PRELININARY ENGINEERING DESIGN PLANS

DESIGN PLANS - SUGAR BOWL II
REMARKABLES SKI FIELD, QUEENSTOWN, NZ

EARTHWORKS DESIGN

JOB No. 12650 DWG No.18

FOR

NZ SKI LTD

REV A

For Consent 25.07.18

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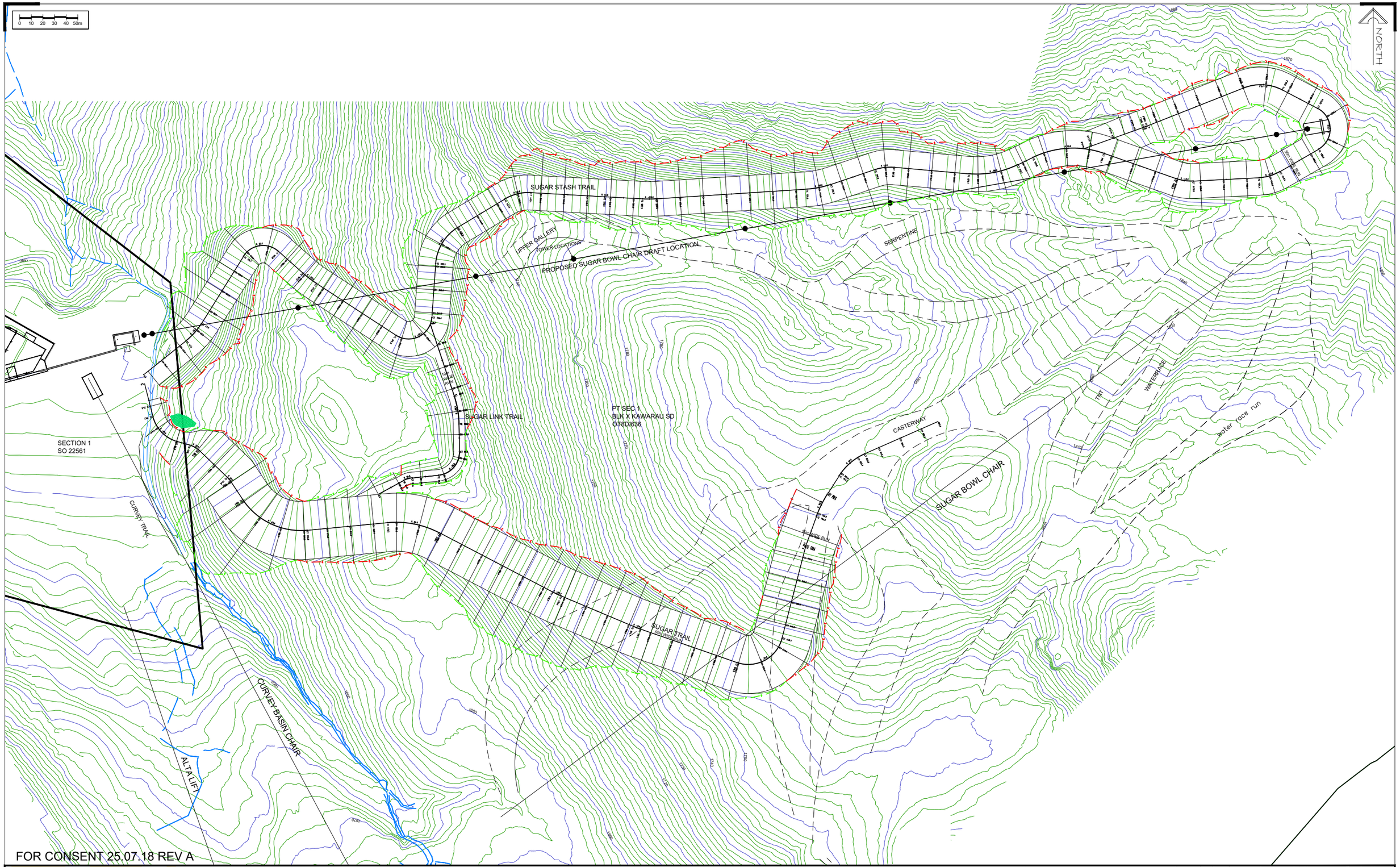
PREPARED BY

CLARK FORTUNE McDONALD & ASSOCIATES
REGISTERED LAND SURVEYORS, LAND DEVELOPMENT AND PLANNING CONSULTANTS



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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	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
OVERALL LAYOUT PLAN

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-01
	Drawn	Signed	Date	Scale	
	EM		11.06.18	1:1500 @ A1 1:3000 @ A3	
	Designed	Signed	Date	Datum & Level	Rev.
	CFM w NZSKI		2018	NZMG & MSL	A

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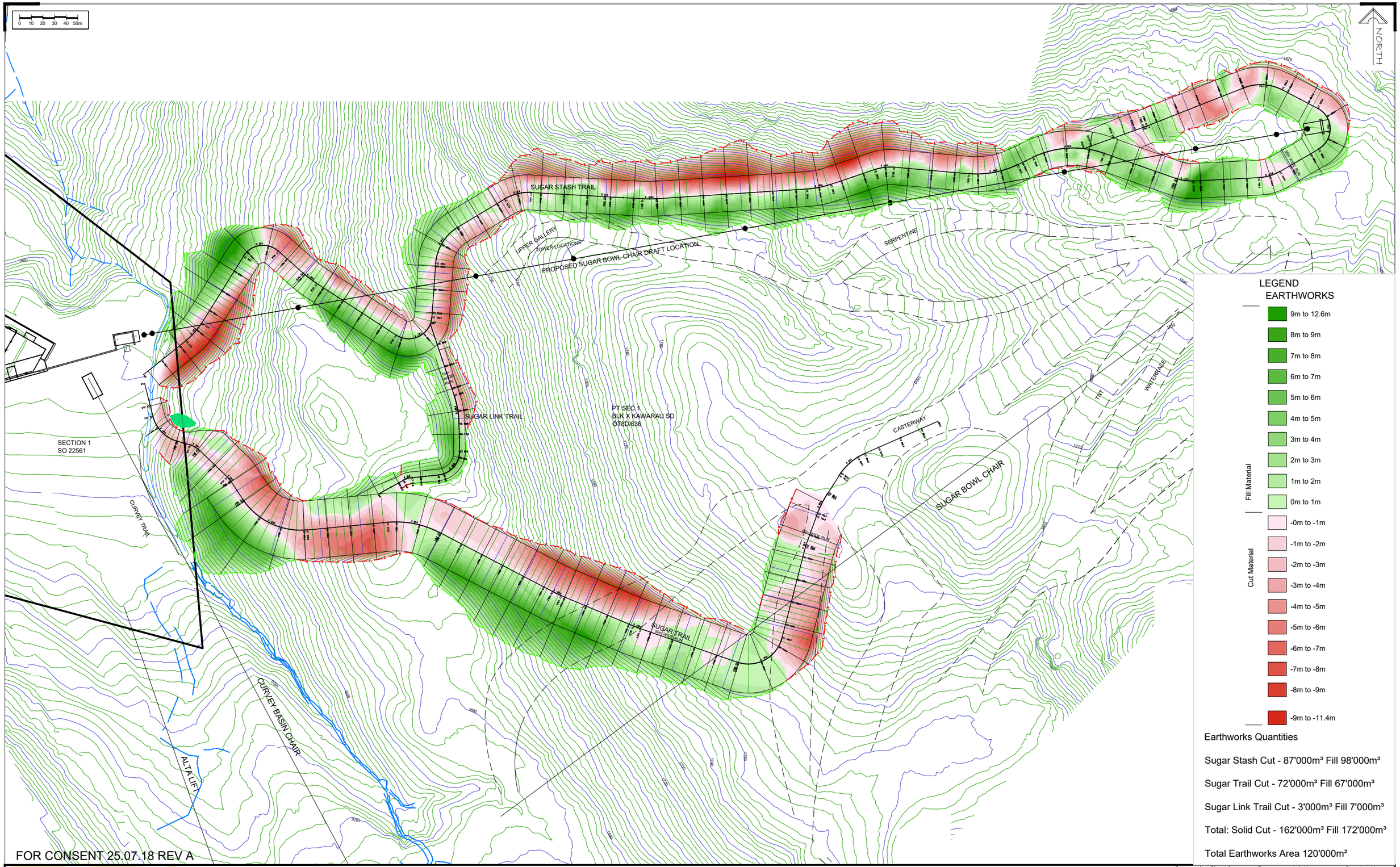

Earthworks Quantities

Sugar Stash Cut - 87'000m³ Fill 98'000m³

Sugar Trail Cut - 72'000m³ Fill 67'000m³

Sugar Link Trail Cut - 3'000m³ Fill 7'000m³

Total: Solid Cut - 162'000m³ Fill 172'000m³

Total Earthworks Area 120'000m²

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Rev.	Date	Revision Details	By
-	-	-	-
A	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
OVERALL LAYOUT & VOLUME PLAN

