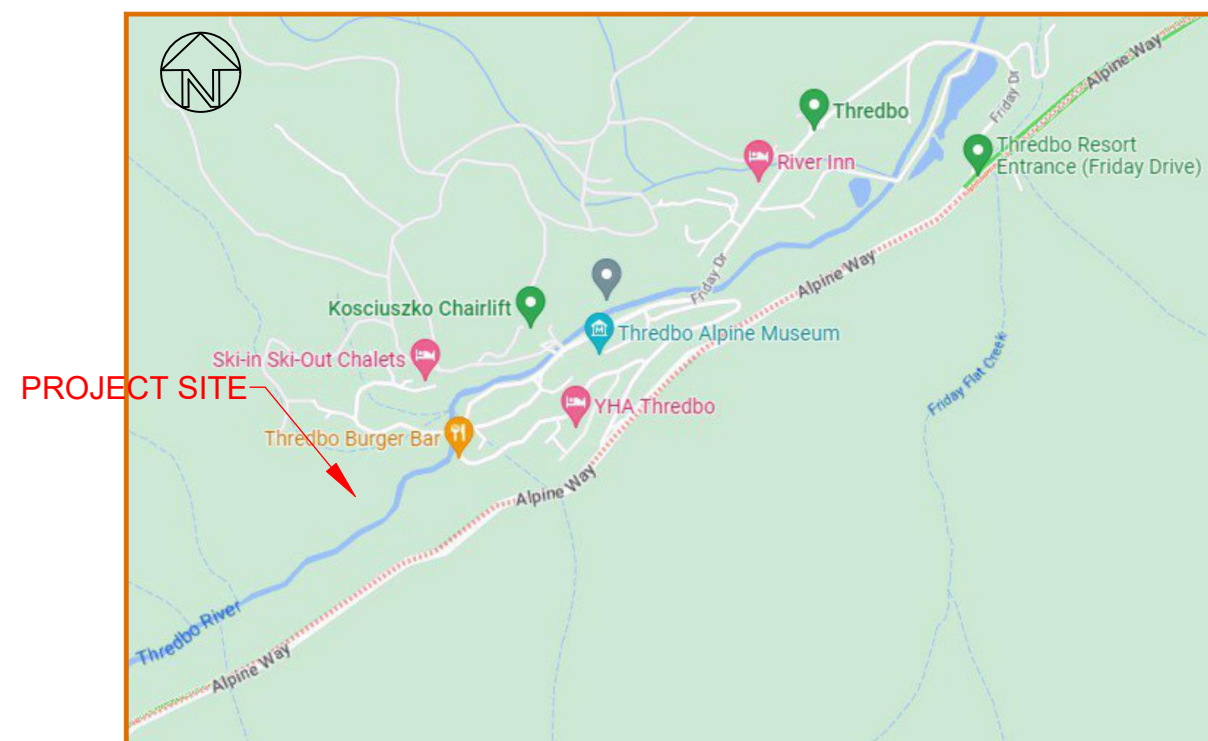




KOSCIUSZKO THREDBO PTY LTD THREDBO GOLF COURSE SUBDIVISION

Thredbo Village NSW
CLM CiViL Project No. U-183



Locality Plan - Not to Scale

DRAWING LIST

Sheet No:	Description
1	Cover Sheet, Drawing List and Locality Plan
2	Overview Plan
3-4	Typical Details
5	Carpark and Golf Course Plan
6	Subdivision Plan
7-8	Road 1 Longsection
9-21	Road 1 Cross Sections
22	Road 1 Culdesac
23	Driveway 1 Longsection
24	Driveway 2 Longsection
25	Accessible Path of Travel to Community Centre
26	1st Tee Path
27	9th Green to 2nd Tee Path
28	Path Realignment at 2nd Green
29	Carpark Dimensions
30-33	Swept Path Assessments
34-35	Signs and Lines Plan
36-39	Sewer Long Sections
40-41	Stormwater Management General Arrangement
42-43	Stormwater Typical Details
44	Stormwater Catchment Plan
45	Bulk Earthworks Plan

NOT FOR CONSTRUCTION



Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Cover Sheet, Drawing List and Locality Plan	Datum: GDA94 / AHD	Scale: AS SHOWN	Size: A3
	Drawing Number: U-183	Sheet: 1 of 45	Revision: K



Rev	Date	Description
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Thredbo Golf Course Subdivision
Thredbo Village NSW

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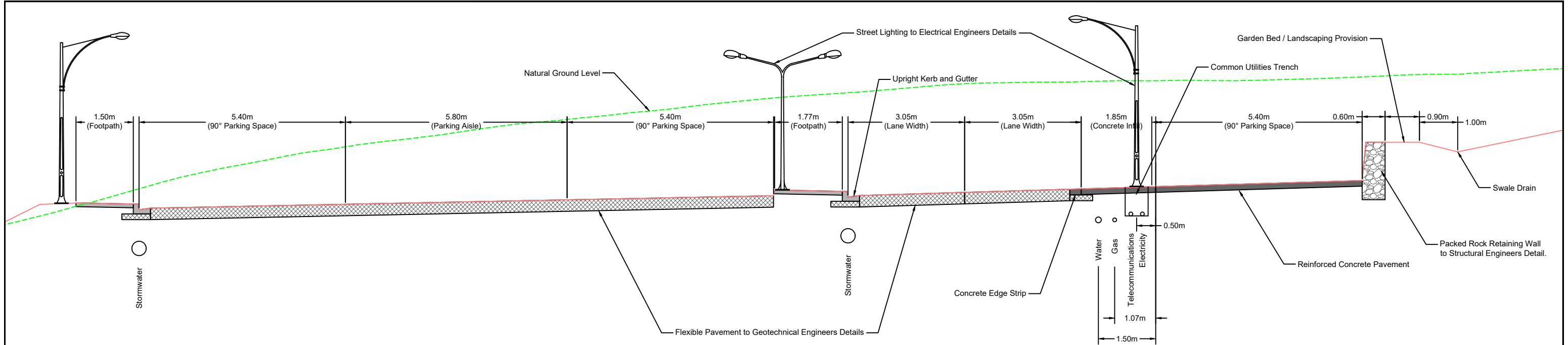
205 Bobundara Road

BERRIDALE NSW 2628

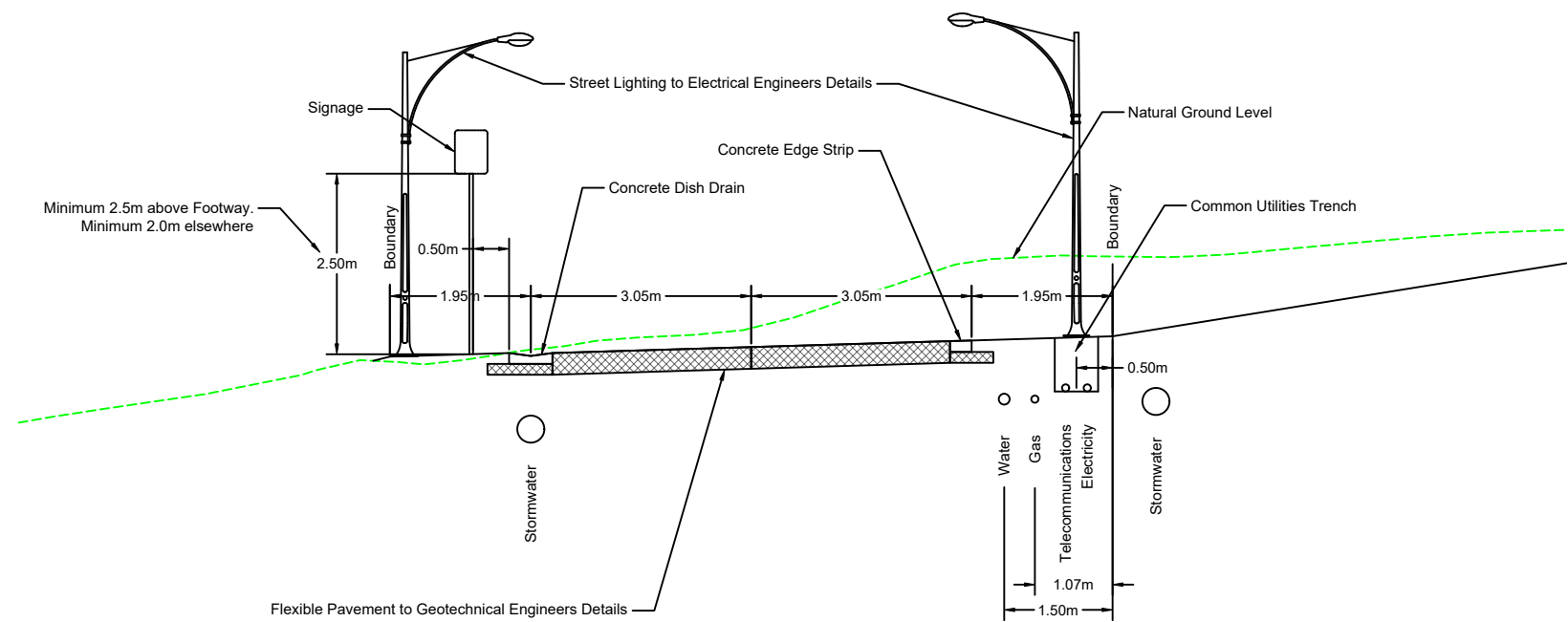
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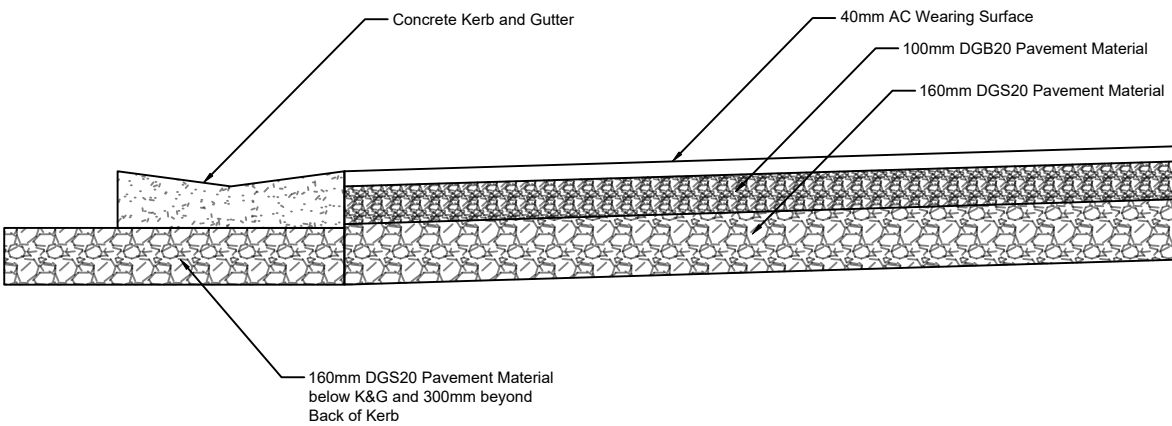
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Overview Plan	Datum: GDA94 / AHD	Scale: AS SHOWN	Size: A3
	Drawing Number: U-183	Sheet: 2 of 45	Revision: K



Road 1 Typical Section CH10-60



Road 1 Typical Section CH60-400



Preliminary Pavement Design
Subject to Geotechnical Engineers Details
Scale 1:10

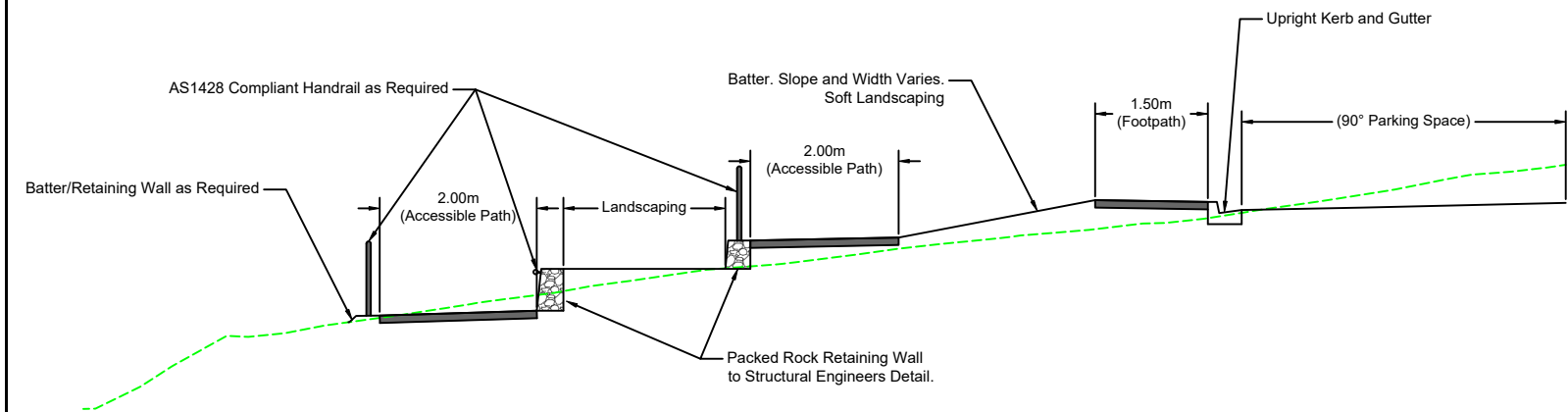
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Thredbo Golf Course Subdivision
Thredbo Village NSW

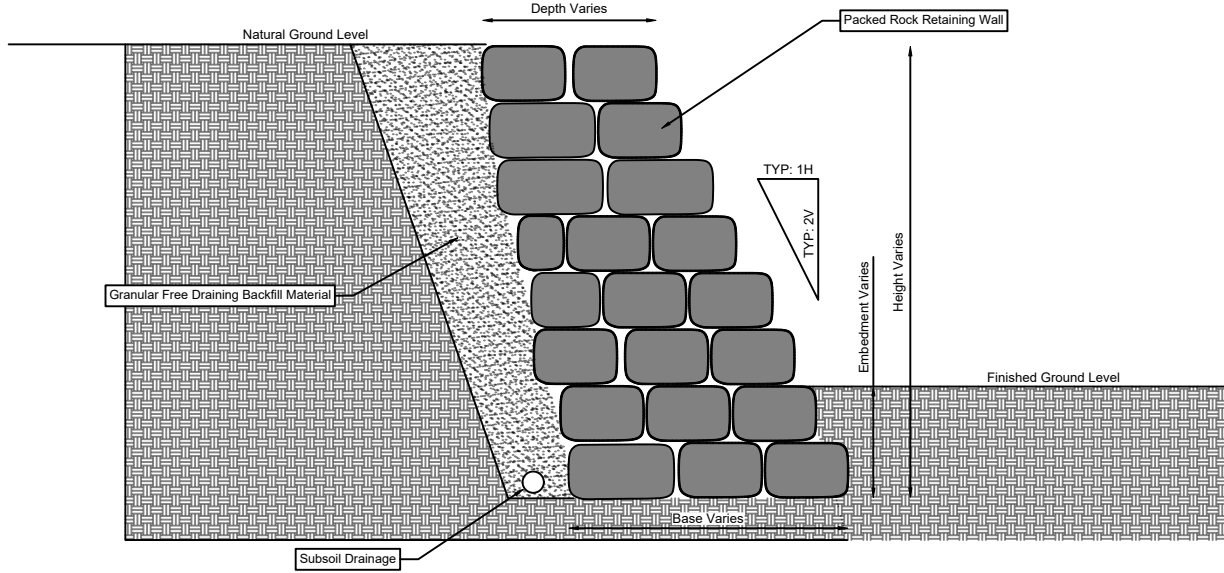
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Typical Details 1	Datum: GDA94 / AHD	Scale: 1:100	Size: A3
	Drawing Number: U-183	Sheet: 3 of 45	Revision: K

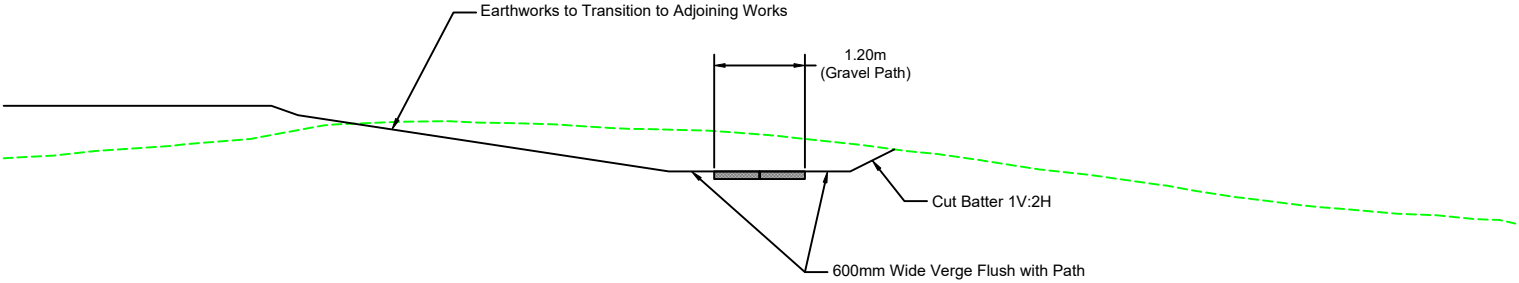


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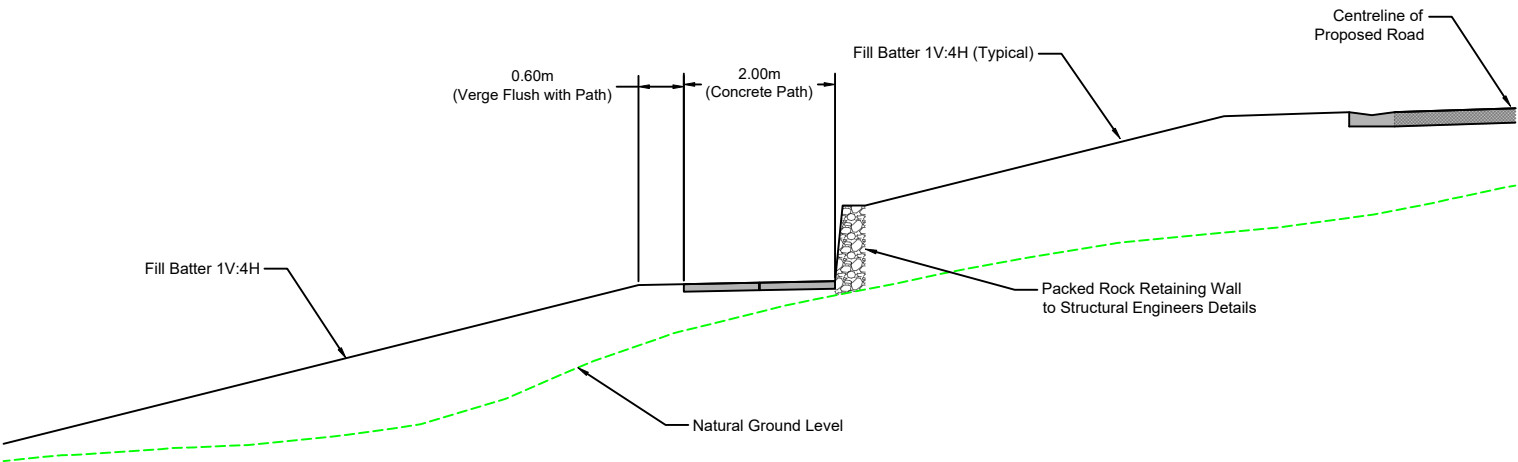


Packed Rock Retaining Wall Typical Section

NOT TO SCALE
SUBJECT TO FUTURE GEOTECHNICAL INVESTIGATION AND STRUCTURAL ENGINEERS DETAILS



Golf Path Typical Section



Path and Retaining Wall Typical Section
(Pathway from Road 1 to 2nd TEE / Thredbo River Bridge)

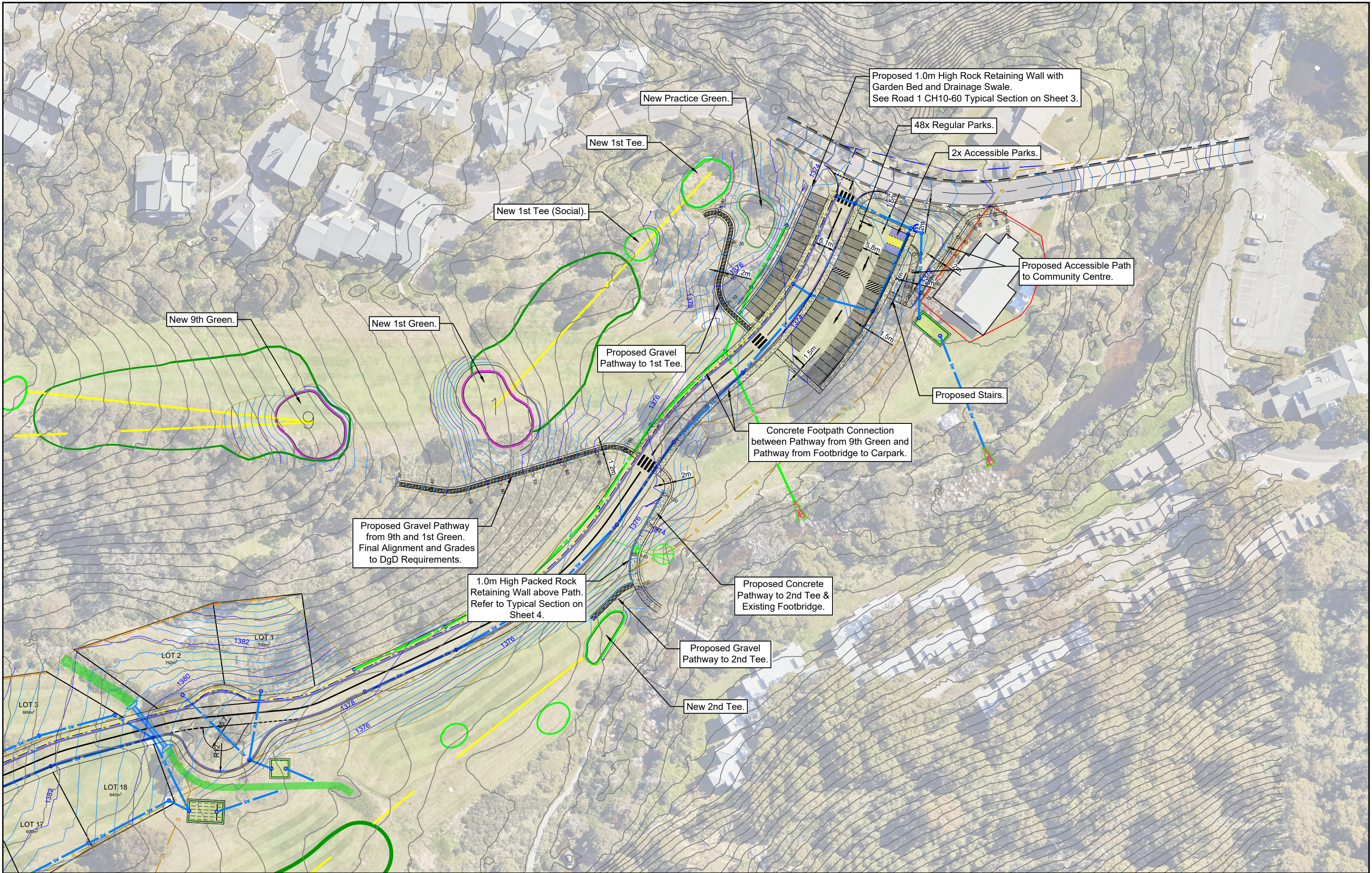
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Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd			
Typical Details 2		Status: For Development Approval	
		Datum: GDA94 / AHD	Scale: 1:100
		Sheet: U-183	Size: A3
		Revision: 4 of 45	K



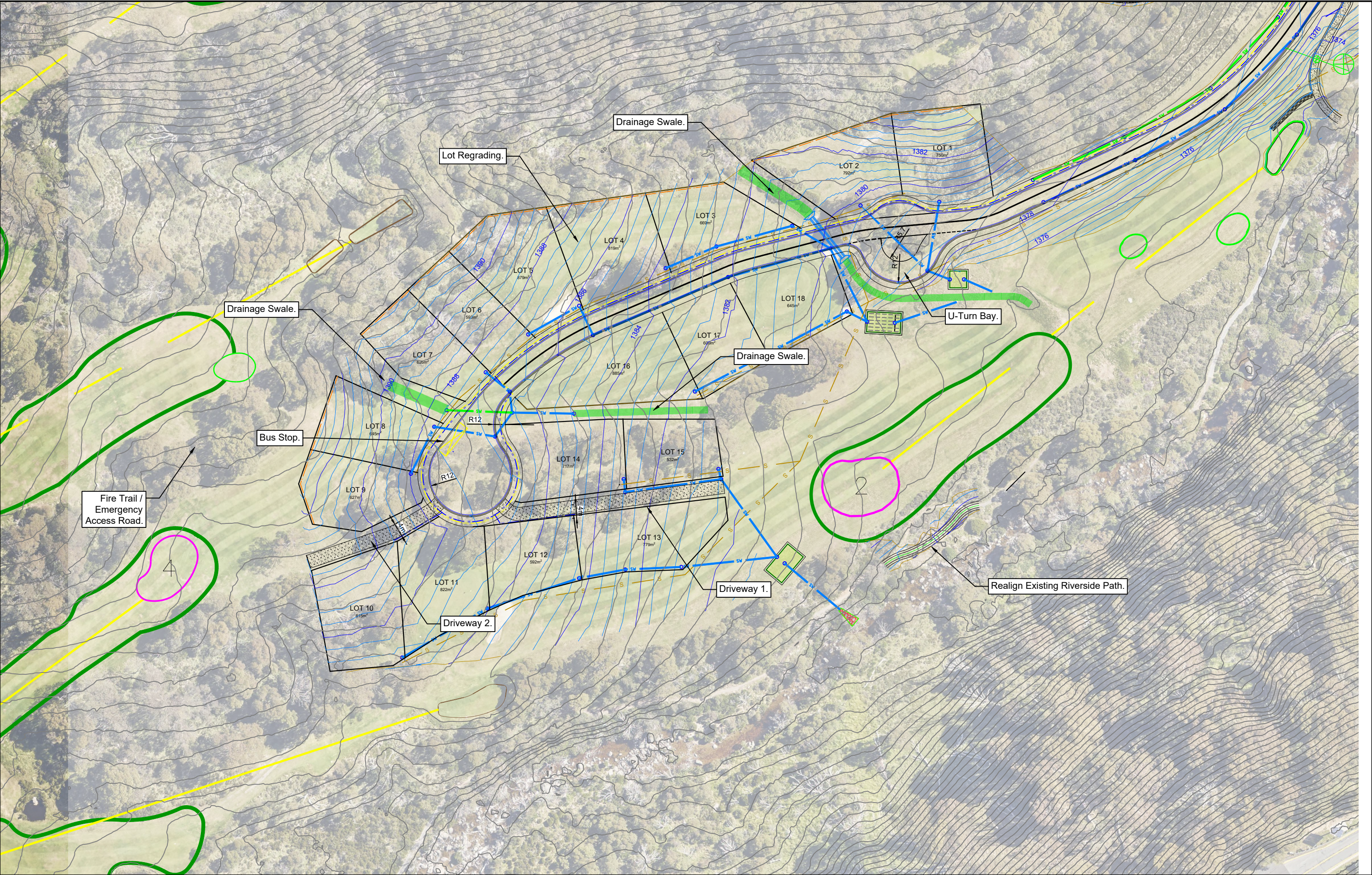
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Drawing Number: U-183		Scale: 1:1000	Size: A3
Sheet: 5 of 45		Revision: K	



