

**BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY THE  
WAIMAKARIRI DISTRICT COUNCIL**

**IN THE MATTER OF**

The Resource Management Act 1991 (**RMA** or  
**the Act**)

**AND**

**IN THE MATTER OF**

Hearing of Submissions and Further  
Submissions on the Proposed Waimakariri  
District Plan (**PWDP** or **the Proposed Plan**)

**AND**

**IN THE MATTER OF**

Hearing of Submissions and Further  
Submissions on Variations 1 and 2 to the  
Proposed Waimakariri District Plan

**AND**

**IN THE MATTER OF**

Submissions and Further Submissions on the  
Proposed Waimakariri District Plan by  
**Momentum Land Limited**

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**EVIDENCE OF MARK DAVID MORLEY  
ON BEHALF OF MOMENTUM LAND LIMITED REGARDING STREAM 12  
REZONING OF LAND**

DATED: 5 March 2024

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## INTRODUCTION

- 1 My name is Mark David Morley.
- 2 I am an Environmental Geologist at Tonkin & Taylor Ltd (T+T). I have held this position with T+T since April 2013.
- 3 I hold the qualifications of Bachelor of Science (BSc) Geology with Physical Geography with Honours from the Cheltenham and Gloucester College of Higher Education, England; Master of Science (MSc) Engineering Geology, University of Newcastle-upon-Tyne, England; Graduate Diploma (Grad Dip.) Environmental Health, Massey University, New Zealand.
- 4 I have 29 years' experience in contaminated land consulting in the United Kingdom, and (since May 2006), New Zealand.
- 5 Between 2007 and 2013 I worked as a contaminated land specialist at Environment Canterbury and Christchurch City Council. During this period, my roles at both organisations included reviewing supplied information and preparing contamination land related resource consent conditions for the planning team.
- 6 My experience with contaminated land includes the investigation and assessment of the field observations and laboratory test data, development of conceptual site models and advising on options for managing contaminated land. I am familiar with preparing and/or technically reviewing reports including preliminary site investigations [**PSI**], detailed site investigations [**DSI**], site management plans [**SMP**], remediation action plans [**RAP**], work completion reports [**WCR**], site validation reports [**SVR**] and ongoing site management plans [**OSMP**].
- 7 I am familiar with the area to which the application for plan change relates. I have visited the site on several occasions, most recently in November 2023.
- 8 I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. The matters addressed in my evidence are within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material

facts known to me that might alter or detract from the opinions expressed in my evidence.

### **SCOPE OF EVIDENCE**

- 9 In my evidence I address the following matters:
- (a) The content of my evidence.
  - (b) A summary of the proposal.
  - (c) Summary of the contaminated land setting of the site.
  - (d) A description of the assessment of contaminated land effects and the proposed development.
  - (e) A description of proposed mitigation measures (investigation) to address the potential contaminated land effects.

### **SUMMARY**

- 10 Whilst the existing assessment has identified the potential for contamination to be present at parts of the site, well developed, standard processes will be used to identify, and if necessary, manage any contaminated land on site during the site's redevelopment.
- 11 Subject to the proposed investigation, and if necessary management of contaminated land, the proposed rezoning and future change of land use is considered appropriate from a contaminated land perspective.

### **CONTEXT**

- 12 This evidence is in respect of a submission by Momentum Land Limited (**Momentum**) on the Waimakariri District Council (**WDC**) notified proposed District Plan and a submission by Momentum on Variation 1 to the Proposed Plan which allows for housing intensification in accordance with the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021.
- 13 Momentums' submission seeks to rezone two blocks of land from Rural Lifestyle to Medium Density Residential. The two blocks comprise of the following land parcels:
- (a) "South Block": Lot 2 DP 83191, being 6.04 hectares of land at 310 Beach Road (**South Block**).

(b) "North Block": Lot 2 DP 4532, Lot 1 DP 5010 and Lot 5 DP 313322, totalling 28.5 hectares of land at 177 Ferry Road (**North Block**).

