catchment of some of the geothermal vegetation to the north of Broadlands Road.</p>
<p>6. Scoria Road</p>	<p>Hard – would require creation of a new high pressure zone including network extension / pump station and maybe reservoir</p>	<p>No WW services in this area. Will be onsite WW treatment and disposal therefore minimum lot size will be required with WRC consents.</p> <p>Extension of public sewer to this area looks achievable.</p> <p>Currently capacity restrictions over the bridge, not suitable for wet industry.</p>	<p>This doesn't make much sense from transport perspective. There is planned residential development in this area, and heavy vehicle movements would pass the new residential areas. It would also increase heavy vehicle movements across control gates and up spa road. Would not be in support of this</p>	<p>The site will need to allow for stormwater flows from the land to the north. Any development and earthworks will have to ensure no new discharge points are created across the residential land to the south. The contour is gentle to moderate, but the gully areas and their soakage potential should be retained.</p>

7. 189 Napier Road, , Taupō	Easy – Main extension of approximately 125m needed to service.	Fairly simple mains extension, area not suitable for wet industry but we don't have any of that in the district at this stage anywhere.	No real issue with this site. Will be a case of dealing with the developers on mitigating impacts of their development.	No particular issues identified. Normal rules lake catchment will apply with an emphasis on not increasing flows off the site. East Taupō Arterial severs some of the upstream catchment.
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**APPENDIX C - HIGH LEVEL TRANSPORT ASSESSMENT OF
PROPOSED INDUSTRIAL AREAS (ABLEY,
SEPTEMBER 2022)**

High Level Transport Assessment of Proposed Industrial Land Areas



Executive Summary

Abley has been engaged by Taupō District Council to undertake a high-level transport assessment of a potential future plan change proposal to increase the supply of Industrial land in the vicinity of Taupō Township.

This assessment comprises a multi-criteria analysis which assesses eight sites against:

- Transport network capacity;
- Road Safety; and
- Their individual alignment with the seven priorities contained within the Taupō District Council Transport Strategy – Connecting Taupō 2020-2050 (Transport Strategy).

The assessment of transport network capacity and road safety has been directly fed into the alignment assessment with the Transport Strategy, noting that two of the Transport Strategy priorities specifically relate to Road Safety (safe) and Transport Network Capacity (maintaining predictable travel times in the face of growth).

Based on the alignment assessment, each site has been assigned a score. Scores range from 1 point for 'very poor' results to 5 points for 'very good' results. It is noted that this assessment has not applied any weightings to the seven priorities so essentially treats each priority as having equal importance. Should some priorities be considered to have more impact in terms of transportation impacts, it is recommended that a sensitivity test could be undertaken to improve the robustness of the assessment.

The unweighted results demonstrate that Site 7 is the most suitable for potential Industrial rezoning from a transportation perspective.

Clusters 1 (Sites 1, 2 & 8A) and 2 (Sites 3 & 4) have identical mid-range scores. Of note is that the scale of these Clusters is such that the full (or near full) development of these areas has the potential to require new roading connections and/or additional network capacity to be established especially if the industrial activities have relatively high traffic generation rates. It is recommended that a more conservative approach to limit traffic effects may be to rezone some but not all of these clusters.

This assessment has shown that comparatively, Site 6 is less suitable due to its anticipated impact on safety and network capacity, its proximity to existing and planned residential development, and its remote location away from the State Highway network.

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High Level Transport Assessment of Proposed Industrial Land Areas in Proximity to Taupō Township

Quality Assurance Information

Prepared for Taupō District Council
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Date issued	Status	Approved by
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1. Introduction

This technical note is a high-level assessment of the land areas proposed to be included in Taupō District Council's (TDC) proposed plan change. It is understood that the intent of the plan change is to increase the supply of Industrial zoned land in proximity to Taupō township. Figure 1.1 shows the eight sites that are being considered by TDC for this purpose, noting that Site 5 has been removed, and Site 8A added.

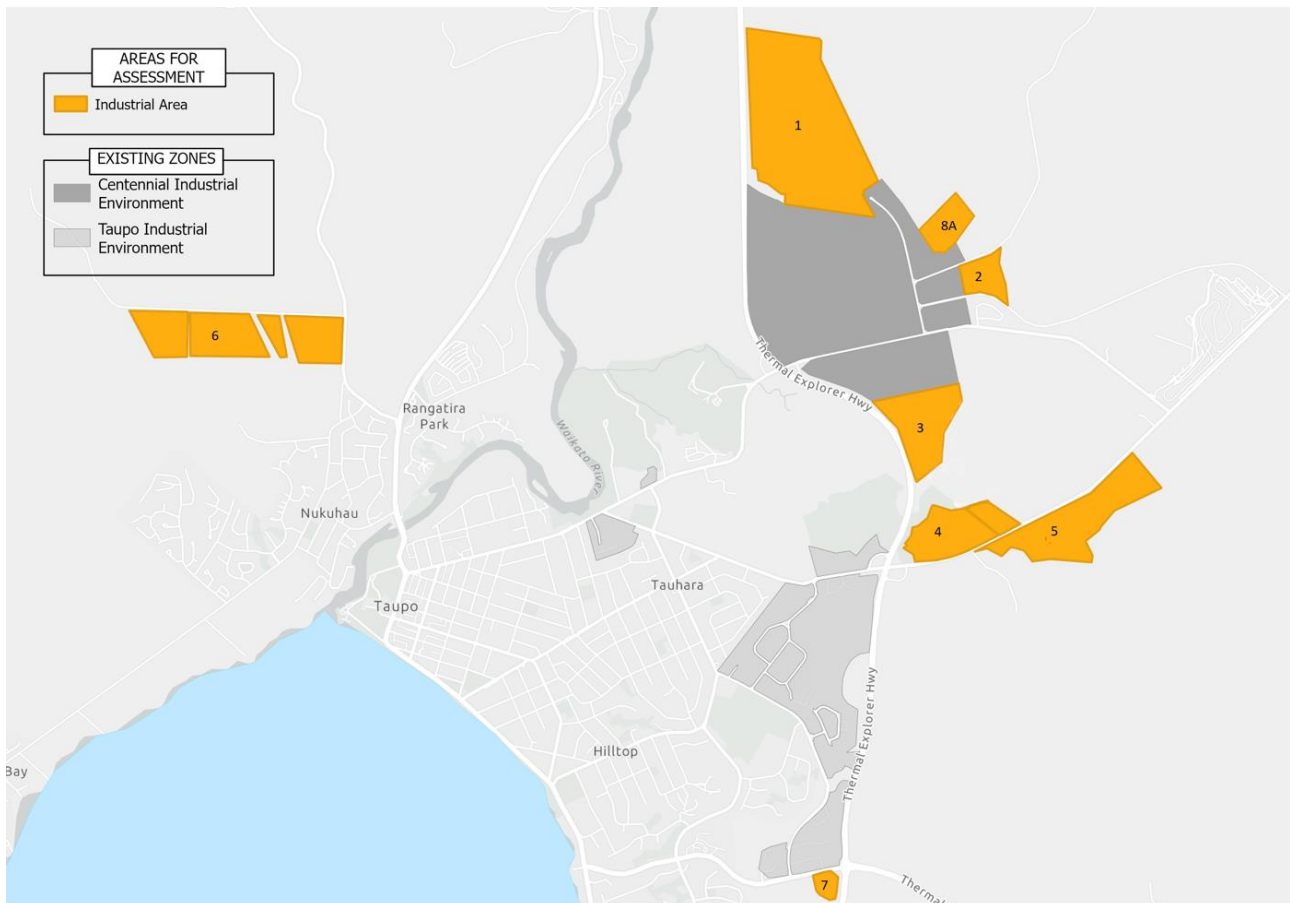


Figure 1.1 Map provided to Abley by TDC showing potential industrial sites in orange

This technical note is intended to assist TDC in being able to better understand the transportation implications for the rezoning of each industrial site. It is intended to inform TDC's future decision making in respect of industrial land supply selection in proximity to Taupō Township.

For completeness, it should be noted that Waka Kotahi should be consulted on any site in proximity to a State Highway. This is relevant for all sites except Site 6.

2. Methodology

The assessment methodology delivers a high-level multi-criteria transportation analysis of each site which compares the merits of the various sites.

Three criteria were used to score each site:

- Transport network capacity;

- Road safety performance; and
- Alignment with the Taupō District Council Transport Strategy – Connecting Taupō 2020-2050 (“Transport Strategy”).

It is noted that the seven priorities under the Transport Strategy includes consideration of network capacity and road safety, therefore the first two criteria do feed directly into the assessment of alignment with the Transport Strategy. Each of these three criteria are explained further in the following sections.

The results of this multi-criteria analysis can be used to compare each site against one another. Given that some sites are located close to one another, we have adopted a ‘cluster’ approach whereby we have assessed several sites collectively in cases where they will all affect the same part of the roading network.

2.1 Transport network capacity

Abley have first reviewed comments provided by TDC’s Asset Managers with respect to network capacity to ensure that this local knowledge is captured in the assessment.

The likely increases in peak hourly traffic volumes resulting from development have been calculated for each site, based on the land areas provided. A traffic generation rate of 15 vehicle movements/ha in peak hour has been applied which is broadly representative of light industrial activity traffic generation. It is noted that there may be some activities permitted in the Industrial zone that have the potential to generate a higher volume of traffic than this (such as trade-related retail activity), but equally there would be some activities that have the potential to generate a lower volume of traffic (such as some heavy industrial activities and warehousing). Hence it is considered that 15 vehicle movements/ha during peak hour is a reasonable figure, that will provide a realistic basis for comparing effects on the transport network.

The results of this multi-criteria analysis can be used to compare each site against one another, which will be useful for if TDC in the event that only a select number of sites are required to be rezoned. For the sake of clarity, whether or not sites are ‘required’ to be rezoned is to be determined by others.

2.2 Road safety performance

The collective and personal risk rating of each road has been extracted from Waka Kotahi’s Mega Maps¹ and this has been used to score each site and/or cluster with respect to road safety (included in the priorities assessment above). Definitions for Collective and Personal Risk are as follows:

- **Collective safety risk:** risk density measured as the number of fatal and serious casualties over a distance, e.g. deaths and serious injuries (DSI) per kilometre or within a set distance of an intersection; and
- **Personal safety risk:** risk to the individual of fatal or serious casualties per million vehicle kilometres travelled.

High-level crash analysis has been undertaken using Waka Kotahi’s Crash Analysis System (CAS)². The crash query has been used to determine if there are any obvious safety issues on the local

¹ <https://maphub.nzta.govt.nz/megamaps/?iss=https%3A%2F%2Fnzta.okta.com>

² <https://cas.nzta.govt.nz>.






network in the vicinity of each site. This has been purely quantitative based on the number of crashes reported in any given location. No detailed crash analysis has been undertaken.

The safety risk rating assessment and high-level crash analysis collectively provides an indication of potential safety risks which need to be considered prior to rezoning land.

2.3 Alignment with the 7 priorities contained within the Taupō District Council Transport Strategy – Connecting Taupō 2020-2050

Each site has been reviewed against the seven priorities in the Transport Strategy. As noted in the executive summary, the network capacity and road safety assessments align with two of the priorities, wherein the network capacity criterion is used to represent the “maintaining predictable travel times in the face of growth” priority and the road safety criterion represents the “safe” priority. The scoring system used to assess alignment with the Transport Strategy is a largely qualitative assessment as outlined below, however for the purposes of comparing sites a quantitative 1-5 score has been attributed to each rating.

Table 2.1 Qualitative evaluation symbology

Qualitative Rating	Symbol
Very Good	 5 points
Good	 4 points
Average	 3 points
Poor	 2 points
Very Poor	 1 point

The intent of this assessment is a multi-criteria analysis which can be used to simply compare the relative merits of each site. However as noted, given that some sites are located close to one another, a ‘cluster’ approach has been adopted whereby several sites that are located together score the same in the assessment. This clustering brings together the assessments for Sites 1, 2 & 8A, and Sites 3 & 4.

3. Site Identification & High-Level Review

3.1 Cluster 1 – Sites 1, 2 and 8A

The location of this site and proximity to the wider Taupō transport network is shown below.



Figure 3.1 GIS Image depicting locations of Sites 1, 2 and 8A (Cluster 1).

The following properties and accompanying land areas form Cluster 1

- Site 1: 887 Rakaunui Road – 105ha
- Site 2: 40 Aratiatia Road – 10.03ha
- Site 8A: 870 Rakaunui Road – 45ha (approx.)
- Total: **160.03ha** (approx.)

The site is located on the eastern side of the Eastern Taupō Arterial and is on the fringe of existing industrial activity to the south and west.

Network Capacity

Based on the above land area, a traffic generation of 2,400vph in the peak hours has been assumed at 15 vehicle movements/Ha in peak hour. This reflects the size of the land area (site one especially) and equates to 40 vehicles per minute if averaged across the full hour. This is a significant amount of traffic and would likely require additional arterial roads and/or connections to SH1 to be established. If direct access to the East Taupō Arterial were not achieved, the site one traffic would need to travel down

Rakaunui Road which is a cul de sac intersecting with Centennial Drive. This is a priority 'GIVE WAY' controlled intersection with GIVE WAY signage and road markings and a continuity line. There are currently no dedicated turning lanes. Rakaunui Road has a posted speed limit of 70km/h and Centennial Drive has a posted speed limit of 100km/h. With the anticipated increases in traffic volumes at this intersection improvements will need to be investigated for safety and efficiency reasons and other connections to the wider network will likely need to be established. It is noted that the Council's asset managers have already identified this is a consideration.

Once on Centennial Drive, traffic is provided with excellent access to the state highway network via existing on and off ramps connecting Centennial Drive with the East Taupō Arterial. Access to the town centre is also available via Spa Road. Depending on the extent of development across the 160 hectares and mix of activities, additional lane capacity may need to be established on some of these key corridors.

It is assumed that access to Site 8A would be obtained via Lot 11 DPS 37689, which is an approximately 10m wide corridor between 910 and 804 Rakaunui Road. Figure 3.1R of the Taupō Code of Practice³ requires a 23m wide reserve width for an industrial road such as this. It is therefore considered that options for alternative access would need to be considered if this land was developed for industrial purposes. Site 2 appears to have frontage to both Aratiatia Road and Off-Road Highway. This would also for suitable distribution of new development traffic onto Rakaunui Road.

Overall, this site is well located to access the State Highway network though there are localised network capacity effects that need to be considered prior to rezoning these sites, especially if the full land areas were developed with activities corresponding to traffic generation rates at the middle-upper end of the scale.

Road Safety Performance

The collective and personal risk of nearby roads as identified in MegaMaps is shown in the table below.

Table 3.1 Personal and Collective Risk Ratings

Road	Collective Risk	Personal Risk
Rakaunui Road	Low	Low
Aratiatia Road	Low	Low
Centennial Drive	Low-Medium	High

The below collision diagram from CAS shows the reported crashes in the vicinity of the site in the most recent 5-year period. The search area included all of Rakaunui Road and Aratiatia Road, and Centennial Drive from the Rakaunui Road intersection up to the State Highway on and off ramps. Ten crashes were reported. Four of these crashes resulted in minor injuries, one was serious, and one was fatal. The remaining four crashes did not result in any injuries.

³ <https://www.taupodc.govt.nz/repository/libraries/id:25026fn3317q9slqygym/hierarchy/our-council/policies-plans-and-bylaws/documents/Code%20of%20Practice%20Sept%202009.pdf>

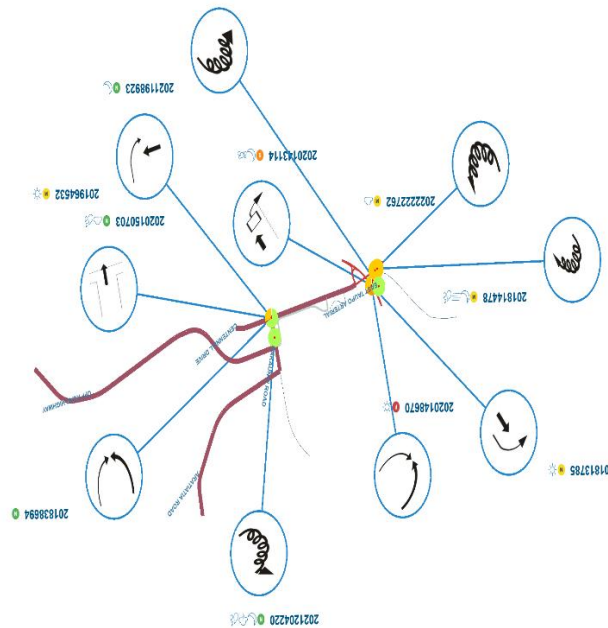






Figure 3.2 Collision diagram, Site 1

Alignment with Transport Strategy

The assessment against the seven Transport Strategy priorities is shown in the table below.

Table 3.2 Alignment with Transport Strategy priorities, Cluster 1

Transport Strategy Priority	Alignment Rating	Comments
Safe	↔ ↔ 3 points	The 'average' safety rating acknowledges the 'high' personal risk on Centennial Drive.
Maintaining Predictable travel times in the face of growth	↔ ↔ 3 points	There is the potential for the proposed rezoning to have a significant impact on the Council's ability to predict travel times in the future if the scale and nature of the activity is realised without sufficient new roading connectivity and lane capacity. This cluster is provided with excellent access to the State Highway network and avoids the need for industrial traffic to pass through residential areas thereby reducing the potential to impact on commuter travel times. Some localised capacity issues have been identified in the Network Capacity Assessment and these may be extensive depending on the scale and nature of the activity. These issues would be reduced if the size of the land area to be rezoned were to be reduced.
Inclusive	✘ ✘ 1 point	The site is distant from residential areas such that industrial workers are likely to rely

Transport Strategy Priority	Alignment Rating	Comments
		on private motor vehicle when travelling to the site.
Walking and cycling friendly to support sustainable choices	 1 point	There are no footpaths or cycle lanes on Centennial Drive or Rakaunui Road and the Transport Strategy does not indicate any future plans to provide these.
Supporting the vibrancy of Taupō 's town centres and fostering social and economic interactions	 5 points	The location of Cluster 1 is such that industrial traffic will be able to access the state highway network without having to pass through the Taupō Town Centre.
Well connected to the rest of New Zealand	 5 points	As noted above, the location of Cluster 1 provides excellent access to the state highway network with existing motorway on and off ramps connecting Centennial Drive with State Highway 1.
Resilient and reliable	 4 points	The transport network in proximity to Cluster 1 affords an adequate level of resilience because Centennial Drive links onto Broadlands Road as well as Spa Road. These linkages provide an alternative transport connection in the event of road closure during times of repair or emergency. However depending on the scale and nature of the activity additional arterial connections are likely to be required.
Total Points	22 points	

3.2 Cluster 2 – Sites 3 & 4

The location of this site and proximity to the wider Taupō transport network is shown below.



Figure 3.3 GIS Image depicting locations of Sites 3 & 4 (Cluster 2)

The following properties and accompanying land areas form Cluster 2

- Site 3: Part 261 Broadlands Road – **30ha** (approx.)
- Site 4: 63 Broadlands Road – 20ha with only **14ha** (approx.) developable
- Total: **44** (approx.)

Transport Network Capacity

Based on the above land area, a traffic generation of 660vph in the peak hours has been assumed at 15 vehicle movements/Ha in peak hour. This equates to 11 vehicles per minute if averaged across the full hour. Based on the site locations, it is expected that access to these sites would only be available via Broadlands Road although it is plausible that Site 3 may gain access via Centennial Drive as well, creating a local connection between Broadlands Road and Centennial Drive. Most vehicles would access to/from the west with traffic dispersing via SH1 and Broadlands Road to the west of SH1.

According to Mobile Roads, Broadlands Road has an estimated ADT of 2702 with 25.5% being heavy traffic. It is commonly accepted that peak hour traffic volumes equate to in the order of 10% of daily traffic volumes. Hence, Broadlands Road is currently estimated to carry approximately 270 vehicles in the peak hour (two-way). The introduction of an additional 660 two-way vehicle movements in the peak hour is therefore significant and depending on the full extent and nature of the activity has the potential to add congestion to Broadlands Road. However, it is expected that this is likely to remain within the capacity of Broadlands Road which would be in the order of 1400-1800 vehicles per lane per hour. There does remain some likelihood that additional capacity may be required between the accesses and SH1 if the traffic generation of the activities is at the upper end of the scale.

It is noted that as is the case for Cluster 1, Cluster 2 is similarly well located to access the State Highway network and therefore aligns with the Transport Strategy’s policy to zone industrial land close to the State Highway network. This improves accessibility and avoids the need for industrial traffic to pass through residential areas.

Road Safety Performance

The collective and personal risk of nearby roads as identified in MegaMaps is shown in the table below.

Table 3.3 Personal and Collective Risk Ratings

Road	Collective Risk	Personal Risk
Broadlands Road	Low-Medium	Low-Medium

The below collision diagram from CAS shows the reported crashes in the vicinity of the site in the most recent 5-year period. The search area included Broadlands Road from the East Taupō Arterial, past the intersection with Centennial Drive. A total of 14 crashes were reported. Three were fatal, one resulted in serious injuries, three resulted in minor injuries and the remaining seven did not result in any injuries. The reported crash data indicates existing safety issues on Broadlands Road between Centennial Drive and the East Taupō Arterial. With new conflict points and significant traffic increases this would require further investigation.

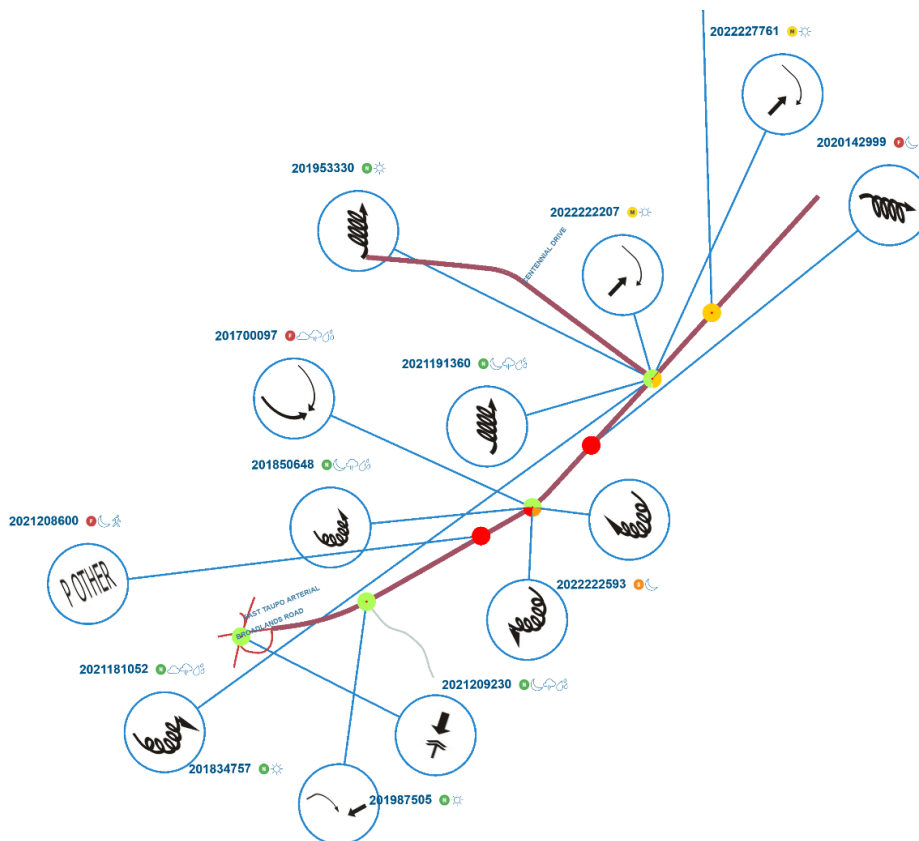









Figure 3.4 Collision diagram, Cluster 2

It is noted that the Council Asset Managers have highlighted Broadlands Road as having safety issues and have suggested vehicle speed reductions and limited access onto this road.

Alignment with Transport Strategy Priorities

The assessment against the seven Transport Strategy priorities is shown in the table below.

Table 3.4 Alignment with Transport Strategy priorities, Cluster 2

Transport Strategy Priority	Alignment Rating	Comments
Safe	 2 points	The CAS data indicates that there are safety issues on Broadlands Road. This will require further investigation if this land is to be rezoned and is likely to require reduction in vehicle speeds and access management as part of any development. It is acknowledged that the Transport Strategy highlighted Broadlands Road as being part of the ongoing Rural Road Safety Programme which suggests safety is likely to be improved in the future. Hence, this site receives a 'poor' rating as opposed to 'very poor'.
Maintaining Predictable travel times in the face of growth	 3 points	There is the potential for the proposed rezoning to have a significant impact on the Council's ability to predict travel times in the future if the scale and nature of the activity is realised without sufficient new roading connectivity and lane capacity. It is noted that the Council is also considering rezoning land for 'Rural Lifestyle' purposes further northeast along Broadlands Road. This would further increase traffic volumes and affect the composition of traffic due to a mix of industrial and residential land uses. Some localised improvements to increase capacity on Broadlands Road between the accesses and SH1 may be required depending on the scale and nature of the activity. These issues would be reduced if the size of the land area to be rezoned were to be reduced.
Inclusive	 2 points	The site is approximately 2km from the nearest residential area which is considered to be a walkable and cyclable distance for workers. However, there are no facilities for pedestrians or cyclists beyond (east) the Eastern Taupō Arterial overbridge. Therefore, this site receives a 'poor' rating for inclusivity.
Walking and cycling friendly to support sustainable choices	 1 point	There are no footpaths or cycle lanes on Broadlands Road east of the Eastern Taupō Arterial overbridge. It is therefore not considered that pedestrians and cyclists could safely access this land from the town centre.
Supporting the vibrancy of Taupō's town centres and fostering social and economic interactions	 5 points	The location of Cluster 2 is such that industrial traffic will be able to access the state highway network without having to pass through the Taupō Town Centre.
Well connected to the rest of New Zealand	 5 points	As noted above, the location of Cluster 2 provides excellent access to the state highway network with existing motorway on and off ramps connecting Centennial Drive with State Highway 1.
Resilient and reliable	 4 points	The transport network in proximity to Cluster 2 affords an adequate level of resilience because Broadlands Road links onto Centennial Drive as well as Tauhara Road / Spa Road. These linkages

Transport Strategy Priority	Alignment Rating	Comments
		provide alternative transport connections in the event of road closure during times of repair or emergency. However, depending on the scale and nature of the activity additional connections may improve resilience including establishing a local connection Broadlands Road and Centennial Drive.
Total Points	22 points	

3.3 Site 6

The location of this site and proximity to the wider Taupō transport network is shown below.

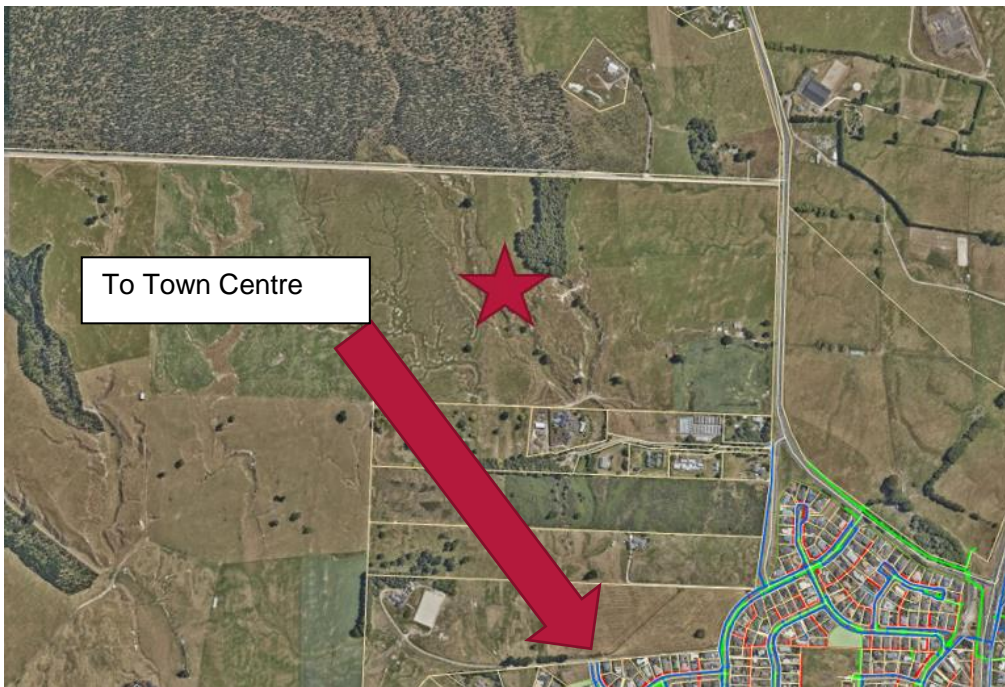


Figure 3.5 GIS Image depicting location of Site 6.

Information provided to Abley confirms an area of 45ha for Site 6.

Network Capacity

Based on the above land area, a traffic generation of 675vph in the peak hour has been assumed. This equates to 11.25 vehicles per minute if averaged across the full hour. This traffic would need to travel down Poihipi Road and Wairakei Drive, over the Control Gates Bridge when travelling into the Town Centre or toward State Highway 1. This will result in heavy traffic travelling past established residential land near the Poihipi Road / Wairakei Drive intersection. This intersection has already been highlighted as an area of concern by the Council’s asset managers from a capacity and safety perspective.

The Control Gate Bridge is the most direct connection between Site 6 to the town centre and the majority of residential areas which is an important consideration for staff commuting. Notably however the staff would likely be travelling across the bridge in contra-flow direction from the main commuter tidal flows but this would likely put additional pressure on the Wairakei Drive/Norman Smith intersection

and intersections along the length of Spa Road. Development of this site is envisaged to exacerbate existing capacity issues at these locations.

Road Safety Performance

The collective and personal risk of nearby roads as identified in MegaMaps is shown in the table below.

Table 3.5 Road Safety Performance Rating, Site 2

Road	Collective Risk	Personal Risk
Poihipi Road	Medium	Medium
Wairakei Drive	Medium-High	Medium

The below collision diagram from CAS shows the reported crashes in the vicinity of the site in the most recent 5 year period. The search area included Poihipi Road from Scoria Road to the intersection with Wairakei Drive. 18 crashes were reported. Two of these resulted in serious injuries, four resulted in minor injuries and the remaining 12 did not result in any injuries. Of particular note is that there are a cluster of injury crashes at the Poihipi Road / Wairakei Dr intersection although there have been recent improvements (including reducing the speed environment) and potentially further improvements at this location linked to PC37. In general terms the additional traffic associated with this site would exacerbate any safety concerns and should be investigated further.