Client: NZ SKI LTD

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		x.x.18	12650	18-02
Drawn	Signed	Date	Scale	
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Designed	Signed	Date	Datum & Level	Rev.
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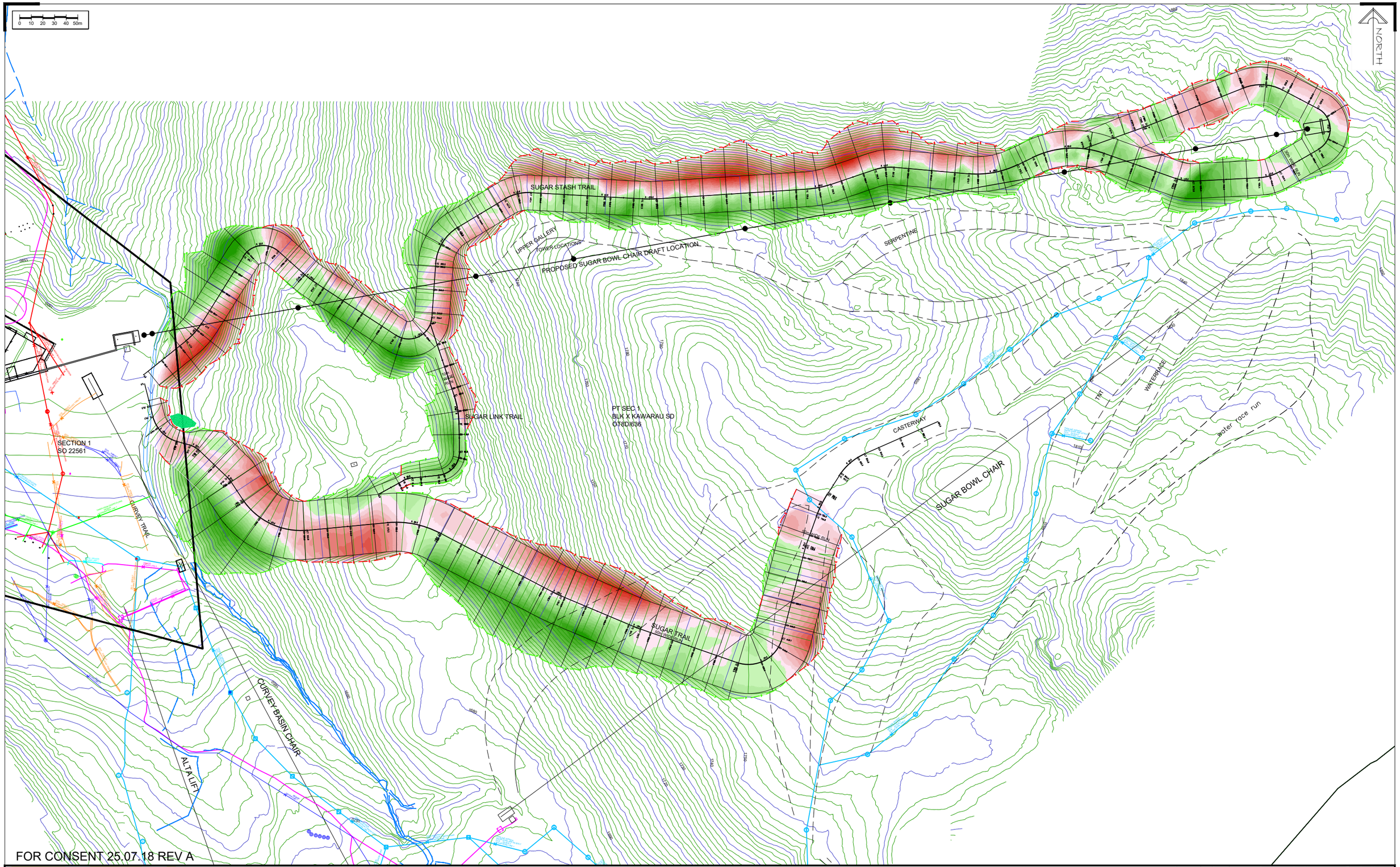

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A	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
OVERALL LAYOUT & VOLUME PLAN WITH ASBUILT OVERLAY

Client: NZ SKI LTD

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Drawn EM	Signed	Date 11.06.18	Scale 1:1500 @ A1, 1:3000 @ A3		
Designed CFM w NZSKI	Signed	Date 2018	Datum & Level NZMG & MSL	Rev. A	

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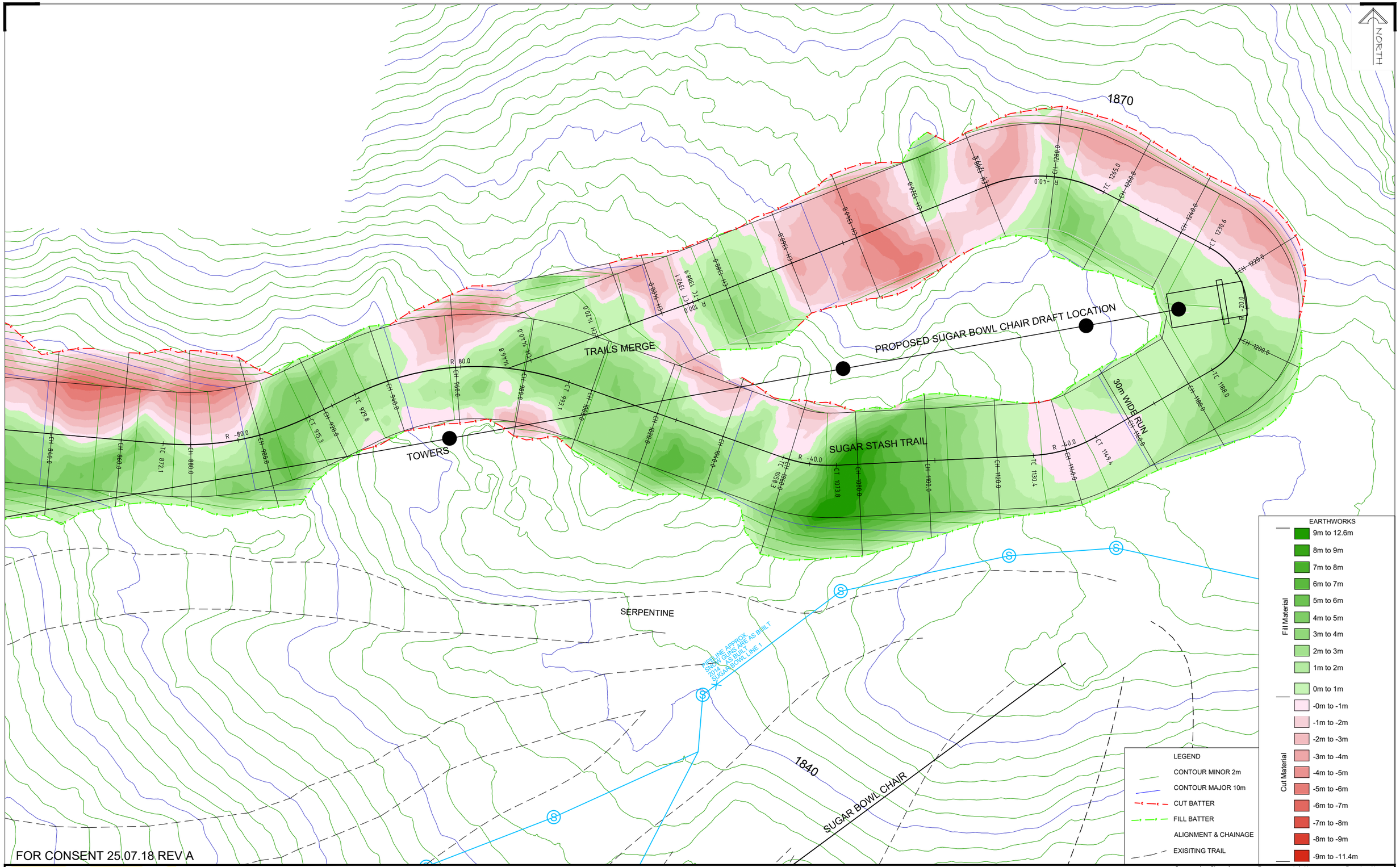