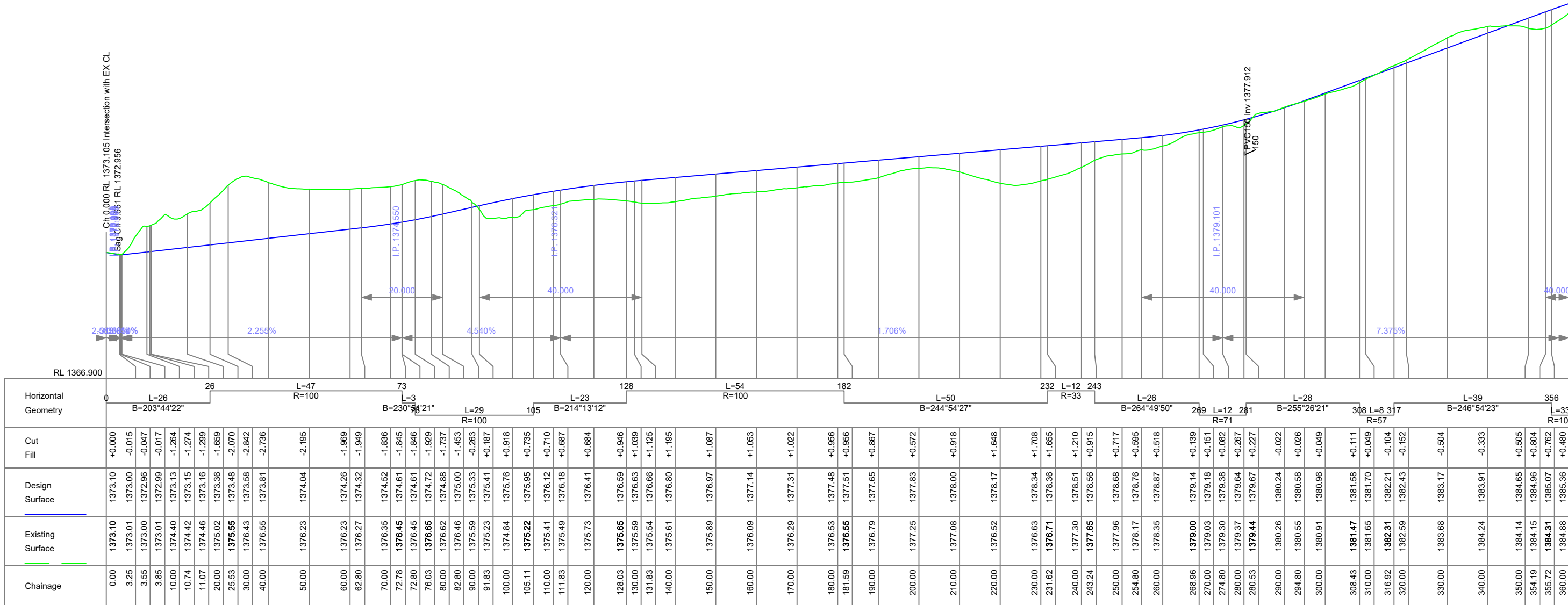
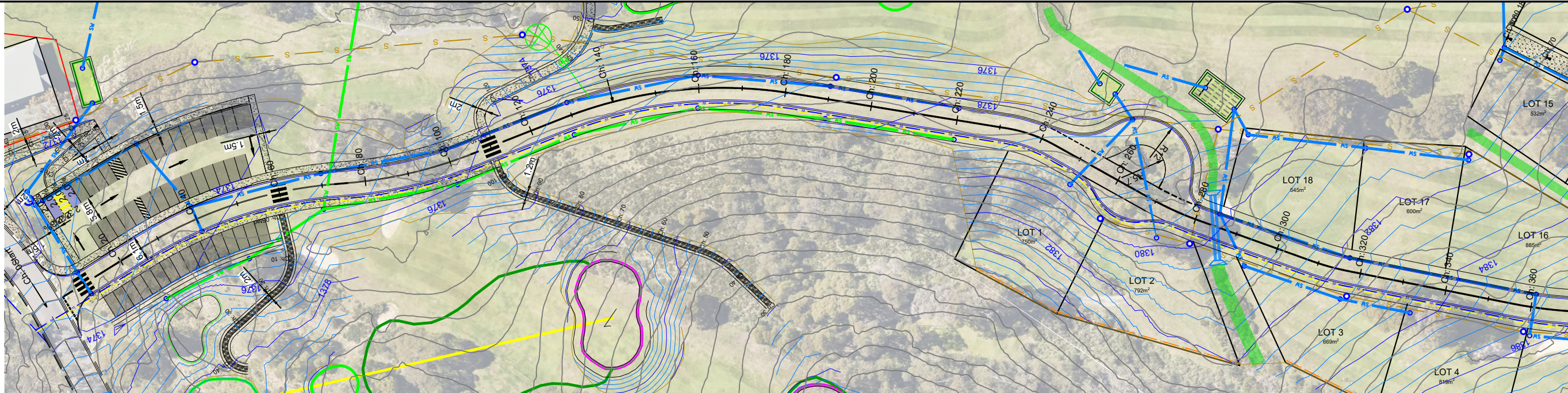
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Subdivision Plan	Datum: GDA94 / AHD	Scale: 1:1000	Size: A3
	Drawing Number: U-183	Sheet: 6 of 45	Revision: K



Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
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Thredbo Golf Course Subdivision
Thredbo Village NSW

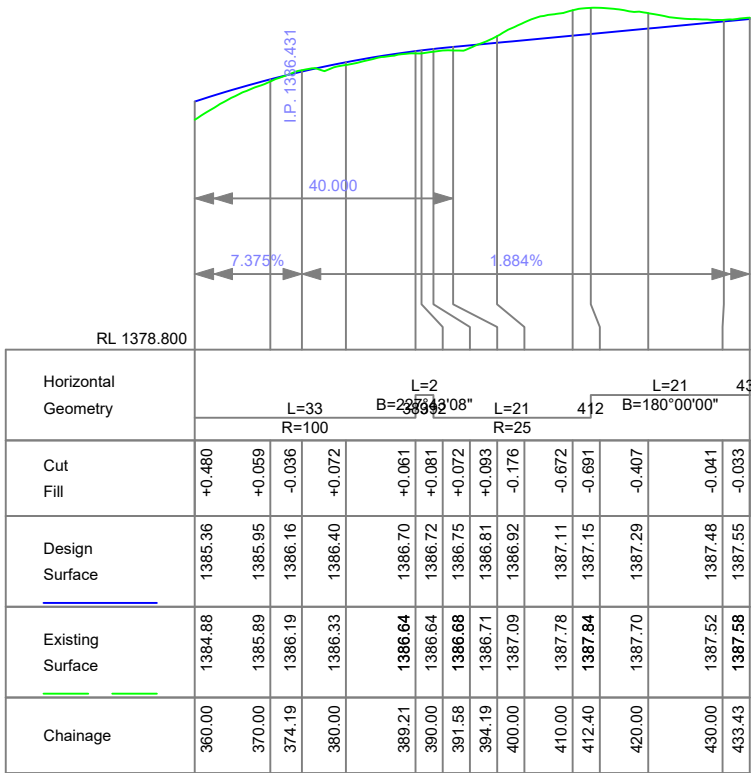
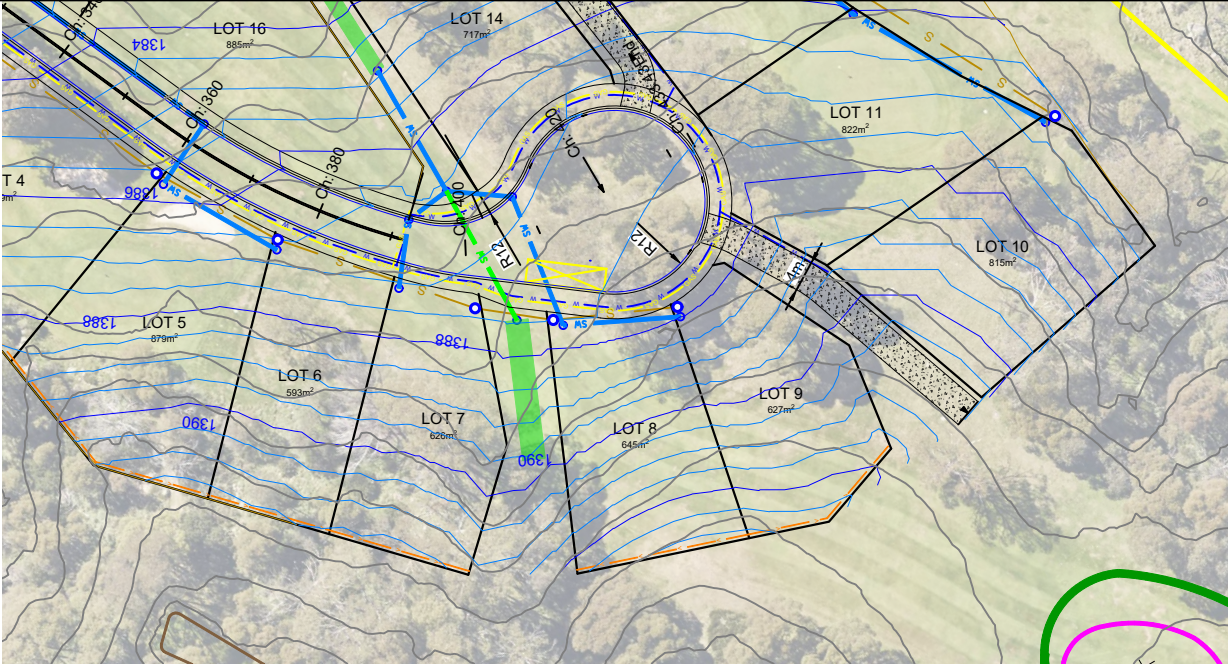


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Client: Kosciuszko Thredbo Pty Ltd

Road 1 Longitudinal Section 1

Status			
For Development Approval			
Datum	Scale	Size	
GDA94 / AHD	1:1000	A3	
Drawing Number	Sheet	Revision	
U-183	7 of 45	K	



LONGITUDINAL SECTION
Road 1 Ch 360.000 to Ch 433.426
SCALES: HORIZONTAL 1:1000 VERTICAL 1:200

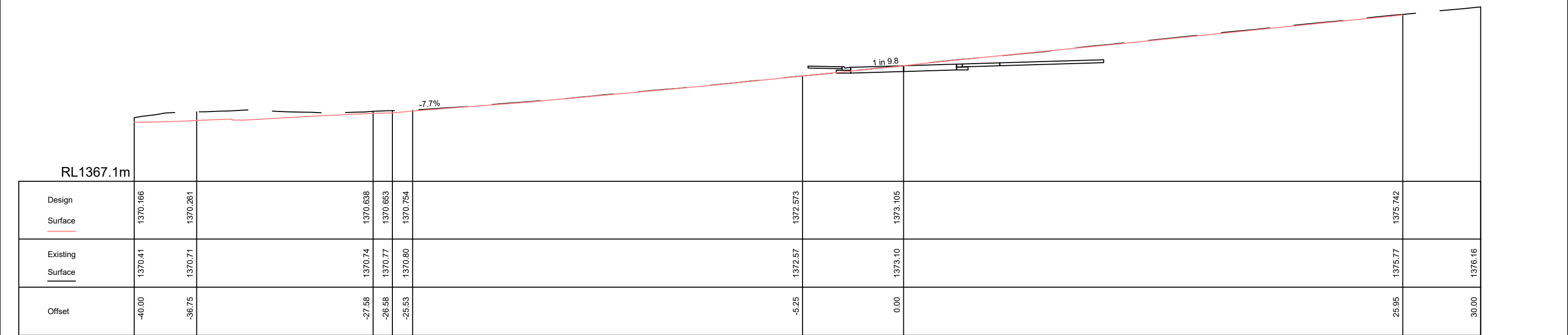
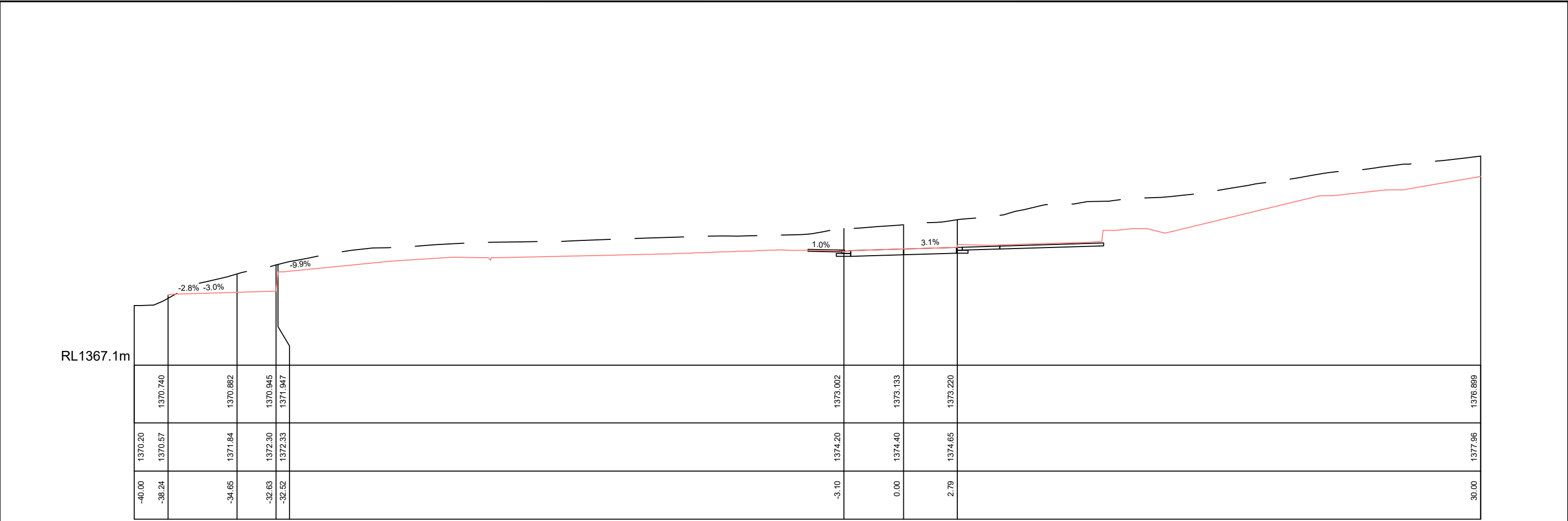
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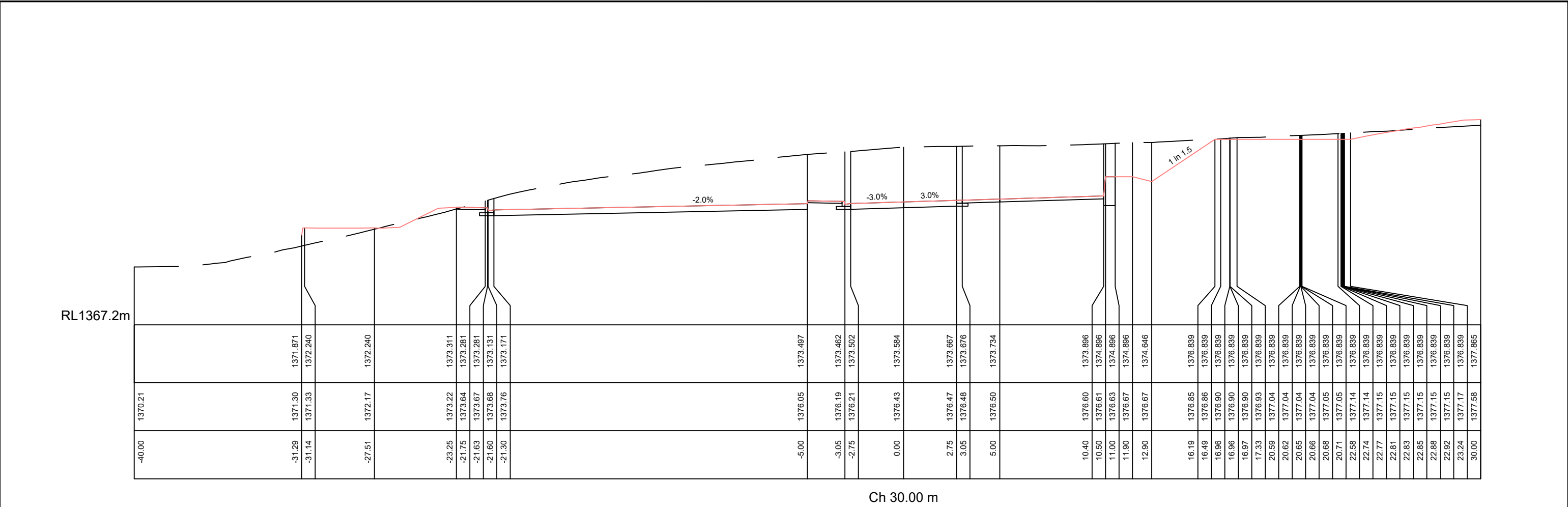
Thredbo Golf Course Subdivision
Thredbo Village NSW



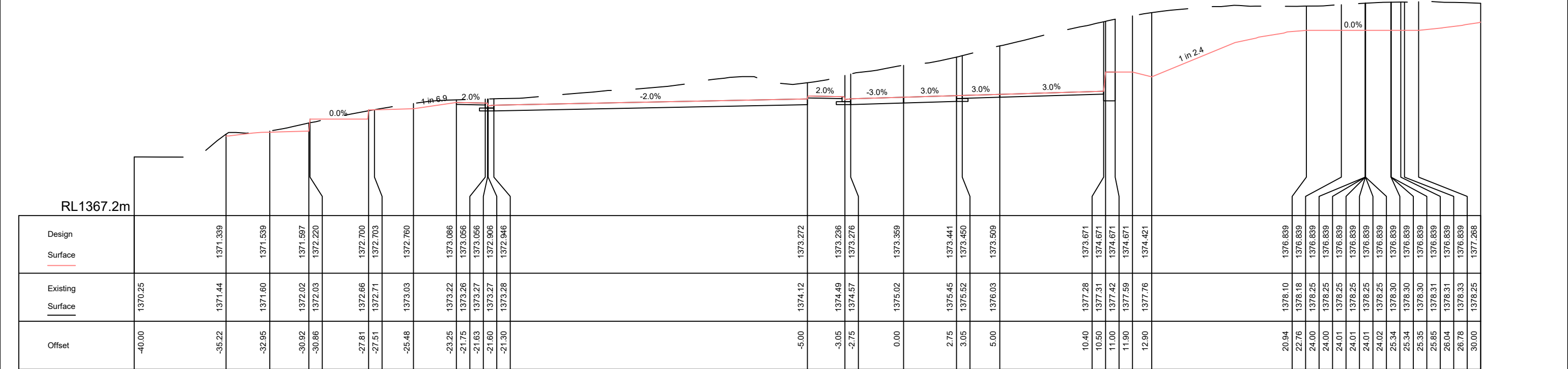
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Client: Kosciuszko Thredbo Pty Ltd		
Status: For Development Approval		
Road 1 Longitudinal Section 2		
Datum: GDA94 / AHD	Scale: 1:1000	Size: A3
Drawing Number: U-183	Sheet: 8 of 45	Revision: K



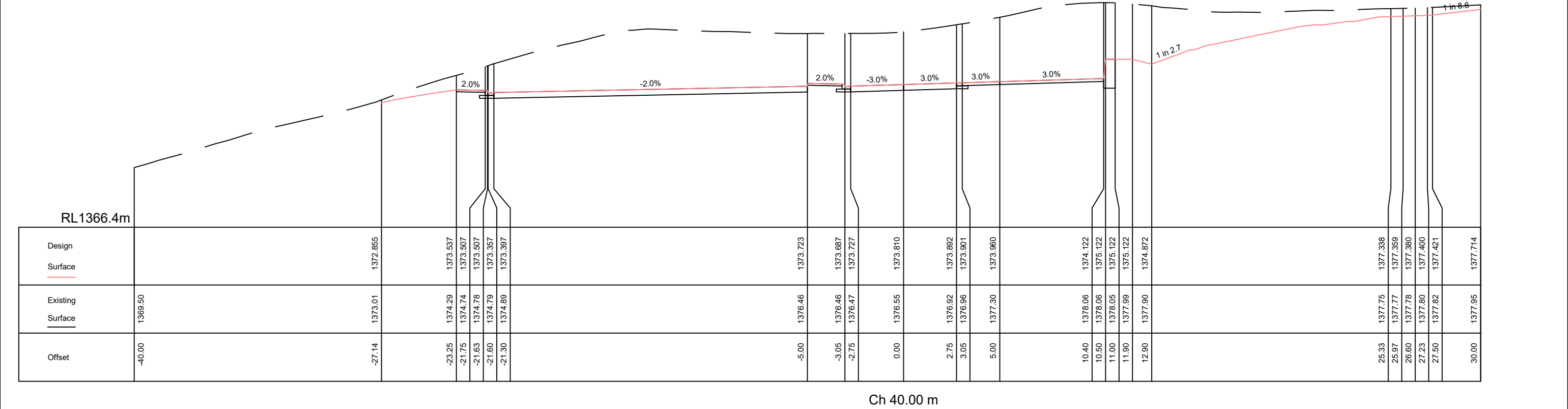
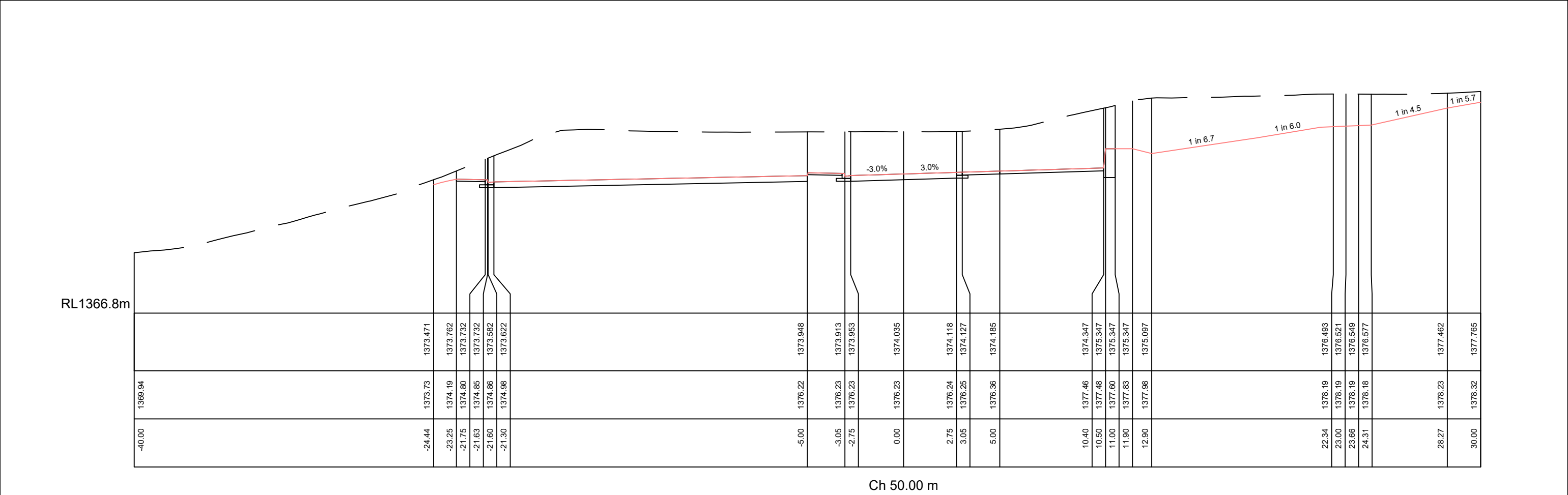


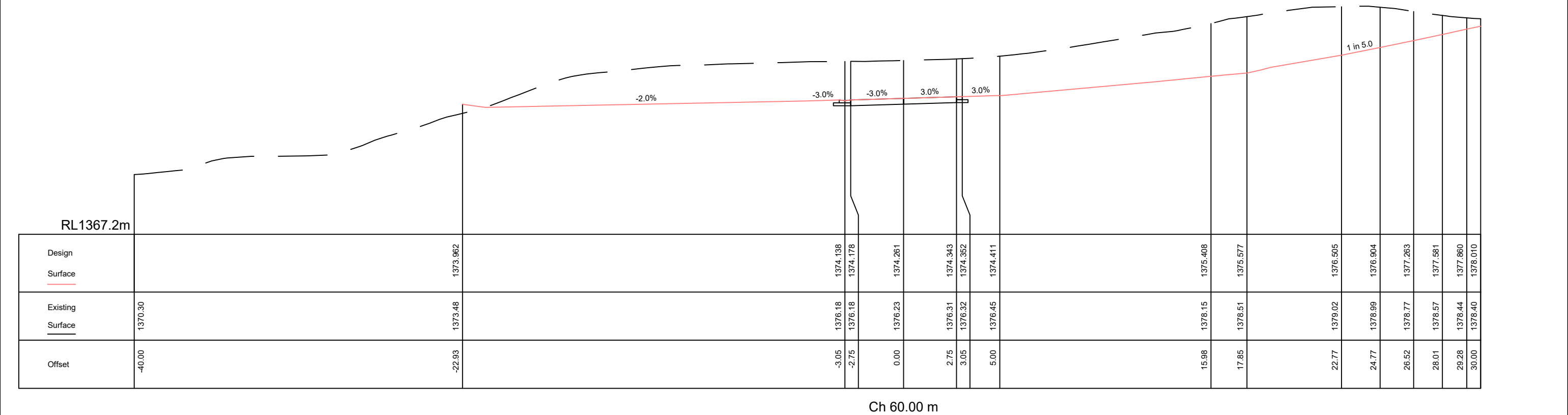
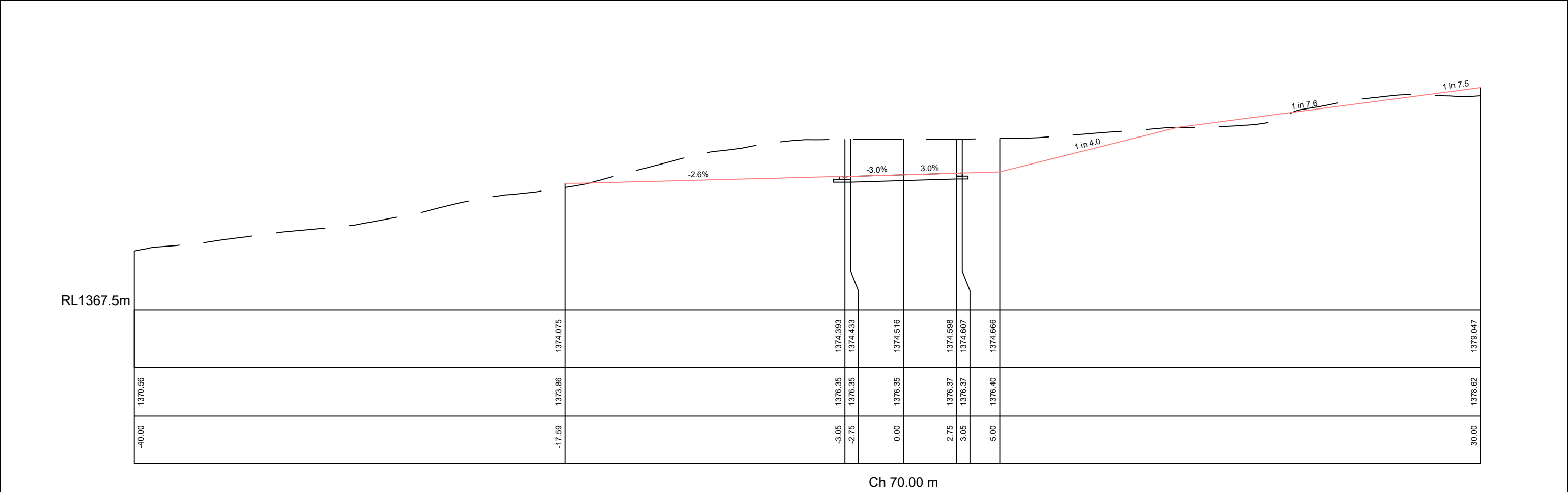
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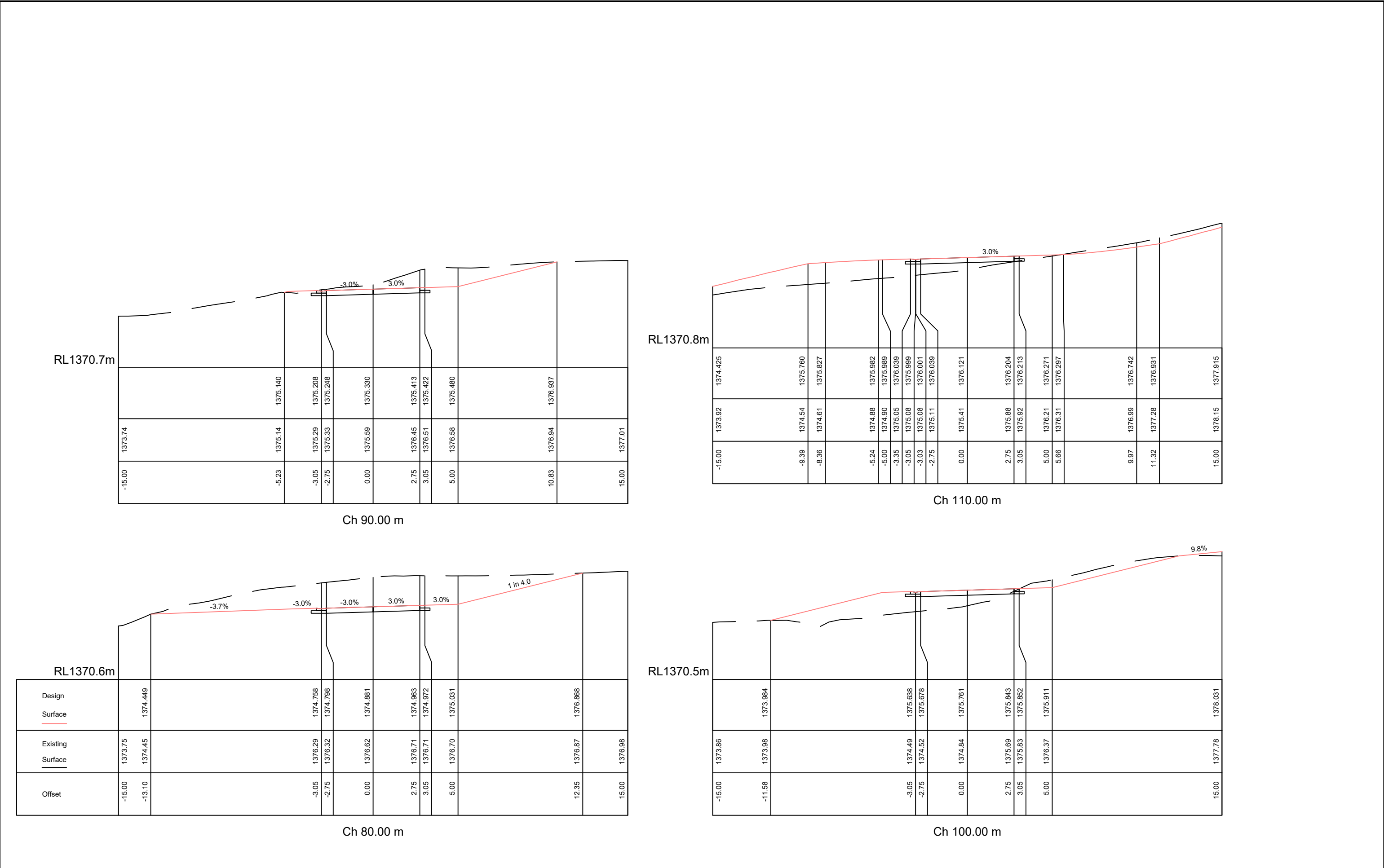