14 The two blocks are identified on Figure 1.

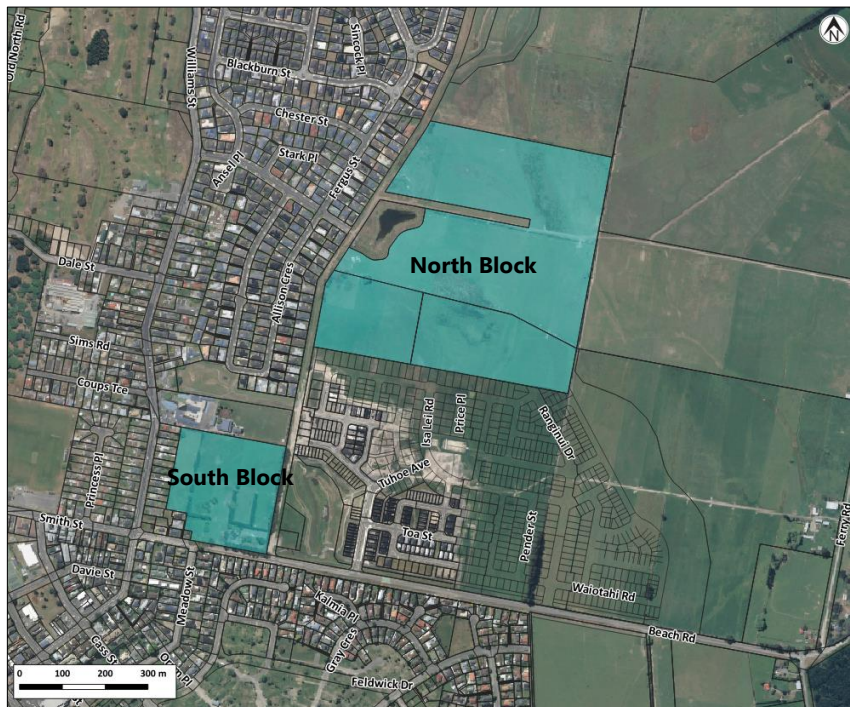


Figure 1: Block location

- 15 My evidence is in support of the rezoning proposed by Momentum and covers aspects relating to contaminated land.
- 16 In my evidence, I refer to the North and South Blocks collectively as the 'Site' (**Site**). Where a distinction between the blocks is necessary, I use the naming convention of 'North Block' and 'South Block'. Furthermore, in describing the North Block, it has been divided into three parts, and I use the naming convention "**North Block 1**", "**North Block 2**" and "**North Block 3**". These are identified in Figure 2.



Figure 2: North Blocks 1, 2 and 3.

## PROPOSAL

- 17 Momentum's plans for the Site's redevelopment includes areas for residential land use, a neighbourhood centre, recreational corridors or spaces, and stormwater management areas.
- 18 The Site's future redevelopment will include site clearance and bulk earthwork activities including (but not limited to the following):
- (a) Removal of existing structures.
  - (b) Strip and stockpile surficial materials (e.g., topsoil).
  - (c) Filling the Site to raise ground levels.
  - (d) Re-use stockpiled surficial materials to cover Site (e.g., for landscaping areas).
- 19 In summary, Momentum propose the following to manage potential contaminated land conditions at the Site as part of its redevelopment:

- (a) At the South Block undertake a programme of contaminated land investigation after the clearance of the existing structures (i.e., the dwelling and the garage) before commencing bulk earthwork.
- (b) At North Block 1, before commencing bulk earthwork, investigate the area of raised ground at this area's north-west corner for the presence of potential construction/demolition materials.
- (c) At North Block 3, before commencing bulk earthwork, investigate the area of raised ground at this area's south-west and north-west corners for the presence of potential construction/demolition materials.
- (d) Based on the assessment of the investigation observations and data from (a), (b), (c) above, controls and procedures to manage any contaminated land present shall be addressed by means of preparing a contaminated land SMP to be implemented by the Site earthwork contractor(s).
- (e) Throughout the Site earthwork contractor(s) implement the Accident Discovery Procedures<sup>1</sup> (**ADP**). The ADP is attached in **Appendix 1**.

## **CONTAMINATED LAND ASSESSMENT**

20 Throughout my evidence I refer to two contaminated land reports prepared on behalf of Momentum. I authored the draft and final versions of these reports, being the Preliminary Site Investigation<sup>2</sup> (**PSI**) and the ADP. The PSI is attached in **Appendix 2**.

21 The PSI was a 'desk-based' assessment undertaken to identify the potential for contamination to be present at the site. The PSI was undertaken in accordance with Contaminated Management Land Guidelines No 1<sup>3</sup> and comprised:

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<sup>1</sup> Tonkin & Taylor Ltd, *ADP – Momentum Land, Kaiapoi*, December 2023; reference 1019317.1000.v2.

<sup>2</sup> Tonkin & Taylor Ltd, *Preliminary Site Investigation (Ground Contamination) – Momentum Land, Kaiapoi*; reference 1019317.1000.v4.

<sup>3</sup> Ministry for the Environment (**MfE**), *Contaminated Land Management Guidelines No 1 – Reporting on Contaminated Sites in New Zealand*; revised 2021 (**CLMG No. 1**).

