

DEVELOPMENT APPLICATION
SENIOR LIVING DEVELOPMENT

2-18 Centennial Road
Bowral, 2576 NSW

CIVIL

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IMPORTANT NOTES: Do not scale from drawings. All dimensions to be checked on site before commencement of work. All discrepancies to be brought to the attention of the Architect. Larger scale drawings and written dimensions take preference. This drawing is copyright and the property of the author, and must not be retained, copied or used without the express authority of MARCHESE + PARTNERS INTERNATIONAL PTY. LTD.	REVISION	DATE	DESCRIPTION	BY	marchesepartners engineering Marchese Partners Engineering Pty Ltd Level 1, 53 Walker Street, North Sydney, NSW 2060, Australia P +61 2 9922 4375 F +61 2 9929 5786 E info@marchesepartners.com.au www.marchesepartners.com.au Sydney · Brisbane · Canberra · Melbourne · Adelaide · Perth Kuala Lumpur · Auckland ABN 32 604 104 378	CLIENT Waterbrook 43 Bridge St, Hurstville NSW 2220 P +61 2 9199 8775				DRAWING TITLE TITLE SHEET AND LOCALITY PLAN			
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FOR APPROVAL

LEGEND

LINETYPES

	BOUNDARY
	EASEMENT
	FENCE
	OVERFLOW
	RAINWATER RE-USE
	SIPHONIC DRAINAGE
	SUBSOIL DRAINAGE
	SUBSOIL RISING MAIN
	STORMWATER DRAINAGE
	STORMWATER RISING MAIN
	STORMWATER DRAINAGE
	GREASE WASTE
	GREASE WASTE VENT
	SEWER CHAMBER VENT
	GRAVITY SEWER / SANITARY DRAINAGE
	SEWER PUMPOUT
	SEWER RISING MAIN
	TRADE WASTE DRAINAGE
	TRADE WASTE VENT
	DIESEL EXHAUST
	FIRE HYDRANT
	FIRE HYDRANT PRESSURE GAUGE
	FIRE HOSE REEL
	FIRE SPRINKLER
	COLD WATER
	FILTERED RAINWATER RE-USE
	HOT WATER FLOW
	HOT WATER RETURN
	IRRIGATION
	NON-POTABLE COLD WATER
	RECYCLED COLD WATER
	WARM WATER FLOW
	WARM WATER RETURN
	NATURAL GAS
	MEDICAL GASES - COMPRESSED AIR
	MEDICAL GASES - CARBON DIOXIDE
	MEDICAL GASES - NITROUS OXIDE
	MEDICAL GASES - OXYGEN
	ELECTRICAL WIRING
	ELECTRICAL CONDUIT

SERVICES & UTILITIES

	EXISTING ELECTRICAL
	EXISTING GAS
	EXISTING OIL
	EXISTING TELSTRA
	EXISTING SEWER
	EXISTING STORMWATER
	EXISTING WATER
	EXISTING SERVICE TO BE ABANDONED

NOTE:
'e' ON SERVICE LINE DENOTES EXISTING SERVICE.
'x' ON SERVICE LINE DENOTES SERVICE TO BE ABANDONED.

EROSION & SEDIMENT SYMBOLS

	BARRIER FENCE
	SILT FENCE
	TOP OF BATTER
	BOTTOM OF BATTER
	STABILISED CONSTRUCTION SITE VEHICLE ENTRY/EXIT GRID
	STRAW BALE SEDIMENT FILTER

DRAWING INFORMATION SYMBOLS

	0 1 2 4 6 8 10 metres SCALE IS BEFORE REDUCTION SCALE 1:100
	SECTION No. DRAWING REFERENCE No.
	DETAIL No. DRAWING REFERENCE No.
	AMENDMENT REFERENCE
	CONTINUED ON DWG C-XXX

HYDRAULIC SERVICES SYMBOLS

	VERTICAL RISER IN DRAINAGE
	CLEAROUT OR INSPECTION OPENING
	DRAINAGE TURN-UP
	FLOW DIRECTION ARROW
	PENETRATION CORE THROUGH STRUCTURAL ELEMENT
	DOWNPIPE (150mm DIAMETER)
	RISER
	DROPPER
	DROPS TO BELOW / RISES FROM BELOW
	CAPPED OFF SERVICE
	CONTINUATION OF SERVICE NOT SHOWN
	CONTINUATION OF SERVICE SHOWN ELSEWHERE
	FLANGED CONNECTION
	SERVICE CAST IN SLAB
	SERVICE CONCRETE ENCASED
	GAS REGULATOR
	VENTED GAS REGULATOR
	UTILITY REGULATOR
	SOLENOID VALVE
	ISOLATION VALVE
	BALANCING VALVE (STAD)
	CHECK VALVE
	BACKFLOW PREVENTION DEVICE
	PRESSURE LIMITING VALVE
	PRESSURE REDUCTION VALVE
	STRAINER
	METER
	THERMOSTATIC MIXING VALVE
	FILTER
	PUMP
	HOSE TAP
	COLD WATER POINT
	HOT WATER POINT
	FIRE HYDRANT
	DOUBLE PILLAR FIRE HYDRANT STANDPIPE
	FIRE HOSE REEL
	PRESSURE GAUGE
	TEMPERATURE GAUGE
	THRUST BLOCK
	BOUNDARY TRAP
	INDUCT PIPE MICA FLAP
	OVERFLOW RELIEF GULLY
	TUNDISH
	WATER CLOSET (S-TRAP)
	WATER CLOSET (P-TRAP)
	BASIN
	SINK
	DISHWASHER
	FLOOR WASTE
	BUCKET TRAP FLOOR WASTE
	REFLUX VALVE
	AIR ADMITTANCE VALVE
	SEWER MANHOLE (CAC)
	GREASE ARRESTOR
	RAINWATER OUTLET
	SQUARE RAINWATER OUTLET
	SPREADER
	RAINWATER HEAD
	STORMWATER PIT (ACCESS ONLY)
	STORMWATER PIT (INLET)
	KERB ENTRY PIT
	GRATED TRENCH DRAIN
	FALL ARROW
	OVERLAND FLOW PATH DIRECTIONAL ARROW
	STORMWATER HEADWALL
	SWALE OR SPEED HUMP
	ELECTRICAL CONTROL PANEL
	DIRECTION OF FLOW
	SERVICE
	SIZE

GENERAL ABBREVIATIONS

AAV	AIR ADMITTANCE VALVE
AB	ACCESSIBLE BASIN
AC	AIR CONDITIONING
AV	AIR RELEASE VALVE
AWC	ACCESSIBLE TOILET (WATER CLOSET)
B	BASIN
BG	BOX GUTTER
BGO	BOX GUTTER OUTLET
BT	BOUNDARY TRAP
BTFW	BUCKET TRAP FLOOR WASTE
BTH	BATH
BWU	BOILING WATER UNIT
CAC	CIRCULAR ACCESS CHAMBER
CHVP	CHAMBER VENT PIPE
CTS	CENTRES
℄	CENTRE LINE
CI	CAST IRON
CIC	CAST IN COLUMN
CIS	CAST IN SLAB
CO	CLEAR OUT
Cu	COPPER
CW	COLD WATER
DD	DISH DRAIN
DI	DUCTILE IRON
DIA	DIAMETER
DN	DIAMETER
Ø	DIAMETER
DP	DOWN PIPE
DPFH	DOUBLE PILLAR FIRE HYDRANT
DST	DRAINAGE STACK
DTU	DRAINAGE TURN-UP
DWG	DRAWING
ED	ELEVATED DRAINAGE
EGL	EXISTING GROUND LEVEL
EGO	EAVES GUTTER OUTLET
EJ	EXPANSION JOINT
Ex	EXISTING
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
FSC	FIRE STOP COLLAR
FW	FLOOR WASTE
GALV	GALVANISED
GDO	GRATED DRAIN OUTLET
GMS	GALVANISED MILD STEEL
GVP	GREASE VENT PIPE
HD	HEAVY DUTY
HDC	HEAVY DUTY COVER
HDG	HEAVY DUTY GRATE
HDPE	HIGH DENSITY POLYETHYLENE
H/L	HIGH LEVEL
HP	HIGH POINT
HT	HOSE TAP
HW	HOT WATER
HWU	HOT WATER UNIT
ID	INTERNAL DIAMETER
IL	INVERT LEVEL
IO	INSPECTION OPENING
IPMF	INDUCT PIPE MICA FLAP
K&G	KERB AND GUTTER
KEP	KERB ENTRY PIT
KFW	KITCHEN FLOOR WASTE
KO	KEY OPERATED
LDC	LIGHT DUTY COVER
LDG	LIGHT DUTY GRATE
LL	LOW LEVEL
L.O.C.	LIMIT OF CONTRACT
MAX.	MAXIMUM
MIN.	MINIMUM
NB	NOMINAL BORE
NG	NATURAL GAS
N.I.C	NOT IN CONTRACT
NOM	NOMINAL
No.	NUMBER
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
O/F	OVERFLOW
ORG	OVERFLOW RELIEF GULLY
P	PENETRATION
PLV	PRESSURE LIMITING VALVE
PRV	PRESSURE REDUCING VALVE
REV	REVISION
RL	REDUCED LEVEL
RO	RAINWATER OUTLET
RPZD	REDUCED PRESSURE ZONE DEVICE
RST	RECESSED STOP TAP
RTD	RECESSED TUNDISH
RV	REFLUX VALVE
RWH	RAINWATER HEAD
RWO	RAINWATER OUTLET

GENERAL ABBREVIATIONS CONT.

S	SINK
SHR	SHOWER
SMH	SEWER MANHOLE
SQ	SQUARE
SST	SOIL STACK
ST	STOP TAP
STD	STANDARD
STW	STORMWATER
SV	STOP VALVE (ISOLATION VALVE)
SWP	STORMWATER PIT
TBC	TO BE CONFIRMED
TD	TUNDISH
TG	TRENCH GRATE
TMV	THERMOSTATIC MIXING VALVE
TOK	TOP OF KERB
TTD	TRAPPED TUNDISH
TWL	TOP WATER LEVEL
TWVP	TRADE WASTE VENT PIPE
U.N.O.	UNLESS NOTED OTHERWISE
uPVC	UNPLASTICISED POLYVINYL CHLORIDE
UW	UTENSIL WASHING MACHINE
VB	VANITY BASIN / VACCUM BREAKER
VERT	VERTICAL
VP	VENT PIPE
WC	TOILET SUITE (WATER CLOSET)
WST	WASTE STACK

CIVIL ABBREVIATIONS

BWL	DRAINAGE LEVELS BOTTOM WATER LEVEL
IL	INVERT LEVEL
OL	OBVERT LEVEL
RL	REDUCED LEVEL
SL	SURFACE LEVEL
TWL	TOP WATER LEVEL

LD	GRATES & COVERS LIGHT DUTY CLASS 'B'
MD	MEDIUM DUTY CLASS 'C'
HD	HEAVY DUTY CLASS 'D'
EHD	EXTRA HEAVY DUTY CLASS 'E'
MP	MULTI PART COVER OR GRATE

DCP	PITS DISCHARGE CONTROL PIT
JP	JUNCTION PIT
KEP	KERB ENTRY PIT
SWP	STORMWATER PIT

SS	DRAINAGE LINES SUBSOIL DRAINAGE
STW	STORMWATER DRAIN

CO	FEATURES CLEAROUT
DP	DOWN PIPE
FP	FLUSHING POINT
IO	INSPECTION OPENING
OF	GUTTER OVERFLOW PIPE
RWO	RAINWATER OUTLET
DTU	DRAINAGE TURNUP

CATCHMENT ABBREVIATIONS

L/s	LITRES PER SECOND
m/s	METRES PER SECOND
CUMecs	CUBIC METRES PER SECOND
Q	QUANTITY OF FLOW

DRAWING NOTES

- DRAWINGS ARE DIAGRAMMATIC ONLY. FOR DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING REFER ARCHITECTURAL DRAWINGS AND SITE.
- PIPEWORK SIZES ARE NOMINAL BORE FOR COPPER AND CAST IRON AND INTERNAL BORE FOR POLYMER BASED PIPEWORK. REFER SPECIFICATION FOR MATERIAL TYPE.
- ALL PIPEWORK ON DRAWINGS IS SHOWN BELOW SLAB (OR GROUND) UNLESS NOTED OTHERWISE.

ABBREVIATIONS, SYMBOLS AND LINETYPES IN THE LEGEND MAY NOT APPEAR ELSEWHERE ON THE DRAWINGS. THIS LEGEND SHOULD BE USED AS A GUIDE ONLY

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2-18 Centennial Road, Bowral, 2576

DRAWING TITLE
LEGEND, ABBREVIATIONS AND
DRAWING LIST

SCALE N.T.S.@A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-002	REVISION K	

NOTES

GENERAL

1. ALL DIMENSIONS IN MILLIMETRES UNO. REDUCED LEVELS AND CHAINAGES ARE IN METRES. DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS.
2. THE PROPOSED WORKS DETAILED HEREIN SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF COUNCIL. GENERALLY AS DETAILED HEREUNDER.
3. ALL EXISTING SERVICES SHALL BE VERIFIED FOR DEPTH AND HORIZONTAL POSITION BY PHYSICAL MEANS PRIOR TO EXCAVATION. ANY DISCREPANCIES SHALL BE BROUGHT FORTHWITH TO THE PROJECT MANAGER'S ATTENTION.

STORMWATER AND SUBSOIL DRAINAGE

MATERIALS:

1. PIPES AND FITTINGS FOR STORMWATER DRAINAGE SHALL BE AS FOLLOWS UNO ON THE DRAWINGS:

A. POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS FOR BELOW GROUND DRAINAGE UP TO 225mm.

B. REINFORCED CONCRETE WITH RUBBER RINGS FOR PIPE DIA'S GREATER THAN 225mm UNO.

C. REINFORCED CONCRETE WHERE REQUIRED BY AS.3500 FOR EXCESSIVE DEPTH.

D. INSTALL IN ACCORDANCE WITH AUSTRALIAN STANDARD AS.3500 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. PIPES & FITTINGS FOR SUBSOIL DRAINAGE SHALL BE SLOTTED POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS, MIN. 150mm DIAMETER.
3. IN GROUND DRAINAGE PIPEWORK SERVING DP's SHALL BE MINIMUM 150mm DIA. UNO.
4. GRATED DRAINS SHALL BE 150mm NOM.

A. 150mm NOM. WIDTH IN NON TRAFFICABLE AREAS.

B. 225mm NOM. WIDTH IN TRAFFICABLE AREAS.
5. STORMWATER PITS ARE AS SHOWN & SPECIFIED ON THE PLANS . PRECAST TYPE ACCEPTABLE WITH STEP IRONS FOR DEPTH GREATER THAN 1000. BENCH ALL PITS MIN. 50mm & FORM SMOOTH TRANSITION FROM INLET TO OUTLET.
6. SELECT FILL SHALL BE MATERIAL OBTAINED FROM EXCAVATION OF THE PIPE TRENCH OR IMPORTED WITH A PARTICLE SIZE FOR ROCK NOT GREATER THAN 75mm OR FOR OTHER THAN ROCK NOT GREATER THAN 150mm.
7. IMPORTED FILL SHALL BE EITHER, AND GENERALLY CONSIST OF SINGLE SIZED AGGREGATE WITH PARTICLE SIZE NOT GREATER THAN 5mm WRAPPED ALL ROUND WITH GEOTEXTILE FILTER FABRIC OR APPROVED HIGH COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.
8. STORMWATER PITS AND GRATES TO CONFORM WITH STANDARD COUNCIL REQUIREMENTS, WHERE ON PUBLIC LAND, GRATES TO BE SUPPLIED IN CLASS SHOWN ON THE DRAWINGS.

INSTALLATION REQUIREMENTS:

9. PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRES OF THE INLET PIPES INTERSECT WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.
10. MINIMUM GRADES FOR GRAVITY STORMWATER DRAINAGE SHALL CONFORM TO AS3500 PART3 AS FOLLOWS, UNO:

1% FOR 100 AND 150 mm DIA.

0.5% FOR 225 mm DIA

0.4% FOR 300 mm DIA

0.35% FOR 375 mm DIA
11. MINIMUM DEPTH OF COVER SHALL BE :-

- 300mm IN PRIVATE PROPERTY (NON VEHICULAR TRAFFIC).

- 450mm IN PUBLIC AREAS.

- 600mm IN VEHICULAR TRAFFICABLE AREAS (FOOTWAY/ROADWAY).
12. BED ALL PIPES FIRMLY AND EVENLY ONTO IMPORTED BEDDING FILL MATERIAL.
13. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND:

AS 3725-1989 LOADS ON BURIED CONCRETE PIPES

AS 2566-1998 BURIED FLEXIBLE PIPELINES

AS 1597.2-1996 PRECAST REINFORCED CONCRETE BOX CULVERTS.

AS 3500-1990 NATIONAL PLUMBING & DRAINAGE CODE.

PART 2, SANITARY PLUMBING AND SANITARY DRAINAGE.

SYDNEY WATER REQUIREMENTS.
14. ALLOW TO TEST ALL PIPES AND PITS TO MANUFACTURERS REQUIREMENTS.

CONCRETE WORKS

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE STANDARDS ASSOCIATION AUSTRALIA, STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION
2. ALL CONCRETE SHALL BE 80mm NOMINAL SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS OTHERWISE APPROVED.

ALL CONCRETE WORK IN CONTACT WITH SEWER TO HAVE TYPE SL PORTLAND CEMENT, OTHERWISE TYPE A CEMENT.