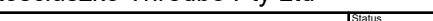
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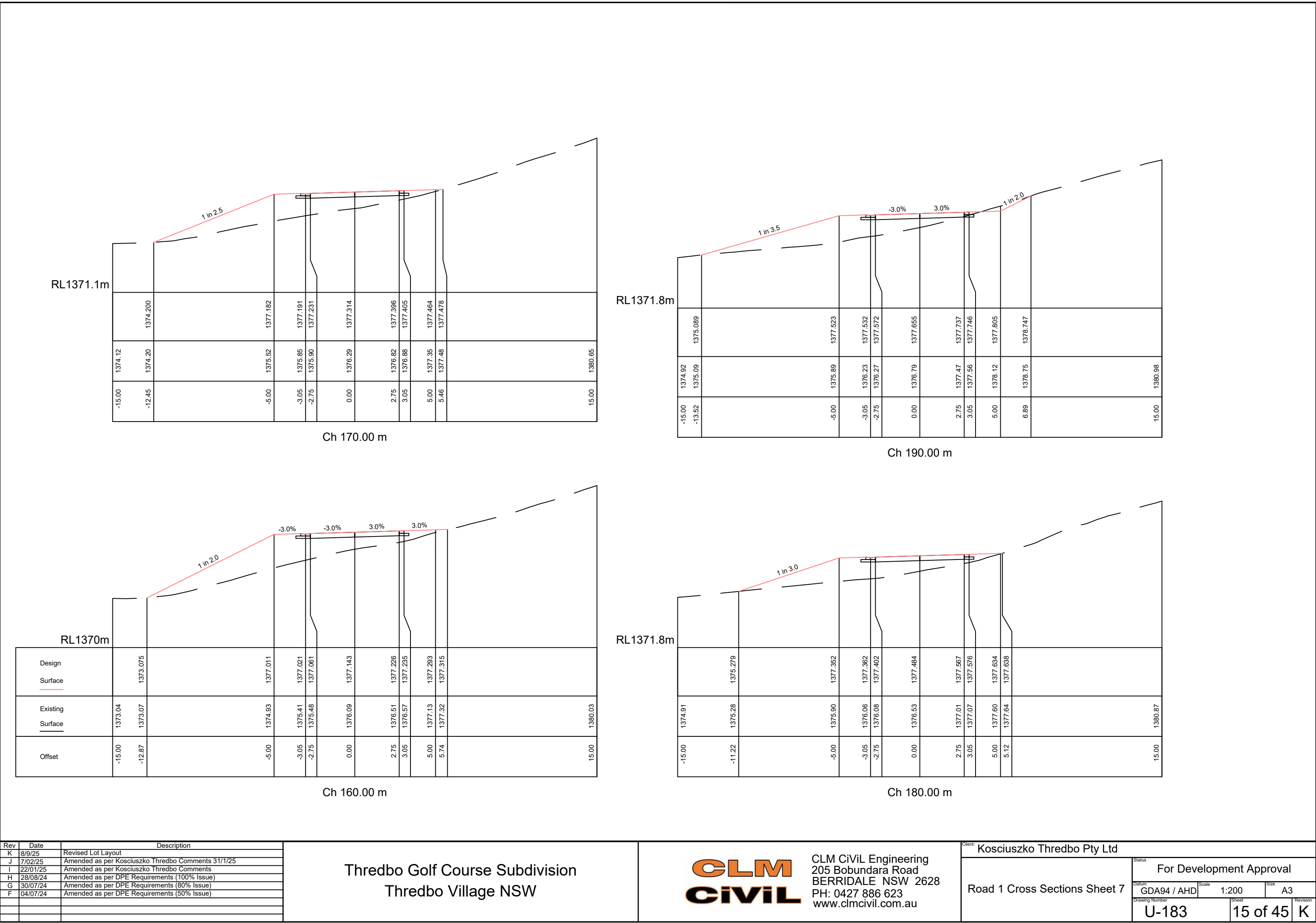
Rev	Date	Description	Thredbo Golf Course Subdivision Thredbo Village NSW			CLM CIVIL CLM CIVIL Engineering 205 Bobundara Road BERRIDALE NSW 2628 PH: 0427 886 623 www.clmcivil.com.au			Client: Kosciuszko Thredbo Pty Ltd			
K	8/9/25	Revised Lot Layout							Road 1 Cross Sections Sheet 2		Status: For Development Approval	
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25									Datum: GDA94 / AHD	
I	22/01/25	Amended as per Kosciuszko Thredbo Comments							U-183		Scale: 1:200	Size: A3
H	28/08/24	Amended as per DPE Requirements (100% Issue)									Drawing Number	
G	30/07/24	Amended as per DPE Requirements (80% Issue)									Sheet	
F	04/07/24	Amended as per DPE Requirements (50% Issue)									Revision	
											10 of 45	
											K	

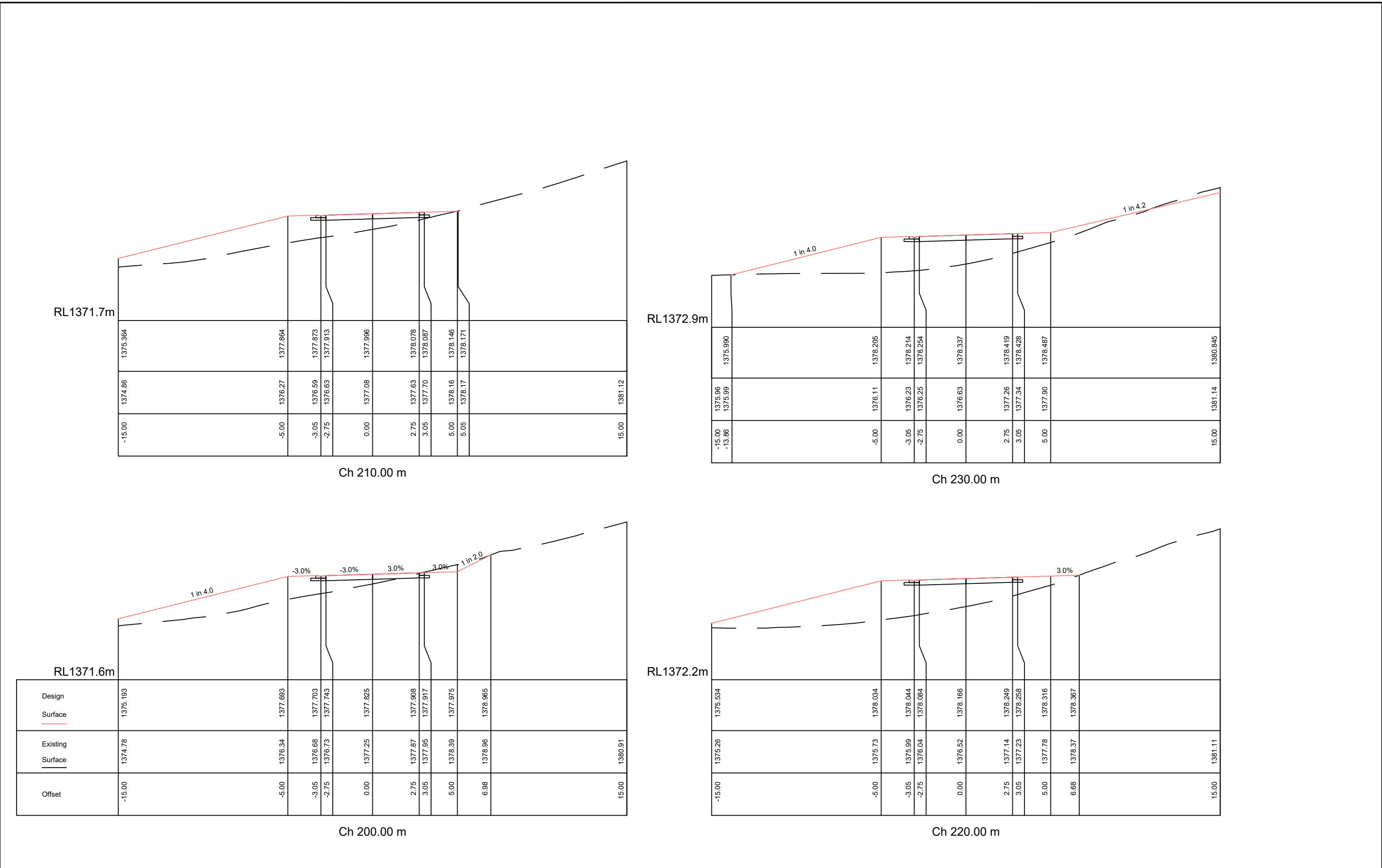


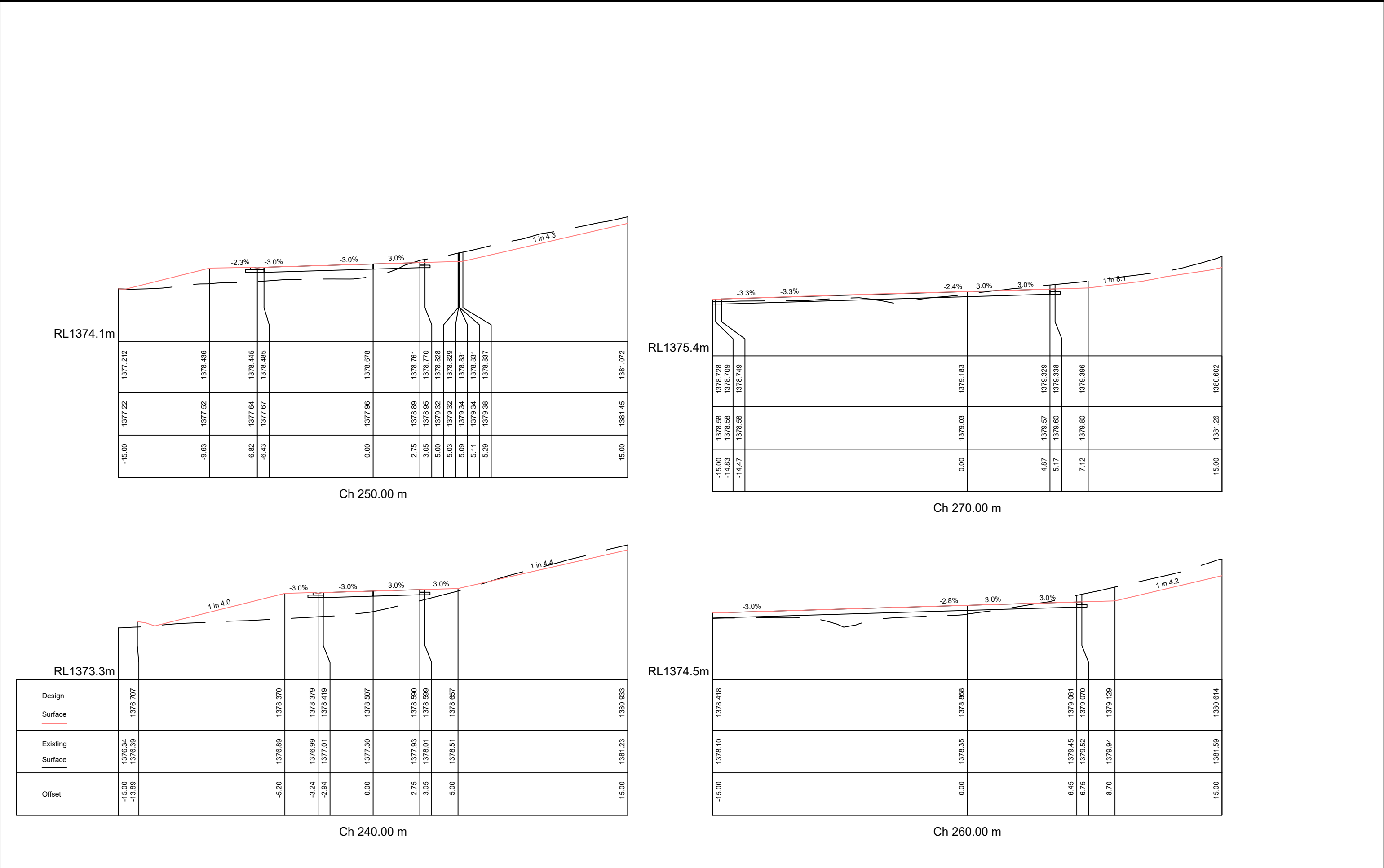


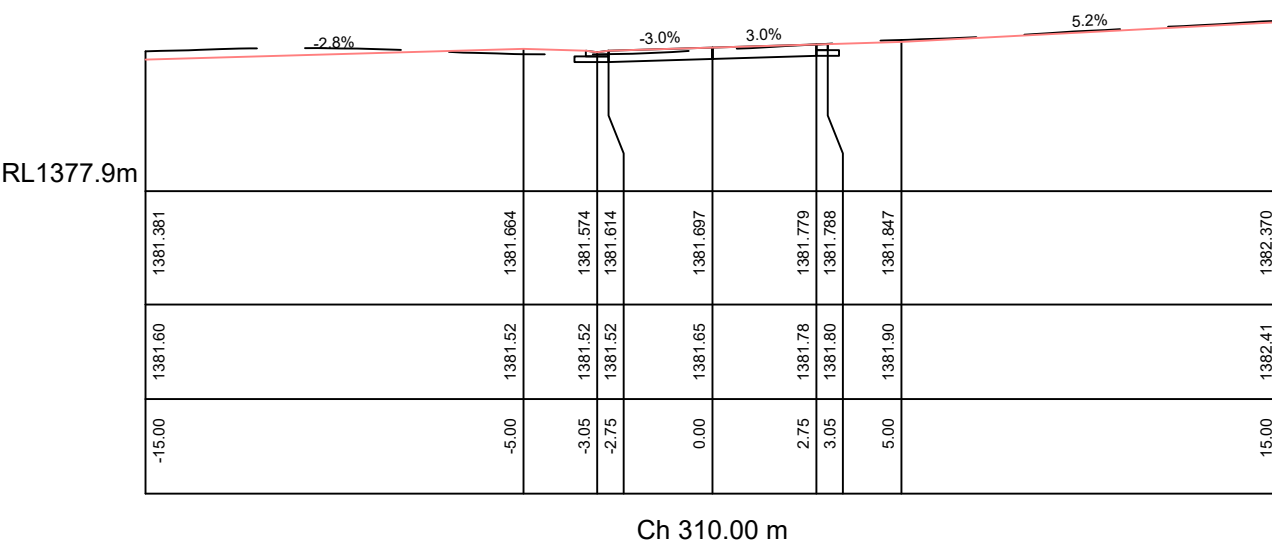
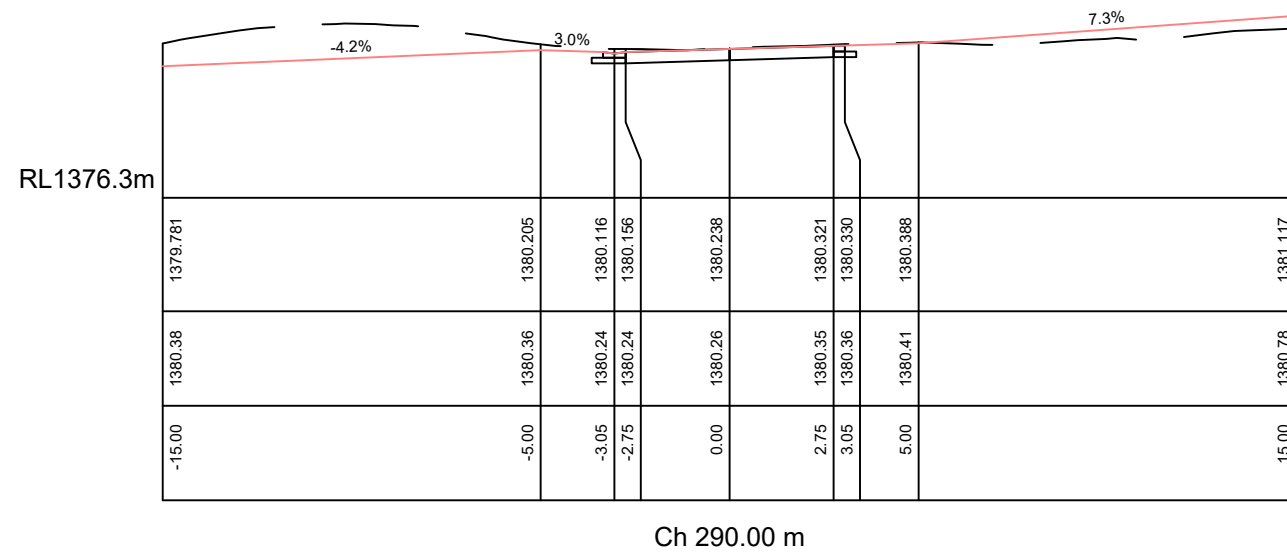


Rev	Date	Description	Thredbo Golf Course Subdivision Thredbo Village NSW	 CLM CIVIL Engineering 205 Bobundara Road BERRIDALE NSW 2628 PH: 0427 886 623 www.clmcivil.com.au	Client: Kosciuszko Thredbo Pty Ltd			
K	8/9/25	Revised Lot Layout			Road 1 Cross Sections Sheet 5	Status For Development Approval		
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25				Datum GDA94 / AHD		
I	22/01/25	Amended as per Kosciuszko Thredbo Comments				Scale 1:200		
H	28/08/24	Amended as per DPE Requirements (100% Issue)				Size A3		
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						Revision		



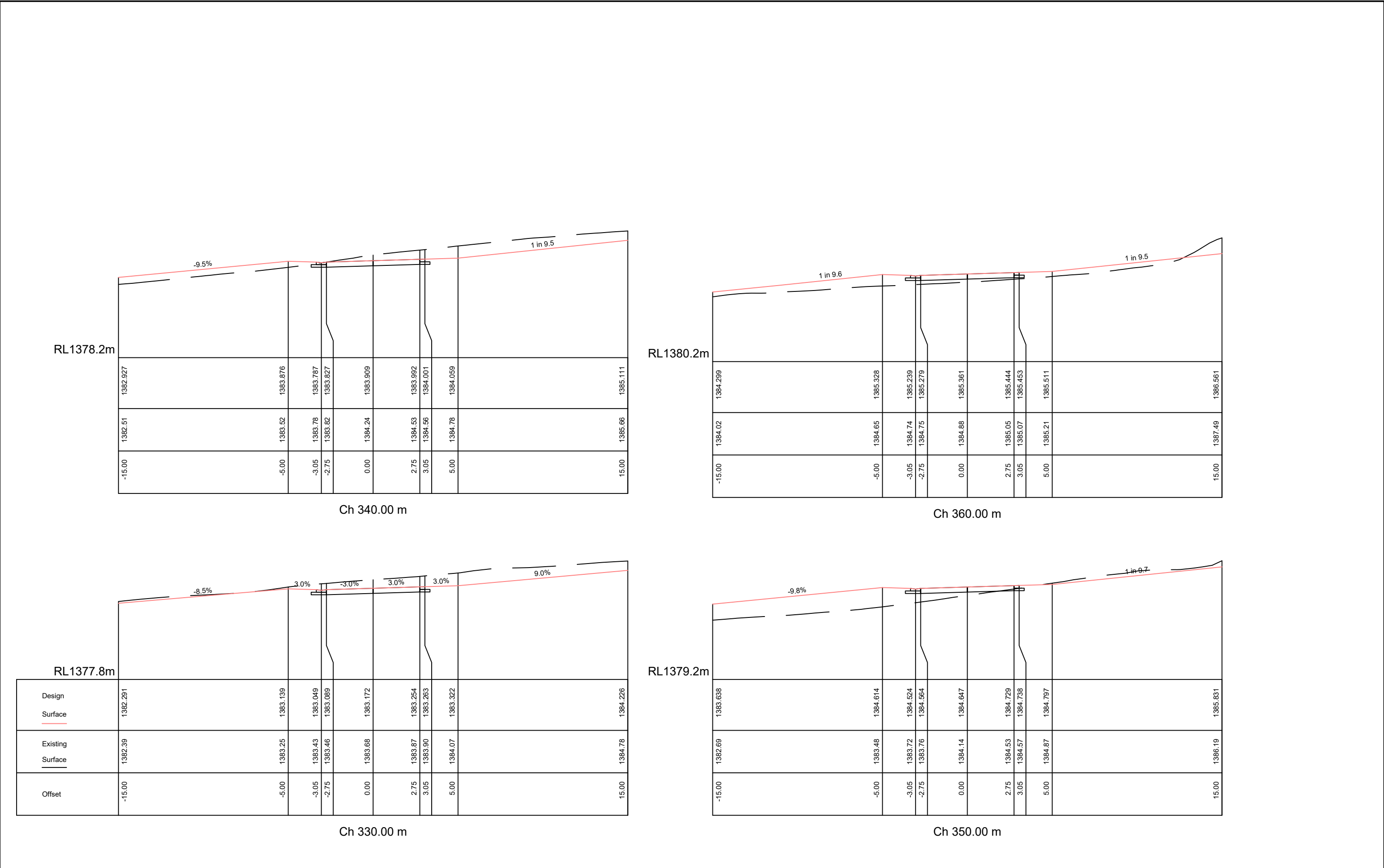


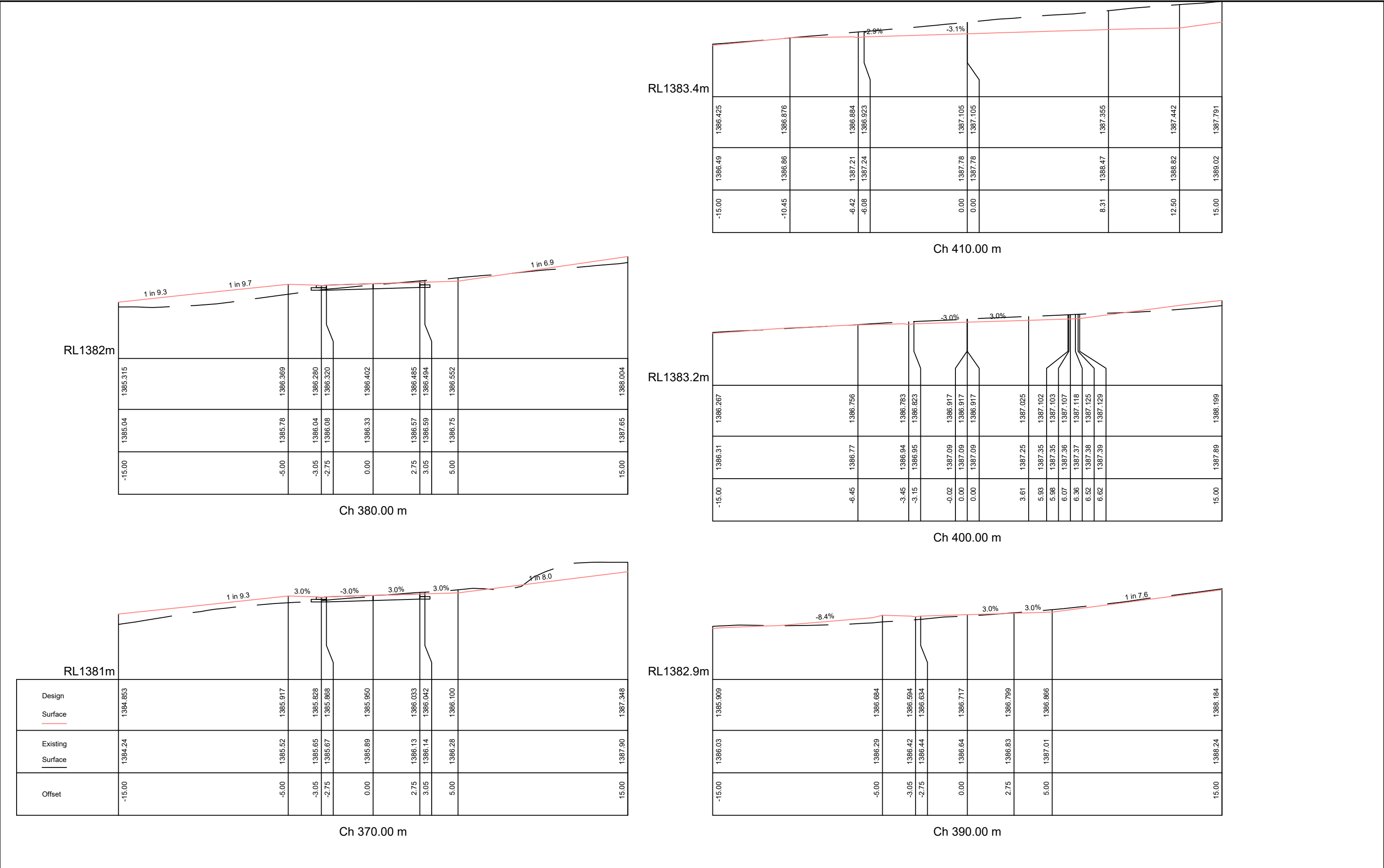




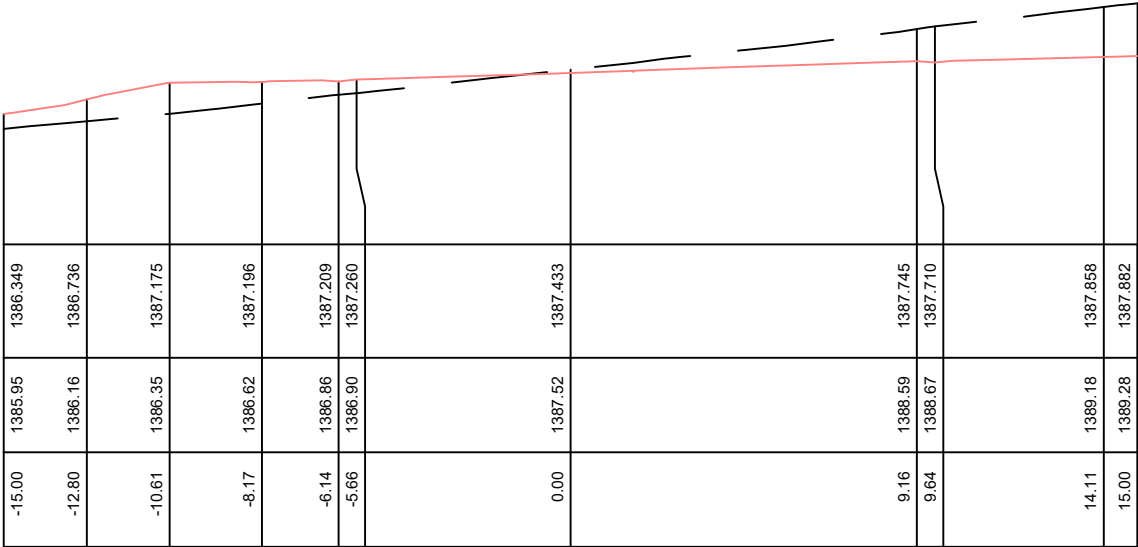
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Rev	Date	Description	Thredbo Golf Course Subdivision Thredbo Village NSW	 CLM CIVIL Engineering 205 Bobundara Road BERRIDALE NSW 2628 PH: 0427 886 623 www.clmcivil.com.au	Client: Kosciuszko Thredbo Pty Ltd Road 1 Cross Sections Sheet 10	Status: For Development Approval		
K	8/9/25	Revised Lot Layout				Datum: GDA94 / AHD	Scale: 1:200	Size: A3
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25				Drawing Number: U-183	Sheet: 18 of 45	Revision: K
I	22/01/25	Amended as per Kosciuszko Thredbo Comments						
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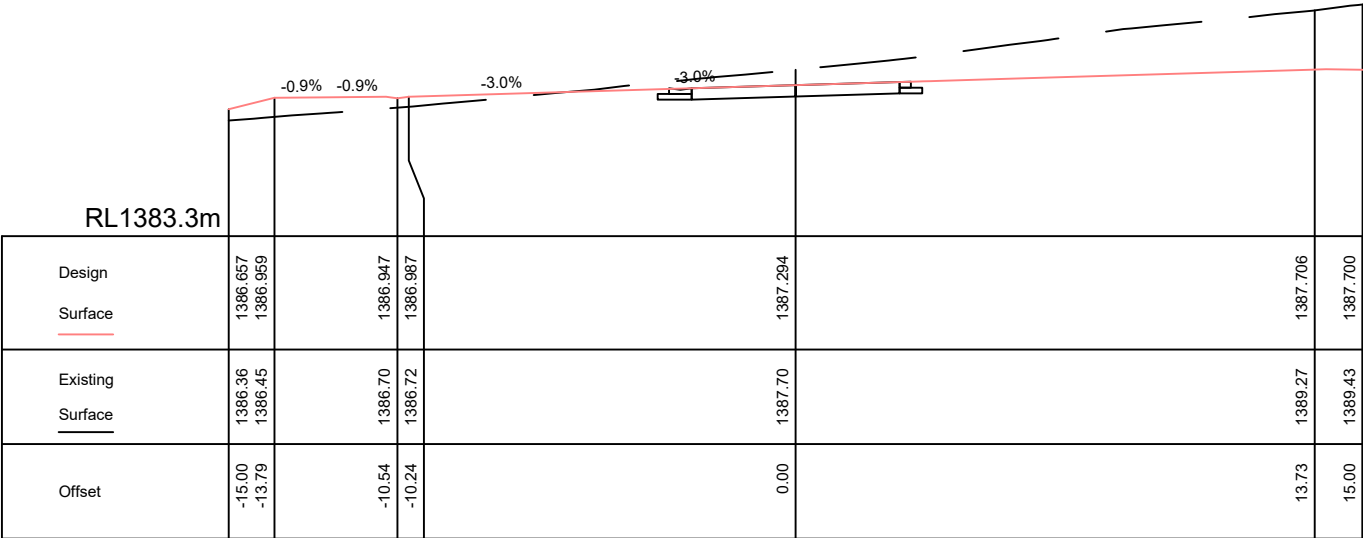


