INVESTIGATION LOG

TP101

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)
DEPOSIT SOI	Silty sandy gravelly TOPSOIL; brown. Loose; dry; sand, fine to coarse, gravel, fine to coarse, subround to subangular; contains rootlets.	
	Sandy GRAVEL; light brown. Loose; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; contains rootlets.	
LOESS	Sandy SILT; light brown. Loose to medium dense; dry to moist; sand, fine; soapy texture, self supporting, excavates as clasts.	1
		2
	End of Investigation: 3m Geology Established	3

Samples | Legend (TS) | Vane Shear Strength (Vane No: Vane Size: 0mm; 50 100 150 200) | Values (kPa) | Scala Penetrometer (Blows / 100mm; 2 4 6 8 10 12 14 16 18) | Groundwater

Investigation Information

Depth	3m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ffective refus:	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP101

INVESTIGATION LOG

TP102

Report Ref
R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location
Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets.			TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry to moist; sand, fine; soapy texture, self supporting, excavates as clasts.		1					
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding strictures, oversize predominately comprises schist pieces. **End of Investigation: 2.5m Geology Established**		2					

Investigation Information

Depth	2.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP102

INVESTIGATION LOG

TP103

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets.			TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts.		1					
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles, with trace boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm; boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding strictures, oversize predominately comprises schist pieces.		2					
	End of Investigation: 2.2m Effective refusal							

Investigation Information

Depth	2.2m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP103

INVESTIGATION LOG

TP104

GCL Ground Consulting Ltd

Report Ref	Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
R8166-1A	Brown & Company Planning Group			MAP

Location: Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets.			TS T				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlet observed to 0.4m BGL.							
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles, with trace boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm; boulders, subround to subangular, up to 600mm; discontinuous subtle stratograding bedding strictures, oversize predominately comprising schist pieces was observed in upper 1.0m and isolated boulder (600mm diameter) extracted from 2.0m depth BGL.		1 2					
	End of Investigation: 2.5m Geology Established							

Investigation Information

Depth	2.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ffective refus	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP104

INVESTIGATION LOG

TP&SPT105

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: Vane Size: 0mm)	Values (kPa)	Scala Penetrometer (Blows / 100mm)	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets, mole ploghing has artifically increased the effective depth of the topsoil horizon .			TS T TS T TS	50 100 150 200		2 4 6 8 10 12 14 16 18: 4, 4, 5, 4, 4, 4, 6, 12, 23 >>	
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlet extend to around 0.4m BGL.							
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 600mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces .		1, 2					
	End of Investigation: 2.5m Geology Established							

Investigation Information

Depth	2.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP&SPT112

INVESTIGATION LOG

TP106

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets, mole ploghing has artifically increased the effective depth of the topsoil horizon .			TS T TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlet extend to around 0.6m BGL, bioturbation in upper 1.0m.		1					
	2.3m: Large (~2.0m Diameter) boulder daylights from 1.5m BGL		2					
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces . **End of Investigation: 2.5m Geology Established**							

Investigation Information

Depth	2.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP106

INVESTIGATION LOG

TP107

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm; 50 100 150 200)	Values (kPa)	Scala Penetrometer (Blows / 100mm; 2 4 6 8 10 12 14 16 18)	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlets.							
OUTWASH DEPOSITS	Sandy GRAVEL, with minor silt and cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces , minor silt component in upper 1.0m , large boulders 1 - 2m diameter at 2.2m depth BGL, tending gravelly SAND towards base.		1 2					
	2.3m: Large (~2.0m Diameter) boulder daylights from 1.5m BGL							
	End of Investigation: 2.3m Geology Established							

Investigation Information

Depth	2.3m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP107

INVESTIGATION LOG

TP108

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.	
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlets.	
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Medium dense to dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces, some running gravels with bedding structures.	1 2
	End of Investigation: 2.3m Geology Established	

Samples | Legend: TS | Vane Shear Strength (Vane No: / Vane Size: 0mm; 50 100 150 200) | Values (kPa) | Scala Penetrometer (Blows / 100mm; 2 4 6 8 10 12 14 16 18) | Groundwater

Investigation Information

Depth	2.3m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP108

INVESTIGATION LOG

TP109

GCL Ground Consulting Ltd

Report Ref	
R8166-1A	

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location
Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
SOI	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; soapy texture, self supporting, excavates as clasts, rootlets.		1					
H DE	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle		2 3					

Investigation Information

Depth	3m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP109

INVESTIGATION LOG

TP109

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
	stratograding bedding structures, oversize predominately comprises schist pieces **End of Investigation: 3m Geology Established**							

Investigation Information

Depth	3m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

INVESTIGATION LOG

TP110

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets.							
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 600mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces, 25mm diameter irrigation pipe intercepted at 0.4m depth BGL.		1					
	End of Investigation: 2m Geology Established		2					

Investigation Information

Depth	2m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP110

INVESTIGATION LOG

TP111

GCL Ground Consulting Ltd

Report Ref: R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location: Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets.							
OUTWASH DEPOSITS	Sandy GRAVEL, with minor cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 600mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces,.		1					
	End of Investigation: 2m Geology Established		2					

Investigation Information

Depth	2m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP111

INVESTIGATION LOG

TP&SPT112

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm)	Values (kPa)	Scala Penetrometer (Blows / 100mm)	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T			2	
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets.						2 4 15	
OUTWASH DEPOSITS	Sandy GRAVEL, with some cobbles and boulders, with minor silt; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 1000mm; discontinuous subtle stratograding bedding structures, oversize predominately comprising schist pieces was encountered from around 1.5m, which resulted in test pit termination due to machine refusal , minor silt in upper 0.5m, rootlets extend to 0.6m depth BGL. **End of Investigation: 1.5m Effective refusal**		1				20 20	

Vane Shear Strength: 50 100 150 200

Scala Penetrometer (Blows / 100mm): 2 4 6 8 10 12 14 16 18

Investigation Information

Depth	1.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ology Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP&SPT112

INVESTIGATION LOG

TP113

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T TS T				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets in upper portion, self supporting, excavates as clasts.		1					
OUTWASH DEPOSITS	Sandy GRAVEL, with some cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces . **End of Investigation: 2.5m Geology Established**		2					

Investigation Information

Depth	2.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP113

INVESTIGATION LOG

TP114

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets in upper portion, self supporting, excavates as clasts.		1					
OUTWASH DEPOSITS	Sandy GRAVEL, with some cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces . **End of Investigation: 2m Effective refusal**		2					

Investigation Information

Depth	2m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ıogy Establis	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP114

INVESTIGATION LOG

TP115

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.							
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets in upper portion, .							
OUTWASH DEPOSITS	Sandy GRAVEL, with some cobbles and boulders; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; sand, fine to coarse; cobbles, subround to subangular, up to 200mm, boulders, subround to subangular, up to 400mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces . **End of Investigation: 1.5m Effective refusal**		1					

Investigation Information

Depth	1.5m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ffective refus:	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP115

INVESTIGATION LOG

TP116

Report Ref R8166-1A

Client	Coordinates (NZTM2000)	Elevation	Location Method (±2m)
Brown & Company Planning Group			MAP

Location Lot 1 & 2 DP 303793, Te Awa Road, Hawea

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Samples	Depth (m)	Legend	Vane Shear Strength (Vane No: / Vane Size: 0mm) 50 100 150 200	Values (kPa)	Scala Penetrometer (Blows / 100mm) 2 4 6 8 10 12 14 16 18	Groundwater
TOPSOIL	TOPSOIL, with minor silt and sand; brown. Loose; dry; sand, fine to medium; contains rootlets,.			TS T TS				
LOESS	Sandy SILT; light brown. Loose to medium dense; dry; sand, fine; rootlets in upper portion, .							
OUTWASH DEPOSITS	GRAVEL, with some sand and boulders, with minor cobbles; light brown tending grey; bedded. Dense; dry; gravel, fine to coarse, subround to subangular; boulders, subround to subangular, up to 500mm; cobbles, subround to subangular, up to 200mm; discontinuous subtle stratograding bedding structures, oversize predominately comprises schist pieces, some running gravels associated with stratograde bedding.		1					
	End of Investigation: 2.2m Geology Established		2					

Investigation Information

Depth	2.2m	**Logged By**	SF	**Start Date**	03/05/22
Termination	ffective refus:	**Checked By**	FW	**End Date**	03/05/22
Machine Used		**Test Pit Dimensions**		**Logged Date**	03/05/22

Investigation Type

- ☐ Hand Auger (50mm)
- ☑ Test Pit
- ☐ Scala Penetrometer

Water Legend

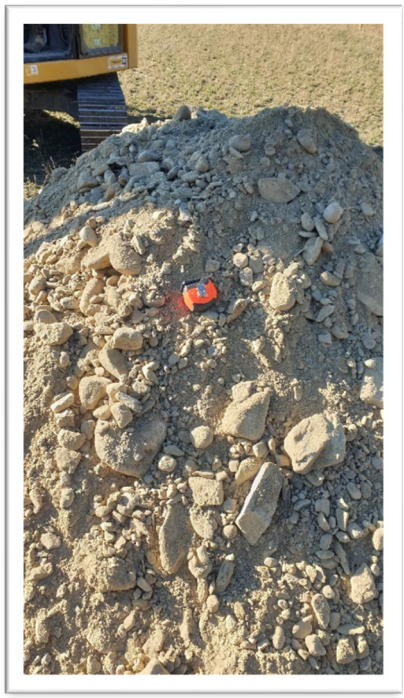
- Standing Water Level
- Out flow
- In flow

Log ref: R8166-1A TP116

APPENDIX B: INVESTIGATION PHOTOS

TP101	
PIT EXCAVATION	ARISINGS
	

TP102	
PIT EXCAVATION	ARISINGS
	

TP103	
PIT EXCAVATION	ARISINGS
	

TP104	
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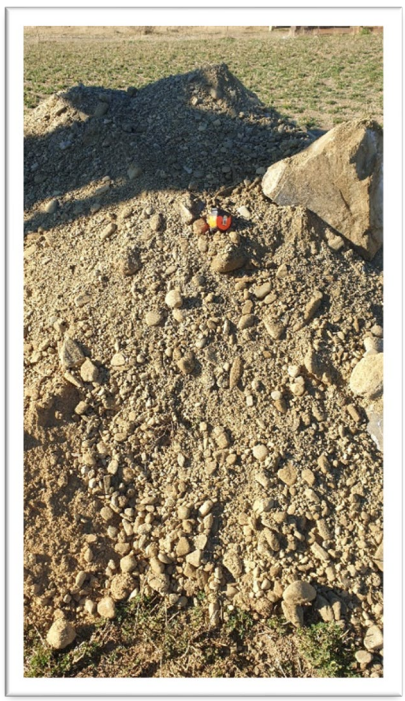
	

TP105	
PIT EXCAVATION	ARISINGS
	

TP106	
PIT EXCAVATION	ARISINGS
	

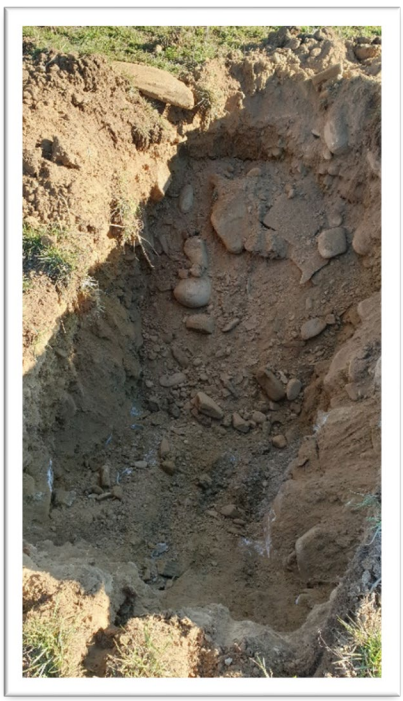
TP107	
PIT EXCAVATION	ARISINGS
	

TP108	
PIT EXCAVATION	ARISINGS
	

TP109	
PIT EXCAVATION	ARISINGS
	

TP110	
PIT EXCAVATION	ARISINGS
	

TP111	
PIT EXCAVATION	ARISINGS
	

TP112	
PIT EXCAVATION	ARISINGS
	

TP113	
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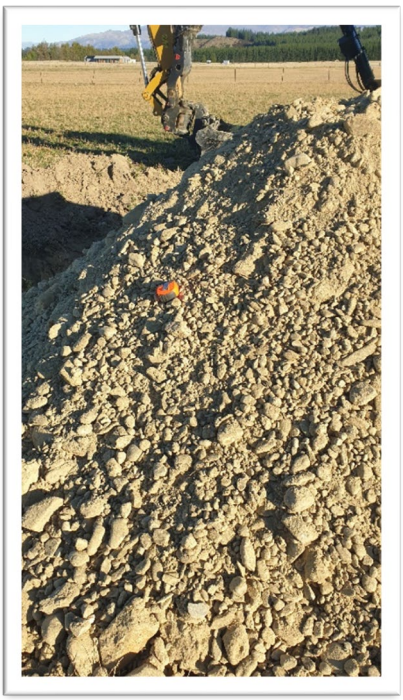
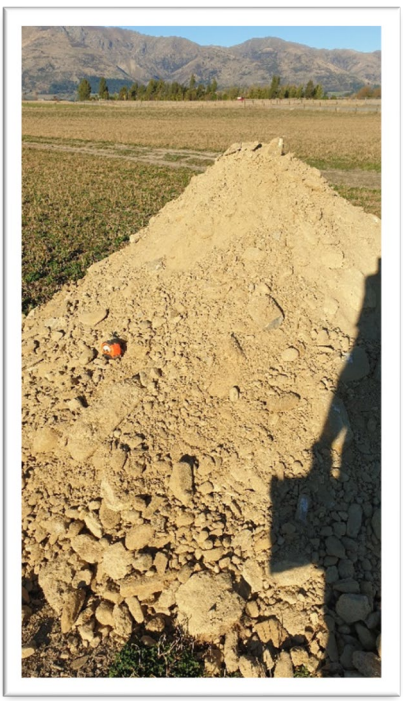
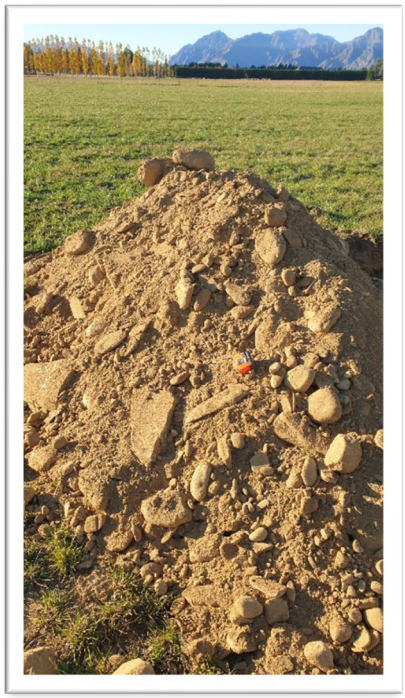
	

TP114	
PIT EXCAVATION	ARISINGS
	

TP115	
PIT EXCAVATION	ARISINGS
	

TP116	
PIT EXCAVATION	ARISINGS
	

APPENDIX C: LOT SCHEME PLAN

Vegetation Controls:

- On Lots 2, 3 and 4, any boundary planting outside the approved curtilage area shall be maintained to a height of no more than 5m.
- Any boundary planting on Lots 2, 3 and 4 shall exclude poplar or eucalyptus species.
- Any planting outside the approved curtilage area shall be an indigenous species or grow to a mature height of not greater than 6m.

Key	Botanical name	Common name	Spacing	Percentage
Riparian enhancement planting	*Austroderia richardii*	Toetoe	1.5m	20%
	Carex secta	Makura sedge	1.5m	20%
	Cordyline australis	Cabbage tree	2m	10%
	Juncus edgariae	Wiwi rush	1m	25%
	Phormium tenax	Flax	2m	25%
Tree planting	*Fuscospora cliffortioides*	Mountain beech	As shown	-

Key	Botanical name	Common name	Spacing	Percentage
Context planting	*Oleria lineata*	Small-leaved tree daisy	1.5m	15%
	Coprosma propinqua	Mikimiki	1m	15%
	Coprosma robusta	Karamu	1m	15%
	Hoheria populnea	Native Lacebark	1.5m	15%
Escarpment enhancement planting	*Pittosporum tenuifolium*	Black matipo	1m	15%
	Phormium tenax	Flax	2m	15%
	Pseudopanax crassifolius	Lancewood	.8m	5%
	Sophora microphylla	Kowhai	2m	5%

patch
landscape ■ architecture ■ urban

Reference : PA19399 IS03

Scale: 1:1,250@A1 - 1:2,500@A3

0 2.5 5.0 12.5m
SCALE = 1:250 AT A1

DRAFT

Kennedy - Hawea
Landscape Plan
11 May 2022

APPENDIX D: QLDC WASTEWATER DISPOSAL APPLICATION

AF OSW Onsite Wastewater Disposal Application Form

QUEENSTOWN LAKES DISTRICT COUNCIL

INTRODUCTION

The objective of this form is to collate the required information that will support QLDC with evaluating the risk of the proposed Onsite Wastewater Disposal system in terms of Building Code compliance (G13), RMA Act and Environmental and Public Health requirements.

REFERENCES

The design standard for waste water treatment and effluent disposal systems is **AS/NZS 1547:2012**. All references within this form relate to this standard.

RISK BASED APPROACH

QLDC has adopted a risk based approach which involves evaluating key factors relating to the system design and site and soil features to ensure that any risk to environment or public health is fully mitigated. The key potential risks that QLDC will consider include, but are not limited to, the following:

High risks

- Pathogen risks

Moderate risk

- Odours
- Loss of amenity service due to technology failure, power outage
- High capital and/or operating costs

Minor risks

- Slope instability on the steeper sites
- Noise
- Risk to cultural values
- Nutrients (nitrogen and phosphorus) and emerging contaminants

HIGH RISK APPLICATIONS

Throughout this application form there are a number of information fields that are highlighted in red. These relate to key risk factors that the system designer must consider during their design process. If these risks are present then an explanation of what design mitigations have been taken is required.

For systems that breach the requirements of Section 3, you will be required to raise an application with the Otago Regional Council for a Resource Consent. Once the ORC Resource Consent has been granted it can be referenced as part of the QLDC Building Consent Application.

QLDC reserves the right to engage expert peer review of applications that are either very high risk, or system designs which appear to have inadequate design mitigations in place. The cost of this will be on-charged to the applicant as part of their building consent fees.

APPLICATION FORM CONTENTS

1 SITE DESCRIPTION

Property Owner:	Kennedy C/- Brown and Company Planning Group
Location Address:	Te Awa Road, Albert Town, Hawea.
Legal Description (e.g. Lot3 DP1234) :	Lots 1 and 2, DP 303793
List any existing consents related to waste disposal on the site:	None
General description of development and describe all sources of wastewater:	3 -5 rural lifestyle lots proposed. Each lot will likely contain a single residential dwelling of 4 – 5 bedrooms

2 SITE ASSESSOR, DESIGNER AND INSTALLER DETAILS

2.1 SITE ASSESSOR

Company	Ground Consulting Ltd		
Contact Name	Shannon Fitzgerald	Phone	034425700
Qualifications/Technical Experience	BSc (Geology), PGDIP Sci, MAIG – 15 years field experience		

2.2 SYSTEM DESIGNER

Company	As Above		
Contact Name	Click here to enter primary contact name	Phone	Phone Number
Qualifications/Technical Experience	Click here to enter relevant qualifications or brief summary of technical experience that verifies they are suitably qualified to perform the role		

2.3 SYSTEM INSTALLER

Company	TBC		
Contact Name	Click here to enter primary contact name	Phone	Phone Number
Qualifications/Technical Experience	Click here to enter relevant qualifications or brief summary of technical experience that verifies they are suitably qualified to perform the role		

2.4 SERVICING TECHNICAN/COMPANY

Company	TBC	Phone	Phone Number

3 ORC RESOURCE CONSENT REQUIREMENTS:

Please complete below checklist to confirm whether an Otago Regional Council (ORC) resource consent will be required to discharge domestic waste water in the Queenstown Lakes District:

Yes	No	System Requirement
☐	☒	Daily discharge volume exceeds 2,000 litres per day
☐	☒	Discharge will occur in a groundwater protection zone or in the Lake Hayes catchment
☐	☒	Discharge will occur within 50 metres of a surface water body
☐	☒	Discharge will occur within 50 metres of an existing bore/well used to supply water for domestic needs or drinking water for livestock
☐	☒	There will be a direct discharge into a drain, water race or groundwater
☐	☒	Discharge may runoff onto another persons' property

If any of these apply then you will need to make an ORC resource consent application for domestic wastewater discharges to land with a maximum volume of 14,000 litres. The application form for this is Form 6A.

Once the ORC consent has been granted please enter the reference number below and provide a copy of the approved ORC consent.

ORC Resource Consent Number:	Click here to enter resource consent number.

4 SITE ASSESSMENT DETAILS

For the areas where the treatment plant and land application system and reserve area are to be located, please provide the following information:

Land use description:	Active Small Livestock Farm - Rural Open Pasture
Topography:	Terraced – gentle sloping towards the southeast
Slope angle:	Variable – Buildable Areas: <5 degrees
Vegetation cover:	Rough pasture,
Are there areas of potential ponding?	No
Are there risks associated with drainage patterns and overland flow paths?	No – LAA will be appropriately distanced, >50m from known waterbodies

Does site have Flood potential? (show with return period on site plan)	☐ **Yes** ☒ **No** If Yes, please provide information below on what design considerations have been adopted to mitigate this risk (e.g. elevated tanks, sealed lids etc.)	
	Click here to enter design mitigations.	
Is the system within 100m distance to nearest open water bodies, emphemeral streams and wetland?	☒ **Yes** ☐ **No** If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.	
	Secondary treatment	
Is the system within 50m distance to stormwater drains and stormwater soakage areas?	☐ **Yes** ☒ **No** If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.	
	Click here to enter design mitigations.	
Are Water bores within 50m? (reference ORC Maps)	☐ **Yes** ☒ **No** If Yes then an ORC resource consent is required	
Are there are other key site features that may affect the system design?	No	
Slope stability assessment- For land slopes greater than 15° (25%) summarize any areas unsuitable for waste water irrigation.	n/a	
What is the depth to the highest potential ground water level:	Summer:	>15
	Winter:	>15
	Information Source:	Site investigation data & ORC GIS database
Is there potential for waste water to short circuit through permeable soils to surface and / or ground water?	© **Yes** © **No** If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.	
	Modified trench or bed details for category 1 soils to ensure even distribution	

5 SOIL INVESTIGATION

For the areas where the land application system and reserve area are to be located, provide the following information

Has a Site Specific Field investigation been completed? Is Report attached?	☒ Yes ☐ No Note: Report shall include a plan showing test pit or bore location, and a detailed soils report in accordance with Table B2 and Figure B1 or and equivalent format and detail. Photos of the profiles and soils shall be included including photos of soil ribbon tests (Section E4.1)
Field investigation date:	May 2021: Refer to GCL Report R8166-1A
Number of test pits or bores:	16x Test Pits: Refer to GCL Report R8166-1A
If fill material was encountered during the soil investigation, describe the fill material and explain how this will impact on the waste water land application system design and performance?	No
Has the soil permeability beneath the proposed land application field been tested?	☐ Yes ☒ No If Yes please provide details of test method and results (e.g. Percolation test method (refer to B6 for applicability):
	Click here to enter design mitigations.