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-		-	

REMARKABLES SKI FIELD
SUGAR BOWL
LAYOUT & EARTHWORKS

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-04
	Drawn	Signed	Date	Scale	
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	Designed	Signed	Date	Datum & Level	Rev.
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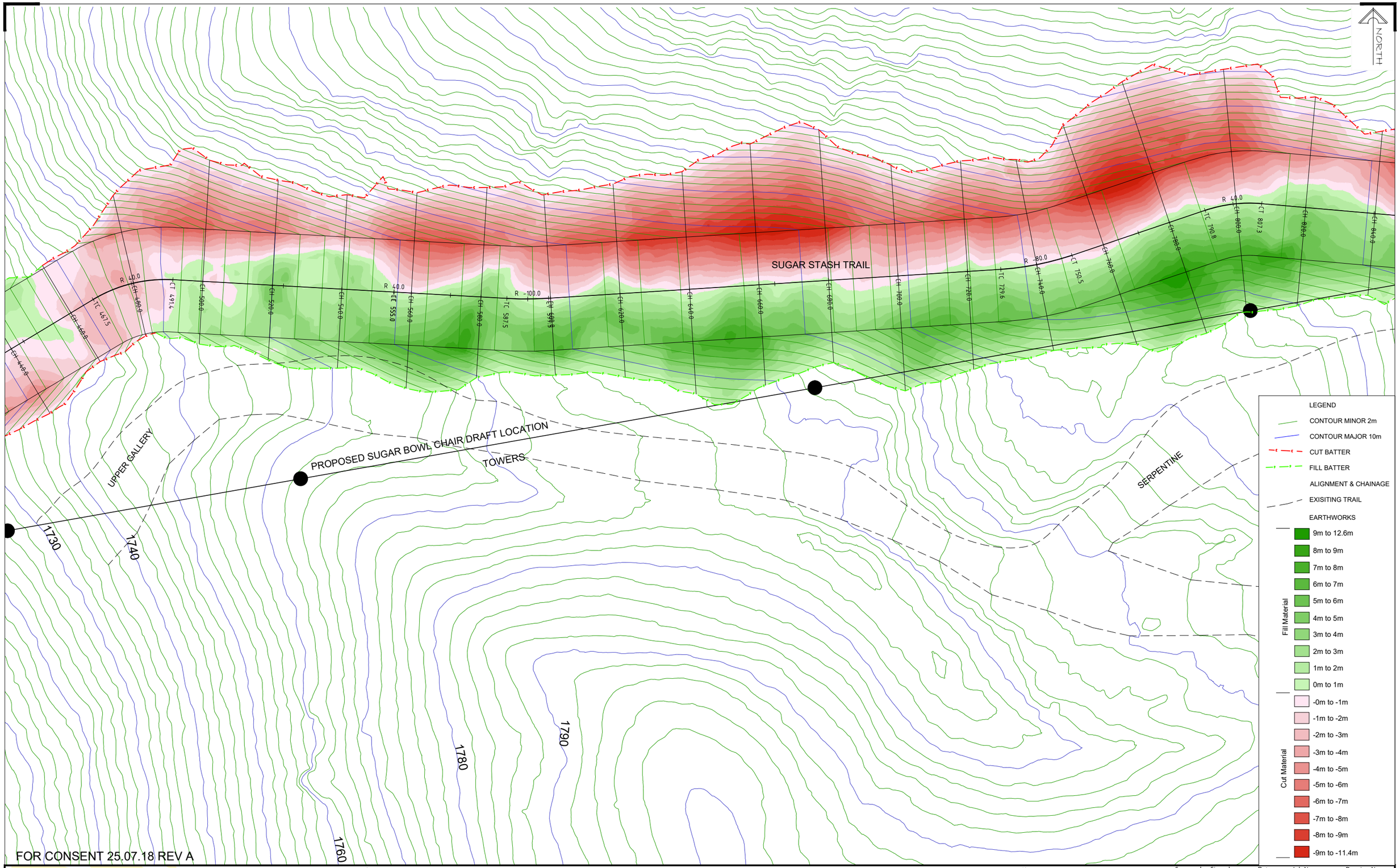

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LAYOUT & EARTHWORKS

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NZ SKI LTD			x.x.18	12650	18-05
	Drawn	Signed	Date	Scale	
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	Designed	Signed	Date	Datum & Level	Rev.
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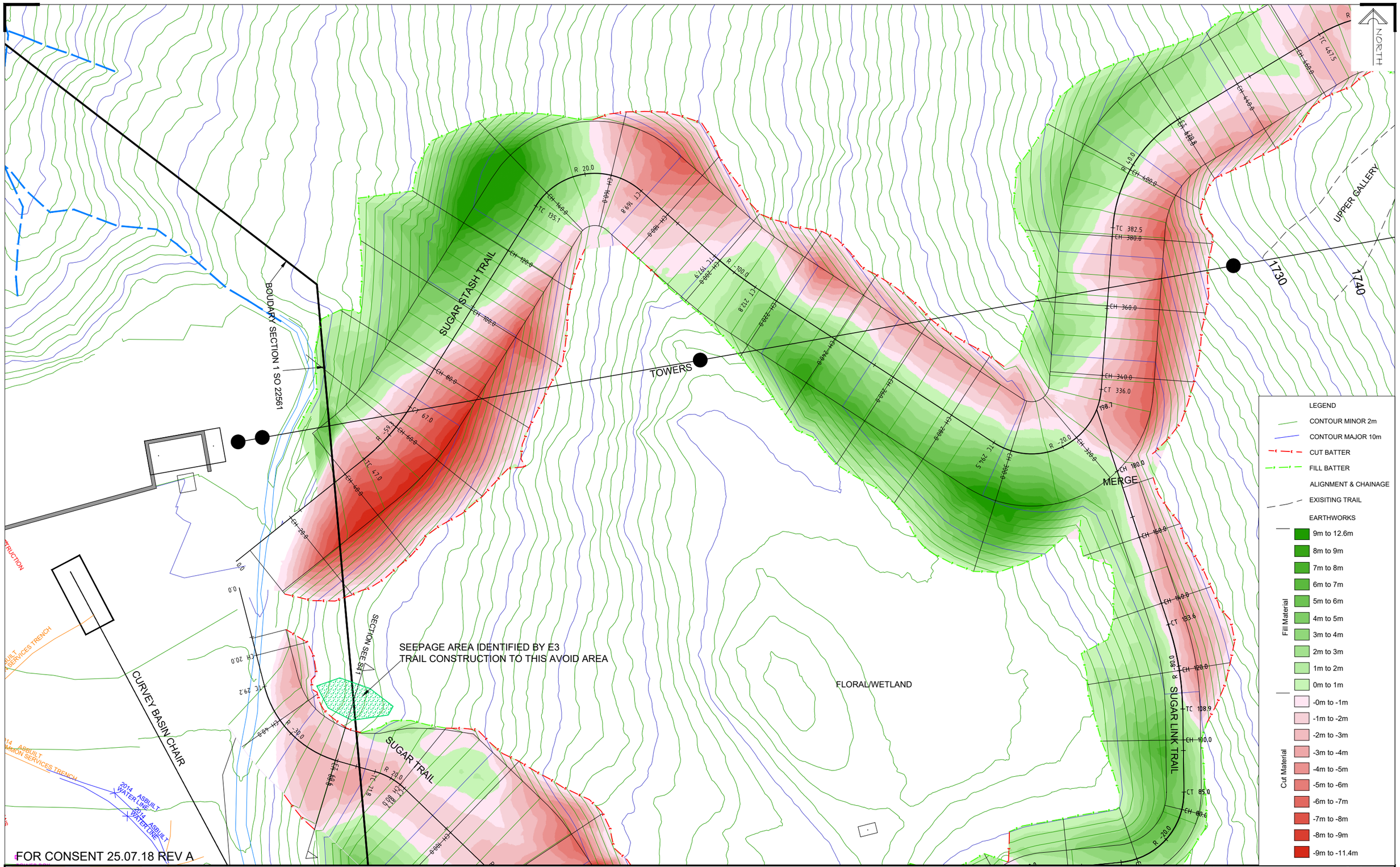

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REMARKABLES SKI FIELD
SUGAR BOWL
LAYOUT & EARTHWORKS

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-06
	Drawn	Signed	Date	Scale	
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	Designed	Signed	Date	Datum & Level	Rev.
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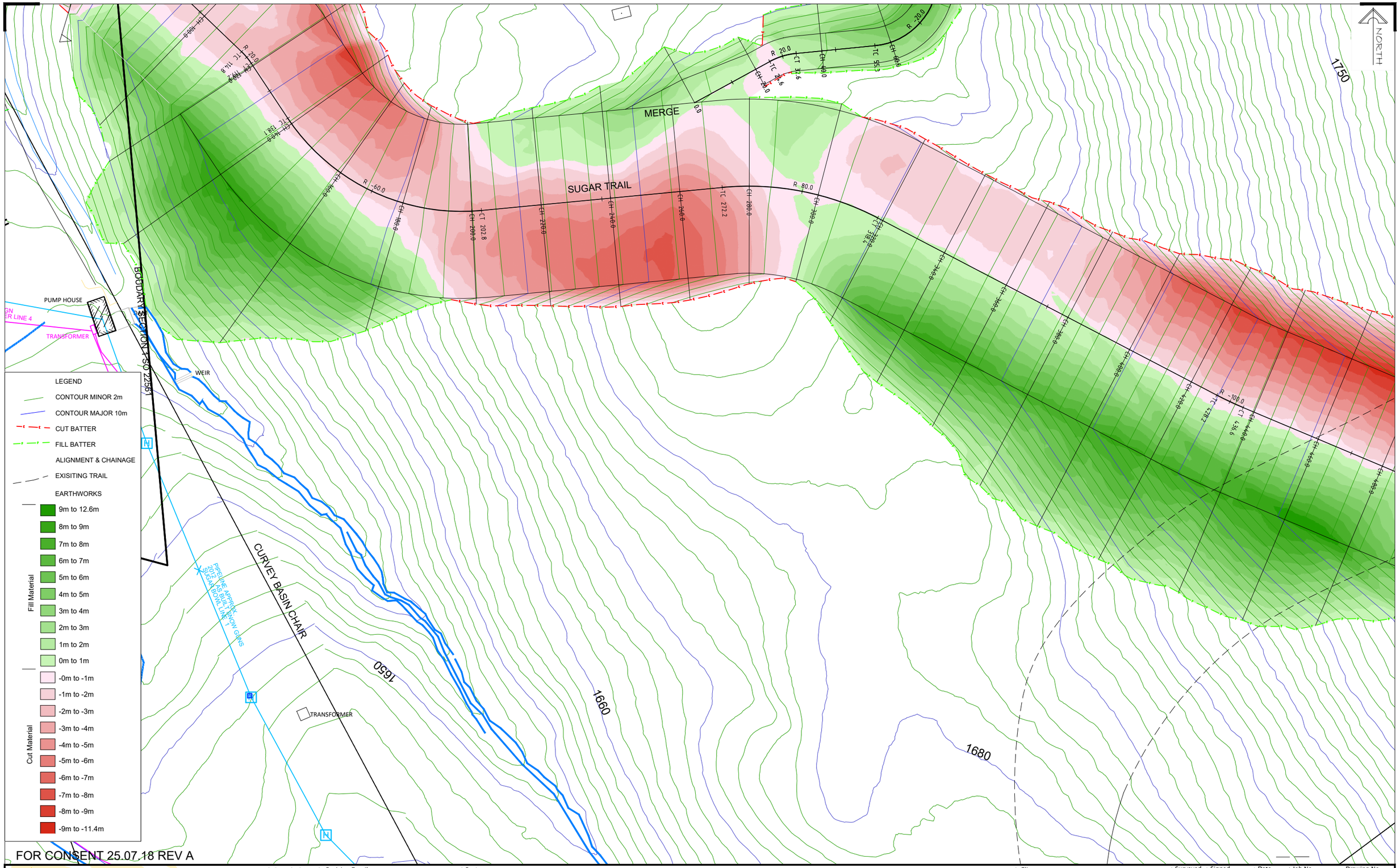