FOR BRIDGE WORKS, A MAXIMUM 56 DAYS SHRINKAGE OF 600 MICROSTRAIN, A MINIMUM CEMENT CONTENT 350kg/m3 AND MAXIMUM WATER:CEMENT RATIO OF 0.40
3. STRENGTH GRADE OF CONCRETE SHALL BE:

25 MPa (KERBS, EDGE STRIPS & CONCRETE ENCASEMENT) AND 32 MPa ELSEWHERE.
4. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED. GENERALLY FOR HAND PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 6m. FOR MACHINE PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 12m & GUILLOTINED DUMMY GROOVED JOINTS, 25mm IN DEPTH, SHALL BE FORMED EVERY 3m OF GUTTER. JOINTS ARE ALSO REQUIRED AT EACH END OF GUTTER CROSSING AND GULLY PITS. JOINTS SHALL BE SET VERTICAL AND SQUARE TO THE KERB.
5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
6. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.
7. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.
8. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT APPROVAL.
9. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH FIG.13.2.4 OFAS3600.
10. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.
11. ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY 'RAMSET' WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS OR HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

GENERAL EARTHWORKS, SITEWORKS & FILLING:

FILLING:

1. THESE CLAUSES SHALL BE READ IN CONJUNCTION WITH "REPORT ON GEOTECHNICAL INVESTIGATION BY _____ REPORT No. _____ PH 9_____ FAX: 9 _____" N/A
2. THE RECOMMENDATIONS CONTAINED IN THE GEOTECH REPORT SHALL OVERRIDE THE CLAUSES PRESENTED HEREIN.
3. STRIP ALL TOPSOIL AND UNDERLYING FILL AND STOCKPILE TOPSOIL FOR LATER REUSE FOR LANDSCAPING PURPOSES.
4. NEW FILL REQUIRED TO REINSTATE CUT LEVELS TO PROPOSED BENCHING LEVELS SHALL BE SOURCED FROM OTHER PARTS OF THE EXCAVATION AS SELECT FILL OR IMPORTED FILL AS SPECIFIED BELOW IN NOTES 5 AND 6.
5. SELECT FILL SHALL CONSIST OF LOCALLY DERIVED OR CUT NATURAL CLAYS.
6. IMPORTED FILL SHALL CONSIST OF RIPPED SANDSTONE OR SHALE OR SIMILAR MATERIAL WITH MAXIMUM PARTICLE SIZE NOT GREATER THAN 120mm AND A MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.
7. ALL FILL (COHESIVE SOIL) SHALL BE PLACED IN LAYERS OF 200mm MAXIMUM THICKNESS, COMPACTED BY MACHINE ROLLING TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

EXCAVATION BATTERS:

8. ALL TEMPORARY BATTERS CUT IN CLAY SUBSTRATE SHALL BE 1 HORIZ : 1 VERT. ALL LONG TERM EXPOSED BATTERS CUT IN CLAY SUBSTRATE SHALL BE 2 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN CLAY SUBSTRATE SHALL BE 3 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN ROCK SUBSTRATE SHALL BE NEAR VERTICAL.
9. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS:

FOR GENERAL FILL AREAS OR CUT AREAS OVER THE AREA PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 500m².

FOR GENERAL FILL AREAS IN CONCENTRATED AREAS ADJACENT TO AND BEHIND THE STRUCTURE AND ADJACENT TO AND BEHIND RETAINING WALLS PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 50m².
10. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO LP CONSULTING AUSTRALIA FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

EARTHWORKS FOR SERVICES

1. EXCAVATE TRENCHES AND STOCKPILE ALL MATERIAL FOR INSPECTION WITH REGARD TO RE-USE FOR TRENCH BACKFILL. REMAINING MATERIAL TO BE REMOVED FROM SITE.
2. BEDDING MATERIAL SHALL CONSIST OF IMPORTED FILL ONLY. THICKNESS OF BEDDING LAYER SHALL BE 75mm IN O.T.R. AND 200mm IN ROCK.
3. EMBED ALL PIPES WITH IMPORTED FILL. PROVIDE 200mm SIDE SUPPORT AND 150mm OVERLAY ABOVE PIPE CROWN.
4. TRENCH FILL ABOVE THE EMBEDMENT ZONE TO THE UNDERSIDE OF THE ROAD PAVEMENT OR FOOTWAY FILL. MATERIAL SHALL BE AS FOLLOWS :

UNDER ROADWAY:

TRENCH FILL MATERIAL SHALL CONSIST OF IMPORTED FILL AS SPECIFIED HEREIN OF EITHER HIGH GRADE COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

OTHER THAN ROADWAY:

TRENCH FILL MATERIAL EXCAVATED SHALL CONSIST OF SELECT FILL AS SPECIFIED HEREIN AND SHALL NOT CONTAIN MORE THAN 20% OF STONES OF SIZE BETWEEN 75mm & 150mm AND NONE LARGER THAN 150mm. PRIOR TO THE USE OF THE EXCAVATED MATERIAL IT SHALL BE INSPECTED AND APPROVED BY THE CONSULTANT.

5. COMPACT BEDDING, EMBEDMENT AND TRENCH FILL MATERIALS AS FOLLOWS:

- EMBEDMENT:-

FOR GRANULAR FILL MATERIAL (NON-COHESIVE SOILS) EG. COARSE AGGREGATE FILL, HIGH GRADE COMPACTION SAND, THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

TRENCH FILL:-

FOR GRANULAR MATERIAL (NON-COHESIVE SOILS), THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

FOR NON-GRANULAR FILL MATERIAL (COHESIVE SOILS), THE DRY DENSITY RATIO (RD) SHALL BE NOT LESS THAN 95%.
6. MEASURE OF COMPACTION:-

THE DEGREE OF COMPACTION SHALL BE MEASURED BY ONE OF THE FOLLOWING PARAMETERS :-

GRANULAR FILL (NON-COHESIVE SOILS). THE DENSITY INDEX (ID) DETERMINED IN ACCORDANCE WITH AS 1289.E6.1 BASED ON THE MAXIMUM AND MINIMUM DRY DENSITIES IN ACCORDANCE WITH AS 1289.E5.1 AND THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2, AS 1289.E3.5 OR AS 1289.E8.1.

NON-GRANULAR FILL (COHESIVE SOILS). THE DRY DENSITY RATION (RD) DETERMINED IN ACCORDANCE WITH AS 1289.5.4.1 BASED ON THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2 AND THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289.5.1.1.
7. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS:

TEST EACH 300mm LAYER ABOVE PIPE CROWN.

TEST BASE & SUB-BASE LAYERS WHERE APPLICABLE.

TESTS SHALL BE REQUIRED AT EACH 50m CENTRES WHERE THE LENGTH OF TRENCH IS WITHIN THE 50m REQUIREMENT.
8. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO LP CONSULTING AUSTRALIA FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

RESTORATION

1. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION.
2. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.
3. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL STANDARDS.

APPROVALS

1. THE AS CONSTRUCTED WORKS SHALL BE INSPECTED BY DESIGN CONSULTANT. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.
2. THE DESIGN PLANS HEREIN ARE SUBJECT TO COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT MANAGER PRIOR TO COMMENCEMENT.
3. SUBMIT WORK-AS-EXECUTED DRAWINGS IN AUTOCAD "DWG" DIGITAL FORMAT AND HARD COPY FORMAT. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.
4. CERTIFY THAT THE AS CONSTRUCTED SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.

SERVICES UNDER ROAD SURFACES

1. ALL OTHER SERVICES INCLUDING BUT NOT LIMITED TO WATER, HYDRANT, GAS, SEWER, ELECTRICAL AND COMMUNICATIONS CONDUITS OR CABLES SHALL BE LAID WITH MINIMUM 600mm U.N.O. COVER BELOW PROPOSED ROAD SURFACE OR APPROVED OTHER MEANS TO PROTECT DURING CONSTRUCTION.

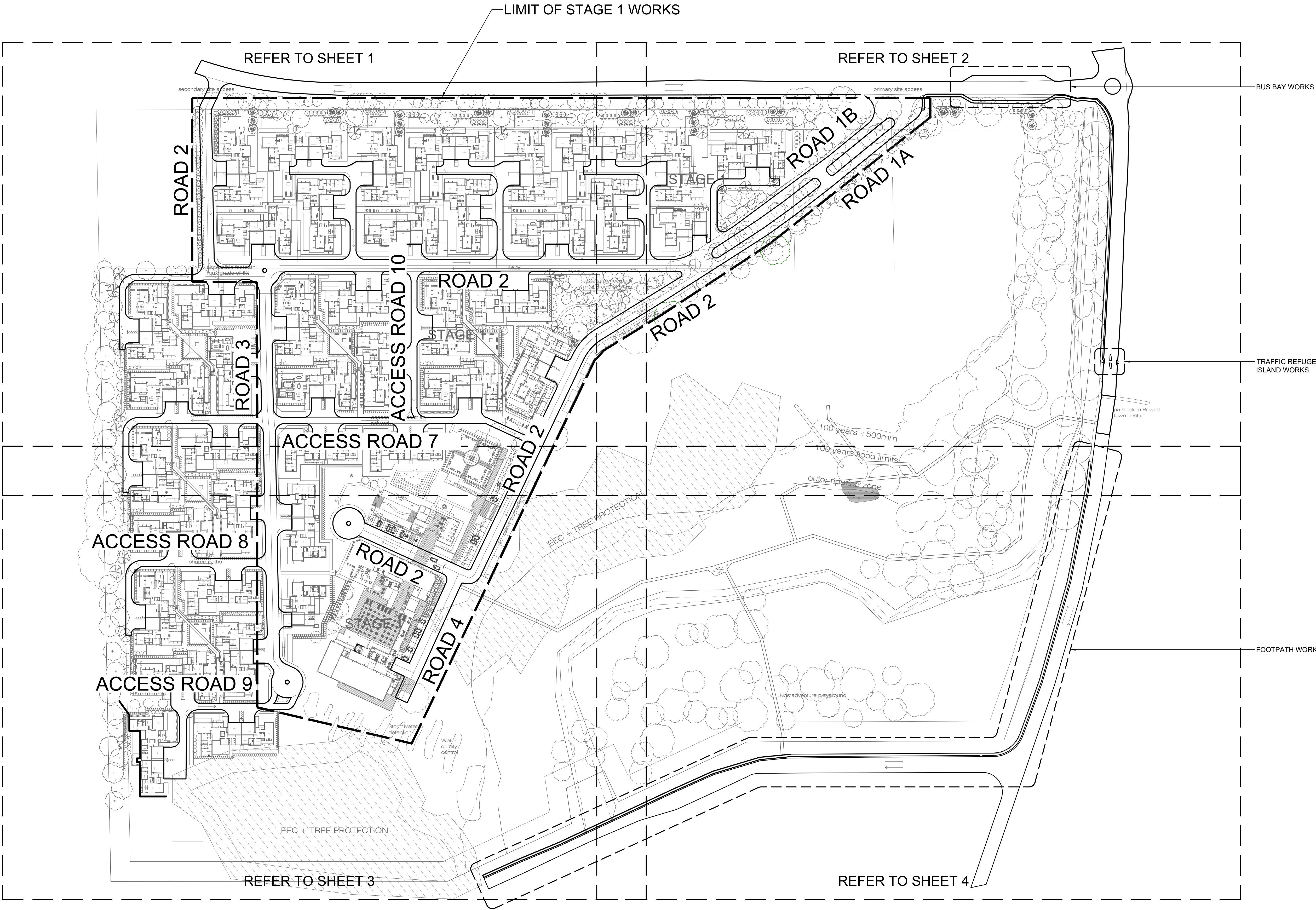
HYDRAULIC SERVICES (WHERE REQUIRED)

1. ALL WORKS CARRIED OUT SHALL COMPLY WITH AS-3500, SYDNEY WATER & COUNCIL REQUIREMENTS. OBTAIN NECESSARY AUTHORITIES APPROVALS PRIOR TO COMMENCING WORKS.
2. PRIOR TO COMMENCING WORKS SURVEY & INSPECT SITE & CONFIRM LOCATION & LEVELS OF ALL HYDRAULIC SERVICES PIPEWORK. NO CLAIMS FOR ADDITIONAL COSTS RESULTING FROM THE LACK OF KNOWLEDGE OF SITE CONDITIONS RELATING TO WORKS TO BE DONE OR LOCATIONS AND LEVELS OF EXISTING AND NEW SERVICES WILL BE ACCEPTED.
3. PRIOR TO CAPPING OFF & REMOVAL OF REDUNDANT SERVICES CONFIRM ON SITE THAT SERVICE IS NOT SUPPLYING EXISTING BUILDINGS OR AMENITIES.
4. COLD WATER PIPEWORK SHALL CONSIST OF COPPER TUBE & FITTINGS IN ACCORDANCE WITH AS 1432 TYPE B. PIPES AND FITTINGS SHALL BE JOINTED WITH 15% SILVER SOLDER.
5. ALL NEW UNDERGROUND METAL PIPEWORK SHALL BE INSTALLED WITH POLYETHYLENE SLEEVING OBTAINED FROM "TYCO WATER AUST" AND INSTALLED TO MANUFACTURE'S REQUIREMENTS.
6. LANDSCAPE IRRIGATION WATERING PIPEWORK SHALL CONSIST OF MEDIUM DENSITY POLYETHYLENE PIPE CLASS PN16 WITH ELECTRO FUSION JOINTS OR EQUAL TO EXISTING PIPEWORK.

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	A	2017.12.13	ISSUED FOR COORDINATION	TF, LP			Waterbrook		GENERAL NOTES			
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	D	2018.09.07	DEVELOPMENT APPLICATION ISSUED FOR COORDINATION	TF, LP								
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J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP			N.T.S. @A1	2017.12.14	TF	LP			
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP			JOB	DRAWING	REVISION				
							16104	DA-C-003	K			

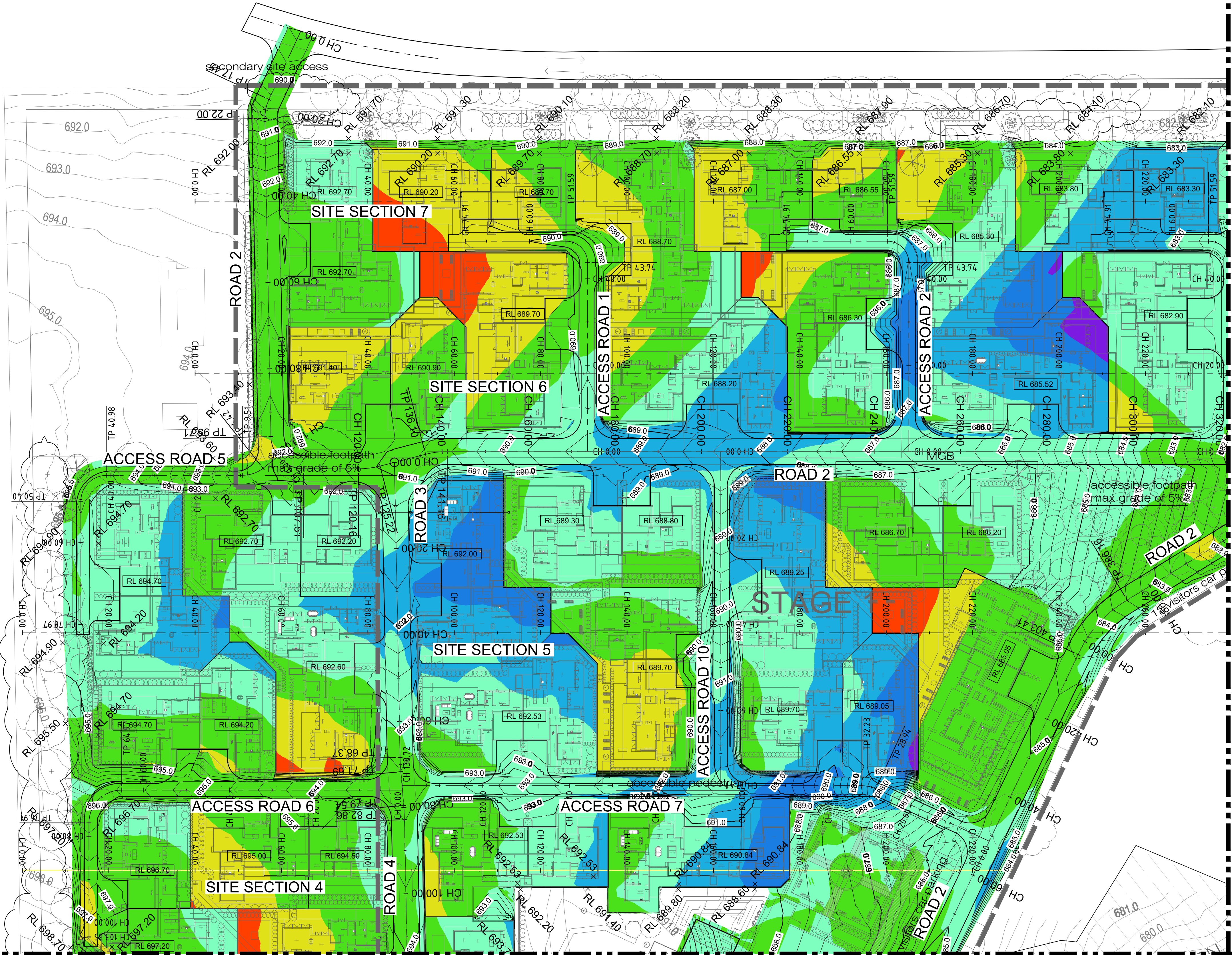


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	H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP			SCALE		1:1000@A1	DATE	2017.12.14	DRAWN	TF	CHECKED	LP	
	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP			JOB		16104	DRAWING		DA-C-004		REVISION		K
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP												



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JOB 16104							DRAWING DA-C-100		REVISION K					

Surface Analysis: Elevation Ranges			
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
1	Red	-3.80	-3.00
2	Orange	-3.00	-2.00
3	Yellow	-2.00	-1.00
4	Light Green	-1.00	0.00
5	Green	0.00	1.00
6	Light Blue	1.00	2.00
7	Blue	2.00	3.00
8	Dark Blue	3.00	3.29



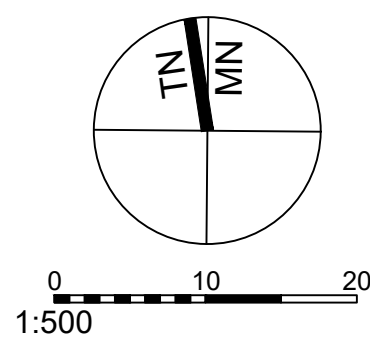
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E	2018.08.23	SECTION 96 - PRELIMINARY ISSUE EARTHWORKS ITERATION No. 6 (BASED ON ARCH REVISED LEVELS 21.08.2018)	TF, LP
F	2018.08.30	SECTION 96 - PRELIMINARY ISSUE EARTHWORKS ITERATION No. 7 (BASED ON ARCH REVISED LEVELS 24.08.2018)	TF, LP
G	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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DRAWING TITLE
CIVIL WORKS
SITE GRADING AND BULK
EARTHWORKS LEVELS PLAN - SHEET 1