6 SOIL CATEGORY

Based on the site investigation report please confirm the soil category that is present for the land application system.

Select One	Soil Category (Table 5.1)	Soil Texture *(Appendix E)*	Drainage Characteristic	Risk limits for Groundwater Setback
☒	**1**	Gravel and sands	Rapid	**5m**
☒	**2**	Sandy loams	Free	**5m**
☒	**3**	Loams	Good	**1.5m**
☐	**4**	Clay loams	Moderate	**1.5m**
☐	**5**	Light clays	Moderate to slow	**0.6m**
☐	**6**	Medium to heavy clays	Slow	**0.6m**

Is the groundwater level (refer section 4) within the above risk limits for the site?	☐ Yes ☒ No If Yes, please provide information below on what system design considerations have been adopted to mitigate the risk to groundwater. For example: • Secondary treatment • Tertiary UV treatment • Modified trench or bed details for category 1 soils to ensure even distribution
	Click here to enter design mitigations.

Note: The soil category and groundwater level will determine the required loading rate for the land application system. This needs to be specified in section 7.2 and should be referenced from L1, M1 or N1 tables.

7 SYSTEM DESIGN

7.1 SYSTEM INPUT INFORMATION

Property Water Supply	☐ Council reticulation ☒ Water bore ☐ Rainwater collection ☐ Other- please provide details: Click to enter text.
Total number of bedrooms that will be serviced by the system	Subject to specific investigation for each lot. Further investigation and detailed designed is required to confirm the soil class, and calculate

	the DLR appropriate treatment system, but based on Five bedrooms, as follows:
Maximum design occupancy	e.g. 5 Bedrooms (Max: 8 People)
Flow allowance litres / day per person: Refer to Appendix H, Table H3 and H4. Justify variations.	e.g. 165L/person/day
List any water conservation devices or water recycling details and volume estimates (Table H3):	e.g. Standard water reduction fixtures
Specify flow allowance for any other activity on the site such as spa baths, luxury showers etc:	n/a
List any allowance for seasonal variations and loads:	n/a
Total design flow allowance (litres per day):	e.g. 1,320 Note: If above 2,000 litres per day an ORC resource consent is required

7.2 SYSTEM SELECTION & CAPACITY

Select One	Proposed Treatment System	Manufacturers Details	No. of Chambers and Capacity (litres)	Emergency Storage (litres)
☐	Primary System (e.g. Septic tank)	Click here to enter text.	Chambers & Litres	Litres
☑	Secondary Treatment system[1]	Austin Bluewater ABS2000	Chambers & Litres	Litres
☐	Tertiary Treatment System	Click here to enter text.	Chambers & Litres	Litres
☐	Other:	Click here to enter text.	Chambers & Litres	Litres

[1] For on-site wastewater management systems requiring secondary or better treatment, QLDC strongly recommends that applicants select treatment plants certified by the On-site Effluent Treatment National Testing Programme (OSET NTP), or an equivalent or better independent certifying organisation. These have been verified as meeting the secondary effluent treatment requirements of AS/NZS 1547.

Rated treatment capacity of the system (litres/day):	2000L/day
Details of effluent filter:	Orenco domestic biotube or equivalent

Select One	Proposed Land Application System	Design Description. Please attach site plans/drawings	Design Loading Rate mm/day (DLR or DIR)
☐	~~Surface dripper irrigation~~	NOT PERMITTED IN QLDC DUE TO FREEZING	N/A
☐	Sub-surface dripper irrigation	NOTE: MUST BE MINIMUM OF 300mmTO PREVENT FREEZING Click here to enter text.	Click to enter DLR or DIR
☑	Conventional Bed	For absorption within upper soils & outwash deposits	20-50mm/day
☐	Conventional trench	Click here to enter text.	Click to enter DLR or DIR
☐	Deep trench	Click here to enter text.	Click to enter DLR or DIR
☐	Discharge control bed or trench		
☐	Mound system	Click here to enter text.	Click to enter DLR or DIR
☐	Other (specify):	Click here to enter text.	Click to enter DLR or DIR

Note: The land application system site plans/drawings are to include dimensions, location, layout and component labels, cross-section details (with dimensions) and where appropriate; filter cloth, material type, structural details, flushing points, venting, valving, special fittings, intercepting drains and other detail specific to the design.

Select One	Proposed Loading Method	Details
☐	Trickle load, gravity	
☐	Gravity dosing: Flout, siphon or other	Click here to enter text.
☑	Pump	TBC by installer

☐	Other	Click here to enter text.

7.3 ADDITIONAL SYSTEM REQUIREMENTS

Select One	Additional design considerations	Details
☑	Specify details or alarm system(s)	Site specific investigation and design required for each lot
☐	Specify available reserve area (5.5.3.4)	As above
☐	Specify fencing, warning signs and vegetation and planting requirements	As above
☑	Storm / surface water management:	Refer to GCL report R8166-2A
☐	Depths pipes to buried:	Site specific investigation and design required for each lot
☐	Flood protection:	As above
☑	Cut off / diversion drains (show on site plan):	Refer to GCL report R8166-2A
☐	Other:	Click here to enter text.

8 ATTACHMENTS CHECKLIST

Select One	Required Documents
☐	Copy of any existing QLDC or ORC consents
☐	Copy of QLDC Site & Soils Assessment (if previously completed)
☐	Copy of slope stability geotechnical report (if required)
☑	Copy of flood hazard assessment (if required)
☑	Site Specific Field Investigation Report. *Ensure it covers information requirements covered in sections 5 &6*
☐	Detailed plans of system layout showing treatment unit, drains/pipes and land application field including cross-section detail *Ensure it covers information requirements covered in sections 7*
☐	For secondary treatment units provide evidence of OSET NTP (or equivalent) certification

☐	Independent certification of in-ground tanks in terms of AS/NZS 1546.1 2008, or an equivalent standard. Provide details of performance criteria to which certification applies.
☐	Design Producer Statement of the on-site wastewater management service
☐	Loading certificate in accordance with Section 7.4.2 (d)
☐	Operation & Maintenance guidelines for the treatment plant and land application system
☐	Homeowner's operation manual for the treatment plant and land application system
☑	To scale site plan. The following must be included on the plan: • Buildings Boundaries • Treatment system components Reserve disposal area Retaining Walls • Embankments • Cutoff drains / diversion bunds Water bodies • Stormwater drains, discharge points or soakage facilities • Flood risk areas • Other wastewater treatment units and discharge systems • Water bores • Direction of ground water flow • Existing and proposed trees and shrubs • North arrow

9 APPLICANT STATEMENT:

I believe to the best of my knowledge that the information provided in this application is true and complete. I have the necessary experience and qualifications to design the above proposed waste water treatment system in accordance with the requirements of AS/NZS 1547:2012:

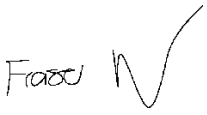
Company: Ground Consulting Ltd

Email: queenstown@gcltech.co.nz

Phone number: 034425700

Name: Fraser Walsh (Managing Director)

Signature:



Date: 10 May 2022

Please scan this completed document to PDF and upload along with supporting Building Consent application information to the QLDC Sharefile portal:

http://www.qldc.govt.nz/planning/building-consents/apply-online/

PUKEKOHE OFFICE
UNIT 2, 4 MANUKAU ROAD, PUKEKOHE
POST: PO BOX 1019, PUKEKOHE, 2120
EMAIL: pukekohe@gcltech.co.nz
TEL: 09 239 2229

AUCKLAND CENTRAL OFFICE
LEVEL 1, KAURI TIMBER BUILDING
104 FANSHAWE STREET, AUCKLAND, 1010
EMAIL: auckland@gcltech.co.nz
TEL: 09 379 0777

QUEENSTOWN OFFICE
157 GLENDA DRIVE, FRANKTON
POST: PO BOX 2963, QUEENSTOWN 9349
EMAIL: queenstown@gcltech.co.nz
TEL: 03 442 5700

GREAT BARRIER IS. OFFICE
6 MOANA VIEW ROAD, OKUPU
POST: PO BOX 1019, PUKEKOHE, 2120
EMAIL: office@gcltech.co.nz
TEL: 09 239 2229

GCL
Ground Consulting Ltd

SERVICES REPORT

Four lot subdivision on Te Awa Road
For B. Kennedy
June 2022

CONTENTS

1.0 INTRODUCTION

Clark Fortune McDonald & Associates (CFM) has been engaged by Bernard Kennedy to assess services and access for the subdivision of two existing allotments into two, resulting in a four lot rural subdivision. Two new residential building platforms are to be identified, in addition to the two platforms that have previously been approved on the underlying lots. The site is located on land on the north side of Te Awa Road, approximately 1.7 kilometers south west of the Hawea Township.

The proposal seeks to develop four lots which contain residential building platforms. The previous approved platforms are shown as covenant areas BB and BC on the Subdivision Plan included as Attachment A to this Report. The new residential building platforms are shown as proposed covenant areas BA and BD. Both the existing and proposed platforms have areas of 1,000m² each and also included is a curtilage area, surrounding each of the platforms.

The site is legally described as Lots 1 and 2 DP 303793. The total site area comprises 20.65 ha and is contained within record of titles 15147 and 15146.

The site has frontage to Te Awa Road along the southern boundary of the subject sites. Access to the new allotments will be from this legal road.

This report is preliminary and for the purposes of resource consent. Further information and detailed engineering design will be undertaken as development proceeds.

The report considers infrastructure demands based on the proposed recreational activity.

2.0 SCOPE OF WORK

The scope of work includes examination of existing QLDC as-built records, researching existing water supply documentation and recommendation of infrastructure and servicing options.

3.0 DESIGN STANDARDS

Site development standards include, but are not limited to, the following:

- QLDC Land Development and Subdivision Code of Practice adopted by QLDC on 3rd June 2015.
- NZS4404:2010, Land Development and Subdivision Engineering.
- Drinking-Water Standards for New Zealand 2005.
- NZS PAS 4509:2008, New Zealand Fire Service Fire-fighting Water Supplies Code of Practice.
- Water for Otago, Otago Regional Council regional water plan.
- Document for New Zealand Building Code Surface Water - Clause E1 / Verification Method 1.

4.0 WASTEWATER

4.1 Proposed wastewater disposal

The only option for waste water disposal for the proposed new lots is to ground as there is no reticulation located in this vicinity that would be able to be connected into.

Site specific investigations are being carried out by Ground Consulting Limited (GCL) at present, with the intention of providing confirmation that the sites contain soils which can cope with on site waste disposal. The four proposed sites are sufficiently large enough that a suitably sized disposal field can be located within them.

5.0 STORMWATER

The future development of the site, will increase stormwater runoff and could introduce contaminants into the receiving aquatic environment. The stormwater to be generated because of this development will be disposed of to ground as there is no reticulated stormwater disposal in this vicinity.

The most likely means of disposing stormwater from the development will be to numerous on site soak pits. However, Lot 1 and the associated access may be able to drain to the existing creek that runs from the north west corner of the site to Te Awa Road. This creek will be located solely within proposed lot 1. Drainage to this creek would be via a grass or rip rap lined swale.

Based on the Grow Otago Drainage Map below, the site soils are classified as either well drained or moderately well drained, so there should not be any problem with disposing of stormwater to ground.

The stormwater generated by future dwellings will be disposed of on site. At such a time as a dwelling is constructed on these lots suitably sized pits can be designed by an appropriately qualified person. A standard consent notice condition can be included in the resource consent decision to ensure that the future lot owners are aware of this requirement.

Each of the driveways to the proposed or existing building platforms will be able to be drained either to soak pits or swales that are grass lined.

Below is an image from Grow Otago, which provides an indication as to the ability for the sites soil to drain water.

GCL have been engaged to undertake the necessary testing to enable soak pits to be accurately sized and to provide definitive confirmation on the sites ability to dispose of stormwater to ground.

5.1 Disposal & Treatment

It is proposed to treat and dispose of any increase in stormwater run-off generated from the access roads through a grass swale which will discharge to a grass swale and/or soak pits.

There is sufficient space within all of the proposed lots to construct a suitably sized soak pit, which would cater for the runoff generated from each of the gravel access roads. The location of these soak pit(s) would be downstream and lower than future dwellings to be constructed on proposed lots 1-4, which ensures that it will not compromise these lots and further they could potentially be used for disposal of stormwater from future dwellings constructed on lots 1-4 if required.

5.2 Objectives

The following objectives should be recognised while assessing stormwater management options for the development site:

- Minimum primary protection for 10% storms (10 year ARI);
- Secondary protection (overland flow paths) for 100 year ARI storms;
- Regulatory Compliance;
- Avoidance of significant increases in downstream peak flows resulting from the increase in developed surface areas;
- Sustainable management of the effects of the proposed development;
- Minimisation of pollution of receiving waterways through the reduction of stormwater contaminants from roadways;
- Erosion protection in the stormwater discharge zone;
- Keeping construction and maintenance costs to a reasonable level.

These objectives have been considered as part of the preliminary design, as outlined below, however some of these objectives will not be able to be fully considered until the detailed engineering stage of the development, which will take into account the flood reporting that is to be undertaken by GCL for this project.

The development contains gravel access roads/driveways, as well as being surrounded by grass areas. The amount of impervious areas being introduced to the site is very minimal therefore there will not be a significant increase in stormwater runoff (including downstream of the proposed development).

6.0 WATER RETICULATION

6.1 Existing Infrastructure

This site currently has a water supply available to it via the Hawea Water Service Company Ltd. The client has advised that they have 20 shares in this company. This is supported by the allocation of shares shown on the Company Register, snip below:

Total Number of Shares: 160 Extensive Shareholding: Yes

Shareholders in Allocation:

Allocation 1: 20 shares (12.50%)

Diane LAWSON
16 Te Awa Road, Rd2, Wanaka, 9382 , New Zealand

Tony John BERBEN
161 Te Awa Road, Rd 2, Wanaka, 9382 , New Zealand

Allocation 2: 20 shares (12.50%)

Bernard William KENNEDY
118 Rob Roy Lane, Wanaka, Wanaka, 9305 , New Zealand

Grant Arthur RUDDENKLAU
118 Rob Roy Lane, Wanaka, Wanaka, 9305 , New Zealand

Zita Mary CLEUGH
118 Rob Roy Lane, Wanaka, Wanaka, 9305 , New Zealand

Each share in the company equates to 1,000 litres of water. This will result in a total allocation of 5,000 litres per lot. The water supply source for this communal system is from the nearby Hawea River.

A network of pipes provides the water via easement to a number of properties in the vicinity. The subject site has a connection provided in the north eastern corner of the site.

Each of the underlying titles has an encumbrance registered on it, in favour of the Hawea Water Service Company to ensure that the land has the ability to utlise the services being provided by the Hawea Water Service Company. These services are outlined as including the operation and maintenance of the right to convey and store water as set out in the relevant easement documents.

Water tests of the current supply have been recently undertaken at present and the results suggest that the supply is safe for human consumption. Please refer to a copy of the test results included as Appendix [C] to this report.

6.2 Proposed services

It is proposed to extend the existing connection on the south eastern corner of the site to the four new platforms, via a network of underground pipes. These pipes will likely be either a 32mm or 25mm diameter HDPE pipe and be provided to the boundary of each of the proposed lots. At the boundary the water supply will terminate in a GM900 water toby. From the toby, a 25mm water line will be extended to the platform (either proposed or existing) on each of the new allotments.

All pipes to be installed as part of this development will be covered by private easement.

Each lot will be required to provide 45,000 litres of fire fighting water stored on site, either in a tank(s) or from an alternate supply, such as a pond. A consent notice condition highlighting this requirement to future purchasers will be required to be included on the consent decision for this proposed subdivision.

7.0 EARTHWORKS

7.1 Design standards

Site development standards include, but are not limited to, the following:

- NZS4404:2010, Land Development and Subdivision Engineering,

- QLDC Land Development and Subdivision Code of Practice adopted by QLDC on 3rd May 2018.
- The Queenstown Lakes District Council District Plan.
- New Zealand Standard NZS4431:1989.

7.2 Earthworks Methodology

All earthworks will be carried out by a competent Contractor experienced in earthworks and in accordance with the requirements outlined in the Councils Code of Practice.

The earthworks procedures will be supervised by a competent contractor who will ensure that best practice methods are employed by the contractors.

All earthworks procedures will be carried out in accordance with an approved site management plan.

7.3 Earthworks Proposed

The earthworks proposed are limited to constructing gravel accesses to each of the proposed platforms, that will be 3.5 metre wide, single cross fall and a grassed drainage swale on one side. It is intended that the accesses will follow, as closely as possible to the existing grade of the land. Given it is relatively flat, there is no need for any significant cut or fill batters. The total volume of earthworks required to be undertaken to construct all of the access roads is therefore modest, with the total volume of earthworks anticipated to be approximately 780m³, consisting of 480m³ and 300m³ of fill, over a total area of 4700m². The surplus cut material of 180m³ will be trucked off site to an approved clean fill site. These earthworks are shown on the final sheet of the Engineering Plans included as Attachment B to this application.

A small amount of earthworks will be required in the road reserve to upgrade the two existing crossings and to construct the crossing that is servicing lots 3/4. The anticipated earthworks in the road reserve will be minimal as it is of flat topography.

8.0 ACCESS

It is proposed to form driveways to each of the proposed or existing platforms. Lots 1 and 2 will have their own independent driveways, utilising existing vehicle crossings off Te Awa Road. Lots 3 and 4 will have a shared vehicle crossing and a short portion of the access will be shared (requiring a right of way to be created) between the two lots, before branching off into private driveways.
All accesses are to be gravel and have a formed width of 3.5m including shoulders, the section of right of way over Lot 3 is to be a minimum of 6m wide. The road pavement formation is to consist of 150mm GAP40 provided there is a minimum subgrade CBR value of 7.

Some upgrades will be required to the existing crossings onto Te Awa Road. All finished crossings are to be sealed as per QLDC standards and will ensure road side drainage is maintained. Suitable conditions of consent can be included to ensure that this occurs.

Te Awa Road has a sealed formation width of 5.5m with 0.5m gravel shoulders and a legal width of 15m. The maximum grade of Te Awa Road is approximately 10%. Te Awa Road therefore meets standard E3 of the QLDC COP which can serve up to 150 users. No upgrades to Te Awa Road are required as part of this subdivision.

9.0 POWER & TELECOMMUNICATIONS

Power and telecommunication services can be extended from existing nearby infrastructure to service the proposed new lots.

Aurora Energy Limited have an existing underground network in Te Awa Road that can be extended down the newly driveways to the proposed or existing platforms. The extension of their network is confirmed via the letter attached as Appendix D

Chorus New Zealand Limited have an existing underground network in Te Awa Road that can be extended to service the four new residential lots. The extension of their network is confirmed via the letter attached as Appendix D

APPENDIX A – SUBDIVISION PLAN

LOT 13
DP 300251

319 | 198.2 | 126

STATE HIGHWAY 6

312.6

LOT 1
9.79 ha

LOT 2
3.26 ha

LOT 3
3.80 ha

LOT 4
3.79 ha

75.2 | 38.8 | 55.3 | 139.9 | 221 | 211.9 | 318.3

BA | BB | BC | BD

CT — CT — CT — CT — CT — CT — CT — CT — CT — CT — CT

106.1 | 106.7

A

LOT 3
DP 311830

LOT 2
DP 311830

50.5 | 236.6 | 226.8 | 75 | 94.8 | 7.5

TE AWA ROAD

LOT 4
DP 535617

LOT 1
DP 535617

LOT 3
DP 535617

LOT 1
DP 311830

EXISTING LAND COVENANT AREA			
Purpose	**Shown**	**Burdened Land**	**Created by**
Building Platform	**BB**	Lot 1 hereon	CN 5188548.2
	BC	Lot 3 hereon	CN 5188548.2 Var 8427139.1

MEMORANDUM OF EASEMENTS			
Purpose	**Shown**	**Burdened Land**	**Benefited Land**
Right of way	**A**	Lot 3 hereon	Lot 4 hereon

PROPOSED LAND COVENANT AREAS		
Purpose	**Shown**	**Burdened Land**
Building Platform	**BA**	Lot 1 hereon
	BD	Lot 4 hereon

SUBJECT TO RESIURCE CONSENT AND LT SURVEY

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants
309 Lower Shotover Road, P.O.Box 553 Queenstown
Tel. (03)441-6044, Fax (03)442-1066, Email admin@cfma.co.nz

Shop 2, Otago House, 475 Moray Place, P.O. Box 5960
Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.07.22	ACCESS TO LOTS 3 AND 4 AMENDED	HK

LOTS 1 - 4 BEING A PROPOSED SUBDIVISION OF LOTS 1 AND 2 DP 303793

Client: KENNEDY	Surveyed: -	Date: -	Job No.: 15654	Drawing No.: 02 Sheet 001	
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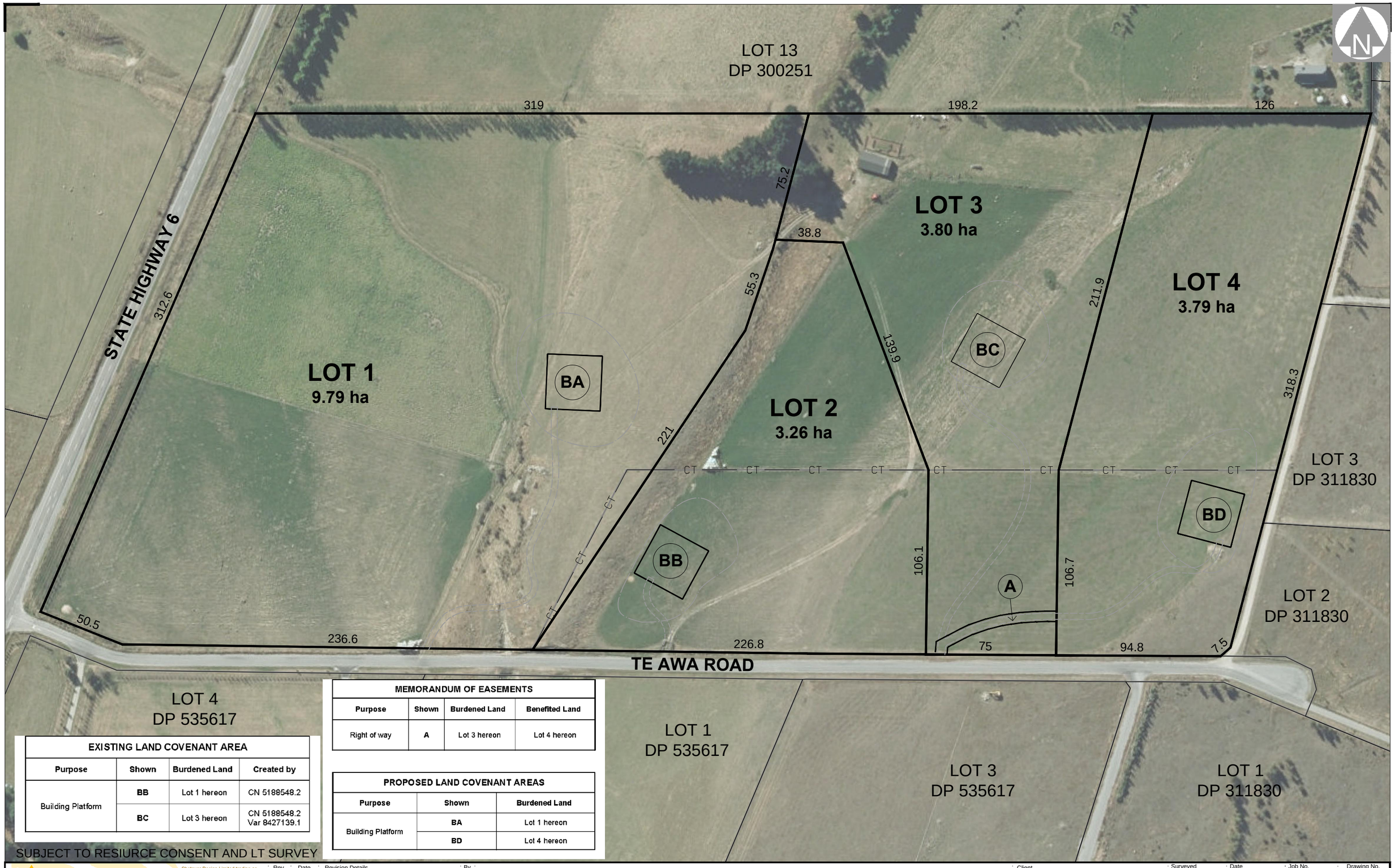
	Checked: ED	Date: 12.05.22	Datum & Level: LINDIS PEAK ----	Rev.: A	