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REMARKABLES SKI FIELD
SUGAR BOWL
LAYOUT & EARTHWORKS

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-07
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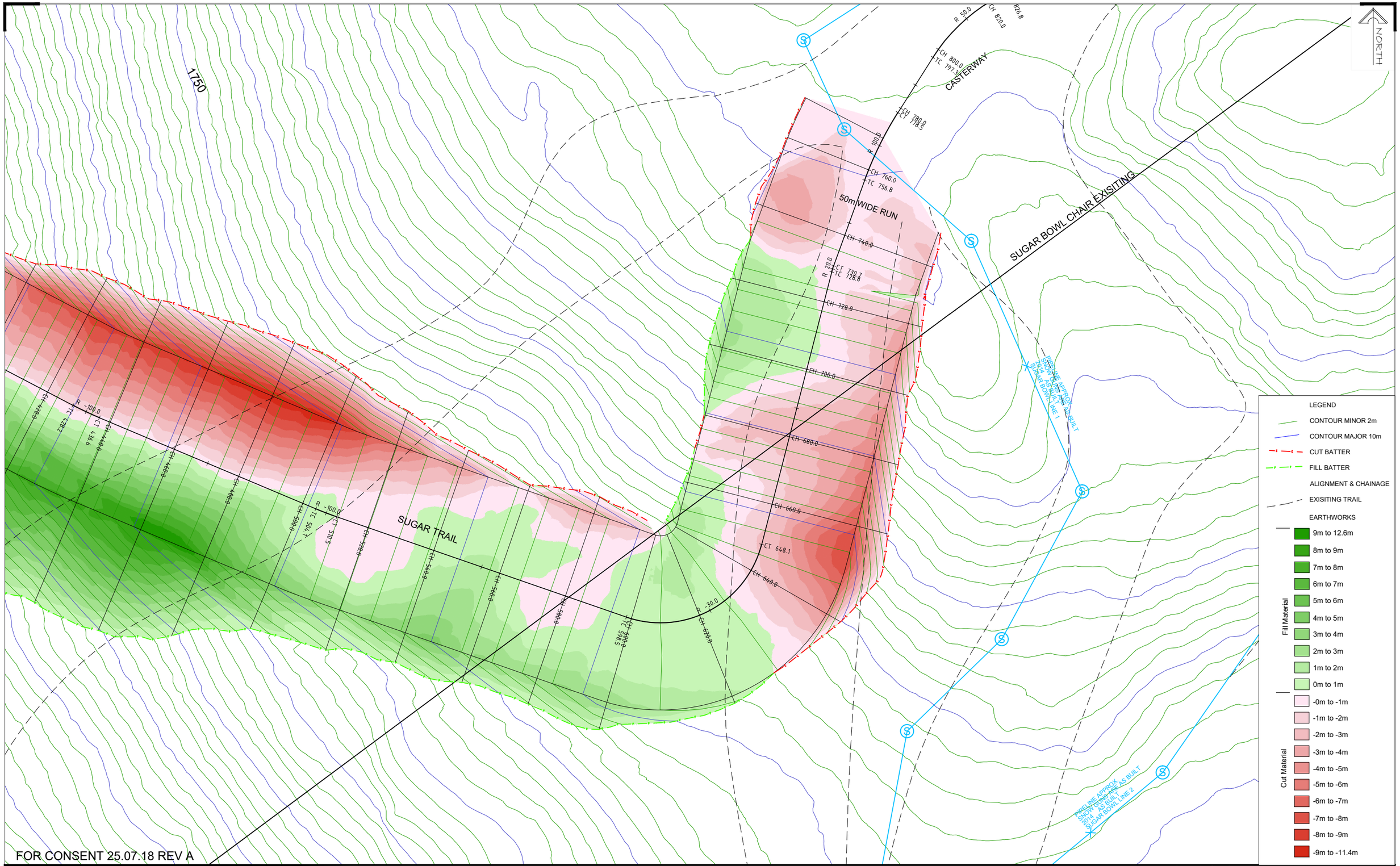

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REMARKABLES SKI FIELD
SUGAR BOWL
LAYOUT & EARTHWORKS

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-08
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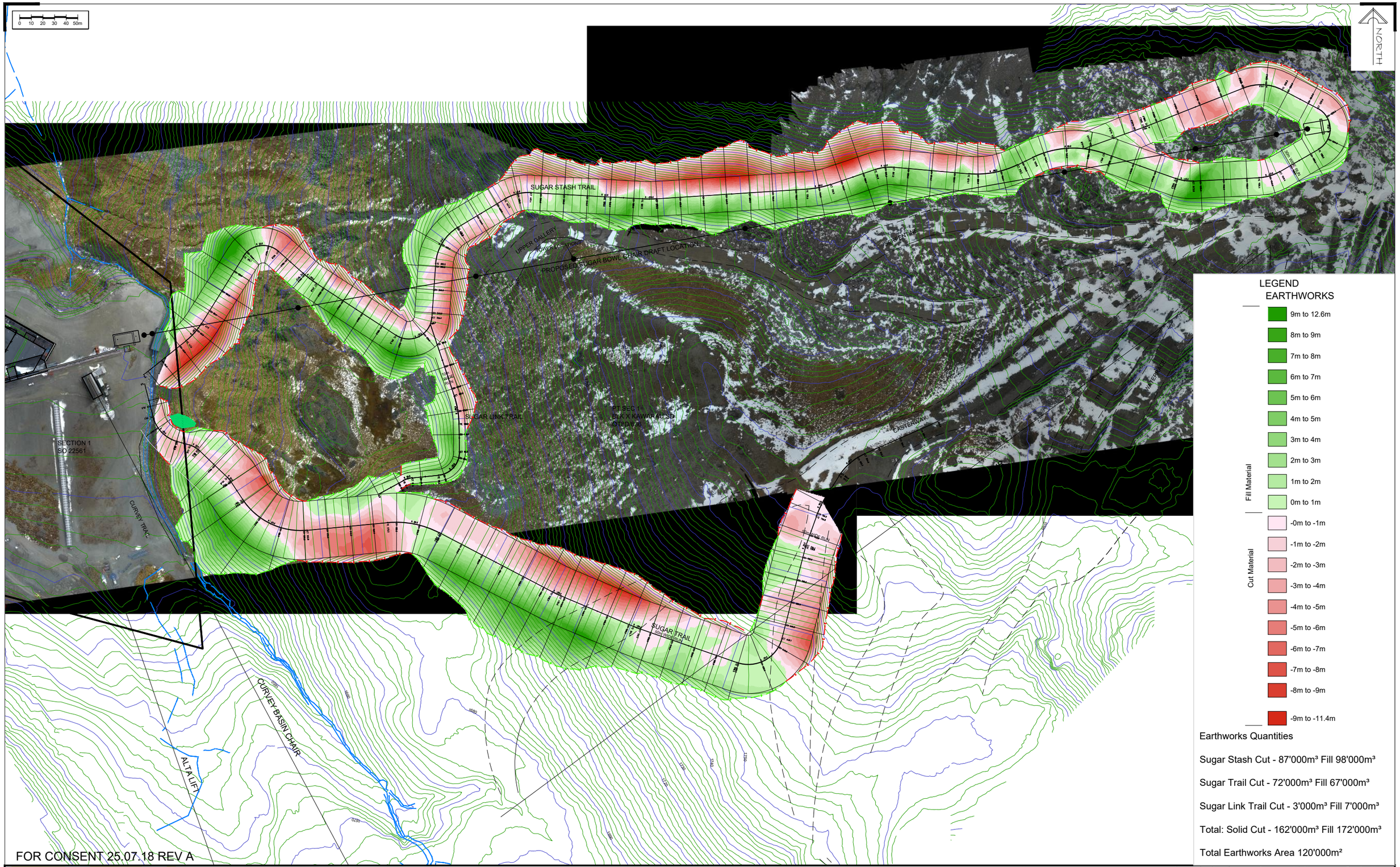