SCALE	DATE	DRAWN	CHECKED
1:500@A1	2017.12.14	TF	LP
JOB	DRAWING	REVISION	
16104	DA-C-101	K	

CONTINUED ON DWG C-101



Surface Analysis: Elevation Ranges			
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
1		-3.80	-3.00
2		-3.00	-2.00
3		-2.00	-1.00
4		-1.00	0.00
5		0.00	1.00
6		1.00	2.00
7		2.00	3.00
8		3.00	3.29

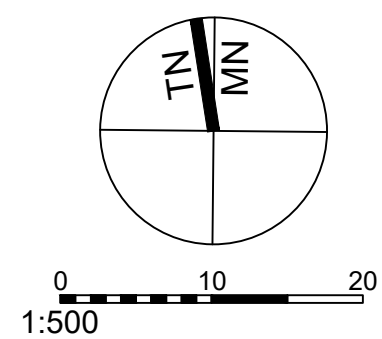
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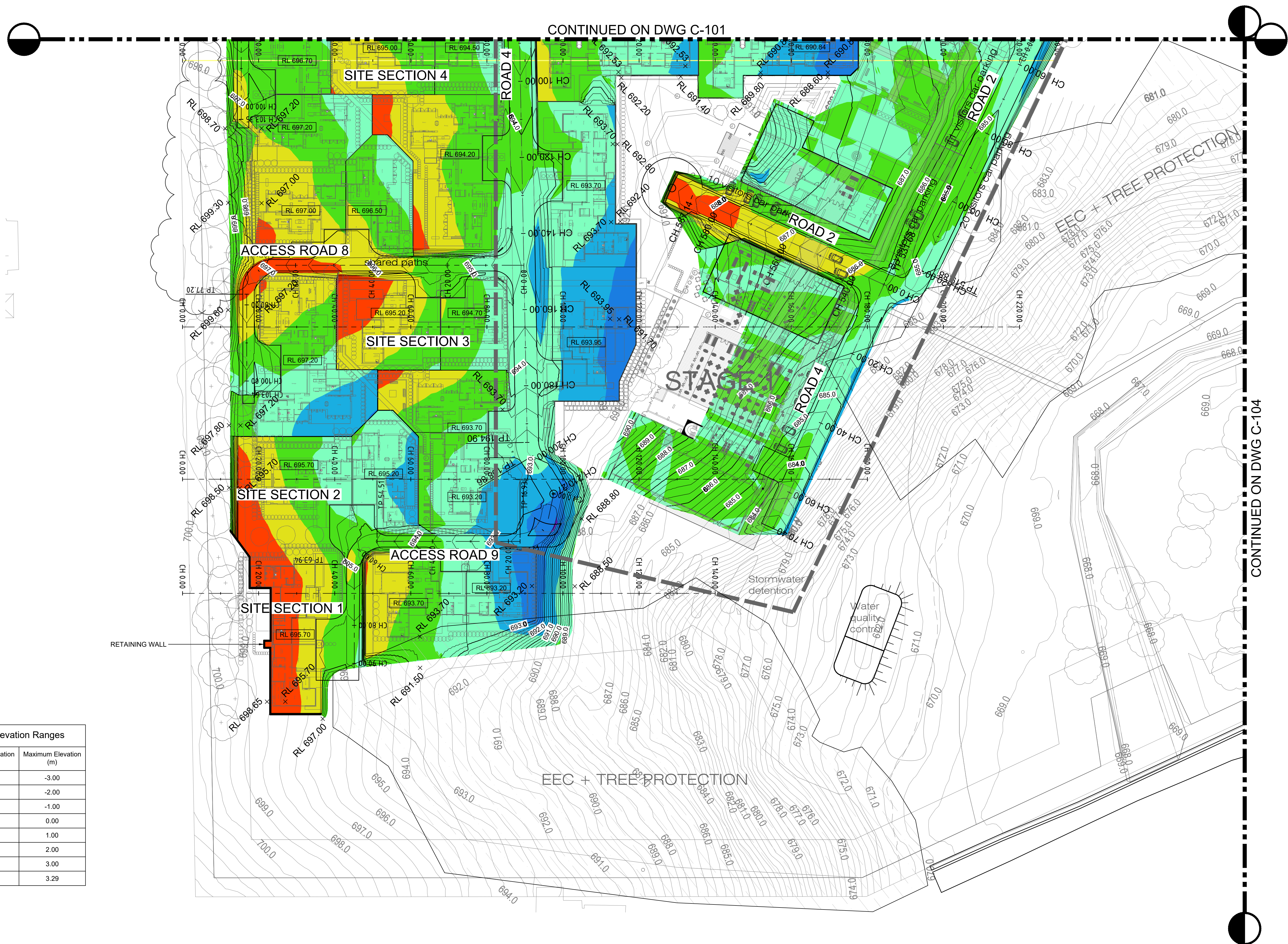


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DRAWING TITLE
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SITE GRADING AND BULK
EARTHWORKS LEVELS PLAN - SHEET 2

SCALE	DATE	DRAWN	CHECKED
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JOB	DRAWING	REVISION	
16104	DA-C-102	K	

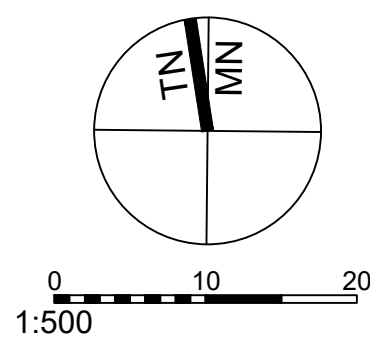


Surface Analysis: Elevation Ranges			
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)
1	Red	-3.80	-3.00
2	Orange	-3.00	-2.00
3	Yellow	-2.00	-1.00
4	Light Green	-1.00	0.00
5	Green	0.00	1.00
6	Blue	1.00	2.00
7	Dark Blue	2.00	3.00
8	Purple	3.00	3.29

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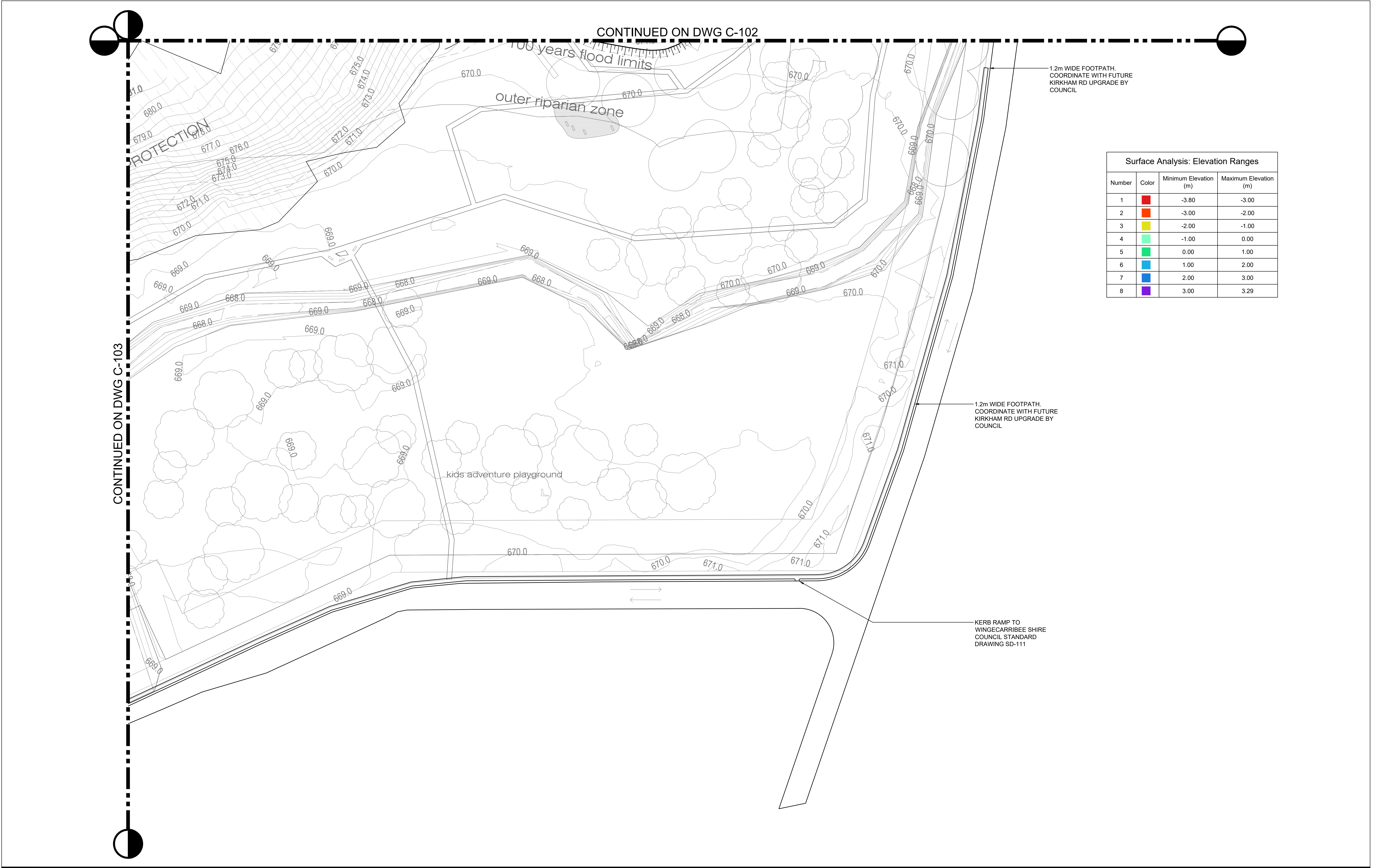


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DRAWING TITLE
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SITE GRADING AND BULK
EARTHWORKS LEVELS PLAN - SHEET 3

SCALE	DATE	DRAWN	CHECKED
1:500@A1	2017.12.14	TF	LP
JOB	DRAWING	REVISION	
16104	DA-C-103	K	



Surface Analysis: Elevation Ranges			
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2	Orange	-3.00	-2.00
3	Yellow	-2.00	-1.00
4	Light Green	-1.00	0.00
5	Green	0.00	1.00
6	Blue	1.00	2.00
7	Dark Blue	2.00	3.00
8	Purple	3.00	3.29

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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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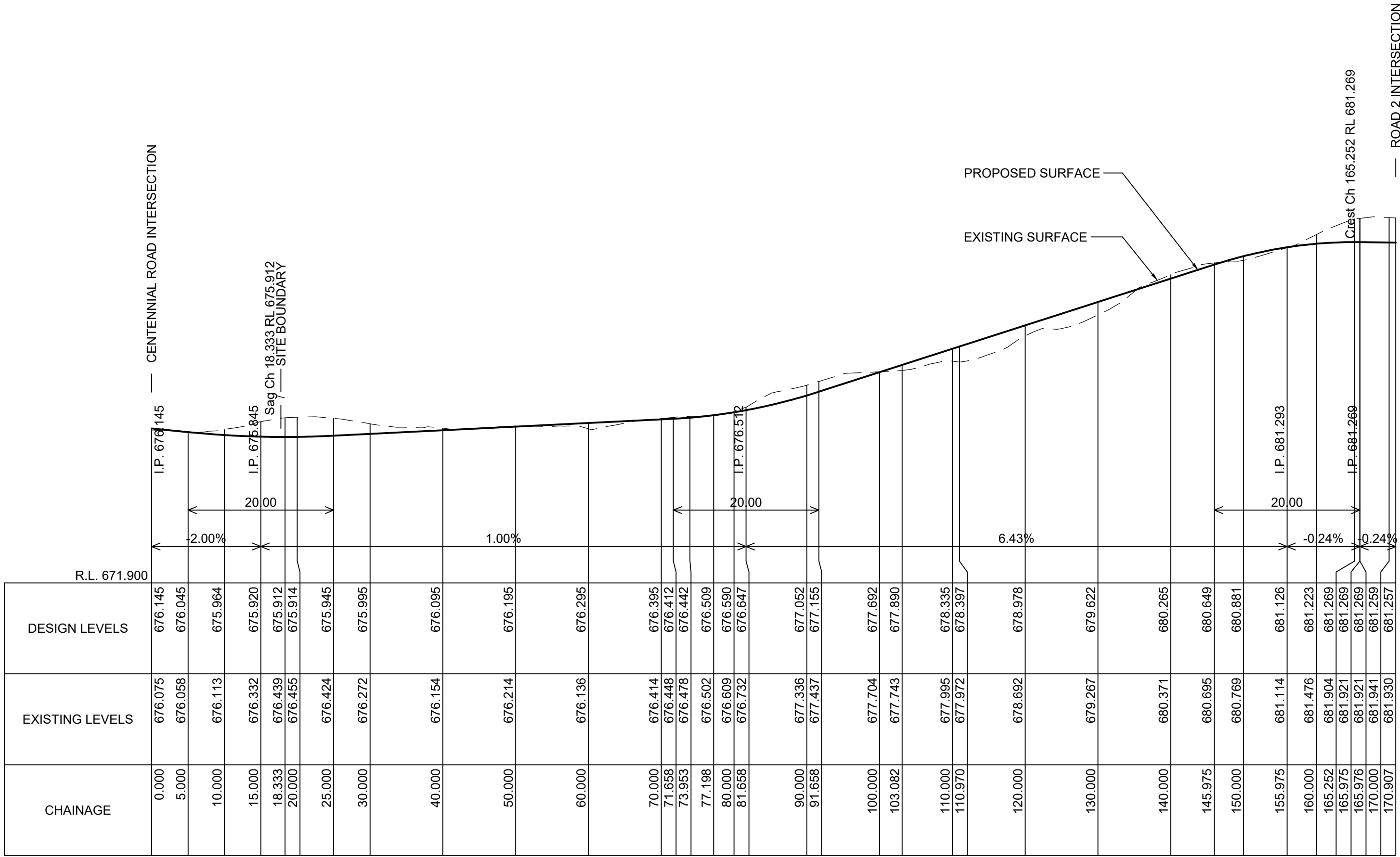
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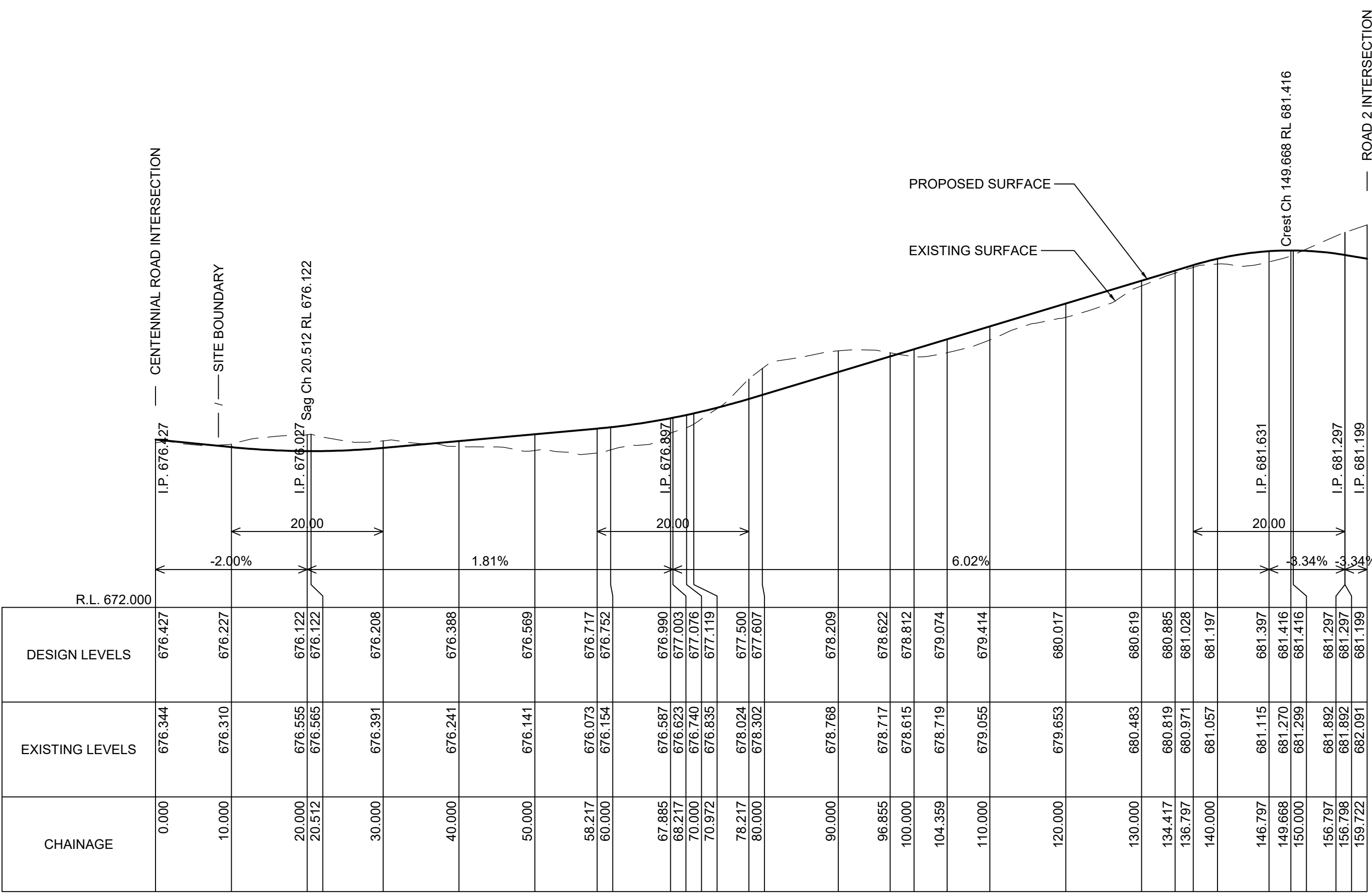
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**CIVIL WORKS
SITE GRADING AND BULK
EARTHWORKS LEVELS PLAN - SHEET 4**