S:\JOBS\15600\15654\acad\15654 02 REV A Subdivision Scheme Plan.dwg Plotted: 09.06.2022



EXISTING LAND COVENANT AREA			
Purpose	**Shown**	**Burdened Land**	**Created by**
Building Platform	**BB**	Lot 1 hereon	CN 5188548.2
	BC	Lot 3 hereon	CN 5188548.2 Var 8427139.1

MEMORANDUM OF EASEMENTS			
Purpose	**Shown**	**Burdened Land**	**Benefited Land**
Right of way	**A**	Lot 3 hereon	Lot 4 hereon

PROPOSED LAND COVENANT AREAS		
Purpose	**Shown**	**Burdened Land**
Building Platform	**BA**	Lot 1 hereon
	BD	Lot 4 hereon

SUBJECT TO RESIURCE CONSENT AND LT SURVEY

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants
309 Lower Shotover Road, P.O.Box 553 Queenstown
Tel. (03)441-6044, Fax (03)442-1066, Email admin@cfma.co.nz

Shop 2, Otago House, 475 Moray Place, P.O. Box 5960
Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
-	-	-	-

LOTS 1 - 4 BEING A PROPOSED SUBDIVISION OF LOTS 1 AND 2 DP 303793

Client: KENNEDY	Surveyed: -	Date: -	Job No.: 15654	Drawing No.: 02 Sheet 002
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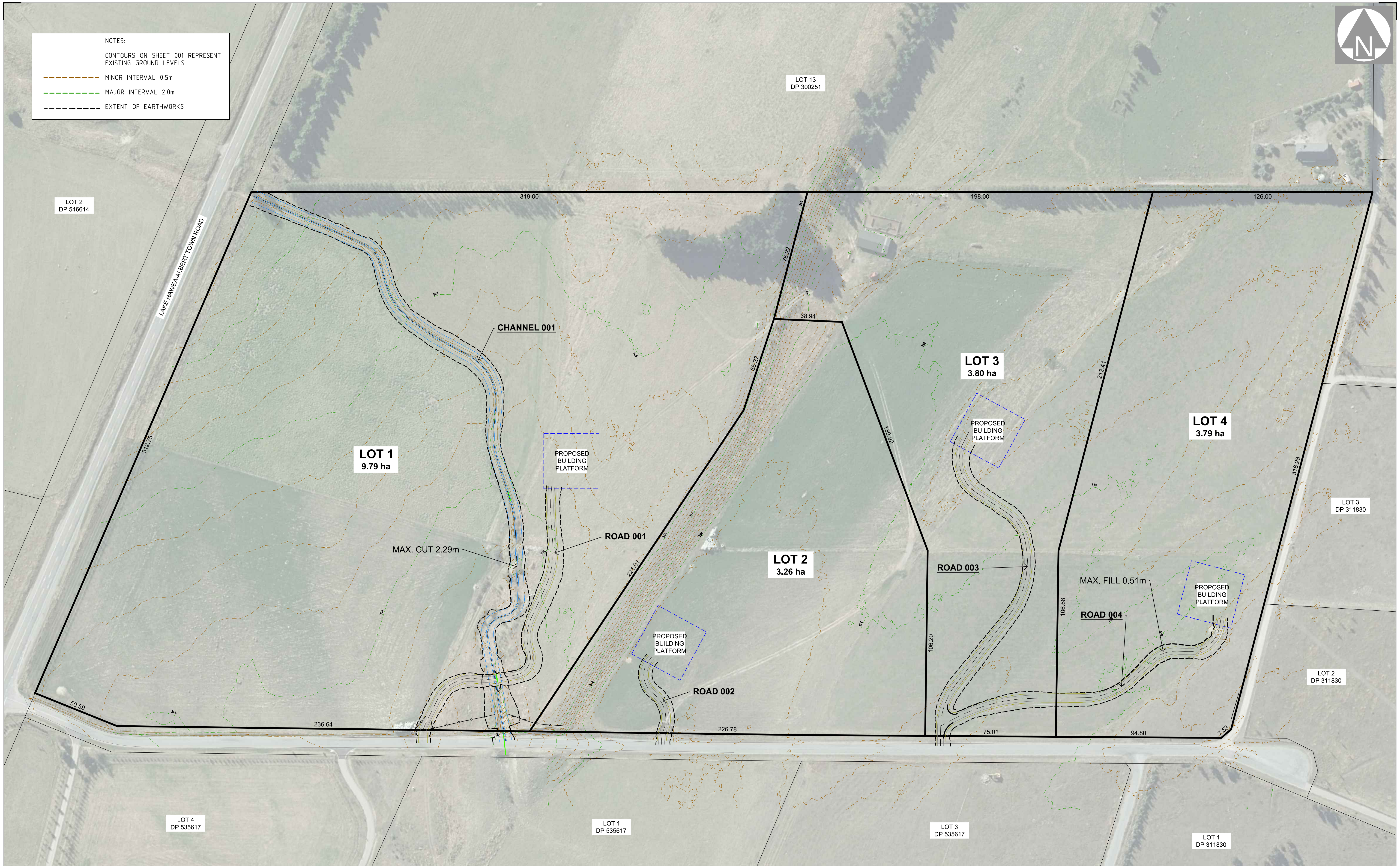
APPENDIX B – ENGINEERING PLANS



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Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD — QUEENSTOWN — TEL. (03)441-6044
3 LOWE STREET, ADDINGTON — CHRISTCHURCH — TEL. (03)348-1025
UNIT 6B, LEVEL 1, 480 MORAY PLACE — DUNEDIN — TEL. (03)470-1582
14 MERSEY STREET — GORE — TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793
SITE OVERVIEW AND ORIGINAL GROUND LEVELS

Client: KENNEDY, BERNARD

NOTES:
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DESIGNED	-	-
DRAWN	PT	05/22
CHECKED	HK	19.05.22
APPROVED	-	-

Job No. 15654
Drawing No. E001 SHEET 001
Scale 1:1000 @ A1 1:2000 @ A3
Datum & Level: LINDIS PEAK 2000 / NZVD2016
Rev. A

Document Set ID: 7272089
Version: 1, Version Date: 20/06/2022

NOTES:

CONTOURS ON SHEET 002 REPRESENT FINISHED GROUND LEVELS

MINOR INTERVAL 0.5m

MAJOR INTERVAL 2.0m

EXTENT OF EARTHWORKS

LOT 1
9.79 ha

PROPOSED BUILDING PLATFORM

ROAD 001
3.5m GRAVEL FORMATION

LOT 2
3.26 ha

PROPOSED BUILDING PLATFORM

ROAD 002
3.5m GRAVEL FORMATION

TE AWA ROAD

TE AWA ROAD

LOT 4
DP 535617

LOT 1
DP 535617

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD, 3 LOWE STREET, ADDINGTON, UNIT 6B, LEVEL 1, 480 MORAY PLACE, 14 MERSEY STREET
QUEENSTOWN TEL. (03)441-6044
CHRISTCHURCH TEL. (03)348-1025
DUNEDIN TEL. (03)470-1582
GORE TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADS 001 AND 002

Client: **KENNEDY, BERNARD**

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APPROVED	-	-

Job No. **15654**
Drawing No. **E001** SHEET 002
Scale **1:500 @ A1**, **1:1000 @ A3**
Datum & Level: **LINDIS PEAK 2000 / NZVD2016**
Rev. A

NOTES:

CONTOURS ON SHEET 003 REPRESENT FINISHED GROUND LEVELS

MINOR INTERVAL 0.5m

MAJOR INTERVAL 2.0m

EXTENT OF EARTHWORKS

PROPOSED BUILDING PLATFORM

PROPOSED BUILDING PLATFORM

LOT 2
3.26 ha

LOT 3
3.80 ha

LOT 4
3.79 ha

LOT 3
DP 311830

LOT 2
DP 311830

ROAD 003
3.5m GRAVEL FORMATION

ROAD 004
3.5m GRAVEL FORMATION

TE AWA ROAD

TE AWA ROAD

LOT 3
DP 535617

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD, 3 LOWE STREET, ADDINGTON, UNIT 6B, LEVEL 1, 480 MORAY PLACE, 14 MERSEY STREET
QUEENSTOWN, CHRISTCHURCH, DUNEDIN, GORE
TEL. (03)441-6044, TEL. (03)348-1025, TEL. (03)470-1582, TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADS 003 AND 004

Client: **KENNEDY, BERNARD**

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CHECKED	HK	19.05.22
APPROVED	-	-

Job No. **15654**
Drawing No. **E001** SHEET 003
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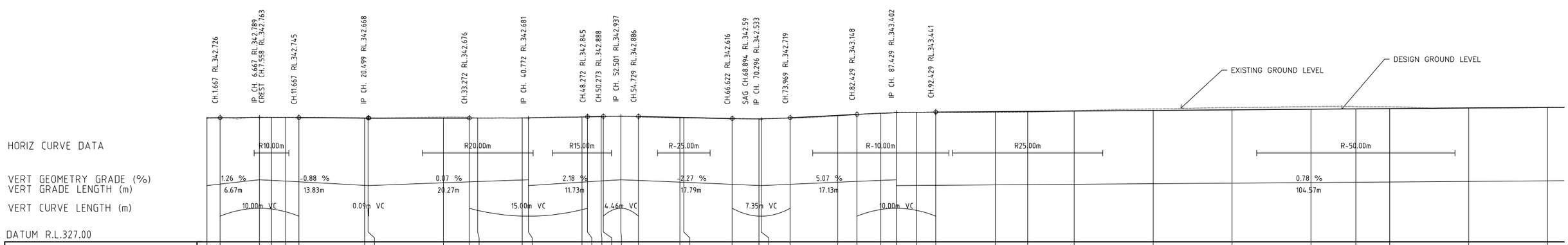
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. A



DEPTH	0.000	0.032	-0.026	-0.031	-0.027	-0.024	-0.028	-0.027	-0.130	-0.072	-0.024	0.041	0.028	0.010
C.L. FINISHED LEVEL	342.705	342.726	342.762	342.763	342.757	342.745	342.672	342.668	342.674	342.676	342.678	342.712	342.721	342.830
EXISTING G.L.	342.705	342.694	342.789	342.793	342.784	342.769	342.700	342.695	342.804	342.748	342.701	342.671	342.693	342.819
CHAINAGE	0.000	1.667	6.667	8.190	10.000	11.667	20.000	20.452	30.000	33.272	34.346	40.000	40.772	47.577

DEPTH	0.012	0.015	0.015	-0.014	0.053	0.073	0.060	-0.007	0.018	0.012	0.048	0.046	0.002	-0.039
C.L. FINISHED LEVEL	342.845	342.882	342.888	342.912	342.886	342.767	342.756	342.616	342.596	342.600	342.719	343.025	343.148	343.282
EXISTING G.L.	342.833	342.868	342.873	342.926	342.833	342.693	342.695	342.623	342.579	342.588	342.671	342.980	343.147	343.321
CHAINAGE	48.272	50.000	50.273	52.501	54.729	60.000	60.485	66.622	70.000	70.296	73.969	80.000	82.429	85.452

DEPTH	-0.054	-0.010	0.012	0.125	0.102	-0.033	-0.181	-0.284	-0.319	-0.273	-0.219	-0.015	-0.017
C.L. FINISHED LEVEL	343.348	343.409	343.441	343.500	343.532	343.578	343.656	343.733	343.811	343.855	343.889	343.967	344.044
EXISTING G.L.	343.403	343.419	343.429	343.374	343.429	343.611	343.836	344.018	344.130	344.128	344.108	343.982	344.062
CHAINAGE	87.429	90.000	92.429	100.000	104.084	110.000	120.000	130.000	140.000	145.698	150.000	160.000	170.000

LONGSECTION - ROAD 001

A1 HORIZ SCALE 1 : 250

A1 VERT SCALE 1 : 250

DEPTH	0.000	0.043	-0.029	-0.031	-0.038	-0.020	-0.016	-0.018	0.038	0.012	0.022	0.049	
C.L. FINISHED LEVEL	337.186	337.092	337.049	337.039	337.031	337.041	337.093	337.096	337.151	337.206	337.223	337.261	
EXISTING G.L.	337.186	337.049	337.078	337.070	337.069	337.061	337.109	337.114	337.113	337.194	337.201	337.212	337.235
CHAINAGE	0.000	3.136	4.967	5.636	8.136	10.000	19.563	20.000	30.000	40.000	43.148	50.000	55.329

LONGSECTION - ROAD 002

A1 HORIZ SCALE 1 : 250

A1 VERT SCALE 1 : 250

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD	QUEENSTOWN	TEL. (03)441-6044
3 LOWE STREET, ADDINGTON	CHRISTCHURCH	TEL. (03)348-1025
UNIT 6B, LEVEL 1, 480 MORAY PLACE	DUNEDIN	TEL. (03)470-1582
14 MERSEY STREET	GORE	TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED
SUBDIVISION OF LOTS 1 & 2 DP 303793
ROADING LONGSECTIONS

Client
KENNEDY, BERNARD

NOTES:
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DRAWN	PT	05/22
CHECKED	HK	19.05.22
APPROVED	-	-

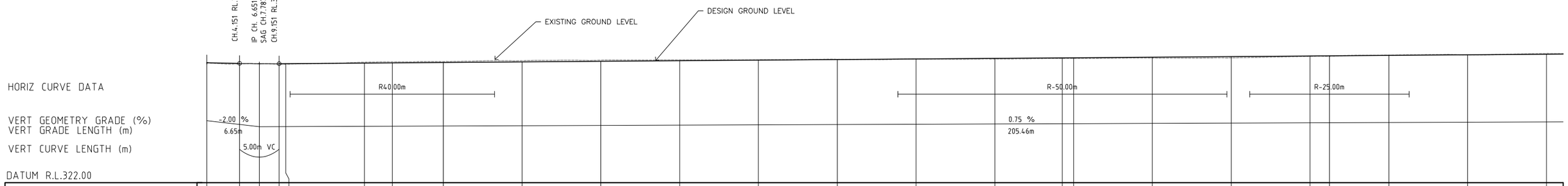
Job No. **15654**

Drawing No. **E001**
SHEET 004

Scale **1:250 @ A1**
1:500 @ A3

Datum & Level **LINDIS PEAK 2000 / NZVD2016**

Rev. A

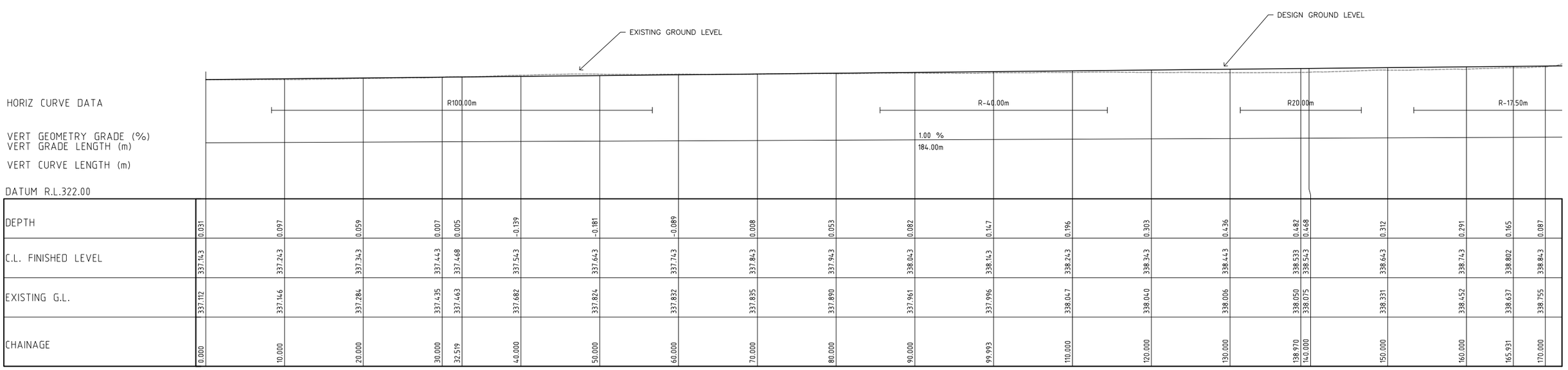


DEPTH	-0.000	0.053	-0.001	0.056	0.063	-0.109	-0.126	-0.122	-0.149	-0.138	-0.094	-0.036	-0.024	0.007	0.082	0.082	0.092	0.099	0.154	0.037	0.046	-0.040	0.010	-0.089	
C.L. FINISHED LEVEL	337.240	337.157	337.124	337.125	337.132	337.207	337.233	337.282	337.357	337.432	337.507	337.582	337.657	337.732	337.807	337.871	337.882	337.957	338.032	338.107	338.125	338.182	338.257	338.332	
EXISTING G.L.	337.240	337.103	337.125	337.069	337.069	337.316	337.359	337.404	337.506	337.570	337.601	337.617	337.681	337.724	337.725	337.789	337.789	337.858	337.877	338.069	338.080	338.222	338.24.7	338.421	
CHAINAGE	0.000	4.151	6.651	9.151	10.000	20.000	23.525	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	108.561	110.000	120.000	130.000	140.000	142.465	150.000	160.000	170.000	

LONGSECTION - ROAD 003

A1 HORIZ SCALE 1 : 250

A1 VERT SCALE 1 : 250



DEPTH	0.031	0.097	0.059	0.007	0.005	-0.139	-0.181	-0.089	0.008	0.053	0.082	0.147	0.196	0.303	0.436	0.482	0.468	0.312	0.291	0.165	0.087				
C.L. FINISHED LEVEL	337.143	337.243	337.343	337.443	337.468	337.543	337.643	337.743	337.843	337.943	338.043	338.143	338.243	338.343	338.443	338.533	338.543	338.643	338.743	338.802	338.843				
EXISTING G.L.	337.112	337.146	337.284	337.435	337.463	337.682	337.824	337.832	337.835	337.890	337.961	337.996	338.047	338.040	338.006	338.050	338.075	338.331	338.452	338.637	338.755				
CHAINAGE	0.000	10.000	20.000	30.000	32.519	40.000	50.000	60.000	70.000	80.000	90.000	99.993	110.000	120.000	130.000	138.970	140.000	150.000	160.000	165.931	170.000				

LONGSECTION - ROAD 004

A1 HORIZ SCALE 1 : 250

A1 VERT SCALE 1 : 250

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD
3 LOWE STREET, ADDINGTON
UNIT 6B, LEVEL 1, 480 MORAY PLACE
14 MERSEY STREET

QUEENSTOWN TEL. (03)441-6044
CHRISTCHURCH TEL. (03)348-1025
DUNEDIN TEL. (03)470-1582
GORE TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

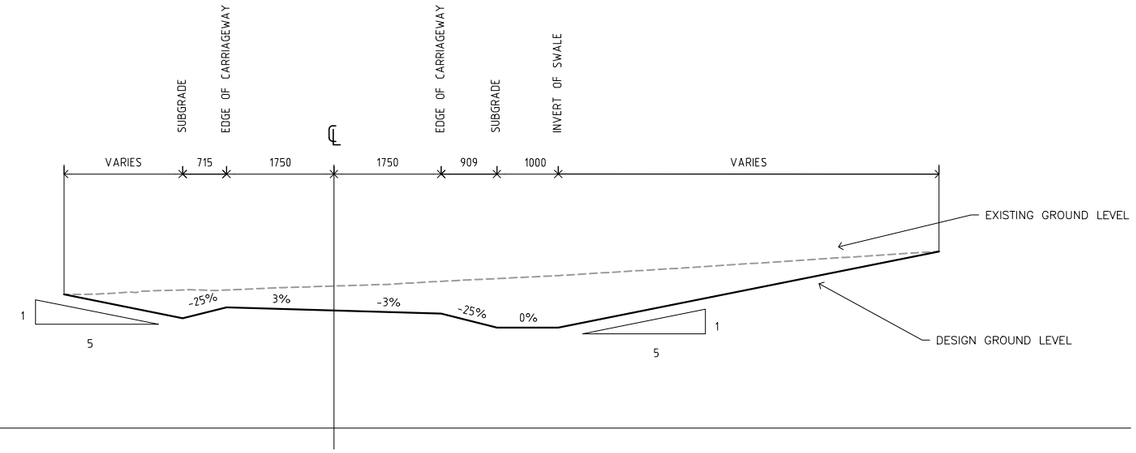
LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADING LONGSECTIONS

Client: **KENNEDY, BERNARD**

NOTES:
ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SHOWN OTHERWISE.
ANY PERSON USING CLARK FORTUNE McDONALD DRAWINGS AND OTHER DATA ACCEPTS THE RISK OF:
- USING THE DRAWINGS AND OTHER DATA IN ELECTRONIC FORM WITHOUT REQUESTING AND CHECKING THEM FOR ACCURACY AGAINST THE ORIGINAL HARD COPY VERSIONS.
- COPYWRITE ON THIS DRAWING IS RESERVED.