Earthworks Quantities

Sugar Stash Cut - 87'000m³ Fill 98'000m³

Sugar Trail Cut - 72'000m³ Fill 67'000m³

Sugar Link Trail Cut - 3'000m³ Fill 7'000m³

Total: Solid Cut - 162'000m³ Fill 172'000m³

Total Earthworks Area 120'000m²

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A	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
OVERALL LAYOUT & VOLUME PLAN WITH IMAGE OVERLAY

Client: NZ SKI LTD

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			x.x.18	12650	18-09
	Drawn: EM	Signed	Date: 11.06.18	Scale: 1:1500 @ A1, 1:3000 @ A3	
	Designed: CFM w NZSKI	Signed	Date: 2018	Datum & Level: NZMG & MSL	Rev. A

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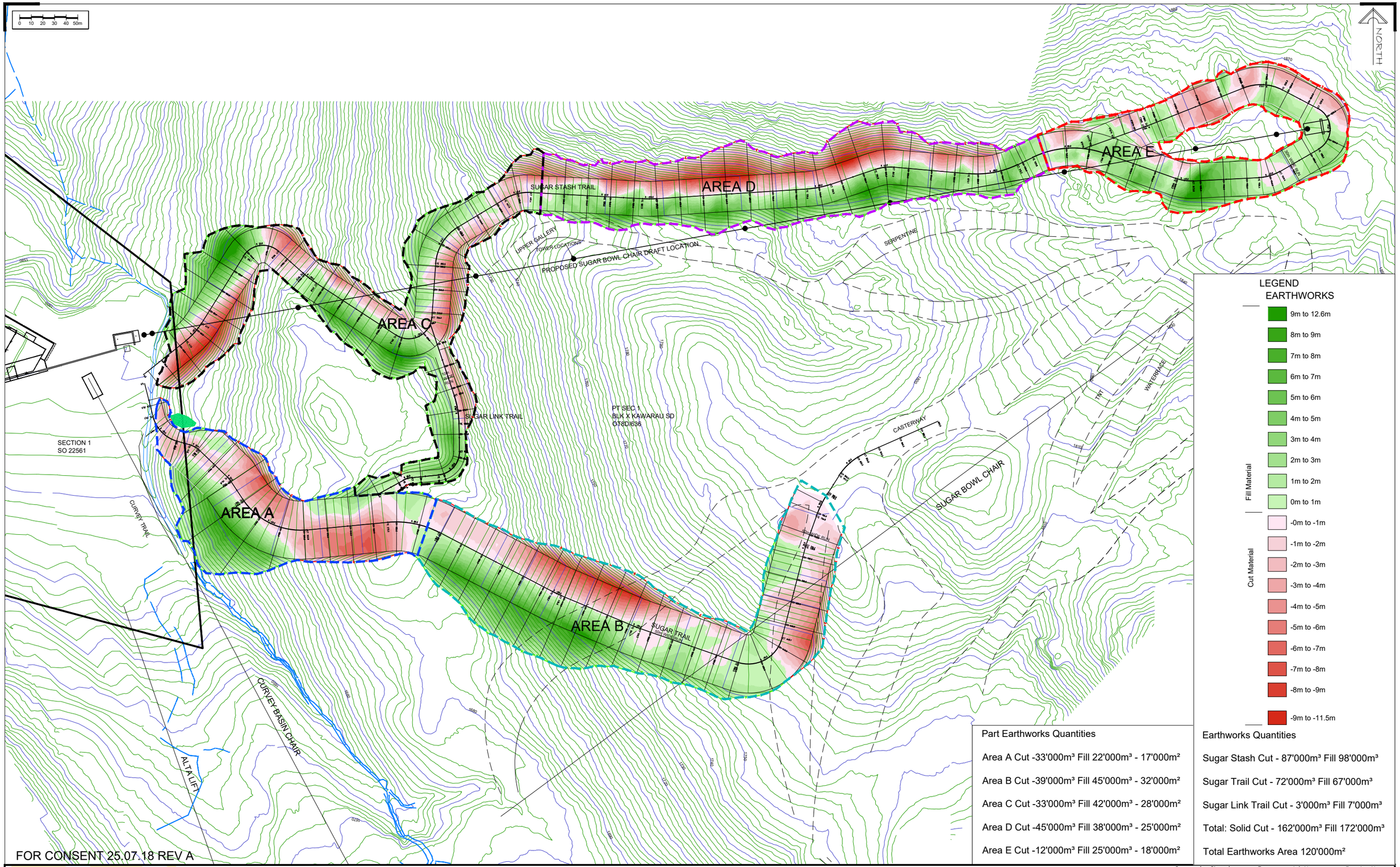

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Part Earthworks Quantities

Area A Cut -33'000m³ Fill 22'000m³ - 17'000m²

Area B Cut -39'000m³ Fill 45'000m³ - 32'000m²

Area C Cut -33'000m³ Fill 42'000m³ - 28'000m²

Area D Cut -45'000m³ Fill 38'000m³ - 25'000m²

Area E Cut -12'000m³ Fill 25'000m³ - 18'000m²

Earthworks Quantities

Sugar Stash Cut - 87'000m³ Fill 98'000m³

Sugar Trail Cut - 72'000m³ Fill 67'000m³

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REMARKABLES SKI FIELD
OVERALL LAYOUT & PART AREA VOLUME PLAN

Client: NZ SKI LTD

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		x.x.18	12650	18-10
Drawn: EM	Signed	Date: 11.06.18	Scale: 1:1500 @ A1, 1:3000 @ A3	
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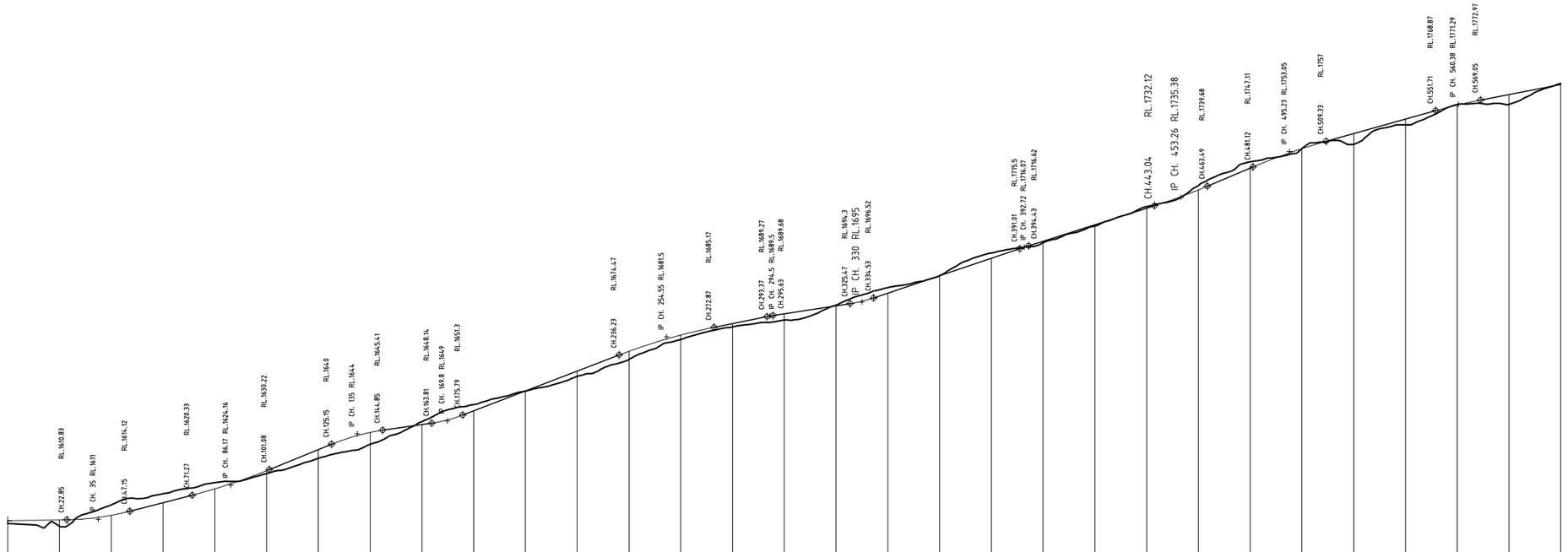

HORIZ CURVE DATA

R-59.33m | R20.00m | R-100.00m | R-20.00m | R40.00m | R40.00m | R40.00m | R-100.00m

VERT GEOMETRY GRADE (%)
VERT GRADE LENGTH (m)