SCALE 1:500@A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-104	REVISION K	



LONGITUDINAL SECTION
ROAD 1A
SCALE: 1:500 HOR
SCALE: 1:100 VERT

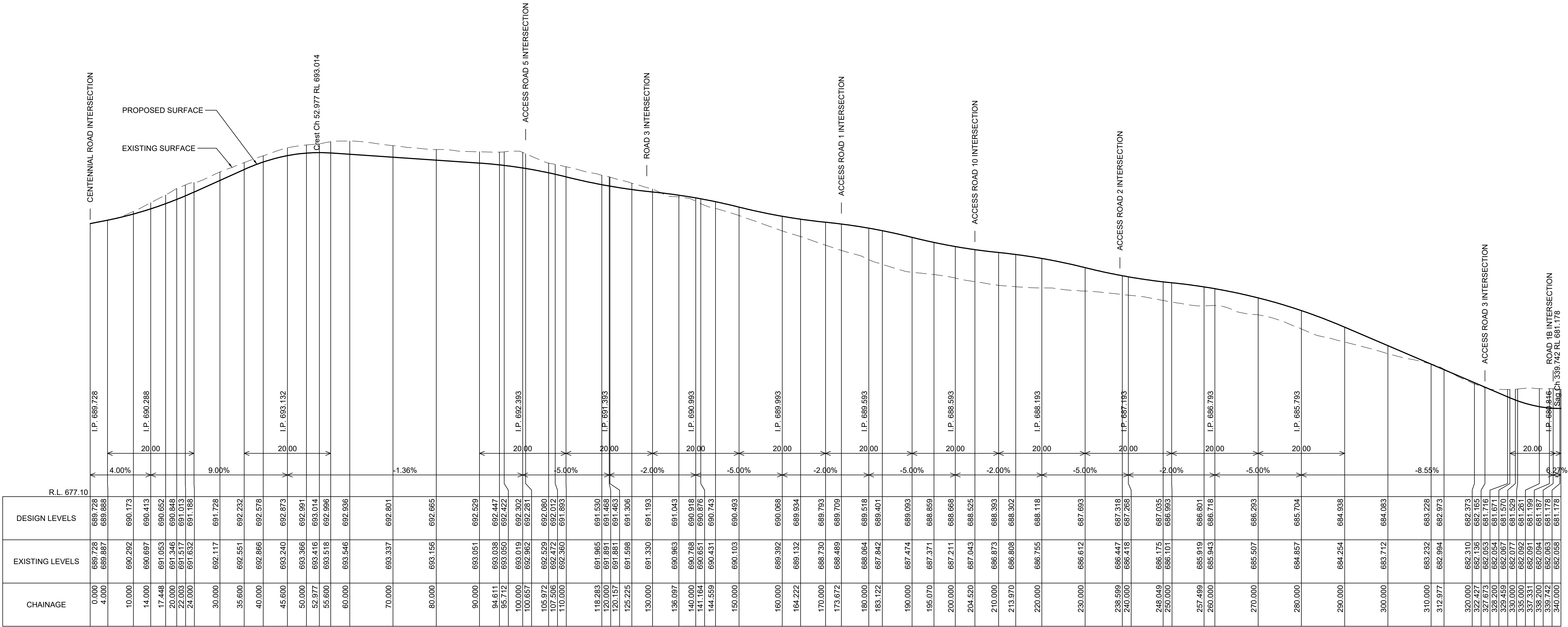
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102



LONGITUDINAL SECTION
ROAD 1B
SCALE: 1:500 HOR
SCALE: 1:100 VERT

2
102

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FOR APPROVAL	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP
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LONGITUDINAL SECTION
ROAD 2

1

101

SCALE: 1:500 HOR
SCALE: 1:100 VERT

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J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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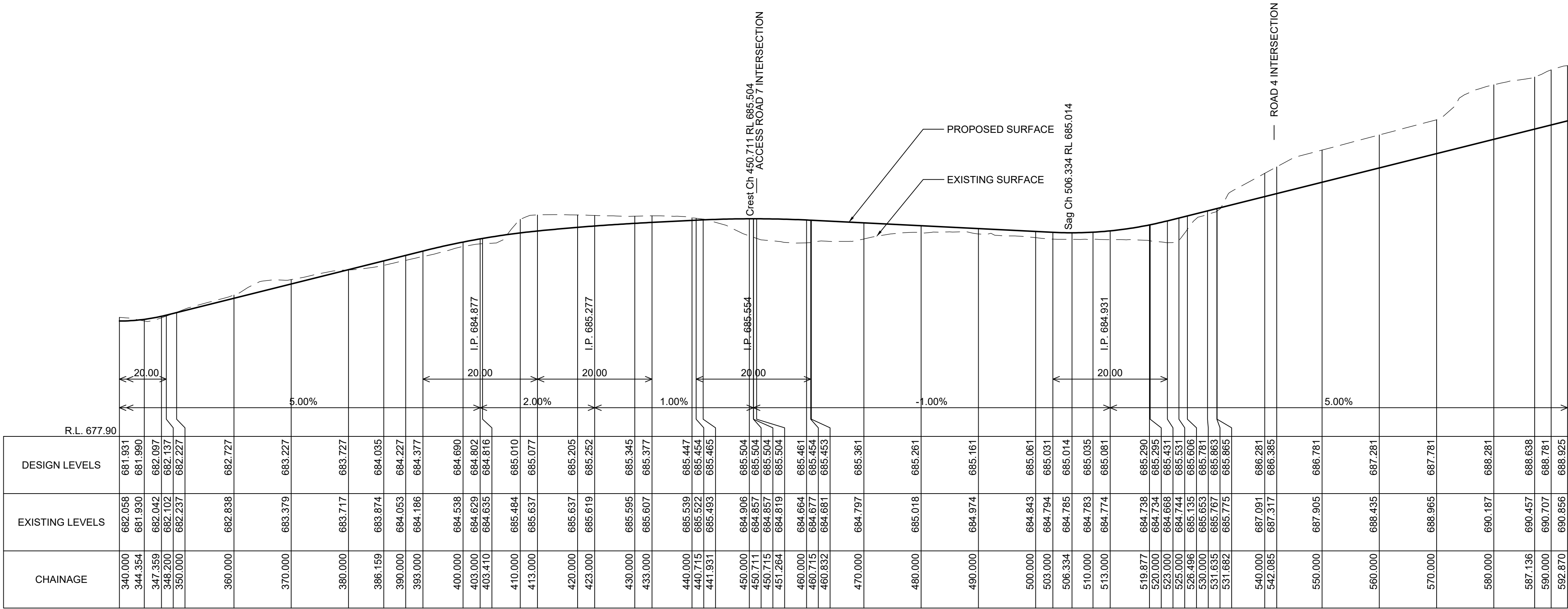
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SCALE AS SHOWN @ A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-122		REVISION K

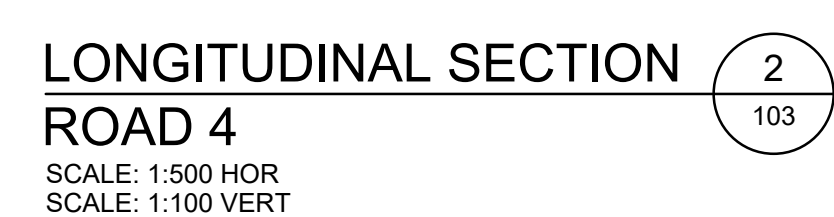
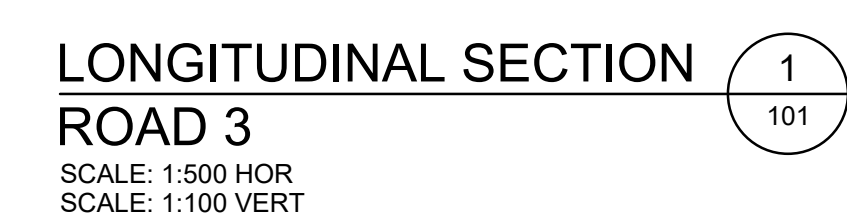


LONGITUDINAL SECTION
ROAD 2 (CON'T)

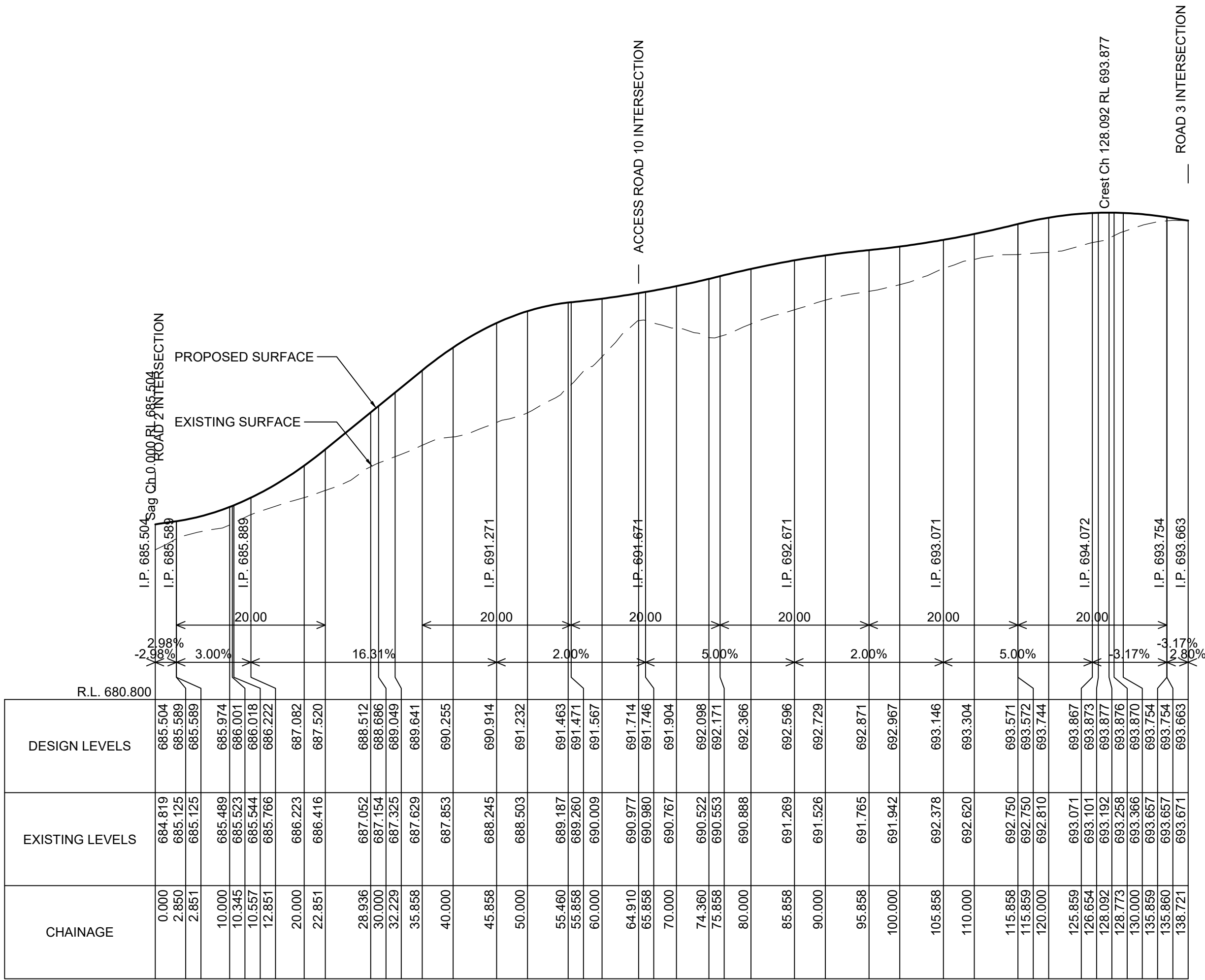
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101

SCALE: 1:500 HOR
SCALE: 1:100 VERT

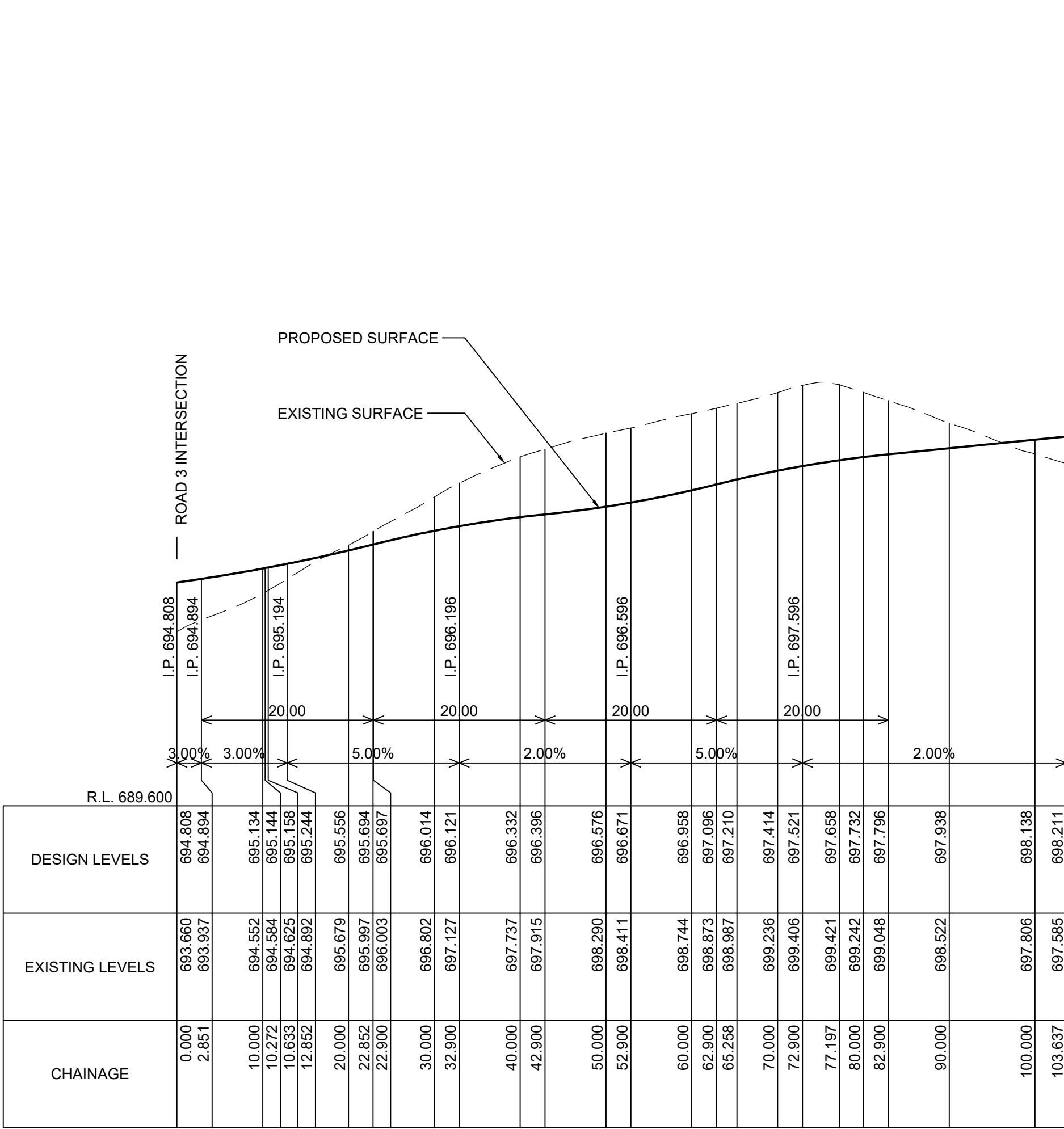


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	D	2018.08.02	SECTION 96 - PRELIMINARY ISSUE	TF, LP						
	E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP						
	H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP						
	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP						
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP						
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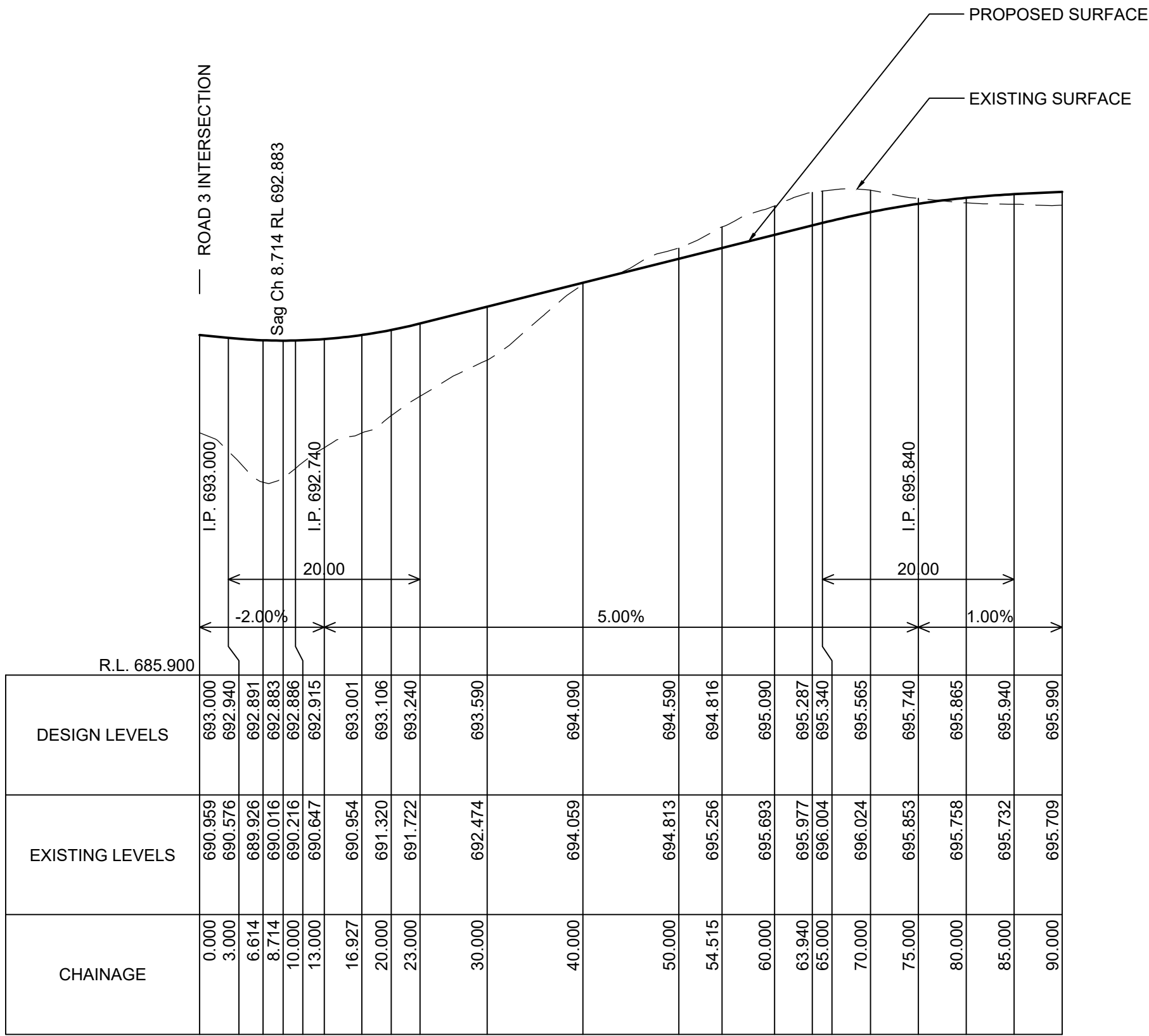
LONGITUDINAL SECTION
ACCESS ROAD 7