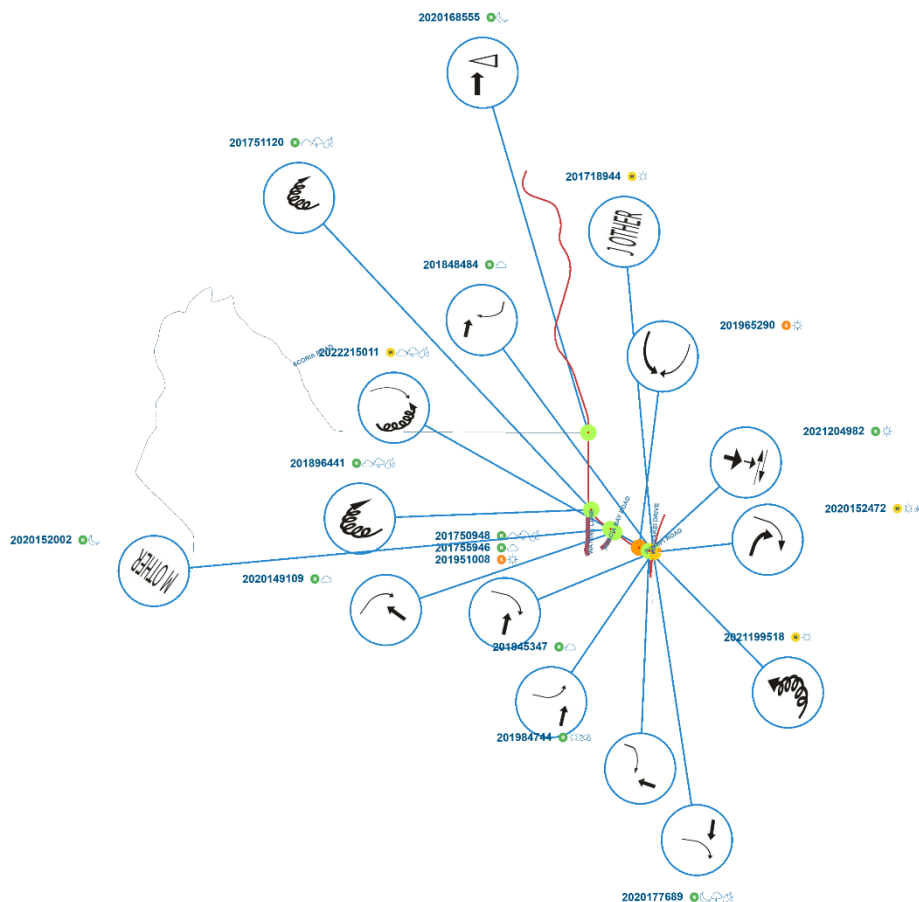









Figure 3.6 Collision diagram, Site 6

Alignment with Transport Strategy Priorities

The assessment against the seven Transport Strategy priorities is shown in the table below.

Table 3.6 Alignment with Transport Strategy priorities, Site 6

Transport Strategy Priority	Alignment Rating	Comments
Safe	 1 point	The Council has already identified the Poihipi Road / Wairakei Drive intersection as a concern. This development would add heavy traffic movements through this intersection and also past existing and planned residential development areas. This is likely to increase existing safety concerns and from a safety perspective this would not be a good outcome.
(Network Capacity) Maintaining Predictable travel times in the face of growth	 1 point	Development in this location would likely have a significant effect on travel times as it would add demand to part of the network that is already at or near capacity. Hence, additional flows over the Control Gate Bridge and at adjacent intersections during the commuter peak periods would exacerbate current congestion at peak times.
Inclusive	 3 points	The site is close to residential areas and relatively close to the town centre. It would therefore be feasible for some staff to use active modes of transport when travelling to the site for work.
Walking and cycling friendly to support sustainable choices	 3 points	The Transport Strategy recognises Poihipi Road as being a strategic long distance / sport riding road. As such, measures to support cycling safety are likely to be considered in the short-medium term. However, given the uptake of residential development in the area, introduction of industrial zoning would be incompatible with walking and cycling associated with those activities due to increased heavy vehicle movements.
Supporting the vibrancy of Taupō 's town centres and fostering social and economic interactions	 1 point	Rezoning this land would increase the potential and amount of industrial traffic travelling through Taupō Township. This would not support the vibrancy of Taupō 's town centre.
Well connected to the rest of New Zealand	 1 Point	The site is significantly distant from the state highway network. Furthermore, to access State Highway 1, there is the potential that some industrial traffic travelling to/from the south may travel down Spa Road and/or Lake Terrace to connect to SH1 south.
Resilient and reliable	 2 points	Alternative routes are available if Wairakei Drive was closed but depending on destination these are much longer. Hence, this reduces the resilience and reliability.
Total Points	10	

3.4 Site 7

The location of this site and proximity to the wider Taupō transport network is shown below.

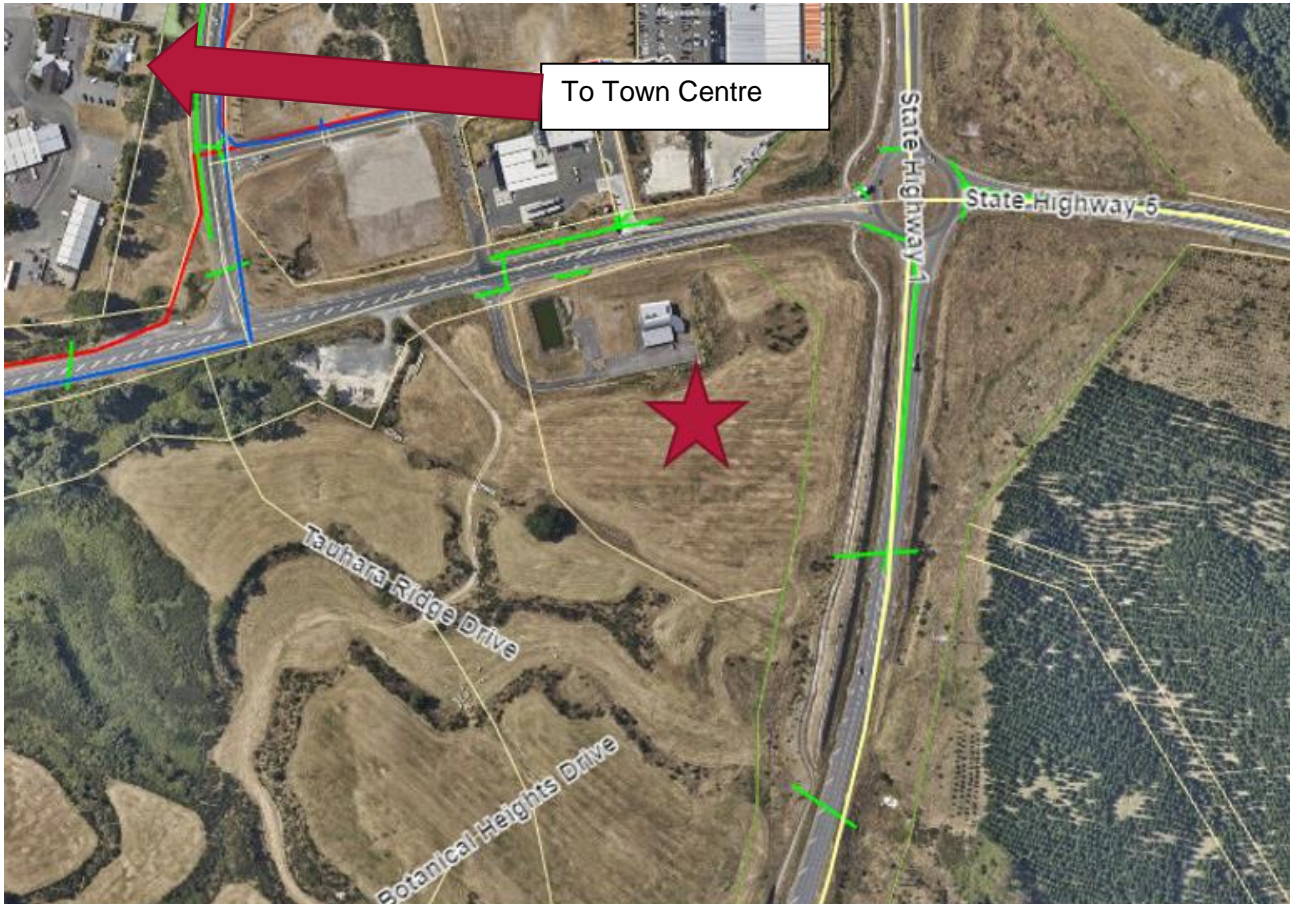


Figure 3.7 GIS Image depicting location of Site 7.

We have not been provided with the land area for Site 7, however, the Council’s rates maps show an area of about 3.5ha.

Network Capacity

Based on the above land area, a traffic generation of 52vph in the peak hour has been assumed. This equates to 0.86 vehicles per minute if averaged across the full hour. This traffic can turn right to access State Highway 1 or left toward the town centre but would require the access to be appropriately offset from adjacent intersections such that sight distances meet appropriate standards. Effects of this level of development on the capacity of the network would be imperceptible.

Road Safety Performance

The collective and personal risk of nearby roads as identified in MegaMaps is shown in the table below.

Table 3.7 Road Safety Performance Rating, Site 7

Road	Collective Risk	Personal Risk
------	-----------------	---------------

Napier Road (near roundabout)	Low-Medium	Medium
Napier Road (west of site)	Low	Low
State Highway 1 (north of roundabout)	Low-medium	Low
State Highway 1 (south of roundabout)	Low	Low

The below collision diagram from CAS shows reported crashes in the vicinity of the site in the most recent 5-year period. This shows a cluster of non-injury and minor injury reported crashes at the State Highway roundabout. This is as expected given the the traffic volumes and out of the 11 reported crashes at the roundabout only 2 resulted in minor injuries. The remaining 10 did not result in any injuries. This is typical for a roundabout where any collisions are less likely to result in DSI crashes due to lower operating speeds.

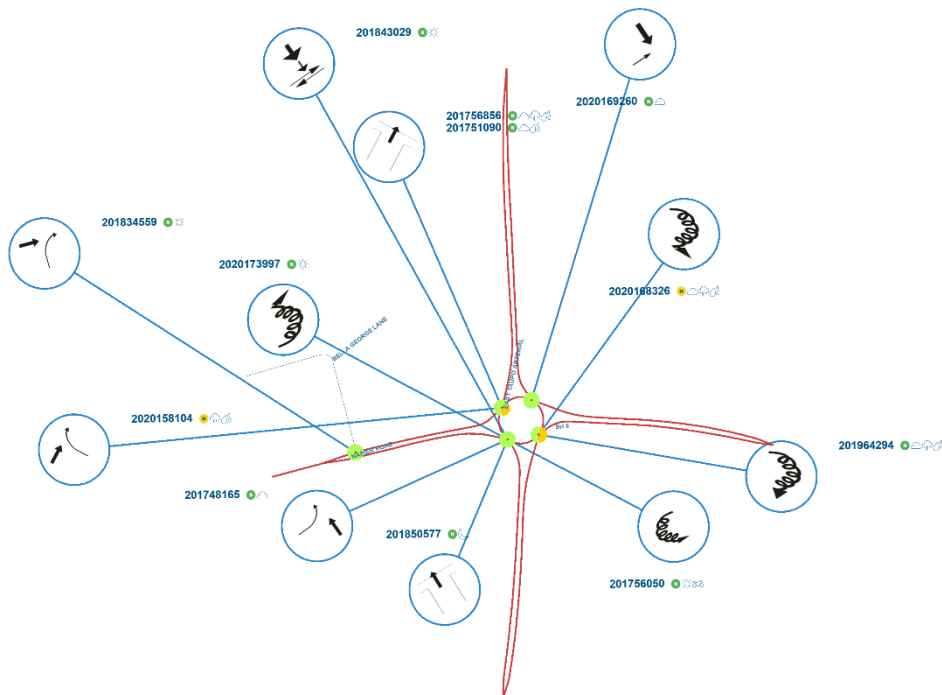









Figure 3.8 Collision diagram, Site 7

Alignment with Transport Strategy Priorities

The assessment against the seven Transport Strategy priorities is shown in the table below.

Table 3.8 Alignment with Transport Strategy priorities, Site 6

Transport Strategy Priority	Alignment Rating	Comments
Safe	 5 points	The CAS data shows a cluster of non-injury and minor injury reported crashes at the State Highway roundabout. This is as to be expected given the traffic volumes and out of the 11 reported crashes at the roundabout only 2 resulted in minor injuries. The remaining 10 did not result in any injuries. This is typical for a roundabout where any collisions are less likely to result in DSI crashes due to lower operating speeds.
(Network Capacity) Maintaining Predictable travel times in the face of growth	 5 points	Given the size of the area (and corresponding potential traffic generation) is small, development of this land would have minimal impact on travel times.
Inclusive	 2	The lack of footpaths, cycle lanes and bus servicing to the site results in a 'poor' rating. However, its proximity to the town centre is acknowledged and consequently avoids receiving a 'very poor' rating.
Walking and cycling friendly to support sustainable choices	 2	There are no footpaths or cycle lanes on Napier Road. However, this site receives a 'poor' rating rather than 'very poor' because of its proximity to the town centre.
Supporting the vibrancy of Taupō 's town centres and fostering social and economic interactions	 5 points	Industrial traffic would be able to access the state highway network without travelling through the Town Centre. This would have positive effects on its vibrancy.
Well connected to the rest of New Zealand	 5 points	The site is directly adjacent to the state highway network and aligns with the Transport Strategy commitment to zone industrial land close to state highway connections, therefore minimising industrial traffic travelling through residential areas.
Resilient and reliable	 4 points	Alternative connections to the state highway network are readily available, but these are convoluted and would require mixing industrial traffic with other types of traffic.
Total Points	28	

4. Summary

This technical note has evaluated eight sites (six of which assessed as two separate clusters comprising three sites each) in terms of road safety and network capacity performance. These have directly informed an assessment against the 'safety' and 'maintaining predictable travel times' priorities under the Transport Strategy. Each site has been scored based on its alignment with the full set of seven Transport Strategy priorities and the results are summarised in Table 4.1.

Table 4.1 Table showing comparative scores of multi-criteria analysis

Site	Result (points)
1, 2 & 8A	22
3, & 4	22
6	10
7	28

It is noted that this assessment has not applied any weightings to the seven priorities so essentially treats them as having equal importance. Should some priorities be considered to have more impact in terms of transportation impacts, it is recommended that a sensitivity test could be undertaken to improve the robustness of the assessment.

The unweighted results demonstrate that Site 7 is the most suitable for potential Industrial rezoning from a transportation perspective however it has a low yield. The relatively confined scale of Site 7 results in a lesser impact on the transport network, therefore scoring higher than other sites.

Clusters 1 (Sites 1, 2 & 8A) and 2 (Sites 3 & 4) have identical mid-range scores. Of note the scale of these Clusters is such that the full (or near full) development of these areas has the potential to require new roading connections and/or additional network capacity to be established especially if the industrial activities have relatively high traffic generation rates. It is recommended that a more conservative approach to limit traffic effects may be to rezone some but not all of the sites within these clusters.

Cluster 1 would be an extension of existing industrial zoning and is assessed as being generally suitable for rezoning from a transportation perspective but will require further investigation to address localised capacity issues, primarily at the Rakaunui Road / Centennial Drive intersection. Similarly with Cluster 2, road safety effects require further consideration due to existing safety issues identified on Broadlands Road.

This assessment has confirmed that Site 6 is the least suitable for potential industrial rezoning from a transport perspective out of all sites assessed, and scored poorly in terms of safety, connectivity, network resilience and travel time reliability priority areas.

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**APPENDIX D – PRELIMINARY DESKTOP GEOTECHNICAL
ASSESSMENT AND ADDENDUM REPORT (WSP
OPUS, SEPTEMBER 2022)**

Project Number: 2-38030.00

Taupō Industrial Plan Change

Preliminary Desktop Geotechnical Assessment

15 September 2022

CONFIDENTIAL



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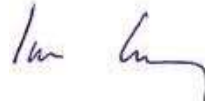
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Document History and Status

Revision	Date	Author	Reviewed by	Approved by	Status
A	12.08.2022	M. Phillips	I. Gray	H. Crawford	FINAL
B	07.09.2022	M. Phillips	I. Gray	H. Crawford	FINAL
C	15.09.2022	M. Phillips	-	-	FINAL

Revision Details

Revision	Details
A	This report has been issued for client consideration prior to completion of site walkovers for the ground truth preliminary geotechnical assessment that will substantiate the desktop assessment for selected sites.
B	Updated land parcel extents, numbering and associated changes to desktop assessment, inclusion of Waikato Regional Council contaminated land information.
C	Updated total area for Site 4 and associated maps



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Disclaimers and Limitations

This report (**'Report'**) has been prepared by WSP exclusively for Taupō District Council (**'Client'**) in relation to preliminary geotechnical assessment to inform the Taupō Industrial Plan Change (**'Purpose'**) and in accordance with the Consultancy Services Order dated 1 August 2022. The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information (**'Client Data'**) provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

1 Introduction

WSP has been engaged by Taupō District Council to carry out a preliminary desktop based geotechnical assessment to inform the proposed Taupō Industrial Plan Change (TIPC). The TIPC proposes to rezone rural land to industrial land.

This geotechnical report will form part of a Section 32 and Planning Assessment in support of additional industrial land supply to enable business growth and development in Taupō.

This assessment is a limited desktop study to screen proposed plan change sites for significant geotechnical risks, areas of concern and to form the basis for more detailed assessment in the future.

1.1 Planning Context

The level of geotechnical assessment required to inform a Plan Change is set out in Earthquake Geotechnical Engineering Practice Module 2¹. Module 2 provides minimum recommendations to support various land development scenarios. Minimum investigation requirements for a plan change involving land more than 10 hectares in size are as follows:

- 11 deep geotechnical investigation points for the first 10 hectares
- 1 deep geotechnical investigation point for every 4 hectares thereafter.

For context, two recent Private Plan Changes have occurred in the Taupō region, Whareroa (Plan Change 36 – rural to residential, 14.63 hectares) and Nukuhau (Plan Change 37 – rural to residential and medium density residential, 77.78 hectares).

Plan Change 36 was approved by a panel of independent commissioners without any deep geotechnical investigation being completed, on the basis that the Outline Development Plan (ODP) included a requirement for geotechnical investigation as a Preliminary Stage.

Geotechnical assessment and investigation consisting of 11 Cone Penetrometer Tests (CPTs), four rotary cored boreholes and four hand augered boreholes was carried out to inform Plan Change 37. Plan Change 37 was approved by a panel of independent commissioners.

This preliminary geotechnical desktop assessment contained herein is the first step in ensuring that high level theoretical geohazards are identified and can be managed so as not to create intolerable risk to future industrial development. Comprehensive site walkovers and deep geotechnical investigation will be required to further investigate geohazards that are identified through the desktop assessment process, either prior to the Plan Change or through an Outline Development Plan.

Geohazards will need to be evaluated based on the Waikato Regional Council Risk Management Framework (Section 13.1.1):

Regional and district plans shall incorporate a risk-based approach into the management of subdivision, use and development in relation to natural hazards. This should be in accordance with relevant standards, strategies and plans, and ensure that:

- a. new development is managed so that natural hazard risks do not exceed acceptable levels;*
- b. intolerable risk is reduced to tolerable or acceptable levels;*

¹ MBIE & NZGS, Earthquake Geotechnical Engineering Practice Module 2: Geotechnical Investigations for Earthquake Engineering, Rev 1, November 2021

- c. the creation of new intolerable risk is avoided;
- d. any intolerable risk as a result of existing use and development is as low as reasonably achievable; and
- e. where intolerable risk remains, the risks will be managed until an acceptable level is achieved

2 Methodology

The scope of works is limited to a desktop-based assessment of geotechnical hazards, including review of the following information:

- Published geological maps;
- Historic aerial imagery (Google Earth and Retrolens);
- Investigation data available on the NZ Geotechnical Database;
- Data available on Taupō District Council's GIS mapping service 'Mapi';
- Waikato Regional Council's Online Hazards Portal;
- Existing geotechnical investigation data available for the sites and/or neighbouring sites provided by TDC;
- Publicly available LiDAR;
- Settlement monitoring information provided by Contact Energy.

An overview of geo-hazards present within the Taupō region are first presented and possible constraints these hazards pose to development are discussed generally. Each site is then assessed for susceptibility to these hazards.

Site maps, including LiDAR contour maps are included in Appendix A.

3 Site Description

At the time of reporting the proposed plan change covers six general land areas, identified as Sites 1 to 4, 6 and 7 as detailed in Table 1. Sites 5 and 8A were removed from the geotechnical desktop assessment scope prior to reporting due to land encumbrances but are included in the table for completeness. The location of the sites is shown in Figure 1. The sites are generally located to the north, east and south of the established Taupō industrial area.

Table 1: Site details

Site No.	Site Name	Address	Legal Description	Approx. Land Area (ha)
1	Centennial Northern Extension	Rakaunui Rd	Part of Section 6 SO 438783	110
2	Centennial Eastern Extension	40 Aratiatia Rd	Lot 1 DP 429009	10
3	Centennial Southern Extension	261 Broadlands Rd	Part of Lot 1 DP 445148	28
4	Broadlands Road West	63 Broadlands Rd	Part of Section 14 SO 438782	20
5	Broadlands Road East			
6	Rangatira E	Scoria Rd	Pt Rangatira E Block ML 20386	90
7	Napier Road	189 Napier Rd	Lot 2 DP 499406	4
8A	Aratiatia Road			



Figure 1: Approximate location of sites (ref: TDC Mapi Online), note site 5 and 8A not shown

4 Geological Setting

The GNS New Zealand 1:250k geological map of the Rotorua² area indicates that the area encompassed by the proposed plan change is underlain by the Taupō Pumice Formation (Q1v). The Taupō Pumice Formation is described as non-welded, loose to poorly consolidated to sintered, white to pale grey rhyolite ignimbrite with white to pale pink pumice clasts; commonly includes charcoal fragments and logs; fall deposits; minor alluvium.

Pumice deposits expected to be encountered across the sites originate from eruptions within the Taupō Volcanic Zone and are typically lightweight, highly crushable and hence compressible which differentiates them from hard grained sand deposits.

5 Geotechnical and Geo-Environmental Hazards

5.1 Earthquakes

5.1.1 Faulting

There are many active faults within the Taupō District, mainly associated with the Taupō Rift. The GNS report titled 'Active fault hazards in the Taupō District'³ provides the most up to date information relating to faulting hazards in the region.

² Leonard, G.S., Begg, J.G., Wilson, C.J.N. (compilers) 2010. Geology of the Rotorua area. Institute of Geological & Nuclear Sciences 1:250000 geological map 5. 1 sheet + 102p. Lower Hutt, New Zealand.

³ GNS, Active fault hazards in the Taupō District, August 2020. GNS Science Consultancy Report 2020/31.

The GNS report references the Ministry for Environment 'Planning for Development of Land on or Close to Active Faults'⁴ which provides guidance for zoning and developing land near active faults. Industrial buildings will typically be classified Importance Level (IL) 2b, and therefore when considering a greenfields development generally should not be built within a fault avoidance zone relating to a fault with an average recurrence interval of less than 5,000 years.

Several active faults and associated fault avoidance zones are identified through the sites. Fault avoidance zones have been created by setting a 20m buffer either side of a mapped fault line to define the likely rupture zone. The three faults that pass through the sites, Aratiatia, Rotokawa and Karapiti are all well-defined and have an average recurrence interval of less than 2,000 years.

It should be noted that there are discrepancies between the latest GNS fault line mapping (most recent work) and the location of the faults on Taupō District Council's planning maps (which remain operative, but which we assume will be updated). The best example of this is on Site 3 where we have included both sets of fault traces. Although it is almost certain that the planning maps will be modified to reflect the latest mapping work in time, consideration needs to be given to all identified faults until proven otherwise. *Should Council choose to defer to the latest GNS mapping, we would support that stance and modify our report accordingly.*

5.1.2 Liquefaction

Liquefaction refers to the sudden loss in shear stiffness and strength of soils associated with the reduction in effective stress due to pore water pressure generation during cyclic loading caused by earthquake shaking⁵. Consequently, vertical ground settlement and lateral spread can result in significant damage to buildings and infrastructure.

Determining liquefaction susceptibility of pumice sand deposits is more difficult than common sedimentary soil deposits. Current empirical methods for liquefaction analysis based on penetration testing are not applicable to pumiceous soils⁶.

Waikato Regional Council completed a Level A liquefaction vulnerability assessment in accordance with the MBIE document titled 'Planning and engineering guidance for potentially liquefaction-prone land'⁷. The assessment defines areas as being 'possibly prone to liquefaction', 'unlikely prone to liquefaction' or 'undetermined'. Most of the Taupō township is 'undetermined'.

Taupō District Council is in the process of carrying out a liquefaction susceptibility mapping exercise for the Taupō Town, however this information is not yet publicly available.

Without pre-empting the actual outcomes of the Taupō District Council regional assessment, in general, the sites would not traditionally be viewed as susceptible to liquefaction given their elevation above significant surface waters and the resulting high groundwater, which is one of the key determinates to liquefaction occurring under seismic cycling. Having said that, the boundary conditions for liquefaction and/or lateral spread to occur are problematic to define on a desktop study. For example, perched groundwater levels, which can be localised, may be close enough to the surface and coincide with loose surface sands or silts and could result in manifestation of liquefaction at ground surface under seismic cycling. There have been instances of this in the Taupō district.

⁴ Ministry for the Environment, Planning for Development of Land on or Close to Active Faults, July 2003

⁵ MBIE/NZGS Earthquake Geotechnical Engineering Practice Module 3: Identification and Assessment of Liquefaction Hazards Rev 1, November 2021

⁶ Orense et al., Evaluating Liquefaction Potential of Pumiceous Deposits Through Field Testing: Case Study of the 1987 Edgecumbe Earthquake, NZSEE, June 2020

⁷ MBIE, Planning and engineering guidance for potentially liquefaction-prone land, Rev 0.1, September 2017

Deep geotechnical investigation and liquefaction analysis will be required to confirm the liquefaction susceptibility of the sites.

5.2 Land Instability

5.2.1 Landslides

There are no mapped landslides on or near the parcels of land identified for the proposed plan change. Most of the sites are flat and are more prone to land instability in the form of gully erosion, localised slope instability and tomo formation as described below.

5.2.2 Localised Instability and Gully Erosion

Many of the sites are scattered with naturally occurring, steeply incised gullies which have formed via erosion of the pumice deposits. The gullies can be seen on the LiDAR site maps included in Appendix A.

Slope stability is a common issue along the edges of the steep gully systems discussed above. Minimum set-back distances to slope crests are likely required to mitigate any affect slope instability may have on industrial development and associated infrastructure. Slope instability under earthquake loading will also need to be considered during development.

5.2.3 Tomo Formation

Tomos are commonly encountered throughout the pumice derived soils of the Taupō region. Tomos typically form due to some preferential flow of groundwater, which strips finer grains of the subsurface resulting in a void below the ground surface. Once the void grows to a size that can no longer be arched by the overlying soil there will be a collapse.

Tomos can be identified at surface only after collapse, and whilst underground voids can be intersected with deep investigation they are easily missed when using discrete investigation points.

Tomos that present at the surface after collapse are a significant hazard to the built environment. There are numerous examples in recent times of tomos affecting the local and state highway roading network as well as other network utilities.

Mitigation for commonly encountered tomos include excavation and replacement with compacted fill and diverting stormwater away from known tomo locations. Should deeper tomos ultimately be encountered, they are more difficult to manage and may only be able to be mitigated through development exclusion zones.

All sites identified in the proposed plan change are possibly affected by tomos.

5.3 Geothermal Hazards

5.3.1 Subsidence

Subsidence due to extraction of geothermal fluids for power generation and natural flows of geothermal fluids is a geohazard known to affect the Taupō township.

Waikato Regional Council have mapped the subsidence bowl associated with the Wairakei-Tauhara Geothermal Field, refer Figure 2. The subsidence bowl is indicated in yellow and areas where geothermal heat reaches the ground surface are shown in green. Several of the sites are located within the subsidence bowl.

Contact Energy actively monitors subsidence and have provided WSP with monitoring data for the period 2017 to 2021⁸. Most of the sites are located either wholly or partially within the area of subsidence.

The rate of future subsidence is entirely dependent on the rate of extraction and ability to counteract extraction effects with reinjection. Based on historic monitoring data, subsidence has the potential to result in differential settlement within the design life of a typical industrial building.

Differential settlement over a building footprint can cause significant serviceability issues, such as cracking of floor slabs and loss of access. Industrial activities that involve heavy machinery or activities such as high precision manufacturing can be highly sensitive to settlement related issues. Subsidence of this kind can typically only be mitigated through considered structural and foundation design that seeks to supply a solution for the design life of the structure, when balanced against the subsidence present at the time of that design.

Subsidence also has potential to affect the serviceability of infrastructure related to industrial development, such as roading, underground pipelines, drainage, and water supply. Effects can potentially be mitigated by incorporating flexible elements and resilient connection details.



Figure 2: Geothermal subsidence bowl (orange) and geothermal habitats (green), (ref: Waikato Regional Hazards Portal)

5.3.2 Hot Ground

A hot ground hazard area has been mapped by TDC to the east and north of the Taupō township.

Hot ground can be indicated at ground surface by sulphur patches, steam and/or poor vegetation growth. Aerial imagery suggests areas of geothermal heat reaching the ground surface are likely to be present on some of the sites proposed in the plan change. Site walkovers and temperature readings during intrusive investigation are required to confirm the presence of hot ground hazards.

⁸ Contact Energy, Figure 9, Subsidence Contour Plan of the 2017 to 2021 Survey Period (Southern Part), Taupō-Wairakei-Tauhara Rates of Ground Level Change in mm/yr, ref 21/1, 30 November 2021

Hot ground and geothermal gases are problematic for development but also have human health implications. Geothermal gases within the soil must be considered during development, with appropriate mitigation measures put in place.

Hydrothermal eruptions are also possible within geothermally active areas and are known to have occurred in the Broadlands Road area, most recently in 1981. High pressure geothermal pressure features such as geysers are extremely hazardous to life and development.

5.4 Flooding

The Taupō township is predominantly underlain by free draining pumiceous soils and therefore surface flooding issues are atypical for the area. Stormwater generally soaks away quickly into the natural deposits. There are however certain conditions where the soils act in a hydrophobic nature, resulting in very high runoff factors. This is typically during summer months where soil moisture is very low and Taupō experiences very intensive and localised cloud burst events. Careful civil design will be required to ensure that overland flow paths and surcharging stormwater systems are carefully considered.

None of the sites have been identified as having specific flood hazards, however it is possible for flooding to occur within the gully systems that are present on many of the sites. The gullies will naturally convey stormwater which can lead to erosion and slope instability risks that are discussed above. Modification of the gully systems can also have significant implications on flooding vulnerability to downstream land.

Stormwater drainage design for industrial development must consider these gully networks and will ultimately be subject to carefully considered discharge consents.

5.5 Expansive, Compressible and Sensitive Soils

Expansive soils are those which exhibit significant shrinking or swelling due to changing water content, generally described as plastic clays. Clays encountered in the Central North Island typically do not exhibit expansive behaviour.

We are not aware of any mapped areas of compressible or sensitive soils within the sites. However, compressible and/or sensitive soils may be present in areas across the sites, either widespread or highly localised and will likely only be identified through physical investigation. If identified on the sites these soil types will require testing and careful integration into development designs. These soils typically create challenges when additional load is applied, for instance within large bulk fills or within the foundation influence zone of a structure. If present, the extent and depth of these soils will determine the level of mitigation required through the designs of earthworks and foundation systems of structures which could include elements such as specifically designed culvert foundations, monitoring of bulk fill settlements or compensated building foundation systems.

5.6 Uncertified Fill

No areas affected by uncertified fill have been identified during this desktop assessment. Uncertified fill is difficult to identify via desktop assessment, except for larger scale earthworks that can be picked up on historic aerials. Site walkovers and intrusive investigation will be required to confirm the absence of uncertified fill. It should be noted that most of the sites have been subject to pastoral or cropping farming activities over time, and which both almost certainly have had soils modification to a degree.

Construction of the East Taupō Arterial (ETA) in the early 2000s has modified ground levels near several of the sites. Although it is assumed that all filling activities associated with the ETA construction were controlled and certified appropriately, however this has not been checked as part of this assessment, and there may be areas that were used for bulk unsuitable soil disposal.

5.7 HAIL Sites

A site is considered to be contaminated when hazardous substances are found at significantly higher concentrations than their normal levels, and there is likely to be a risk to human health or the environment. Potentially contaminated land is land that has been used for an activity that is more likely than other activities to cause contamination⁹. The Hazardous Activities and Industries List (HAIL) prepared by the Ministry for the Environment is used to help identify potentially contaminated sites.

Identified HAIL sites require additional investigation and assessment to determine implications on industrial development. Site remediation may be required for contaminated sites.