1.43 % 35.00m | 25.72 % 51.17m | 40.63 % 48.83m | 14.37 % 34.80m | 38.35 % 84.75m | 20.03 % 39.95m | 15.49 % 35.50m | 33.60 % 62.72m | 31.89 % 60.54m | 42.11 % 41.97m | 28.01 % 65.15m | 19.33 % 83.30m

VERT CURVE LENGTH (m)

24.30m VC | 29.80m VC | 19.69m VC | 11.99m VC | 36.64m VC | 2.27m VC | 9.05m VC | 3.42m VC | 20.45m VC | 28.21m VC | 17.35m VC

DATUM R.L.1547.00

DEPTH	1.11	2.47	-4.03	-3.45	-2.39	1.12	3.33	4.64	-1.16	-2.40	0.08	2.05	3.14	1.76	1.26	2.40	-0.28	-2.14	0.01	-2.05	0.56	0.49	-0.65	-1.67	-2.46	-0.02	4.13	2.19	-0.20	3.81	-0.43
C.L. FINISHED LEVEL	1610.50	1610.79	1612.54	1617.43	1622.77	1629.78	1637.91	1644.56	1647.59	1652.91	1660.58	1668.25	1675.88	1682.18	1686.60	1690.35	1693.45	1698.36	1705.08	1711.80	1718.39	1724.77	1731.15	1738.24	1746.64	1754.17	1759.99	1765.59	1771.02	1775.09	1778.95
EXISTING G.L.	1609.39	1608.31	1616.57	1620.89	1625.15	1628.67	1634.57	1639.93	1648.75	1655.31	1660.50	1666.20	1672.74	1680.42	1685.34	1687.95	1693.73	1700.50	1705.07	1713.85	1717.83	1724.28	1731.80	1739.92	1749.10	1754.19	1755.86	1763.40	1771.21	1771.28	1779.38
CHAINAGE	0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	240.00	260.00	280.00	300.00	320.00	340.00	360.00	380.00	400.00	420.00	440.00	460.00	480.00	500.00	520.00	540.00	560.00	580.00	600.00

LONGSECTION - 180725 Sugar Stash 1

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000

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REMARKABLES SKI FIELD
LONGSECTION SUGAR STASH TRAIL

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-20
	Drawn	Signed	Date	Scale	
	EM		11.06.18	1:1000 @ A1 1:2000 @ A3	
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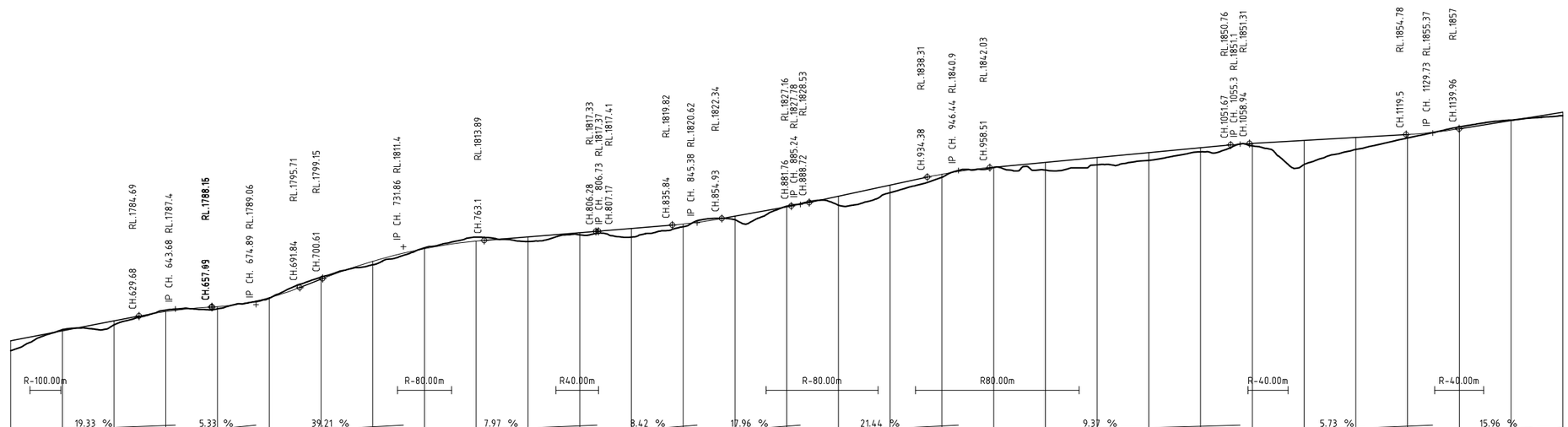

HORIZ CURVE DATA

R-100.00m | R-80.00m | R40.00m | R-80.00m | R80.00m | R-40.00m | R-40.00m

VERT GEOMETRY GRADE (%)
VERT GRADE LENGTH (m)

19.33 % 83.30m | 5.33 % 31.21m | 39.21 % 56.96m | 7.97 % 74.87m | 8.42 % 38.66m | 17.96 % 39.86m | 21.44 % 61.20m | 9.37 % 108.86m | 5.73 % 74.43m | 15.96 % 69.64m

VERT CURVE LENGTH (m)

28.01m VC | 33.89m VC | 62.49m VC | 0.89m VC | 19.09m VC | 6.96m VC | 24.13m VC | 7.28m VC | 20.46m VC

DATUM R.L.1711.00

CHAINAGE	DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.
580.00	3.81	1775.09	1771.28
600.00	-0.43	1778.95	1779.38
620.00	1.56	1782.82	1781.27
640.00	-0.52	1786.42	1786.94
660.00	0.83	1788.29	1787.46
680.00	0.19	1791.77	1791.57
700.00	-0.78	1798.91	1799.68
720.00	1.35	1805.81	1804.46
740.00	-0.29	1810.72	1811.01
760.00	-1.53	1813.62	1815.15
780.00	1.82	1815.24	1813.42
800.00	0.80	1816.83	1816.03
820.00	3.35	1818.48	1815.14
840.00	1.03	1820.21	1819.18
860.00	1.39	1823.25	1821.86
880.00	-0.24	1826.84	1827.08
900.00	3.47	1830.94	1827.48
920.00	2.89	1835.23	1832.34
940.00	1.20	1839.44	1838.24
960.00	0.07	1842.17	1842.10
980.00	3.00	1844.04	1841.05
1000.00	2.81	1845.92	1843.11
1020.00	2.97	1847.79	1844.83
1040.00	1.60	1849.67	1848.07
1060.00	0.99	1851.37	1850.38
1080.00	9.34	1852.52	1843.17
1100.00	4.67	1853.66	1849.00
1120.00	1.38	1854.81	1853.43
1140.00	-0.70	1857.01	1857.71
1160.00	-0.18	1860.20	1860.38
1180.00	1.33	1863.39	1862.06

LONGSECTION - 180725 Sugar Stash 1

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000

FOR CONSENT 25.07.18 REV A

Shotover Design Limited trading as
Clark Fortune McDonald & Associates
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Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
-	-	-	-

REMARKABLES SKI FIELD
LONGSECTION SUGAR STASH TRAIL

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-21
	Drawn	Signed	Date	Scale	
	EM		11.06.18	1:1000 @ A1 1:2000 @ A3	
	Designed	Signed	Date	Datum & Level	Rev.
	CFM w NZSKI		2018	NZMG & MSL	-

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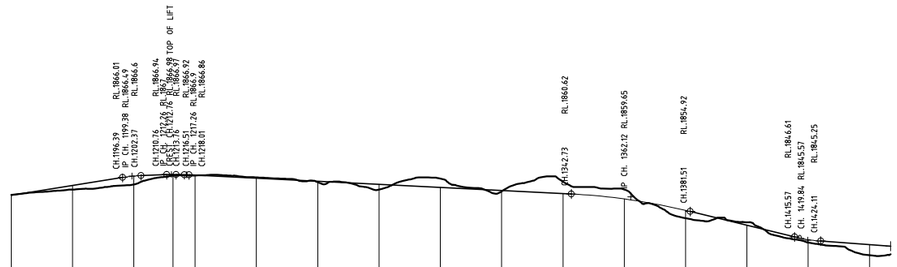

HORIZ CURVE DATA

VERT GEOMETRY GRADE (%)

VERT GRADE LENGTH (m)

VERT CURVE LENGTH (m)

DATUM R.L.1780.00

R-20.00m | R-40.00m | R100.00m

15.96 % | 1.00 % | -2.00 % | -5.00 % | -24.40 % | -7.33 %

69.64m | 12.88m | 6.00m | 144.86m | 57.72m | 27.02m

5.98m VC | 8.00m VC | 6.00m VC | 38.79m VC | 8.53m VC

DEPTH	-0.18	1.33	2.72	0.39	0.10	-0.30	0.33	1.70	-2.88	0.27	-3.88	-3.09	2.57	-0.98	0.91	3.42
C.L. FINISHED LEVEL	1860.20	1863.39	1866.45	1866.98	1866.76	1865.76	1864.76	1863.76	1862.76	1861.76	1860.76	1859.01	1855.28	1850.41	1845.72	1844.09
EXISTING G.L.	1860.38	1862.06	1863.74	1866.59	1866.66	1866.06	1864.43	1862.06	1865.64	1861.49	1864.64	1862.10	1852.71	1851.38	1844.81	1840.66
CHAINAGE	1160.00	1180.00	1200.00	1212.76	1220.00	1240.00	1260.00	1280.00	1300.00	1320.00	1340.00	1360.00	1380.00	1400.00	1420.00	1440.00