SCALE: 1:500 HOR
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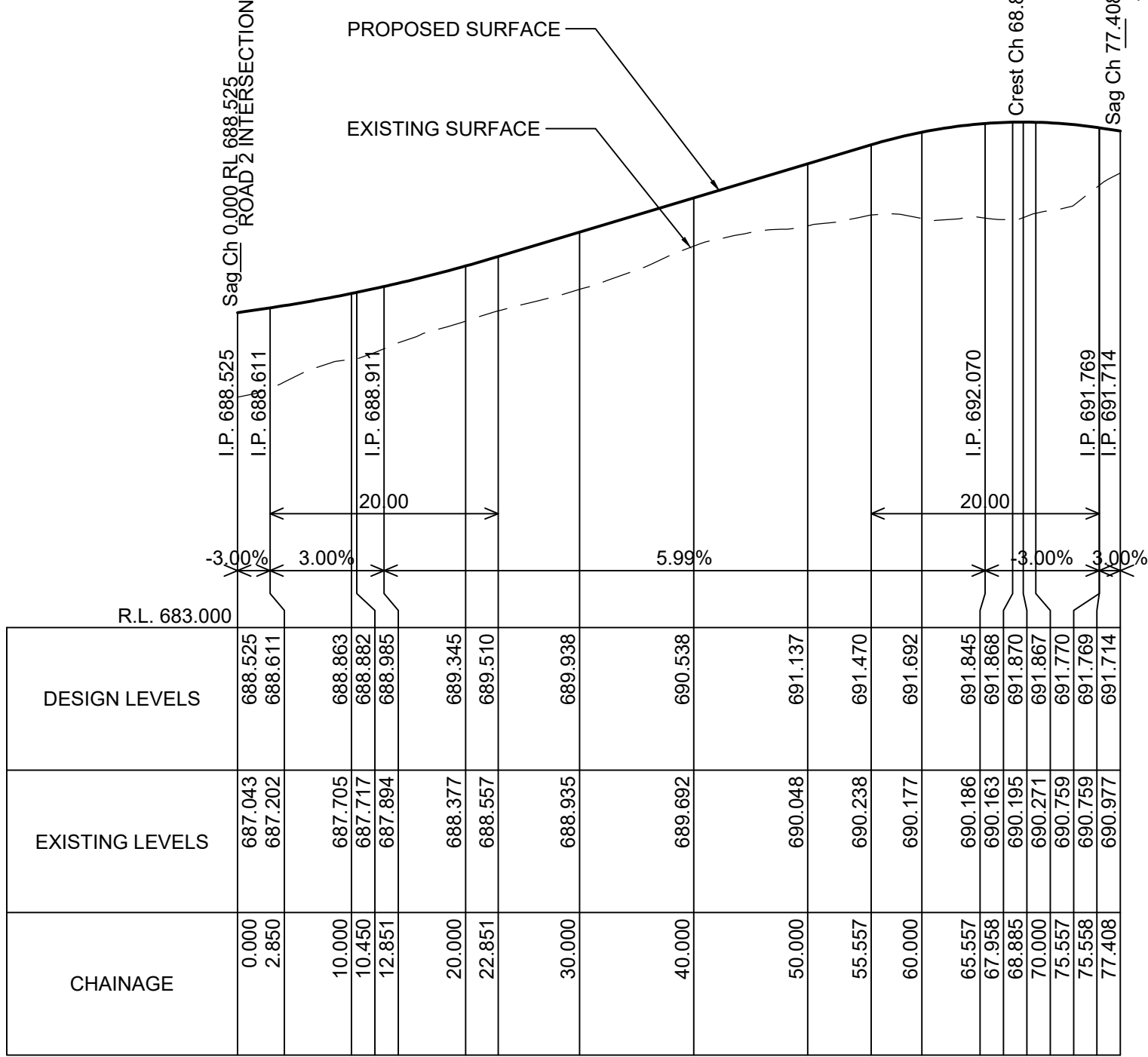
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ACCESS ROAD 8

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LONGITUDINAL SECTION
ACCESS ROAD 9

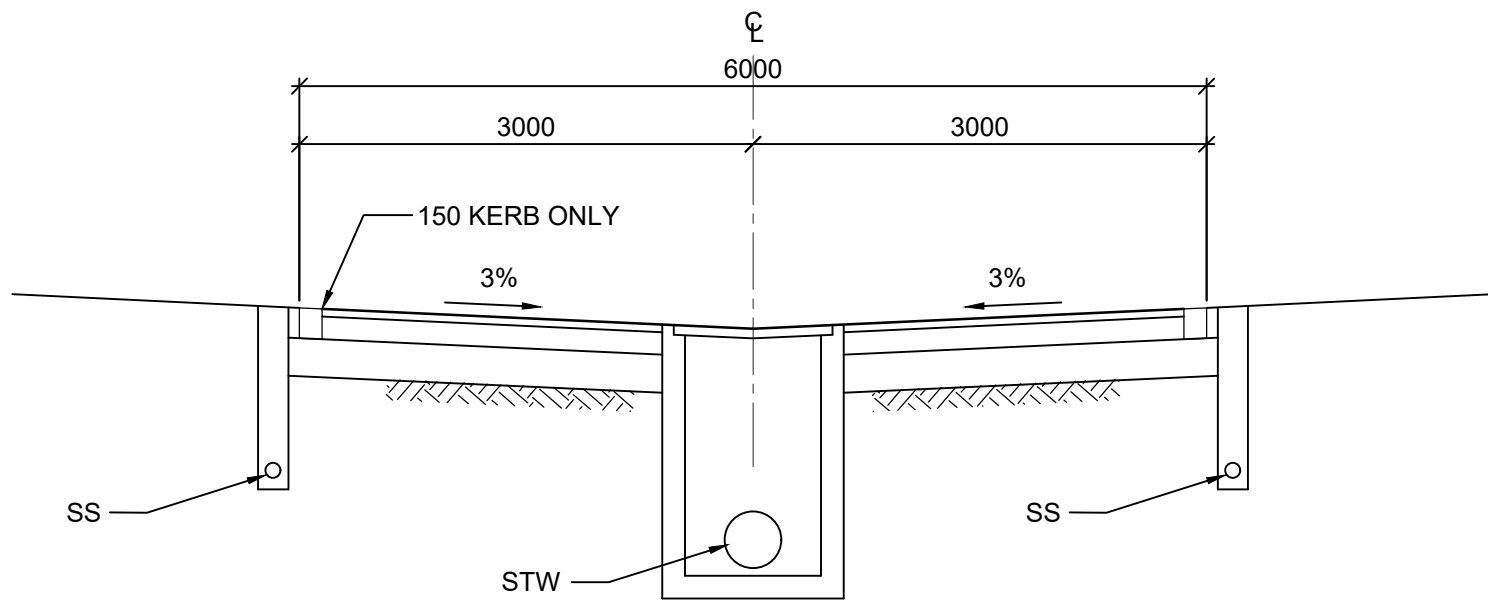
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LONGITUDINAL SECTION
ACCESS ROAD 10

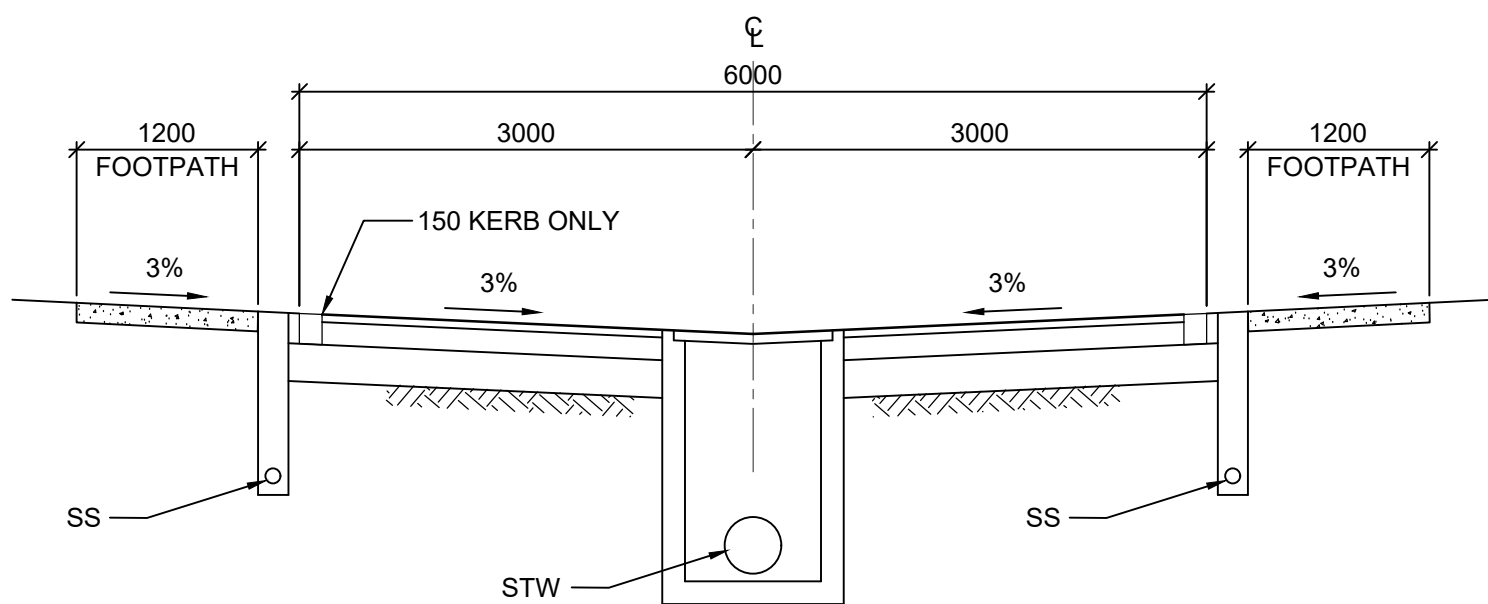
SCALE: 1:500 HOR
SCALE: 1:100 VERT

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	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE		TF, LP	PROJECT 2-18 Centennial Road, Bowral, 2576				SCALE AS SHOWN @ A1		DATE 2017.12.14	DRAWN TF	CHECKED LP			
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE		TF, LP					JOB 16104		DRAWING DA-C-128		REVISION K			
FOR APPROVAL																	