The Waikato Regional Council (WRC) holds information relating to HAIL sites in the region. A request was submitted to WRC for information held on their Land Use Information Register. Parts of two of the sites appear on the Land Use Information Register, specific information is contained in the following site-specific sections.

One of the sites also appears on Taupō District Council's District Plan as a known contaminated site, due to the use of sewerage irrigation.

⁹ Waikato Regional Council, Contaminated Land, <https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/> [accessed 10.08.2022]

6 Centennial Northern Extension (Site 1)

The Centennial Northern Extension site is located at the northern end of Rakaunui Road and is bounded by the ETA (State Highway 1) to the west. Based on aerial photography, the site is currently open pasture with a farm track running through the middle. The site slopes downwards to the northwest. A large cow shed and effluent ponds are located towards the southern site boundary.

Table 2: Summary of Site 1

Hazard	Description
Faults	Two splays of the Aratiatia fault are mapped within the site with associated fault avoidance zones. The Aratiatia Fault has an estimated recurrence interval of less than 2000 years.
Liquefaction	Undetermined
Land Instability (including erosion)	Southwestern boundary of the site borders a steeply incised gully that flows to the Waikato River, localised slope instability and erosion risk.
Geothermal & Hot Ground	No geothermal features identified, not within the mapped hot ground zone
Subsidence	Partially within subsidence bowl, rate of subsidence for 2017-2021 measured at 0mm to 5mm per year.
Uncertified Fill	None identified. Certified fill associated with the ETA construction likely extends along the western site boundary.
Flooding	Flood risk not identified
Contaminated Land	The site is a 'Known Contaminated Site' (C13) as per the District Plan due to the use of sewerage irrigation and farming activities. Part of the site also appears on the WRC Land Use Information Register as LUI12269, classified as unverified HAIL due to past land use for HAIL activity 'A8 livestock dip or spray race'. Contaminated land investigation and assessment required.
Existing Geotechnical Investigation Data	Multiple shallow CPTs, two deep boreholes and several test pits carried out along the western and eastern property boundary as part of the ETA design phase. Investigations show ground conditions consistent with regional geology - pumiceous SAND/Gravelly SAND with some Sandy SILT layers.

7 Centennial Eastern Extension (Site 2)

The Centennial Eastern Extension site is accessed from Aratiatia Road and is bounded by the Off Road Highway to the south. The site is largely bare grassland, with a workshop/shed structure in the northwest corner of the site with a sealed accessway and small ancillary structures. A water tank is located on an elevated point in the centre of the property. A paper road with a high pressure gas pipeline cuts through the section of the site.

Table 3: Summary for Site 2

Hazard	Description
Faults	There are no mapped faults within the site.
Liquefaction	Unlikely
Land Instability (including erosion)	No gullies identified in aerial photography. Signs of instability identified on the southern hillside. Surface expression of tomos or other erosional feature possibly identified to the east of existing workshop.
Geothermal & Hot Ground	No geothermal features identified, not within the mapped hot ground zone.
Subsidence	Wholly within subsidence bowl, rate of subsidence for 2017-2021 measured at 5mm to 10mm per year.
Uncertified Fill	None identified
Flooding	Flood risk not identified
Contaminated Land	None identified
Existing Geotechnical Investigation Data	Closest investigation data is 500m west of the site (NZGD).

8 Centennial Southern Extension (Site 3)

The Centennial Southern Extension is a parcel of land between Broadlands Road and Centennial Drive, just south of the Te Huka Power Station. The site is just north of a geothermally active landform and a fault line cuts through the southern end of the site. The site is currently undeveloped, with a portion covered in pine trees and the rest of the site appears to be used for grazing.

Table 4: Summary for Site 3

Hazard	Description
Faults	There is an active fault line mapped along the southern boundary of the site, and fault avoidance zones are also mapped just east of the site, orientated in a northeast to southwest direction. The faults are traces of the Rotokawa Fault which has an estimated recurrence interval of less than 2000 years. Fault mapping along the southern boundary of the site is likely required.
Liquefaction	Part of the site is undetermined; part of the site is unlikely.
Land Instability (including erosion)	Multiple overland flow paths with potential for erosion issues identified throughout the site.
Geothermal & Hot Ground	The site is just south of the Te Huka Power Station which is owned and operated by Contact Energy. Expression of geothermal activity at ground surface identified just west of the site, possible that surface vents are located within the site. Hot ground hazard area mapped to the south of the land parcel.
Subsidence	Wholly within subsidence bowl, rate of subsidence for 2017-2021 measured at 0mm to 15mm per year.
Uncertified Fill	None identified. Certified fill associated with the ETA construction likely extends along the western site boundary.
Flooding	Flood risk not identified
Contaminated Land	None identified within the parcel proposed for plan change, however the property does appear on the WRC Land Use Information Register as LUI07784 related to the Te Huka Power Station/Tauhara One.
Existing Geotechnical Investigation Data	Several test pits, hand augers, CPTs and boreholes completed along the western property boundary as part of the ETA design phase. Investigations show ground conditions consistent with regional geology – pumiceous Sandy GRAVEL with some silt.

9 Broadlands Road West (Site 4)

Site 4 is located between State Highway (SH) 5 and Broadlands Road. The site is largely undeveloped, with one building located towards the Broadlands Road access. The site slopes downwards from east to west, towards a mapped geothermally active area.

A Preliminary Geotechnical Assessment Report was prepared by Cheal in 2018¹⁰ to inform design of a commercial development over part of the site. The report concluded that the site is geotechnically suitable for the commercial development proposed subject to recommendations in the report. The Cheal assessment included a site walkover and shallow hand investigation.

Table 5: Summary for Site 4

Hazard	Description
Faults	There are no mapped faults within the site, however the Rotokawa Fault is mapped just north of the site and it is possible that traces of the fault could continue through the site. Fault mapping within the site may be required.
Liquefaction	Part of the site is undetermined; part of the site is unlikely.
Land Instability (including erosion)	Multiple overland flow paths with potential for erosion issues identified throughout the site. Cheal did not identify any active erosion within the portion of site they assessed. Cheal did identify <i>'isolated small sinkholes, one with dumped farming waste'</i> within the portion of site they assessed.
Geothermal & Hot Ground	The western portion of the site is located within the Hot Ground Hazard Area and there are indications on aerial images that surface vents are present within the site.
Subsidence	Wholly within subsidence bowl, rate of subsidence for 2017-2021 measured at 5mm to 20mm per year.
Uncertified Fill	None identified
Flooding	Flood risk not identified
Contaminated Land	None formally identified. Farming activities evident on site, contaminated land investigation and assessment likely required. Cheal identified dumped farming/building waste on site.
Existing Geotechnical Investigation Data	Several test pits, hand augers, CPTs and boreholes completed just west and south of the site as part of the ETA design phase. Investigations show ground conditions consistent with regional geology – pumiceous Sandy GRAVEL with some silt. Eight DCPs and one hand auger were carried out by Cheal on the site, with associated ground temperature readings.

¹⁰ Cheal, 63 Broadlands Road, Taupō, Preliminary Geotechnical Assessment Report for Mega Food Services Ltd. (ref: 17685), 22 March 2018

10 Rangatira E (Site 6)

The Rangatira E site is largely undeveloped pasture, with some residential housing and farm buildings located within the eastern extent of the land parcel. The site is just north of the Acacia Bay residential area and is most easily accessed from Poihipi Road. Gullies scar the surface of the site, and there are indications of prevalent erosion.

Table 6: Summary for Site 6

Hazard	Description
Faults	Active fault traces of the Karapiti Fault and associated fault avoidance zones cross the site. The Karapiti Fault, which has a recurrence interval of less than 2000 years.
Liquefaction	The site is partially undetermined, partially unlikely.
Land Instability (including erosion)	Multiple gullies identified on aerial imagery, tracking north to south through the land parcel. Indication of erosional issues and local instability along gully walls. Complex landforms.
Geothermal & Hot Ground	No geothermal features identified, not within the mapped hot ground zone.
Subsidence	Partially within subsidence bowl, rate of subsidence for 2017-2021 measured at 0mm to 5mm per year.
Uncertified Fill	None identified
Flooding	Flood risk not identified
Contaminated Land	None identified
Existing Geotechnical Investigation Data	The closest investigation data available on the NZGD is associated with the Nukuhau Private Plan Change, approximately 130m south and also just east of Poihipi Road. Investigations show ground conditions consistent with regional geology.

11 Napier Road (Site 7)

The Napier Road site is located to the southwest of the Napier/Taupō Highway Roundabout. The site is currently home to a commercial building, paved carparking areas and a large water storage pond. The area south of the building is undeveloped.

HD Geo Ltd completed a Preliminary Geotechnical Assessment¹¹ for this site in November 2021 that was informed by a site-specific geotechnical investigation. The report was prepared to support a Resource and Subdivision Consent application for a commercial development on the site. The report concluded the following:

“The site has no major geotechnical hazards or considerations and is geotechnically suitable for the proposed subdivision. Further assessment will be needed to inform development and foundation design across the site, particularly in the areas of uncontrolled fill”.

Table 7: Summary for Site 7

Hazard	Description
Faults	There are no mapped faults within the site.
Liquefaction	Insignificant – based on results of HD Geo’s Preliminary Geotechnical Assessment.
Land Instability (including erosion)	No evidence of erosion or instability identified on aerial photography, likely overland flow of stormwater in an east to west direction based on LiDAR. Historic gullies appear to have been infilled based on historic aerial imagery, possible erosion risk.
Geothermal & Hot Ground	No geothermal features identified. The southern extent of the site is within a Hot Ground Hazard Area.
Subsidence	Not located within subsidence bowl.
Uncertified Fill	Uncertified fill identified during investigation completed by HD Geo, in various locations between 0.1m and 2.7m below ground level. Certified fill associated with ETA construction likely extends along the eastern and northern site boundary.
Flooding	Flood risk not identified
Contaminated Land	None identified, uncertified fill may require testing.
Existing Geotechnical Investigation Data	Six test pits, 10 hand augers, six CPTs and one machine drilled borehole were completed on the site by HD Geo Ltd in 2021/2022. Investigations show ground conditions consistent with regional geology. Many of the investigation points identified hot ground.

¹¹ HD Geo Ltd, 189 Napier Road, Taupō, Preliminary Geotechnical Assessment, ref: HD2092, PGR-1, 1 November 2021

12 Summary & Conclusions

A preliminary desktop assessment has been carried out for six sites that form part of an Industrial Plan Change in Taupō. This preliminary assessment is intended to screen sites for geotechnical and geo-environmental hazards which have potential to create 'intolerable risk' to future industrial development.

The following conclusions can be made from the desktop assessment:

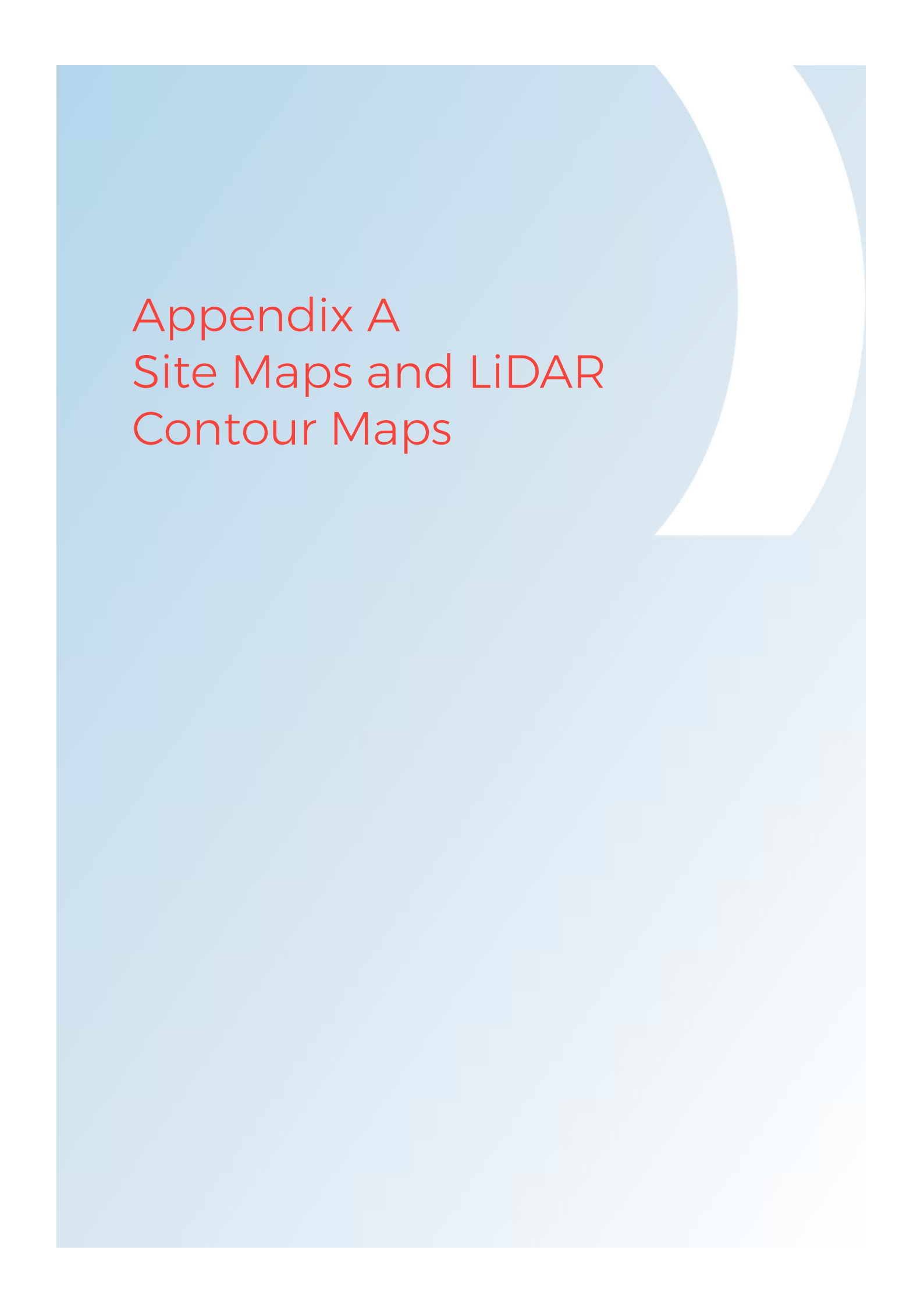
- Fault traces and fault avoidance zones are present on many of the sites. Detailed fault trace mapping is recommended for Sites 1, 3 and 6. Fault avoidance zones should be enacted for industrial development.
- Liquefaction susceptibility should be reviewed once the regional assessment is completed by TDC, as liquefaction hazard for most of the sites is undetermined. Site specific testing is required for all sites to assess susceptibility of the sites to liquefaction and the impact this may have on industrial development.
- Sites 1, 4 and 6 are affected by steeply incised gully systems which are likely prone to localised slope instability and ongoing erosion.
- All sites are potentially affected by tomo formation which can be a considerable risk to industrial development.
- Geothermal hazards are present on or very close to Sites 3, 4 and 5.
- Subsidence from extraction of geothermal fluids is known to affect Sites 1, 2, 3, 4 and 6. Future subsidence linked with geothermal activities is entirely dependent on extraction and reinjection rates, development of these sites will require careful consideration of the implications of both total and differential settlement.
- Site 1 is a known contaminated land site, whilst not expected to prohibit industrial development a contaminated land investigation and assessment will be required.

A site walkover is recommended to identify geomorphological features that are not easily identified from aerial imagery. For example, expression of tomos at ground surface would indicate a higher risk of tomo formation underground. A walkover will also aid in identification of geothermal features by observing sulphur patches, steam, and/or poor vegetation growth.

Several geotechnical investigation data points are available for Site 7, however investigation data is extremely limited for all other sites. Whilst a desktop assessment is appropriate to screen sites for potential hazards, a ground investigation is required to further define the risk that those geohazards pose to industrial development. Development of a comprehensive geotechnical investigation plan is recommended once site walkovers have been completed. It needs to be noted that site specific information (invasive testing, modelling and assessment) provided here may well be superseded once detailed work has been completed.

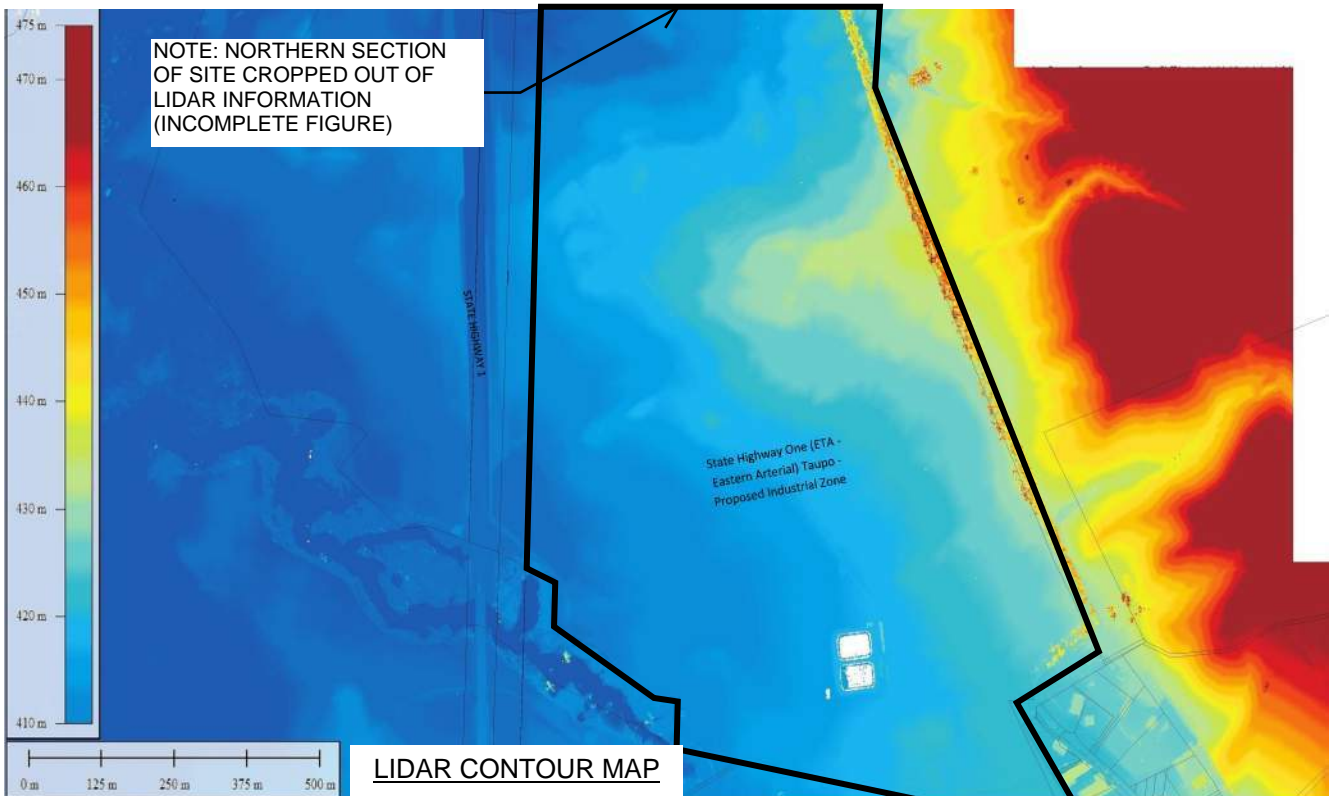
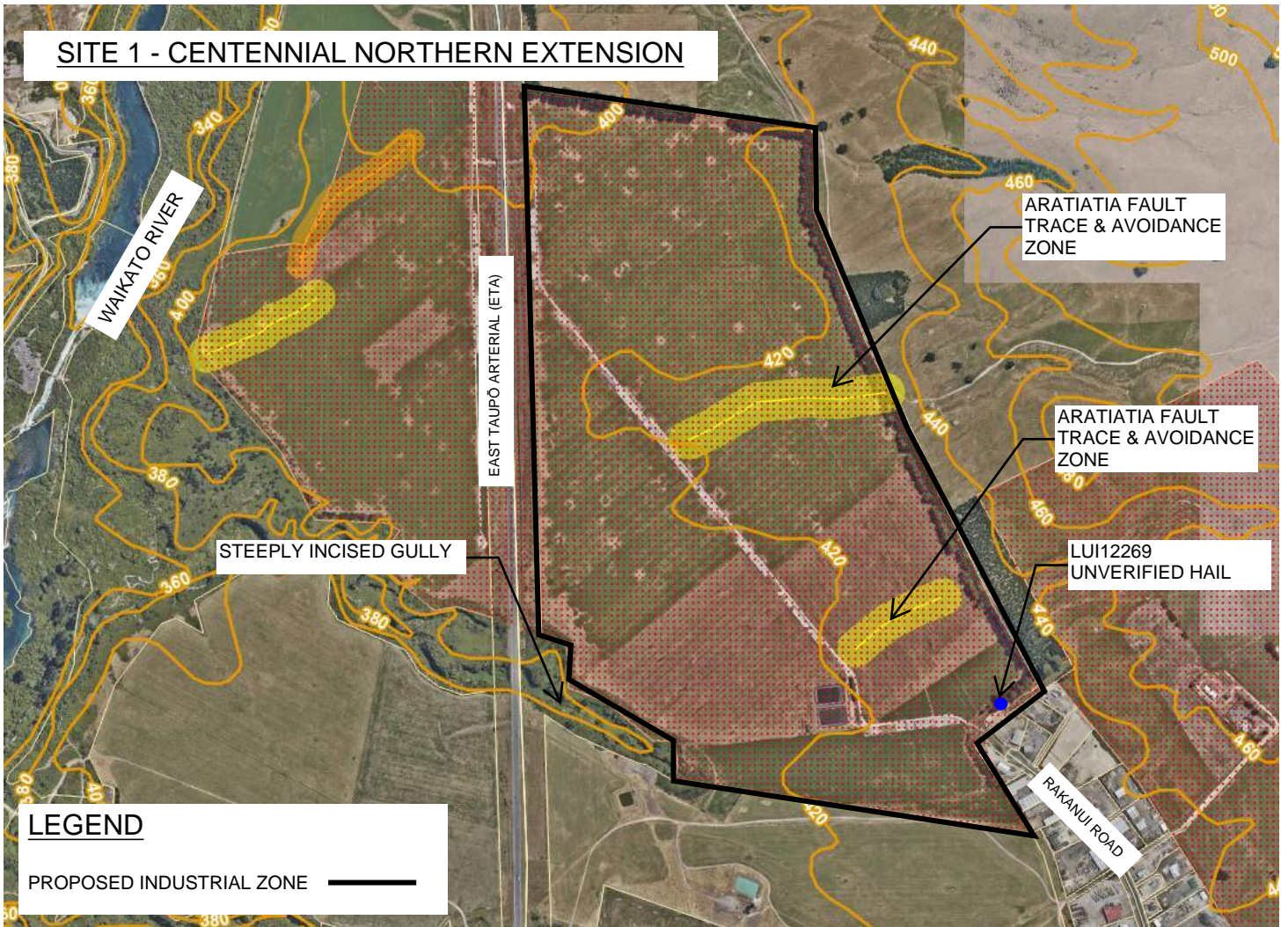
It is recommended that geotechnical investigation, including fault trace mapping and liquefaction analysis are completed either prior to re-zoning of the land parcels or as a requirement within an Outline Development Plan (ODP).

Further conversations with Contact Energy are also required to better understand future subsidence predications and constraints this may pose to industrial development.

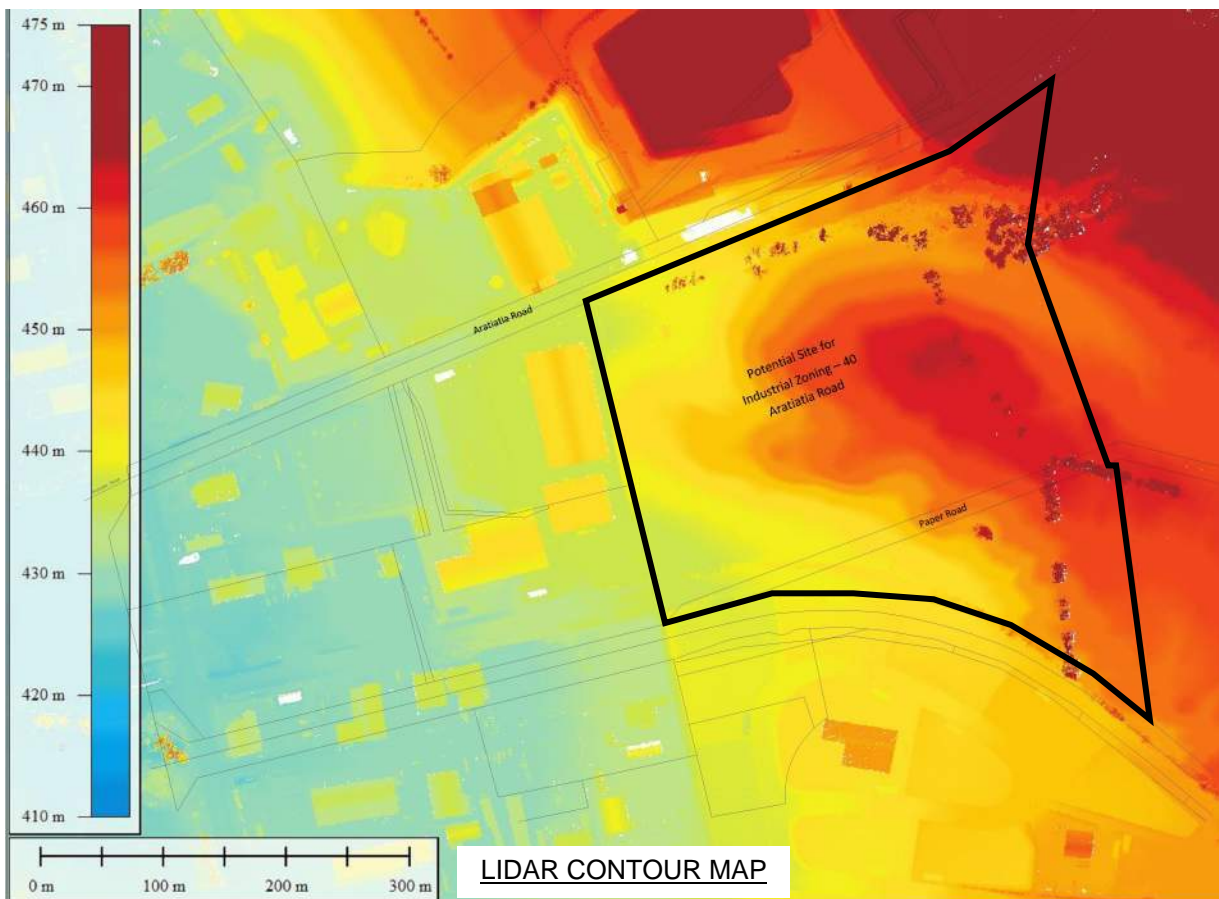


Appendix A Site Maps and LiDAR Contour Maps

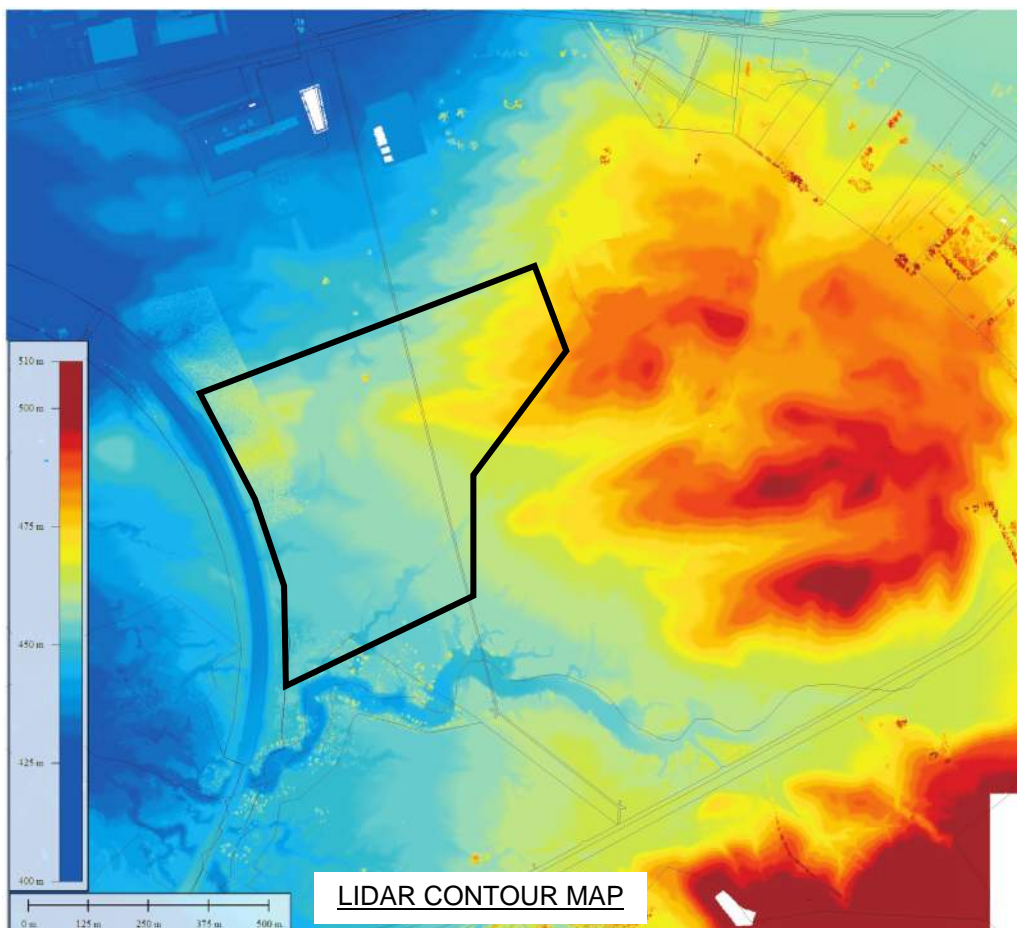
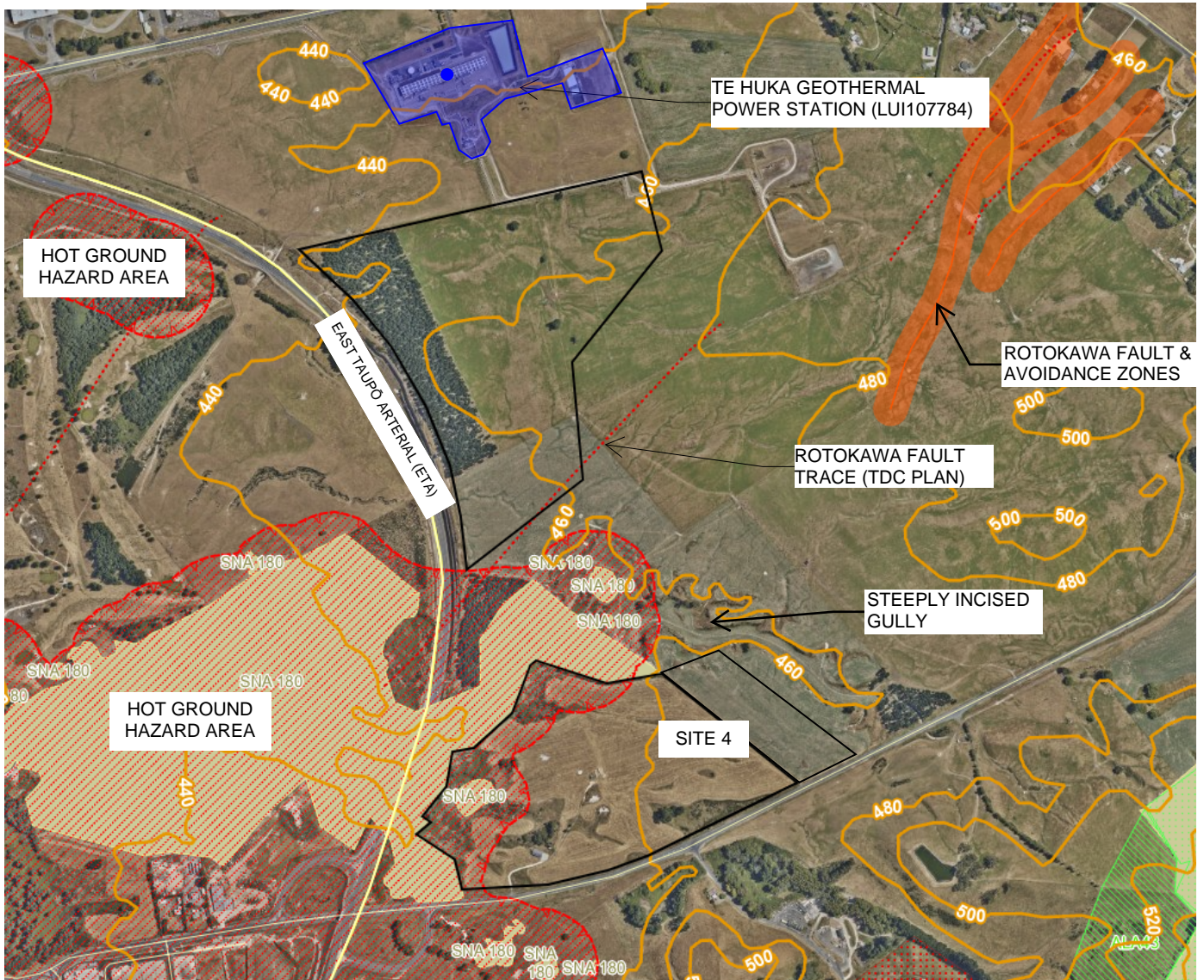
SITE 1 - CENTENNIAL NORTHERN EXTENSION