RL1382.9m



Ch 430.00 m

RL1383.3m



Ch 420.00 m

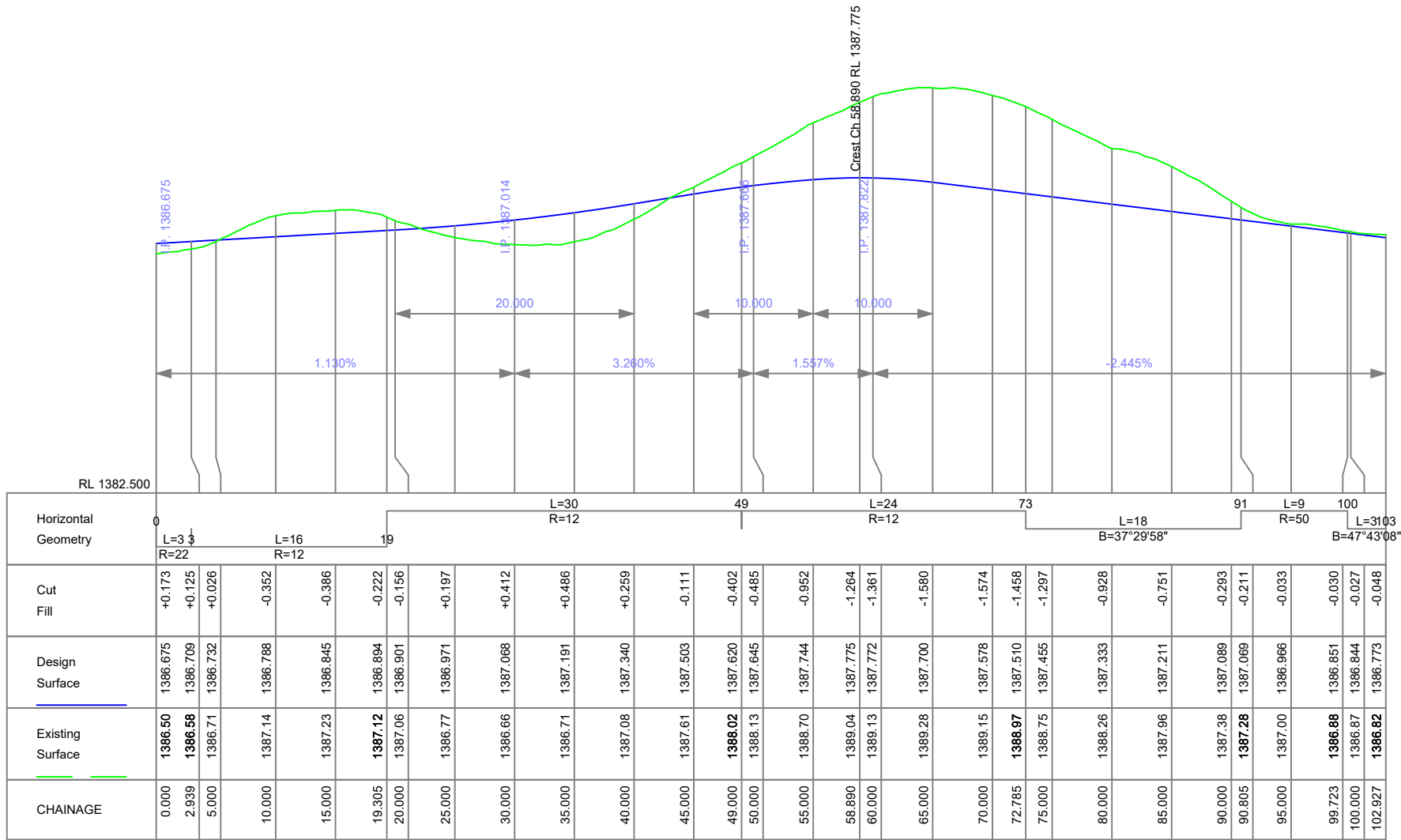
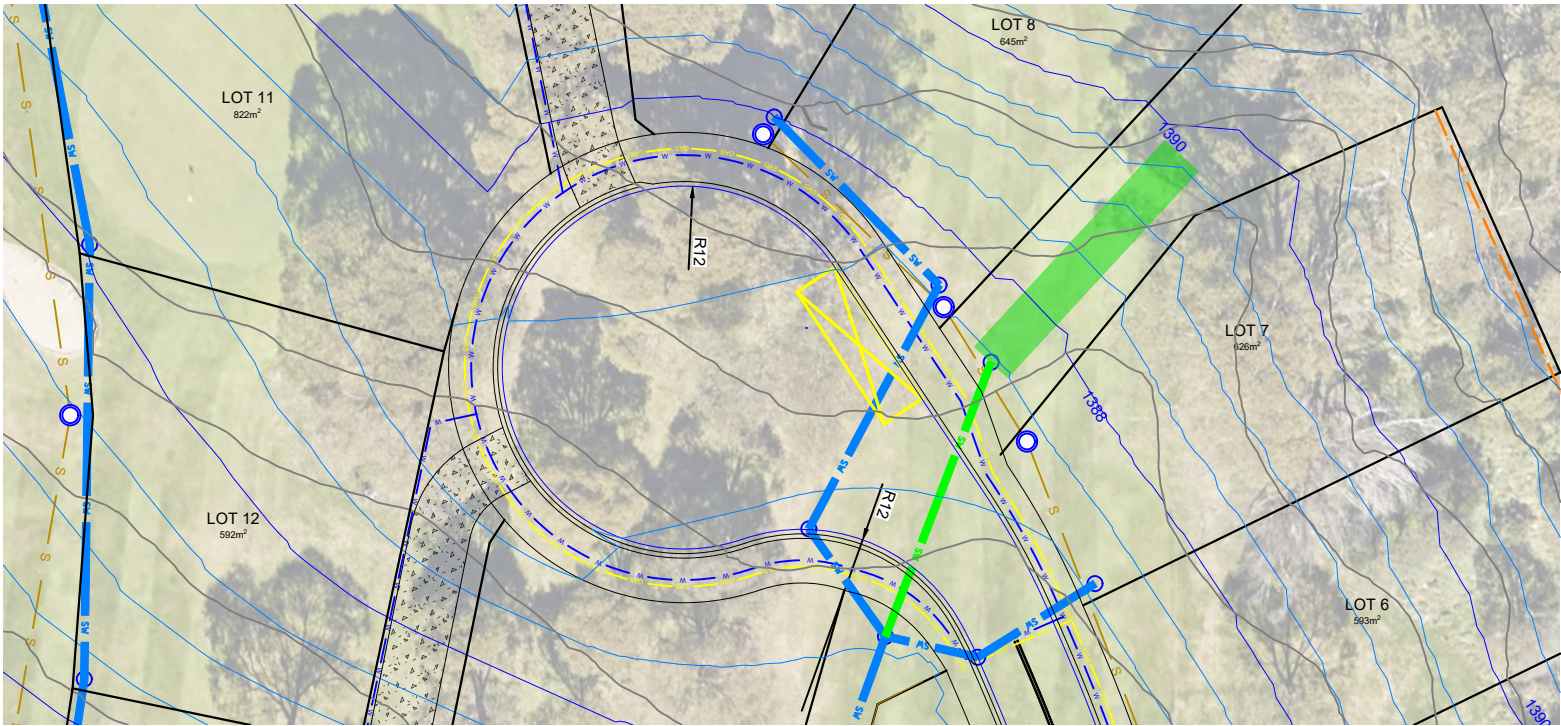
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Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd			
Road 1 Cross Section Sheet 13		Status For Development Approval	
		Datum GDA94 / AHD	Scale 1:200
		Sheet U-183	Size A3
		Revision 21 of 45	K



LONGITUDINAL SECTION
GR-CDS Ch 0.000 to Ch 102.927
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

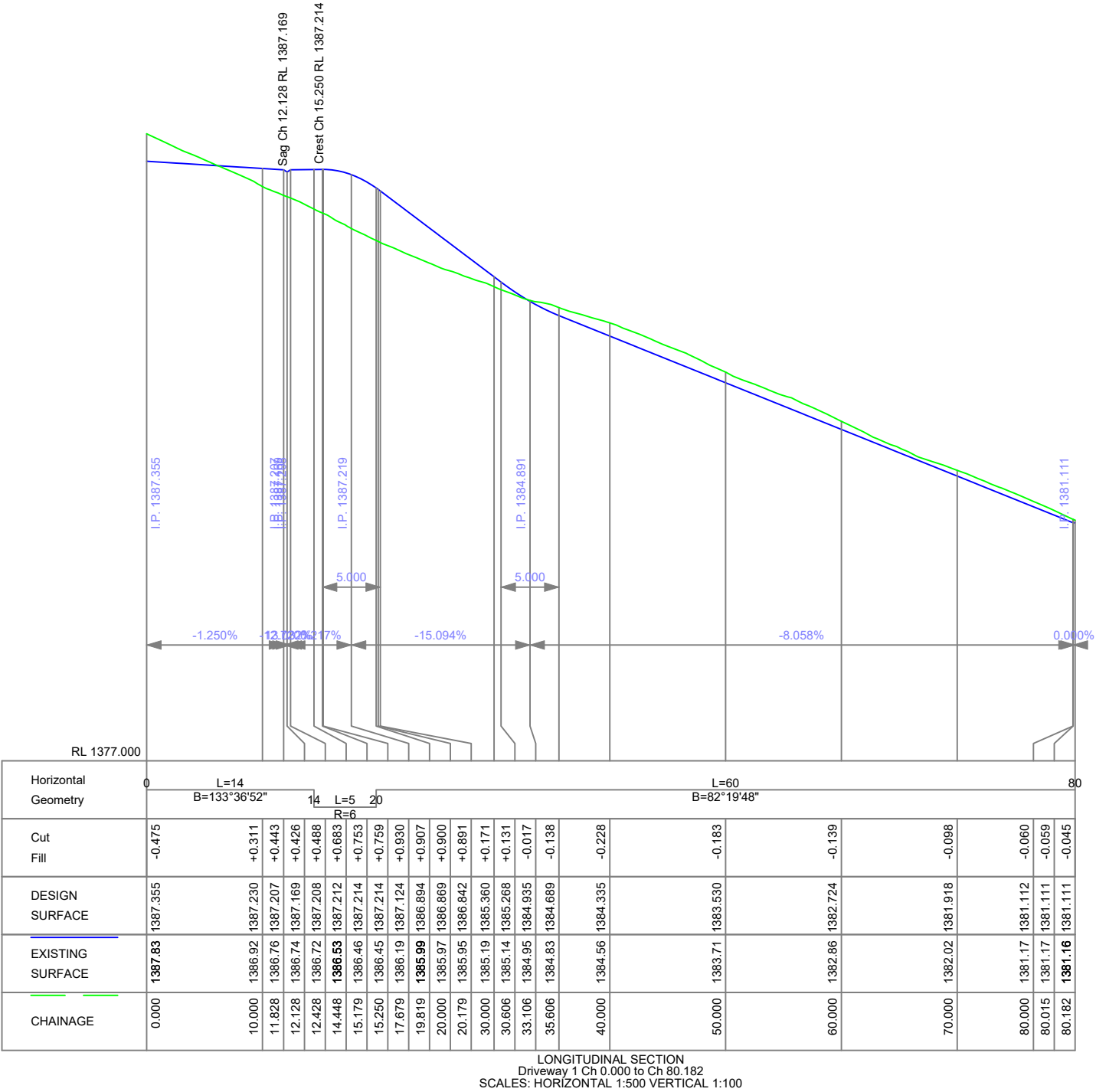
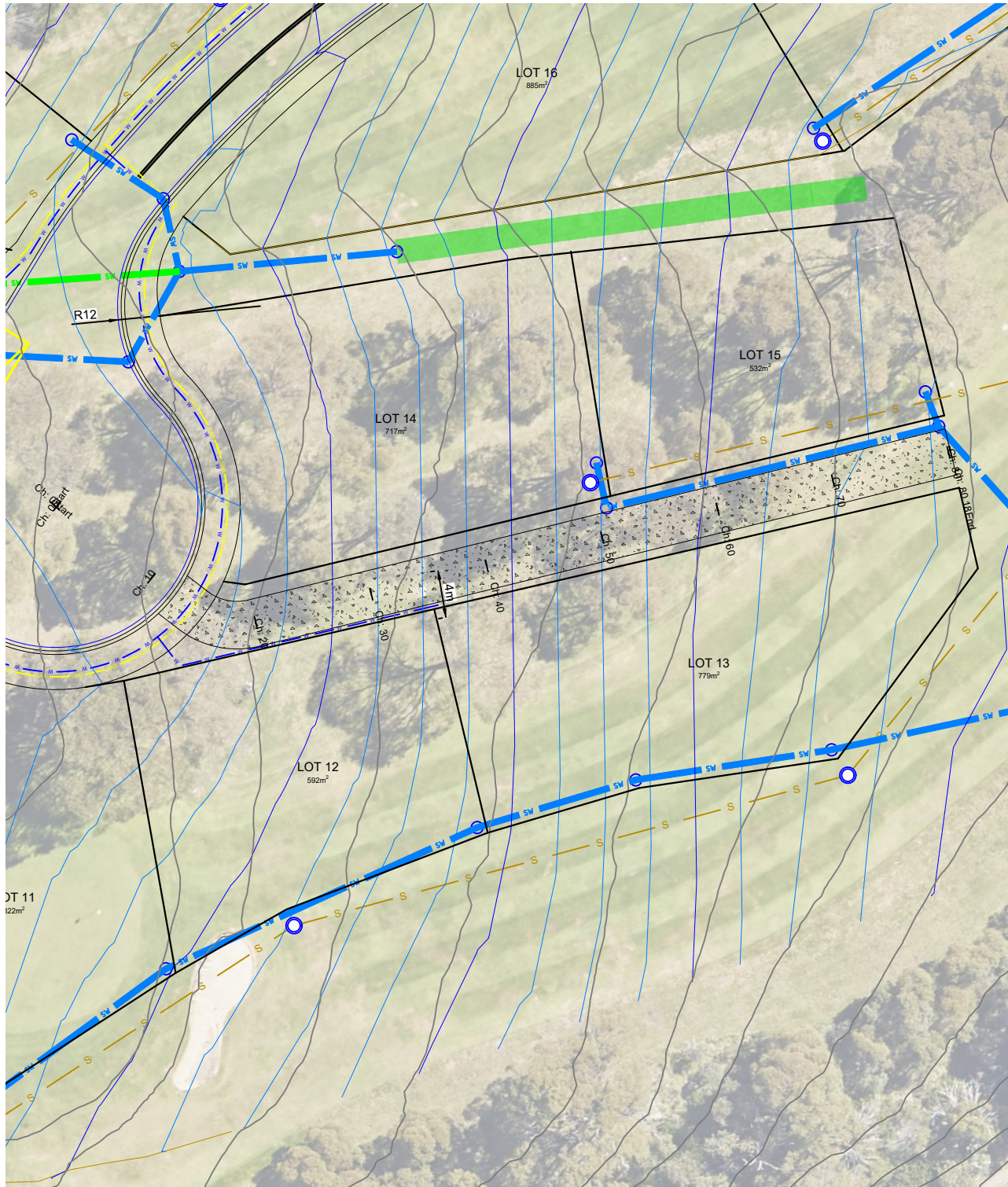
Rev	Date	Description
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Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd			
Culdesac Kerb Return Details		Status For Development Approval	
		Datum GDA94 / AHD	Scale 1:500
		Sheet U-183	Size A3
		Revision 22 of 45	K



Rev	Date	Description
K	8/9/25	Revised Lot Layout
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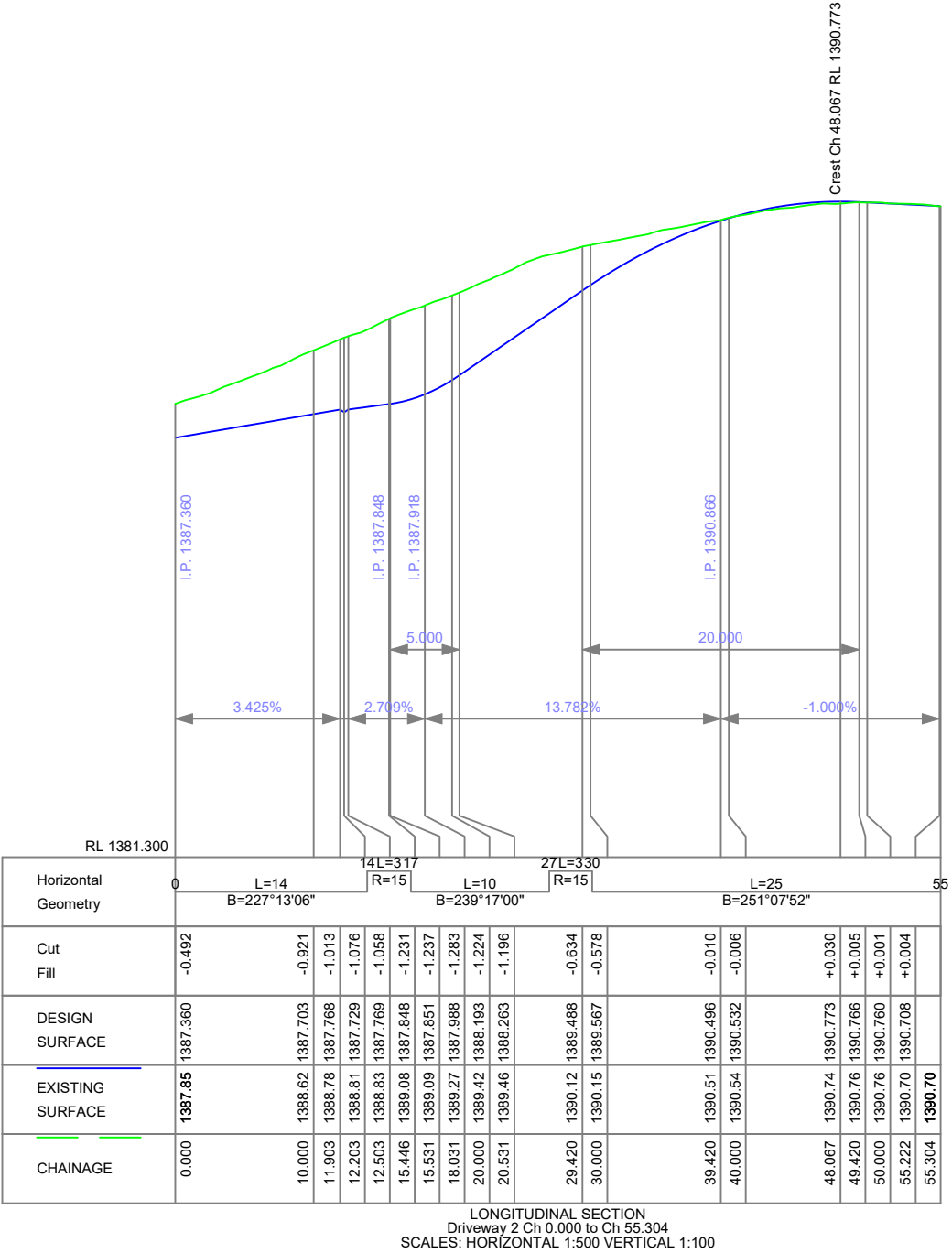
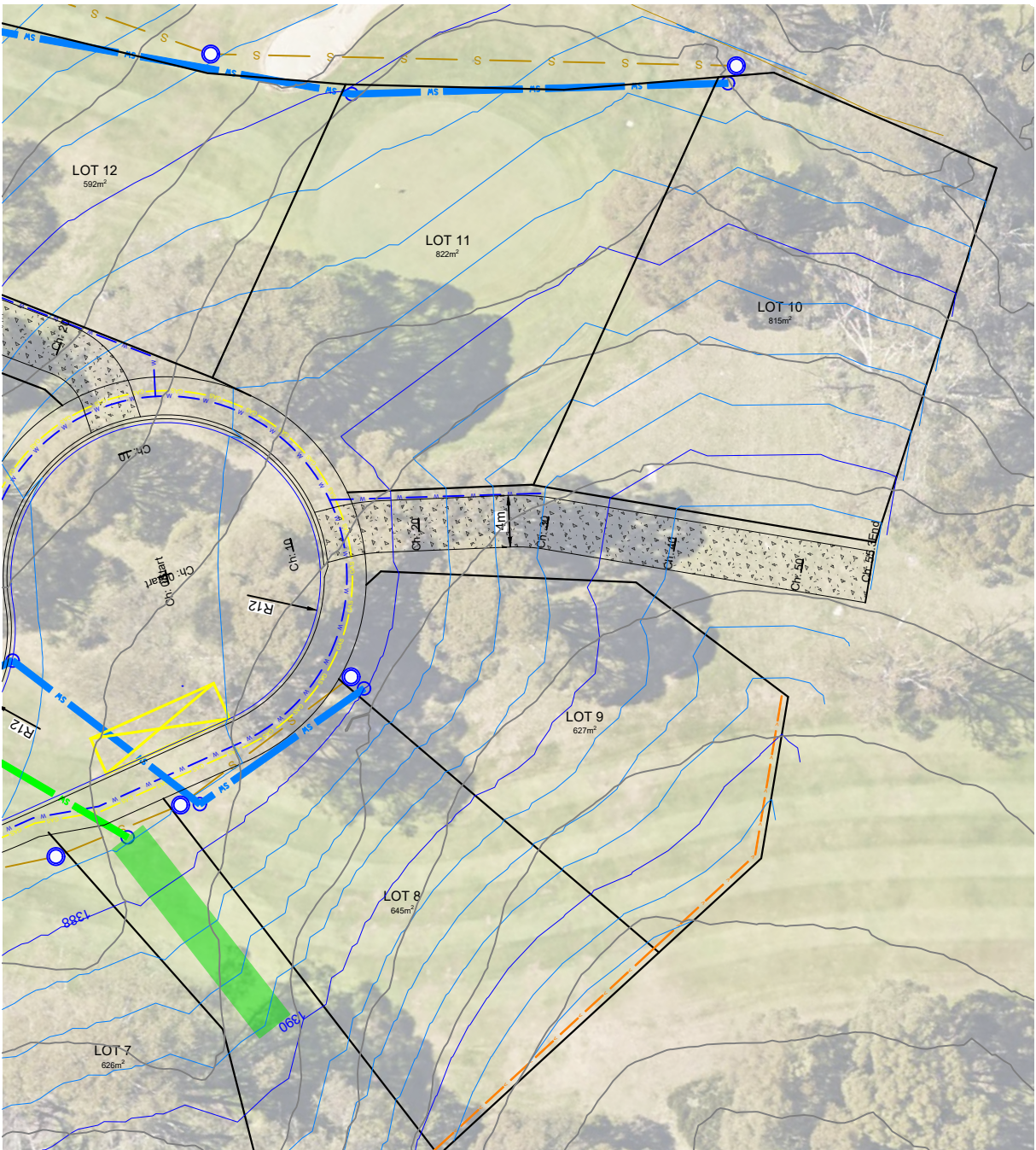
Client: Kosciuszko Thredbo Pty Ltd