LONGSECTION - 180725 Sugar Stash 1

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000

FOR CONSENT 25.07.18 REV A

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Rev.	Date	Revision Details	By
-	-	-	-

REMARKABLES SKI FIELD
LONGSECTION SUGAR STASH TRAIL

Client: NZ SKI LTD

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	Surveyed	Signed	Date	Job No.	Drawing No.
			x.x.18	12650	18-22
	Drawn: EM	Signed	Date: 11.06.18	Scale: 1:1000 @ A1, 1:2000 @ A3	
	Designed: CFM w NZSKI	Signed	Date: 2018	Datum & Level: NZMG & MSL	Rev.: -

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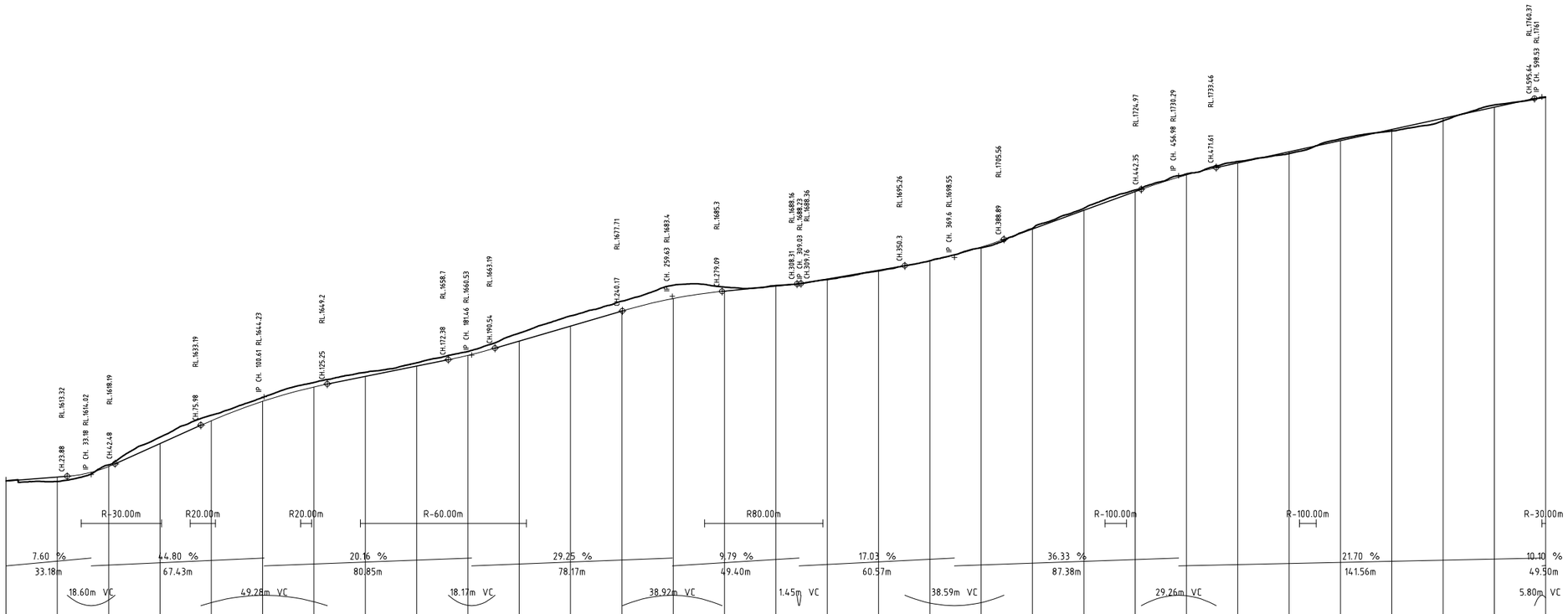

HORIZ CURVE DATA

R-30.00m | R20.00m | R20.00m | R-60.00m | R80.00m | R-100.00m | R-100.00m | R-30.00m

VERT GEOMETRY GRADE (%): 7.60 % | 44.80 % | 20.16 % | 29.25 % | 9.79 % | 17.03 % | 36.33 % | 21.70 % | 10.10 %

VERT GRADE LENGTH (m): 33.18m | 67.43m | 80.85m | 78.17m | 49.40m | 60.57m | 87.38m | 141.56m | 49.50m

VERT CURVE LENGTH (m): 18.60m VC | 49.28m VC | 18.17m VC | 38.92m VC | 1.45m VC | 38.59m VC | 29.26m VC | 5.80m VC

DATUM R.L.1550.00

DEPTH	-0.06	1.74	-0.64	-2.51	-2.16	-1.48	-1.75	-1.61	-1.30	-1.50	-3.09	-3.95	-3.83	-5.20	-1.58	-0.21	0.17	0.26	-0.06	0.22	-0.23	-0.78	-0.62	-0.39	-0.57	0.71	-0.68	0.61	0.95	-0.87	0.34
C.L. FINISHED LEVEL	1611.50	1613.02	1617.14	1626.04	1634.96	1642.51	1648.07	1652.17	1656.21	1660.38	1665.96	1671.81	1677.65	1682.52	1685.39	1687.35	1690.10	1693.51	1697.15	1702.52	1709.59	1716.86	1724.12	1730.61	1735.28	1739.62	1743.96	1748.30	1752.64	1756.98	1761.13
EXISTING G.L.	1611.56	1611.28	1617.77	1628.55	1637.11	1643.99	1649.82	1653.78	1657.51	1661.89	1669.04	1675.75	1681.48	1687.72	1686.97	1687.55	1689.93	1693.25	1697.20	1702.30	1709.82	1717.63	1724.74	1731.00	1735.85	1738.91	1744.64	1747.70	1751.69	1757.85	1760.79
CHAINAGE	0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	240.00	260.00	280.00	300.00	320.00	340.00	360.00	380.00	400.00	420.00	440.00	460.00	480.00	500.00	520.00	540.00	560.00	580.00	600.00

LONGSECTION - 180913 Sugar Stash 4

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000

FOR CONSENT 25.07.18 REV A

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Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
LONGSECTION SUGAR TRAIL

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-22
	Drawn: EM		Date: 11.06.18	Scale: 1:1000 @ A1, 1:2000 @ A3	
	Designed: CFM w NZSKI		Date: 2018	Datum & Level: NZMG & MSL	Rev. A

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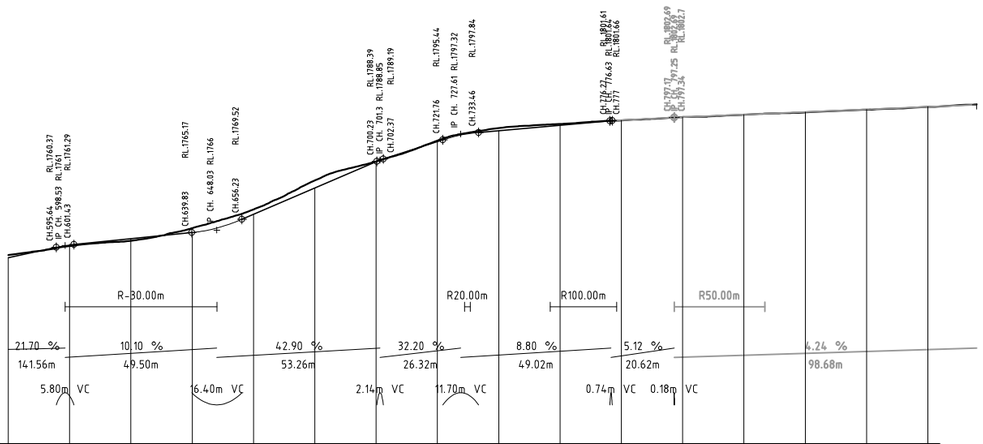


HORIZ CURVE DATA

R-30.00m | R20.00m | R100.00m | R50.00m

VERT GEOMETRY GRADE (%): 21.70 % | 10.10 % | 42.90 % | 32.20 % | 8.80 % | 5.12 % | 4.24 %

VERT GRADE LENGTH (m): 141.56m | 49.50m | 53.26m | 26.32m | 49.02m | 20.62m | 98.68m

VERT CURVE LENGTH (m): 5.80m VC | 6.40m VC | 2.14m VC | 11.70m VC | 0.74m VC | 0.18m VC