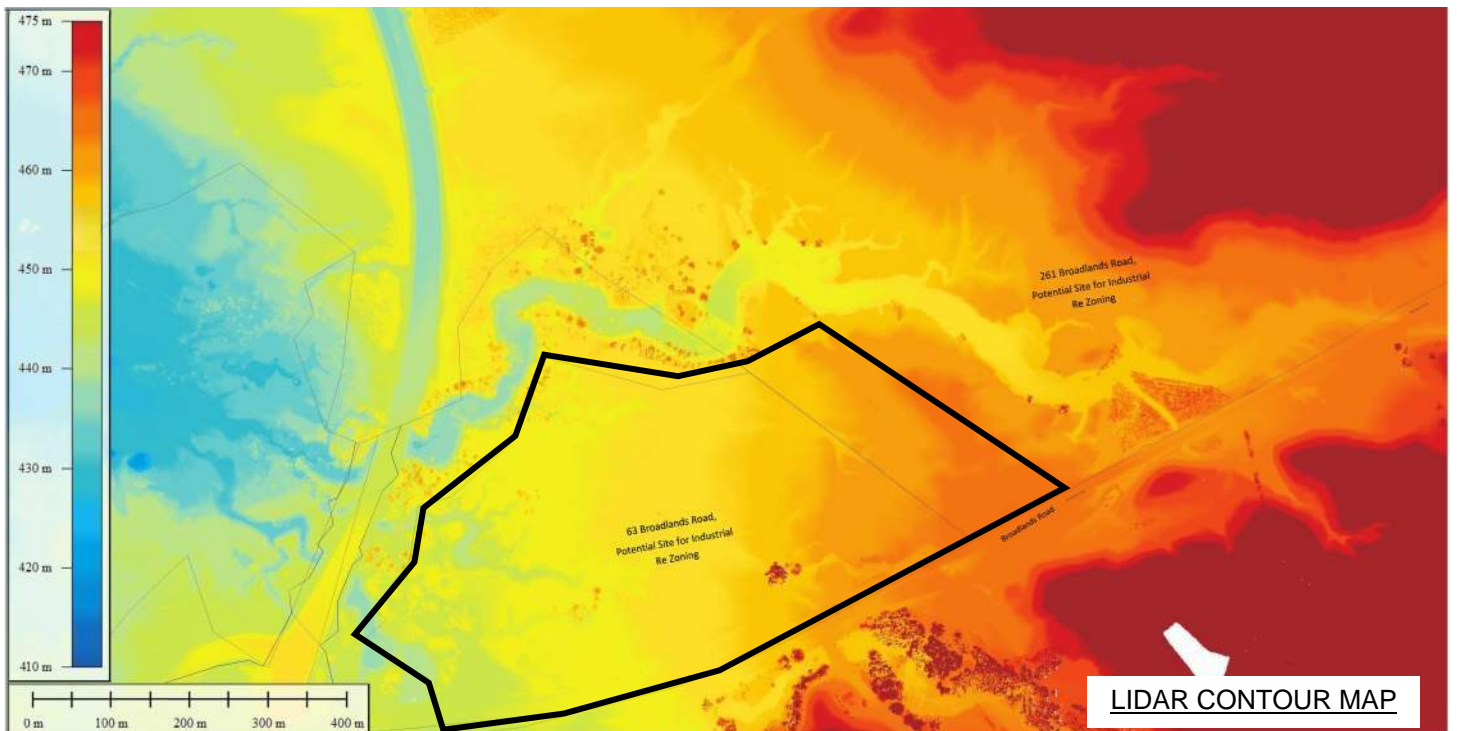
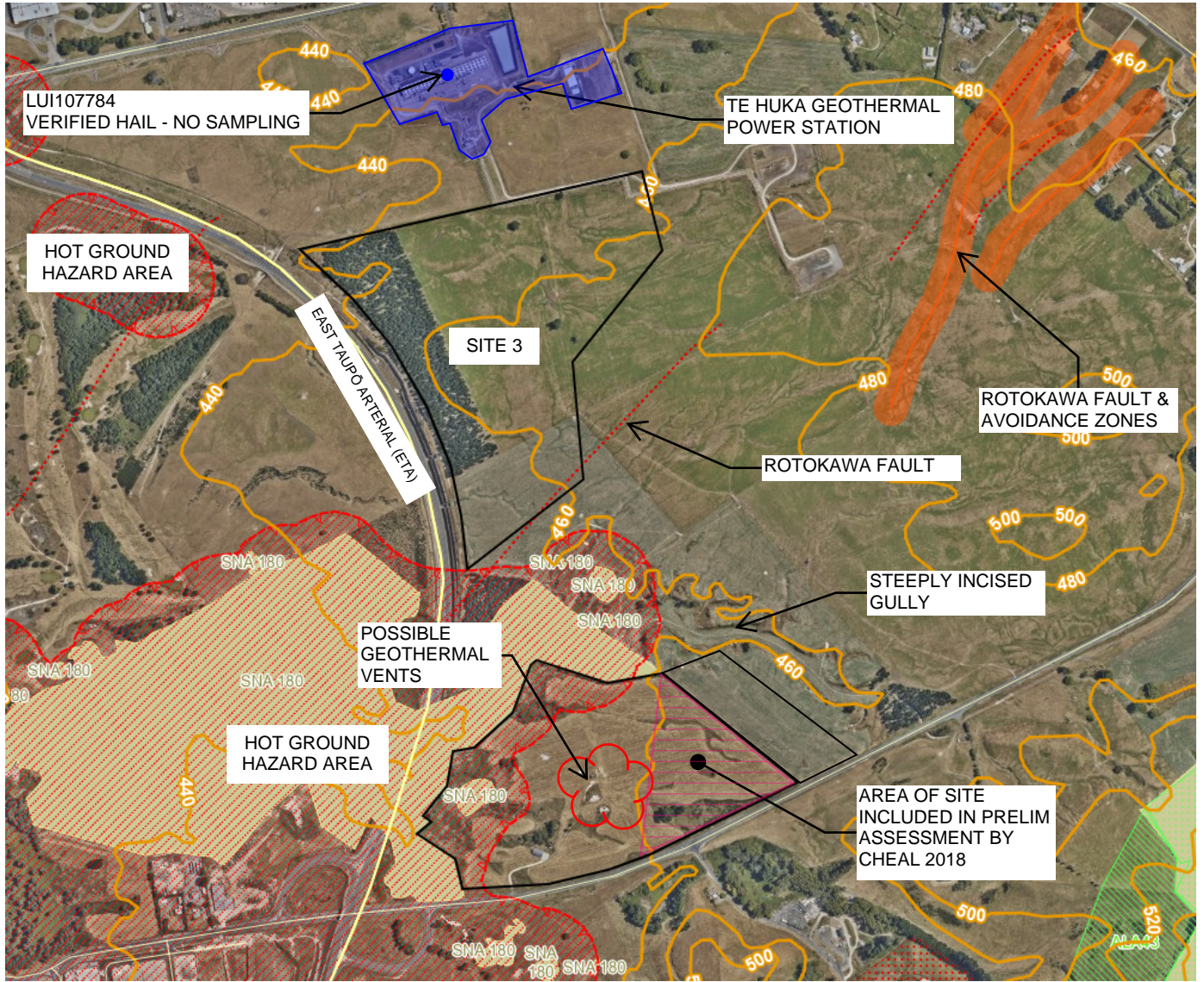
SITE 2 - CENTENNIAL EASTERN EXTENSION

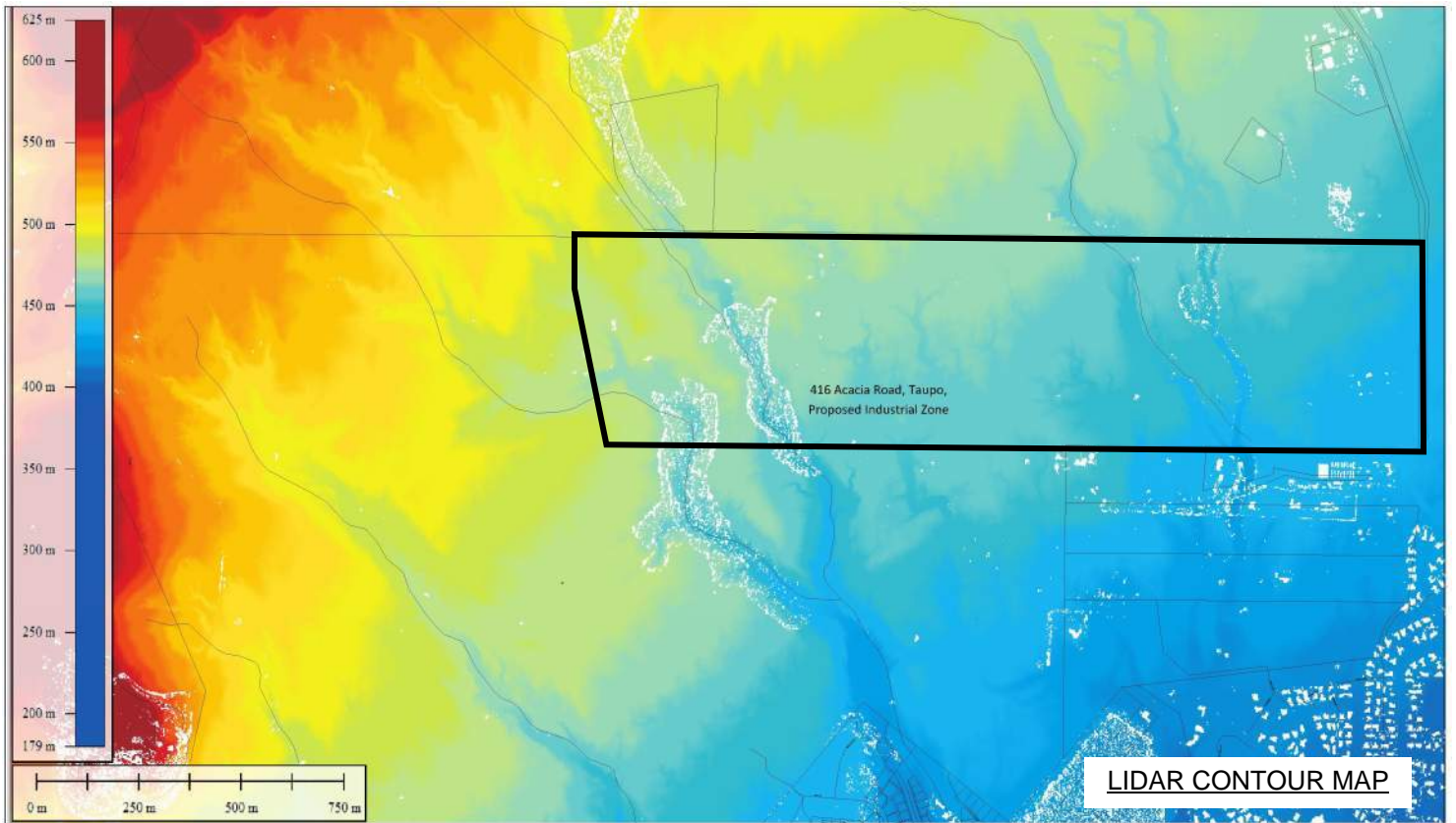
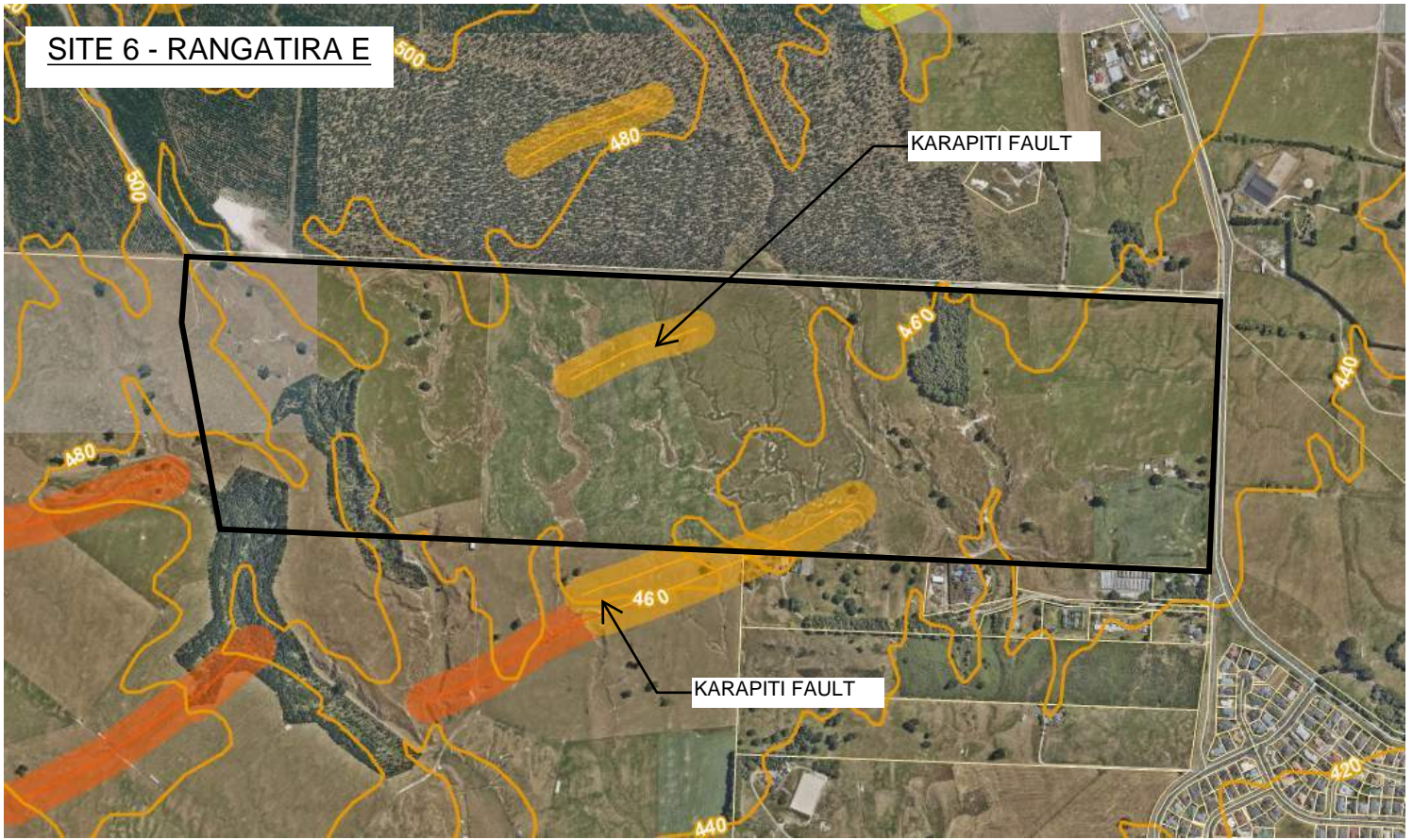


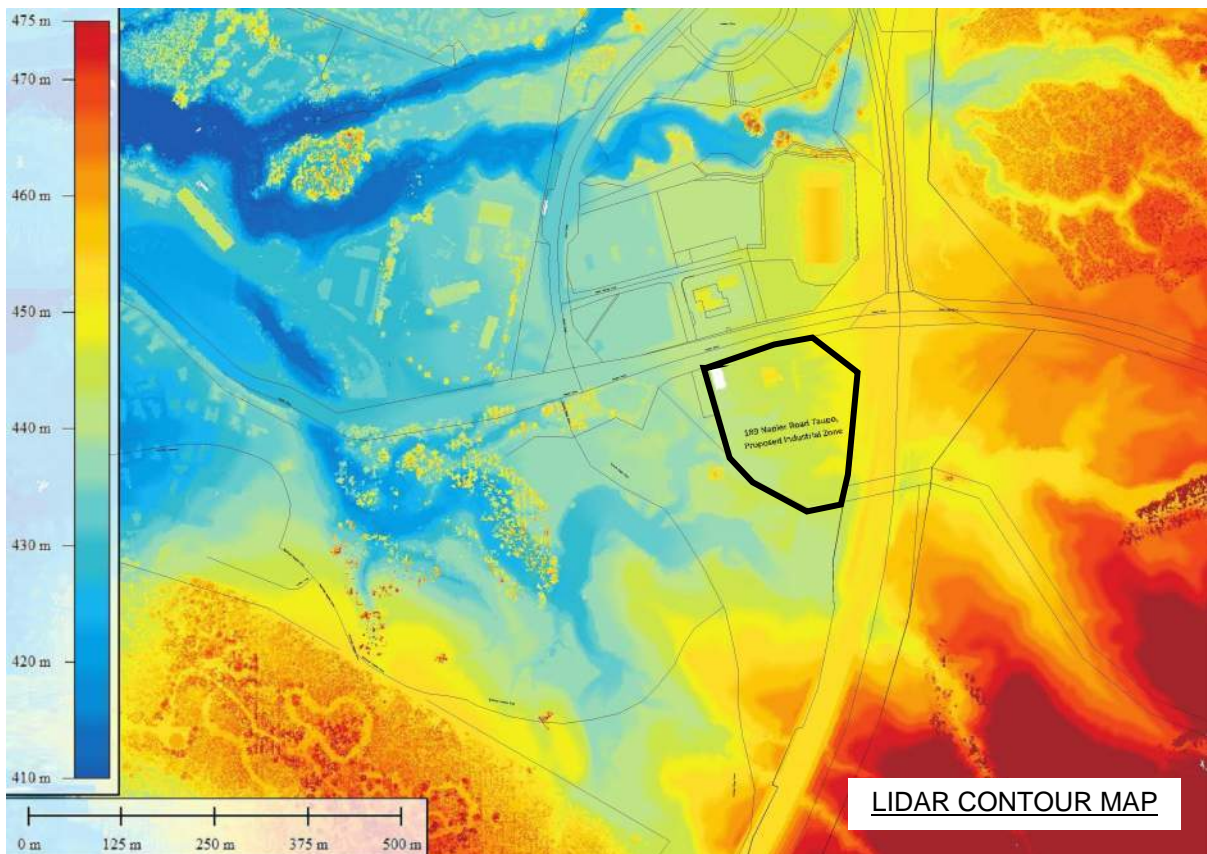
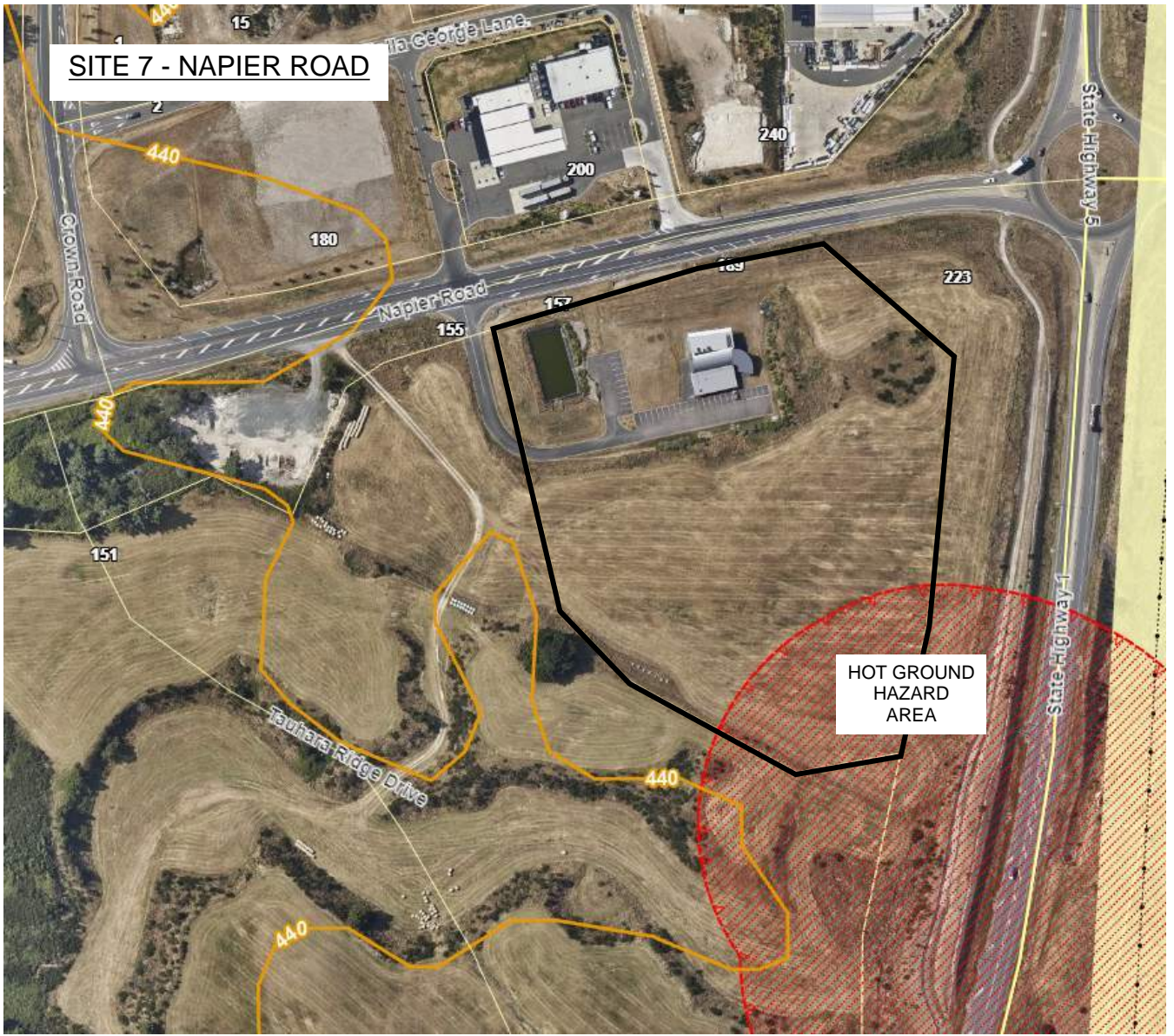
SITE 3 - CENTENNIAL SOUTHERN EXTENSION



SITE 4 - BROADLANDS ROAD WEST







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Taupō Industrial Plan Change

Preliminary Geotechnical Assessment Addendum Report

15 September 2022

CONFIDENTIAL



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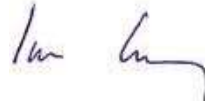
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Revision Details

Revision	Details
A	Original document
B	Updated total area for Site 4 and associated maps



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Disclaimers and Limitations

This report (**'Report'**) has been prepared by WSP exclusively for Taupō District Council (**'Client'**) in relation to preliminary geotechnical assessment to inform the Taupō Industrial Plan Change (**'Purpose'**) and in accordance with the Consultancy Services Order dated 1 August 2022. The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information (**'Client Data'**) provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

1 Introduction

WSP has been engaged by Taupō District Council to carry out a preliminary geotechnical assessment to inform the proposed Taupō Industrial Plan Change (TIPC). The TIPC proposes to rezone rural land to industrial land.

This geotechnical assessment will form part of a Section 32 and Planning Assessment in support of additional industrial land supply to enable business growth and development in Taupō.

A desktop geotechnical assessment was completed by WSP and summarised in the report titled 'Taupō Industrial Plan Change, Preliminary Desktop Geotechnical Assessment' dated 7 September 2022. The assessment was a limited desktop study to screen proposed plan change sites for significant geotechnical risks, areas of concern and to form the basis for more detailed assessment in the future.

Following the initial assessment, WSP completed a walkover at the following sites:

- Site 3 - Centennial Southern Extension
- Site 4 - Broadlands Road West
- Site 7 - Napier Road

This addendum report summarises observations from these walkovers for each of the sites and further details geotechnical hazards to potential industrial development. An indication of geotechnical investigation requirements is also included where required.

This report must be read in conjunction with WSP's Preliminary Desktop Geotechnical Assessment Report dated 7 September 2022.

2 Site Description

Sites 1 and 2 have been removed from the proposed plan change at the time of reporting due to constraints on potential re-zoning.

WSP's initial desktop assessment identified several geotechnical risks and areas of concern on Site 6 and therefore, without extensive geotechnical investigation and assessment, WSP is not able to make conclusions about the potential presence of intolerable risks on the site. For this reason, a site walkover was not completed for Site 6.

This report, therefore, covers three general land areas, identified as Sites 3, 4 and 7, as detailed in Table 1. The location of the sites is shown in Figure 1. The sites are generally located to the east and south of the established Taupō industrial area.

Table 1: Site details

Site No.	Site Name	Address	Legal Description	Approx. Land Area (ha)
3	Centennial Southern Extension	261 Broadlands Road	Part of Lot 1 DP 445148	28
4	Broadlands Road West	63 Broadlands Road	Part of Section 14 SO 438782	20
7	Napier Road	189 Napier Road	Lot 2 DP 499406	4



Figure 1: Approximate location of sites (ref: TDC Mapi Online)

3 Centennial Southern Extension (Site 3)

The Centennial Southern Extension is a parcel of land between Broadlands Road and Centennial Drive, just south of the Te Huka Power Station. The site is just north of a geothermally active landform and a fault line cuts through the southern portion of the site. The site is currently undeveloped with a portion covered in pine trees and the rest of the site appears to be used for grazing.

A walkover of the site was completed by WSP staff on 3 August 2022.

The walkover confirmed that there are some localised erosional issues scattered over the site associated with preferential overland flow of stormwater. Stormwater generally track east to west, towards the steep roadside cuttings of the East Taupō Arterial (ETA). There are several stormwater attenuation systems located within the roadside cuttings to manage the flow of stormwater from Site 3.

Due regard to changes in the stormwater conveyance regime must be given, particularly if earthworks were proposed which modify existing overland flow paths. For example, an industrial development will result in increased impermeable ground cover, and therefore an increased volume of stormwater that is potentially conveyed towards the ETA. The downstream effects of this increase in stormwater conveyance must be considered as part of industrial development of the land, particularly the potential for erosion and subsequent instability of the roadside cuttings. Some form of holistic stormwater management plan should be considered. The potential for preferential flows (subterranean tracking) underground due to modification to the landform must also be considered as part of land development.

Slope instability was not identified as a risk in the desktop assessment, however the rolling hills observed during the site walkover along the eastern property boundary do indicate stability issues to be considered. Some shallow erosional scars were observed but no evidence of large-scale or deep seated instability were observed. Quantitative stability analysis will be required to inform any modification in and around the hills as part of future development.

Expression of geothermal activity at ground surface was not identified outside the area designed as the 'Hot Ground Hazard Area'. Ground temperature readings during geotechnical investigation will be required to determine if the hot ground hazard extends beyond the perimeter of the hazard area. We would also recommend comment be sought from GNS as to the most likely future state/migration/reduction of those features to inform suitable development boundary or building offsets.

Expression of tomos at ground surface were not specifically identified during the walkover but this does not exclude the site from the risk of tomos.

Expression of the Rotokawa Fault that is mapped through the southern boundary of the parcel was not immediately obvious during the site walkover. It should be acknowledged that the definitive identification of this type of feature is very specialist work and beyond the high level of this initial work stream. Trenching to accurately map the fault and define a Fault Avoidance Zone is required. Development should not be allowed at least 20m either side of the mapped fault and may need to be increased depending on the ability to accurately map the fault.

Whilst certain areas of the site are not suitable for development due to the fact that intolerable risk from natural hazards exists (faulting), geotechnical hazards present within the remaining areas are likely to be able to be reasonably mitigated as part of engineering design of future industrial development. Having said that, geotechnical investigation is required to confirm this statement.

Subsidence due to extraction of geothermal fluids is potentially a significant constraint for industrial development to overcome at this site. Potential differential settlement based on measurements from the 2017-2021 period are in the order of 15mm over a distance of

approximately 760m. Contact Energy engaged GNS to re-forecast future subsidence within the area, and the assessment is summarised in GNS Science Consultancy Report 2021/63. The centre of the Spa-Rakaunui subsidence bowl is estimated to subside an additional 4mm by 2030, before pressures result in an uplift of 6mm by 2061 at the end of the forecasted period.

Subsidence in the order of 4mm over a significant distance is unlikely to result in differential settlement greater than is typically allowed for / is tolerable for building construction (for example, when projecting these ground changes across a foundation for the design life of that structure). There are, however, considerable uncertainties when considering estimation of future subsidence and therefore risk mitigation may still be appropriate for the site. It should also be noted that some industrial activities can be extremely sensitive to differential settlement and may not be appropriate for these sites.

Geotechnical investigation, fault trace mapping and liquefaction analysis should be completed prior to re-zoning of the land or included as a requirement within an Outline Development Plan to confirm the ability to mitigate against geotechnical hazards described in this report through engineering design. Currently, no site specific testing has been completed at the site.

Geotechnical investigations should be carried out in accordance with the recommendations included in the Earthquake Geotechnical Engineering Practice Module 2 unless specific reasons are provided and accepted by the Territorial Authority for deviation from the recommendations. Based on recommendations in Table 2.1 of Module 2, a total of 16 deep intrusive geotechnical investigation points are required to inform a detailed assessment and guide a plan change of this size.

Geotechnical investigation and assessment should focus on:

- Defining the Rotokawa Fault trace;
- Preliminary stability analysis of rolling hills to the east of the site;
- Developing a ground temperature profile starting from the margins of the mapped hot ground hazard area;
- Determining the groundwater profile and hence susceptibility to liquefaction and risk of subsurface water flows;
- Understanding the most likely future state of the thermal features.
- An appropriate stormwater management plan.

The following photos are included as a representation of the site walkover that was completed.



Figure 2: View roughly northwest, with rolling hill to the right



Figure 3: Example of localised instability due to erosional issues

4 Broadlands Road West (Site 4)

Site 4 is located between State Highway (SH) 5 and Broadlands Road. The site is largely undeveloped, with one building located towards the Broadlands Road access. The site slopes downwards from east to west, towards a mapped geothermally active area.