Driveway 1 Longitudinal Section

Status: For Development Approval

Datum: GDA94 / AHD Scale: 1:500 Size: A3

Drawing Number: U-183 Sheet: 23 of 45 Revision: K



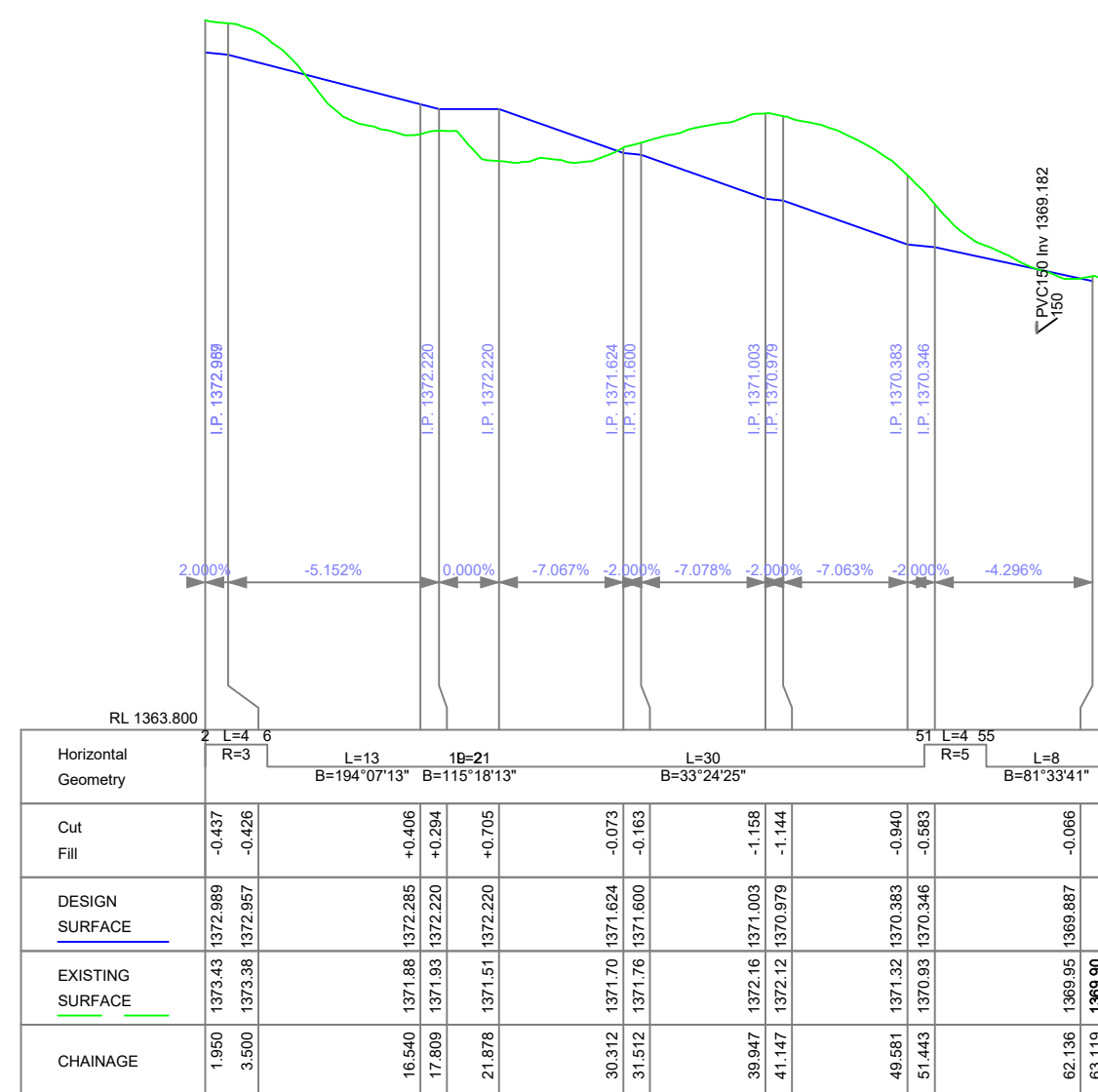
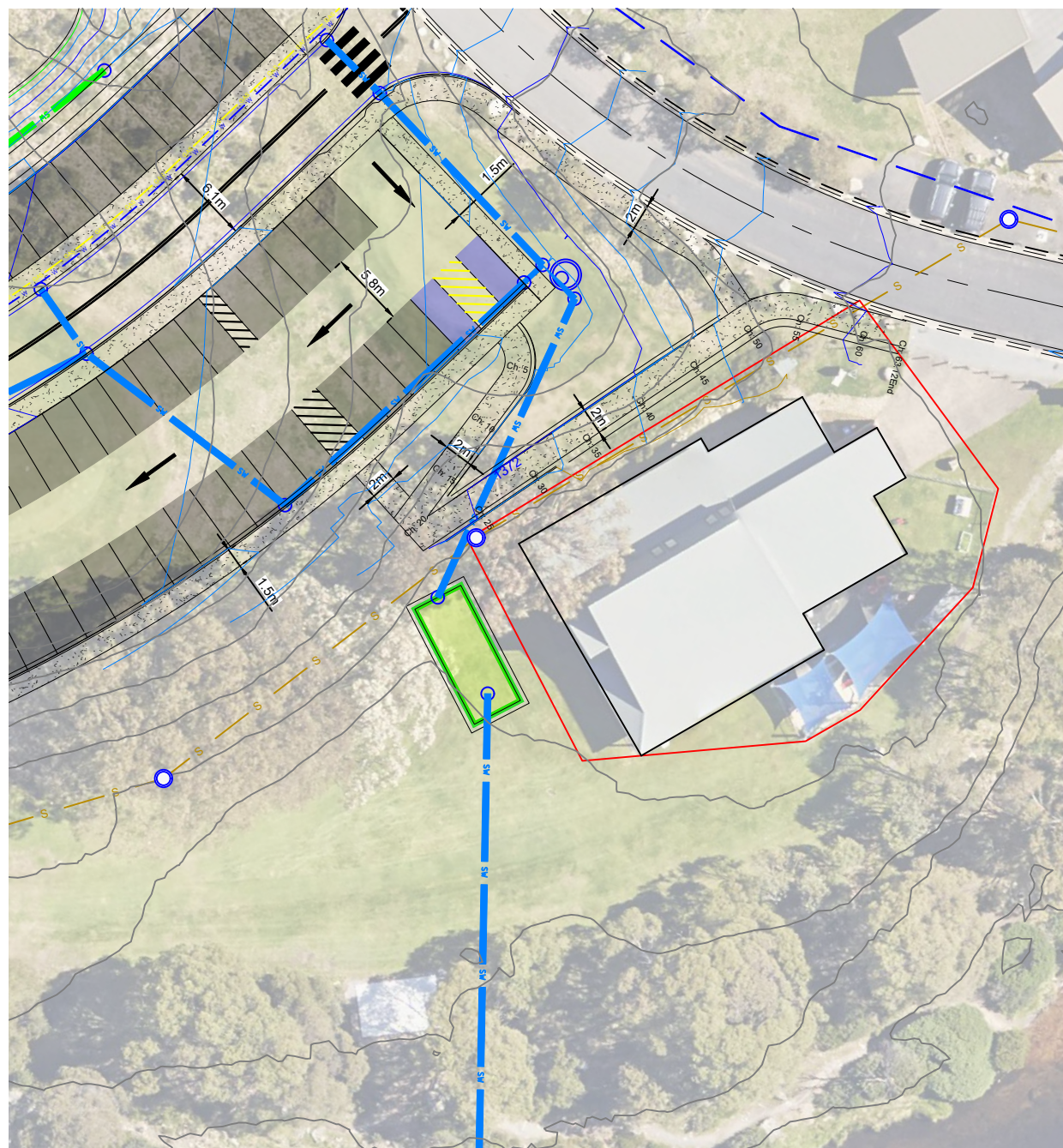
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Client: Kosciuszko Thredbo Pty Ltd			Status: For Development Approval		
Drawing Number: U-183		Scale: 1:500		Sheet: 24 of 45	
Revision: K		Date: GDA94 / AHD		Size: A3	



LONGITUDINAL SECTION
GR-NEW Accessible Path Ch 1.950 to Ch 63.119
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

Rev	Date	Description
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I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

Thredbo Golf Course Subdivision
Thredbo Village NSW



CLM CiViL Engineering
205 Bobundara Road
BERRIDALE NSW 2628
PH: 0427 886 623
www.clmcivil.com.au

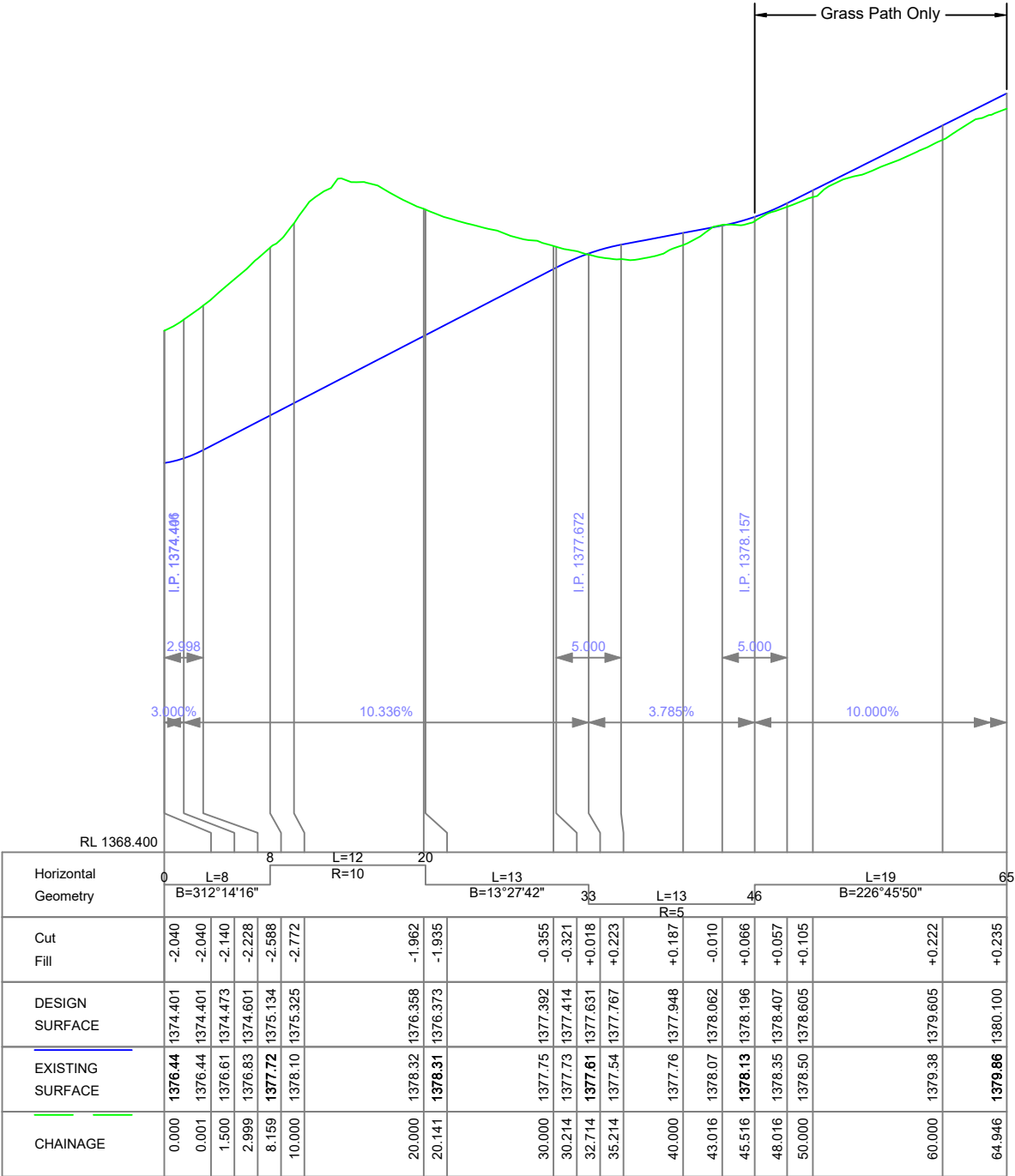
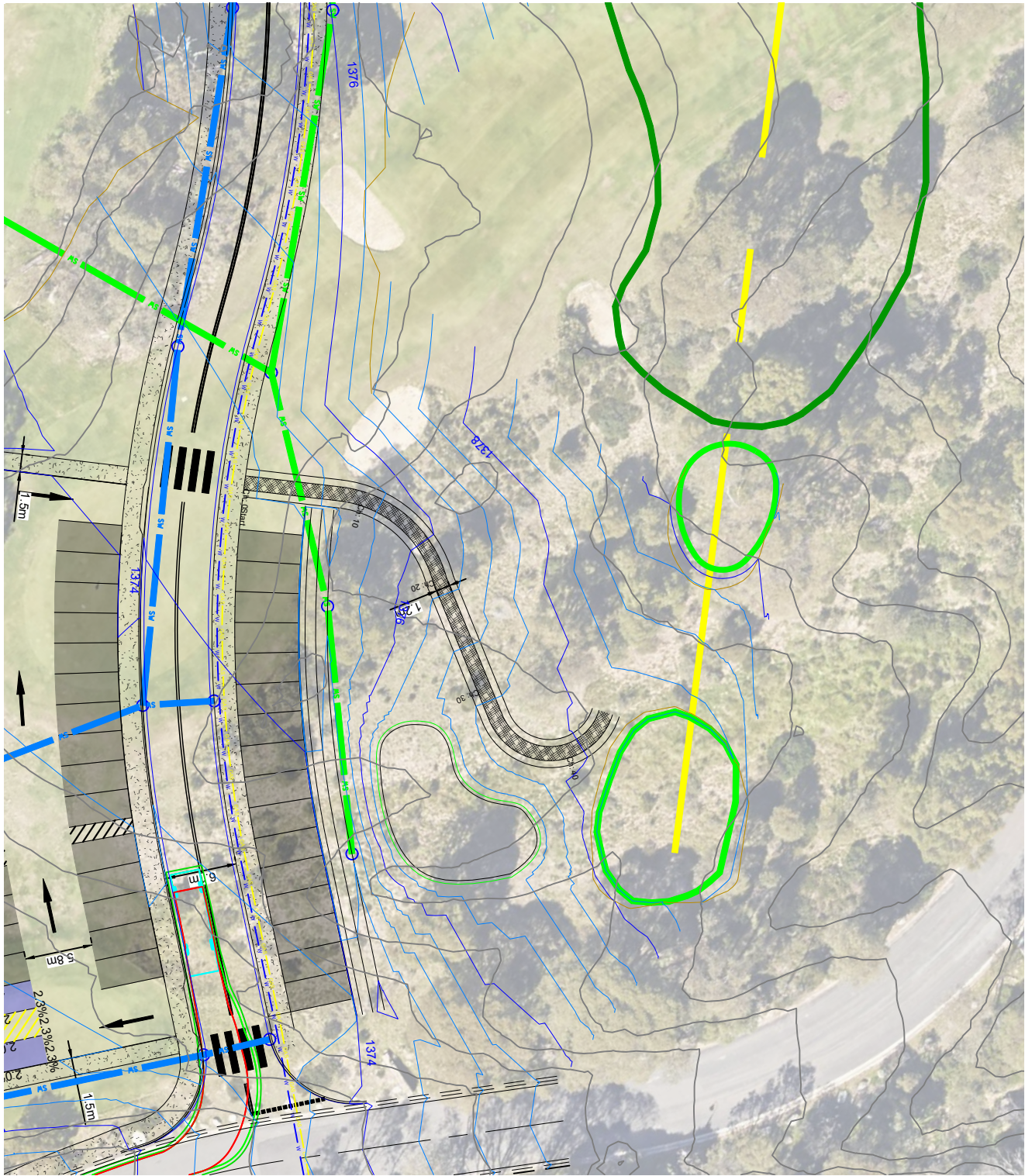
Client:	Kosciuszko Thredbo Pty Ltd
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Accessible Path to Community Centre

Status	For Development Approval
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Datum	Scale	Size
GDA94 / AHD	1:500	A3

Drawing Number	Sheet
U-183	25 of 45



LONGITUDINAL SECTION
GR-1st Tee Path Ch 0.000 to Ch 64.946
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

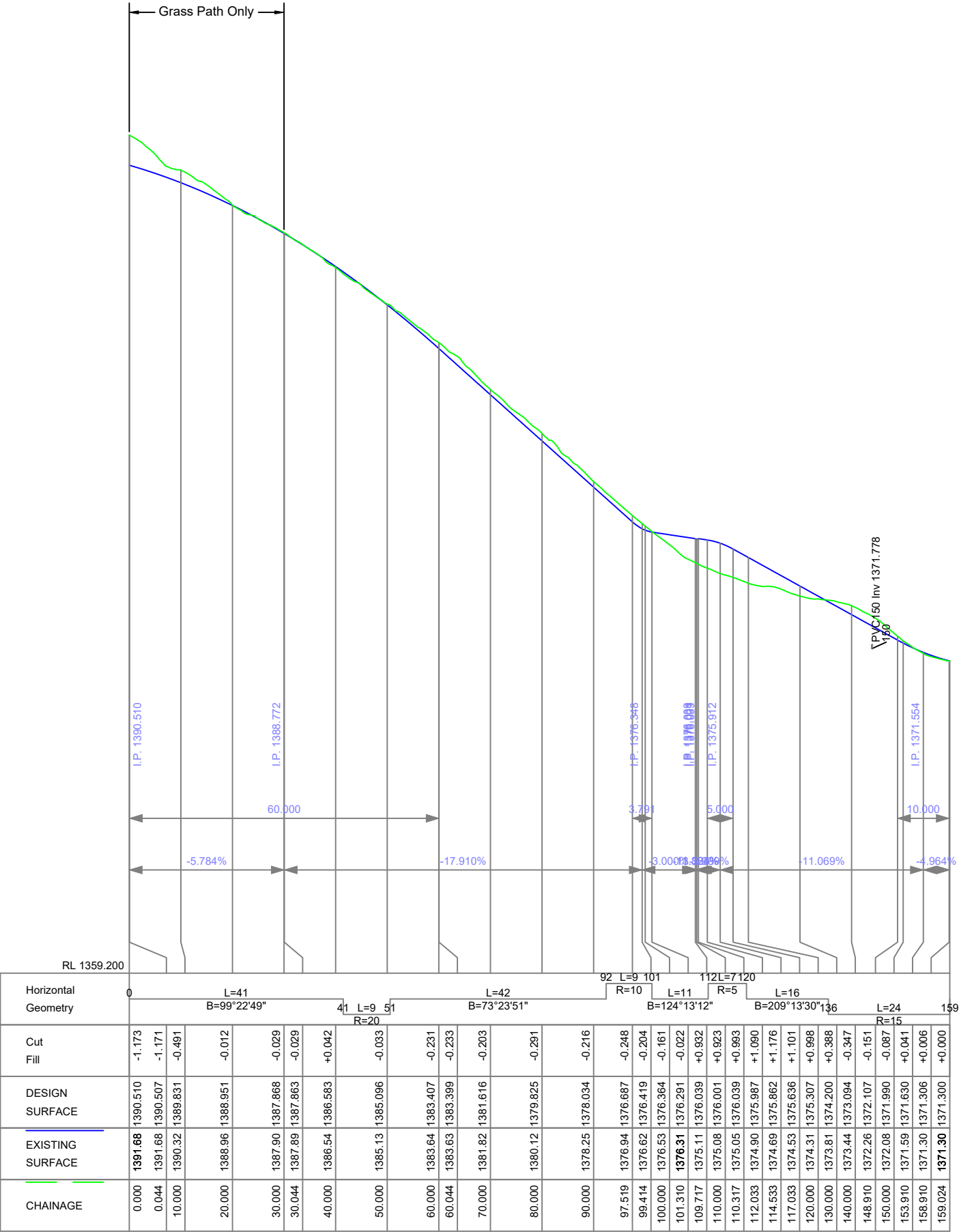
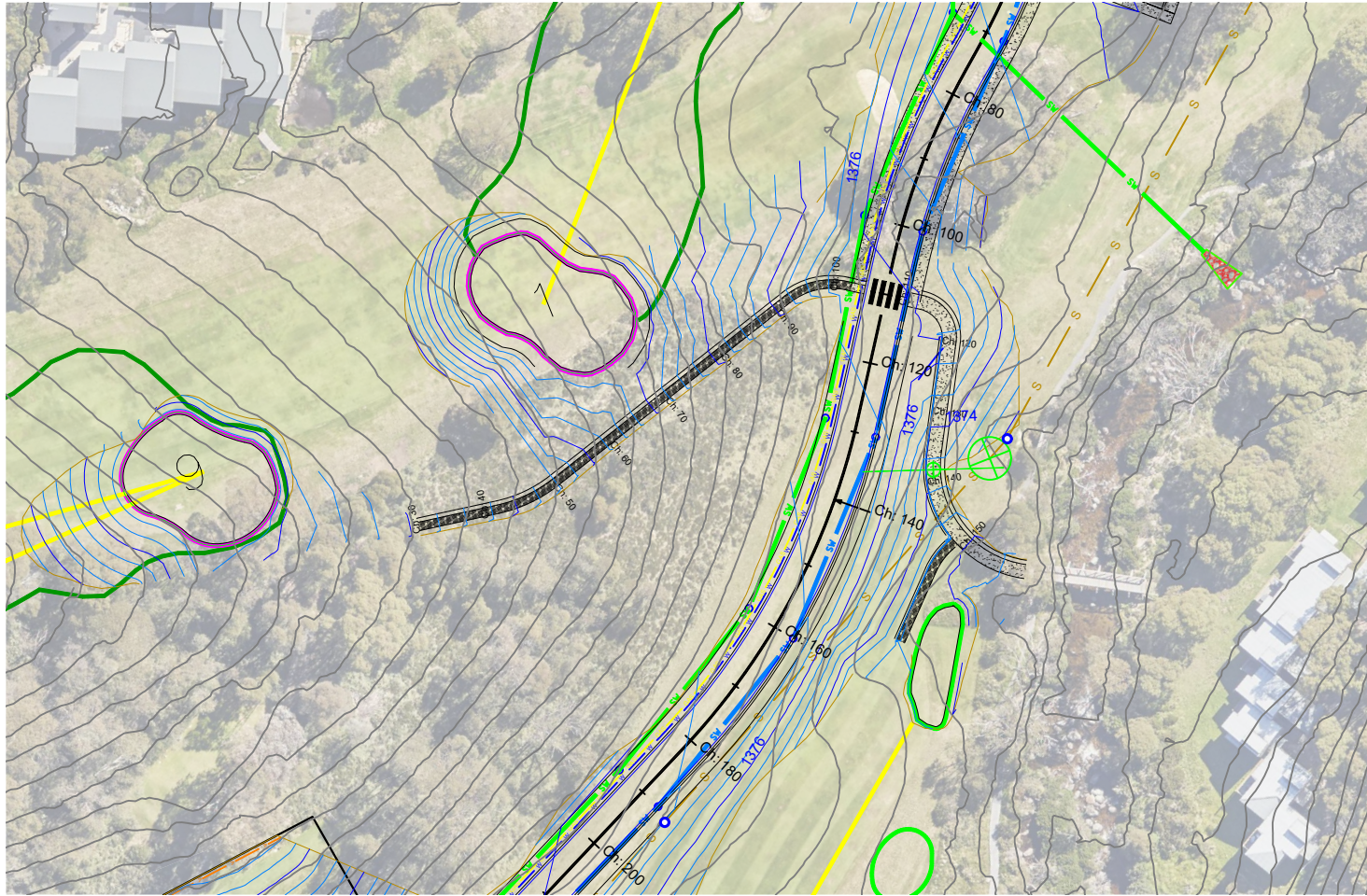
Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

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Client: Kosciuszko Thredbo Pty Ltd			
1st Tee Path		Status: For Development Approval	
		Datum: GDA94 / AHD	Scale: 1:500
		Sheet: U-183	Size: A3
		Revision: 26 of 45	K



Horizontal Geometry	0	L=41 B=99°22'49"										41	L=42 B=73°23'51"										82	L=9 B=124°13'12"										91	L=16 B=209°13'30"136										101	L=24 B=151°13'30"136										111	L=7 B=122°17'120"										118	L=12 B=122°17'120"										130	L=12 B=122°17'120"										142	L=12 B=122°17'120"										154	L=12 B=122°17'120"										166	L=12 B=122°17'120"										178	L=12 B=122°17'120"										190	L=12 B=122°17'120"										202	L=12 B=122°17'120"										214	L=12 B=122°17'120"										226	L=12 B=122°17'120"										238	L=12 B=122°17'120"										250	L=12 B=122°17'120"										262	L=12 B=122°17'120"										274	L=12 B=122°17'120"										286	L=12 B=122°17'120"										298	L=12 B=122°17'120"										310	L=12 B=122°17'120"										322	L=12 B=122°17'120"										334	L=12 B=122°17'120"										346	L=12 B=122°17'120"										358	L=12 B=122°17'120"										370	L=12 B=122°17'120"										382	L=12 B=122°17'120"										394	L=12 B=122°17'120"										406	L=12 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LONGITUDINAL SECTION
GR-9th Green to 2nd Tee Ch 0.000 to Ch 159.024
SCALES: HORIZONTAL 1:1000 VERTICAL 1:200

Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

Thredbo Golf Course Subdivision
Thredbo Village NSW



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BERRIDALE NSW 2628
PH: 0427 886 623
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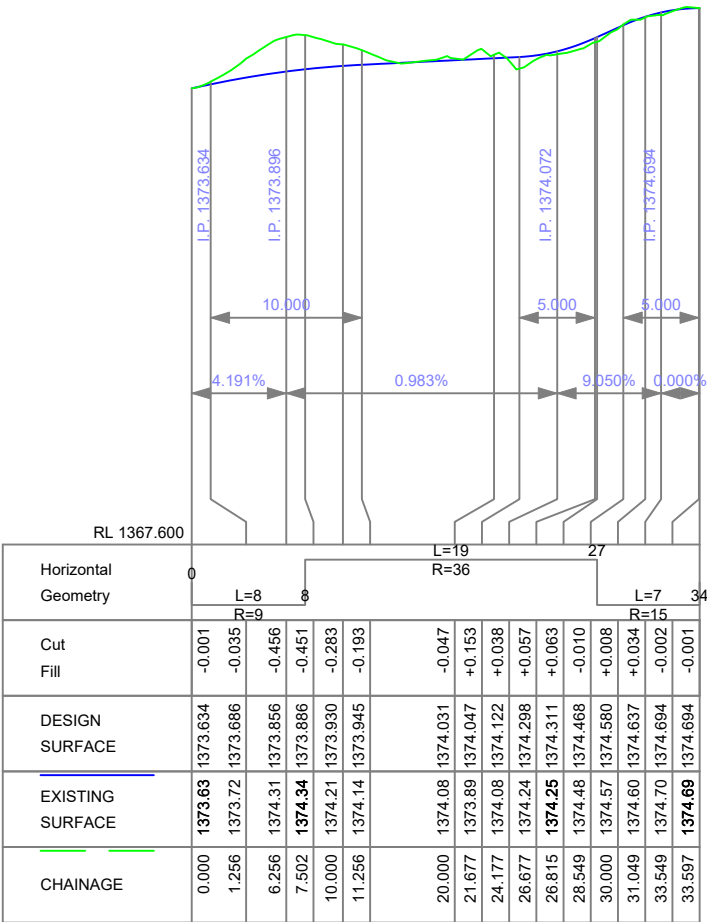
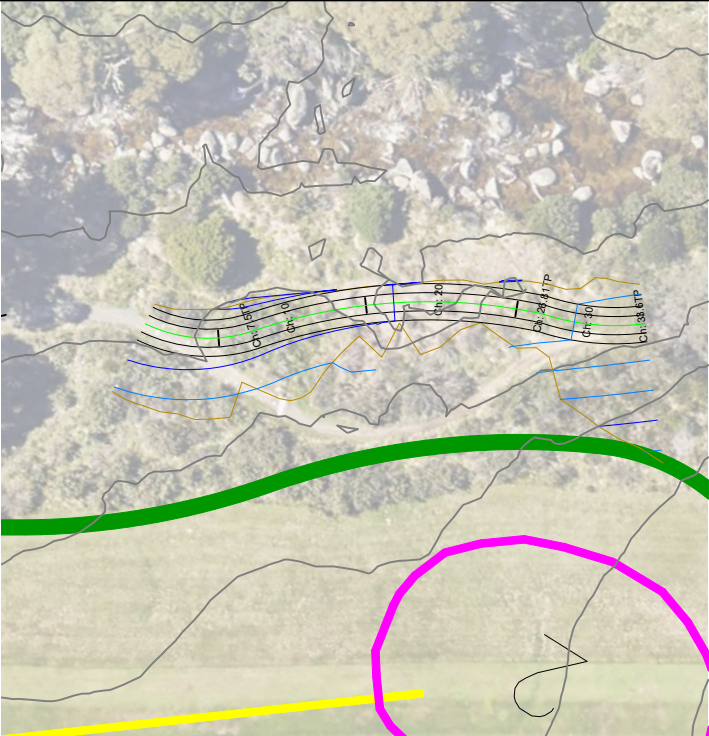
Client: Kosciuszko Thredbo Pty Ltd

9th Green to 2nd Tee Path

Status: For Development Approval

Datum: GDA94 / AHD Scale: 1:1000 Size: A3

Drawing Number: U-183 Sheet: 27 of 45 Revision: K



LONGITUDINAL SECTION
Path 2nd Green Ch 0.000 to Ch 33.597
SCALES: HORIZONTAL 1:500 VERTICAL 1:100

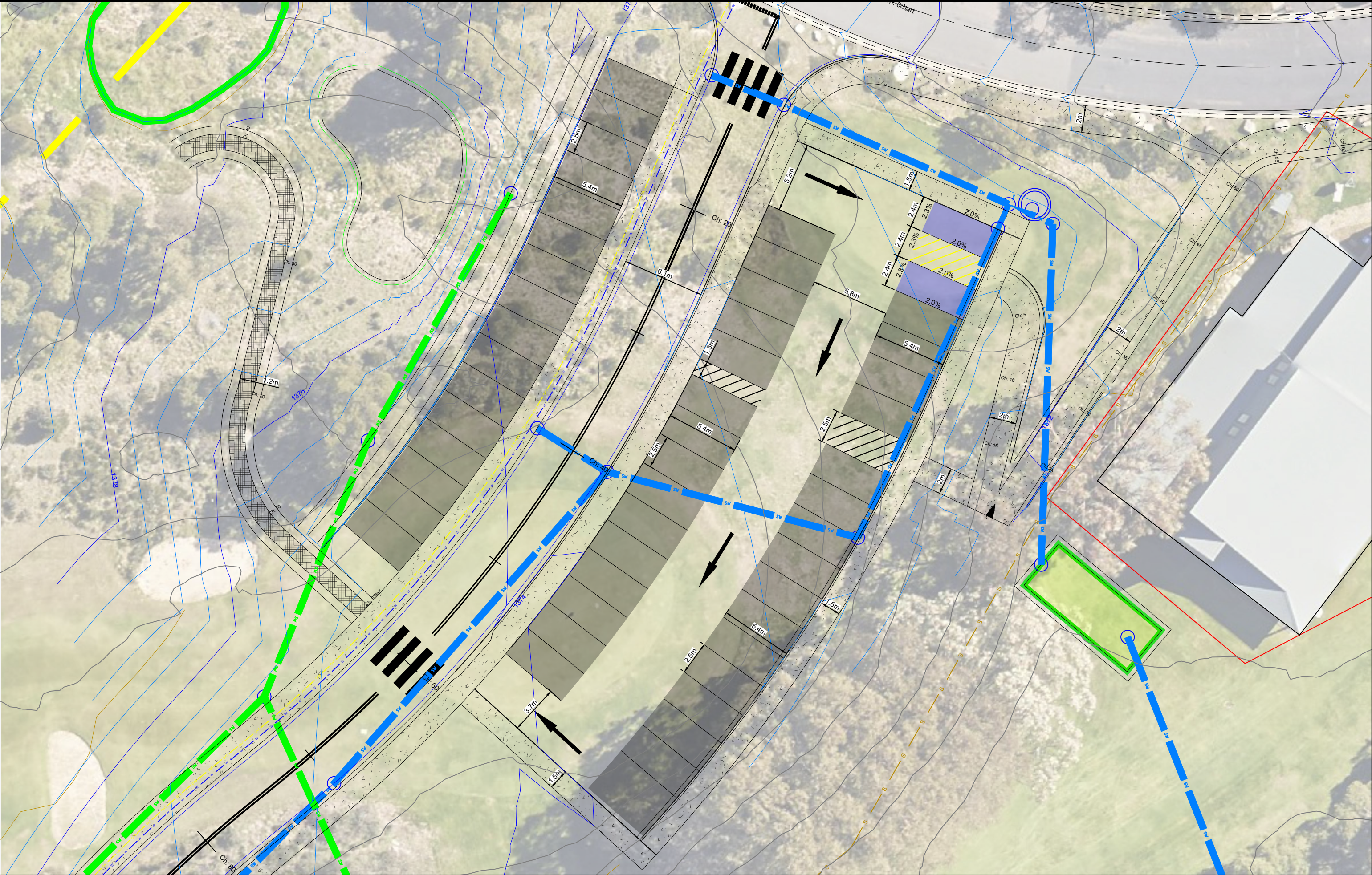
Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