- (a) Review of the Site's geological, hydrological and hydrogeological setting from reports for the Site<sup>4 5</sup>.
- (b) Review of available historical aerial photographs.
- (c) Review of information obtained from the Listed Land Use Register (**LLUR**)<sup>6</sup>, from Environment Canterbury.
- (d) Review of previous contaminated land related reports for the Site.
- (e) Site walkover observations.
- (f) Prepare a preliminary conceptual site model (**CSM**) for the Site.
- (g) Prepare the ADP to provide initial actions to be implemented by earthwork contractor(s) is suspected contaminated land conditions are encountered during the Site's redevelopment earthwork.

22 The existing environment at the Site, as it relates to contaminated land effects for the proposal is outlined in the PSI, and in summary comprises:

- (a) Geological conditions at the Site comprise topsoil overlying natural alluvial deposits of the Springston Formation (i.e., silt, sand, gravels).
- (b) Hydrological features at the Site include drainage channels, locally exhibiting a tidal influence. McIntosh Drain forms the eastern boundary of North Block 2 and North Block 3 and channels on Site flow towards, and into it.
- (c) Groundwater is encountered at shallow depth on Site, ranging from current ground level up to 0.4 to 1m below ground level. Groundwater flow direction is generally to the south-east and towards the coastline (approximately 3 km east of the North Block), with locally flow towards the drainage channels present on Site.

23 Historical land uses and development at the Site and its surroundings include:

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<sup>4</sup> Tonkin & Taylor Ltd, *Momentum Land, Geotechnical report for proposed subdivision – North Block – for plan change application*, May 2023; reference 1019317.1000R v3.

<sup>5</sup> Tonkin & Taylor Ltd, *Momentum Land Living, Geotechnical report for plan change application*, May 2023; reference 1019317.1000R v3.

<sup>6</sup> Environment Canterbury's (**ECan**) catalogue of sites where past and/or current activities potentially could cause contaminated land - [Listed Land Use Register \(ecan.govt.nz\)](https://www.ecan.govt.nz/listed-land-use-register/).

- (a) South Block: this area has been in pastoral use from at least the 1940s. The existing dwelling on Site (fronting Beach Road) was constructed during the early 1980s. After the dwelling's construction, a structure, and fences (referred to as 'the livestock pens' in the following sections) were constructed at the block's southern boundary with Beach Road, and immediately west of the dwelling's driveway. Except for some small shed/barn type structures built in the approximate centre and southern margin of the South Block, no other development has taken place based on the review of the historical aerial photographs.
- (b) North Block: overall this area has been in pastoral use from at least the 1940s, and locally some previous structures/activities have been recorded on historical aerial photographs.
- (c) At North Block 1, buildings are present at this block's north-western corner from the 1940s to the 1990s.
- (d) At North Block 3, a barn has been present at the south-western corner of this block since at least 1940 to the present day. At this block and its north-western corner, since the early 1940s to present this area has been potentially subject to filling.
- (e) Offsite, notable land uses/changes include:
  - (i) Beach Road, immediately south of the South Block has been present since at least the 1940s.
  - (ii) Current residential properties south and west of the South Block were developed between the 1940s and 1960s.
  - (iii) Current Kaiapoi North School located immediately north of the South Block was developed between the 1940s and 1960s.
  - (iv) The current residential properties west of the North Block (i.e., Sovereign Palms) were developed between the 1990s and 2010s.
  - (v) The current residential properties south of the North Block (i.e., Beach Grove) have been developed since the mid-2010s to the present day.



(vi) Bordering the western edge of North Block 3, a water treatment plant and pond (for stormwater detention) was developed in the late 1990s/early 2000s.

24 The Site is recorded on the LLUR for the following activities (with an abridged descriptions for the categories) with the potential to cause ground contamination (i.e., HAIL<sup>7</sup>).

- (a) South Block – HAIL categories E1 – asbestos products, disposal; G4 – scrap yards, I – any other land affected by release of hazardous substances in sufficient quantity that it could be risk to human health or environment. These activities are described on the LLUR as ‘yet to be reviewed’. Also at this block, category G5 – was disposal to land, this is described on the LLUR as ‘verified HIAL’.
- (b) North Block 1 – HAIL category G3 – landfill and described on the LLUR as ‘yet to be reviewed’.
- (c) North Block 3 – HAIL category G3 – landfill and described on the LLUR as ‘yet to be reviewed’.
- (d) North Block 2 is not recorded on the LLUR.