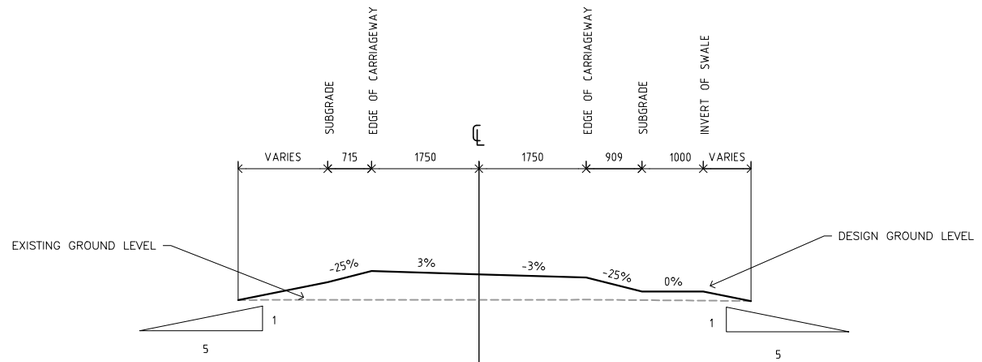
SURVEYED	-	-
DESIGNED	-	-
DRAWN	PT	05/22
CHECKED	HK	19.05.22
APPROVED	-	-

Job No. **15654**
Drawing No. **E001** SHEET 005
Scale **1:250 @ A1**
1:500 @ A3
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. **A**



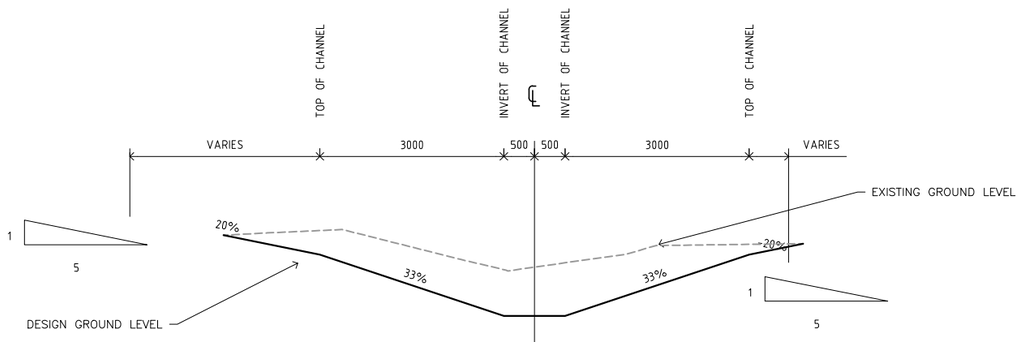
ROAD 001 - 004

CARRIAGEWAY - BOTH SIDES



ROAD 001 - 004

CARRIAGEWAY - BOTH SIDES



CHANNEL 001

CROSS-SECTION - BOTH SIDES

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

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EMAIL: admin@cfma.co.nz

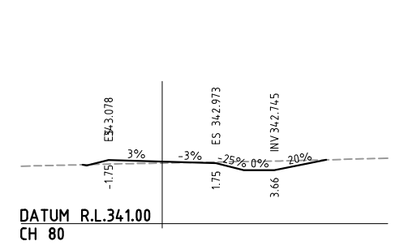
Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADING TYPICAL CROSS SECTIONS

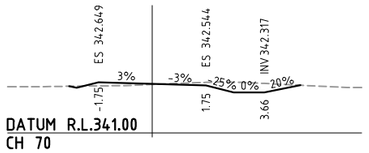
Client: **KENNEDY, BERNARD**

SURVEYED	-	-	
DESIGNED	-	-	
DRAWN	PT	05/22	
CHECKED	HK	19.05.22	
APPROVED	-	-	

Job No. **15654**
Drawing No. **E001** SHEET 006
Scale **1:25 @ A1** **1:50 @ A3**
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. A



DATUM R.L.341.00
CH 80



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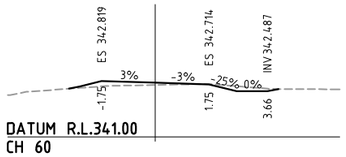
CH 70



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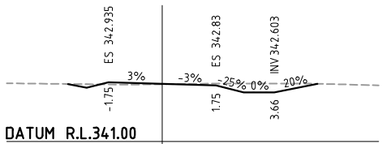
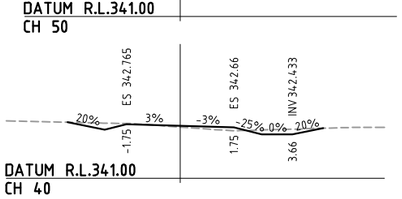
CH 60



DATUM R.L.341.00
CH 50



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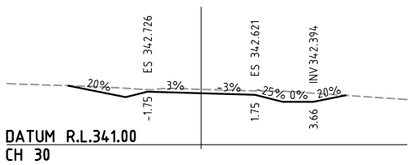
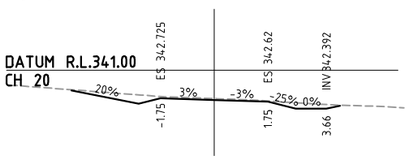
CH 40

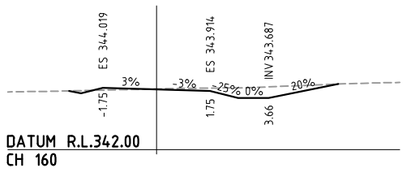


DATUM R.L.341.00
CH 30

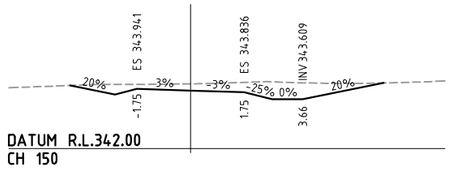


DATUM R.L.341.00
CH 20

DATUM R.L.341.00
CH 10



DATUM R.L.342.00
CH 160



DATUM R.L.342.00
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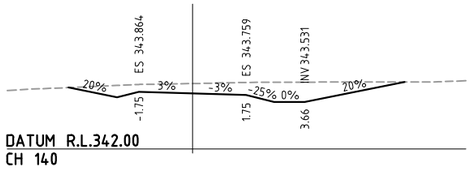
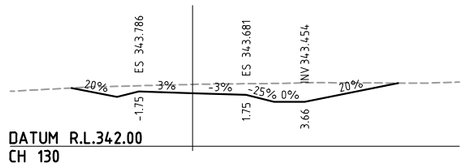
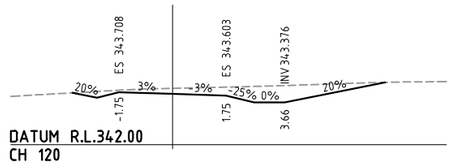


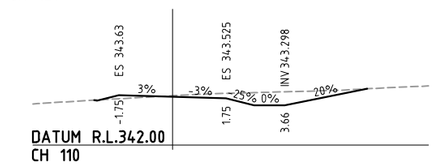
DATUM R.L.342.00
CH 140



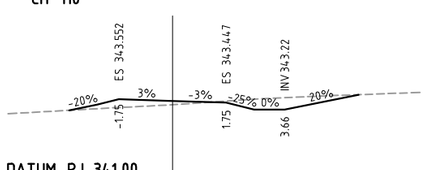
DATUM R.L.342.00
CH 130



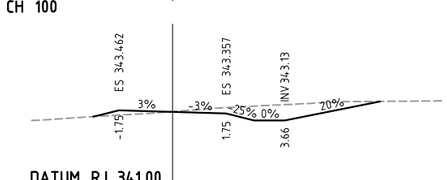
DATUM R.L.342.00
CH 120



DATUM R.L.342.00
CH 110



DATUM R.L.341.00
CH 100



DATUM R.L.341.00
CH 90

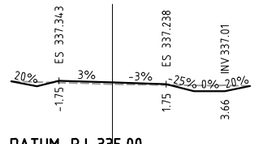
ROAD 001

DATUM R.L.342.00
CH 190

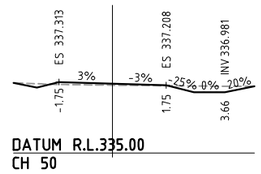
DATUM R.L.342.00
CH 180

DATUM R.L.342.00
CH 170

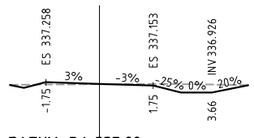
ROAD 002



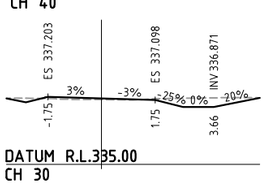
DATUM R.L.335.00
CH 55.3



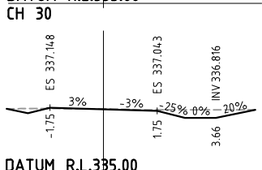
DATUM R.L.335.00
CH 50



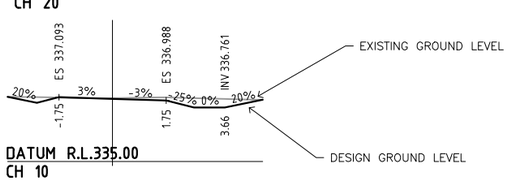
DATUM R.L.335.00
CH 40



DATUM R.L.335.00
CH 30



DATUM R.L.335.00
CH 20



DATUM R.L.335.00
CH 10

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
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Licensed Cadastral Surveyors - Land Development - Planning Consultants

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Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADING CROSS SECTIONS

Client: **KENNEDY, BERNARD**

NOTES:
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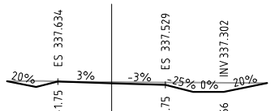
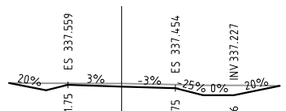
- COPYWRITE ON THIS DRAWING IS RESERVED.

SURVEYED	-	-	
DESIGNED	-	-	
DRAWN	PT	05/22	
CHECKED	HK	19.05.22	
APPROVED	-	-	

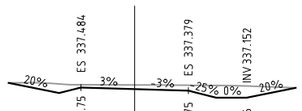
Job No. **15654**
Drawing No. **E001** SHEET 007
Scale **1:50 @ A1**
1:100 @ A3
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. **A**



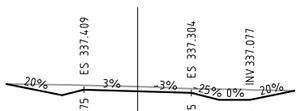
DATUM R.L.336.00
CH 70



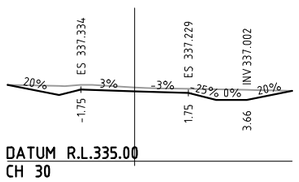
DATUM R.L.335.00
CH 60



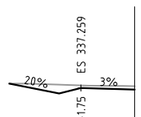
DATUM R.L.335.00
CH 50



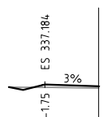
DATUM R.L.335.00
CH 40



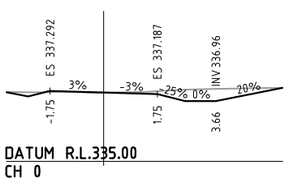
DATUM R.L.335.00
CH 30



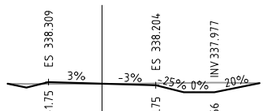
DATUM R.L.335.00
CH 20



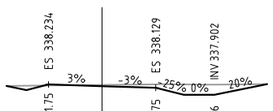
DATUM R.L.335.00
CH 10



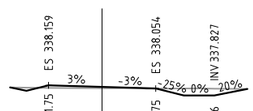
DATUM R.L.335.00
CH 0



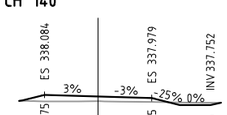
DATUM R.L.336.00
CH 160



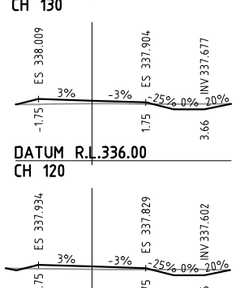
DATUM R.L.336.00
CH 150



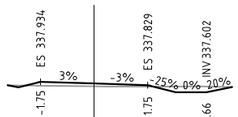
DATUM R.L.336.00
CH 140



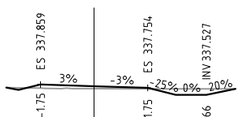
DATUM R.L.336.00
CH 130



DATUM R.L.336.00
CH 120



DATUM R.L.336.00
CH 110



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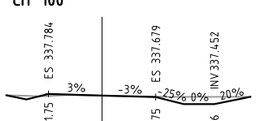
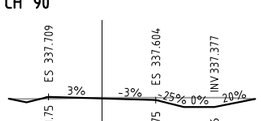
CH 100

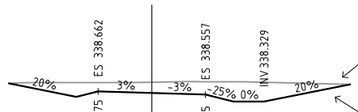


DATUM R.L.336.00
CH 90

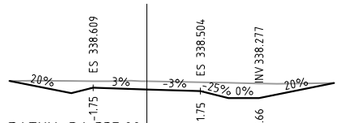


DATUM R.L.336.00
CH 80

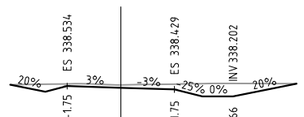
ROAD 003



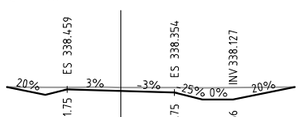
DATUM R.L.337.00
CH 207



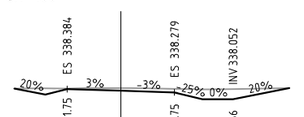
DATUM R.L.337.00
CH 200



DATUM R.L.336.00
CH 190



DATUM R.L.336.00
CH 180



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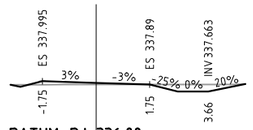

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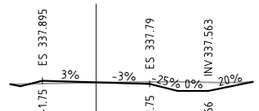

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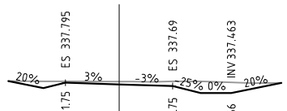

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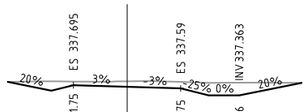

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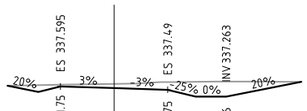

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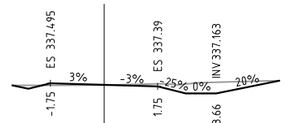

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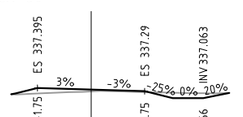

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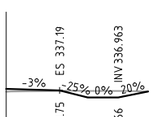

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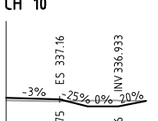

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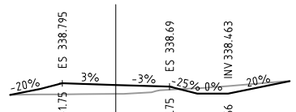

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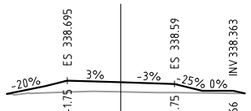

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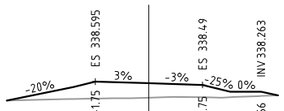

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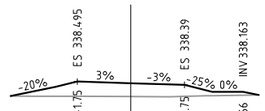

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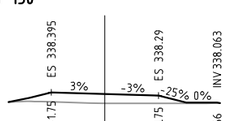

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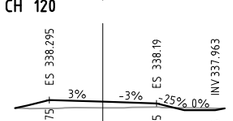

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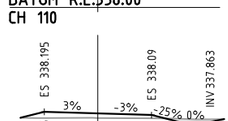

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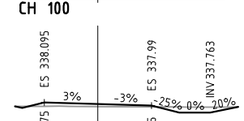

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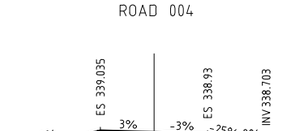
ROAD 004



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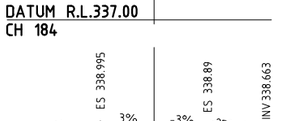

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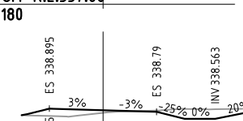

DATUM R.L.337.00
CH 170

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD — QUEENSTOWN — TEL. (03)441-6044
3 LOWE STREET, ADDINGTON — CHRISTCHURCH — TEL. (03)348-1025
UNIT 6B, LEVEL 1, 480 MORAY PLACE — DUNEDIN — TEL. (03)470-1582
14 MERSEY STREET — GORE — TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 ROADING CROSS SECTIONS

Client: KENNEDY, BERNARD

NOTES:
ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SHOWN OTHERWISE.
ANY PERSON USING CLARK FORTUNE McDONALD DRAWINGS AND OTHER DATA ACCEPTS THE RISK OF:
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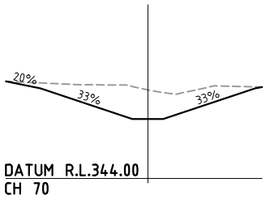
- COPYWRITE ON THIS DRAWING IS RESERVED.

SURVEYED	-	-	
DESIGNED	-	-	
DRAWN	PT	05/22	
CHECKED	HK	19.05.22	
APPROVED	-	-	

Job No. 15654 — Drawing No. E001 SHEET 008
Scale 1:50 @ A1, 1:100 @ A3
Datum & Level: LINDIS PEAK 2000 / NZVD2016
Rev. A



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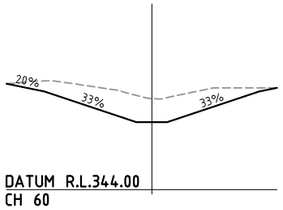

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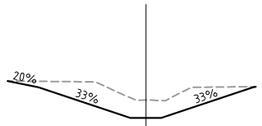

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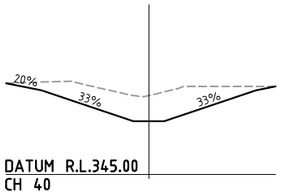

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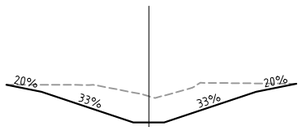

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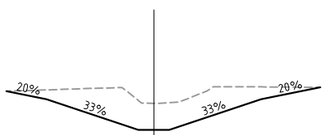

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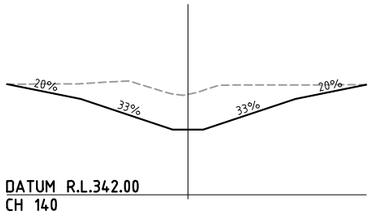

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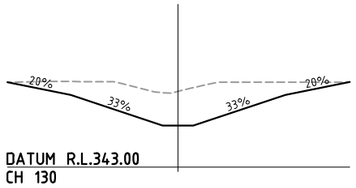

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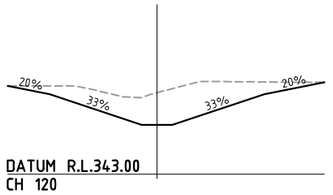

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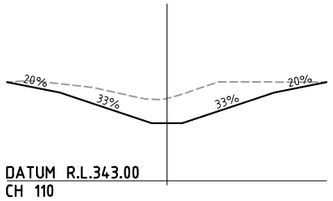

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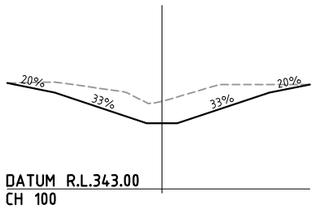

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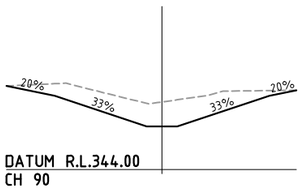

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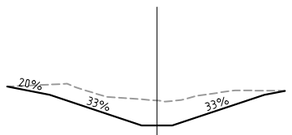

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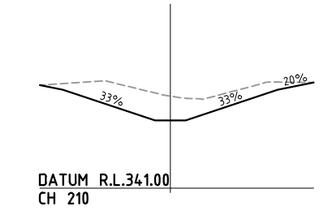

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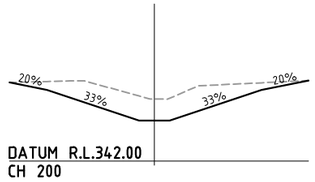

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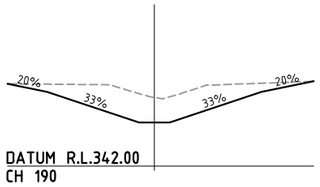

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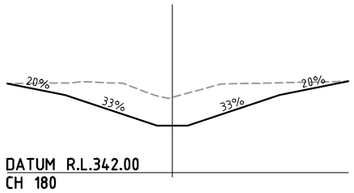

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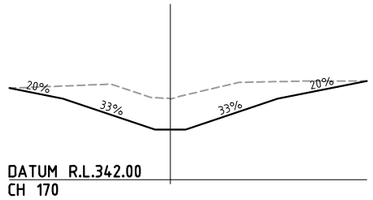

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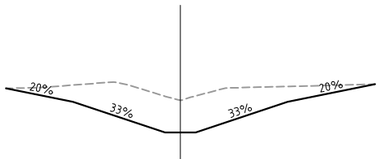

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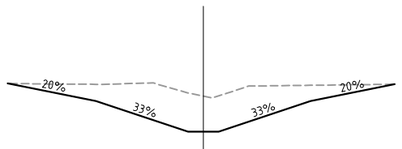

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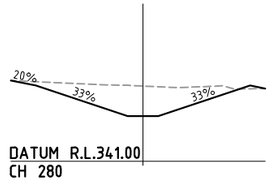

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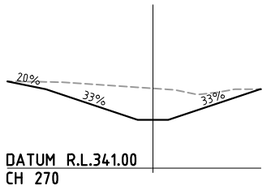

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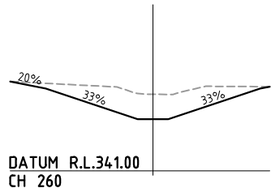

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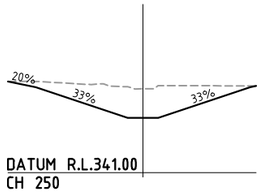

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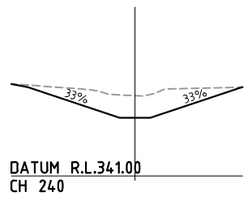

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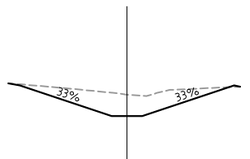

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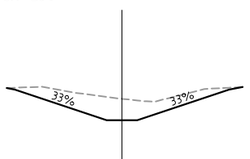

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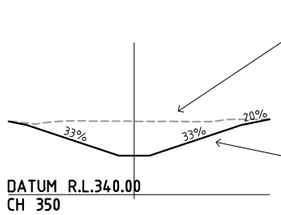

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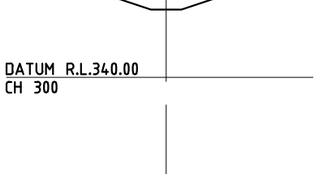

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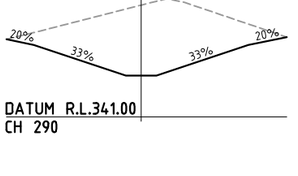

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CH 320

DATUM R.L.340.00
CH 310

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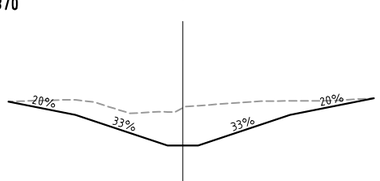
CH 300

DATUM R.L.341.00
CH 290



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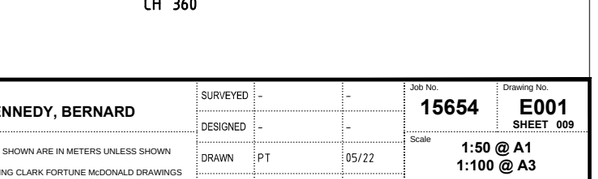

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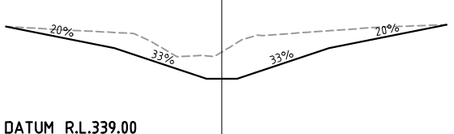
CH 390

DATUM R.L.339.00
CH 380



DATUM R.L.339.00
CH 370

DATUM R.L.339.00
CH 360

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD
3 LOWE STREET, ADDINGTON
UNIT 6B, LEVEL 1, 480 MORAY PLACE
14 MERSEY STREET

QUEENSTOWN TEL. (03)441-6044
CHRISTCHURCH TEL. (03)348-1025
DUNEDIN TEL. (03)470-1582
GORE TEL. (03)208-6474

EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 CHANNEL CROSS SECTIONS

Client
KENNEDY, BERNARD

NOTES:
ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SHOWN OTHERWISE.
ANY PERSON USING CLARK FORTUNE McDONALD DRAWINGS AND OTHER DATA ACCEPTS THE RISK OF:
- USING THE DRAWINGS AND OTHER DATA IN ELECTRONIC FORM WITHOUT REQUESTING AND CHECKING THEM FOR ACCURACY AGAINST THE ORIGINAL HARD COPY VERSIONS.
- COPYWRITE ON THIS DRAWING IS RESERVED.