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Client: Kosciuszko Thredbo Pty Ltd			
Path Realignment at New 2nd Green		Status For Development Approval	
		Datum GDA94 / AHD	Scale AS SHOWN
		Sheet U-183	Size A3
		Revision 28 of 45	K



Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

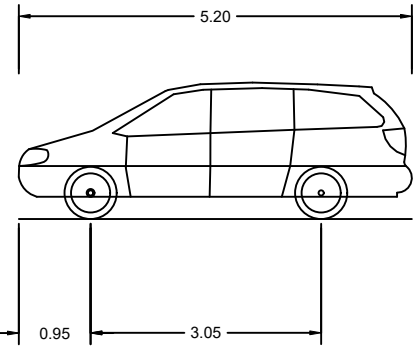
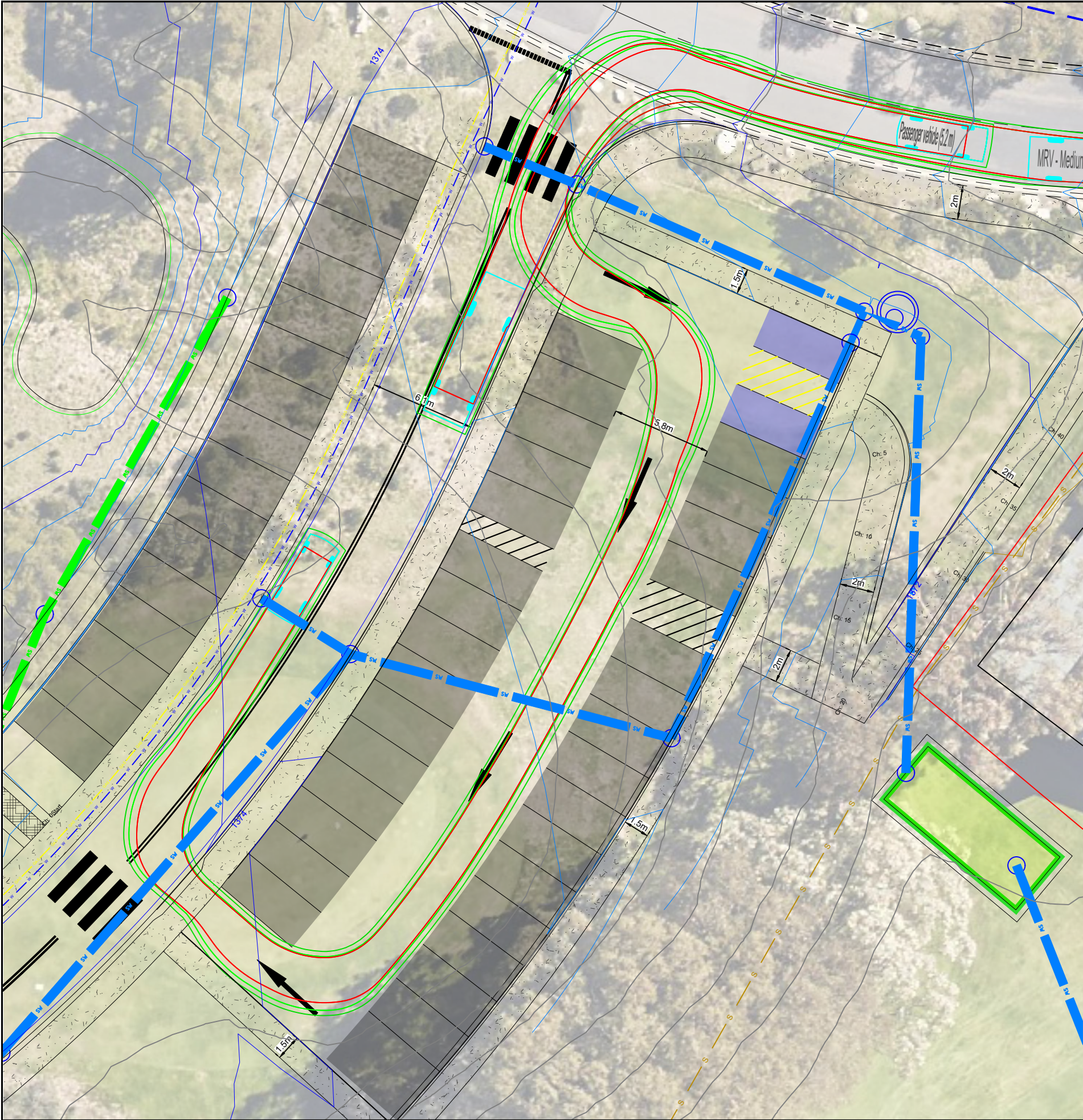
Thredbo Golf Course Subdivision

Thredbo Village NSW

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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Carpark Dimensions	Datum: GDA94 / AHD	Scale: 1:250	Size: A3
	Drawing Number: U-183	Sheet: 29 of 45	Revision: K



Passenger vehicle (5.2 m)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.804m
Min Body Ground Clearance	0.295m
Track Width	1.840m
Lock-to-lock time	4.00s
Kerb to Kerb Turning Radius	6.300m

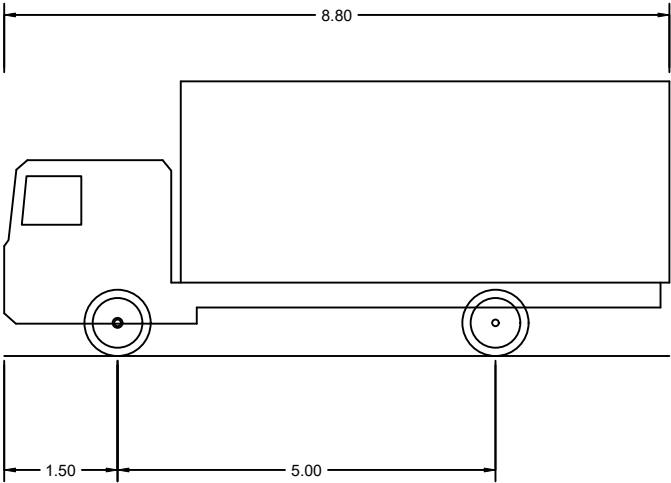
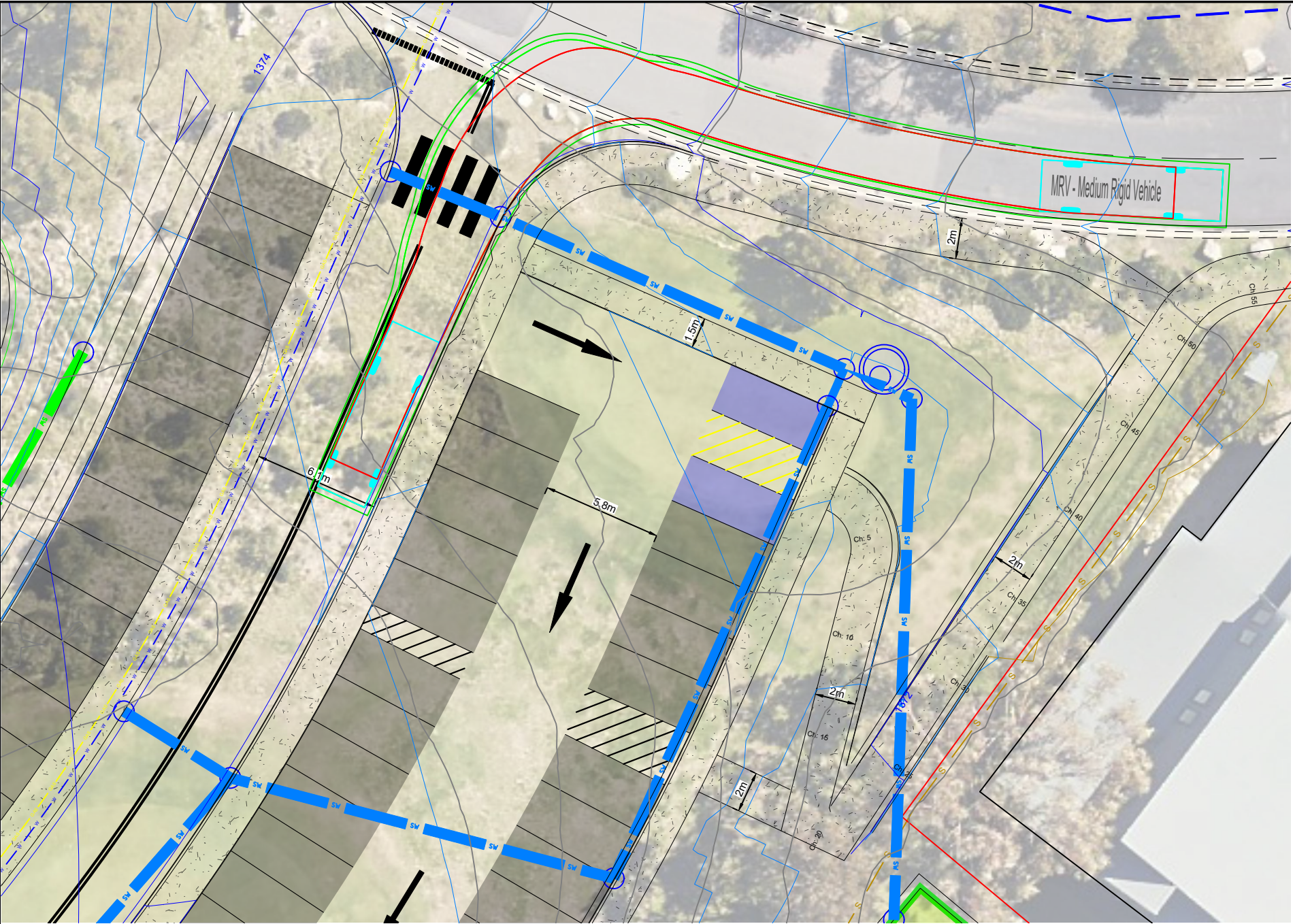
Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
5.2m Passenger Vehicle Swept Path through Carpark		Datum: GDA94 / AHD	Scale: 1:250
Drawing Number: U-183		Sheet: 30 of 45	Revision: K



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Kerb to Kerb Turning Radius	9.000m

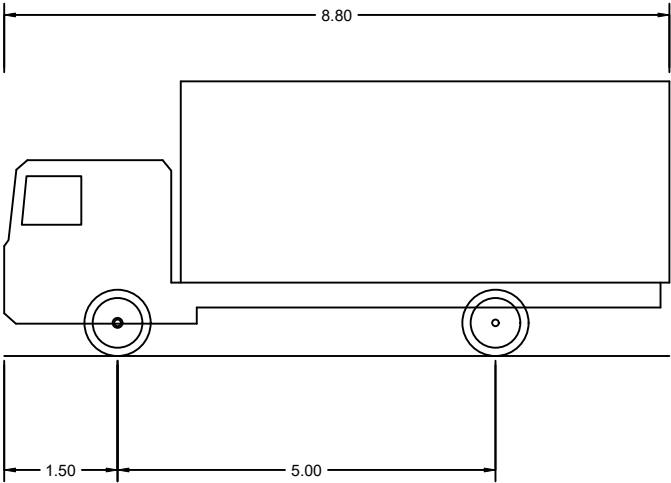
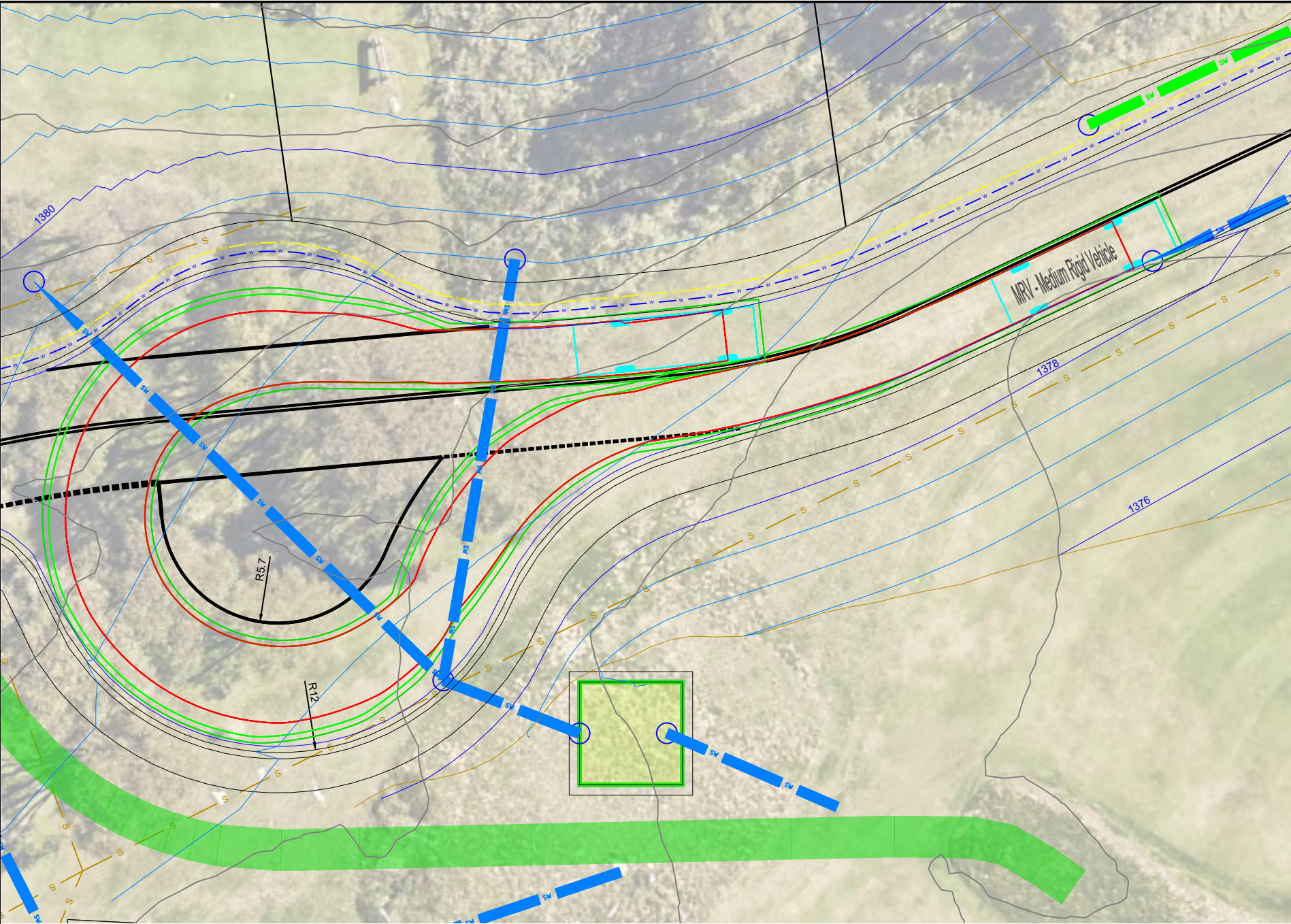
Rev	Date	Description
K	8/9/25	Revised Lot Layout
J	7/02/25	Amended as per Kosciuszko Thredbo Comments 31/1/25
I	22/01/25	Amended as per Kosciuszko Thredbo Comments
H	28/08/24	Amended as per DPE Requirements (100% Issue)
G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

Thredbo Golf Course Subdivision
Thredbo Village NSW



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Client: Kosciuszko Thredbo Pty Ltd			
8.8m Service Vehicle / Medium Rigid Vehicle Swept Path Entry onto Road 1		Status: For Development Approval	
Datum: GDA94 / AHD	Scale: 1:250	Size: A3	
Drawing Number: U-183	Sheet: 31 of 45	Revision: K	



MRV - Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Kerb to Kerb Turning Radius 9.000m

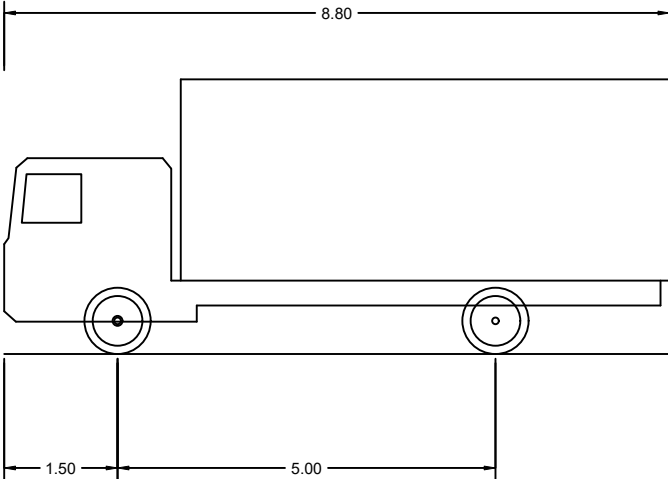
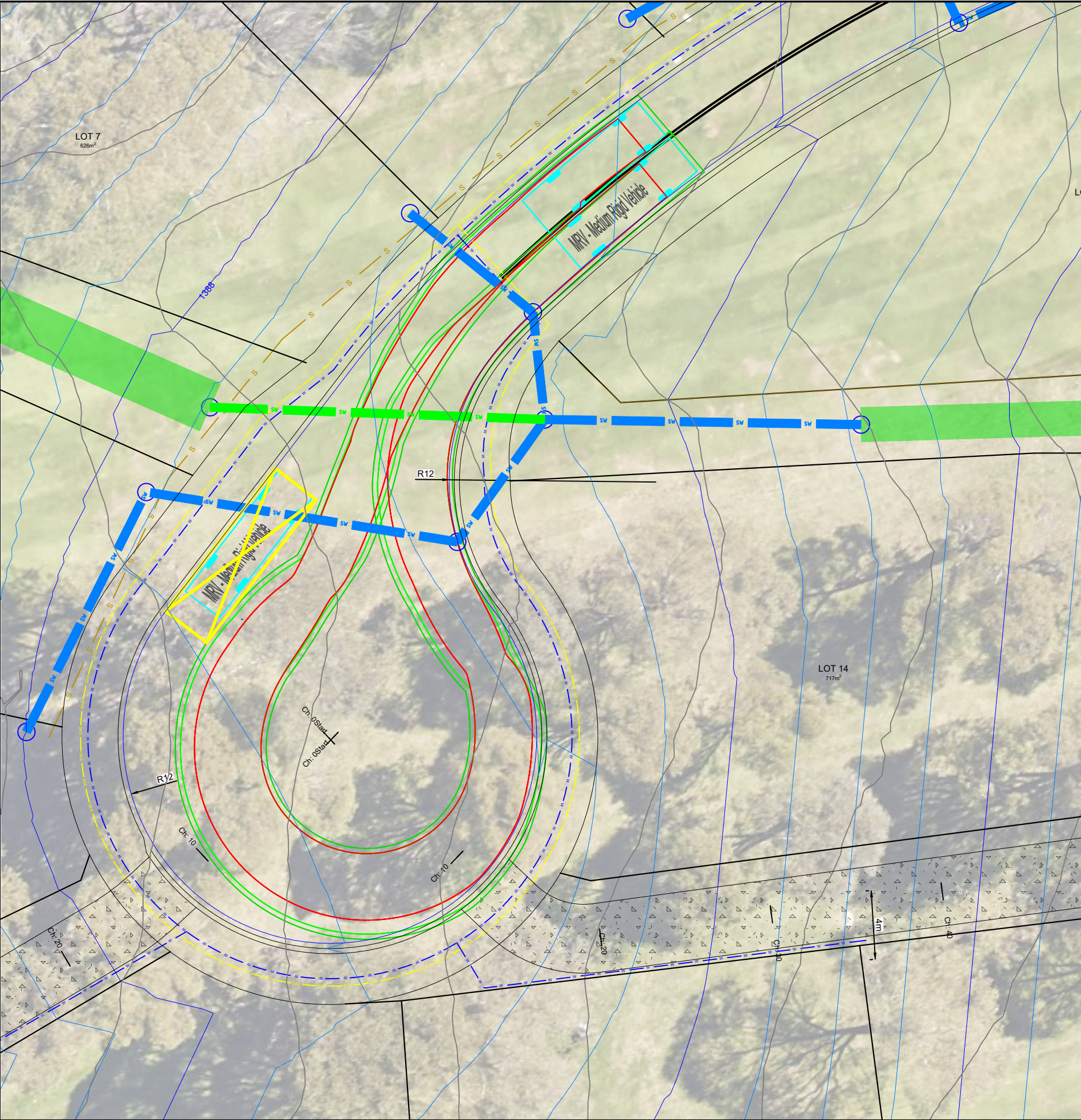
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I	22/01/25	Amended as per Kosciuszko Thredbo Comments
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G	30/07/24	Amended as per DPE Requirements (80% Issue)
F	04/07/24	Amended as per DPE Requirements (50% Issue)

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Client: Kosciuszko Thredbo Pty Ltd			
8.8m Service Vehicle / Medium Rigid Vehicle Swept Path through U-Turn Bay		Status For Development Approval	
		Datum GDA94 / AHD	Scale 1:250
Drawing Number U-183		Sheet 32 of 45	Size A3
		Revision K	



MRV - Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Kerb to Kerb Turning Radius 9.000m

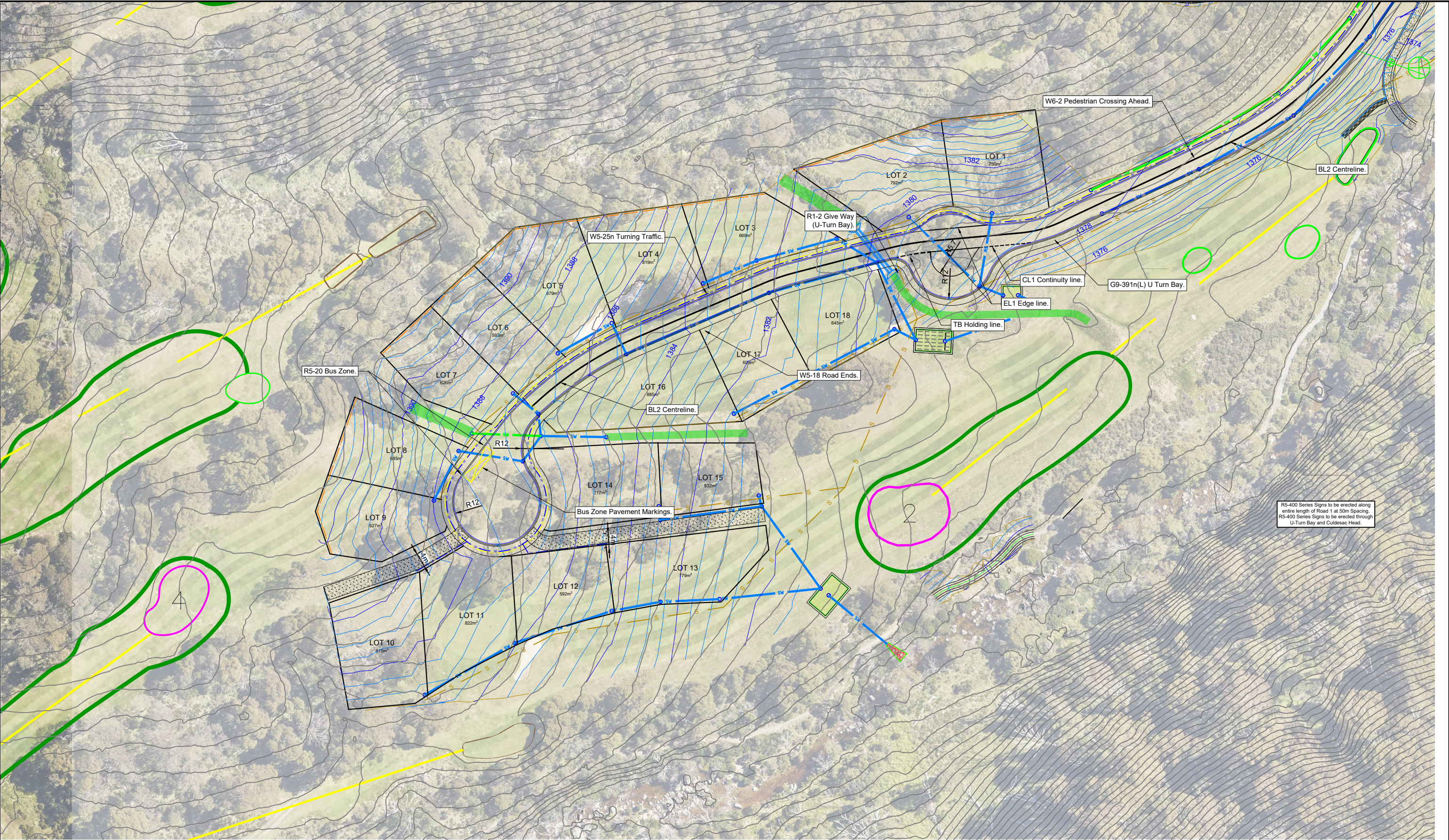
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
8.8m Service Vehicle / Medium Rigid Vehicle Swept Path through Culdesac		Datum: GDA94 / AHD	Scale: 1:250
		Sheet: U-183	Revision: 33 of 45 K



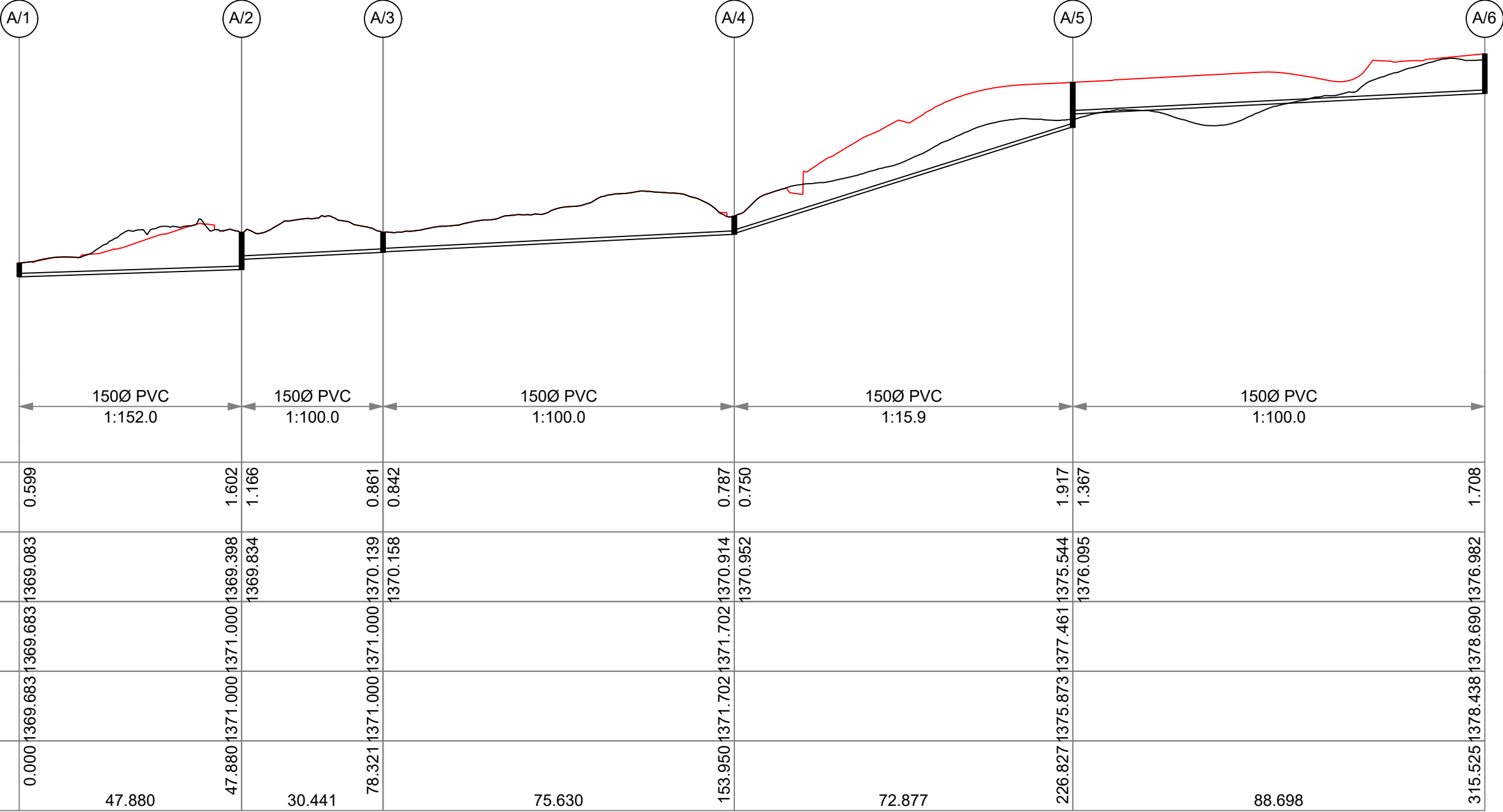
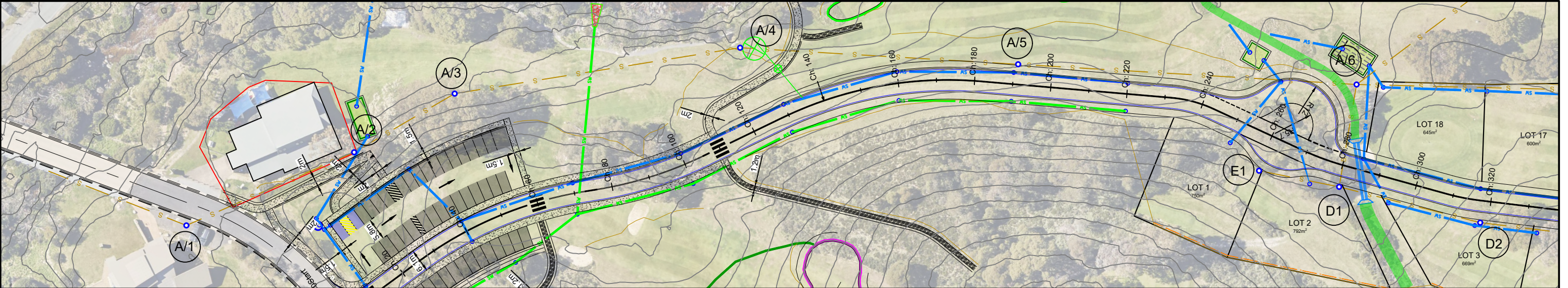
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Signs and Lines Plan 2		Datum: GDA94 / AHD	Scale: 1:1000
U-183		Sheet: 35 of 45	Revision: K