A Preliminary Geotechnical Assessment Report was prepared by Cheal in 2018¹ to inform design of a commercial development over part of the site. The report concluded that the site is geotechnically suitable for the commercial development proposed subject to recommendations in the report. The Cheal assessment included a site walkover and shallow hand investigation.

A walkover of the site was completed by WSP on 3 August 2022.

Expression of geothermal activity at ground surface was identified outside the area designed as the 'Hot Ground Hazard Area'. The walkover confirmed the presence of hot ground in the centre of the site, where possible vents were identified on aerial photography. Steam was not venting at the time of the site walkover but the ground was warm to touch and no vegetation was growing in the area. Hot ground will need to be investigated and development should be excluded where geothermal activity is expressed at ground surface. Ground temperature readings during geotechnical investigation will be required to determine how far the hot ground hazard extends beyond the perimeter of the mapped hazard area. Specialist assistance from GNS should be sought to better quantify what may happen with these features in the future,

Expression of tomos at ground surface were not specifically identified during the walkover but small sinkholes were noted in the Cheal 2018 report and therefore warrants more investigation.

Similarly, to Site 3, due regard to changes in the stormwater conveyance regime must be given, particularly if earthworks were proposed to modify the existing overland flow regime. The downstream effects of this increase in stormwater conveyance must be considered as part of industrial development of the land. The potential for preferential flows underground due to modification to the landform must also be considered as part of land development. This is particularly the case where deeply incised landform features (gullies) sit in close proximity to ground disposal networks for the stormwater systems. In these cases, gully sides provide an easy pathway for concentrated stormwater to 'short circuit' out the gully sides.

The Rotokawa Fault is mapped to the northeast of the site, but no traces have been identified within the parcel of land.

Whilst certain areas of the site are not suitable for development due to the fact that intolerable risk from natural hazards exists (hot ground), geotechnical hazards present within the remaining areas are likely to be able to be reasonably mitigated as part of engineering design of future industrial development. Having said that, geotechnical investigation is required to confirm this statement.

In addition, subsidence due to extraction of geothermal fluids is potentially a significant constraint for industrial development to overcome at this site. Potential differential settlement based on measurements from the 2017-2021 period are in the order of 15mm. Contact Energy has engaged GNS to re-forecast future subsidence within the area and the assessment is summarised in GNS Science Consultancy Report 2021/63. The centre of the Spa-Rakaunui subsidence bowl is estimated to subside an additional 4mm by 2030, before pressures result in an uplift of 6mm by 2061 at the end of the forecasted period.

Subsidence in the order of 4mm is unlikely to result in differential settlement greater than is typically allowed for / is tolerable for building construction. There are, however, considerable uncertainties when considering estimation of future subsidence and therefore risk mitigation may

¹ Cheal, 63 Broadlands Road, Taupō, Preliminary Geotechnical Assessment Report for Mega Food Services Ltd. (ref: 17685), 22 March 2018

still be appropriate for the site. It should also be noted that some industrial activities can be extremely sensitive to differential settlement.

Geotechnical investigation, ground temperature recordings and liquefaction analysis should be completed prior to re-zoning of the land or included as a requirement within an Outline Development Plan to confirm the ability to mitigate against geotechnical hazards described in this report through engineering design. Currently, only limited hand investigation has been completed on the site by Cheal in 2018.

Geotechnical investigation should be carried out in accordance with the recommendations included in the Earthquake Geotechnical Engineering Practice Module 2 unless specific reasons are provided for deviation from the recommendations. Based on recommendations in Table 2.1 of Module 2, a total of 13 deep intrusive geotechnical investigation points are required to inform a plan change of this size.

Geotechnical investigation and assessment should focus on:

- Developing a ground temperature profile starting from the margins of the mapped hot ground hazard area;
- Determining the groundwater profile and hence susceptibility to liquefaction and risk of subsurface water flows;
- Understanding the most likely future state of the thermal features.
- An appropriate stormwater management plan.

The following photos are included as a representation of the site walkover that was completed.



Figure 4: Example of hot ground present towards the centre of the site



Figure 5: Shallow gully that flows approximately east to west, towards hot ground hazard area. Broadlands Road and Mt Tauhara can be seen in the distance.



Figure 6: General form of the land

5 Napier Road (Site 7)

The Napier Road site is located to the southwest of the Napier/Taupō Highway Roundabout. The site is currently home to a commercial building, paved carparking areas and a large water storage pond. The area south of the building is currently undeveloped.

It should be noted that large water storage ponds such as the one located on site, if they rupture or leak for any reason, have potential to cause significant damage to downstream infrastructure. A recent example is the damage caused by the stormwater retention pond on Crown Road which ruptured in 2019 and caused considerable damage to adjacent infrastructure.

HD Geo Ltd completed a Preliminary Geotechnical Assessment² for this site in November 2021 that was informed by a site-specific geotechnical investigation. The report was prepared to support a Resource and Subdivision Consent application for a commercial development on the site. The report concluded the following:

“The site has no major geotechnical hazards or considerations and is geotechnically suitable for the proposed subdivision. Further assessment will be needed to inform development and foundation design across the site, particularly in the areas of uncontrolled fill”.

A site walkover was completed by WSP on 12 August 2022. The site walkover was completed to verify WSP’s previously completed desktop assessment.

Based on the investigation and assessment by HD Geo Ltd and WSP’s desktop assessment and walkover, geotechnical hazards do not present an intolerable risk to development of the site for industrial purposes. As concluded by HD Geo, additional investigation and assessment will be required to inform development and foundation design across the site with a particular focus on the uncertified fill identified on site. Potential failure of the existing water storage pond on site should also be considered when preparing a development plan for the site i.e. consider what damage a failure could cause and how this could be minimised through design.

The following photos are included as a representation of the site walkover that was completed.

² HD Geo Ltd, 189 Napier Road, Taupō, Preliminary Geotechnical Assessment, ref: HD2092, PGR-1, 1 November 2021



Figure 7: View to the east, with water storage pond and existing building visible, ETA located in the distance



Figure 8: View north towards Mitre 10 and existing industrial development showing general landform

6 Summary & Conclusions

A site walkover has been completed to complement WSP's preliminary desktop assessment recently completed to inform an Industrial Plan Change in Taupō. This assessment is intended to identify geotechnical and geo-environmental hazards which have potential to create 'intolerable risk' to future industrial development.

Sites 1 and 2 are excluded from this Addendum report as they no longer form part of the proposed plan change.

Site 6 requires extensive, deep geotechnical investigation and assessment to determine if geotechnical hazards present an intolerable risk to industrial land development. At this stage, no investigation has been completed at the site and therefore conclusions cannot be made as to the suitability of the site for industrial development.

The following conclusions can be made:

- Detailed fault trace mapping is recommended for Site 3. Appropriate fault avoidance zones should be enacted for industrial development.
- Liquefaction susceptibility should be reviewed once the regional assessment is completed by TDC, as liquefaction hazard for most of the sites is undetermined. Site specific testing is required for Site 3 and Site 4 to assess susceptibility of the sites to liquefaction and the impact this may have on industrial development.
- All sites are potentially affected by tomo formation which can be a considerable risk to industrial development.
- Geothermal hazards are present on or very close to Sites 3 and 4 and should have specialist input to define their most likely future performance.
- Subsidence from extraction of geothermal fluids is known to affect Sites 3 and 4. Future subsidence is entirely dependent on extraction and reinjection rates; development of these sites will require careful consideration of the implications of both total and differential settlement into the future.

Based on the investigation and assessment by HD Geo Ltd and WSP's desktop assessment and walkover, geotechnical hazards do not present an intolerable risk to development of Site 7 for industrial purposes. As concluded by HD Geo, additional investigation and assessment will be required to inform development and foundation design across the site with a particular focus on the uncertified fill identified on site.

Intolerable risk from natural hazards exists on Sites 3 and 4, however these risks can be mitigated by excluding development from discrete areas within the sites. Geotechnical hazards present within the remaining areas are likely to be able to be reasonably mitigated as part of engineering design of future industrial development. Having said that, geotechnical investigation is required to confirm this statement.

It is recommended that geotechnical investigation, including fault trace mapping and liquefaction analysis are completed for Sites 3 and 4 either prior to re-zoning of the land parcels or as a requirement within an Outline Development Plan (ODP).

Forecasted rates of subsidence as per GNS Science Consultancy Report 2021/63 are unlikely to result in differential settlement outside of limits typically acceptable for lightweight structures. It is also reasonable to assume that foundations can be designed for the forecasted rates to enable construction of heavier commercial and industrial buildings. However, in the event that future rates of subsidence are greater than those currently forecast by GNS for Contact Energy it may not be possible to mitigate differential settlement through design for Sites 3 and 4. This risk must be communicated to those who plan to develop Sites 3 and 4.

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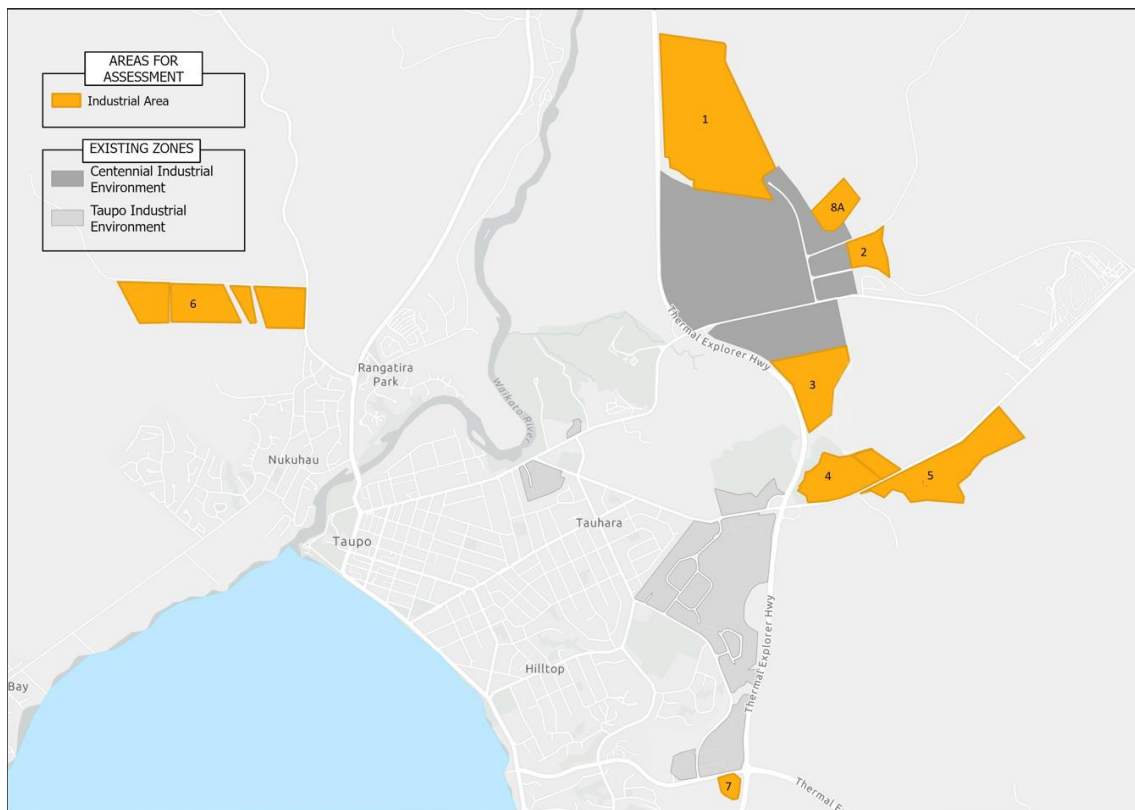
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APPENDIX E – SITE DESCRIPTIONS OF INDUSTRIAL OPTIONS AREAS ASSESSED

The following sites were identified by Taupō District Council as options to be considered by Technical Assessments in terms of providing additional Industrial zoned land resource to meet future growth demands. The spatial extent, and the areas themselves were selected on the basis of:

- Areas of market demand.
- Discussions with the development community.
- Areas previously identified in Council Strategies or Plans (such as TD2050 and the Taupō Urban Commercial and Industrial Structure Plan).
- Areas identified by Council Infrastructure Staff as being 'reasonably proximate' in terms of servicing and capacity.

The specific areas are identified below.



Site 1: 887 Rakaunui Road, Taupō



Site 1 is legally described as Section 6 SO 438783. The site is 105ha and in freehold title.

Owned by Taupō District Council, the site comprises of rolling pasture and contains irrigation infrastructure given the use of the site for wastewater disposal purposes.

The East Taupō Arterial adjoins the western boundary, however no access is provided to the site directly off the ETA. Sole access is off Rakaunui Road. Overhead powerlines traverse the eastern part of the site, while two effluent ponds and an administration building exist within the southern part of the site.

The southern boundary adjoins a steeply incised gully which links to the Waikato River. This gully is identified as a Significant Natural Area (SNA). The established Centennial Industrial Environment is located to the south of the site, while larger rural holdings are located to the north and east of the site.

The site is zoned Rural Environment and subject to the Geothermal Rule in the ODP, which has additional rules relating to subdivision and landuse to manage reverse sensitivity effects. Due to the historic and current use of the site for wastewater disposal the site is also identified as Contaminated Site C13.

Site 2: 40 Aratiatia Road, Taupō



Site 2 is legally described as Lot 1 DP 429009 and held in Record of Title 513731 and is freehold title. Site 2 is 10.03ha in area.

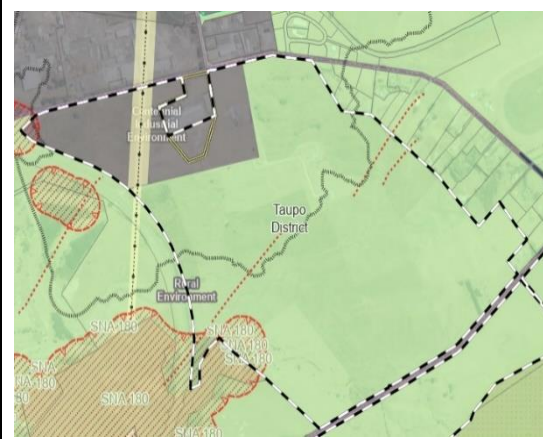
The site is in pasture and a combination of steep and rolling topography, the steep topography located in the centre of the site. An existing shed is located in the north-western corner of the site, which is accessed via a formed driveway off Aratiatia Road,

Owned by Landcorp Farming Limited, the site continues to operate as part of the wider Landcorp organisation portfolio, which include the adjoining property to the east.

The site is zoned Rural Environment in the Taupō District Plan and is subject to the Geothermal Rule which applies additional rules relating to subdivision and landuse to manage reverse sensitivity effects. Other District Plan notations include the site located within the Noise Control Boundary (40dba requirement) and a high-pressure pipeline traverses the southern part of the site.

The establish Centennial Industrial Environment is located to the north and west of the site, while larger rural holdings are to the east of the site.

Site 3: 261 Broadlands Road, Taupō



Site 3 is an area of approximately 19.7ha within the property located 261 Broadlands Road, Taupō. The site is in freehold title.

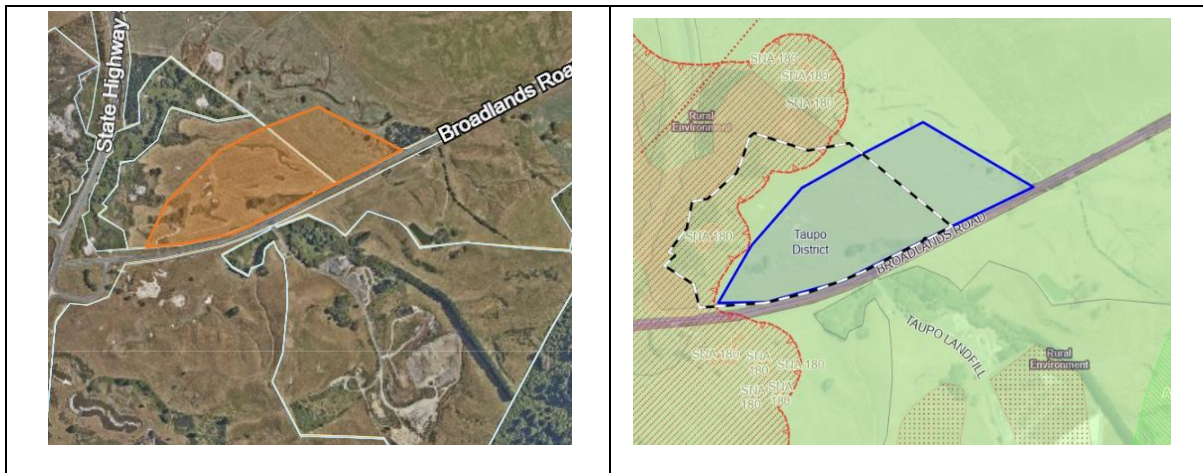
Site 3 adjoins an existing Centennial Industrial Environment.

Access to Site 3 can be provided from either Centennial Drive to the north or Broadlands Road to the south. There is currently no physical access provided to Site 3.

The property is rolling pasture and is owned by Contact Energy Limited. The property is used for grazing purposes and leased to Landcorp Farming Limited. A small area within Site 3, adjacent the western boundary, contains mature Pine trees. The East Taupō Arterial (ETA) adjoins the western boundary, the site is elevated approximately 20m above the ETA carriageway.

The site is currently zoned Rural Environment in the Taupō District Plan. Notations include a fault line located near the eastern extent of Site 3, while a Hot Ground Hazard Area is located adjacent the southern part of Site 3. Within the Hot Ground Hazard Area is a Significant Natural Area (SNA) which is also identified as a Significant Geothermal Feature within the Waikato Regional Plan. The site is also subject to the Geothermal Rule.

Site 4: 63 Broadlands Road and 261 Broadlands Road, Taupō



Site 4 incorporates areas of land contained on both 63 Broadlands Road and 261 Broadlands Road, and is approximately 20ha in area. The area of Site 4 contained on 63 Broadlands Road is in private ownership, while that part of the site located on 261 Broadlands Road is in Contact Energy ownership. Site 4 is freehold land tenure

Site 4 is generally flat land in pasture. Access to 63 Broadlands Road is via an existing vehicle crossing off Broadlands Road, no vehicle entrance is provided to that part of Site 4 located on 261 Broadlands Road. A shed is located in the western part of the site.

The site is currently zoned Rural Environment in the Taupō District Plan. A Hot Ground Hazard Area is located in the northern part of 63 Broadlands Road and within the Hot Ground Hazard Area is a Significant Natural Area (SNA) which is also identified as a Significant Geothermal Feature within the Waikato Regional Plan. The entire site is also subject to the Geothermal Rule.

Site 5: 254 Broadlands Road, Taupō



Site 5 is legally described as Lot 2 DP445158 and held in Record of Title 563557. The site is freehold tenure and is 41.8ha in area.

The site is owned by Contact Energy Limited and is in pasture, rolling hills are present in the western part of the site while the remainder is generally flat. Access to the site is off Broadlands Road.

The site is currently zoned Rural Environment in the Taupō District Plan and is subject to the Geothermal Rule. Amenity Landscape Area 43 extends slightly onto the southern part of the site. Mount Tauhara adjoins the southern boundary of the site which is identified as an Outstanding Landscape Area (OLA).

The Taupō District Landfill is located on the adjoining south-eastern property and wider area is pastoral land.

Site 6: 416 Acacia Bay Road, Taupō



Site 6 is located within the north-eastern corner of a large rural holding, is approximately 994ha in area and is Maori Land Title. Site 6 itself is approximately 49ha.

The site is in pasture and is flat with a gentle southern slope. There are a number of stormwater flowpaths within the site area. Access is provided off Scoria Road and Poihipi Road.

The site is currently zoned Rural Environment in the Taupō District Plan. A recent exercise identifying fault lines in the Taupō District using Lidar technology identified a number of faultlines on the site. Amenity Landscape Area 22 extends over part of Site 6.

Scoria Road provides access to a working Quarry and much of the surrounding area is pastoral land. An established residential area is located approximately 580m from Site 6, while a proposed residential area recently approved by the Council is approximately 225m from the site.

Site 7: 189 Napier Road, Taupō



Site 7 is legally described as Lot 2 DP 499406 and held in Record of Title 741151 and is freehold title. Site 7 is some 4.0ha in area.

The site is in private ownership and contains the Clean Energy Building. This existing building is located within the northern part of the site, while the remainder is generally rolling contour in pasture.

An established Industrial area is located to the north of the site, which contains activities such as Mitre10 Mega, Z Energy Station and eateries and a recently granted consent for Pack n Save. To the south of the site is a residentially zoned area which is currently vacant and in pasture. This property is known as the East Urban Lands and is owned by the Taupō District Council.

The site is currently zoned Rural Environment in the Taupō District Plan. A small area of Hot Ground Hazard Area is located within the south-eastern part of the site.

Site 8a: 870 Rakaunui Road, Taupō



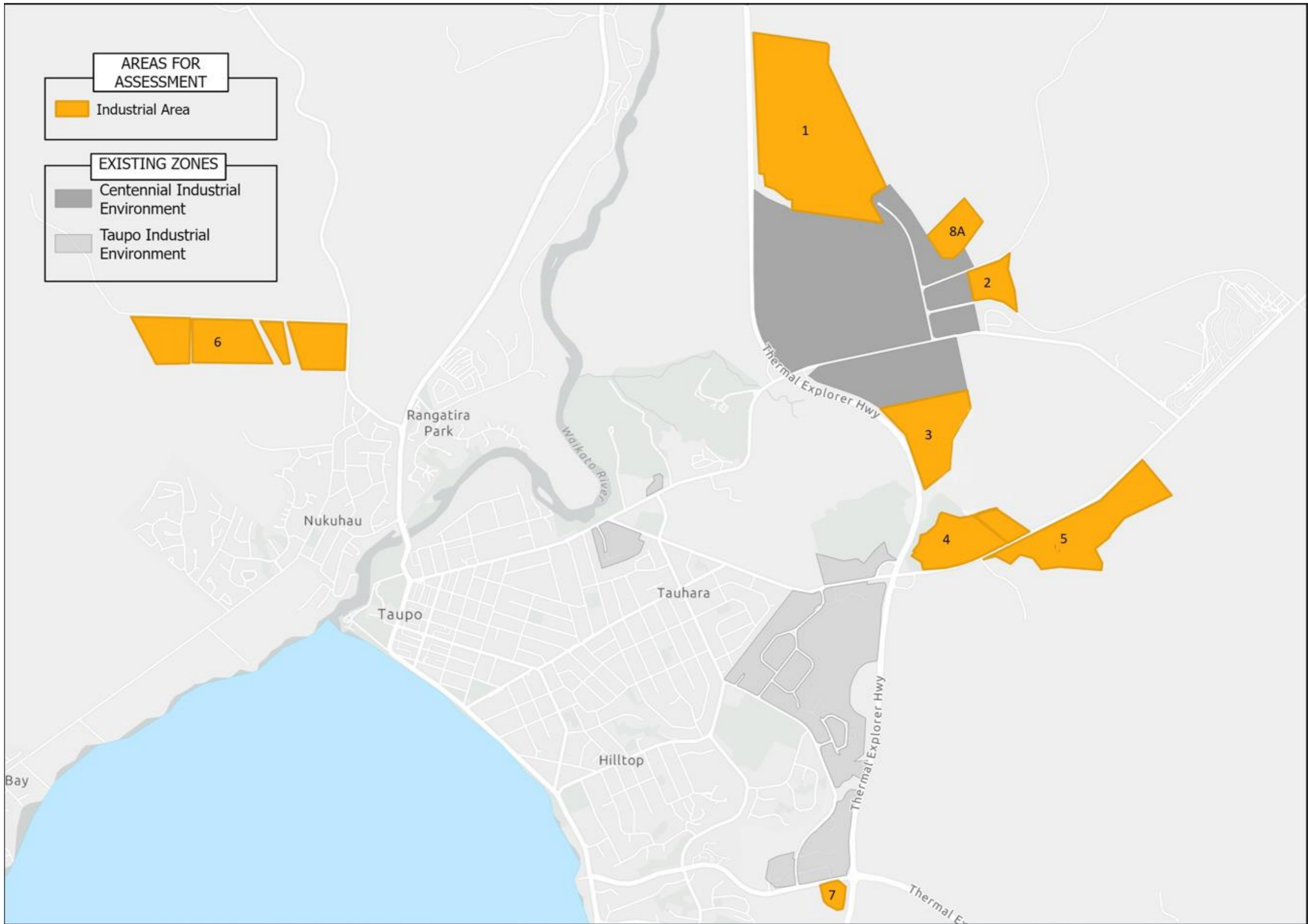
Site 8a is legally described as Lot 1 DP 530955 and held in Record of Title 865203 and is freehold title. Site 8a is 25.7ha in area.

The site is in private ownership and is currently in pasture and used for grazing purposes. There are Contact Energy pipelines traversing through the centre of the site.

The site is accessed via a 10m wide Right of Way off Rakaunui Road. The surrounding area to the north and west is pastoral land and the established Centennial Industrial area adjoins the site to the west and south.

The site is currently zoned Rural Environment in the Taupō District Plan and is subject to the Geothermal Rule, which has additional rules relating to subdivision and landuse to manage reverse sensitivity effects. Other District Plan notations include the site located within the Noise Control Boundary (40dba requirement) and is an identified contaminated site (C23 – Timber Waste Site)

APPENDIX F – LAND AREA OPTION ASSESSMENT MATRIX



Sites	1 Centennial Northern Extension	2 Centennial Eastern Extension	3 Centennial Southern Extension	4 Broadlands Road West	5 Broadland Road East	6 RaNgātira E / Scoria Road	7 Napier Road	8A Rakaunui Road
Area	105ha	10ha	21ha	18ha (14.5ha developable removing hot hazard and SNA)	42ha	57ha	3.5ha	26ha
Transport								
Totals (and qualitative statement)	22 (Moderate)	22 (Moderate)	22 (Moderate)	22 (Moderate)	Not commented on	10 (low)	28 (high)	22 (Moderate)
Notes:	Network acceptable, and not material issues with safety. Localised intersections may need to improved depending on range of activities (trip rates)	Network acceptable, and not material issues with safety. Localised intersections may need to improved depending on range of activities (trip rates)	Noting issues as to safety issues for Broadlands 'requiring further investigation if this land is to be rezoned and is likely to require reduction in vehicle speeds and access management'.	Noting issues as to safety issues for Broadlands 'requiring further investigation if this land is to be rezoned and is likely to require reduction in vehicle speeds and access management'.		Poihipi Road / Wairakei Drive intersection is of concern. Issues of capacity at peak times associated with control gates bridge and associated network. Would increase industrial vehicles through the urban area. Significant distance from State Highway (and hence access and marketability issues).	Excellent safety rating, despite proximity to ETA. Proximate and hence accessible to the road network and urban area.	Requires additional access corridor width. Network acceptable, and not material issues with safety. Localised intersections may need to improved depending on range of activities (trip rates)
Infrastructure								
Water Supply	High	Medium	Low	Medium	Medium	Low	High	Not considered.
	Servicing mains at boundary.	Pipeline proximate, but pressure low and need for pump station.	Significant piping and upgrades needed. Staging also required.	Watermains proximate but requires pump station upgrade for firefighting levels.	Watermains proximate but requires pump station upgrade for firefighting levels.	Requires new high-pressure zone, including pump station, network extension and potentially reservoir.	Main extension within 125m	
Wastewater	High	High	Medium	High	High	Medium	High	
	Onsite WW disposal, requires WRC consents.	Onsite WW disposal, requires WRC consents.	Onsite WW disposal, requires WRC consents. Connections to public sewer expensive.	Extension to public sewer is achievable.	Extension to public sewer is achievable.	Extension to public sewer is achievable. Capacity constraint restrictions at bridge, not suitable for wet industry.	Simple mains connection, not suitable for wet level industry.	
Local Transport network	High	High	Medium	Medium	Medium	Low	High	
	Can be accommodated, may require upgrade of Rakaunui / Centennial intersection.	Can be accommodated, may require upgrade of Rakaunui / Centennial intersection.	Broadlands Road speeds to be slowed, and Limited Access Road to Broadlands.	Broadlands Road speeds to be slowed, and Limited Access Road to Broadlands.	Broadlands Road speeds to be slowed, and Limited Access Road to Broadlands	Planned residential development in the area and sensitivities / conflict with HGVs. Constraints at Control Gate bridge.	No connection issues. Can be resolved with existing District Plan transport provisions.	
Stormwater	High	High	Medium	Medium	Medium	Moderate	High	
	No stormwater issues, natural fall.	No stormwater issues, natural fall.	Series of flowpaths that would need to be accounted for. Requires considerable stormwater management.	Disposal to be carefully considered given known hot ground. Development rules to ensure management of protected land / vegetation including changing offsite hydrology or ambient temperatures. Would require 10yr/1hr return rainfall to be disposed of on site.	Would need to allow for flowpaths off Mt Tauhara. Catchment for geothermal vegetation to the north of Broadlands Road.	Will need to accommodate stormwater flows from land to the north. Will need to ensure no new discharge points are created across land to the south. Gully areas will need to be retained.	No issues. Normal rules for lake catchment to apply, with need to ensure no increase in flows off the site.	
Geotechnical Assessment (Desktop)								
Faults	Medium	High	Medium	High	Not considered	Medium	High	Not considered.
	Two splays of Aratiatia Fault. Return period <2000yrs. Buffer for industrial building 20m.	None	Active fault line on southern boundary with recurrence <2000 yrs. Fault mapping would be	No mapped faults. Rotokawa fault is to the north.		Active fault traces of Karapiti Fault with recurrence <2000 yrs.	No mapped faults.	