SURVEYED	-	-
DESIGNED	-	-
DRAWN	PT	05/22
CHECKED	HK	19.05.22
APPROVED	-	-

Job No. **15654**
Drawing No. **E001** SHEET 009
Scale **1:50 @ A1**
1:100 @ A3
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. A

LEGEND:

CUT 0.0m-0.5m
CUT 0.5m-1.0m
CUT 1.0m-1.5m
CUT 1.5m-2.0m
CUT 2.0m-2.5m

FILL 0.0-0.5m
FILL 0.5-1.0m

TOTAL EARTHWORKS AREA: 9300m²
CUT: -2790m³
FILL: 210m³
EXCESS: -2580m³ OF CUT

LOT 13
DP 300251

LOT 2
DP 546614

LAKE HAWEA-ALBERT TOWN ROAD

319.00
198.00
126.00
75.22
38.94
55.27
139.92
212.41
318.28
312.75
221.01
106.20
106.68
50.59
236.64
226.78
75.01
94.80
7.52

LOT 1
9.79 ha

LOT 2
3.26 ha

LOT 3
3.80 ha

LOT 4
3.79 ha

CHANNEL 001

ROAD 001

ROAD 002

ROAD 003

ROAD 004

MAX. CUT 2.29m

MAX. FILL 0.51m

PROPOSED BUILDING PLATFORM

PROPOSED BUILDING PLATFORM

PROPOSED BUILDING PLATFORM

PROPOSED BUILDING PLATFORM

LOT 3
DP 311830

LOT 2
DP 311830

LOT 4
DP 535617

LOT 1
DP 535617

LOT 3
DP 535617

LOT 1
DP 311830

ISSUED FOR RESOURCE CONSENT 17.06.22

Shotover Design Limited trading as
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Licensed Cadastral Surveyors - Land Development - Planning Consultants

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EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	09.06.2022	ACCESS TO LOTS 3 AND 4 AMENDED	PT

LOTS 1 - 4 BEING PROPOSED SUBDIVISION OF LOTS 1 & 2 DP 303793 CUT/FILL HEAT MAP

Client: **KENNEDY, BERNARD**

NOTES:
ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SHOWN OTHERWISE.
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- USING THE DRAWINGS AND OTHER DATA IN ELECTRONIC FORM WITHOUT REQUESTING AND CHECKING THEM FOR ACCURACY AGAINST THE ORIGINAL HARD COPY VERSIONS.
- COPYWRITE ON THIS DRAWING IS RESERVED.

SURVEYED	-	-
DESIGNED	-	-
DRAWN	PT	05/22
CHECKED	HK	19.05.22
APPROVED	-	-

Job No. **15654**
Drawing No. **E001** SHEET 010
Scale **1:1000 @ A1**
1:2000 @ A3
Datum & Level **LINDIS PEAK 2000 / NZVD2016**
Rev. A

APPENDIX C – WATER SUPPLY DOCUMENTATION INCLUDING TEST RESULTS

SERVICE DEED

between

_____

and

HAWEA WATER SERVICE COMPANY LIMITED

SERVICE DEED

Date:

Parties

1. _____("Owner")

2. **HAWEA WATER SERVICE COMPANY LIMITED** ("Service Company")

Background

A. The Owner is the registered proprietor of an estate in fee simple in all that parcel of land contained in Lot ___ Deposited Plan _____ in Certificate of Title _____ ("Lot") and includes any executor, administrator, receiver, liquidator or assignee in a bankruptcy. In all circumstances where there is more than one owner, the term Owner shall include all owners jointly and severally.

B. The Service Company has been incorporated to administer, operate and maintain the right to convey and store water set out in the Water Easements for the benefit of those parties who purchase shares in the Service Company, together with any subsequent water rights arising out of any future subdivision of the land owned by those shareholders ("Water Supply").

C. The Service Company has agreed to carry out that service.

D. The Service Company and the Owner have agreed to enter into a Service Deed on the terms set out in this deed with each of the shareholders of the Service Company ("Shareholders").

E. Upon sale or transfer of the Lot or part of the Lot the Owner shall procure the intended Purchaser(s) to enter into a new deed with the Service Company.

This Deed Records

1. Duties

1.1 The Service Company (by its agents or employees) shall undertake the following duties on behalf of the Owner of the Lot:

a. The administration, operation and maintenance of the Water Supply, including the maintenance of any tanks, pumps and pipelines, to the boundary of the Lot and further, to the boundary of any subdivision of the Lot provided that pipes, which in the Service Company's view are both of sufficient internal diameter and constructed of suitable materials, are first laid at the cost of the Owner connecting the existing supply to the boundary of the subdivision lot(s).

b. In the event of any water shortfall, the Service Company will give priority to the supply of a minimum of 1000 litres of potable water per Lot per day as required by the subdivision consent conditions for the properties using the water supply and will otherwise distribute the surplus water on a per share basis.

c. The Service Company is to meet the cost of a charge or charges incurred as a result of the administration, operation and maintenance of the Water Supply.

d. Any other function that the Service Company determines is in the best interest of the Shareholders.

e. The Service Company will not be responsible for any treatment that may be required to make the water supply potable.

2. Compliance with statutes and regulations, impartiality

2.1 The Service Company shall administer the Water Supply:

a. in a manner consistent with all statutes, regulations, by-laws, and the directions, requisitions and requirements of any authority of competent jurisdiction; and

b. without limiting paragraph a, in accordance with the requirements of and prescribed by all planning consents for the Lots that use the Water Supply; and

c. in a manner consistent with the rights of all Shareholders; and

d. in a manner that is impartial between Shareholders.

3. Compliance standards

3.1 The Service Company shall ensure that, in addition to any standards otherwise specified, the Water Supply shall comply with the following:

a. the standards from time to time applied by the relevant Local and Territorial Authorities;

b. the standards of the Water Supply that was provided at the initial development of the Lots;

c. the requirements of the Drinking Water Standards of New Zealand or as shall be capable of treatment to comply with such standards;

d. the requirements or guidelines of any regulatory health body;

3.2 The Service Company shall be at liberty to raise the standards of the Water Supply if it considers that to be in the best interests of the Shareholders.

3.3 The Service Company shall ensure that they hold all regulatory consents, permissions and licences which are necessary to enable the Service Company to lawfully continue to provide the Water Supply and such will be renewed as required.

4. Access and other rights of the Service Company

4.1 The Owner irrevocably authorises the Service Company and its employees, agents, consultants, contractors, and invitees at all times, by day and by night, with or without vehicles and equipment of any description during the term of this deed to enter upon, cross and re-cross over the Lot in order to carry out the administration, operation and maintenance of the

Water Supply, and to exercise for and on behalf of the Owner at the option of the Service Company in the name of the Owner, any of those rights that the Owner has as an Owner or occupier of the Lot or as a grantee or invitee or dominant tenement pursuant to any easements, covenants, and/or other rights including rights conferred by this deed, provided always that the Service Company and all persons acting by its authority shall be required to carry identification and authorisation from the Service Company when exercising any such right.

5. No rights inconsistent with this deed

5.1 The Owner shall not grant any rights to any person that are inconsistent with this deed and the rights and authorities given to the Service Company or which will have the effect of frustrating or rendering more expensive to the Service Company the carrying out of the Service Company's obligations in respect of the Water Supply. The Owner shall not agree to any alterations or surrender of any easements, covenants and other rights related to the Water Supply except with the prior written consent of the Service Company. The Owner shall not do or suffer to be done any act which impedes, interferes with or restricts the rights of the Service Company or of any other shareholder.

6. Rules

6.1 The Service Company may make such rules as it considers reasonable for the proper operation of the Water Supply and the benefit of all Shareholders. Subject to the acceptance of those rules by each Shareholder, or in default of acceptance, to the reasonableness of any rule in its terms in its application, the same may be enforced against the Owner as if the same were part of this deed.

7. Payment for services, covenants by the Covenantor

7.1 Annual Service Charge

a. The Service Company shall each year fix a charge ("Annual Service Charge"), to cover the period from 1 April to 31 March the following year, which shall be a budget estimate made by the Service Company as to the likely costs on an annual basis for the administration, operation and maintenance of the Water Supply, including but without limitation to the costs of operating the Service Company, any shortfall in the previous year's Annual Service Charge, the costs of administration, the costs of recovering any charges from shareholders, the costs of financing services and any other such indirect costs, and shall include any amounts reasonably required by the Service Company to establish, maintain, or add to any reserve to cover likely future expenditure. The Service Company shall review the Annual Service Charge annually, and shall send to the owner a copy of budget summary following each such review.

b. The Service Company shall monitor receipts and expenditure during the course of each year and if an adjustment in the Annual Service Charge shall be required for the then current year, the Service Company shall be entitled to make such adjustment and such further levy or refund as may be required to give effect to the adjustment. The adjusted amount shall for all purposes be the Annual Service Charge for that year.

c. The Service Company shall report to the Owner at the end of each year with accounts showing receipts and expenditure, assets and liabilities.

d. The Annual Service Charge shall be fixed each year at the Annual General Meeting.

e. The connection fee shall be set each year at the Annual General Meeting.

8. Owner's share of Annual Service Charge.

8.1 The Service Company shall in respect of the Lot determine the Owner's share from time to time and may (but shall not be obliged to) determine that different shares (to be borne by shareholders) shall be applicable in respect of its provision of the water supply. The Owner shall not challenge any determination by the Service Company relating to that Owner's share if made on a reasonable basis. Without limiting the types of determination that shall be responsible, it is agreed that it shall be reasonable for the Service Company to determine shares payable by shareholders based or partly based on:

a. any metering system (whether Water Supply are directly metered or are approximated by metering); or

b. any division of charges so that all shareholders or shareholders bear those charges equally;

notwithstanding the foregoing:

c. the Service Company shall take reasonable steps to apportion costs equitably between Shareholders who have built a house on their land (and are therefore connected to and using services) and Shareholders who have not yet built a house on their land and are not using services. For the purposes of this sub-clause, any Shareholder who has begun construction of a house shall be deemed to be in residence and using services and will be required to pay a one-off connection fee that will be fixed at the Annual General Meeting.

8.2 The connection fee shall be set each year at the Annual General Meeting.

8.3 Any interest or costs which the Service Company shall charge, pursuant to clauses 9 or 12 below, shall for the purposes of the Memorandum of Encumbrance registered or to be registered against the Title to the Lot for the benefit of the Service Company shall be deemed to be part of the Owner's share of Annual Service Charge.

9. Liability for payment of the Owner's share

9.1 The Service Company shall give the Owner notice of the Owner's share of the Annual Service Charge in respect of the Lot which shall be payable in four quarterly instalments on dates to be nominated by the Service Company. The Service Company shall be entitled to allow a discount of 10% on each instalment for prompt payment. The Service Company shall be entitled to charge interest at 18% per annum (or such lesser rate as it

may fix) on any part of any Owner's share, for each day any amount is unpaid after the due date.

10. Payment of the Owner's share of Annual Service Charge

10.1 The Owner shall pay each instalment of that owner's share in respect of the Lot within 7 (seven) days of due date of the instalment, and will, on request of the Service Company, make all such payments by automatic bank authority or direct debit authority. If no notice shall have been given to the Owner of a new Annual Service Charge for the last year for which notice has been given, on the same quarterly instalment dates as that last year, and conditional upon such payments being made, the Owner shall not be liable for any interest on any short payment.

11. Duration of the Deed

11.1 The term of this deed shall be from the date of commencement to the date on which the Service Company shall cease to have any rights or obligations in respect of Water Supply to the Lot.

12. Recovery of cost of damage

12.1 Where any service in relation to the Water Supply is required to be restored as a result of damage caused by the Owner and/or any other person, then the Service Company may, where the Service Company considers it cost-effective to do so, recover from the Owner and/or that other person the costs of performing that service or restoration. The Owner, if in default, shall pay the Service Company's costs (including reasonable legal costs) of and incidental to the enforcement of the Service Company's rights pursuant to this deed in respect of that default.

13. No right of cancellation

13.1 Cancellation of this deed shall not be an available remedy for any misrepresentation, repudiation, breach or anticipated breach.

14. Partial invalidity

14.1 In the event that the provision of this deed shall be held to be illegal or unenforceable by any Court or any administrative body, the unenforceability of any provision shall not affect the other provisions, which shall remain in force.

15. Waiver not to affect rights

15.1 The failure of any party at any time properly to enforce any of the provisions of this deed or to exercise any rights granted shall not be construed as a waiver or affect such parties' rights to enforce any or all of the provisions.

16. Governing law

16.1 The laws of New Zealand shall govern the validity, interpretation, construction and performance of this deed and no proceedings arising out of this deed shall be brought in any forum outside New Zealand.

17. Notices

17.1 Any notice or other document to be given or served under this deed may (in addition to any other method permitted by law) in the case of the Service Company be given or served registered post or by delivery to the Service Company at any Service Company's last known place of abode or business; and in the case of the Owner be given or served by registered post or by delivery to the Owner's principal place or abode of business or such address as may be notified to the Service Company from time to time.

17.2 Any notice or other document shall be deemed to have been served on the other party one business day after the date of posting, or upon delivery.

17.3 In the case of any notice or document required to be served or given the same may be signed on behalf of the giver by any authorised officer or by its solicitors.

18. Procedure on Sale of Lot or of the Lots

18.1 The owner shall as a condition of any sale or transfer of the Lot or any part of the Lot:

a. Require the intended Purchaser or Transferee ("Purchaser") to enter into, if required by the Supply Company, a new Service Deed in the form then currently used by the Service Company; and

b. Sell or transfer the Lot or part of the Lot subject to the Memorandum of Encumbrance (or such other security as may then be required by the Service Company) over that Lot. Or part of the Lot, to secure the obligations to make payments pursuant to this Service Deed or the new Service Deed; and

c. Pay prior to or at the time of the transfer of the Lot or part of the Lot all amounts owing to the Service Company under this Deed;

d. Transfer to the Purchaser simultaneously with the sale or transfer the equivalent of one-share in the Service Company for each complete hectare sold or transferred.

18.2 Until a new Service Deed has been entered into and such security arrangements as shall be acceptable to the Service Company have been satisfied, this Deed shall continue to bind the Owner, or as the case may require, the Owner's successor, who shall continue to be liable for payments pursuant to this Deed whether or not such payment have been occasioned by a service for the benefit of the purchaser.

19. Execution of Agreements

19.1 The Owner irrevocably appoints the Service Company to be its attorney and to make and execute all documents, papers and any other act or thing which the Service Company shall deem expedient or necessary to give effect to the provisions of this Deed.

20. Arbitration

20.1 All differences and disputes between the parties to the deed touching or concerning the subject matter of the Water Supply shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996 and its amendments.

SIGNED by **Hawea Water Service Company Limited** by:

_____ _____

Full name of director Signature of director

_____ _____

Full name of director Signature of director

SIGNED by _____ in the _____
presence of:

_____

Witness to signature

_____

Full name of witness

_____

Occupation of witness

_____

Address of witness

SIGNED by _____ in the _____
presence of:

_____

Witness to signature

_____

Full name of witness

_____

Occupation of witness

_____

Address of witness

Hill Laboratories
TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	BW Kennedy	**Lab No:**	2999626	DWAPv1
Contact:	BW Kennedy	**Date Received:**	27-May-2022	
	118 Rob Roy Lane	**Date Reported:**	07-Jun-2022	
	Wanaka 9305	**Quote No:**		
		Order No:		
		Client Reference:		
		Submitted By:	BW Kennedy	

Sample Type: Aqueous

		Sample Name:	BW Kennedy 26-May-2022 10:00 am	Guideline Value	Maximum Acceptable Values (MAV)
		Lab Number:	2999626.1		
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL		< 1	-	< 1
Routine Water Profile					
Turbidity	NTU		0.28	< 2.5	-
pH	pH Units		7.1	7.0 - 8.5	-
Total Alkalinity	g/m³ as $CaCO_3$		30	-	-
Free Carbon Dioxide	g/m³ at 25°C		4.8	-	-
Total Hardness	g/m³ as $CaCO_3$		26	< 200	-
Electrical Conductivity (EC)	mS/m		7.0	-	-
Electrical Conductivity (EC)	µS/cm		70	-	-
Approx Total Dissolved Salts	g/m³		47	< 1000	-
Total Arsenic	g/m³		< 0.0011	-	0.01
Total Boron	g/m³		0.0120	-	1.4
Total Calcium	g/m³		7.6	-	-
Total Copper	g/m³		0.0030	< 1	2
Total Iron	g/m³		0.032	< 0.2	-
Total Lead	g/m³		0.00032	-	0.01
Total Magnesium	g/m³		1.70	-	-
Total Manganese	g/m³		< 0.00053	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³		0.83	-	-
Total Sodium	g/m³		3.2	< 200	-
Total Zinc	g/m³		< 0.0011	< 1.5	-
Chloride	g/m³		< 0.5	< 250	-
Nitrate-N	g/m³		0.27	-	11.3
Sulphate	g/m³		2.9	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2018)', Ministry of Health. Copies of this publication are available from https://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2018

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m³ are the same as mg/L and ppm.

Routine Water Assessment for Sample No 2999626.1 - BW Kennedy 26-May-2022

pH/Alkalinity and Corrosiveness Assessment
The pH of a water sample is a measure of its acidity or basicity. Waters with a low pH can be corrosive and those with a high pH can promote scale formation in pipes and hot water cylinders.
The guideline level for pH in drinking water is 7.0-8.5. Below this range the water will be corrosive and may cause problems with disinfection if such treatment is used.

The alkalinity of a water is a measure of its acid neutralising capacity and is usually related to the concentration of carbonate, bicarbonate and hydroxide. Low alkalinities (25 g/m^3) promote corrosion and high alkalinities can cause problems with scale formation in metal pipes and tanks.

The pH of this water is within the NZ Drinking Water Guidelines, the ideal range being 7.0 to 8.0.
With the pH and alkalinity levels found, it is unlikely this water will be corrosive towards metal piping and fixtures.

Hardness/Total Dissolved Salts Assessment
The water contains a very low amount of dissolved solids and would be regarded as being soft.

Nitrate Assessment
Nitrate-nitrogen at elevated levels is considered undesirable in natural waters as this element can cause a health disorder called methaemaglobinaemia. Very young infants (less than six months old) are especially vulnerable. The Drinking-water Standards for New Zealand 2005 (Revised 2018) suggests a maximum permissible level of 11.3 g/m^3 as Nitrate-nitrogen (50 g/m^3 as Nitrate).

Nitrate-nitrogen was detected in this water but at such a low level to not be of concern.

Boron Assessment
Boron may be present in natural waters and if present at high concentrations can be toxic to plants.
Boron was found at a low level in this water but would not give any cause for concern.

Metals Assessment
Iron and manganese are two problem elements that commonly occur in natural waters. These elements may cause unsightly stains and produce a brown/black precipitate. Iron is not toxic but manganese, at concentrations above 0.5 g/m^3, may adversely affect health. At concentrations below this it may cause stains on clothing and sanitary ware.

Iron was found in this water at a low level.
Manganese was not detected in the water.
Treatment to remove iron and/or manganese should not be necessary.

Bacteriological Tests
The NZ Drinking Water Standards state that there should be no Escherichia coli (E coli) in water used for human consumption. The presence of these organisms would indicate that other pathogens of faecal origin may be present. Results obtained for Total Coliforms are only significant if the sample has not also been tested for E coli.

Escherichia coli was not detected in this sample.