25 From the PSI’s site walkover observations and/or review of historical aerial photographs, the following are relevant potential sources of ground contamination. The location/areas of these features are annotated in the figures included in the PSI:

- (a) South Block:
  - (i) Current dwelling and some of its ancillary structures are clad in cement sheet building materials (i.e., potential asbestos containing materials (**PACM**)).
  - (ii) Around the garage and to dwelling’s south-east several vehicles and vehicle parts were present.
  - (iii) Small areas (<1m<sup>2</sup> in plan) of oil staining were note in this area.

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<sup>7</sup> MfE, *Hazardous Activities and Industries List*, revised 2021.

(iv) A soil stockpile approximately 2 to 3 m high was present at the south-east part of the site.

(v) Livestock pens<sup>8</sup>.

(b) North Block:

(i) At the north-western corner of North Block 1 an area of raised 'hummocky' ground is present.

(ii) At North Block 3, an area of raised 'hummocky' ground is present at its north-western corner. There is also a timber framed and clad, barn with a sheet metal roof at the south-western corner of this block and contents included various agricultural materials and equipment. By this barn there is raised hummocky ground present too. At the centre-western part of the site various agricultural materials and equipment are present (including a silo, concrete tank, vehicle parts, rusted drums (no labels, holed)). No evidence of staining was observed.

26 A CSM of the potential source-pathway-receptor relationship<sup>9</sup> for each block of land (including North Block 1, 2 and 3) is presented in the PSI including the potential contaminants of concern (**CoC**). In summary, there is the potential for contaminated land at the site (e.g., PACM and asbestos in soils at the dwelling's footprint at the South Block, construction/demolition materials at the areas of hummock ground at the margins of North Blocks 1 and 3).

27 If contamination is present at a part of the Site, then:

(a) Construction workers could be exposed to the contamination through the inhalation of dusts, vapours, and direct contact with the contamination.

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<sup>8</sup> Referring to the PSI's Section 3.6, the use of pesticides at this location is not considered relevant as this structure/area as it is not evident in the historical aerial photographs until the mid-1980s. MfE guidance (re. *Identifying, Investigating and Managing Risks Associated with Former Sheep-dip Sites: A guide for local authorities*, 2006) considers old sheep dips and the potential for ground contamination from the use of persistent organo-chlorine pesticides relates to livestock treatment prior to 1980.

<sup>9</sup> MfE – Contaminated Land Management Guidelines, No. 5, *Site Investigation and Analysis of Soil*, revised 2021 (**CLMG No. 5**).

- (b) Future residents could be exposed through direct contact, the ingestion of contaminants from the consumption of produce grown in contaminated soils.

28 To manage this potential and its possible effects, Momentum proposes:

- (a) Throughout earthwork on Site as part of its development, the earthwork contractor(s) will implement the ADP's first response controls and procedures.
- (b) At the current dwelling and ancillary structure footprints at the South Block, after the demolition and removal of these features, and before commencement of any redevelopment bulk earthwork, undertake an investigation including sampling and soil sample analysis based on CLMG No. 5 and the Asbestos in Soil Guidelines<sup>10</sup>.
- (c) Where hummocky ground is present at the margins of North Blocks 1 and 3, undertake an investigation including sampling and soil sample analysis based on CLMG No. 5 and the Asbestos in Soil Guidelines.
- (d) Investigation shall include soil sample analysis for the relevant CoCs and their assessment with applicable human health and environmental criteria.
- (e) If contamination is present, develop options for its management (e.g., on site re-use at certain areas, capping, offsite disposal (list not exhaustive)). A SMP will be prepared to state the controls and procedures to be used in the earthwork to protect human health and the environment.
- (f) Investigation rationale, selection of CoCs, assessment of analytical data shall follow contaminated land good practices including those in CLMG No's 1 and 5, the Asbestos in Soil Guidelines and soil contaminant standards<sup>11</sup>.

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<sup>10</sup> BRANZ – *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*, 2017.

<sup>11</sup> MfE - *Users' Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health*, 2012.

**CONCLUSION**

- 29 Whilst the PSI's assessment has identified the potential for contamination to be present in parts of the site, well developed, standard processes will be used to identify, and if necessary, manage any contaminated land on Site.
- 30 Subject to proposed investigation and management of contaminated land, the proposed rezoning and future change of land use is considered appropriate from a contaminated land perspective.
- 31 Thank you for the opportunity to present my evidence.

Mark Morley  
Date: 5 March 2024

**APPENDIX 1: ADP – Momentum Land, Kaiapoi, December 2023, v2**

**APPENDIX 2: *Preliminary Site Investigation (Ground Contamination) – Momentum Land, Kaiapoi, December 2023, v4***