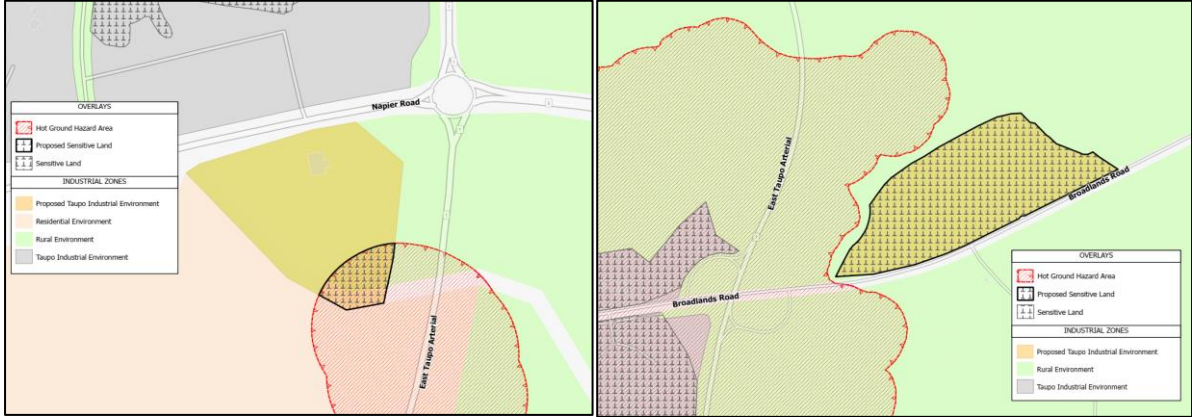
Sites	1 Centennial Northern Extension	2 Centennial Eastern Extension	3 Centennial Southern Extension	4 Broadlands Road West	5 Broadland Road East	6 RaNgātira E / Scoria Road	7 Napier Road	8A Rakaunui Road
			required for any development.					
Liquefaction	High	High	High	High		High	High	
	Underdetermined	Unlikely	Undetermined and unlikely.	Undetermined and unlikely.		Undetermined and unlikely.	Insignificant.	
Land Instability	High	High	Medium	Medium - High		Low	High	
	Southwestern boundary (localised)	No gullies identified. Potential instability to east of existing workshop.	Multiple overland flow paths.	Multiple overland flow paths. Cheal (investigative works) did not identify any active erosion.		Multiple gullies identified. Indications of erosion and local instability.	No evidence of erosion or instability. Historic gullies appear to have been infilled (based on aerial mapping).	
Geothermal and Hot Ground	High	High	Medium	Medium		High	High	
	None identified.	None identified	Site south of Te Huka Power Station, expressions of geothermal activity at ground surface and surface vents. Hot hazard ground mapped to the south.	Western portion in Hot Ground Hazard area, indications of surface vents in that area.		None identified.	None identified. Southern extent is within a Hot Ground Hazard area.	
Subsidence	Medium	Medium	Medium	Medium		Medium	High	
	Partially within subsidence bowl.	Within subsidence bowl.	Within subsidence bowl.	Within subsidence bowl.		Partially within subsidence bowl.	Not located with subsidence bowl.	
Uncertified Fill	High	High	High	High		High	Medium	
	None identified, although anticipated ETA Spoil.	None identified.	None identified.	None identified.		None identified.	Certified fill associated with ETA along northern and eastern boundary.	
Flooding	High	High	High	High		High	High	
	None identified.	None identified	None identified	None identified.		None identified.	None identified	
Contaminated Land	Medium	High	High	High		High	High	
	Irrigation and farming (C13) District Plan	None identified	None identified	None formally identified. Site has been used for farming.		None identified	None identified.	
Geotechnical Assessment (Walkover)								
Details of walkover	Not assessed	Not assessed	Localised erosional issues associated with overland flow paths. Downstream effects of stormwater would need to be considered as part of Industrial development. A holistic stormwater management plan (including subterrain tracking) should be considered. No large scale or deep-seated instability observed. Geothermal not identified outside of Hot Ground Hazard area. Need to confirm with GNS suitable mitigation or offsets for buildings.	Preliminary Geotechnical Assessment as prepared by Cheal (2018) including walkover and shallow hand investigation identified site is geotechnically suitable for commercial development subject to recommendations. Walkover identified indications of 'hot ground' outside of mapped area. This will need to be confirmed during geotechnical assessments to be completed prior to development. Management of stormwater conveyance to be considered as	Not assessed	Not assessed	Preliminary Geotechnical Assessment (Nov 2021). No geotechnical hazards or considerations. Geotechnical hazards do not present an intolerable risk to the development of Industrial activities.	Not assessed

Sites	1 Centennial Northern Extension	2 Centennial Eastern Extension	3 Centennial Southern Extension	4 Broadlands Road West	5 Broadland Road East	6 RaNgātira E / Scoria Road	7 Napier Road	8A Rakaunui Road
			Geotechnical issues (apart from faulting) can be reasonably mitigated through engineering design. Subsidence due to extraction of geothermal fluids remains a risk for some industrial development.	associated with any development. Geotechnical issues (apart from hot ground to be avoided) can be reasonably mitigated through engineering design. Subsidence due to extraction of geothermal fluids remains a risk for some industrial development.				
Additional matters to be considered for rezoning.			Rezoning should be the subject of a Plan mechanism ensuring specific geotechnical investigation and assessment.	Rezoning should be the subject of a Plan mechanism ensuring specific geotechnical investigation and assessment.			NA	
Economics								
Constrained Land	Low	Medium	High	Medium	Medium	High	Medium	Medium
	Presence of fault lines. This area is owned by the Council and used for wastewater disposal purposes. As such it is considered a three waters asset and subject to the Water Services Bill whereby it will be compulsory acquired by the new regulator / entity. This is a fatal constraint of the option and reflects that there is no certainty on the land that it could be realised for industrial uses.	Rolling hills on eastern edge reduce developable area and / or increase construction costs.	No known encumbrances (reference Geotech assessment)	Some rolling hills on western boundary reduce developable area and / or increase construction costs. Area is owned by Contact Energy who have expressed no desire to release to the Market.	Site is fragmented by gully system, and active faults.	No constraints	Slightly elevated pitch which would require engineering and urban design consideration.	
Infrastructure	Medium	Low	High	Medium	Low	High	High	High
	The area directly adjoins the existing centennial industrial area with the existing infrastructure that is put in place to service business activities in and around the industrial zone. This means that the infrastructure costs associated with this option would be relatively lower in contrast to some of other options which have no existing industrial activities around the site	May be issues with long term access to the site.	Good connections to infrastructure and access to the State Highway.	The site is a short distance from other industrial zones and urbanised area	Distance to existing urban area will increase servicing costs.	Good connections to infrastructure and access to the State Highway.	The land is adjacent to a major existing infrastructure ready, industrial area.	
Contiguity	High	Medium	Medium	Medium	Low	Medium	High	High
	Provides a considerable agglomeration of Industrial land for Taupō.	Would form logical extension to existing industrial area, but not as proximate to urban area as other sites.	Proximate to urban areas and State Highway.	Proximate to urban areas and State Highway.	Would form its own industrial node as not adjoining any existing Industrial area.	Small extension to existing Industrial zoning.	Provides a considerable agglomeration of Industrial land for Taupō.	
Sufficiency	High	Medium	Medium	Medium	High	Medium	Medium	Medium
	Provides 115ha of Industrial which would surpass Taupō's long term NPS-UD needs by some 63ha, and may provide for some inefficiencies associated with infrastructure provision.	Provides 21ha. On its own does not meet NPS-UD Long Term needs.	Provides 18ha. On its own does not meet NPS-UD Long Term needs.	Provides 41.8ha.	Would provide 57ha.	Only provides 4.5ha of land.	Only provides 25.7ha of land.	
Productive Land	Low	High	High	Medium	Low	High	High	High
	Some class 3 soils	Class 6 soils only	Class 4 Soils only	Some class 3 soils	Some Class 3 (44ha)	Class 7 soils only	Class 6 soils only	
Potential for reverse sensitivity	High	High	High	High	Medium	Medium	High	High
	No proximate sensitive activities	No proximate sensitive activities	No proximate sensitive activities	No proximate sensitive activities	Negative externalities with anticipated rural	Separated from residential areas, but proximate to	No proximate sensitive activities	

Sites	1 Centennial Northern Extension	2 Centennial Eastern Extension	3 Centennial Southern Extension	4 Broadlands Road West	5 Broadland Road East	6 RaNgātira E / Scoria Road	7 Napier Road	8A Rakaunui Road
						residential, and conflicts between HGVs and existing vehicles on surrounding road network.	EUL if that expands in the fu	
Property Economics Ranking	7th		6 th	2 nd	5 th	8 th	1 st	3 rd
Planning								
Identified in the TD2050 (2006) Strategy and Commercial and Industrial Structure Plan	Medium	Low	High	High	Low	Low	Low	High
	In part	Not identified	Identified	Identified.	Not identified	Not identified	Not identified	Identified
Identified in Taupō District Structure Plan	Low	Low	High	High	Low	Low	Low	Low
	Not identified	Not identified	Identified	Identified.	Not identified	Not identified	Not identified	Not identified
Identified in Chapter 3e of the District Plan as an Urban Growth Area.	Low	Low	High	High	Low	Low	Low	Low
	Not identified	Not identified	Identified in 3e.6.1	Identified in 3e.6.1	Not identified	Not identified	Not identified	Not identified
Subject to Section 6 constraints.	High	High	High	Medium	High	High	High	High
	No constraints	No constraints	No constraints	SNA 180 is to the north of the site and a modest 0.38ha within.	No constraints	No constraints	No constraints	No constraints
Subject to other constraints that would foreclose development.	High	High	High	Medium	Medium	Medium	Medium	High
	No constraints	No constraints	No constraints	Hot Hazard Overlay along western boundary.	Amenity Landscape Area along south-eastern boundary.	Contained completely with an Amenity Landscape Area. Fault lines along north-western extent of the site (may limit development within buffer areas).	Hot Hazard Overlay along southern boundary.	No constraints
Consideration of Objective 1, Objective 6 Policy 1 and Policy 8 (out of sequence) under the NPS-UD.	High	Medium	High	High	Low	Low	Medium	Medium
	Achieves Objective 1 and Policy 1, would represent 'significant addition' to development capacity despite not being identified in TD2050 or Chapter 3e.	Achieves Objective 1 and Policy 1, would not represent 'significant addition' to development capacity despite not being identified in TD2050 or Chapter 3e.	Achieves Objective 1 and Policy 1, identified in RMA Planning documents for the purpose of Policy 8.	Achieves Objective 1 and Policy 1, identified in RMA Planning documents for the purpose of Policy 8.	Would not achieve Objective 6 as poor integration with infrastructure.	Would not achieve Objective 6 as poor integration with infrastructure.	Achieves Objective 1 and Policy 1, would not represent 'significant addition' to development capacity despite not being identified in TD2050 or Chapter 3e.	Achieves Objective 1 and Policy 1, may represent 'significant addition' to development capacity despite not being identified in TD2050 or Chapter 3e. No assessment as to achieving Objective 6.

APPENDIX G – RECORDS OF TITLE

As associated with the spatial extent of the following only:





**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R.W. Muir
Registrar-General
of Land

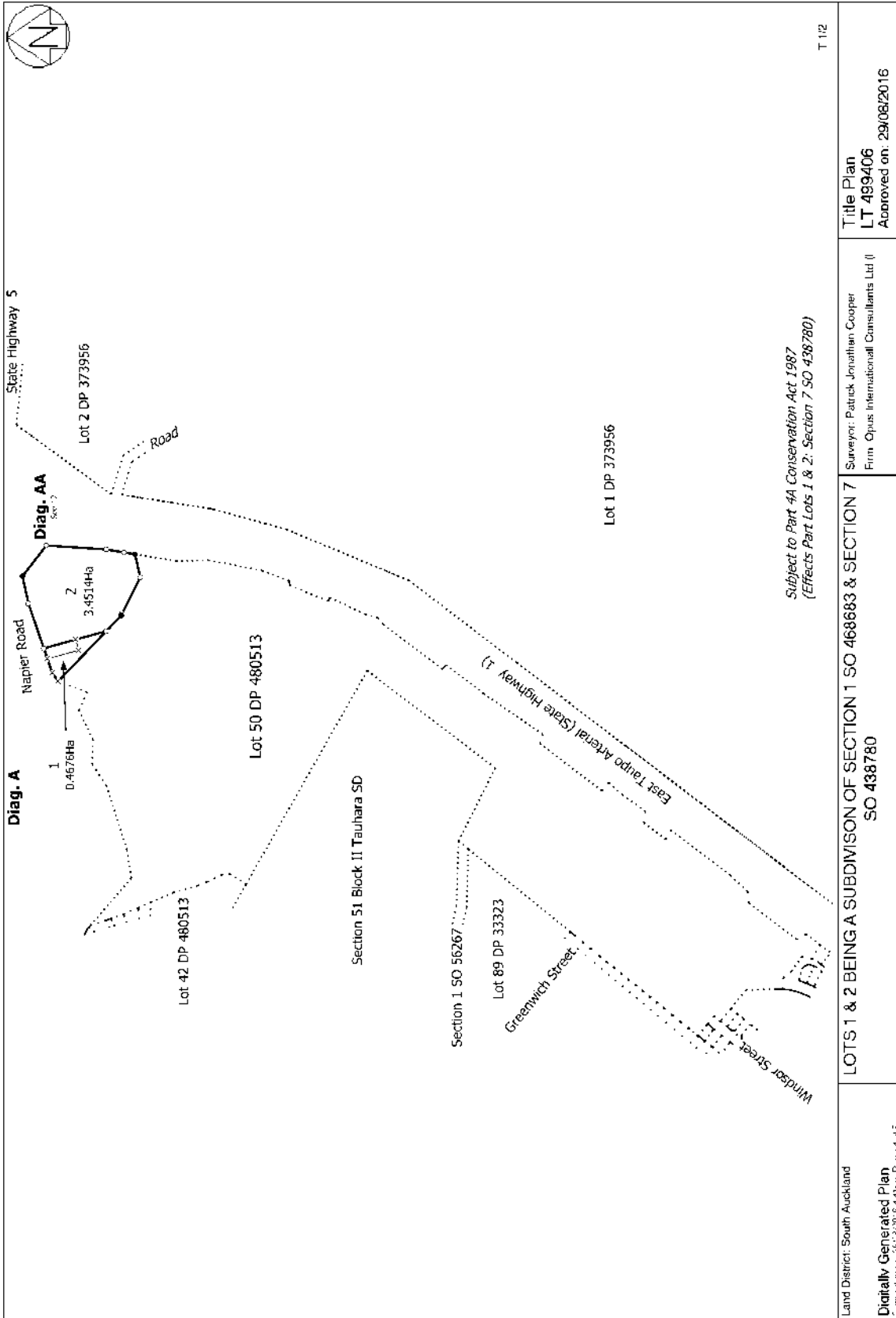
Identifier 741151
Land Registration District South Auckland
Date Issued 08 September 2016

Prior References
640869

Estate Fee Simple
Area 3.4514 hectares more or less
Legal Description Lot 2 Deposited Plan 499406
Registered Owners
Taupo Industrial Estate Limited

Interests

Subject to Section 3 Petroleum Act 1937 - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Section 8 Atomic Energy Act 1945 - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Section 3 Geothermal Energy Act 1953 - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Sections 6 and 8 Mining Act 1971 - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Sections 5 and 261 Coal Mines Act 1979 - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Section 27B State-Owned Enterprises Act 1986 (which provides for the resumption of land on the recommendation of the Waitangi Tribunal and which does not provide for third parties, such as the owner of the land, to be heard in relation to the making of any such recommendation) - 29.11.1991 at 9.46 am (affects part formerly Section 7 SO 438780)
Subject to Part IV A Conservation Act 1987 (affects part formerly Section 7 SO 438780)
S644904 Gazette Notice declaring part State Highway No.5 fronting the within land to be a limited access road - 11.2.1974 at 10.28 am (affects part formerly Section 7 SO 438780)
B406416.5 Encumbrance to Contact Energy Limited - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am and varied B406424.5 - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am (affects part formerly Section 7 SO 438780)
6113770.4 Variation of Encumbrance B406416.5 - 13.8.2004 at 9:00 am
10534555.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 8.9.2016 at 6:32 pm
10534555.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 8.9.2016 at 6:32 pm
Appurtenant hereto is a right of way, a right to convey electricity, telecommunications, computer media & water and a right to drain sewage & water created by Easement Instrument 10534555.5 - 8.9.2016 at 6:32 pm
The easements created by Easement Instrument 10534555.5 are subject to Section 243 (a) Resource Management Act 1991
12353970.1 Mortgage to Bank of New Zealand - 11.2.2022 at 2:47 pm



Subject to Part 4A Conservation Act 1987
(Effects Part Lots 1 & 2; Section 7 SO 438780)

T 112

Land District: South Auckland Digitally Generated Plan <small>Computer File: 24532016.dwg Plan Page 4 of 5</small>	LOTS 1 & 2 BEING A SUBDIVISION OF SECTION 1 SO 468683 & SECTION 7 SO 438780	Title Plan LT 489406 Approved on: 29/06/2016
Surveyor: Patrick Jonathan Cooper Firm: Opus International Consultants Ltd (I)		



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R.W. Muir
Registrar-General
of Land

Identifier **907281**
Land Registration District **South Auckland**
Date Issued 06 August 2021

Prior References
841965

Estate Fee Simple
Area 48.5261 hectares more or less
Legal Description Lot 21 Deposited Plan 538371 and Lot 1
Deposited Plan 499406

Registered Owners
Taupo District Council

Interests

Subject to Section 3 Geothermal Energy Act 1953 - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Section 3 Petroleum Act 1937 - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Section 8 Atomic Energy Act 1945 - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Sections 6 and 8 Mining Act 1971 - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Section 27B State-Owned Enterprises Act 1986 (which provides for the resumption of land on the recommendation of the Waitangi Tribunal and which does not provide for third parties, such as the owner of the land, to be heard in relation to the making of any such recommendation) - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Part IV A Conservation Act 1987 (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

Subject to Sections 5 and 261 Coal Mines Act 1979 - 29.11.1991 at 9.46 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

B406416.5 Encumbrance to Contact Energy Limited - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am and varied B406424.5 - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

B475180.1 Land Improvement Agreement pursuant to Section 30A Soil Conservation and Rivers Control Act 1941 - 8.4.1998 at 1.05 pm (affects Lot 21 DP 538371 and part Lot 1 DP 499406 formerly Section 7 SO 438780)

B613954.1 Notice pursuant to Section 18 Public Works Act 1981 - 28.6.2000 at 3.40 pm (affects part Lot 1 DP 499406 formerly Section 7 SO 438780)

6113770.4 Variation of Encumbrance B406416.5 - 13.8.2004 at 9:00 am

Land Covenant in Transfer 6783080.14 - 10.3.2006 at 9:00 am (affects Lot 21 DP 538371)

Land Covenant in Transfer 6783080.15 - 10.3.2006 at 9:00 am (affects Lot 21 DP 538371)

Subject to a right to drain sewage in gross over part Lot 21 marked Q on DP 538371 in favour of Taupo District Council created by Easement Instrument 7044925.5 - 26.9.2006 at 9:00 am

The easements created by Easement Instrument 7044925.5 are subject to Section 243 (a) Resource Management Act 1991

Fencing Covenant in Easement Instrument 9025555.14 - 29.3.2012 at 11:42 am (affects Lot 21 DP 538371)

Land Covenant in Easement Instrument 9854197.8 - 19.3.2015 at 6:24 pm (Limited as to duration) (affects Lot 21 DP 538371)

Fencing Agreement in Deed 10025663.2 - 10.4.2015 at 7:00 am (affects Lot 21 DP 538371)

10534555.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 8.9.2016 at 6:32 pm (affects Lot 1 DP 499406)

10534555.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 8.9.2016 at 6:32 pm (affects Lot 1 DP 499406)

Subject to a right of way, a right to convey electricity, telecommunications, computer media & water and a right to drain sewage & water over part Lot 1 marked A all on DP 499406 created by Easement Instrument 10534555.5 - 8.9.2016 at 6:32 pm

The easements created by Easement Instrument 10534555.5 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 10708773.10 - 5.5.2017 at 3:27 pm (Limited as to duration)

Fencing Agreement in Deed 10800318.2 - 24.5.2017 at 7:00 am (affects Lot 21 DP 538371)

Fencing Agreement in Deed 10853129.1 - 20.7.2017 at 7:00 am (affects Lot 21 DP 538371)

Subject to a right (in gross) to drain water over part Lot 21 marked O on DP 538371 in favour of Taupo District Council created by Easement Instrument 11224294.4 - 11.7.2019 at 6:46 pm

Land Covenant in Easement Instrument 11224294.8 - 11.7.2019 at 6:46 pm (Limited as to duration)

12197956.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 6.8.2021 at 1:15 pm (affects Lot 21 DP 538371)

Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991 (affects DP 538371)

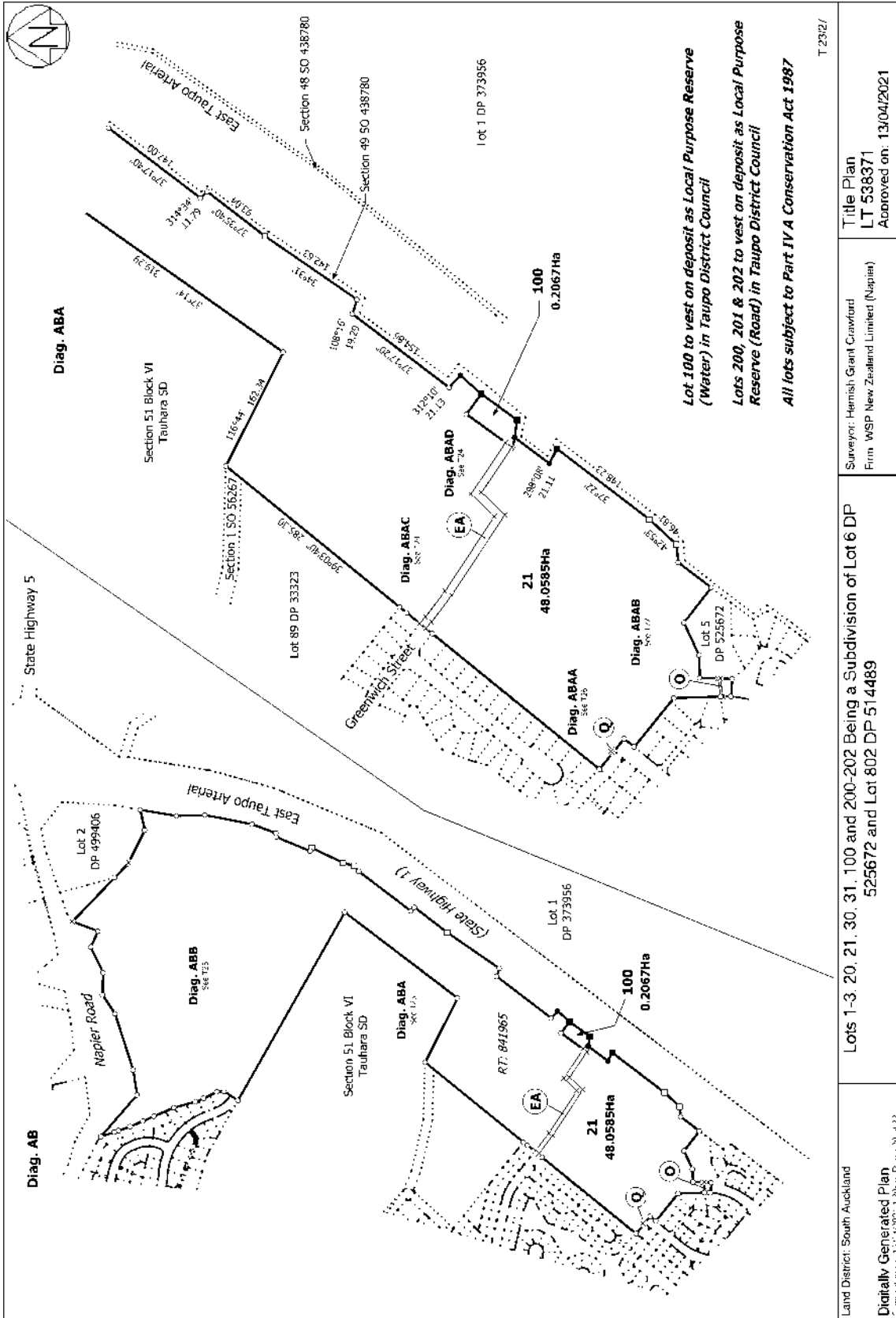
Subject to a right (in gross) to convey water and drain sewage over part Lot 21 marked EA on DP 538371 in favour of Taupo District Council created by Easement Instrument 12197956.10 - 6.8.2021 at 1:15 pm

The easements created by Easement Instrument 12197956.10 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way over part Lot 21 marked EA on DP 538371 created by Easement Instrument 12197956.12 - 6.8.2021 at 1:15 pm

The easements created by Easement Instrument 12197956.12 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant (in gross) in favour of Taupo District Council created by Covenant Instrument 12197956.13 - 6.8.2021 at 1:15 pm (affects Lot 21 DP 538371)



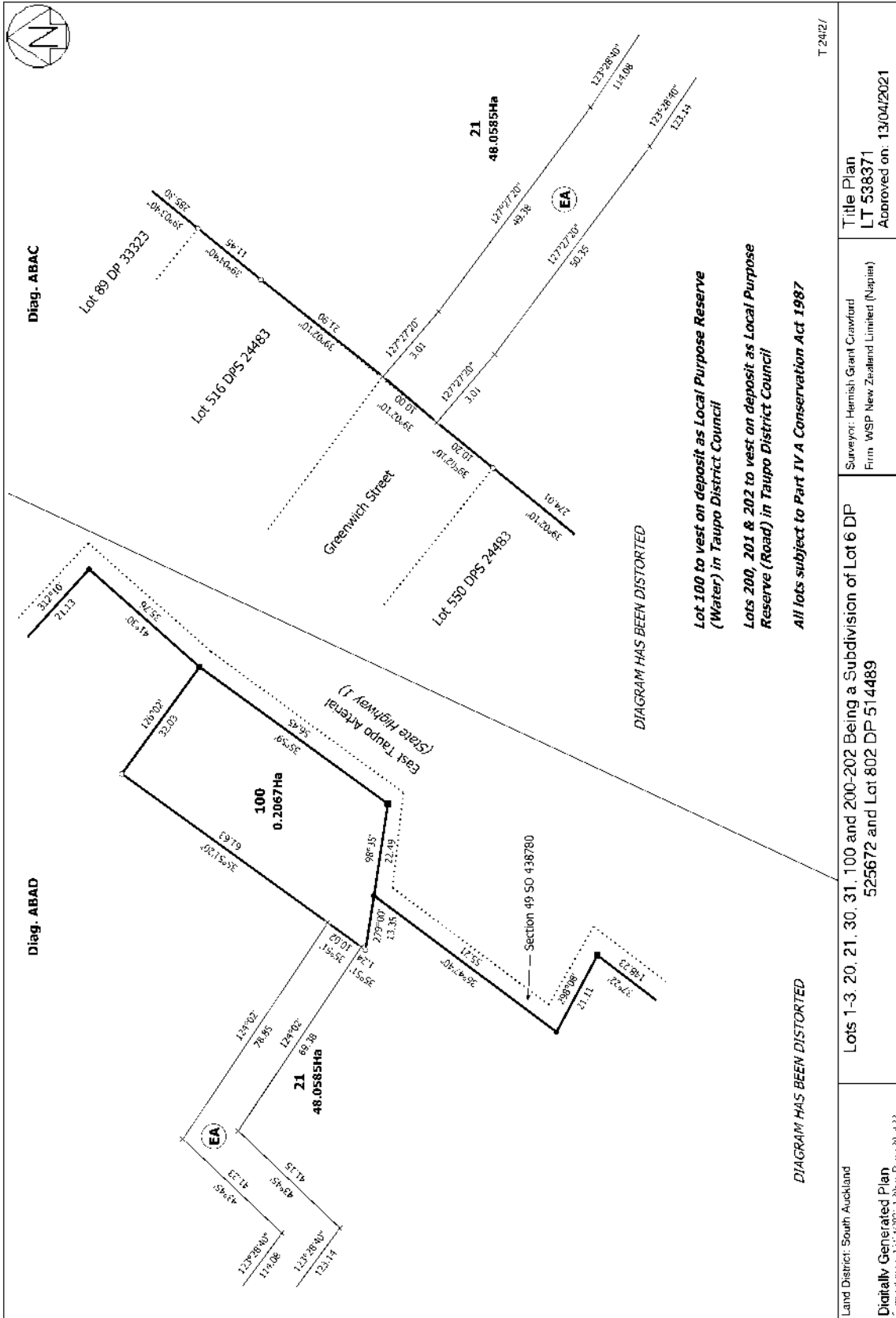
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Title Plan
 LT 538371
 Approved on: 13/04/2021

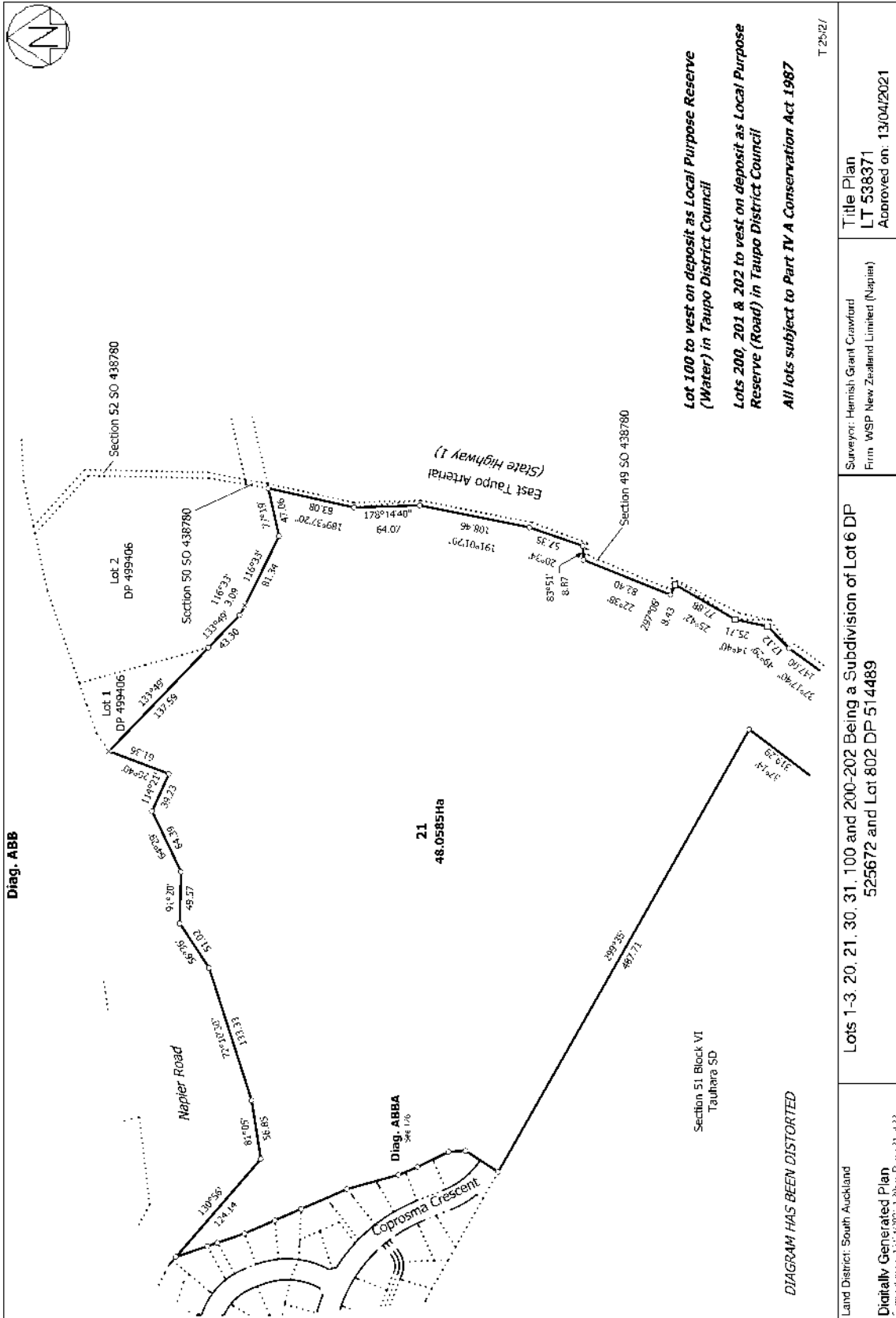
Surveyor: Hemish Grant Crawford
 Firm: WSP New Zealand Limited (Napiier)