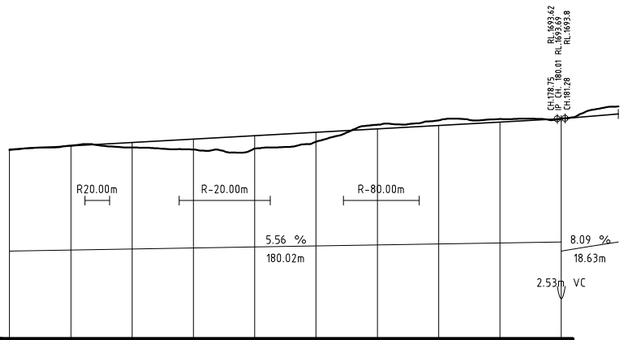
DATUM R.L.1696.00

CHAINAGE	DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.
580.00	-0.87	1756.98	1757.85
600.00	0.34	1761.13	1760.79
620.00	0.64	1763.17	1762.53
640.00	-1.44	1765.19	1766.63
660.00	-1.63	1771.13	1772.76
680.00	-2.47	1779.71	1782.19
700.00	-0.09	1788.29	1788.39
720.00	-0.29	1794.87	1795.17
740.00	-0.83	1798.41	1799.24
760.00	-0.43	1800.17	1800.60
780.00	0.03	1801.81	1801.78
800.00			1802.84
820.00			1803.61
840.00			1804.39
860.00			1805.27
880.00			1806.15

LONGSECTION - 180913 Sugar Stash 4

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000



HORIZ CURVE DATA

R20.00m | R-20.00m | R-80.00m

VERT GEOMETRY GRADE (%): 5.56 % | 8.09 %

VERT GRADE LENGTH (m): 180.02m | 18.63m

VERT CURVE LENGTH (m): 2.53m VC

DATUM R.L.1622.00

CHAINAGE	DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.
0.00	0.26	1683.69	1683.43
20.00	-0.10	1684.80	1684.90
40.00	1.61	1685.92	1684.30
60.00	3.40	1687.03	1683.63
80.00	4.19	1688.14	1683.95
100.00	3.09	1689.25	1686.16
120.00	-1.35	1690.36	1691.71
140.00	-1.66	1691.47	1693.13
160.00	-0.99	1692.58	1693.57
180.00	0.05	1693.70	1693.65

1697.66

198.65

LONGSECTION - 180725 Sugar Stash 1to4

A1 HORIZ SCALE 1 : 1000

A1 VERT SCALE 1 : 1000

FOR CONSENT 25.07.18 REV A

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Rev.	Date	Revision Details	By
-	-	-	-
A	19.09.18	REVISED SUGAR, SUGAR STASH TRAIL @ BTM	EM

REMARKABLES SKI FIELD
LONGSECTION SUGAR & SUGAR LINK TRAIL

Client: NZ SKI LTD

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Surveyed	Signed	Date	Job No.	Drawing No.
		x.x.18	12650	18-24
Drawn: EM	Signed	Date: 11.06.18	Scale: 1:1000 @ A1, 1:2000 @ A3	
Designed: CFM w NZSKI	Signed	Date: 2018	Datum & Level: NZMG & MSL	Rev.: -

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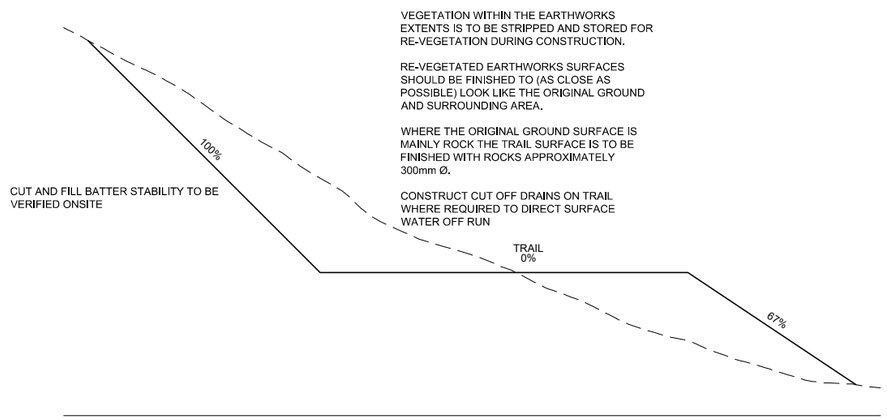
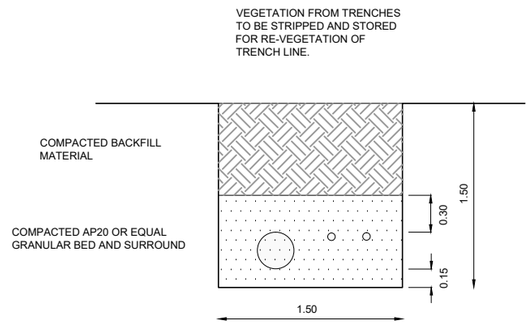


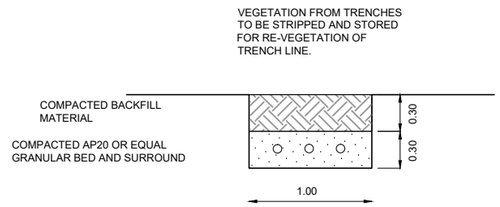
TYPICAL EARTHWORKS SECTION - CURVEY BASIN RUN 1 CH 150

SCALE 1:500 @ A1
SCALE 1:1000 @ A3



TYPICAL SNOWMAKING LINE TRENCH

SCALE 1:25 @ A1
SCALE 1:50 @ A3



TYPICAL SERVICES TRENCH

SCALE 1:25 @ A1
SCALE 1:50 @ A3

FOR CONSENT 25.07.18 REV A

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Rev.	Date	Revision Details	By
-	-	-	-

REMARKABLES SKI FIELD
TYPICAL SECTION DETAILS

Client	Surveyed	Signed	Date	Job No.	Drawing No.
NZ SKI LTD			x.x.18	12650	18-40
	Drawn	Signed	Date	Scale	
	EM		11.06.18	AS SHOWN @ A3	@ A1
	Designed	Signed	Date	Datum & Level	Rev.
	CFM w NZSKI		2018	NZMG & MSL	-

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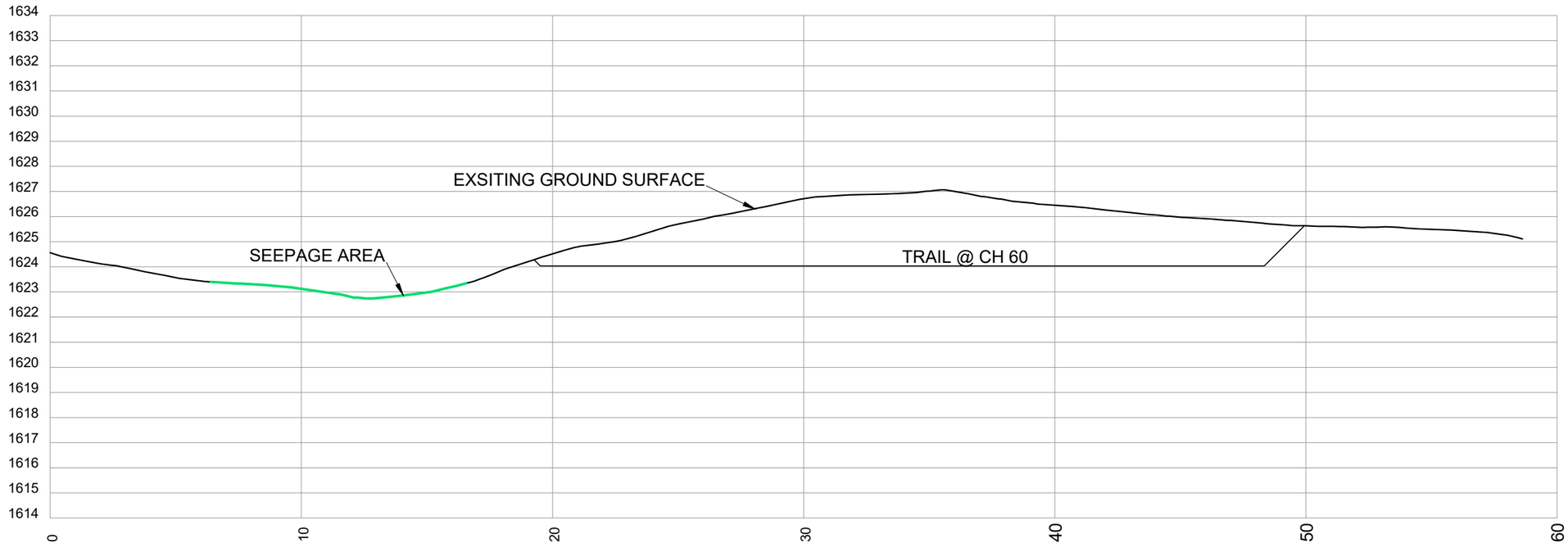

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Rev.	Date	Revision Details	By
-	-	-	-

REMARKABLES SKI FIELD
SECTION THROUGH TRAIL AND SEEPAGE AREA

Client: NZ SKI LTD

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	Surveyed	Signed	Date	Job No.	Drawing No.
			x.x.18	12650	18-41
	Drawn	Signed	Date	Scale	
	EM		11.06.18	1:100 @ A1 1:200 @ A3	
	Designed	Signed	Date	Datum & Level	Rev.
	CFM w NZSKI		2018	NZMG & MSL	-

S:\JOBS\12600\12650\acad\12650 18 Design Plans Sugar Bowl II 13.09.18.dwg Plotted: 19.09.2018