SEWER LONGITUDINAL SECTION FOR LINE 1

Rev	Date	Description
K	8/9/25	Revised Lot Layout
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Client: Kosciuszko Thredbo Pty Ltd

Sewer Long Section - Sheet 1

Status: For Development Approval

Datum: GDA94 / AHD

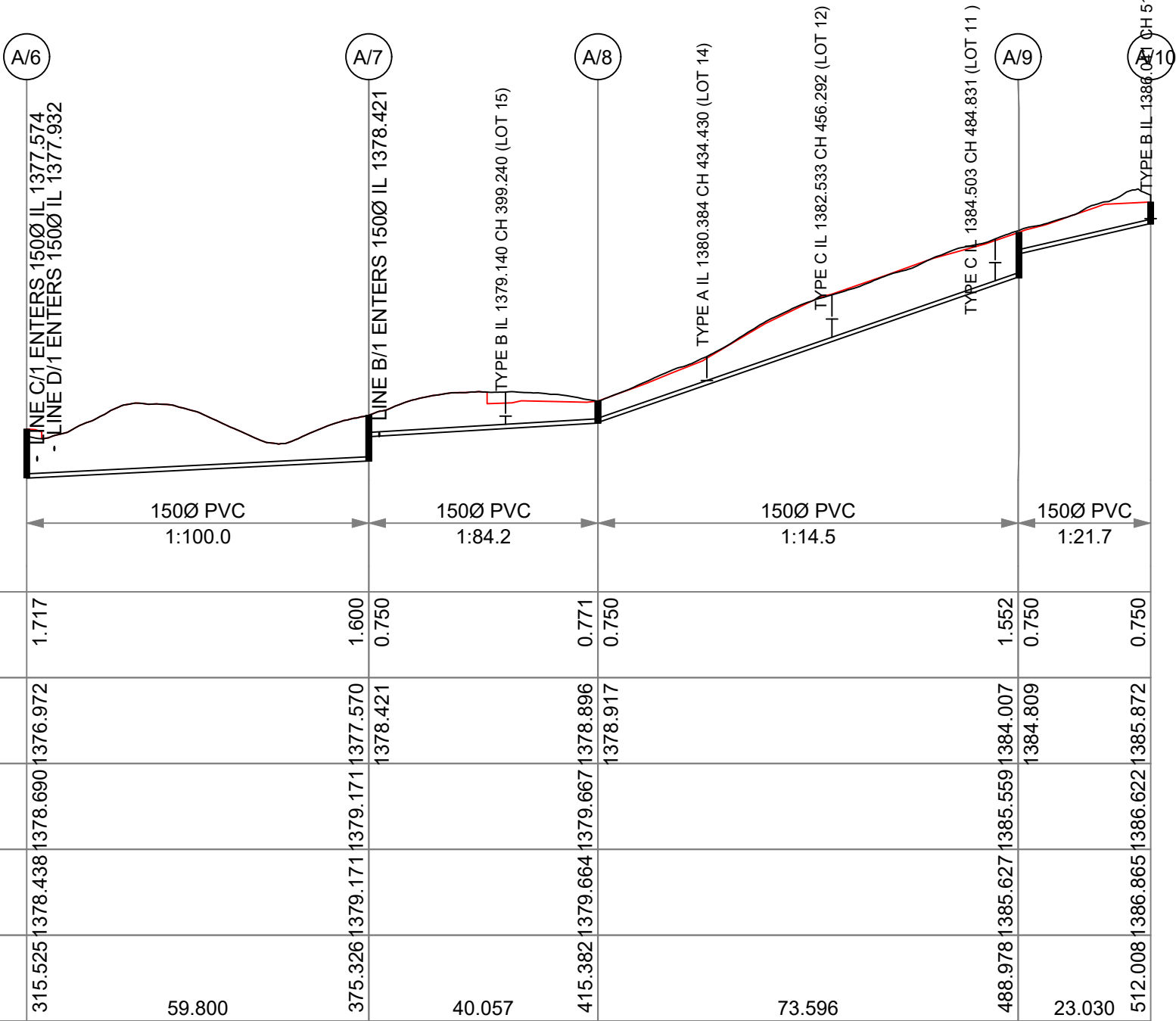
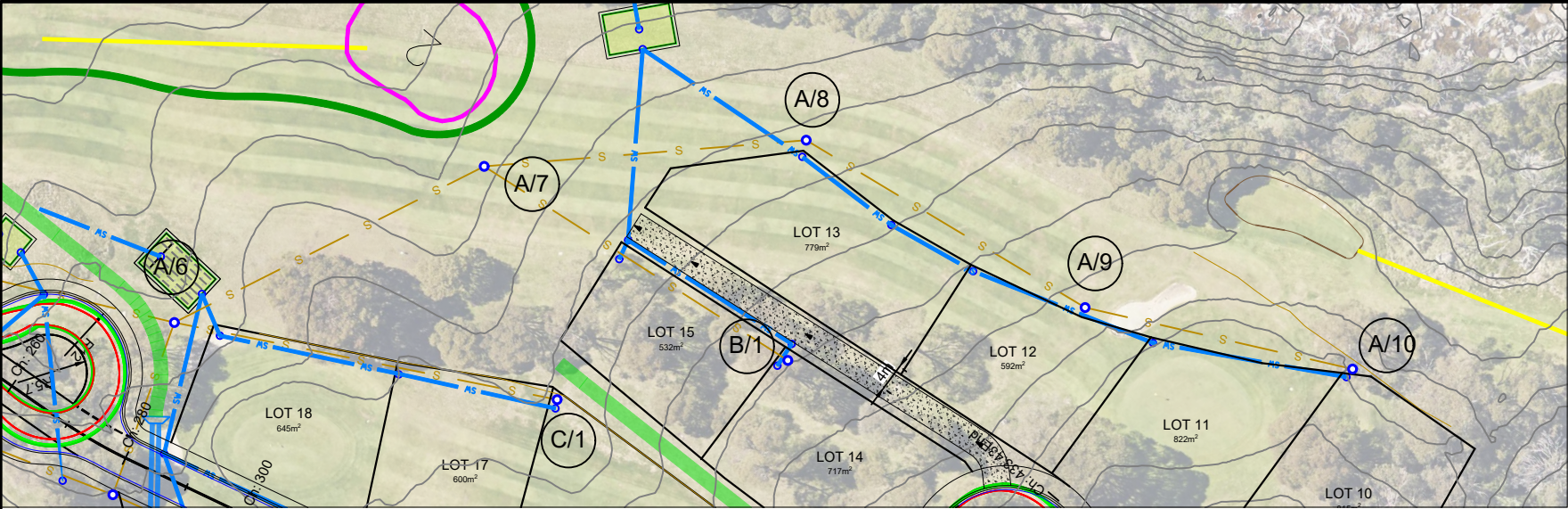
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Size: A3

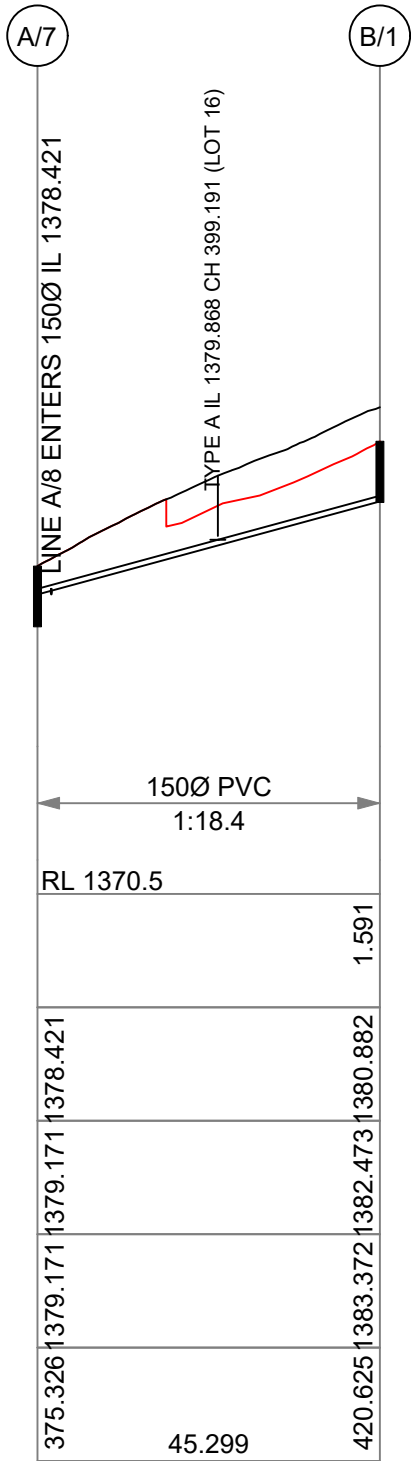
Revision: K

U-183

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SEWER LONGITUNDINAL SECTION FOR LINE 1



SEWER LONGITUNDINAL SECTION FOR LINE 2

Rev	Date	Description
K	8/9/25	Revised Lot Layout
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Client: Kosciuszko Thredbo Pty Ltd

Sewer long Sections - Sheet 2

Status: For Development Approval

Datum: GDA94 / AHD

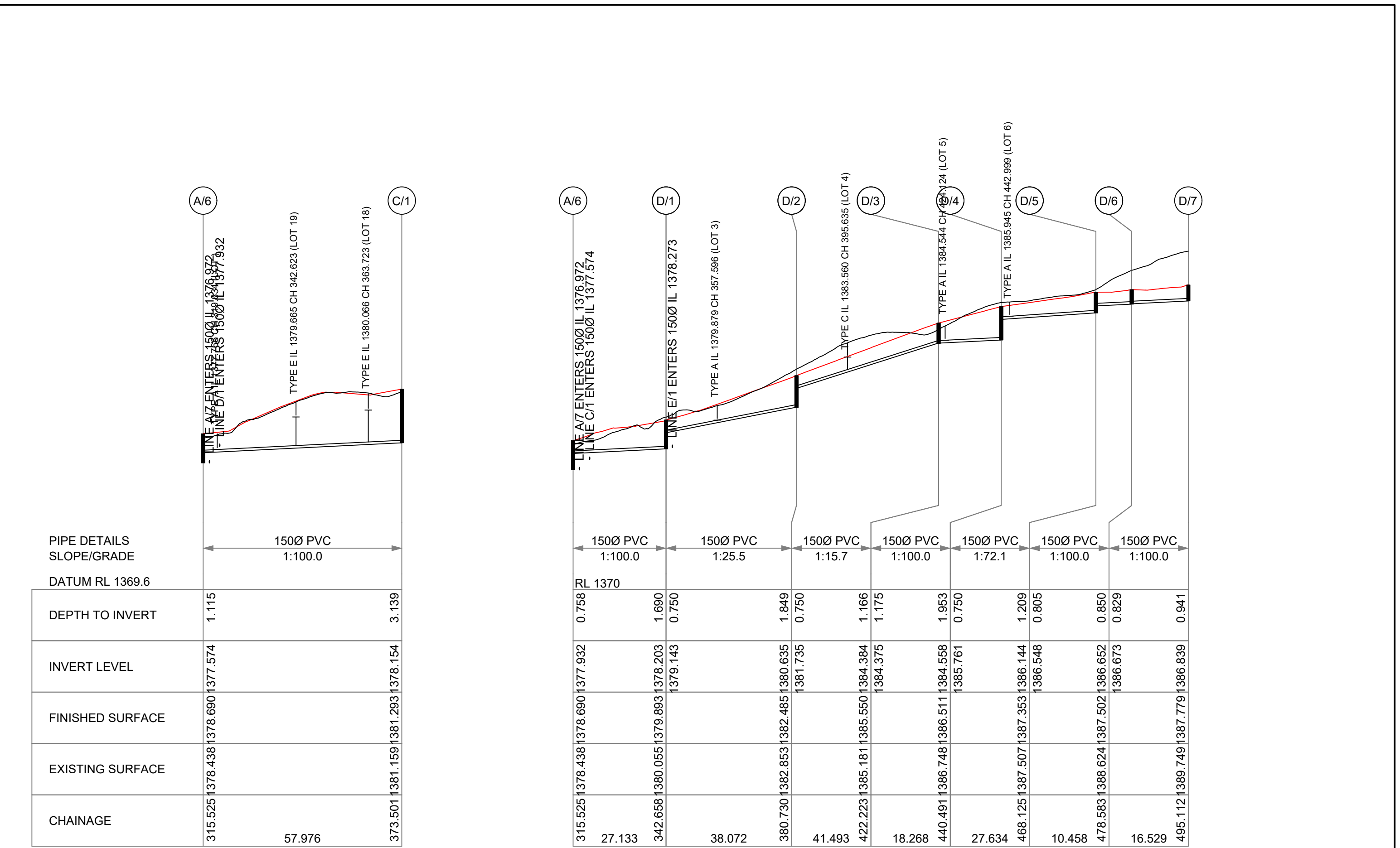
Scale: 1:1000H 1:200V

Size: A3

Drawing Number: U-183

Sheet: 37 of 45

Revision: K



SEWER LONGITUNDINAL SECTION FOR LINE 3

SEWER LONGITUNDINAL SECTION FOR LINE 4

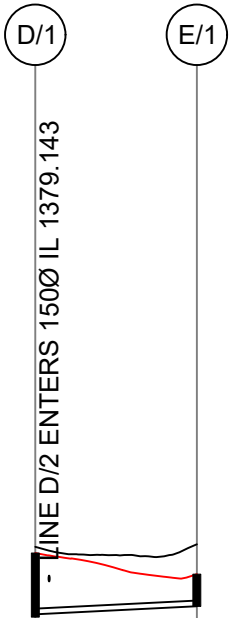
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Sewer long Sections - Sheet 3	Datum: GDA94 / AHD	Scale: 1:1000H 1:200V	Size: A3
	Drawing Number: U-183	Sheet: 38 of 45	Revision: K



PIPE DETAILS
SLOPE/GRADE

1500 PVC
1:100.0

DATUM RL 1370.3

DEPTH TO INVERT	1.620	0.848
INVERT LEVEL	1378.273	1378.486
FINISHED SURFACE	1379.893	1379.335
EXISTING SURFACE	1380.055	1380.125
CHAINAGE	342.658 21.374	364.032

SEWER LONGITUNDINAL SECTION FOR LINE 5

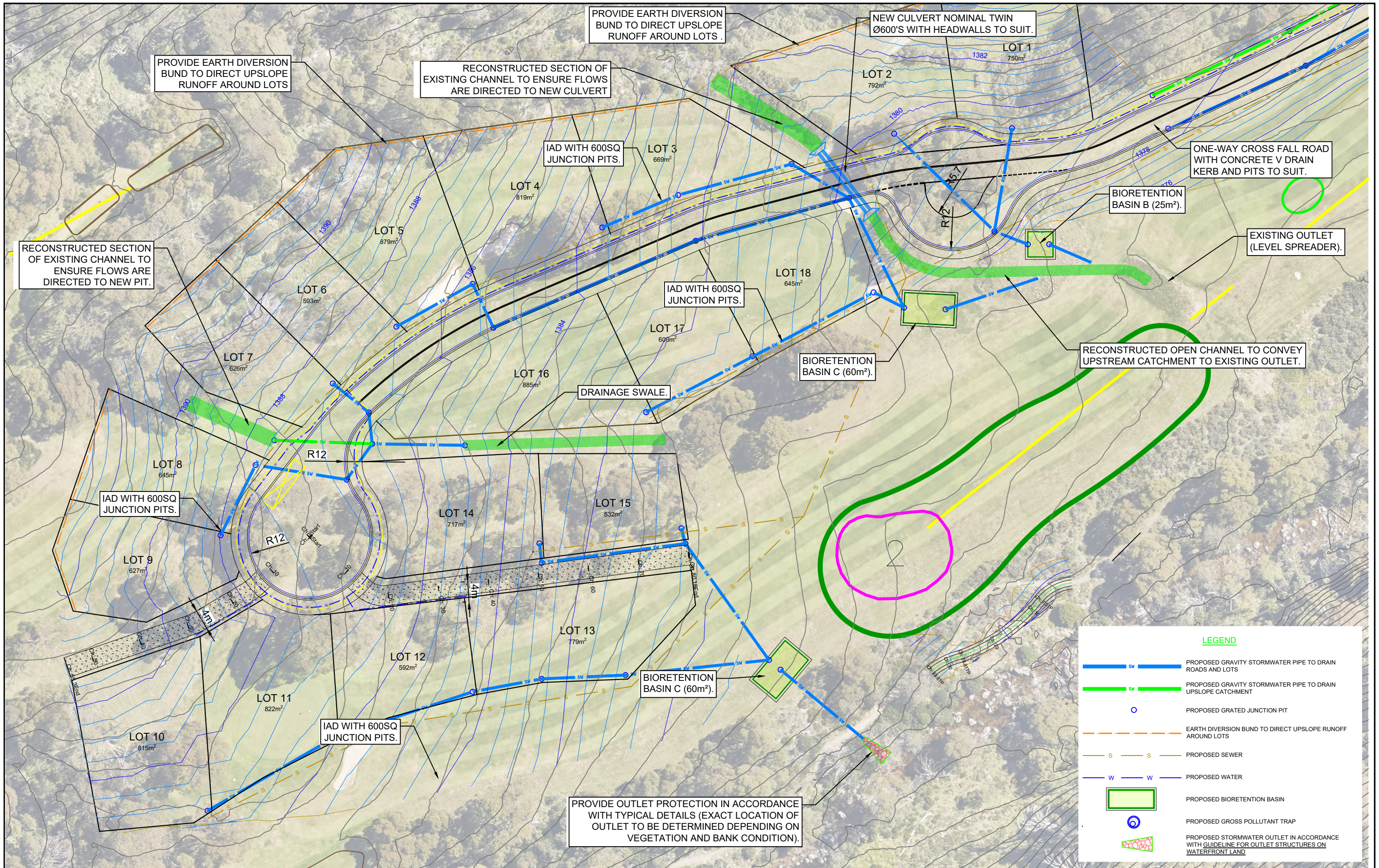
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Sewer Long Sections - Sheet 4	Status For Development Approval		
	Datum GDA94 / AHD	Scale 1:1000H 1:200V	Size A3
	Drawing Number U-183	Sheet 39 of 45	Revision K



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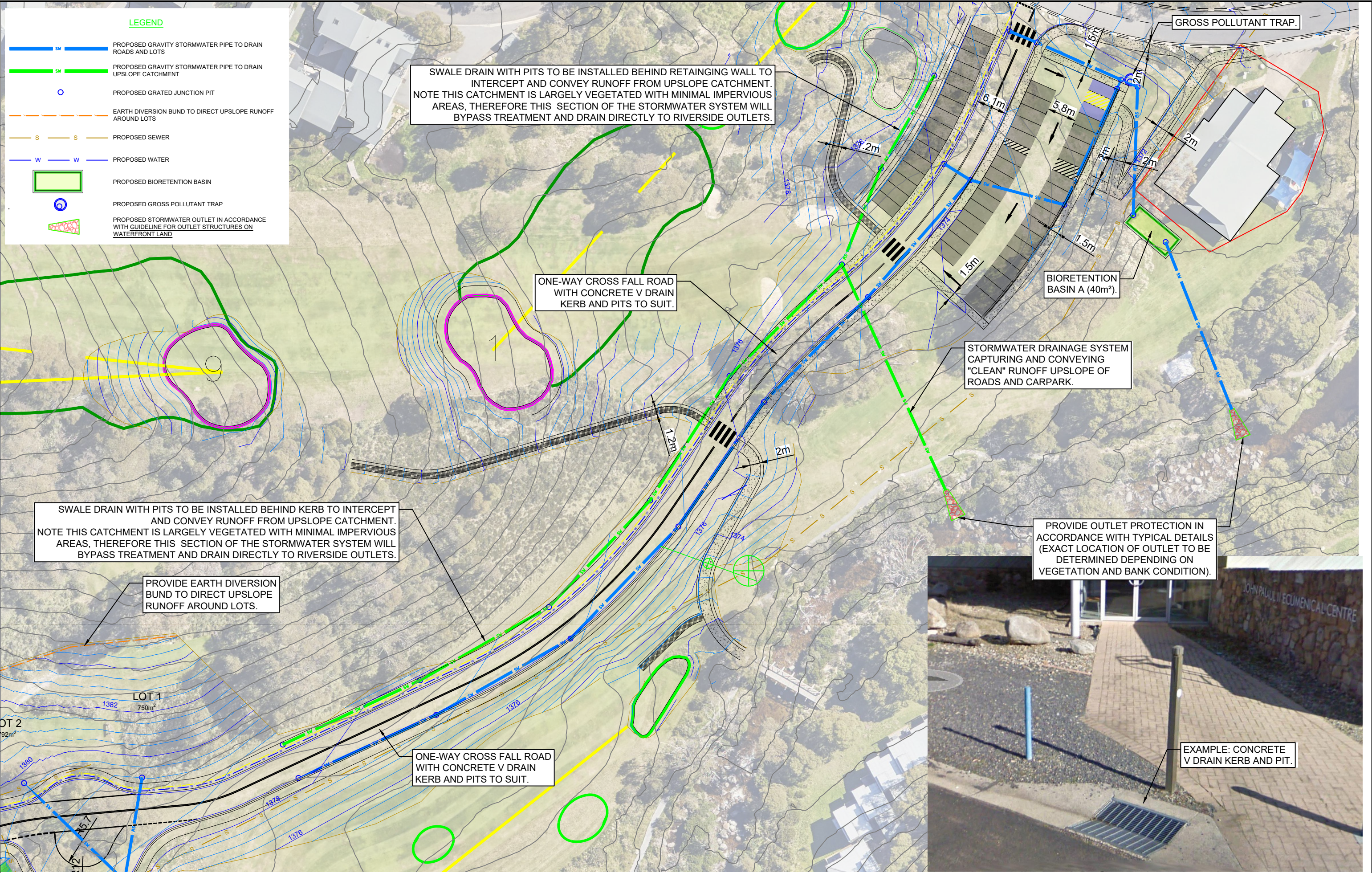
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Client: Kosciuszko Thredbo Pty Ltd

Stormwater Management
General Arrangement (1 of 2)

Status	For Development Approval
Datum	GDA94 / AHD
Scale	1:1000
Size	A3
Drawing Number	U-183
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Revision	K



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Thredbo Village NSW

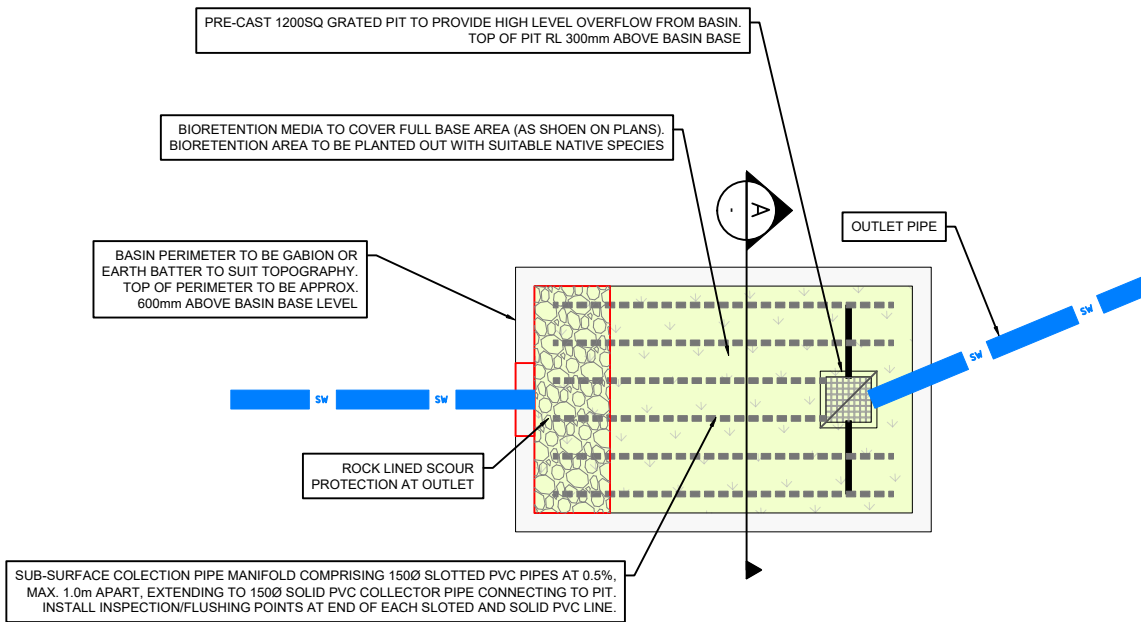
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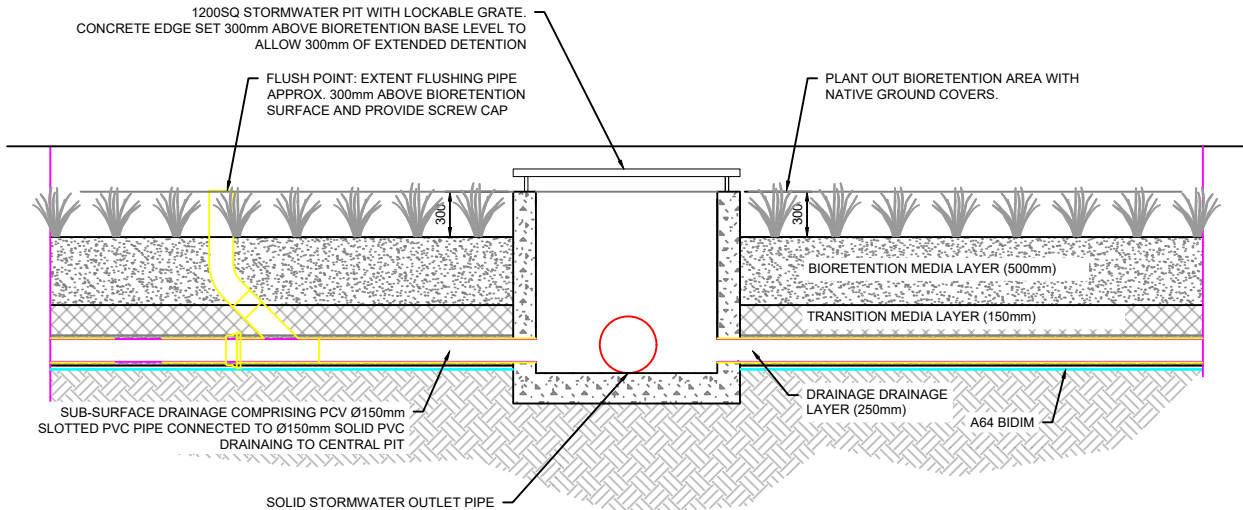
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Client:	Kosciuszko Thredbo Pty Ltd
Status:	For Development Approval
Datum:	GDA94 / AHD
Scale:	1:1000
Size:	A3
Drawing Number:	U-183
Sheet:	41 of 45
Revision:	K



BIORETENTION BASIN (TYP.)

NOT TO SCALE



BIORETENTION BASIN (TYPICAL CROSS SECTION.)