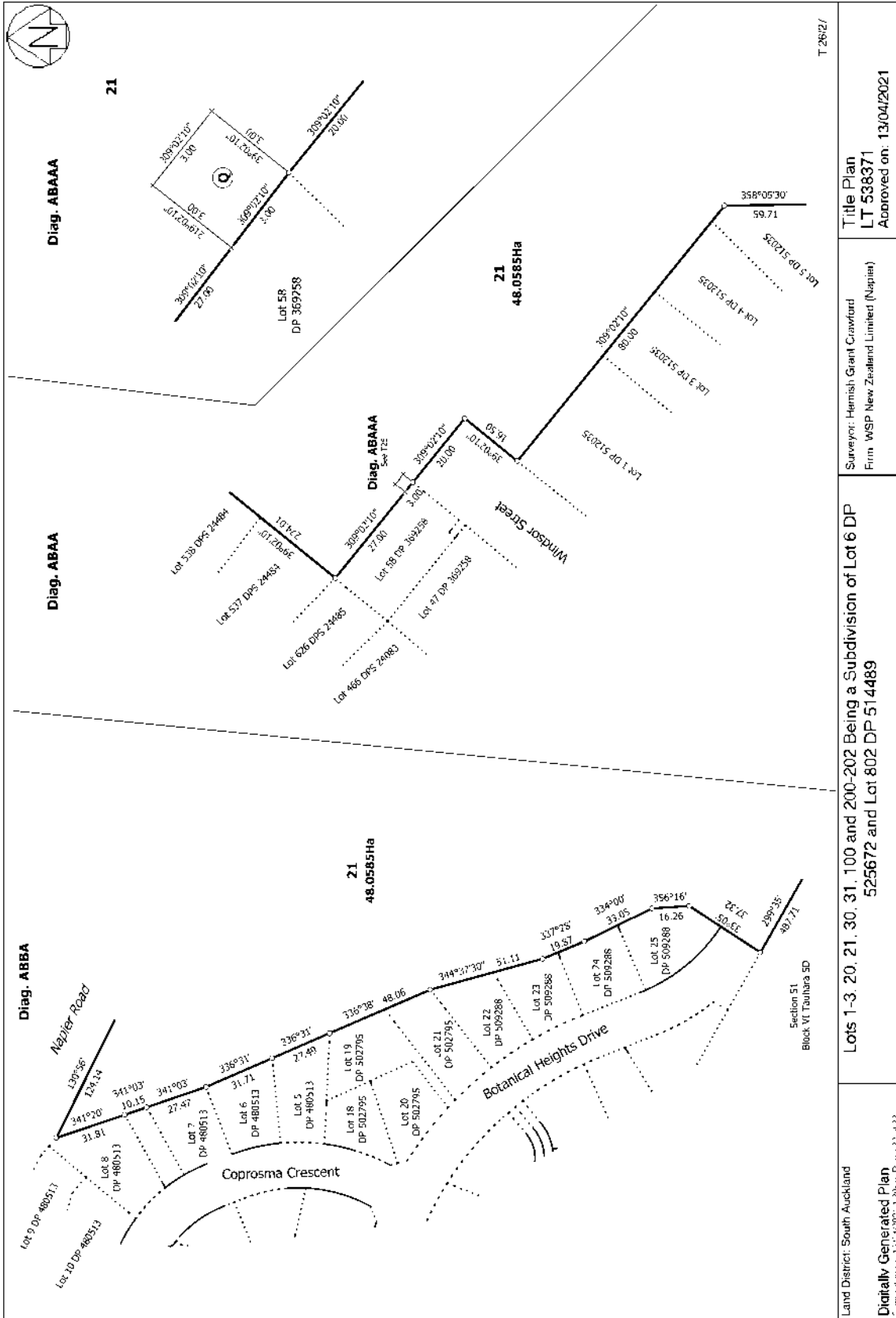
Lots 1-3, 20, 21, 30, 31, 100 and 200-202 Being a Subdivision of Lot 6 DP 525672 and Lot 802 DP 514489

Land District: South Auckland
Digitally Generated Plan
compliance with Resource Management Act 1991



<p>Land District: South Auckland</p> <p>Digitally Generated Plan</p> <p><small>Compliance Code: 1/2/4/3/0/1/1 (Plan Page 3) of 33</small></p>	<p>Lots 1-3, 20, 21, 30, 31, 100 and 200-202 Being a Subdivision of Lot 6 DP 525672 and Lot 802 DP 514489</p>	<p>Surveyor: Hemish Grant Crawford</p> <p>Firm: WSP New Zealand Limited (Napiier)</p>	<p>Title Plan LT 538371</p> <p>Approved on: 13/04/2021</p>
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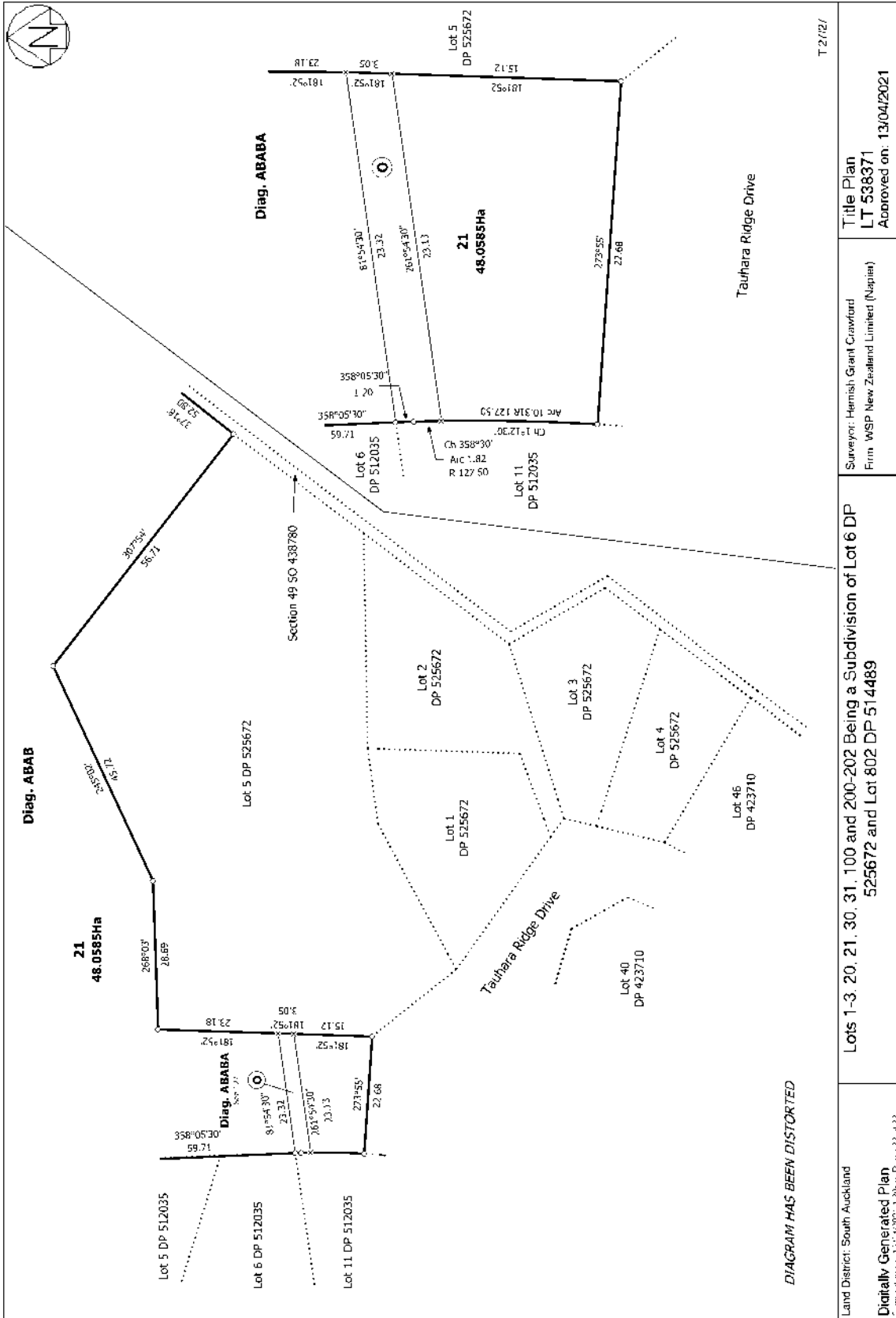


Land District: South Auckland
 Digitally Generated Plan
 Compliance with the Resource Management Act 1976

Surveyor: Hemish Grant Crawford
 Firm: WSP New Zealand Limited (Napiier)

Lots 1-3, 20, 21, 30, 31, 100 and 200-202 Being a Subdivision of Lot 6 DP 526672 and Lot 802 DP 514489

Title Plan
 LT 538371
 Approved on: 13/04/2021





**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R.W. Muir
Registrar-General
of Land

Identifier 563557
Land Registration District South Auckland
Date Issued 30 May 2012

Prior References
544020

Estate Fee Simple
Area 764.2400 hectares more or less
Legal Description Lot 1-6 Deposited Plan 445148
Registered Owners
Contact Energy Limited

Interests

Subject to Section 3 Geothermal Energy Act 1953
Subject to Sections 6 and 8 Mining Act 1971
Subject to Section 3 Petroleum Act 1937
Subject to Section 8 Atomic Energy Act 1945
Subject to Sections 5 and 261 Coal Mines Act 1979
Subject to Part IV A Conservation Act 1987
Subject to Section 27B State-Owned Enterprises Act 1986 (which provides for the resumption of land on the recommendation of the Waitangi Tribunal and which does not provide for third parties, such as the owner of the land, to be heard in relation to the making of any such recommendation)
Subject to a geothermal exploitation and electricity right (in gross) and profit-a-prendre over all the within land in favour of Contact Energy Limited created by Transfer B406416.4 - 24.6.1997 at 9.02 am
B406416.5 Encumbrance to Contact Energy Limited - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am
B406424.5 Variation of Encumbrance B406416.5 - produced 1.4.1997 at 1.26 pm and entered 24.6.1997 at 9.02 am
B475180.1 Land Improvement Agreement pursuant to Section 30A Soil Conservation and Rivers Control Act 1941 - 8.4.1998 at 1.05 pm
B475180.3 Land Improvement Agreement pursuant to Section 30A Soil Conservation and Rivers Control Act 1941 - 8.4.1998 at 1.05 pm
B613954.1 Notice pursuant to Section 18 Public Works Act 1981. - 28.6.2000 at 3.40 pm
Appurtenant to the interest of transferee in Easement and Profit a Prendre created by Transfer B406416.4 is a Geothermal Exploitation and Electricity easement and Profit a Prendre created by Transfer B675344.5 - 28.8.2001 at 9.00 am
Appurtenant hereto are rights of way and rights to convey water created by Transfer 5197175.9 - 23.4.2002 at 9:00 am
Some of the easements created by Transfer 5197175.9 are subject to Section 243 (a) Resource Management Act 1991 (see DPS 80315)
Subject to an electricity easement (in gross) over part Lot 1 DP 445148 marked A on DP 445148 in favour of (now) Chorus New Zealand Limited created by Transfer 5622219.3 - 13.6.2003 at 9:00 am

6937470.1 Notice pursuant to Section 18 Public Works Act 1981.- 7.7.2006 at 9:00 am

Appurtenant to Lots 2 and 3 on DP 445148 herein is a right of way created by Easement Instrument 7620320.4 - 19.11.2007 at 9:00 am

The easement created by Easement Instrument 7620320.4 is subject to Section 243 (a) Resource Management Act 1991

7655604.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Taupo District Council - 13.12.2007 at 9:00 am

7902715.3 Compensation Certificate pursuant to Section 19 Public Works Act 1981 - 8.8.2008 at 9:00 am

8035370.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 - 19.12.2008 at 9:00 am

8696643.21 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 15.2.2011 at 7:00 am (Affects Lot 1 DP 445148)

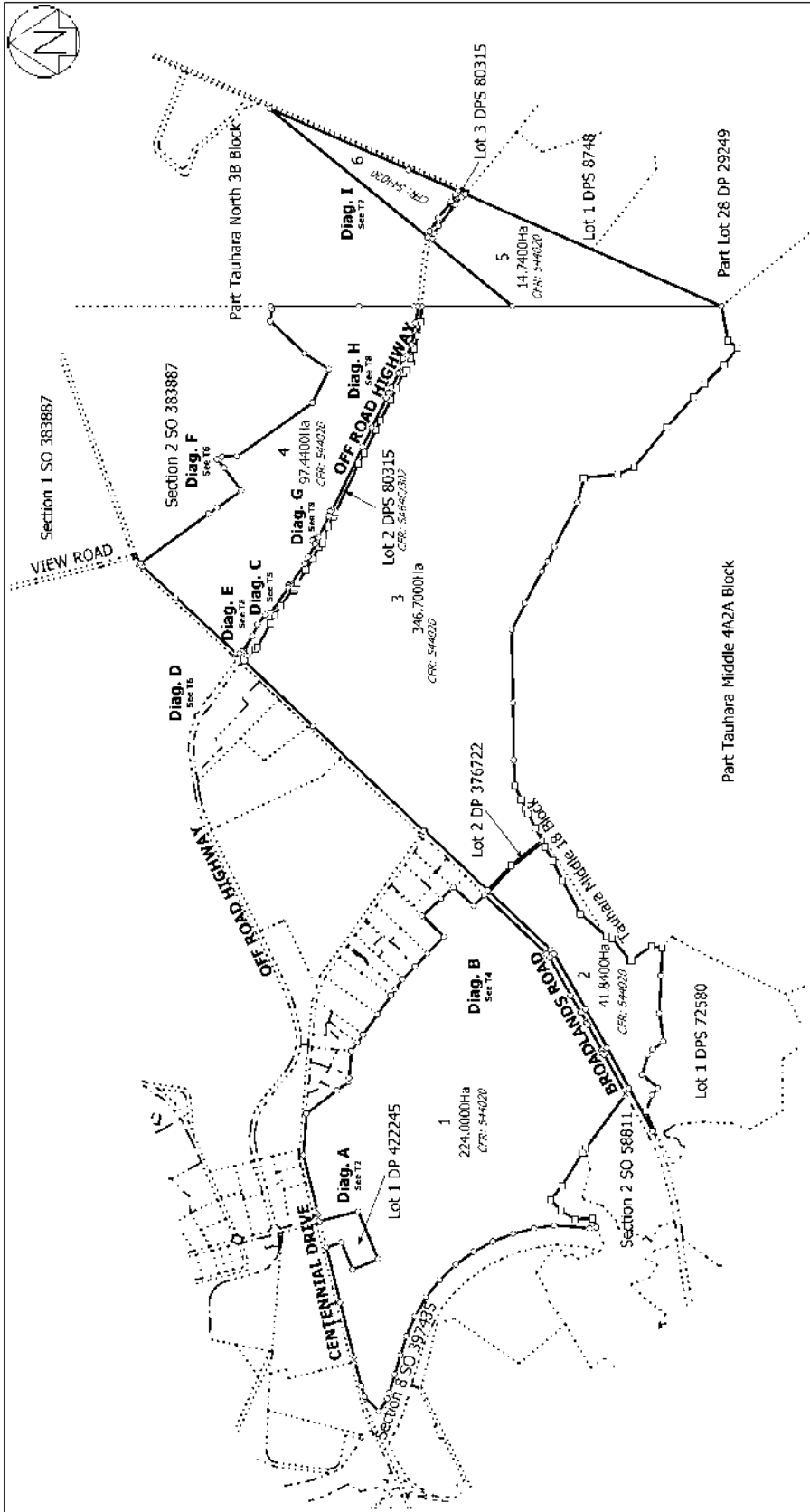
Subject to a right to convey electricity and a right to convey telecommunications and electronic data (in gross) over part Lot 1 DP 445148 marked B on DP 445148 in favour of Unison Networks Limited created by Easement Instrument 8643516.1 - 17.3.2011 at 11:27 am

Subject to Section 241(2) Resource Management Act 1991 (affects DP 445148)

9255221.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 30.11.2012 at 4:51 pm (Affects Lot 3 DP 445148)

Subject to a right to convey electricity, telecommunications and electronic data (in gross) over part Lot 1 marked AH on DP 456462 in favour of Unison Networks Limited created by Easement Instrument 9164977.10 - 21.12.2012 at 5:46 pm

The easements created by Easement Instrument 9164977.10 are subject to Section 243 (a) Resource Management Act 1991



Subject to Part 4A Conservation Act 1987

AMALGAMATION CONDITIONS

That Lots 1 - 8 herein be held in the same Certificate of Title

That Lots 9 DP 422245, Section 1 SO 58110, Part Section 1 SO 58278, Lot 1 DPS 8266 and Part Lot 2 DP 365450 herein be in the same Certificate of Title (result of CFR 544020)

Lord District South Auckland
 District Engineer, without Survey Information
 Digitally Generated Plan
 Generated on: 05/05/2011, 11:11:11 Page 4 of 11

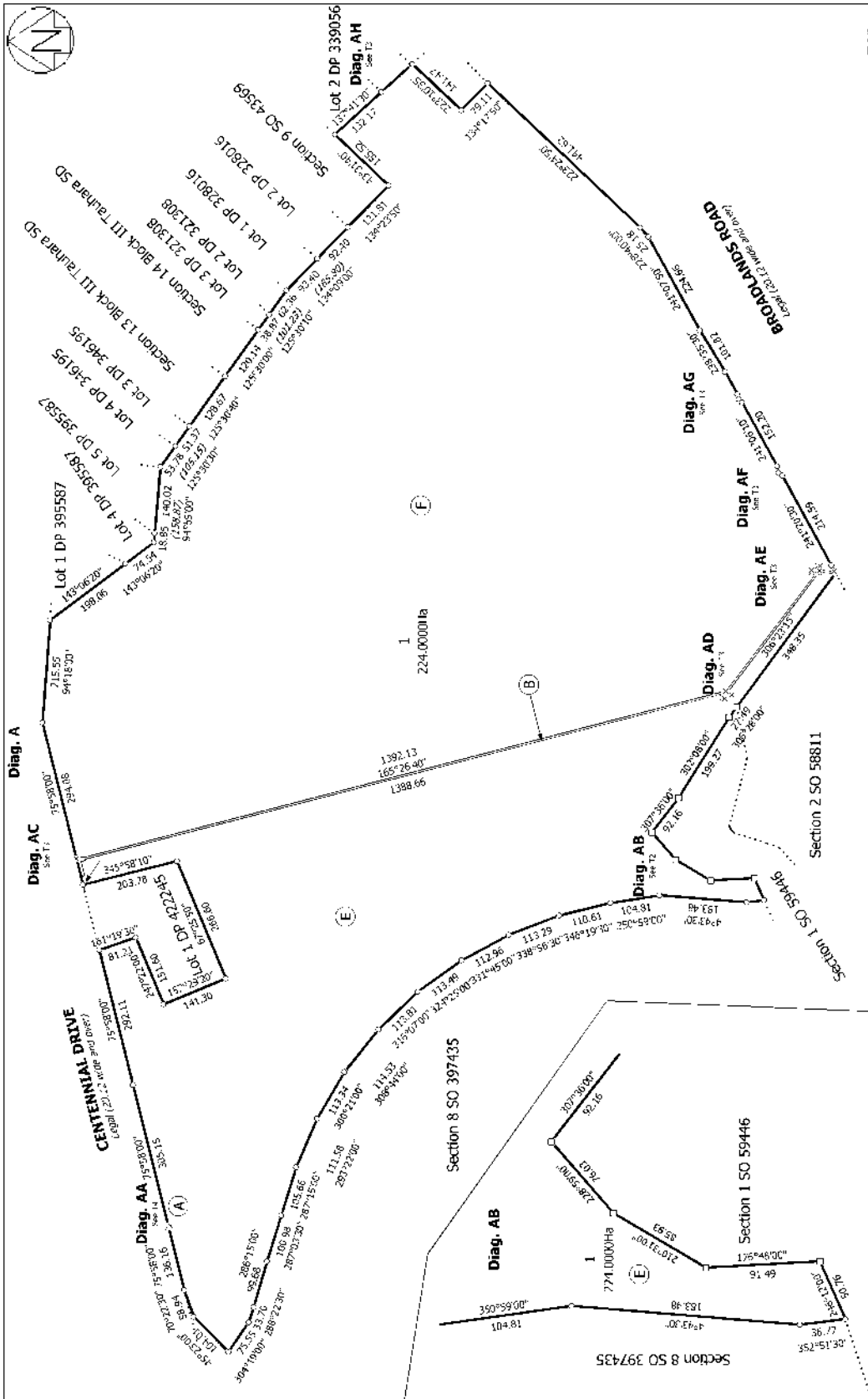
LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART
 LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS
 OVER LOTS 1 & 2 DPS 80315

Surveyor Aaron Jones Hick
 F. No. Opus International Consultants Ltd (N)

TDC: RM110160
 OPUS: 235250.00.11.139

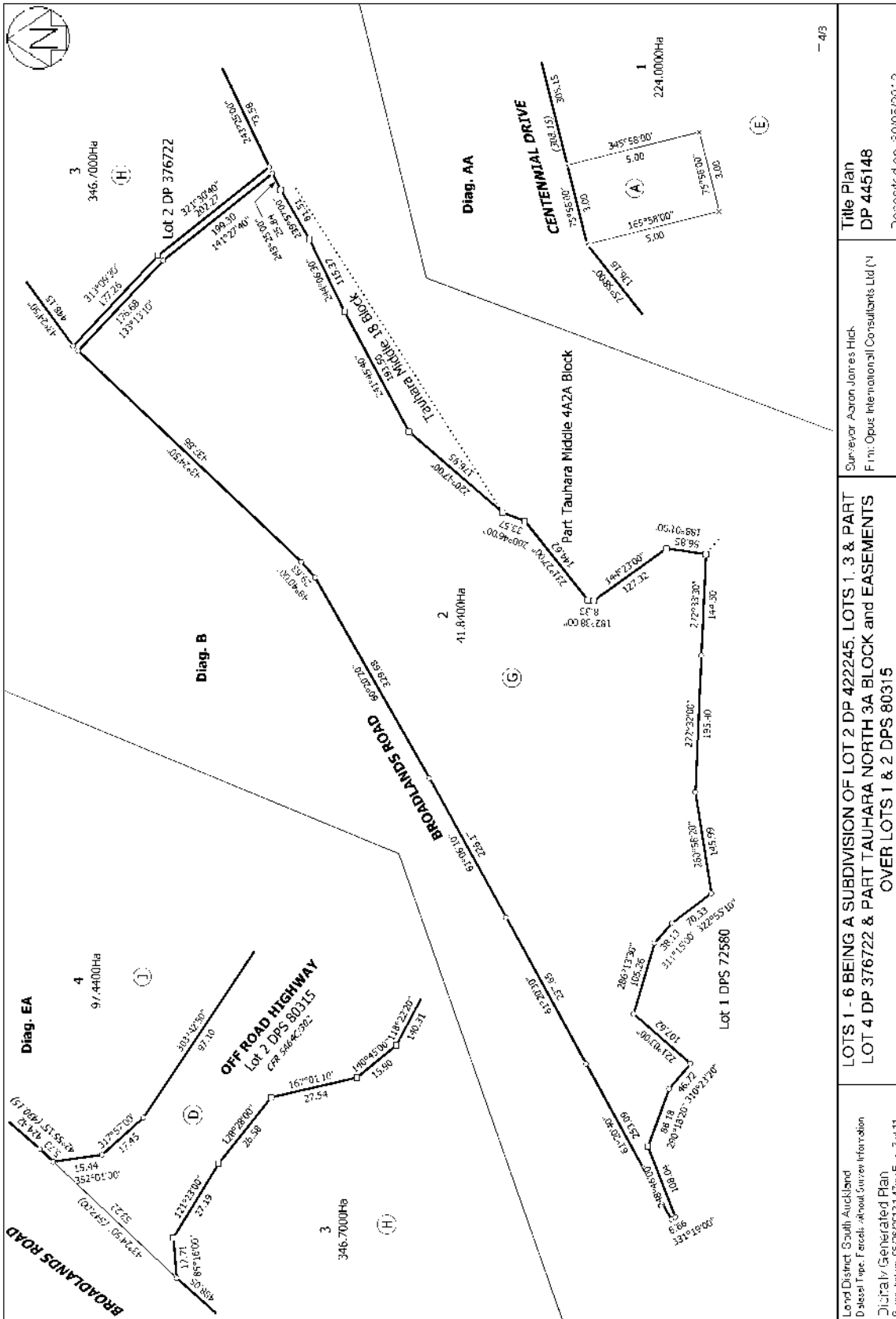
DP 445148
 Deposited on: 30/05/2012

- 1/3



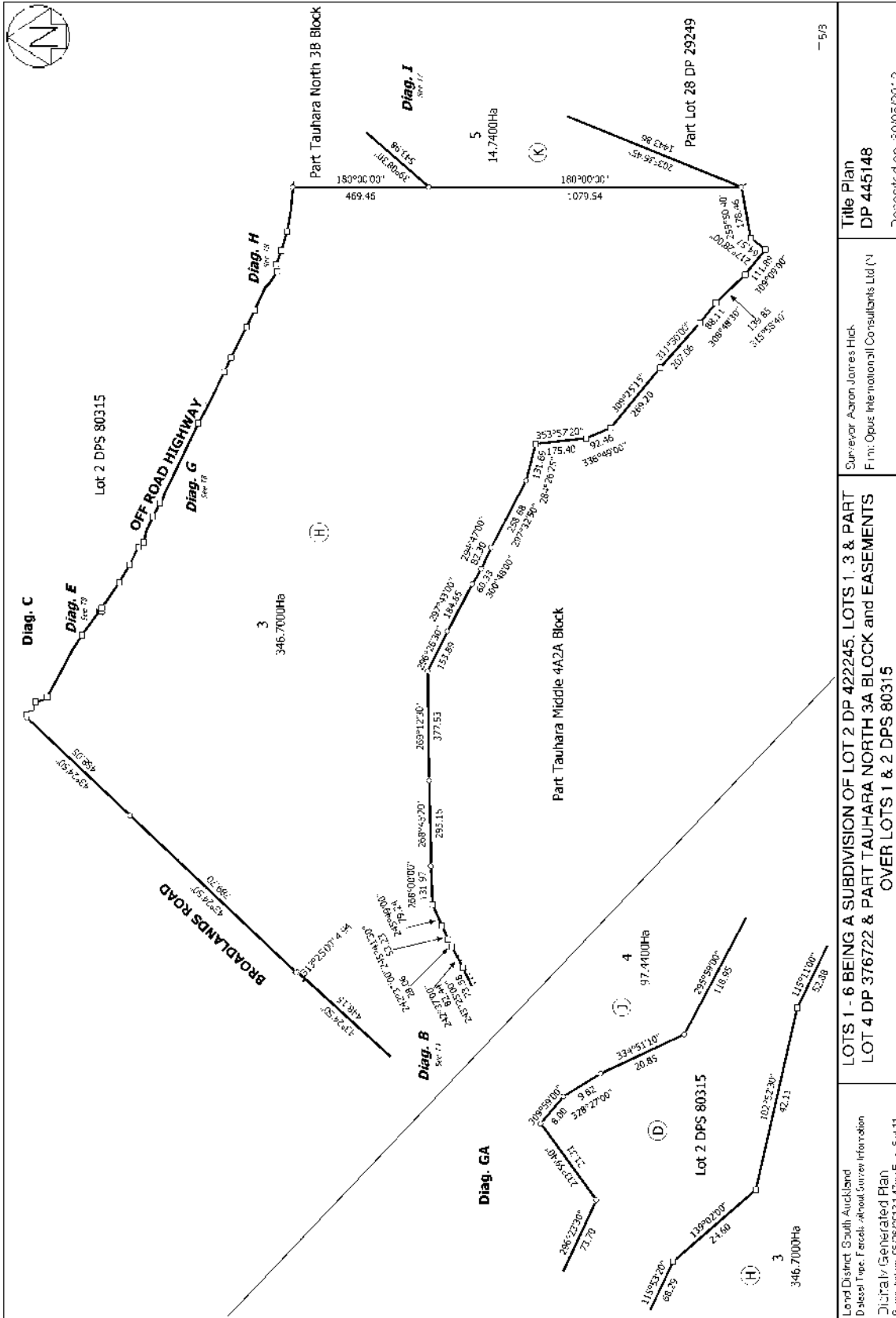
- 2/3

<p>Lord District South Auckland District Engineer, without Survey Information Digitally Generated Plan Generated on: 05/05/2012 11:47:11 Page 5 of 11</p>	<p>Surveyor Aaron Jones Hick F.M.I. Opus International Consultants Ltd (V)</p>	<p>Title Plan DP 445148 Deposited on: 30/05/2012</p>
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- 4/3

<p>Lord District South Auckland District Engineer Digitally Generated Plan Generated on: 15/09/2022 4:47 pm Page 7 of 11</p>	<p>LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS OVER LOTS 1 & 2 DPS 80315</p>	<p>Surveyor Aaron Jones Hick Firm: Opus International Consultants Ltd (V)</p>	<p>Title Plan DP 445148 Deposited on: 30/05/2022</p>
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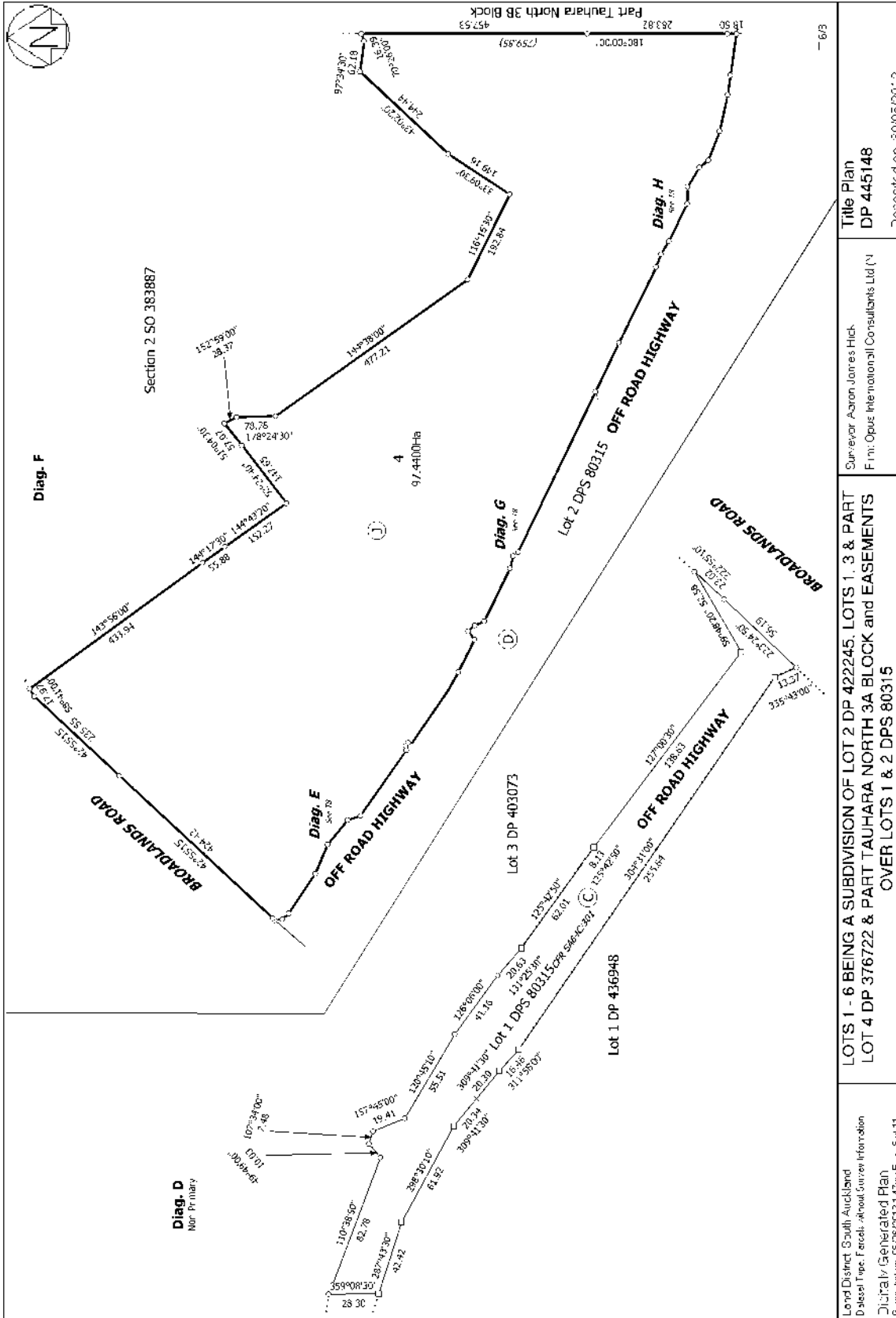
- 5/3

Title Plan
DP 445148
Deposited on: 30/05/2012

Surveyor: Aaron Jones Hick
Firm: Opus International Consultants Ltd (V)

LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS OVER LOTS 1 & 2 DPS 80315

Land District: South Auckland
Dassal Type: Ferial - Annual Survey Information
Digitally Generated Plan
Generated on: 15/09/2012 11:47:11 Page 6 of 11