Final Assessment
All parameters tested for meet the guidelines laid down in the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2018)' published by the Ministry of Health for water which is suitable for drinking purposes.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter. Performed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Turbidity	Analysis using a Hach 2100 Turbidity meter. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2130 B 23rd ed. 2017 (modified).	0.05 NTU	1
pH	pH meter. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 4500-H^+ B 23rd ed. 2017. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2320 B (modified for Alkalinity <20) 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D 23rd ed. 2017.	1.0 g/m^3 at 25°C	1
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2510 B 23rd ed. 2017.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 23rd ed. 2017.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m^3	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.0011 g/m^3	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.0053 g/m^3	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00011 g/m^3	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.0011 g/m^3	1
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1
Nitrate-N	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.05 g/m^3	1
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1
Escherichia coli	MPN count using Colilert (Incubated at 35°C for 24 hours) and 97 wells. Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9223 B 23rd ed. 2017.	1 MPN / 100mL	1

Document Set ID: 7272089
Version: 1, Version Date: 20/06/2022

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 27-May-2022 and 07-Jun-2022. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **15146**

Land Registration District **Otago**

Date Issued 10 April 2002

Prior References
1930

Estate Fee Simple

Area 16.5428 hectares more or less

Legal Description Lot 1 Deposited Plan 303793

Registered Owners

Bernard William Kennedy, Grant Arthur Ruddenklau and Zita Mary Cleugh

---

Interests

Subject to Section 8 Mining Act 1971

Subject to Section 5 Coal Mines Act 1979

5016824.1 Gazette Notice declaring a (State Highway No.6) adjoining within land to be a Limited Access Road - 21.12.2000 at 9:21 am

5033930.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 9.4.2001 at 9:00 am

5046004.3 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 30.5.2001 at 12:13 pm

Appurtenant hereto is a right to convey electricity and water and store water specified in Easement Certificate 5066243.1 - 1.8.2001 at 3:45 pm

Appurtenant hereto is a Right to Convey Water and a Right to Operate and Maintain Bore Pump and a Right to Convey Electricity created by Deed of Easement 5165434.1 - 4.3.2002 at 3:49 pm

5188548.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 10.4.2002 at 12:17 pm

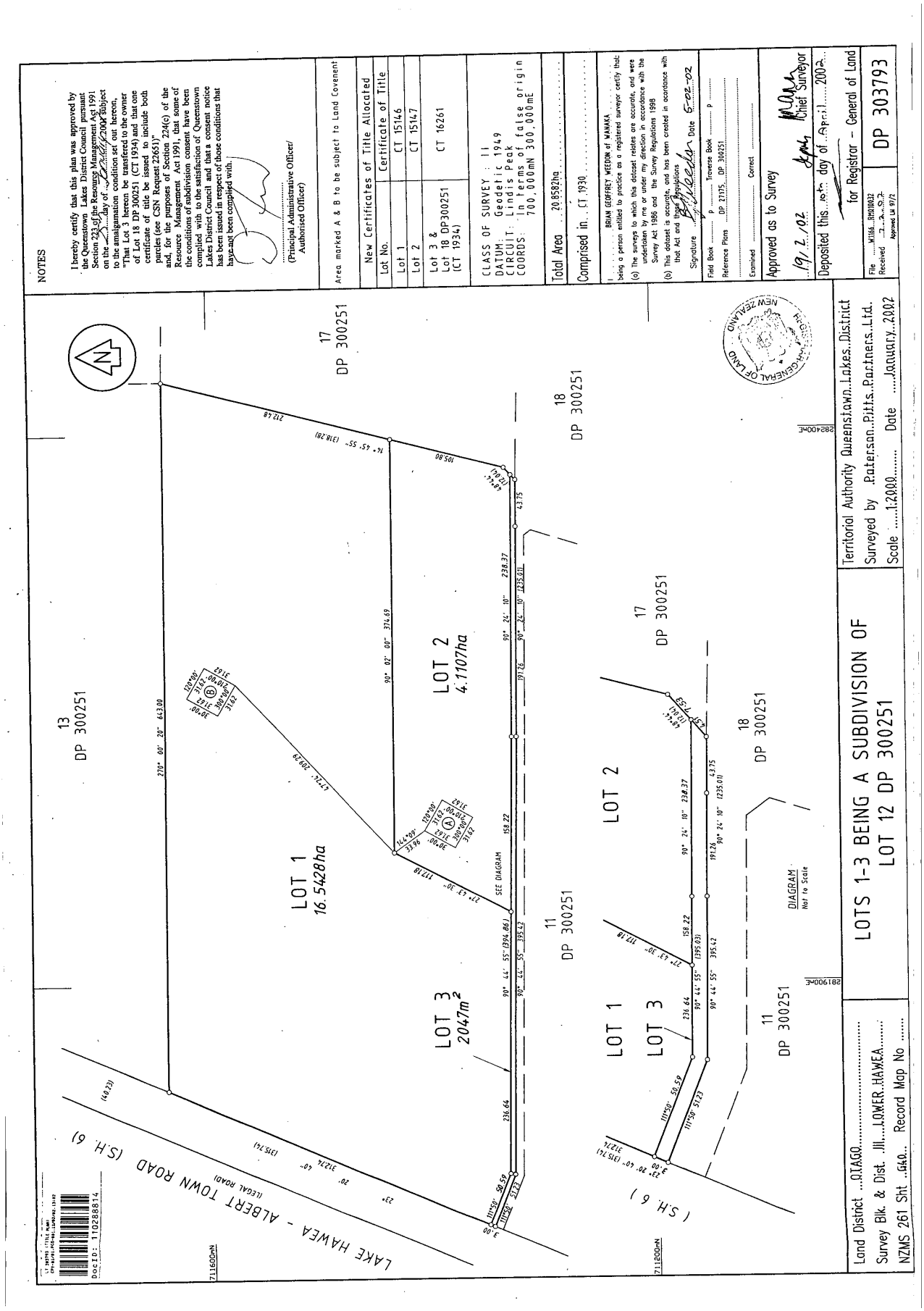
5360557.13 Partial Surrender of the right to convey water specified in Easement Certificate 5066243.1 - 1.10.2002 at 3:29 pm

Appurtenant hereto is a right of way, right to convey water and telelcommunications, right to drain foul sewer and stormwater and a right to convey electricity created by Transfer 5360557.17 - 1.10.2002 at 3:29 pm

The easements created by Transfer 5360557.17 are subject to Section 243 (a) Resource Management Act 1991

5360557.34 Encumbrance to Hawea Water Service Company Limited - 1.10.2002 at 3:29 pm

8427139.1 Variation of Consent Notice 5188548.2 pursuant to Section 221(5) Resource Management Act 1991 - 2.3.2010 at 1:32 pm



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **15147**

Land Registration District **Otago**

Date Issued 10 April 2002

Prior References
1930

Estate Fee Simple

Area 4.1107 hectares more or less

Legal Description Lot 2 Deposited Plan 303793

Registered Owners

Bernard William Kennedy, Grant Arthur Ruddenklau and Zita Mary Cleugh

---

Interests

Subject to Section 8 Mining Act 1971

Subject to Section 5 Coal Mines Act 1979

5016824.1 Gazette Notice declaring a (State Highway No.6) adjoining within land to be a Limited Access Road - 21.12.2000 at 9:21 am

5033930.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 9.4.2001 at 9:00 am

5046004.3 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 30.5.2001 at 12:13 pm

Appurtenant hereto is a right to convey electricity and water and store water specified in Easement Certificate 5066243.1 - 1.8.2001 at 3:45 pm

Appurtenant hereto is a Right to Convey Water and a Right to Operate and Maintain Bore Pump and a Right to Convey Electricity created by Deed of Easement 5165434.1 - 4.3.2002 at 3:49 pm

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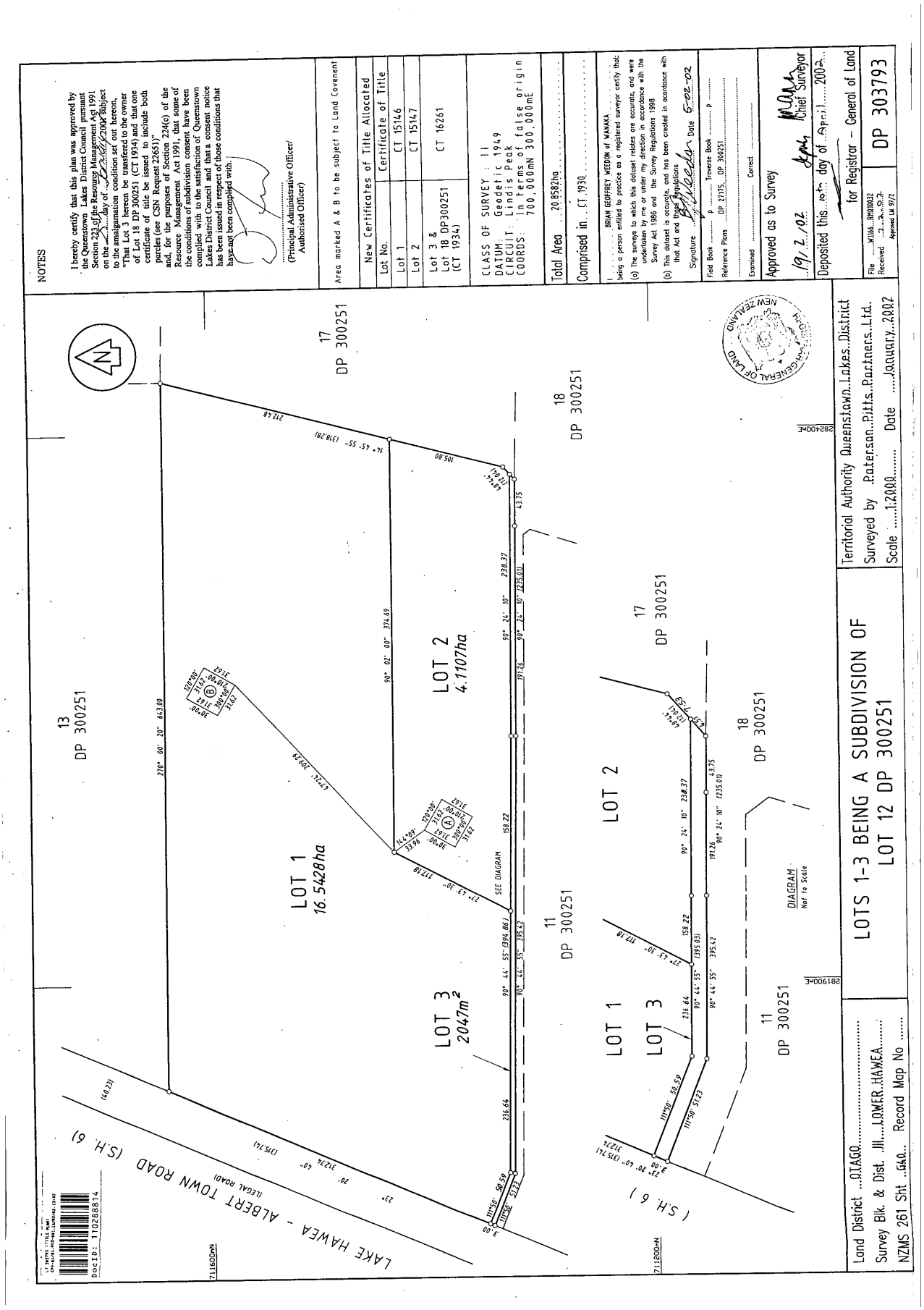
5360557.13 Partial Surrender of the right to convey water specified in Easement Certificate 5066243.1 - 1.10.2002 at 3:29 pm

Appurtenant hereto is a right of way, right to convey water and telecommunications, right to drain foul sewer and stormwater and a right to convey electricity created by Transfer 5360557.17 - 1.10.2002 at 3:29 pm

The easements created by Transfer 5360557.17 are subject to Section 243 (a) Resource Management Act 1991

5360557.33 Encumbrance to Hawea Water Service Company Limited - 1.10.2002 at 3:29 pm



MEMORANDUM OF ENCUMBRANCE

Encumbrancer: **DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON ~~AND CHECKETTS MCKAY TRUSTEES LIMITED~~**

Encumbrancee: **HAWEA WATER SERVICE COMPANY LIMITED** at Dunedin

WHEREAS:

A. The Encumbrancer is registered as proprietor of an estate in fee simple (subject however to such encumbrances liens and interests as are notified by memoranda underwritten or endorsed hereon) in the land described in the Second Schedule ("Land").

B. By Deed dated 10 June 2002 between the Encumbrancer and the Encumbrancee (in the form annexed)/~~or any Deed in substitution or replacement~~ ("Deed"), the Encumbrancer has agreed in relation to the Land to do certain things and to refrain from doing certain things and to secure its performance and observance of the Deed by granting and making with the Encumbrancee the Rent Charge as set out, and subject to the conditions expressed, in the First Schedule.

NOW THIS MEMORANDUM WITNESSES that the Encumbrancer **ENCUMBERS** the Land for the benefit of the Encumbrancee as set out in the First Schedule **AND COVENANTS** with the Encumbrancee as set out in the Deed.

IN WITNESS WHEREOF this Memorandum has been executed this 18 day of September 2002

EXECUTED by **DONALD ANDREW SARGINSON** as Encumbrancer in the presence of:)

L. J. McINTOSH
Law Clerk to Checketts McKay
WANAKA

EXECUTED by **NICOLA SINCLAIR SARGINSON** as Encumbrancer in the presence of:)

L. J. McINTOSH
Law Clerk to Checketts McKay
WANAKA

~~**EXECUTED by CHECKETTS MCKAY TRUSTEES LIMITED**~~ as ~~Encumbrancer~~ by:)

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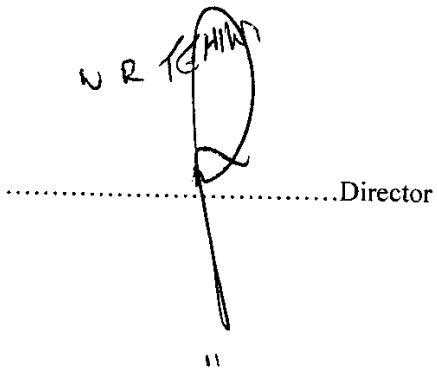
EXECUTED by **HAWEA WATER SERVICE COMPANY LIMITED** as Encumbrancee by its Director **WHETU RAYMOND TE HIWI** in the presence of:



.....Director

Witness Name: Kelli Dale Te-Hiwi
Occupation: Teacher
Address: Craybum Farm
SHWY 6
Lake Hawea

FIRST SCHEDULE

(Terms and Conditions of Encumbrance)

1. The term of the Encumbrance shall commence on the date of execution of this memorandum and shall continue until the Encumbrancer ceases to have any rights or obligations in respect to the Land.

2. The annual rent charge is the greater of the amount of **ONE DOLLAR** ($1.00) (inclusive of GST) or the Encumbrancer's shares of the Annual Service Charge payable in terms of the Deed.

3. The covenants in the Deed shall be enforceable only against the owners and occupiers for the time being of the Land and not otherwise against the Encumbrancer and its successors in title save for any breach existing at the date of alienation of the Land.

4. This Encumbrance, except where otherwise provided, shall be enforceable by the Encumbrancee and its successors and assigns. The rights conferred on the Encumbrancee by this Memorandum shall enure for the benefit of the Encumbrancee, its agents, employees, successors and assigns.

5. Each party shall pay its own legal costs in relation to the negotiation, preparation and execution of this Encumbrance and the Encumbrancee shall pay the costs of registration of same, with the Encumbrancer however being responsible for obtaining the necessary consent(s) from its charges and production of the title to the Land.

6. As at the date of execution of this Memorandum the Land comprises all of the land in Certificate of Title 15147 (Otago Land Registry). If the Encumbrancer elects to subdivide the Land, then the expression "Land" shall thereafter be deemed to refer to all subdivided parts of the Land and upon a request made by the Encumbrancer the Encumbrancee shall consent to a discharge of this Memorandum being entered upon the register in consideration of the contemporaneous registration of replacement Memoranda over all new titles derived from the Land. Such replacement Memoranda shall be in the same terms as this Memorandum.

7. References in this Memorandum to "covenant" or "covenants" refer to the covenants contained in the Deed.

SECOND SCHEDULE (the Land)

4.1107 hectares more or less being Lot 2 on Deposited Plan 303793 Certificate of Title 15147 (Otago Land Registry)

DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON AND CHECKETTS MCKAY TRUSTEES LIMITED

and

HAWEA WATER SERVICE COMPANY LIMITED

SERVICE DEED

WEBB FARRY
BARRISTERS & SOLICITORS
DUNEDIN & MOSGIEL
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SERVICE DEED DATED 10 June 2002

PARTIES:

1 **DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON AND CHECKETTS MCKAY TRUSTEES LIMITED** together with their successors and assigns ("Owner")

2. **HAWEA WATER SERVICE COMPANY LIMITED** at Dunedin ("the Service Company")

BACKGROUND:

A. The Owner is the registered proprietor of an estate in fee simple in all that parcel of land contained in Lot 2 Deposited Plan 303793 comprising 4.1107 hectares more or less in Certificate of Title 15147 (Otago Land Registry) ("Lot") and includes any executor, administrator, receiver, liquidator or assignee in a bankruptcy. In all circumstances where there is more than one Owner the term Owner shall include all owners jointly and severally.

B. The Service Company has been incorporated to administer, operate and maintain the right to convey and store water set out in Easement Certificate 5066243.1 (Otago Land Registry) on behalf of those registered proprietors of the land in Deposited Plan 300251 (Otago Land Registry) who purchase shares in the Service Company together with any subsequent water rights arising out of any future subdivision of the land owned by those shareholders ("Water Supply").

C. The Service Company has agreed to carry out that service.

D. The Service Company and the Owner have agreed to enter into a service deed on the terms set out in this deed with each of the shareholders of the Service Company. ("Shareholders")

E. Upon sale or transfer of the Lot or part of the Lot of the Owner shall procure the intended Purchaser(s) to enter into a new deed with the Service Company.

THIS DEED WITNESSES AS FOLLOWS:

1. **DUTIES**

1.1 The Service Company (by its agents or employees) shall undertake the following duties on behalf of the Owner of the Lot:

(a) The administration, operation and maintenance of the Water Supply, including the maintenance of any tanks, pumps and pipelines, to the boundary of the Lot and further, to the boundary of any subdivision of the Lot provided that pipes, which in the Service Company's view are of both sufficient internal diameter and

constructed of suitable materials, are first laid at the cost of the Owner connecting the existing supply to the boundary of the subdivided lot(s).

(b) In the event of any water shortfall the Service Company will give priority to the supply of water for domestic use and stock use to a minimum of 1000 litres per share per day per dwelling and will otherwise distribute any surplus on a rateable per share basis.

(c) The Service Company is to meet the cost of a charge or charges incurred as a result of the administration, operation and maintenance of the Water Supply.

(d) Any other function that the Service Company determines is in the best interest of the Shareholders.

(e) The Service Company will not be responsible for any treatment that may be required to make the water supply potable.

2 **COMPLIANCE WITH STATUTES AND REGULATIONS, IMPARTIALITY**

2.1 The Service Company shall administer the Water Supply:

(a) in a manner consistent with all statutes, regulations, by-laws, and the directions requisitions and requirements of any authority of competent jurisdiction; and

(b) without limitation to the foregoing, in accordance with the requirements of and prescribed by all planning consents for the Development; and

(c) in a manner consistent with the rights of all Shareholders; and

(d) in a manner that is impartial between Shareholders

3 **COMPLIANCE STANDARDS**

3.1 The Service Company shall ensure that, in addition to any standards otherwise specified, the Water Supply shall comply with the following:

(a) the standards from time to time applied by the relevant District or Regional Council;

(b) the standards of the Water Supply that was provided at the outset of the development of the land in Deposited Plan 300251;

(c) the requirements of the Drinking Water Standard of New Zealand 2000 or as shall be capable of treatment to comply with such standards;

(d) the requirements or guidelines of any regulatory health body;

3.2 The Service Company, shall be at liberty to raise the standards of the Water Supply if it considers that to be in the best interests of the shareholders.

3.3 The Service Company shall ensure that all regulatory consents, permissions and licences held which are necessary to enable the Service Company to lawfully continue to provide the Water Supply will be renewed as required.

4. ACCESS AND OTHER RIGHTS OF THE SERVICE COMPANY

4.1 The Owner irrevocably authorises the Service Company and its employees, agents, consultants, contractors, and invitees at all times, by day and by night, with or without vehicles and equipment of any description during the term of this deed to enter upon, cross and recross over the Lot in order to carry out the administration, operation and maintenance of the Water Supply, and to exercise for and on behalf of the Owner, and at the option of the Service Company in the name of the Owner, any of those rights that the Owner has as an owner or occupier of the Lot or as a grantee or invitee or dominant tenement pursuant to any easements, covenants, and/or other rights including rights conferred by this deed, provided always that the Service Company and all persons acting by its authority shall be required to carry identification and authorisation from the Service Company when exercising any such right.

5 NO RIGHTS INCONSISTENT WITH THIS DEED

5.1 The Owner shall not grant any rights to any person that are inconsistent with this deed and the rights and authorities given to the Service Company or which will have the effect of frustrating or rendering more expensive to the Service Company the carrying out of the Service Company's obligations in respect of the Water Supply. The Owner shall not agree to any alteration or surrender of any easements, covenants and other rights related to the Water Supply except with the prior written consent of the Service Company. The Owner shall do or suffer to be done any act which impedes, interferes with or restricts the rights of the Service Company or of any other shareholder.

6 RULES

6.1 The Service Company may make such rules as it considers reasonable for the proper operation of the Water Supply and the benefit of all shareholders. Subject to the acceptance of those rules by each shareholder, or in default of acceptance, to the reasonableness of any rule in its terms and in its application, the same may be enforced against the Owner as if the same were part of this deed.

7 PAYMENT FOR SERVICES, COVENANTS BY THE COVENANTOR

7.1 Annual Service Charge

7.1.1 The Service Company shall each year fix a charge ("Annual Service Charge"), to cover the period from 1 April to 31 March the following year, which shall be a budget estimate made by the Service Company as to the likely costs on an annual basis for the administration, operation and maintenance of the Water Supply, including but without limitation to the costs of operating the Service Company, any shortfall in the previous year's Annual Service Charge, the costs of administration, the costs of recovering any charges from shareholders, the costs of financing services and other such indirect costs, and shall include any amounts reasonably required by the Service Company to establish, maintain, or add to any reserve to cover likely future expenditure or contingencies, or to recover past expenditure. The Service Company shall review the Annual Service Charge

annually, and shall send to the Owner a copy of a budget summary following each such review.

7.1.2 The Service Company shall monitor receipts and expenditure during the course of each year and if an adjustment in the Annual Service Charge shall be required for the then current year the Service Company shall be entitled to make such adjustment and such further levy or refund as may be required to give effect to the adjustment. The adjusted amount shall for all purposes be the Annual Service Charge for that year.

7.1.3 The Service Company shall report to the Owner at the end of each year with accounts showing receipts and expenditure, assets and liabilities.

7.1.4 The Annual Service Charge for the year 01/04/02 to 31/03/03 shall be a sum equivalent to $5.00 per share issued in the Service Company.

7.2 **OWNER'S SHARE OF ANNUAL SERVICE CHARGE**

7.2.1 The Service Company shall in respect of the Lot determine the Owner's share from time to time and may (but shall not be obliged to) determine that different shares (to be borne by shareholders) shall be applicable in respect of its provision of the water supply. The Owner shall not challenge any determination by the Service Company relating to that Owner's share if made on a reasonable basis. Without limiting the types of determination that shall be reasonable, it is agreed that it shall be reasonable for the Service Company to determine shares payable by shareholders based or partly based on:

(a) any metering system (whether Water Supply are directly metered or are approximated by metering); or

(b) any division of charges so that all shareholders or shareholders in a particular part or parts of the land in Deposited Plan 300251 bear those charges equally;

notwithstanding the foregoing:

(c) the Service Company shall take reasonable steps to apportion costs equitably between Shareholders who have built a house on their land (and are therefore connected to and using services) and Shareholders who have not yet built a house on their land and are not using services. For the purposes of this sub-clause any Shareholder who has begun construction of a house shall be deemed to be in residence and using services; and

7.2.2 Any interest or costs which the Service Company shall charge pursuant to clauses 8 or 11 below shall for the purposes of the Memorandum of Encumbrance registered or to be registered against the Title to the Lot for the benefit of the Service Company shall be deemed to be part of the Owner's share of Annual Service Charge.

8 **LIABILITY FOR PAYMENT OF THE OWNER'S SHARE**

8.1 The Service Company shall give the Owner notice of the Owner's share of the Annual Service Charge in respect of the Lot which shall be payable in four quarterly instalments on dates to be nominated by the Service Company. The Service Company shall be entitled to allow a discount of 10% on each instalment for prompt payment. The Service

Company shall be entitled to charge interest at 18% per annum (or such lesser rate as it may fix) on any part of any Owner's share, for each day any amount is unpaid after the due date.

9 **PAYMENT OF THE OWNER'S SHARE OF ANNUAL SERVICE CHARGE**

9.1 The Owner shall pay each instalment of that Owner's Share in respect of the Lot within 7 (seven) days of due date of the instalment, and will, on request of the Service Company, make all such payments by automatic bank authority or direct debit authority. If no notice shall have been given to the Owner of a new Annual Service Charge, the Owner will pay as instalments, one quarter of the Owner's Share of the Annual Service Charge for the last year for which notice has been given, on the same quarterly instalment dates as that last year, and conditional upon such payments being made, the Owner shall not be liable for any interest on any short payment.

10 **DURATION OF DEED**

10.1 The term of this deed shall be from the date of commencement to the date on which the Service Company shall cease to have any rights or obligations in respect to the Lot.

11 **RECOVERY OF COST OF DAMAGE**

11.1 Where any service in relation to the water supply is required to be restored as a result of damage caused by the Owner and/or any other person, then the Service Company may, where the Service Company considers it cost-effective to do so, recover from the Owner and/or that other person the costs of performing that service or restoration. The Owner, if in default, shall pay the Service Company's costs (including reasonable legal costs) of and incidental to the enforcement of the Service Company's rights pursuant to this deed in respect of that default.