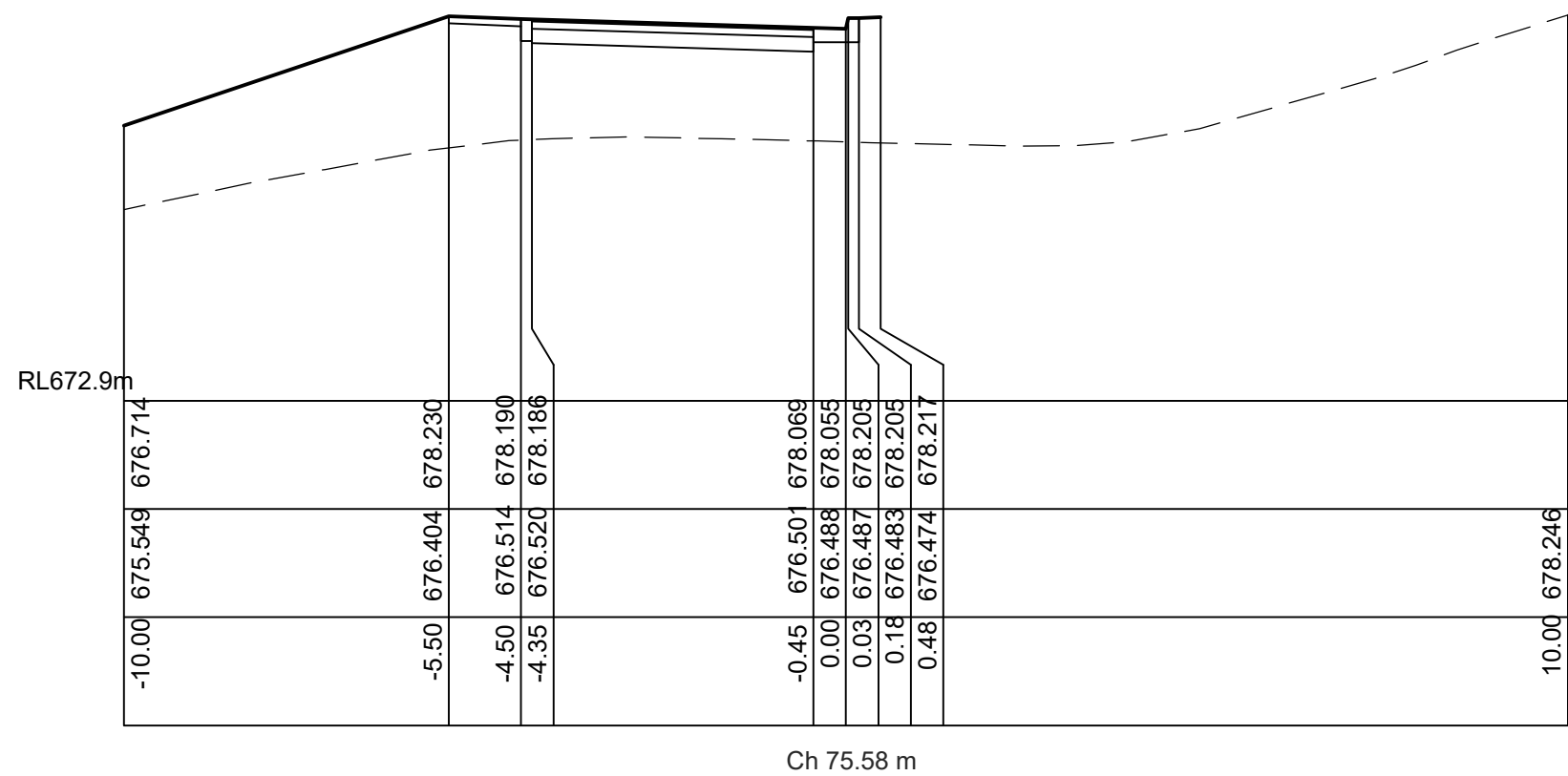
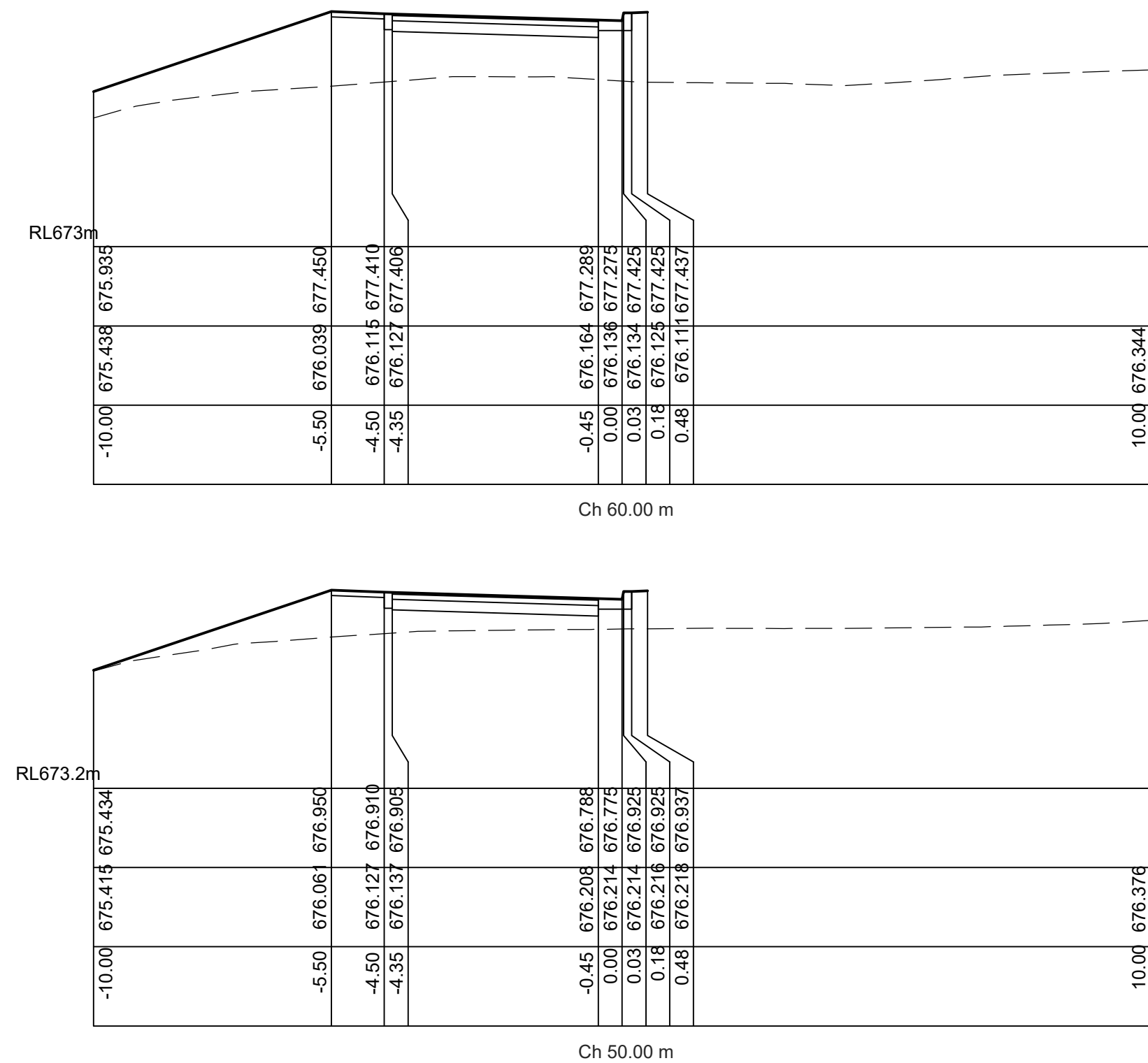
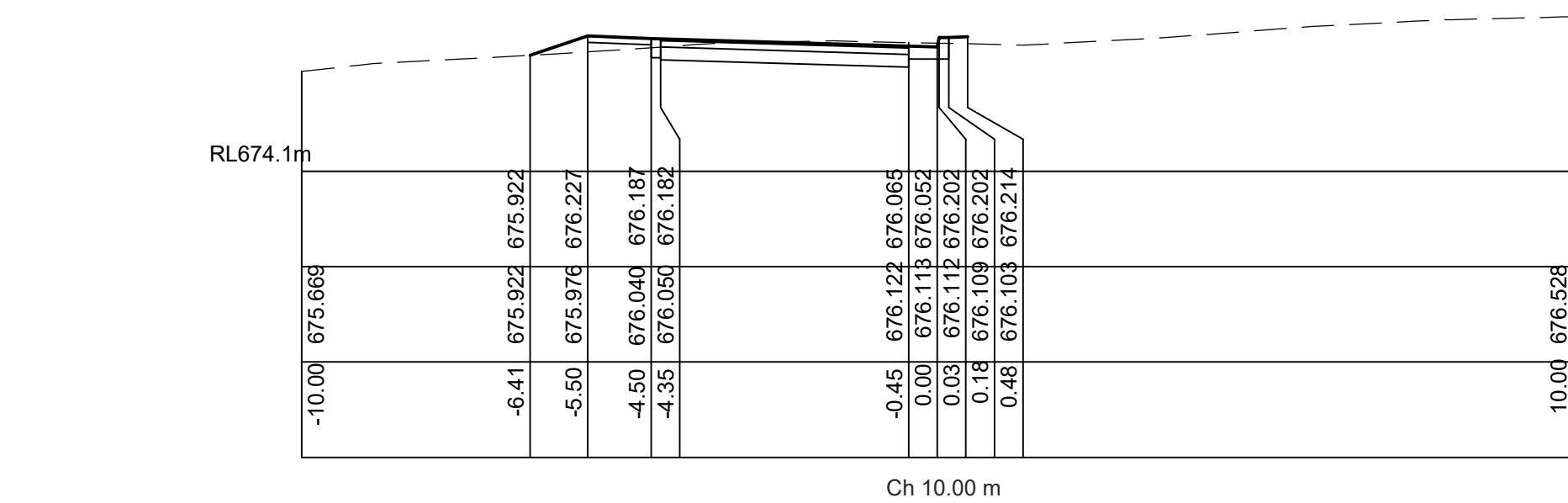
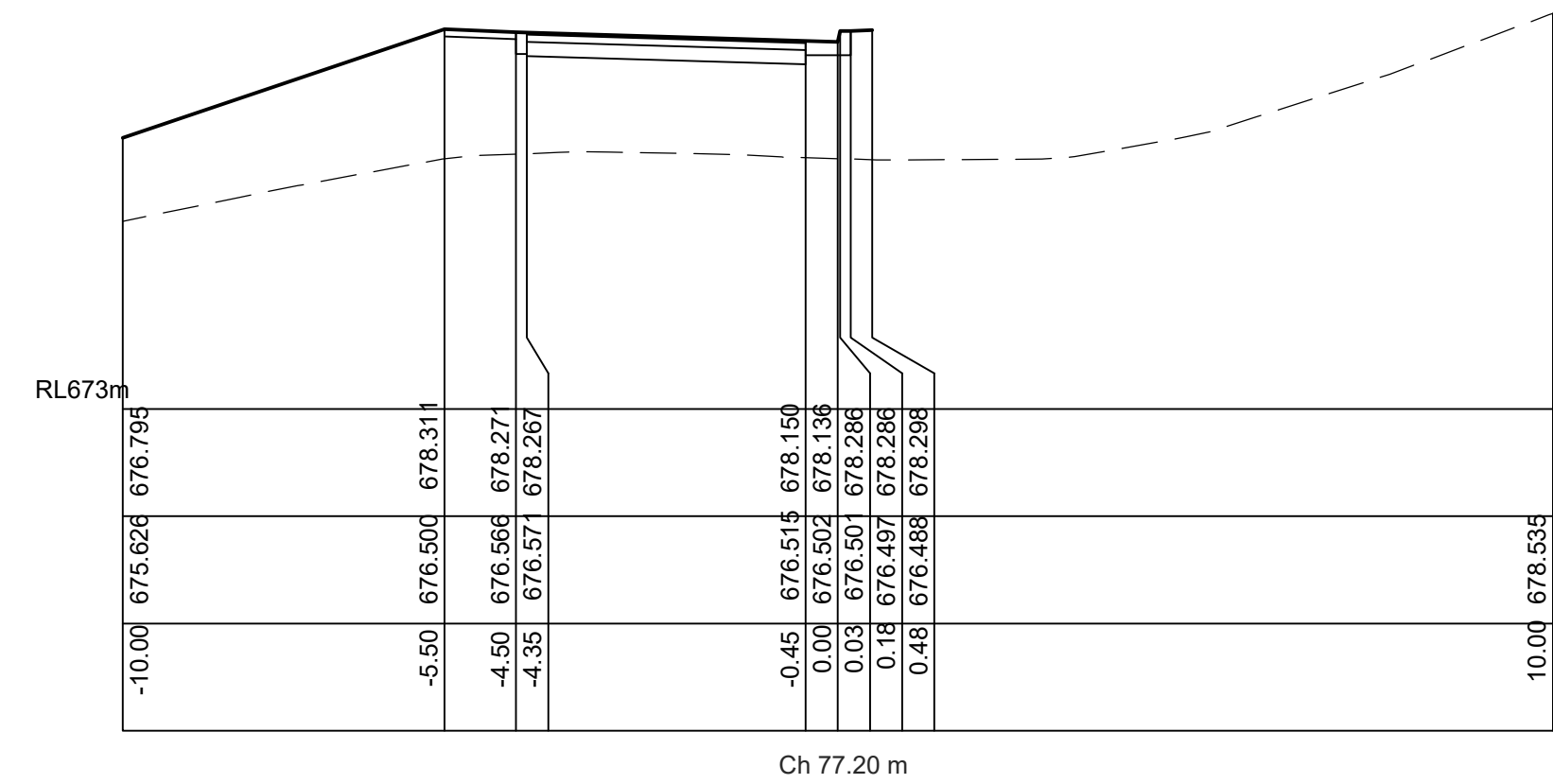
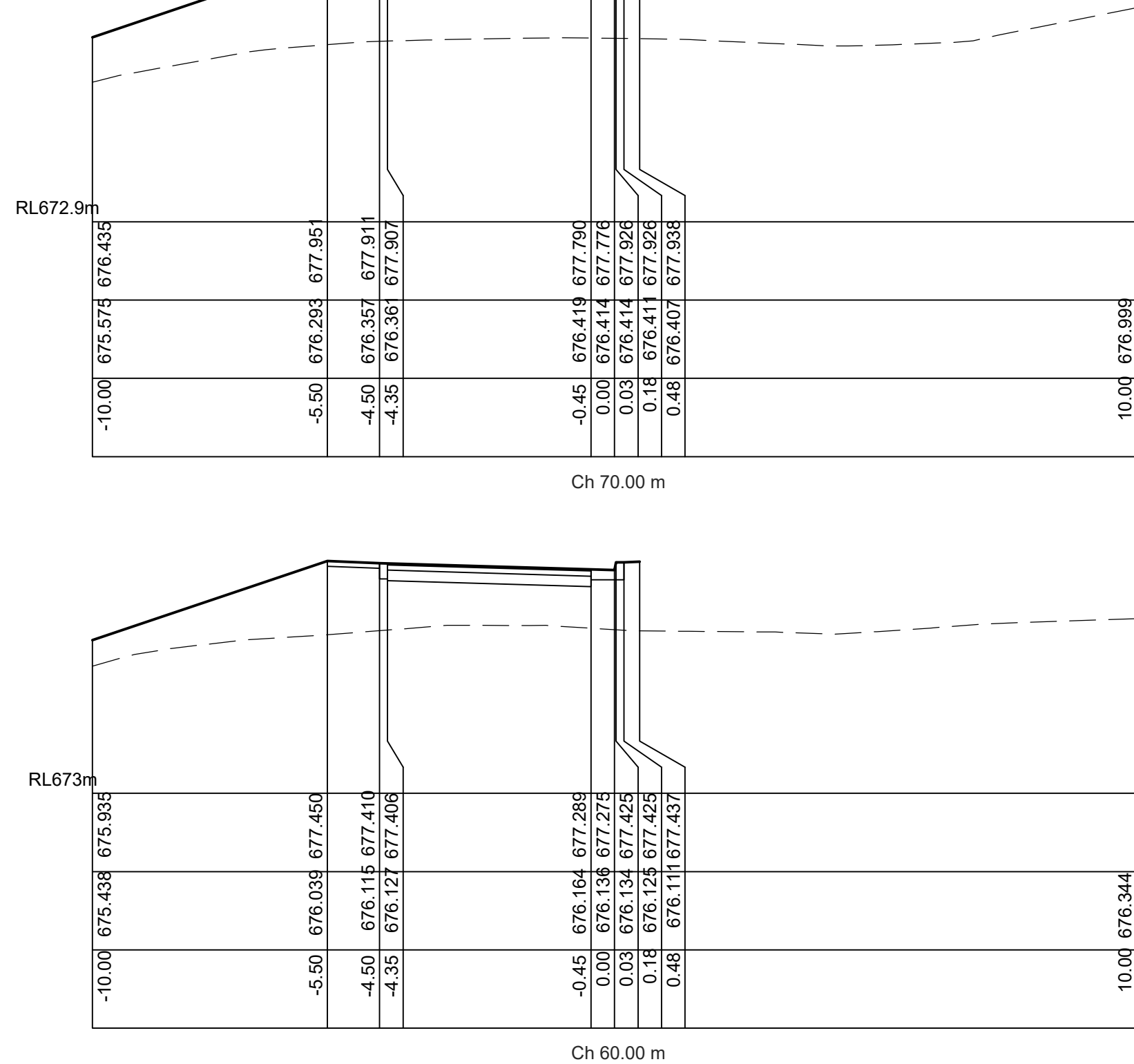
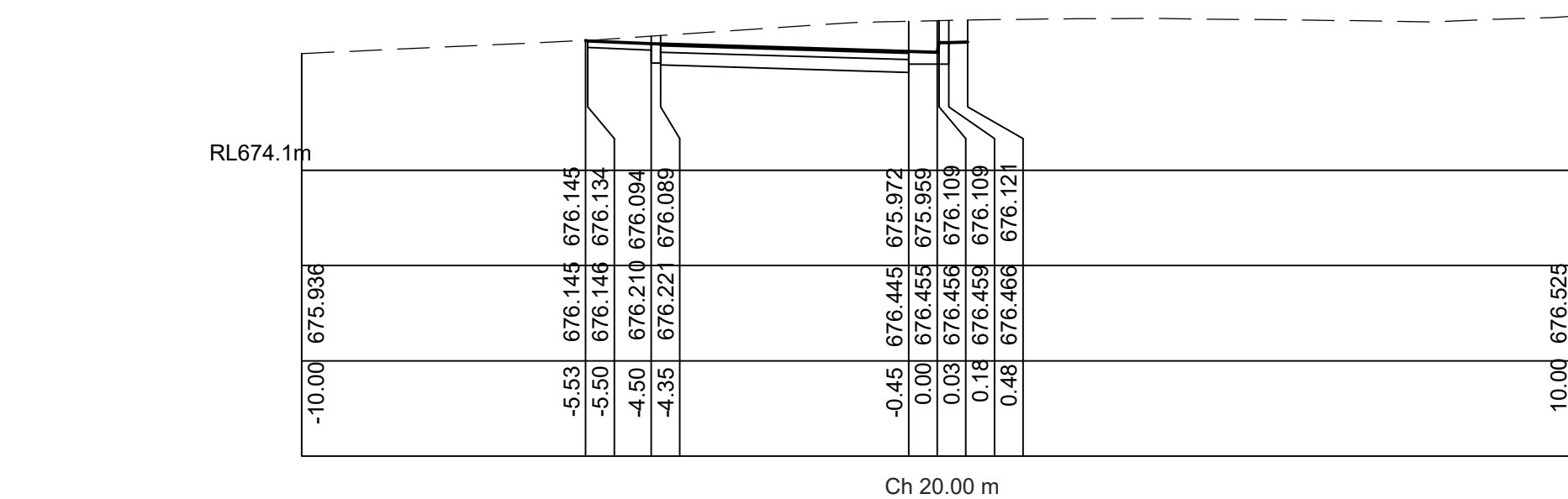
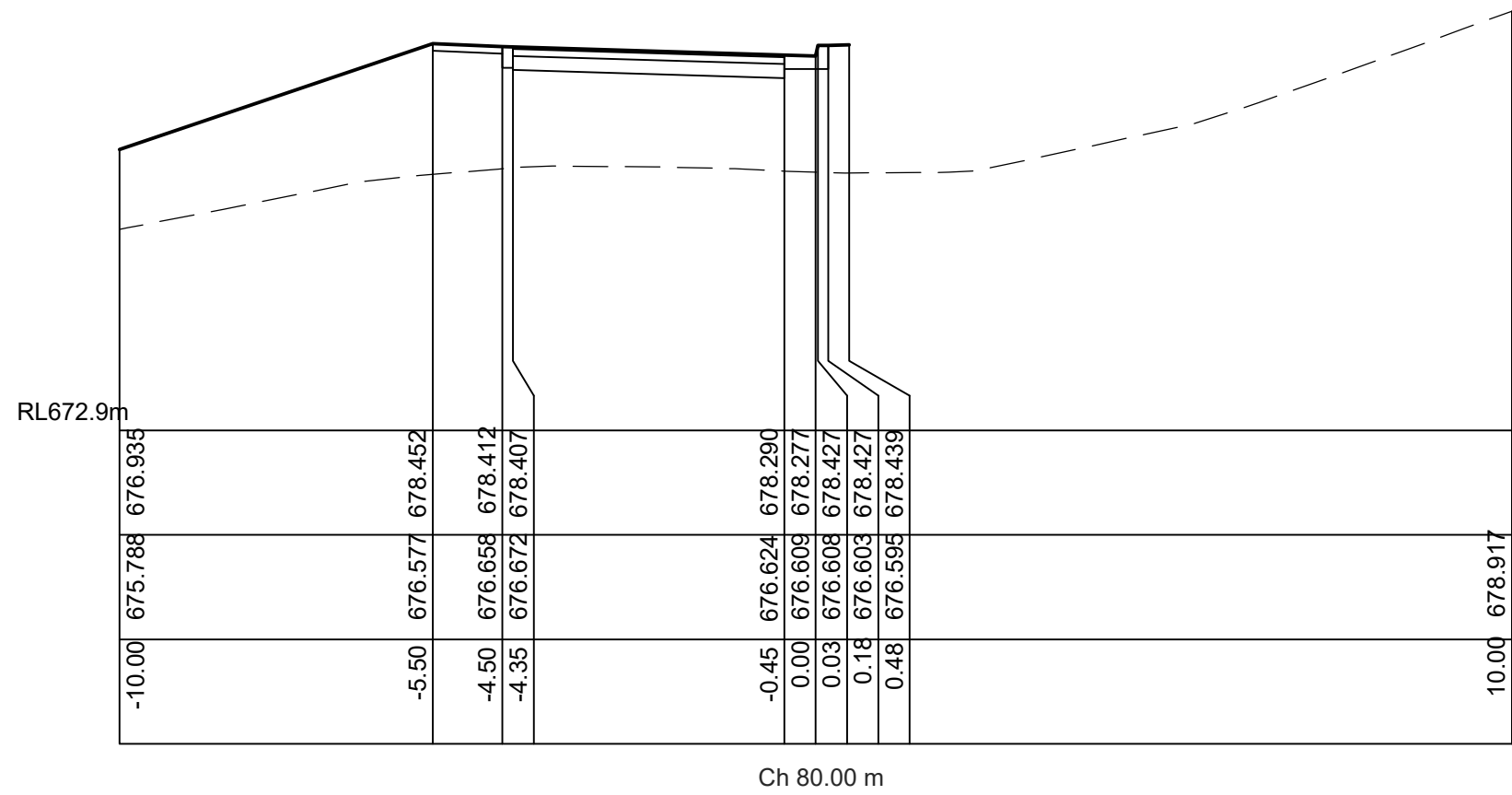