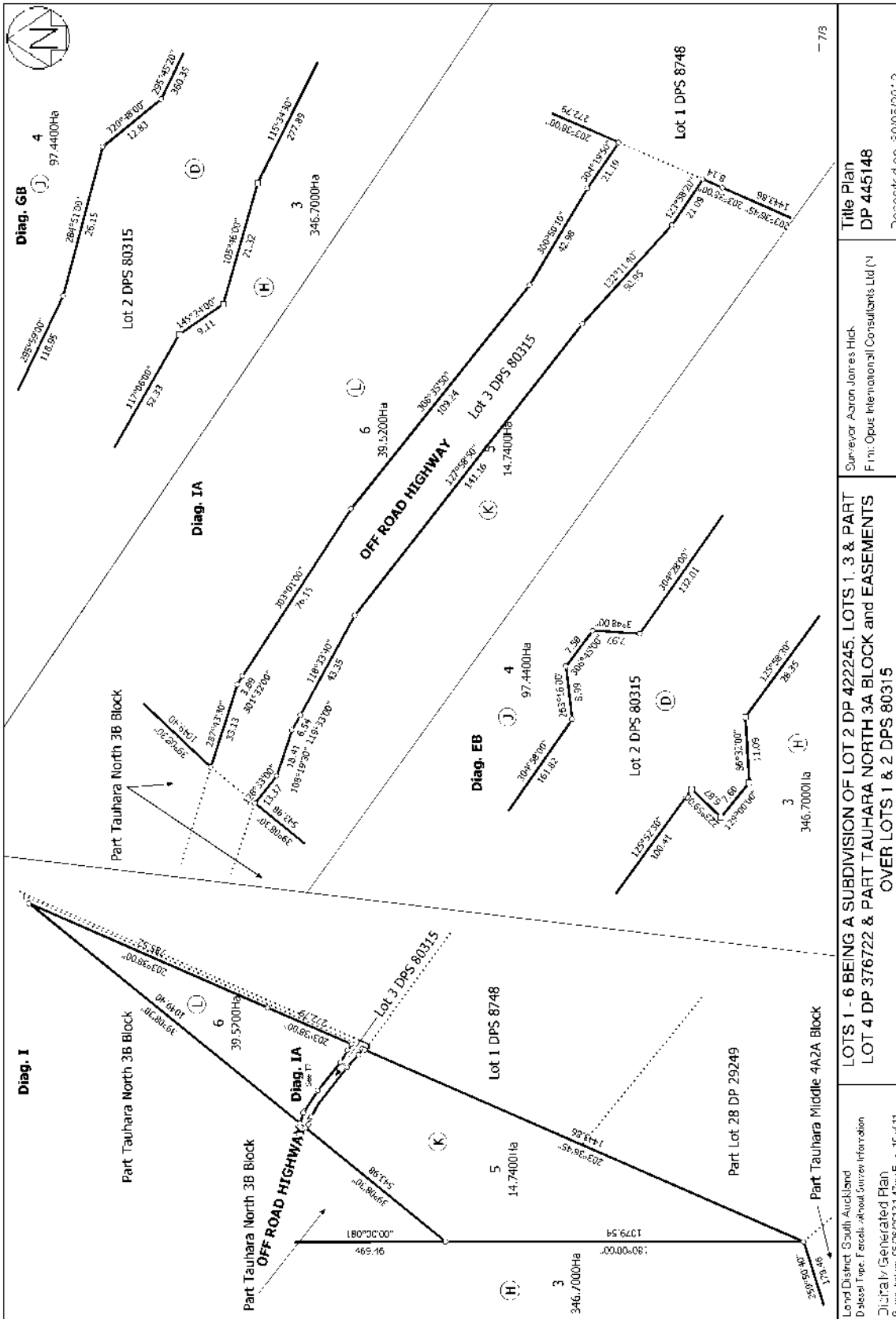
Lord District South Auckland
 District Engineer
 Digitally Generated Plan
 Generated on: 15/06/2021 4:17 pm Page 5 of 11

LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART
 LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS
 OVER LOTS 1 & 2 DP 80315

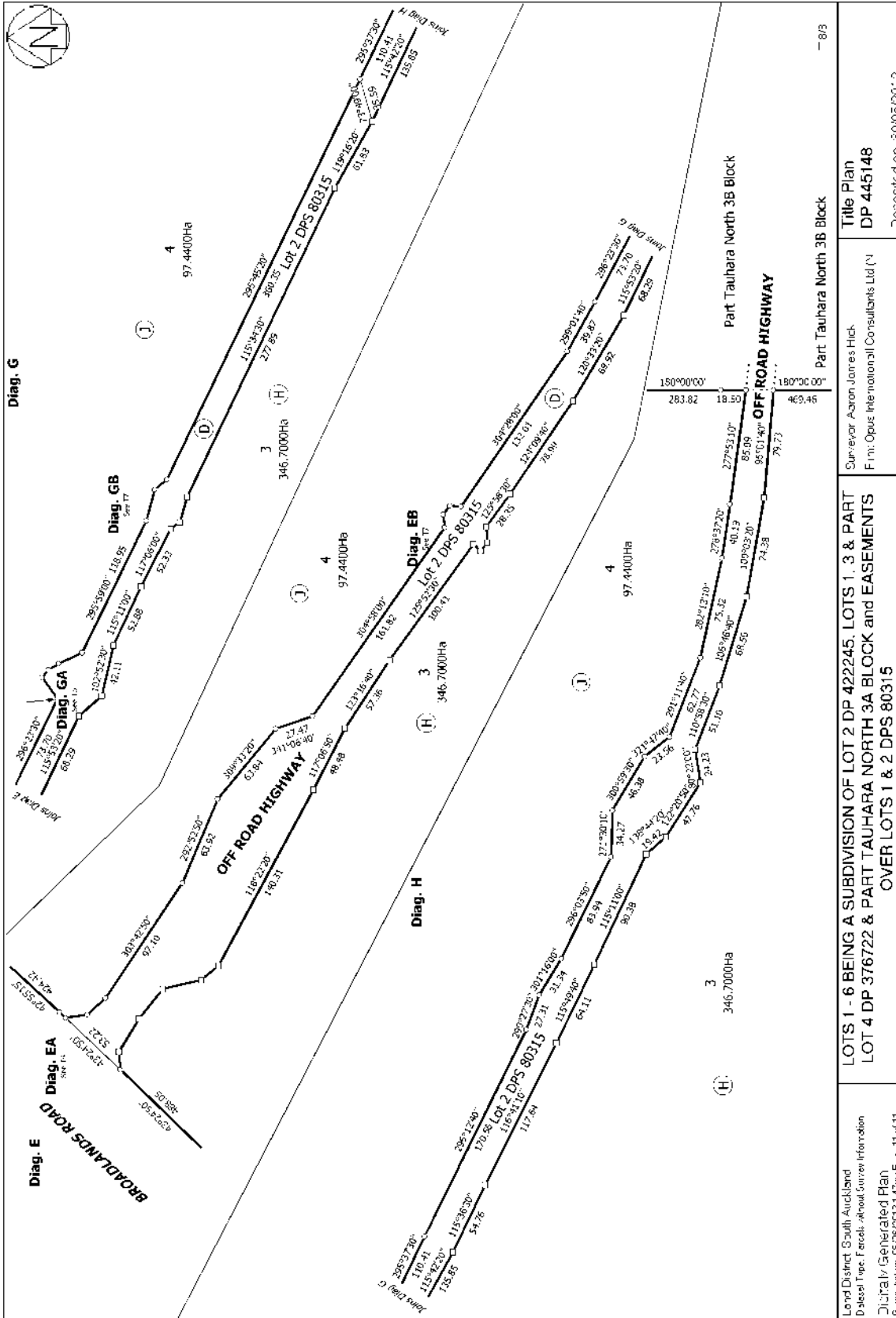
Surveyor Aaron Jones Hick
 Firm: Opus International Consultants Ltd (V)

Title Plan
 DP 445148

Deposited on: 30/05/2012



<p>Lord District South Auckland District Engineer's Office Digitally Generated Plan Generated on: 15/09/2022 11:41:11 Page 16 of 111</p>	<p>LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS OVER LOTS 1 & 2 DPS 80315</p>	<p>Surveyor Aaron Jones Hick F.M.I. Opus International Consultants Ltd (V)</p>	<p>Title Plan DP 445148 Deposited on: 30/05/2022</p>
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<p>Lord District South Auckland Digital File: Parcel - Visual Survey Information Digitally Generated Plan Generated on: 15/05/2021 4:51:11 PM Page 11 of 11</p>	<p>LOTS 1 - 6 BEING A SUBDIVISION OF LOT 2 DP 422245, LOTS 1, 3 & PART LOT 4 DP 376722 & PART TAUHARA NORTH 3A BLOCK and EASEMENTS OVER LOTS 1 & 2 DPS 80315</p>	<p>Surveyor Aaron Jones Hick Firm: Opus International Consultants Ltd (V)</p>	<p>Title Plan DP 445148 Deposited on: 30/05/2021</p>
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**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R.W. Muir
Registrar-General
of Land

Identifier **621309**
Land Registration District **South Auckland**
Date Issued 28 May 2013

Prior References
542913

Estate Fee Simple
Area 20.7103 hectares more or less
Legal Description Section 14 Survey Office Plan 438782

Registered Owners
Damin Lun, Jing Qiu and Jun Foong Chin

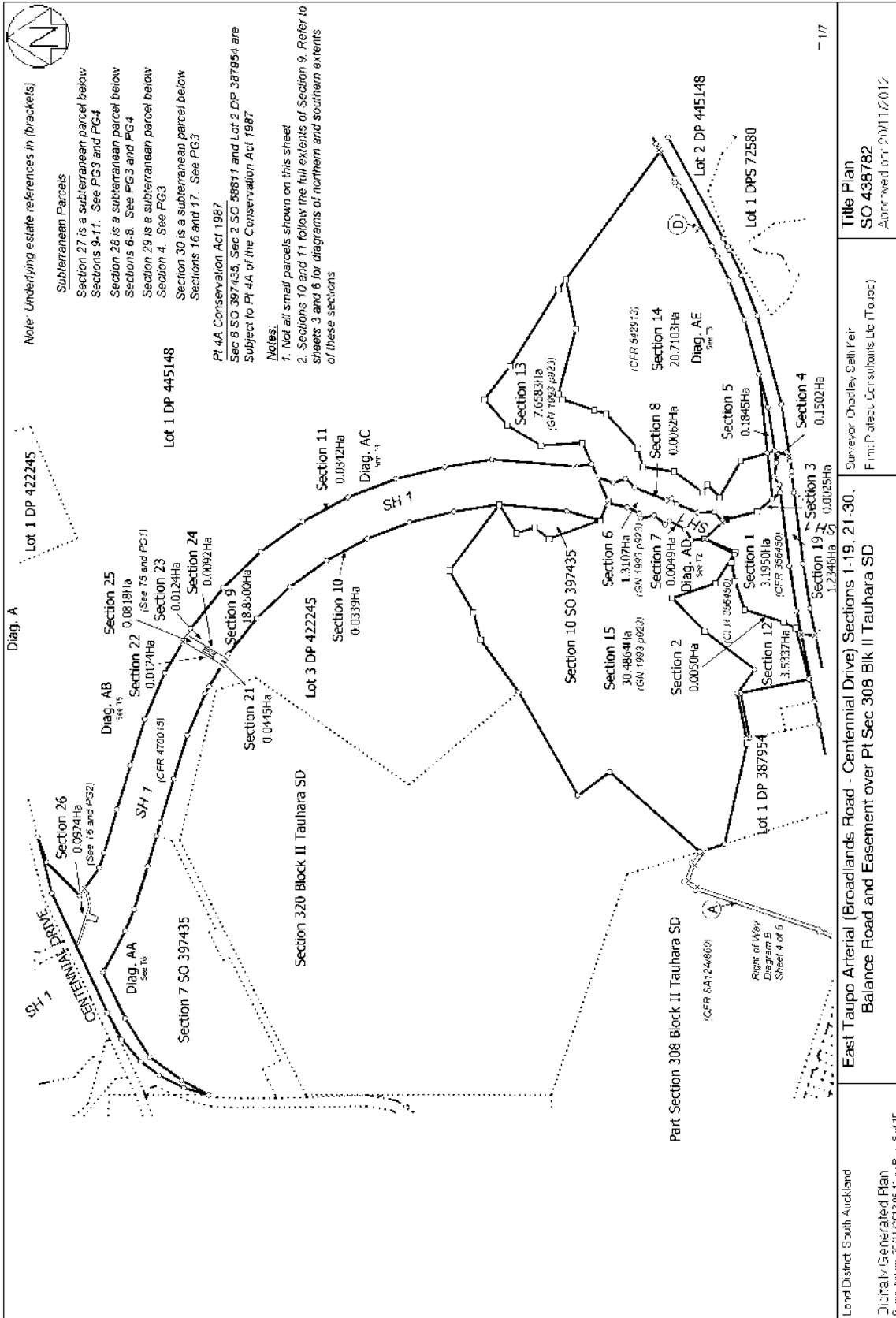
Interests

Subject to Section 11 Crown Minerals Act 1991

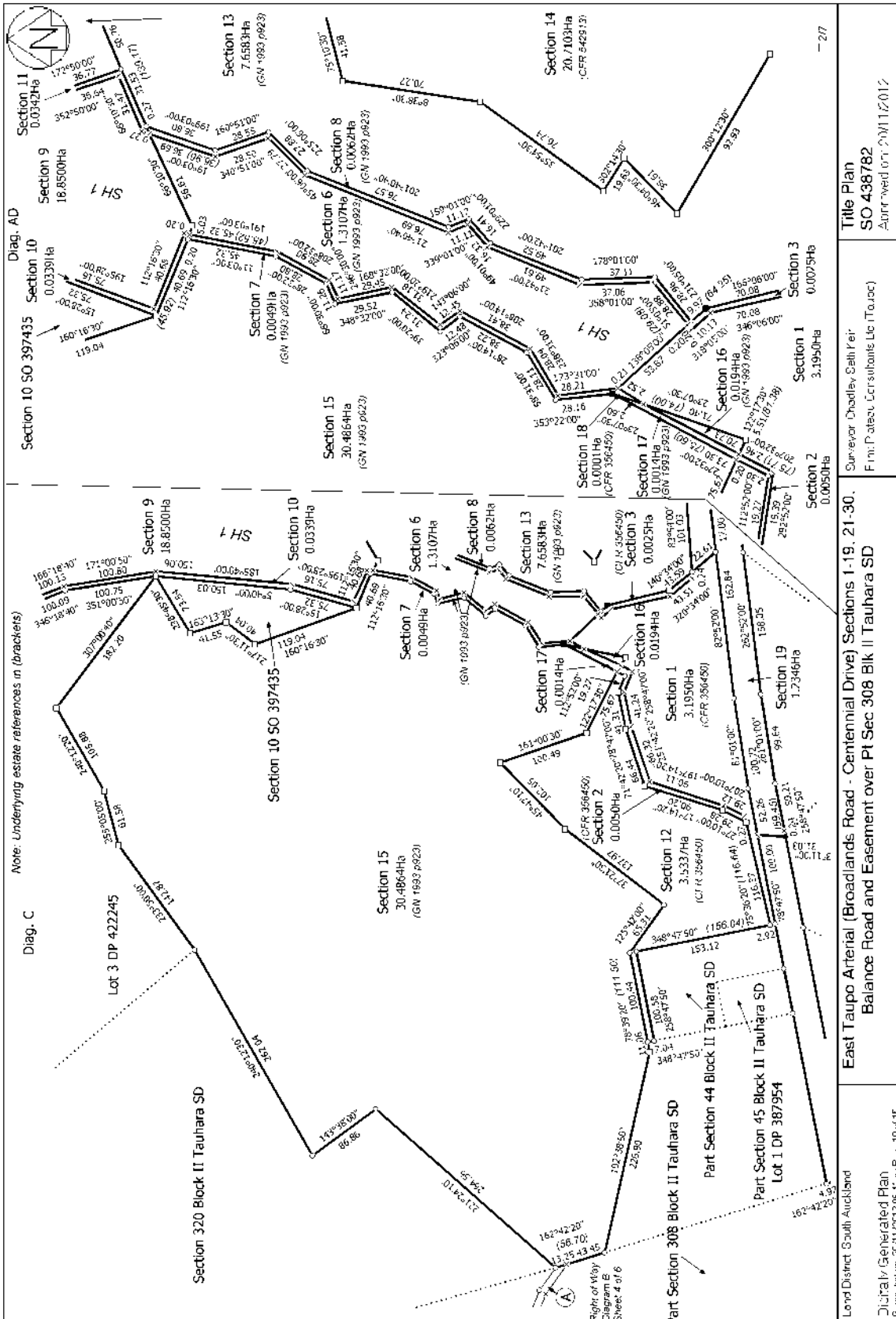
Subject to Section 27B State-Owned Enterprises Act 1986 (which provides for the resumption of land on the recommendation of the Waitangi Tribunal and which does not provide for third parties, such as the owner of the land, to be heard in relation to the making of any such recommendation)

Subject to Part IV A Conservation Act 1987

Subject to a right (in gross) to a right to convey electricity, telecommunications and electronic data over part marked D on SO 438782 in favour of Unison Networks Limited created by Easement Instrument 8998780.1 - 19.4.2012 at 8:40 am
11386147.14 Mortgage to ASB Bank Limited - 27.3.2019 at 12:59 pm



<p>Lord District South Auckland Digitally Generated Plan Generated on: 20/11/2012 06:34 on Pops 5 of 11</p>	<p>East Taupo Arterial (Broadlands Road - Centennial Drive) Sections 1-19, 21-30. Balance Road and Easement over Pt Sec 308 Blk II Tauhara SD</p>	<p>Surveyor: Dudley, Cath Peir Firm: Peabody Consultants Ltd (Tauric)</p>
<p>Title Plan SO 438782 Approved on: 20/11/2012</p>		<p>Diagrams: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z</p>

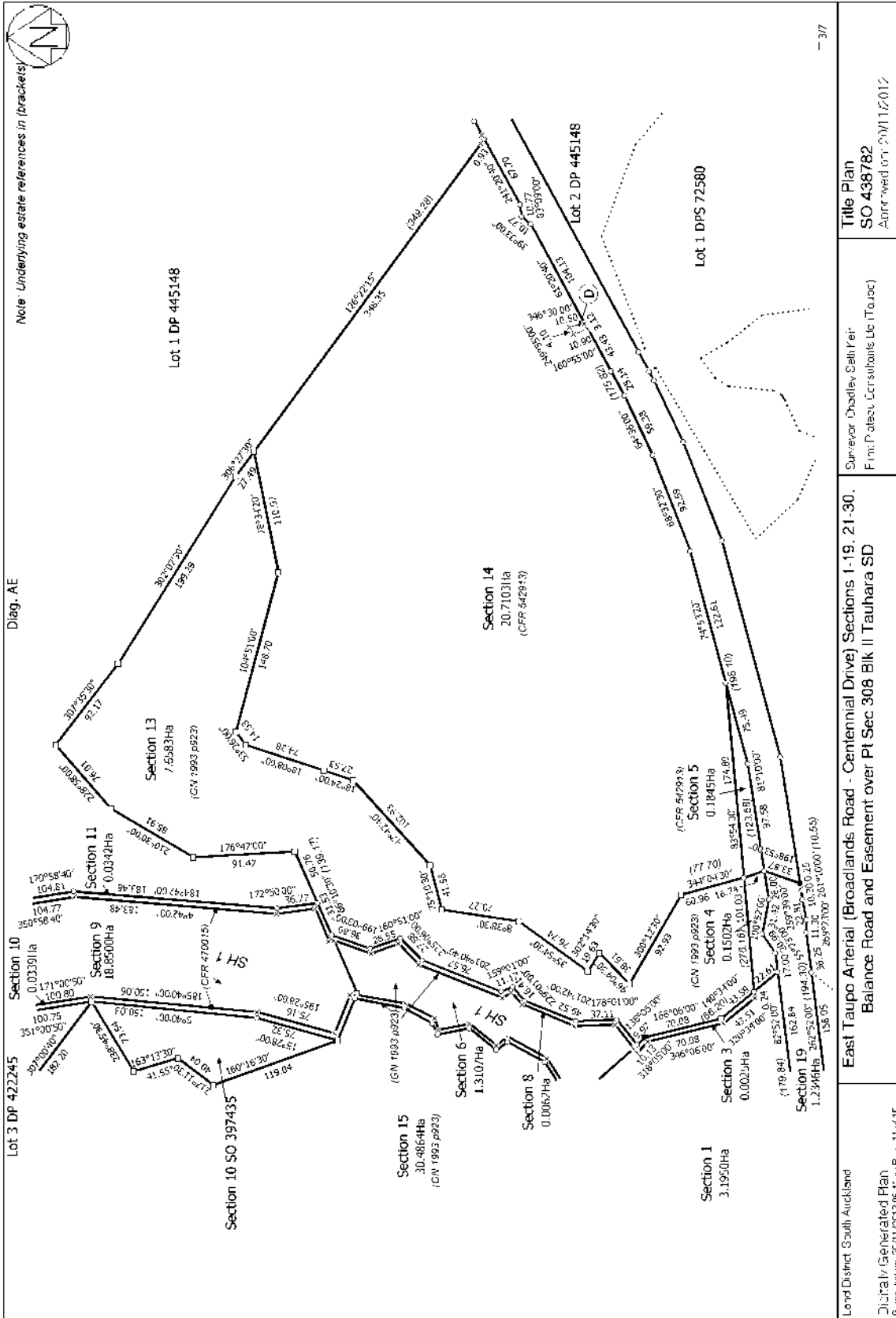


Title Plan
 SO 438782
 Approved on 20/11/2012

Surveyor: Dudley, Cath Peir
 Firm: Pateau Consultants Ltd (Tauric)

East Taupo Arterial (Broadlands Road - Centennial Drive) Sections 1-19, 21-30, Balance Road and Easement over Pt Sec 308 Blk II Tauhara SD

Lord District South Auckland
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 Generated on 20/11/2012 06:54 on Paps 10 of 15



- 3/7

Diag. AE

Note: Underlying estate references in brackets

Section 1
3.1950Ha

Section 2
0.0023Ha

Section 3
0.0023Ha

Section 4
0.1845Ha

Section 5
0.1845Ha

Section 6
1.3107Ha

Section 7
0.0062Ha

Section 8
0.0062Ha

Section 9
18.8500Ha

Section 10
0.0339Ha

Section 11
0.0342Ha

Section 13
7.5583Ha

Section 14
20.7103Ha
(CFR 842913)

Section 15
30.4864Ha
(CN 1993 0923)

Section 19
1.2348Ha

Lot 1 DP 445148
20.7103Ha

Lot 2 DP 445148
20.7103Ha

Lot 1 DP 72580
20.7103Ha

Lot 2 DP 72580
20.7103Ha

SH 1

SH 7

East Taupo Arterial (Broadlands Road - Centennial Drive) Sections 1-19, 21-30,
Balance Road and Easement over Pt Sec 308 Blk II Tauhara SD

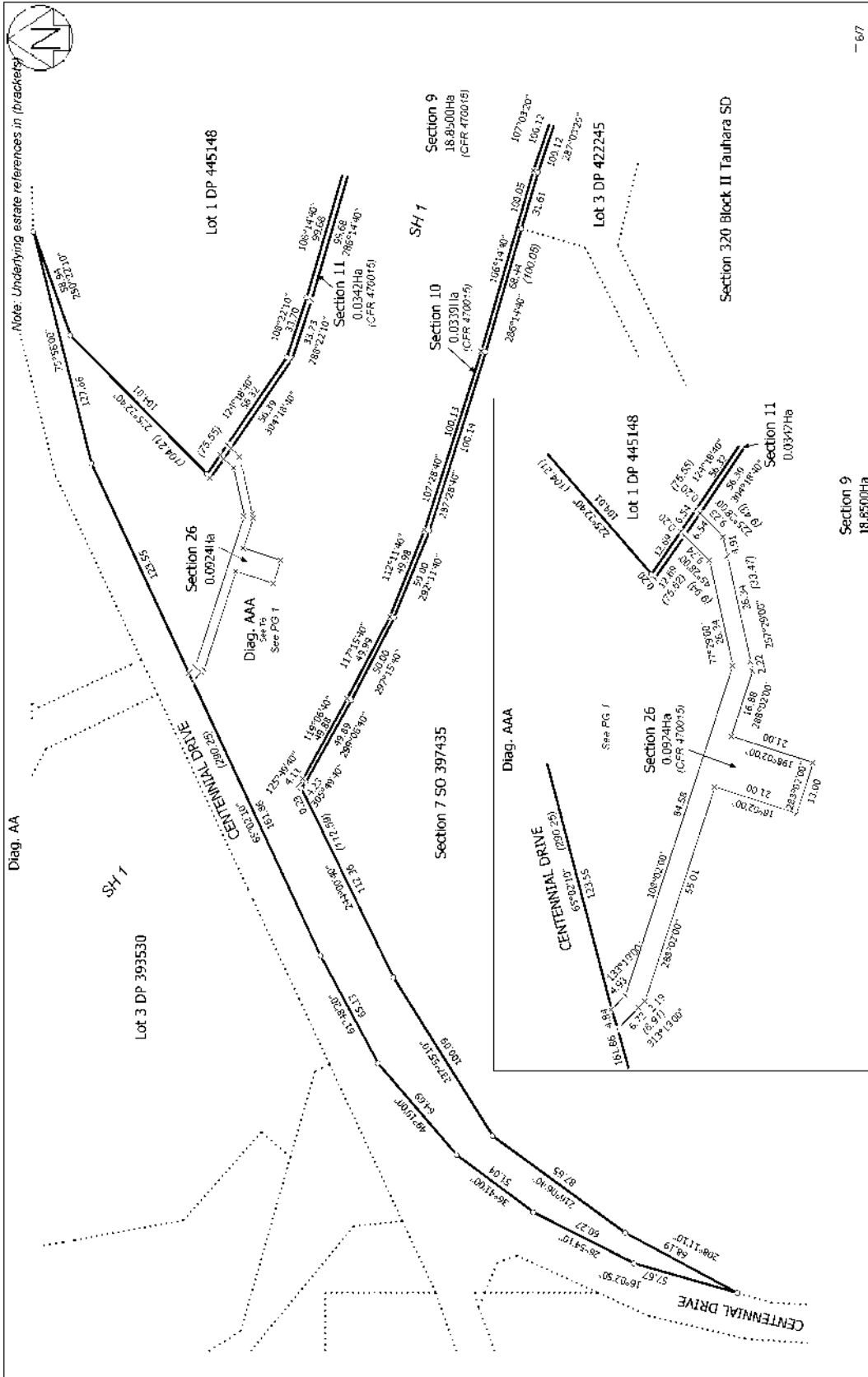
Land District South Auckland

Digital Generated Plan

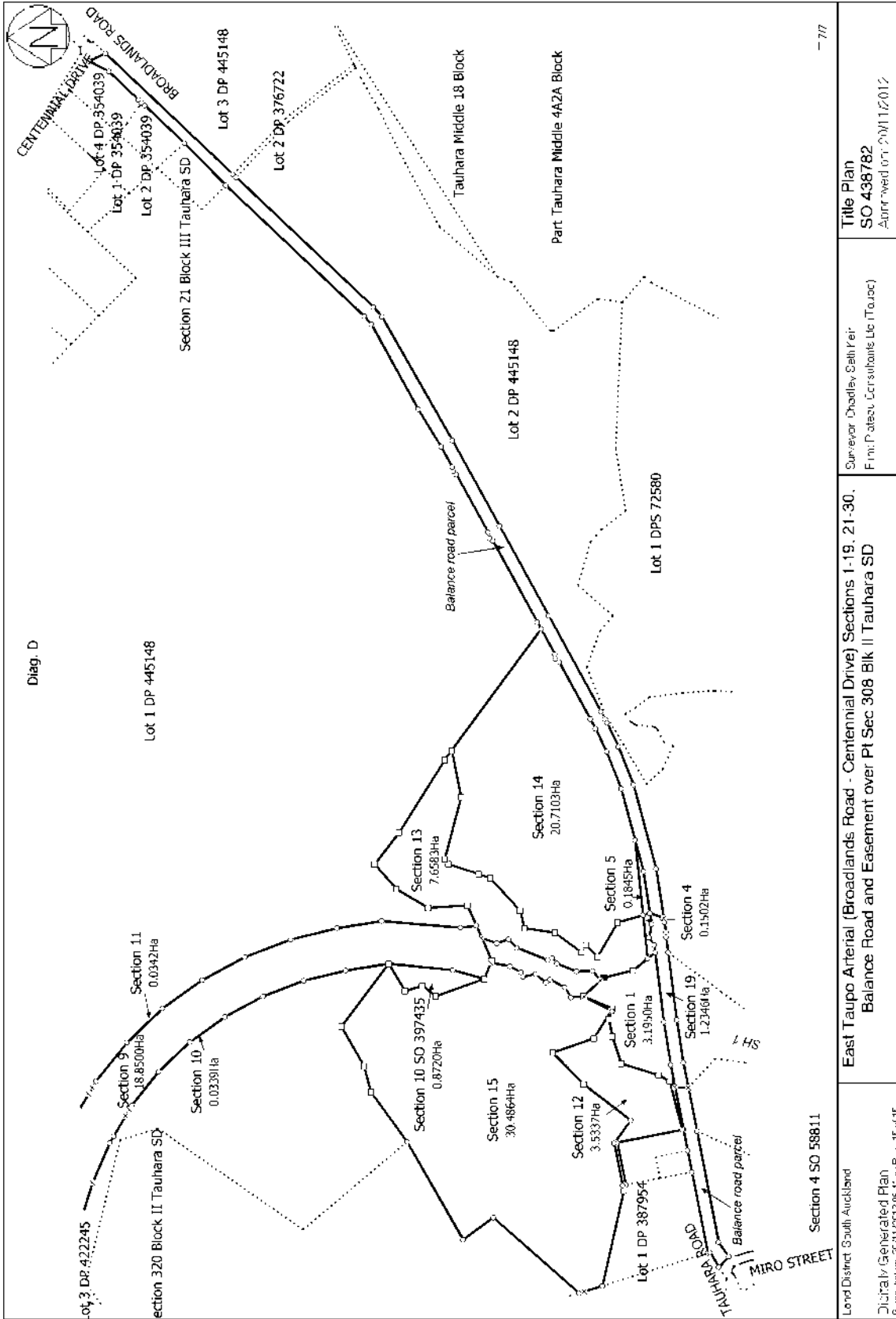
Generated on: 20/11/2012 06:51 on Paps 11 of 15

Surveyor: Dudley, Sath Per
F.M. Pateau Consultants Ltd (Tauric)

Title Plan
SO 438782
Approved on: 20/11/2012



<p>Section 9 18.8500Ha</p>	<p>Surveyor Dudley, Cath Peir Fini, Pateau Consultants Ltd (Touac)</p>	<p>— 6/7</p>
<p>East Taupo Arterial (Broadlands Road - Centennial Drive) Sections 1-19, 21-30, Balance Road and Easement over Pt Sec 308 Blk II Tauhara SD</p>		
<p>Lord District South Auckland Digitally Generated Plan Generated on: 20/11/2012 06:54 on P:05-14 of 15</p>		<p>Title Plan SO 438782 Approved on: 20/11/2012</p>



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Title Plan
SO 436782
 Approved on 20/11/2012

Surveyor: Dudley, Sath Peir
 Firm: Pateau Consultants Ltd (Tasoc)

East Taupo Arterial (Broadlands Road - Centennial Drive) Sections 1-19, 21-30, Balance Road and Easement over Pt Sec 308 Blk II Tauhara SD

Land District: South Auckland
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 Generated on: 20/11/2012 06:54 on P:05:10 of 15