12 **NO RIGHT OF CANCELLATION**

12.1 Cancellation of this deed shall not be an available remedy for any misrepresentation, repudiation, breach or anticipated breach.

13 **PARTIAL INVALIDITY**

13.1 In the event that the provision of this deed shall be held to be illegal or unenforceable by any Court or any administrative body, the unenforceability of any provision shall not affect the other provisions hereof, which shall remain in force.

14 **WAIVER NOT TO AFFECT RIGHTS**

14.1 The failure of any party at any time properly to enforce any of the provisions of this deed or to exercise any rights herein granted shall not be construed as a waiver thereof or affect such parties rights thereafter to enforce any or all of the provisions hereof.

15 **GOVERNING LAW**

15.1 The laws of New Zealand shall govern the validity, interpretation, construction and performance of this deed and no proceedings arising out of this Deed shall be brought in any forum outside New Zealand.

16 **NOTICES**

16.1 (a) Any notice or other document required to be given or served under this deed may (in addition to any other method permitted by law) in the case of the Service Company be given or served by registered post or by delivery to the Service Company at the Service Company's last known place of abode or business; and in the case of the Owner be given or served by registered post or by delivery to the Owner's principal place of abode or business or such address as may be notified to the Service Company from time to time.

(d) Any notice or other document shall be deemed to have been served on the other party one business day after the date of posting, or upon delivery.

(e) In the case of any notice or document required to be served or given the same may be signed on behalf of the giver by any authorised officer or by its solicitors.

17 **PROCEDURE ON SALE OF LOT OR OF THE LOTS**

17.1 The Owner shall as a condition of any sale or transfer of the Lot or any part of the Lot:

(a) Require the intended Purchaser or Transferee ("Purchaser") to enter into, if required by the Supply Company, a new service deed in the form then currently used by the Service Company; and

(b) Sell or transfer the Lot or part of the Lot subject to the Memorandum of Encumbrance (or such other security as may then be required by the Service Company) over that Lot, or part of the Lot, to secure the obligation to make payments pursuant to this agreement or the new service deed; and

(c) Pay prior to or at the time of the transfer of the Lot or part of the Lot all amounts owing to the Service Company under this deed.

17.2 Until a new service agreement has been entered into and such security arrangements as shall be acceptable to the Service Company have been satisfied this Agreement shall continue to bind the Owner, or as the case may require, the Owner's successor, who shall continue to be liable for payments pursuant to this deed whether or not such payments have been occasioned by a service for the benefit of the Owner or the purchaser.

17.3 Only upon the completion of the requirements of clause 5.1 to the satisfaction of the Service Company shall the Owner be discharged from the liabilities and obligations pursuant to this Agreement.

17.4 The Owner shall pay the Service Company's costs of and incidental to any transfer of the Lot or part of the Lot including the cost of the new service agreement and requisite

securities being negotiated, drafted, executed and where applicable registered, and shall pay the Service Company's reasonable legal cost.

18 **EXECUTION OF AGREEMENTS**

18.1 The Owner irrevocable appoints the Service Company to be its attorney and to make and execute all documents, papers and any other act or thing which the Service Company shall deem expedient or necessary to give effect to the provisions of this deed.

19 **ARBITRATION**

19.1 All differences and disputes between the parties to the deed touching or concerning the subject matter of this Agreement shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996 and its amendments.

SIGNED by **DONALD ANDREW SARGINSON**
in the presence of:

Witness Name: L. J. McINTOSH
Occupation: Law Clerk to Checketts McKay
Address: WANAKA

SIGNED by **NICOLA SINCLAIR SARGINSON**
in the presence of:

Witness Name: L. J. McINTOSH
Occupation: Law Clerk to Checketts McKay
Address: WANAKA

SIGNED by **CHECKETTS MCKAY TRUSTEES LIMITED** by its Directors in the presence of:

.....
Director

.....
Director

Witness Name:
Occupation:
Address:

SIGNED by **HAWEA WATER SERVICE COMPANY LIMITED** by its Director
in the presence of:

.....
Director

Witness Name: Kelli Dale Te-Hiwi
Occupation: Teacher
Address: SHWY 6
Lake Hawea

MEMORANDUM OF ENCUMBRANCE

Correct for the purposes of the Land Transfer Act 1952

Solicitor for the Encumbrancee

DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON AND CHECKETTS MCKAY LIMITED

Encumbrancer

HAWEA WATER SERVICE COMPANY LIMITED

Encumbrancee

Particulars entered in the register as shown in respect of the Land referred to herein

Assistant/District Land Registrar in the District of Invercargill

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MEMORANDUM OF ENCUMBRANCE

Encumbrancer: **DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON ~~AND CHECKETTS MCKAY TRUSTEES LIMITED~~**

Encumbrancee: **HAWEA WATER SERVICE COMPANY LIMITED** at Dunedin

WHEREAS:

A. The Encumbrancer is registered as proprietor of an estate in fee simple (subject however to such encumbrances liens and interests as are notified by memoranda underwritten or endorsed hereon) in the land described in the Second Schedule ("Land").

B. By Deed dated 10 June 2002 or any Deed in substitution or replacement between the Encumbrancer and the Encumbrancee (in the form annexed) ("Deed"), the Encumbrancer has agreed in relation to the Land to do certain things and to refrain from doing certain things and to secure its performance and observance of the Deed by granting and making with the Encumbrancee the Rent Charge as set out, and subject to the conditions expressed, in the First Schedule.

NOW THIS MEMORANDUM WITNESSES that the Encumbrancer **ENCUMBERS** the Land for the benefit of the Encumbrancee as set out in the First Schedule **AND COVENANTS** with the Encumbrancee as set out in the Deed.

IN WITNESS WHEREOF this Memorandum has been executed this 18 day of September 2002

EXECUTED by **DONALD ANDREW SARGINSON** as Encumbrancer in the presence of:
L. J. McINTOSH
Law Clerk to Checketts McKay
WANAKA

EXECUTED by **NICOLA SINCLAIR SARGINSON** as Encumbrancer in the presence of:
L. J. McINTOSH
Law Clerk to Checketts McKay
WANAKA

~~**EXECUTED** by **CHECKETTS MCKAY TRUSTEES LIMITED** as Encumbrancer by:~~

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EXECUTED by **HAWEA WATER SERVICE COMPANY LIMITED** as Encumbrancee by its Director **WHETU RAYMOND TE HIWI** in the presence of:

W R Te Hiwi

.....Director

Witness Name: Kelli Dale Te-Hiwi
Occupation: Teacher
Address: GRayburn Farm
SHWY6
Lake Hawea

FIRST SCHEDULE

(Terms and Conditions of Encumbrance)

1. The term of the Encumbrance shall commence on the date of execution of this memorandum and shall continue until the Encumbrancer ceases to have any rights or obligations in respect to the Land.

2. The annual rent charge is the greater of the amount of **ONE DOLLAR** ($1.00) (inclusive of GST) or the Encumbrancer's shares of the Annual Service Charge payable in terms of the Deed.

3. The covenants in the Deed shall be enforceable only against the owners and occupiers for the time being of the Land and not otherwise against the Encumbrancer and its successors in title save for any breach existing at the date of alienation of the Land.

4. This Encumbrance, except where otherwise provided, shall be enforceable by the Encumbrancee and its successors and assigns. The rights conferred on the Encumbrancee by this Memorandum shall enure for the benefit of the Encumbrancee, its agents, employees, successors and assigns.

5. Each party shall pay its own legal costs in relation to the negotiation, preparation and execution of this Encumbrance and the Encumbrancee shall pay the costs of registration of same, with the Encumbrancer however being responsible for obtaining the necessary consent(s) from its charges and production of the title to the Land.

6. As at the date of execution of this Memorandum the Land comprises all of the land in Certificate of Title 15146 (Otago Land Registry). If the Encumbrancer elects to subdivide the Land, then the expression "Land" shall thereafter be deemed to refer to all subdivided parts of the Land and upon a request made by the Encumbrancer the Encumbrancee shall consent to a discharge of this Memorandum being entered upon the register in consideration of the contemporaneous registration of replacement Memoranda over all new titles derived from the Land. Such replacement Memoranda shall be in the same terms as this Memorandum.

7. References in this Memorandum to "covenant" or "covenants" refer to the covenants contained in the Deed.

SECOND SCHEDULE (the Land)

16.5428 hectares more or less being Lot 1 on Deposited Plan 303793 Certificate of Title 15146 (Otago Land Registry)

DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON ~~AND CHECKETTS MCKAY TRUSTEES LIMITED~~

and

HAWEA WATER SERVICE COMPANY LIMITED

SERVICE DEED

WEBB FARRY
BARRISTERS & SOLICITORS
DUNEDIN & MOSGIEL
mcp\docs\hawea-servdeed10

SERVICE DEED DATED 10 June 2002

PARTIES:

1 **DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON AND CHECKETTS MCKAY TRUSTEES LIMITED** together with their successors and assigns ("Owner")

2. **HAWEA WATER SERVICE COMPANY LIMITED** at Dunedin ("the Service Company")

BACKGROUND:

A. The Owner is the registered proprietor of an estate in fee simple in all that parcel of land contained in Lot 1 Deposited Plan 303793 comprising 16.5428 hectares more or less in Certificate of Title 15146 (Otago Land Registry) ("Lot") and includes any executor, administrator, receiver, liquidator or assignee in a bankruptcy. In all circumstances where there is more than one Owner the term Owner shall include all owners jointly and severally.

B. The Service Company has been incorporated to administer, operate and maintain the right to convey and store water set out in Easement Certificate 5066243.1 (Otago Land Registry) on behalf of those registered proprietors of the land in Deposited Plan 300251 (Otago Land Registry) who purchase shares in the Service Company together with any subsequent water rights arising out of any future subdivision of the land owned by those shareholders ("Water Supply").

C. The Service Company has agreed to carry out that service.

D. The Service Company and the Owner have agreed to enter into a service deed on the terms set out in this deed with each of the shareholders of the Service Company. ("Shareholders")

E. Upon sale or transfer of the Lot or part of the Lot of the Owner shall procure the intended Purchaser(s) to enter into a new deed with the Service Company.

THIS DEED WITNESSES AS FOLLOWS:

1. **DUTIES**

1.1 The Service Company (by its agents or employees) shall undertake the following duties on behalf of the Owner of the Lot:

(a) The administration, operation and maintenance of the Water Supply, including the maintenance of any tanks, pumps and pipelines, to the boundary of the Lot and further, to the boundary of any subdivision of the Lot provided that pipes, which in the Service Company's view are of both sufficient internal diameter and

constructed of suitable materials, are first laid at the cost of the Owner connecting the existing supply to the boundary of the subdivided lot(s).

(b) In the event of any water shortfall the Service Company will give priority to the supply of water for domestic use and stock use to a minimum of 1000 litres per share per day per dwelling and will otherwise distribute any surplus on a rateable per share basis.

(c) The Service Company is to meet the cost of a charge or charges incurred as a result of the administration, operation and maintenance of the Water Supply.

(d) Any other function that the Service Company determines is in the best interest of the Shareholders.

(e) The Service Company will not be responsible for any treatment that may be required to make the water supply potable.

2 **COMPLIANCE WITH STATUTES AND REGULATIONS, IMPARTIALITY**

2.1 The Service Company shall administer the Water Supply:

(a) in a manner consistent with all statutes, regulations, by-laws, and the directions requisitions and requirements of any authority of competent jurisdiction; and

(b) without limitation to the foregoing, in accordance with the requirements of and prescribed by all planning consents for the Development; and

(c) in a manner consistent with the rights of all Shareholders; and

(d) in a manner that is impartial between Shareholders

3 **COMPLIANCE STANDARDS**

3.1 The Service Company shall ensure that, in addition to any standards otherwise specified, the Water Supply shall comply with the following:

(a) the standards from time to time applied by the relevant District or Regional Council;

(b) the standards of the Water Supply that was provided at the outset of the development of the land in Deposited Plan 300251;

(c) the requirements of the Drinking Water Standard of New Zealand 2000 or as shall be capable of treatment to comply with such standards;

(d) the requirements or guidelines of any regulatory health body;

3.2 The Service Company, shall be at liberty to raise the standards of the Water Supply if it considers that to be in the best interests of the shareholders.

3.3 The Service Company shall ensure that all regulatory consents, permissions and licences held which are necessary to enable the Service Company to lawfully continue to provide the Water Supply will be renewed as required.

4. ACCESS AND OTHER RIGHTS OF THE SERVICE COMPANY

4.1 The Owner irrevocably authorises the Service Company and its employees, agents, consultants, contractors, and invitees at all times, by day and by night, with or without vehicles and equipment of any description during the term of this deed to enter upon, cross and recross over the Lot in order to carry out the administration, operation and maintenance of the Water Supply, and to exercise for and on behalf of the Owner, and at the option of the Service Company in the name of the Owner, any of those rights that the Owner has as an owner or occupier of the Lot or as a grantee or invitee or dominant tenement pursuant to any easements, covenants, and/or other rights including rights conferred by this deed, provided always that the Service Company and all persons acting by its authority shall be required to carry identification and authorisation from the Service Company when exercising any such right.

5 NO RIGHTS INCONSISTENT WITH THIS DEED

5.1 The Owner shall not grant any rights to any person that are inconsistent with this deed and the rights and authorities given to the Service Company or which will have the effect of frustrating or rendering more expensive to the Service Company the carrying out of the Service Company's obligations in respect of the Water Supply. The Owner shall not agree to any alteration or surrender of any easements, covenants and other rights related to the Water Supply except with the prior written consent of the Service Company. The Owner shall do or suffer to be done any act which impedes, interferes with or restricts the rights of the Service Company or of any other shareholder.

6 RULES

6.1 The Service Company may make such rules as it considers reasonable for the proper operation of the Water Supply and the benefit of all shareholders. Subject to the acceptance of those rules by each shareholder, or in default of acceptance, to the reasonableness of any rule in its terms and in its application, the same may be enforced against the Owner as if the same were part of this deed.

7 PAYMENT FOR SERVICES, COVENANTS BY THE COVENANTOR

7.1 Annual Service Charge

7.1.1 The Service Company shall each year fix a charge ("Annual Service Charge"), to cover the period from 1 April to 31 March the following year, which shall be a budget estimate made by the Service Company as to the likely costs on an annual basis for the administration, operation and maintenance of the Water Supply, including but without limitation to the costs of operating the Service Company, any shortfall in the previous year's Annual Service Charge, the costs of administration, the costs of recovering any charges from shareholders, the costs of financing services and other such indirect costs, and shall include any amounts reasonably required by the Service Company to establish, maintain, or add to any reserve to cover likely future expenditure or contingencies, or to recover past expenditure. The Service Company shall review the Annual Service Charge

annually, and shall send to the Owner a copy of a budget summary following each such review.

7.1.2 The Service Company shall monitor receipts and expenditure during the course of each year and if an adjustment in the Annual Service Charge shall be required for the then current year the Service Company shall be entitled to make such adjustment and such further levy or refund as may be required to give effect to the adjustment. The adjusted amount shall for all purposes be the Annual Service Charge for that year.

7.1.3 The Service Company shall report to the Owner at the end of each year with accounts showing receipts and expenditure, assets and liabilities.

7.1.4 The Annual Service Charge for the year 01/04/02 to 31/03/03 shall be a sum equivalent to $5.00 per share issued in the Service Company.

7.2 **OWNER'S SHARE OF ANNUAL SERVICE CHARGE**

7.2.1 The Service Company shall in respect of the Lot determine the Owner's share from time to time and may (but shall not be obliged to) determine that different shares (to be borne by shareholders) shall be applicable in respect of its provision of the water supply. The Owner shall not challenge any determination by the Service Company relating to that Owner's share if made on a reasonable basis. Without limiting the types of determination that shall be reasonable, it is agreed that it shall be reasonable for the Service Company to determine shares payable by shareholders based or partly based on:

(a) any metering system (whether Water Supply are directly metered or are approximated by metering); or

(b) any division of charges so that all shareholders or shareholders in a particular part or parts of the land in Deposited Plan 300251 bear those charges equally;

notwithstanding the foregoing:

(c) the Service Company shall take reasonable steps to apportion costs equitably between Shareholders who have built a house on their land (and are therefore connected to and using services) and Shareholders who have not yet built a house on their land and are not using services. For the purposes of this sub-clause any Shareholder who has begun construction of a house shall be deemed to be in residence and using services; and

7.2.2 Any interest or costs which the Service Company shall charge pursuant to clauses 8 or 11 below shall for the purposes of the Memorandum of Encumbrance registered or to be registered against the Title to the Lot for the benefit of the Service Company shall be deemed to be part of the Owner's share of Annual Service Charge.

8 **LIABILITY FOR PAYMENT OF THE OWNER'S SHARE**

8.1 The Service Company shall give the Owner notice of the Owner's share of the Annual Service Charge in respect of the Lot which shall be payable in four quarterly instalments on dates to be nominated by the Service Company. The Service Company shall be entitled to allow a discount of 10% on each instalment for prompt payment. The Service

Company shall be entitled to charge interest at 18% per annum (or such lesser rate as it may fix) on any part of any Owner's share, for each day any amount is unpaid after the due date.

9 **PAYMENT OF THE OWNER'S SHARE OF ANNUAL SERVICE CHARGE**

9.1 The Owner shall pay each instalment of that Owner's Share in respect of the Lot within 7 (seven) days of due date of the instalment, and will, on request of the Service Company, make all such payments by automatic bank authority or direct debit authority. If no notice shall have been given to the Owner of a new Annual Service Charge, the Owner will pay as instalments, one quarter of the Owner's Share of the Annual Service Charge for the last year for which notice has been given, on the same quarterly instalment dates as that last year, and conditional upon such payments being made, the Owner shall not be liable for any interest on any short payment.

10 **DURATION OF DEED**

10.1 The term of this deed shall be from the date of commencement to the date on which the Service Company shall cease to have any rights or obligations in respect to the Lot.

11 **RECOVERY OF COST OF DAMAGE**

11.1 Where any service in relation to the water supply is required to be restored as a result of damage caused by the Owner and/or any other person, then the Service Company may, where the Service Company considers it cost-effective to do so, recover from the Owner and/or that other person the costs of performing that service or restoration. The Owner, if in default, shall pay the Service Company's costs (including reasonable legal costs) of and incidental to the enforcement of the Service Company's rights pursuant to this deed in respect of that default.

12 **NO RIGHT OF CANCELLATION**

12.1 Cancellation of this deed shall not be an available remedy for any misrepresentation, repudiation, breach or anticipated breach.

13 **PARTIAL INVALIDITY**

13.1 In the event that the provision of this deed shall be held to be illegal or unenforceable by any Court or any administrative body, the unenforceability of any provision shall not affect the other provisions hereof, which shall remain in force.

14 **WAIVER NOT TO AFFECT RIGHTS**

14.1 The failure of any party at any time properly to enforce any of the provisions of this deed or to exercise any rights herein granted shall not be construed as a waiver thereof or affect such parties rights thereafter to enforce any or all of the provisions hereof.

15 **GOVERNING LAW**

15.1 The laws of New Zealand shall govern the validity, interpretation, construction and performance of this deed and no proceedings arising out of this Deed shall be brought in any forum outside New Zealand.

16 **NOTICES**

16.1 (a) Any notice or other document required to be given or served under this deed may (in addition to any other method permitted by law) in the case of the Service Company be given or served by registered post or by delivery to the Service Company at the Service Company's last known place of abode or business; and in the case of the Owner be given or served by registered post or by delivery to the Owner's principal place of abode or business or such address as may be notified to the Service Company from time to time.

(d) Any notice or other document shall be deemed to have been served on the other party one business day after the date of posting, or upon delivery.

(e) In the case of any notice or document required to be served or given the same may be signed on behalf of the giver by any authorised officer or by its solicitors.

17 **PROCEDURE ON SALE OF LOT OR OF THE LOTS**

17.1 The Owner shall as a condition of any sale or transfer of the Lot or any part of the Lot:

(a) Require the intended Purchaser or Transferee ("Purchaser") to enter into, if required by the Supply Company, a new service deed in the form then currently used by the Service Company; and

(b) Sell or transfer the Lot or part of the Lot subject to the Memorandum of Encumbrance (or such other security as may then be required by the Service Company) over that Lot, or part of the Lot, to secure the obligation to make payments pursuant to this agreement or the new service deed; and

(c) Pay prior to or at the time of the transfer of the Lot or part of the Lot all amounts owing to the Service Company under this deed.

17.2 Until a new service agreement has been entered into and such security arrangements as shall be acceptable to the Service Company have been satisfied this Agreement shall continue to bind the Owner, or as the case may require, the Owner's successor, who shall continue to be liable for payments pursuant to this deed whether or not such payments have been occasioned by a service for the benefit of the Owner or the purchaser.

17.3 Only upon the completion of the requirements of clause 5.1 to the satisfaction of the Service Company shall the Owner be discharged from the liabilities and obligations pursuant to this Agreement.

17.4 The Owner shall pay the Service Company's costs of and incidental to any transfer of the Lot or part of the Lot including the cost of the new service agreement and requisite

securities being negotiated, drafted, executed and where applicable registered, and shall pay the Service Company's reasonable legal cost.

18 **EXECUTION OF AGREEMENTS**

18.1 The Owner irrevocable appoints the Service Company to be its attorney and to make and execute all documents, papers and any other act or thing which the Service Company shall deem expedient or necessary to give effect to the provisions of this deed.

19 **ARBITRATION**

19.1 All differences and disputes between the parties to the deed touching or concerning the subject matter of this Agreement shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996 and its amendments.

SIGNED by **DONALD ANDREW SARGINSON**
in the presence of:

Witness Name: L. J. McINTOSH
Occupation: Law Clerk to Checketts McKay
Address: WANAKA

SIGNED by **NICOLA SINCLAIR SARGINSON**
in the presence of:

Witness Name: L. J. McINTOSH
Occupation: Law Clerk to Checketts McKay
Address: WANAKA

~~**SIGNED** by **CHECKETTS MCKAY TRUSTEES LIMITED** by its Directors in the presence of:~~

Witness Name:
Occupation:
Address:

.....
Director

.....
Director

SIGNED by **HAWEA WATER SERVICE COMPANY LIMITED** by its Director
in the presence of:

.....
Director

Witness Name: Kelli Dale Te-Hiwi
Occupation: Teacher
Address: Grayburn Farm
SHWY 6
Lake Hawea.

MEMORANDUM OF ENCUMBRANCE

Correct for the purposes of the Land Transfer Act 1952

Solicitor for the Encumbrancee

DONALD ANDREW SARGINSON, NICOLA SINCLAIR SARGINSON AND CHECKETTS MCKAY LIMITED

Encumbrancer

HAWEA WATER SERVICE COMPANY LIMITED

Encumbrancee

Particulars entered in the register as shown in respect of the Land referred to herein

Assistant/District Land Registrar in the District of Invercargill

mcp\docs\hawea-moe10

APPENDIX D – SERVICE PROVIDERS LETTERS OF CONFIRMATION

Chorus New Zealand Limited

01 June 2022

Chorus reference: 10278299

Your reference: 15654

Attention: Hayden Knight

Quote: New Property Development

0 connections at Lot: 1, DP: 303793

Your project: Kennedy, Te Awa Road, Hawea

Thank you for your enquiry about having Chorus network provided for the above development.