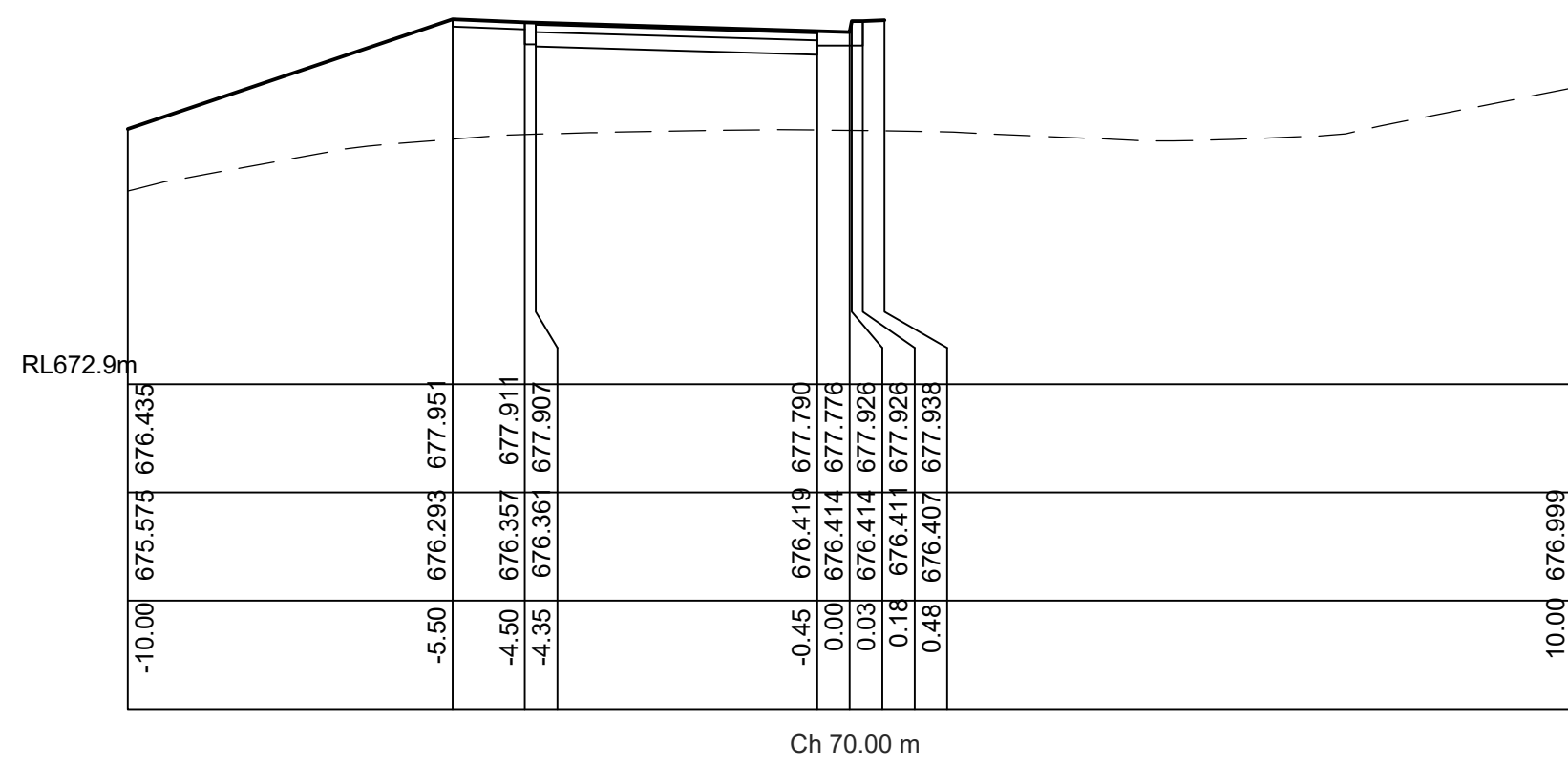
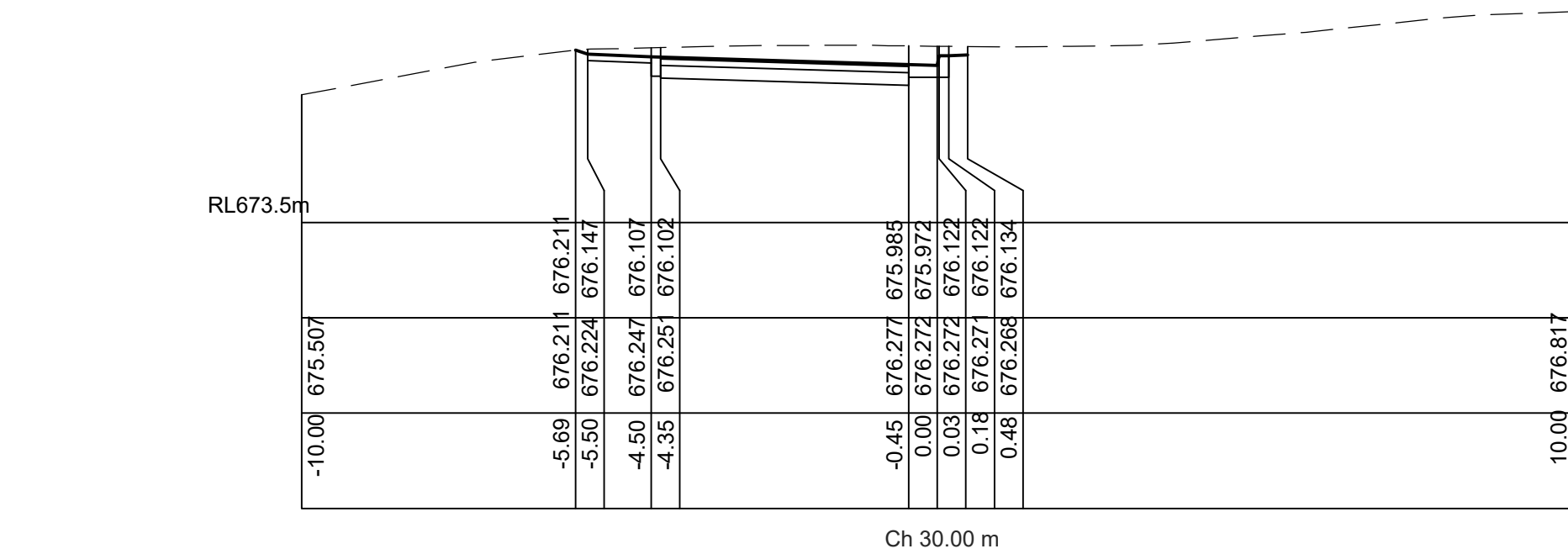
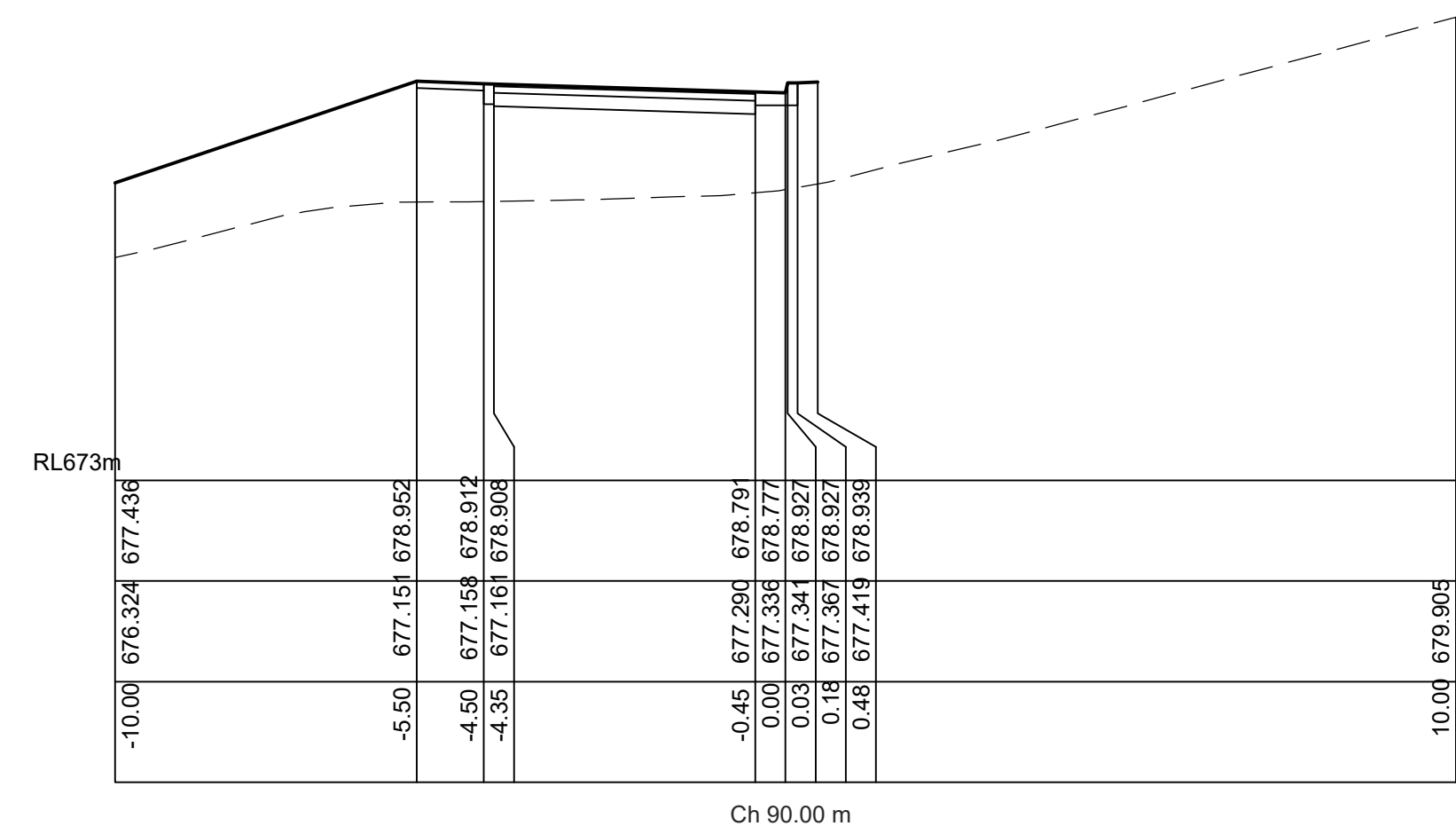
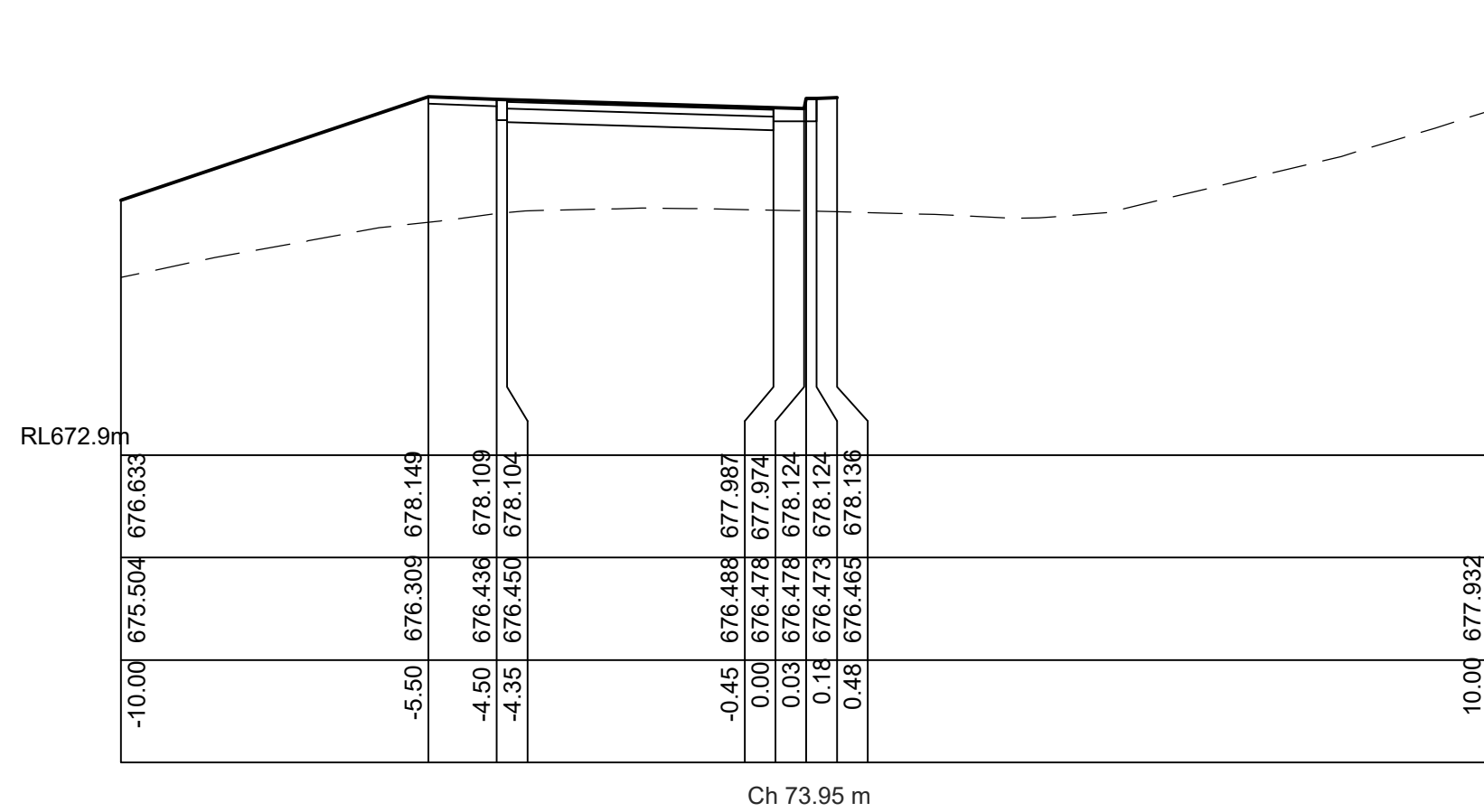
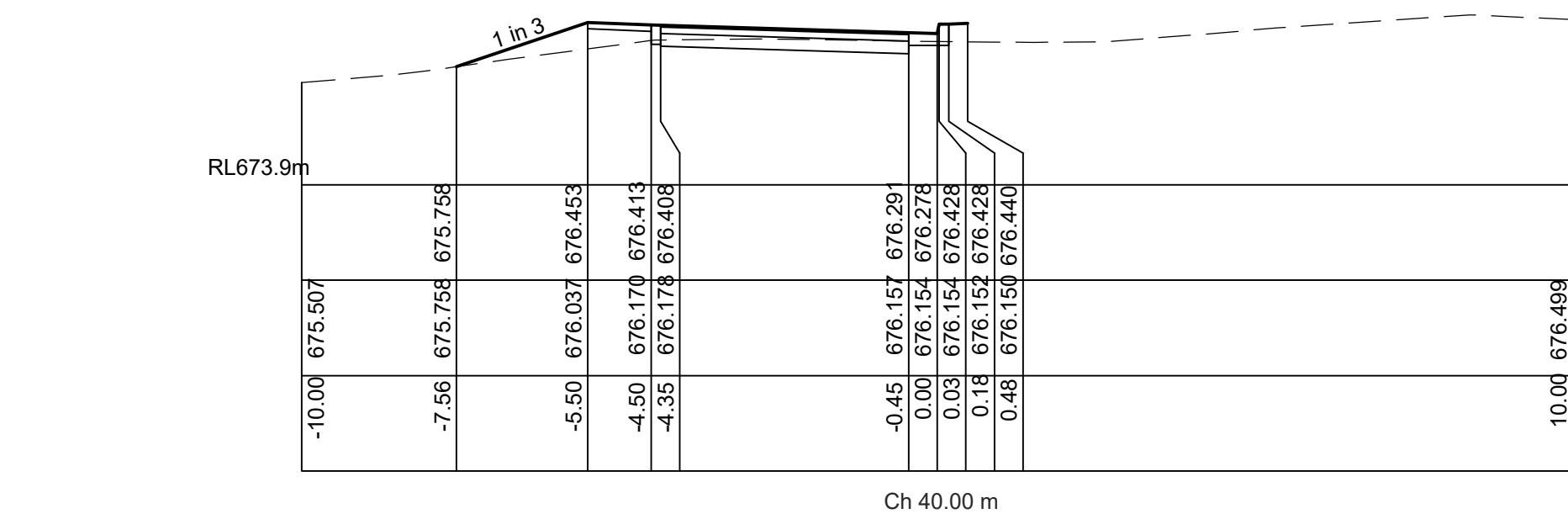
TYPICAL SECTION
INTERNAL ROAD (6m WIDE)
SCALE: 1:50