NOT TO SCALE

CONSTRUCTION SEQUENCING

- CONSTRUCTION SEQUENCING INCLUDES THE FOLLOWING:
- DIVERT EXTERNAL CATCHMENT RUNOFF AROUND THE STAGE BEING CONSTRUCTED THROUGH THE PROVISION OF STABLE FLOW PATHS;
 - CONSTRUCT SEDIMENT BASIN/S AT LOW POINTS OF SITE (THIS MAY INCLUDE THE BIORETENTION BASIN FOOTPRINTS IN THE BULKED OUT PHASE);
 - CONSTRUCT TRUNK DRAINAGE;
 - ONCE TRUNK DRAINAGE IS COMPLETE DIVERT FLOWS FROM UPSTREAM INTO NEW TRUNK DRAINAGE;
 - COMMENCE ACCESS ROAD CONSTRUCTION AND BULK EARTHWORKS;
 - FOLLOWING 80% COMPLETION OF CONSTRUCTION (INCLUDING BULK EARTHWORKS, ROADS AND LOT SHAPING) BIORETENTION SYSTEM CAN BE FORMALISED WITH FILTER MEDIA AND VEGETATION AS REQUIRED.
 - FINALISE ROAD CONSTRUCTION AND BULK EARTHWORKS AND MAKE GOOD.

BIORETENTION SYSTEM

THE PROPOSED BIORETENTION SYSTEM FORMS A FUNDAMENTAL PART OF THE TREATMENT TRAIN THAT IMPROVES THE WATER QUALITY OF STORMWATER RUNOFF FROM THE SITE. THE BIORETENTION SYSTEM – CONSISTS OF VEGETATION, A SOIL FILTRATION MEDIA AND SUB-SURFACE DRAINAGE SYSTEM . THERE WILL BE A SMALL DEPTH OF PONDING AT THE SURFACE FOR A NUMBER OF HOURS FOLLOWING RAINFALL HOWEVER THE BIORETENTION SYSTEM WILL APPEAR DRY MOST OF THE TIME.

THE DESIGN OF THE BIORETENTION SYSTEM INCLUDES THE FOLLOWING:

- MINIMUM SURFACE AREA AS SHOWN
- EXTENDED DETENTION = 300mm
- FILTER MEDIUM DEPTH = 0.5m
- TRANSITION LAYER DEPTH = 0.15m
- DRAINAGE LAYER DEPTH = 0.25m

BIORETENTION-DRAINAGE PIPE SPECIFICATION

SLOTTED DRAINAGE PIPES (NO FILTER SOCK AND NOT AG LINE) ARE TO BE Ø150mm SLOTTED PVC-U PIPES WITH MINIMUM INLET AREA TO LENGTH RATIO OF 1000sqmm/m OF PIPE

SLOTTED DRAINAGE PIPES ARE TO HAVE A MAXIMUM SPACING OF 1.5 METRE. SLOTTED DRAINAGE PIPES ARE TO BE FITTED WITH STANDARD UNDER-DRAINAGE INSPECTION/CLEANOUT FITTINGS (REFER FLUSHING POINTS BELOW) AT THE END OF PIPES AND AT JUNCTIONS TO ALLOW FOR THE REMOVAL OF ACCUMULATED FINES WITHIN THE SYSTEM.

CONNECT SLOTTED DRAINAGE PIPES TO THE APPROPRIATE Ø150mm SOLID PVC-U COLLECTION LINE AND DRAIN TO PIT AS SHOWN.

JOINTING: PROVIDE TEES, COUPLINGS OR ADAPTORS AT JUNCTIONS TO AS 2439.1. ALL SLOTTED DRAINAGE PIPES ARE TO BE EMBEDDED IN THE MEDIA AS SHOWN ON DRAWINGS. ALL JUNCTIONS AND CONNECTIONS ARE TO BE SEALED TO PREVENT SOIL MATERIAL ENTERING THE PIPE NETWORK.

FLUSHING POINTS: FLUSHING POINTS ARE TO BE PROVIDED AS SHOWN ON THE DRAWINGS. THE FLUSHING POINTS ARE TO BE CONSTRUCTED OF SOLID Ø100mm PVC-U PIPE. THE 90 DEGREE BEND IS TO BE CONSTRUCTED OF TWO 45 DEGREE BENDS SEPARATED BY A MINIMUM OF 300MM OF SOLID PVC-U.

PROVIDE PVC-U SCREW CAP FOR EACH FLUSH POINT. TOP OF FLUSH POINT TO FINISH MIN. 300mm ABOVE BIORETENTION FINISHED SURFACE LEVEL

BIORETENTION-PLANTING SPECIFICATION

PLANT OUT BIORETENTION AREA WITH NATIVE GROUND COVERS.

BIORETENTION-FILTER MATERIAL SPECIFICATION

FILTER MEDIA HYDRAULIC PROPERTIES
THE FILTER MATERIAL SHALL PREFERABLY BE A "WASHED SAND" OF SILICEOUS OR CALCAREOUS ORIGIN, ONE THAT HAS BEEN MINED AND PROCESSED. NATURAL SOILS OR TOPSOILS ARE NOT USUALLY SUITABLE. SOILS SHALL HAVE THE FOLLOWING MECHANICAL AND PHYSICAL PROPERTIES:

- SATURATED HYDRAULIC CONDUCTIVITY IN THE RANGE OF 100 - 200mm/H. THIS CRITICAL ELEMENT IS TO BE DEMONSTRATED THROUGH LAB TESTING (ASTM-F1815-06).
- PARTICLE SIZE DISTRIBUTION/COMPOSITION REQUIREMENTS:

DESCRIPTION	PROPORTION	GRADING
CLAY AND SILT	<3%	<0.05mm
VERY FINE SAND	5-30%	0.05-0.15mm
FINE SAND	10-30%	0.15-0.25mm
MEDIUM TO COARSE SAND	40-60%	0.25-1.0mm
COARSE SAND	7-10%	1.0-2.0mm
FINE GRAVEL	<3%	2.0-3.4mm

- PH - 6.2-6.8 BEFORE DELIVERY - ADD DOLOMITE AS REQUIRED
- ELECTRICAL CONDUCTIVITY (EC) < 12ds/m

NOTE: FILTER MEDIA SHALL ALSO CONTAIN A SMALL AMOUNT OF ORGANIC MATERIAL (NOT EXCEEDING 5%) TO SUPPORT VEGETATION GROWTH. THE SOURCE OF THE ORGANIC MATERIAL SHALL BE PROVIDED TO COUNCIL FOT APPROVAL AND MUST BE FROM A CLEAN SOURCE, NOT COMPOST.

TRANSITION LAYER

A TRANSITION LAYER IS REQUIRED WHEN THE DRAINAGE LAYER IS FINE GRAVEL. IT IS RECOMMENDED WHEN THE DRAINAGE LAYER IS COARSE SAND. THE TRANSITION LAYER SHOULD BE A SAND/COARSE SAND MATERIAL CONFORMING TO THE GRADING BELOW AND IS GENERALLY APPLIED IN A 100-200mm LAYER.

SIEVE SIZE AS (mm)	% PASSING
0.075	0-3
0.15	0-4
0.3	0-16
0.6	12-40
1.18	40-65
2.36	70-100
4.75	90-100
9.5	100

DRAINAGE LAYER

THE DRAINAGE LAYER IS NORMALLY BETWEEN 200-250mm THICK. SUITABLE MATERIALS INCLUDE A HARD DURABLE AGGREGATE, EG. BASALT, MAY BE IMPORTED WITH MAXIMUM DIAMETER OF 10MM OR FINE GRAVEL IN THE RANGE 4mm - 7mm.

SIEVE SIZE	% RETAINED
>10mm	0
6.0-10.0mm	>70%
2.0-6.0mm	<20%
<2.0mm	0

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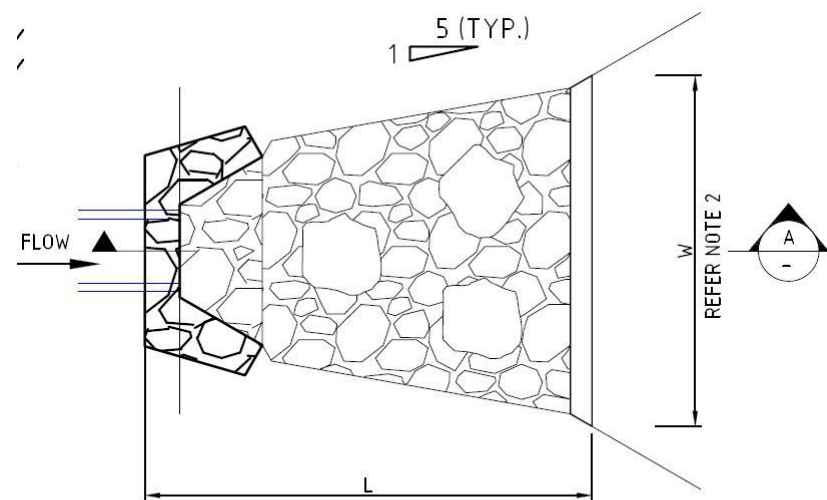
Client: Kosciuszko Thredbo Pty Ltd

Stormwater - Typical Details
(1 of 2)

Status: For Development Approval

Datum: GDA94 / AHD Scale: 1:1000 Size: A3

Drawing Number: U-183 Sheet: 42 of 45 Revision: K

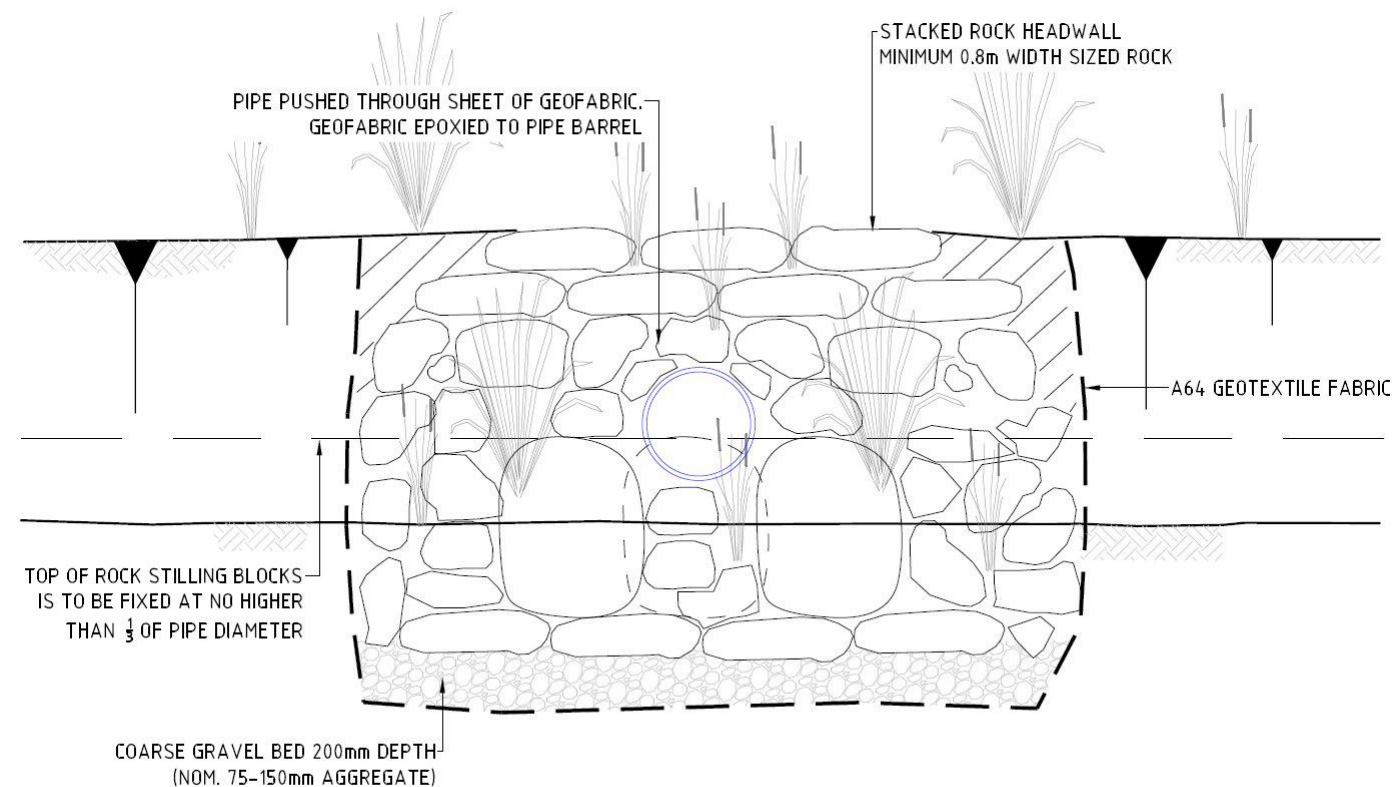


NOTES:

1. READ 'L' FROM CHART 1. LEFT.
2. $W = 3$ TIMES PIPE DIAMETER 'D'.
3. THE MEDIAN ROCK SIZE D_{50} AND LENGTH (L) OF ROCK SCOUR PROTECTION DOWNSTREAM OF STORMWATER OUTLETS IS TO BE DETERMINED USING CHART 1. MIN. $D_{50} = 200\text{mm}$
4. ROCK IS TO BE GRADED IN ACCORDANCE WITH THE ROCK SIZE DISTRIBUTION TABLE AS SHOWN BELOW
5. IN THE EVENT THE WIDTH OF THE OUTLET CHANNEL IS LESS THAN THE DESIGN WIDTH OF THE ROCK APRON, THE ROCK SCOUR PROTECTION SHALL EXTEND UP TO THE BANK TO EITHER THE HEIGHT OF THE OBVERT OF PIPE OR CULVERT OR TO THE DESIGN TAILWATER LEVEL.

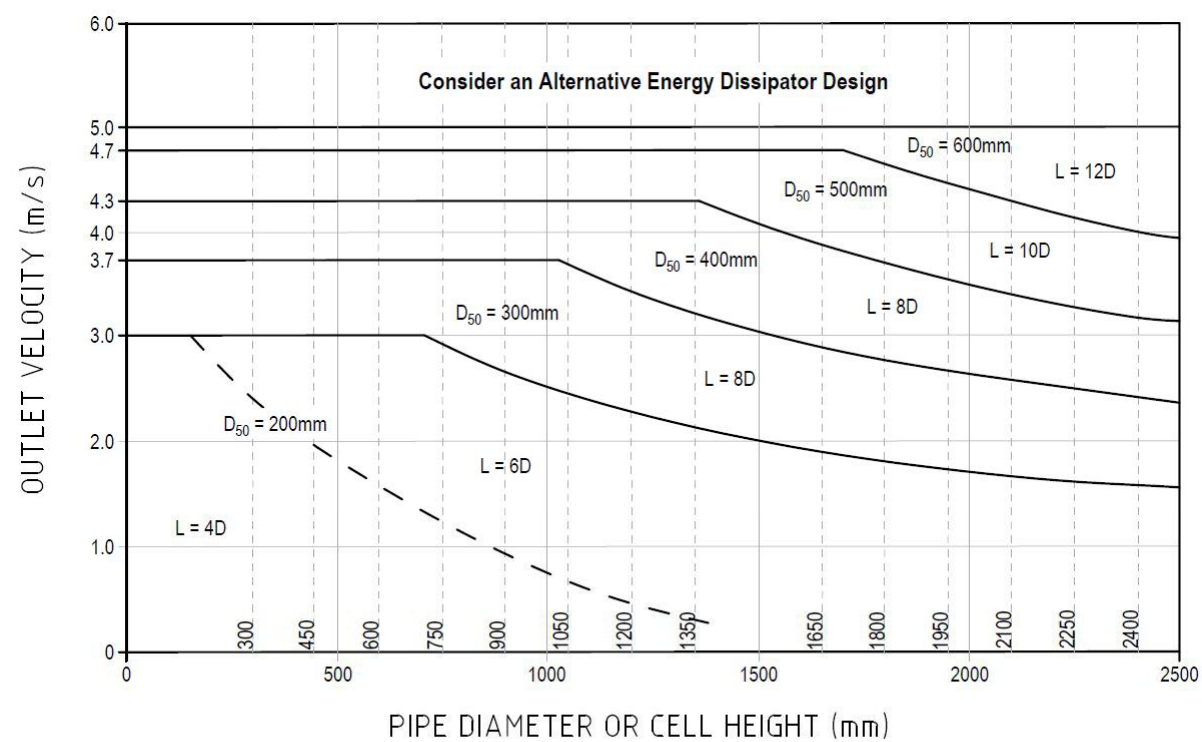
TYPICAL STORMWATER OUTLET LAYOUT IN ACCORDANCE WITH
GUIDELINE FOR OUTLET STRUCTURES ON WATERFRONT LAND

NOT TO SCALE



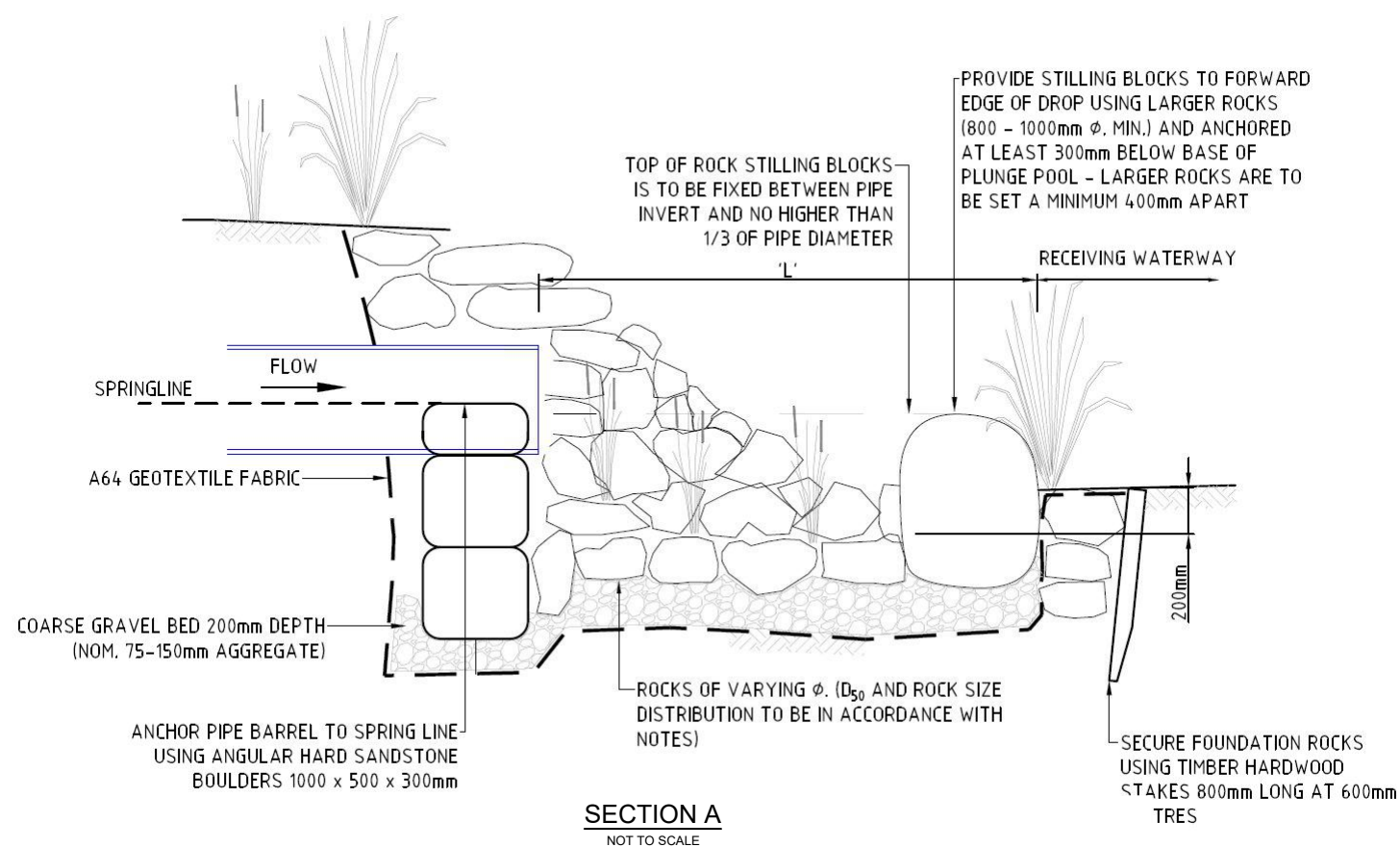
TYPICAL ROCK STACK HEADWALL AROUND STORMWATER OUTLET PIPE

NOT TO SCALE



SIZING OF STORMWATER OUTLET SCOUR PROTECTION

NOT TO SCALE



SECTION A

NOT TO SCALE

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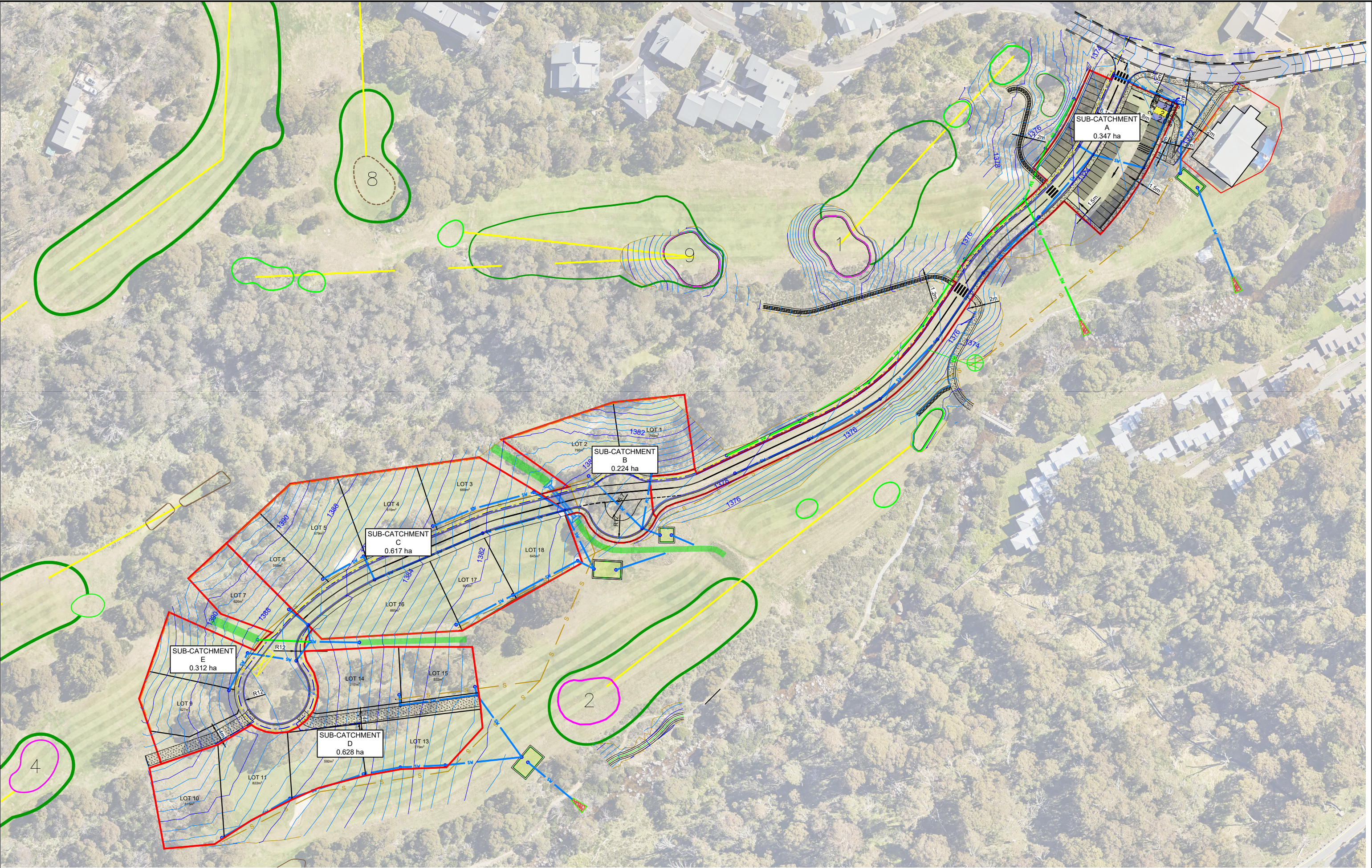
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Client: Kosciuszko Thredbo Pty Ltd

Stormwater - Typical Details
(2 of 2)

Status	For Development Approval
Datum	GDA94 / AHD
Scale	1:1000
Size	A3
Drawing Number	U-183
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Revision	K



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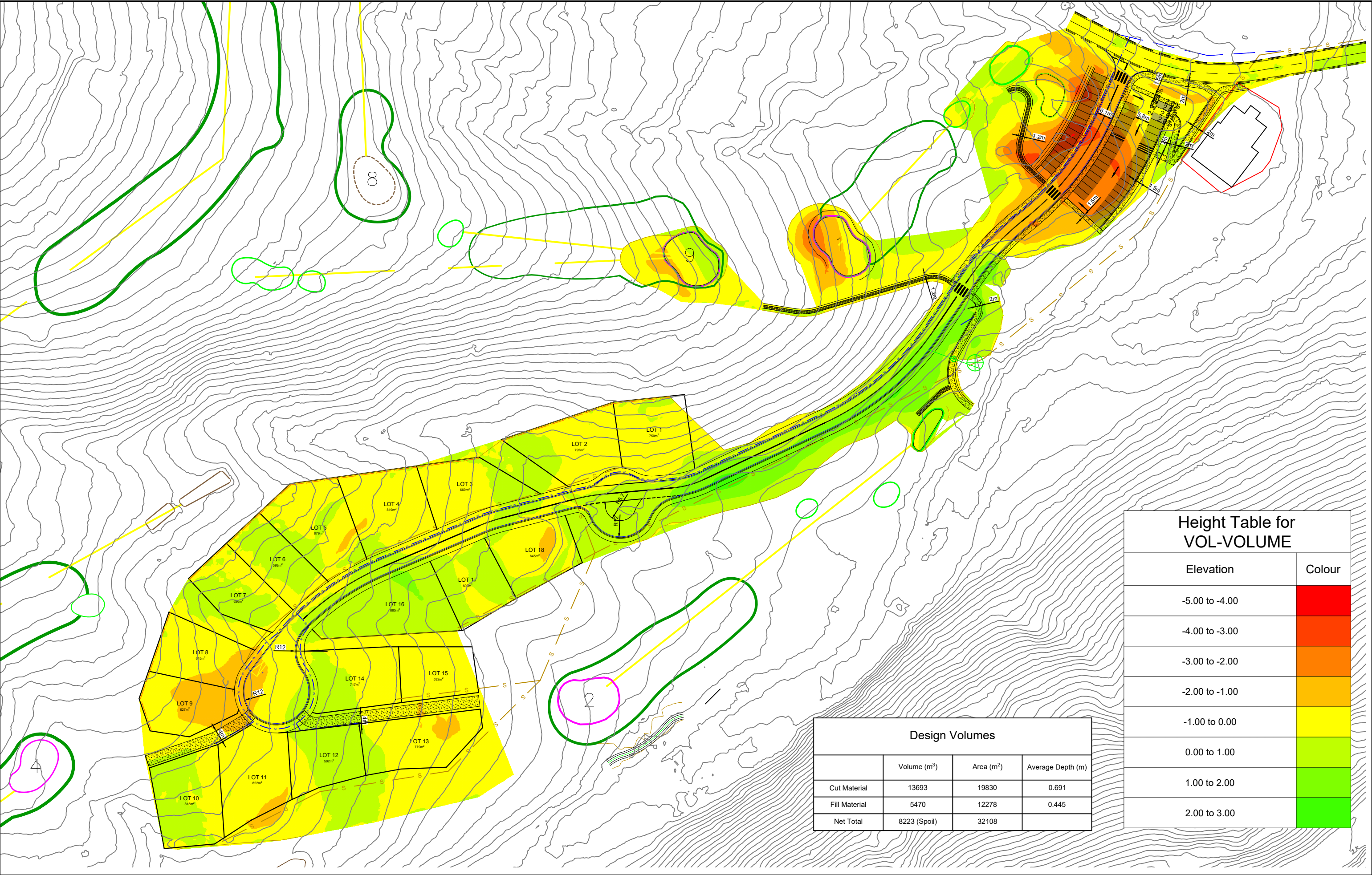
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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Stormwater Management Catchment Plan		Datum: GDA94 / AHD	Scale: 1:1000
Drawing Number: U-183		Sheet: 44 of 45	Revision: K



Height Table for VOL-VOLUME	
Elevation	Colour
-5.00 to -4.00	
-4.00 to -3.00	
-3.00 to -2.00	
-2.00 to -1.00	
-1.00 to 0.00	
0.00 to 1.00	
1.00 to 2.00	
2.00 to 3.00	

Design Volumes			
	Volume (m³)	Area (m²)	Average Depth (m)
Cut Material	13693	19830	0.691
Fill Material	5470	12278	0.445
Net Total	8223 (Spoil)	32108	

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Client: Kosciuszko Thredbo Pty Ltd		Status: For Development Approval	
Bulk Earthworks Plan		Datum: GDA94 / AHD	Scale: 1:1000
U-183		Sheet: 45 of 45	Revision: K