Chorus is pleased to advise that, as at the date of this letter, we are able to provide reticulation for this property development based upon the information that has been provided:

Copper network	$12,675.18

The total contribution we would require from you is **$14,576.46 (including GST)**. This fee is a contribution towards the overall cost that Chorus incurs to link your development to our network. This quote is valid for 90 days from 01 June 2022. This quote is conditional on you accepting a New Property Development Contract with us for the above development.

If you choose to have Chorus provide reticulation for your property development, please log back into your account and finalise your details. If there are any changes to the information you have supplied, please amend them online and a new quote will be generated. This quote is based on information given by you and any errors or omissions are your responsibility. We reserve the right to withdraw this quote and requote should we become aware of additional information that would impact the scope of this letter.

Once you would like to proceed with this quote and have confirmed all your details, we will provide you with the full New Property Development Contract, and upon confirmation you have accepted the terms and paid the required contribution, we will start on the design and then build.

For more information on what's involved in getting your development connected, visit our website www.chorus.co.nz/develop-with-chorus

Kind Regards

Chorus New Property Development Team

AURORA ENERGY LIMITED
PO Box 5140, Dunedin 9058
PH 0800 22 00 05
WEB www.auroraenergy.co.nz

12 May 2022

Hayden Knight
Clark Fortune McDonald & Associates

Sent via email only: hknight@cfma.co.nz

Dear Hayden,

ELECTRICITY SUPPLY AVAILABILITY FOR A PROPOSED FOUR LOT SUBDIVISION.
TE AWA ROAD, HAWEA. LOTS 1 AND 2 DP 303793.

Thank you for your inquiry outlining the above proposed development.

Subject to technical, legal and commercial requirements, Aurora Energy can make a Point of Supply[1] (PoS) available for this development.

Disclaimer

This letter confirms that a PoS **can** be made available. This letter **does not** imply that a PoS is available now, or that Aurora Energy will make a PoS available at its cost.

Next Steps

To arrange an electricity connection to the Aurora Energy network, a connection application will be required. General and technical requirements for electricity connections are contained in Aurora Energy's Network Connection Standard. Connection application forms and the Network Connection Standard are available from www.auroraenergy.co.nz.

Yours sincerely

Niel Frear

CUSTOMER INITIATED WORKS MANAGER

[1] Point of Supply is defined in section 2(3) of the Electricity Act 1993.

KENNEDY C/- BROWN & COMPANY PLANNING GROUP

LOT 1&2, DP 303796,
TE AWA ROAD,
ALBERT TOWN

PRELIMINARY FLOOD ASSESSMENT FOR A PROPOSED SUBDIVISION

REF: R8166-2A
DATE: 11 MAY 2022

GCL Ground Consulting Ltd

REPORT QUALITY CONTROL

REPORT PREPARED BY: **GROUND CONSULTING LIMITED (GCL)**

QUEENSTOWN OFFICE
157 GLENDA DRIVE, FRANKTON
POST: PO BOX 2963, QUEENSTOWN 9349
EMAIL: queenstown@gcltech.co.nz
TEL: 03 442 5700

DOCUMENT CONTROL				
REPORT TITLE		PRELIMINARY FLOOD ASSESSMENT FOR A PROPOSED SUBDIVISION		
REPORT REFERENCE		R8166-2A	PROJECT NUMBER	8166
CLIENT		KENNEDY C/- BROWN AND COMPANY PLANNING GROUP		
REV	DATE	REVISION STATUS	AUTHOR	REVIEWER
A	11 MAY 2022	DRAFT FOR COMMENT	SHANNON FITZGERALD	FRASER WALSH
APPROVAL				
AUTHOR SIGNATURE		S Fitzgerald	REVIEWER SIGNATURE	Fraser
NAME		Shannon Fitzgerald B.SC, PGDIPSCI, (GEOL), MAIG	NAME	FRASER WALSH CMENGNZ (PENGGEOL)
TITLE		ENGINEERING GEOLOGIST	TITLE	DIRECTOR

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APPENDICES

1 INTRODUCTION

1.1 PROJECT BRIEF

GCL has undertaken a preliminary flood assessment for a proposed four lot residential subdivision of Lot 1 & 2 - DP 303793, Te Awa Road, Albert Town, Hawea at the request of Brown and Company Planning Group on behalf of the client, Mr Kennedy. The site location is presented in Drawing 001.

This flood assessment has been prepared to compile documentation for resource consent submission with Queenstown Lakes District Council (QLDC).

This report includes a summary of the investigations undertaken and provides an assessment of:

- Surface water features including watercourses and overland flow paths.
- Surface water catchment and flood flow analysis.
- Remedial works to direct flood flows away from house sites.
- Other pertinent constraints and issues identified with the site.

1.2 PROPOSED SITE DEVELOPMENT

The proposed development comprises the following features and components:

- The proposed subdivision will comprise four rural lifestyle lots of potential size from 3.26Ha to 9.86Ha. The intent is to subdivide both the upper and lower terraces, one lot and three lots, respectively.
- The development will be accessed directly off Te Awa Road. It is anticipated that separate access will be made to the upper and lower terraces. An internal roading network/vehicle right of way will provide access to individual lots.
- The subdivision development philosophy is to maintain the natural rural amenity and minimise the environmental impact of necessary subdivision earthworks. The proposed subdivision will not require significant earthworks aside from roading, services lanes and improved drainage channels.
- The development is currently outside QLDC's reticulated three-waters system. The development will require a private potable water supply. Stormwater and wastewater are likely to be managed on each Lot via on-site to-ground management systems.
- Drawing 002 illustrates the proposed lots and associated building platforms relative to topography and the greater area under the management of the incumbent farm.

2 DESKTOP STUDY

2.1 PREVIOUS INVESTIGATIONS

GCL has reviewed the QLDC eDocs facility, which provided limited site investigation documentation for the immediate area.

We are unaware of any previous geotechnical investigations undertaken in the vicinity of the proposed development.

GCL has previously conducted investigations throughout the local area and is therefore familiar with the local geology. Previous GCL reports containing pertinent information relevant to the current site have been reviewed and relied on where appropriate for the benefit of this current report.

2.2 HISTORIC AERIAL PHOTOGRAPHS

Aerial photographs from Google Earth dating from 1985 to 2021 were studied to observe the site over time and assess the geomorphological setting. The review of historical aerial photography indicates that there has been no significant modification of the site over this period.

The review of historical aerial photography is summarised in the table below:

Table 1: Historic remote imagery summary

YEAR	SITE MODIFICATION
1985 - 2007	• The site presents as grassed with a small pine tree plantation along the north boundary central to the upper and lower terrace. • Subtle 'criss-cross' farm tracks • Little to no change, aside from the change in pastoral type and condition
2007 - 2011	• Construction of a farm utility shed along the north lot boundary on the lower terrace • Possible improvement of the overland flow path that traverses the upper terrace
2011 – Present	• There appears to have been no significant changes to the site surface in the last 10 years, aside from seasonal pastoral change, mole ploughing of some paddocks, and stock feed out tracks.

2.3 PUBLISHED GEOLOGY

The Geological Map of New Zealand, Sheet 18 (Wakatipu), at a scale of 1:250,000, maps the site by the following geological formations.

- The site is predominantly underlain by OIS2 (Late Pleistocene) River Outwash Deposits comprising unweathered to slightly weathered, well-sorted, sandy gravel forming large outwash terraces in the Clutha Catchment
- The northwest site corner is proximal to OIS1 (Holocene) River Fan Deposits comprising loose, commonly angular boulders, gravel, sand, and silt forming alluvial fans; grades into scree (upslope) & valley alluvium.
- The Cardrona-Hawea Fault (formerly known as the Northwest Cardrona Fault) is an active, concealed, reverse fault system that passes through the site's southeast corner. The fault has an estimated magnitude of 7.0 on a 7,500-year recurrence level and an estimated rupture of 2.0m.
- Given the accuracy of the mapping method used, the site may comprise characteristics of the above-described geological formations and features.
- The figure below illustrates the described geological formations and inferred seismic fault trace relative to Lots 1 and 2.

Figure 1: Illustrates geological formations relevant to the prospective area. The 'yellow' shading across the site is River Outwash Deposits. The 'bluish' shading towards the northwest corner is River Fan Deposits. The broken 'red' line towards the southeast corner infers the Cardona-Hawea Fault.

3 SITE CONDITIONS

3.1 SITE DETAILS

The site comprises the following entities:

- The prospective area site comprises Lots 1 and 2, DP 303793, Te Awa Road, Albert Town, Hawea.
- The site is accessed via Te Awa Road off State Highway 6, approximately 12.5km north of the Wanaka township.
- The site is located within a 'Rural General' Zone under QLDC's current Operative District Plan,
- The property occupies a land area of approximately 20.6 hectares. The proposed subdivision intends to subdivide the land into 3 -5 lots ranging from 5Ha – 6.5Ha.
- The site is currently surrounded by farmland and rural lifestyle development.
- A site location map is presented in Drawing 001.

3.2 SITE TOPOGRAPHY

The site is a semi-rectangular shape that occupies a total surface area of 206,000m^2. The site is elevated in the northwest lot corner (345mRL) that gently slopes towards the southeast corner (334mASL).

The site topography is best described in two halves as follows:

- Regionally, the site is located towards the western extent of the Hawea Flat adjacent to the east-facing flanks of Mt Maude.
- The site is split into two terraces of roughly equal proportions: the upper terrace (western) and the lower terrace (eastern). The height differential between the upper and lower terrace is estimated at 4 – 5m. The slope angle between the terraces is of gentle to moderate gradient with slope angles between 25 – 35˚ to the horizontal towards the east.
- A drainage path (not flowing at the time of investigation) originates from a tributary derived from Mt Maude, which enters the site in the northwest site corner and traverses the upper terrace in the east to the southeast direction before departing the site via a 1,000mm diameter corrugated steel culvert beneath Te Awa Road.
- Subtle natural (paleochannels) undulations best described as discrete 'hump' and 'hallow' features traverse the site from northwest to southeast across the upper terrace and northeast to southwest across the lower terrace.
- Overall, the site slopes very gently towards the southeast at slope angles <3˚ to the horizontal.
- The site surface is slightly undulated, a function of its former agricultural purpose. Currently, the site presents as pastoral land with a single mature pine tree plantation situated between the upper and lower terrace along the north lot boundary.

3.3 EXISTING SITE DEVELOPMENT FEATURES

The site is occupied by a single farm utility shed located along the north lot boundary between the upper and lower terrace. A farm track extends access from Te Awa Road to the establishment described.

4 SITE SURFACE WATER FEATURES

4.1 SUMMARY

The site contains the following surface features:

- A drainage path (not flowing at the time of investigation) originates from a tributary derived from Mt Maude, which enters the site in the northwest site corner and traverses the upper terrace in the east to the southeast direction before departing the site via a 1,000mm diameter corrugated steel culvert beneath Te Awa Road. It is understood that stormwater accumulations disperse to a neighbour's farm paddock before soaking to the ground by diffusion.
- It is anticipated that stormwater accumulations will depart the site via sheet flow in a south-easterly direction unless otherwise captured and redirected by the aforementioned drainage feature.
- Site drainage will be influenced by the development of subdivision roading and any minor earthworks associated with building platform development.
- It is possible that some of the 'hollow' features (topographic lows) described in Section 3.2 could potentially detain stormwater accumulations during significant rainfall. These would be expected to drain to ground.
- Drawings 002 show the mapped surface water features.

5 FLOOD FLOW MODELLING

5.1 GENERAL

Based on our site investigations and site mapping, the drainage path as depicted on Drawing 002 is considered to provide the most risk to building platforms in the event the feature overtops in a significant rainstorm event.

As such, we have modelled flood flows within the drainage feature for a 1% AEP flood event.

The modelling has utilised HEC-HMS and guidelines provided in Auckland Regional Council Technical Publication 108 (TP108).

Table 2 provides a summary of the parameters utilised in HEC-HMS which are explained in the following sections of this report.

Table 2: Flood Assessment Parameters & Calculations

PARAMETER TYPE	PARAMETER	DRAINAGE FEATURE	CALCULATION METHOD/VALIDATION
Surface water catchment	Catchment area	1.03km^2	NZ Topo Map
	Catchment length	1.91km	NZ Topo Map
Catchment losses	Curve number	74	Group C soil with grass cover
	Other	-	-
	Weighted curve number	74	Weighted average of curve numbers
	Impervious surfaces	0%	NZ Topo Map
	Initial rainfall abstraction	5mm	
Catchment transform	SCS unit hydrograph	PRF 484	Suited to gently to moderately steep slopes
	Tc	25 mins	Based on catchment gradient, slope length & cover type
Catchment baseflow		0m^3/sec	Based on site inspection

5.2 CATCHMENTS

The modelled catchment is shown on Drawing 003. The catchment has been delineated with the use of topographic contours from LINZ Topo 50 series maps.

5.3 CATCHMENT LOSSES

We have utilised the SCS curve number method of calculating stormwater run-off. The respective curve numbers and areas have been defined from site mapping and the GNS New Zealand Geology Webmap.

The catchments are located predominantly on moderately sloping schist basement terrane covered largely in grasses.

A 5mm initial abstraction depth has been adopted for the catchments.

5.4 CATCHMENT TRANSFORM

We have utilised the SCS unit hydrograph (PRF 484 curve) transform method. The time of concentration (Tc) value has been taken from ARC TP108.

5.5 DESIGN TRANSFORM EVENTS

Rainfall has been applied to the HEC-HMS model as a frequency storm utilising 1% AEP nested storm events from 10 minutes to 24 hours duration. These have been sourced from HIRDS utilising RCP 8.5 (2081 – 2100) rainfall totals from the centre point of the catchments. Whilst it is improbable that a single storm of 24 hours duration will also contain a number of other shorter duration events, the nested "frequency" storm method provides a useful check on a range of storm durations with the use of a single event peak provided at 50% storm duration.

The rainfall depths for the various nested rainstorm events and the associated hyetographs utilised in HEC-HMS are shown in Appendix A.

5.6 BASEFLOW

Catchment baseflow has been estimated utilising site mapping.

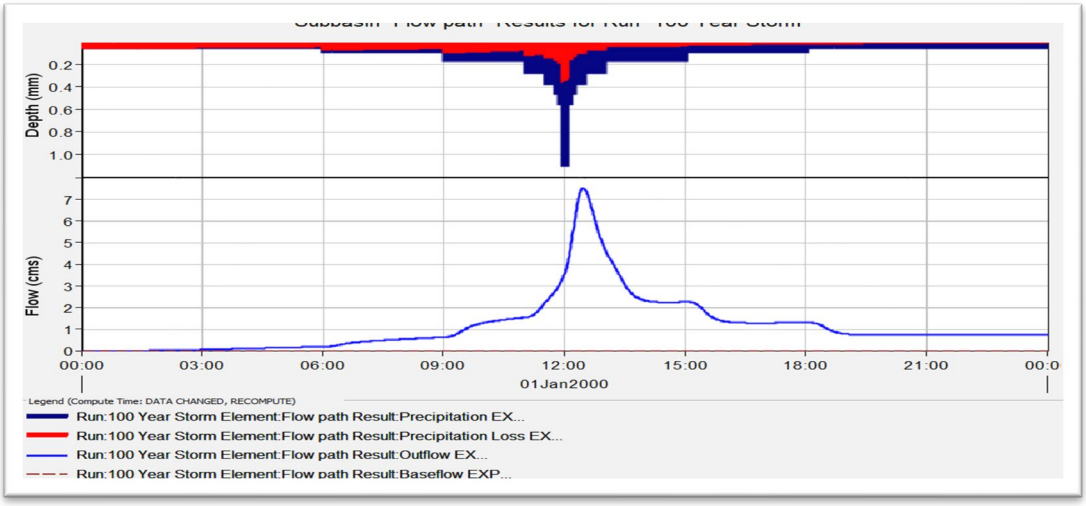
5.7 PEAK FLOW RESULTS

Table 3 provides a summary of the calculated preliminary peak flow rates from HEC-HMS.

Table 3: Calculated Preliminary Peak Flows

CATCHMENT	1% AEP STORM EVENT
Overland flow path	7.49m³/sec

An excerpt of the peak flow from HEC-HMS is provided below:



6 OVERLAND FLOW PATH REMEDIAL OPTION

6.1 GENERAL

The modelled flood flows for a 1% AEP flood event are expected to overtop the existing shallow overland flow path within the site which may impact building platforms located within the upper terrace.

We consider the most appropriate way to accommodate 1% AEP flood flows is to enlarge the existing overland flow path. We have modelled the calculated peak flows within an enlarged flow path utilising a trapezoidal cross-section shape as shown on Appendix B. The trapezoidal type cross-section is considered to represent the most efficient channel structure in terms of conveyance of flood flows and construction.

Table 4 provides a summary of the modelled HEC-HMS flood flow value in addition to an assumed manning's n value of 0.035 and a channel gradient of 5%.

Table 4: Calculated Diversion Structures

CROSS-SECTION	CHANNEL SIZE	FLOOD DEPTH	FLOOD FLOW
Drainage Feature / Diversion Channel	1m wide base with 1V:3H side slopes	1m	17.07m^3/s

Given the potential errors with catchment sizing and run-off values, the channel has been oversized and provides a modelled flow potential of 17.07m^3/s.

The location of the channel is shown on Drawing 002 and we note the following:

- The inlet and outlet of the channel should be shaped in order to prevent erosion down-stream.
- Specific design of the channel will be required as part of detailed subdivision design.

7 CONCLUSIONS

The subdivision contains an overland flow path which will likely overtop in a 1% AEP flood event. Enlarging the existing overland flow path in order to accommodate a 1% AEP storm event provides a suitable remedial option.

8 LIMITATIONS

8.1 GENERAL

Ground Consulting Ltd has undertaken this assessment in accordance with the brief as provided, based on the site and subdivision layout as shown on Drawing 002. This report has been provided for the benefit of our client, and for the authoritative council to rely on for the purpose of processing the consent for the specific project described herein. No liability is accepted by this firm or any of its directors, servants, or agents, in respect of its use by any

other person, and any other person who relies upon information contained herein does so entirely at their own risk.

8.2 FURTHER INVESTIGATIONS REQUIRED

This assessment has been undertaken for the proposed site development to date. Any structural changes, alterations and additions made to the proposed development should be checked by a suitably qualified person and may require further investigations and analysis.

DRAWINGS

GCL Ground Consulting Ltd

KENNEDY C/- BROWN & COMPANY PLANNING GROUP

LOT 1 & 2, DP 303793, TE AWA ROAD, ALBERT TOWN

SITE LOCATION PLAN

Rev	Date	Status	Drafted	Reviewer
A	04/05/2022	Issued	S.F.	F.W.

File Ref. 8000/8166/R8166-2A/R8166-2A-DRW001.ai

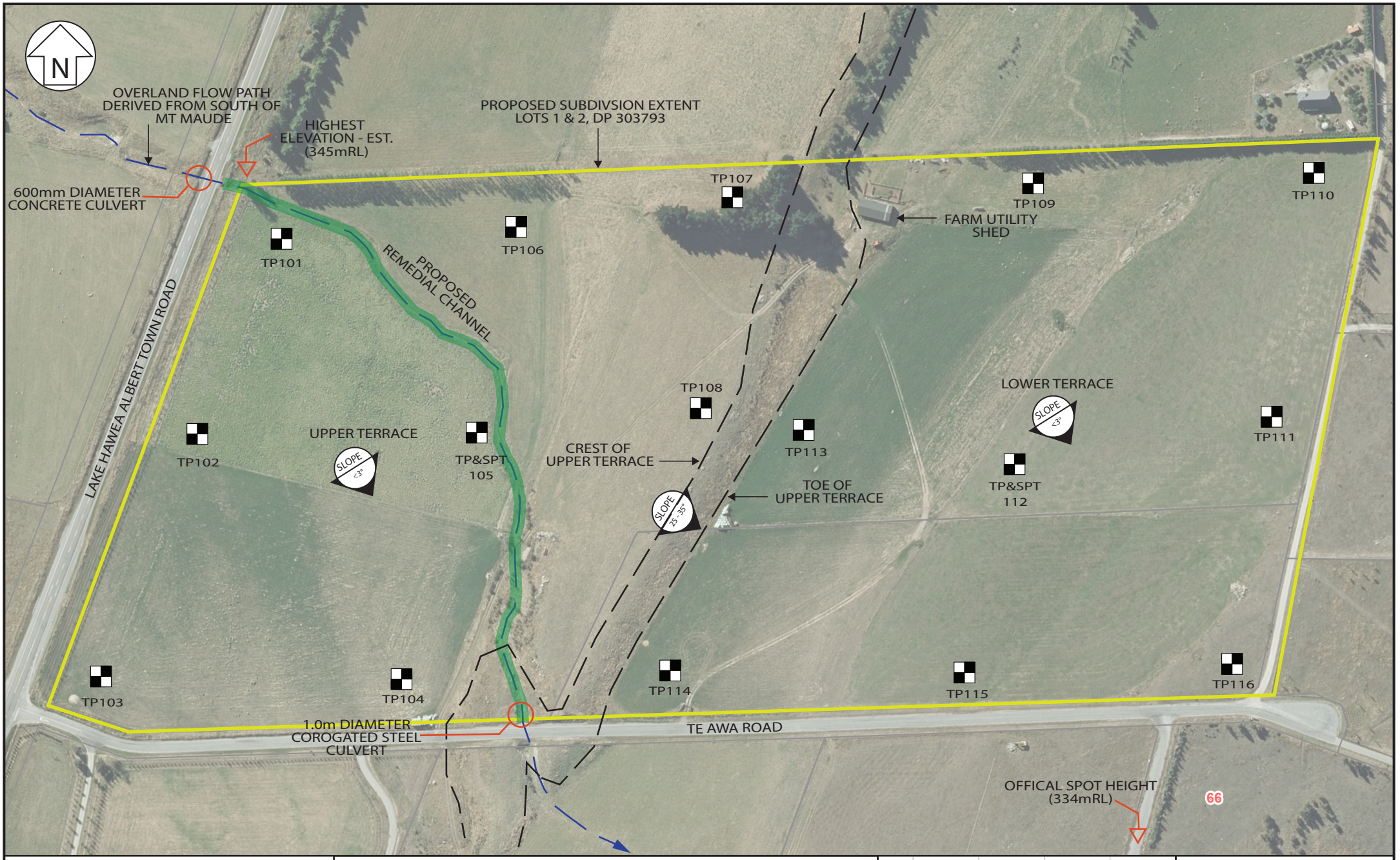
Scale (A4) 1:20,000

0 80 400 800m

Project No. 8166

Report Ref. R8166-2A

Drawing No. 001



GCL Ground Consulting Ltd

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LOT 1 & 2, DP 303793, TE AWA ROAD, ALBERT TOWN

SITE INVESTIGATION PLAN

Rev	Date	Status	Drafted	Reviewer
A	04/05/2022	Issued	S.F	F.W

File Ref. 8000/8166/R8166-2A/R8166-2A-DRW002.ai

Scale (A4) NOT TO SCALE

Project No. 8166

Report Ref. R8166-2A

Drawing No. 002