1
101



TYPICAL SECTION
INTERNAL ROAD WITH FOOTPATH (6m WIDE)
SCALE: 1:50

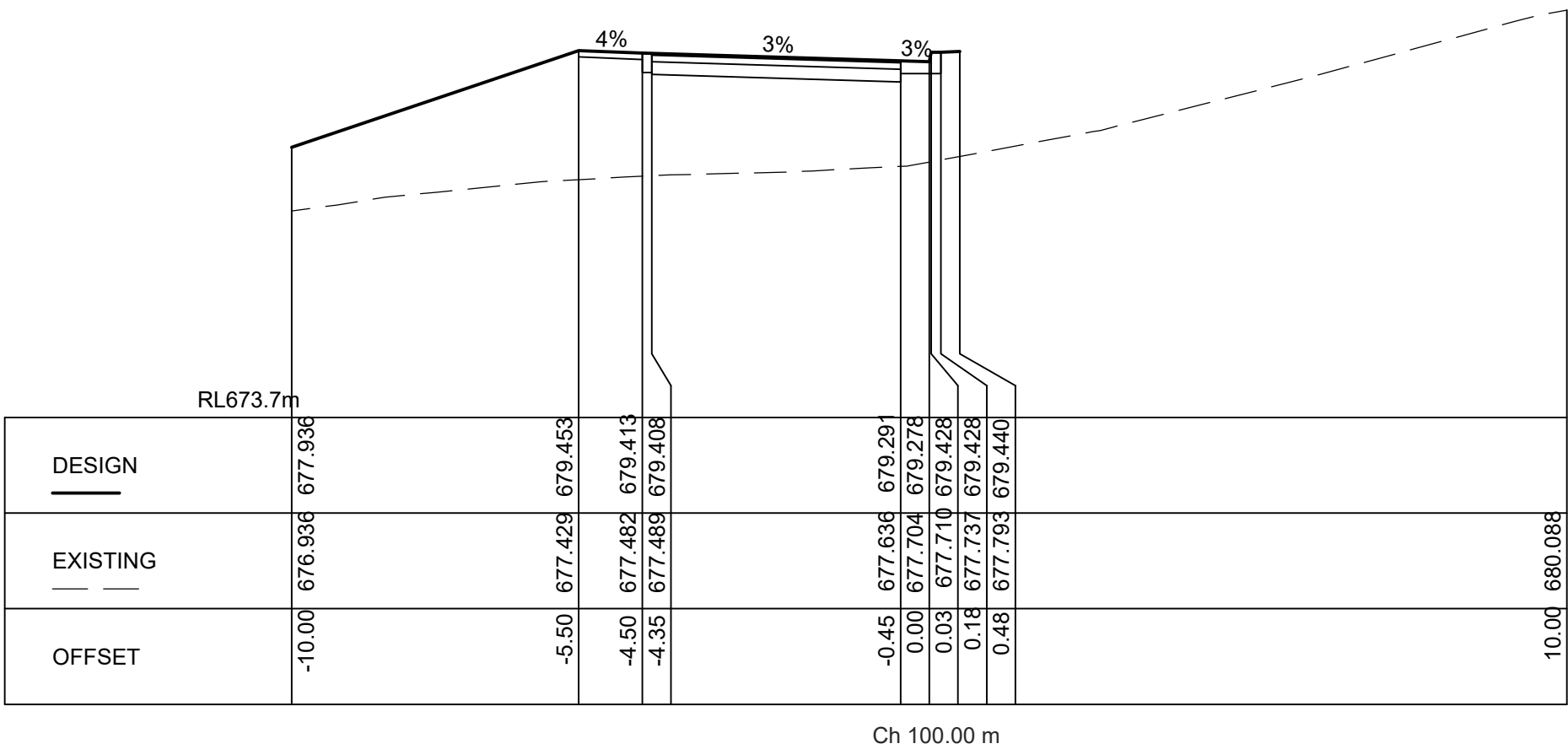
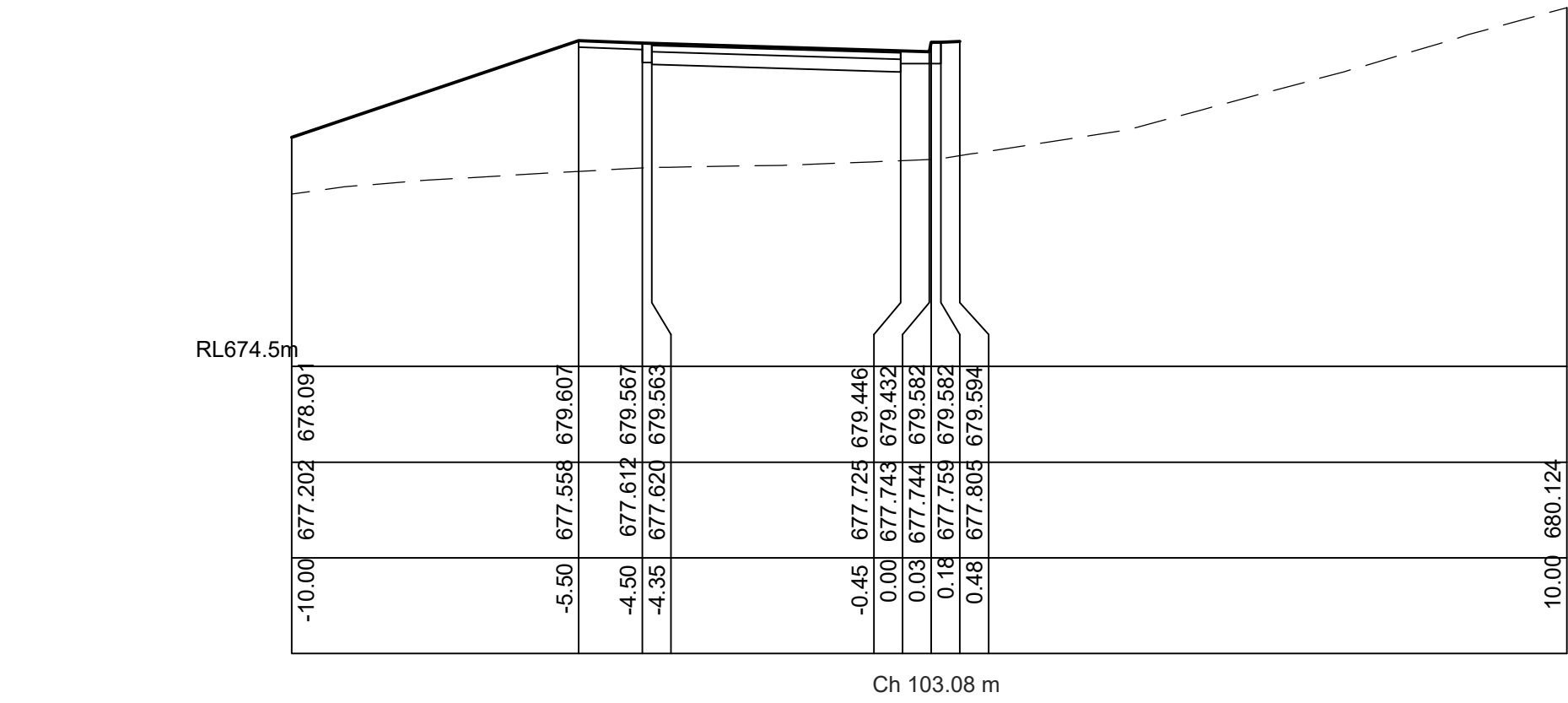
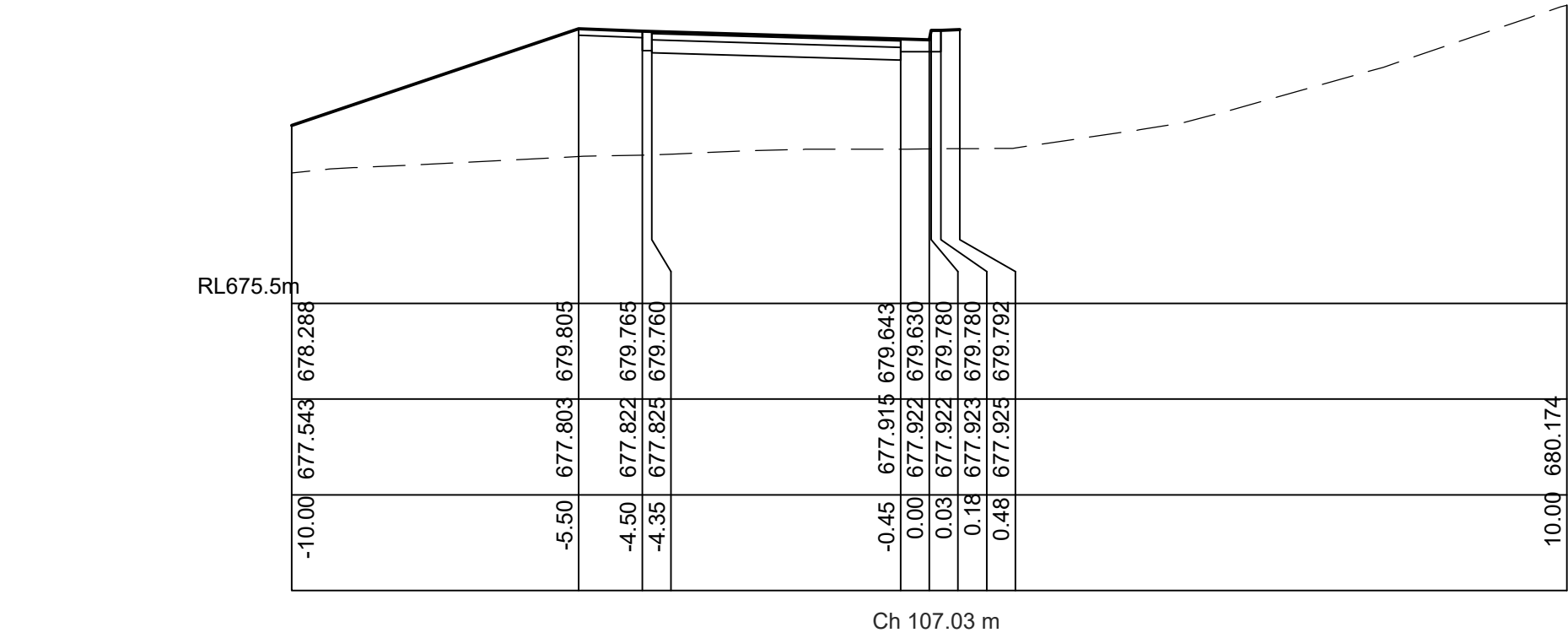
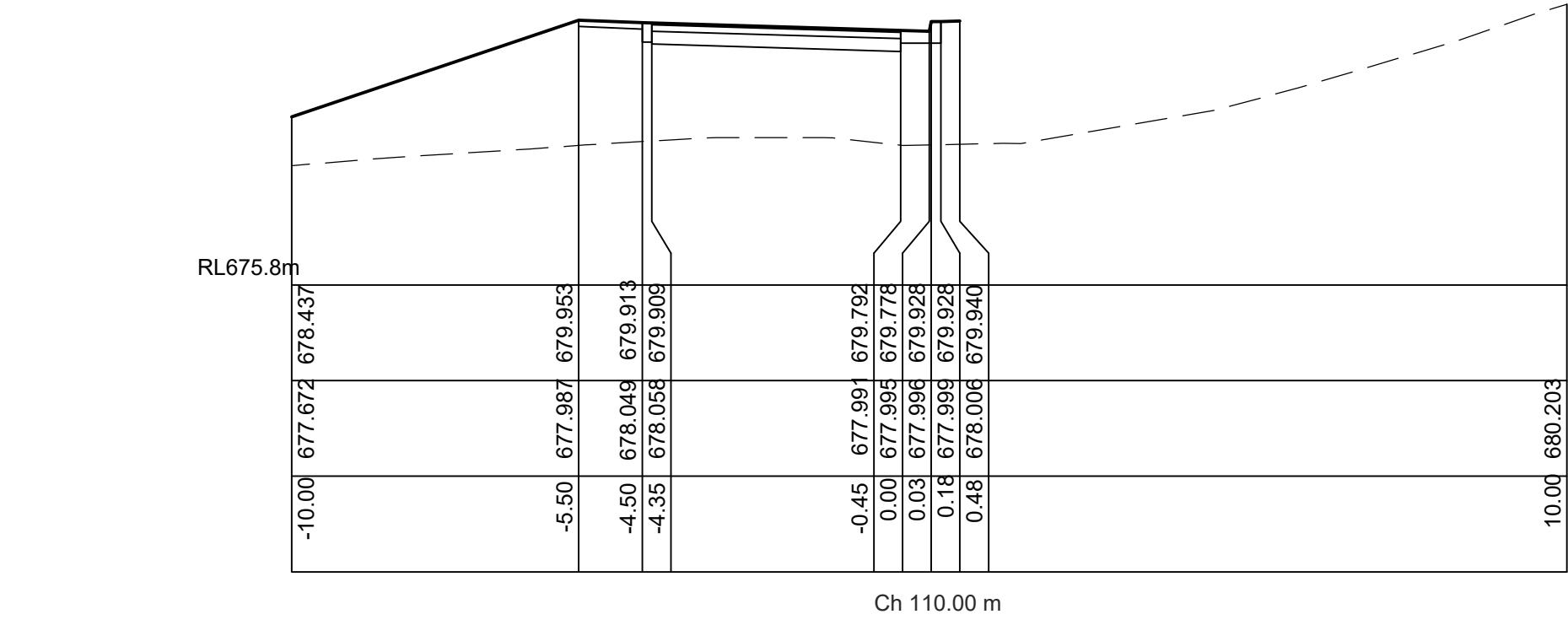
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101



CROSS SECTIONS - ROAD 1A

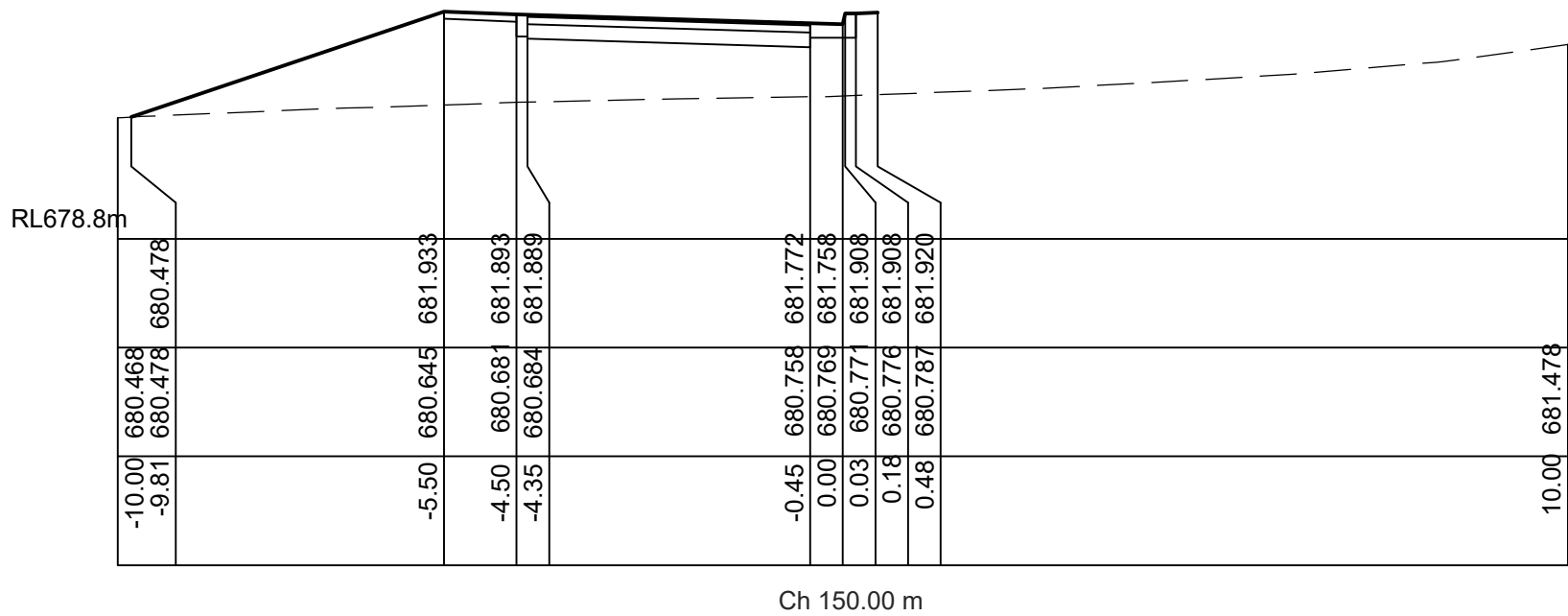
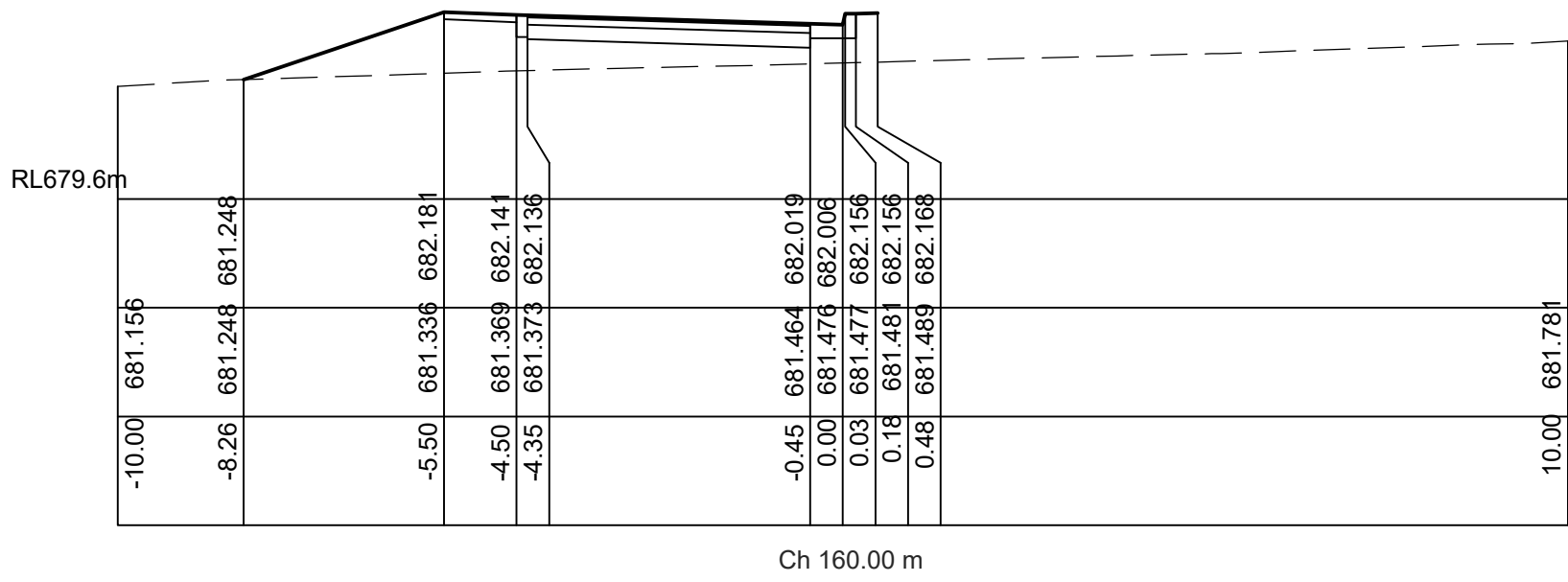
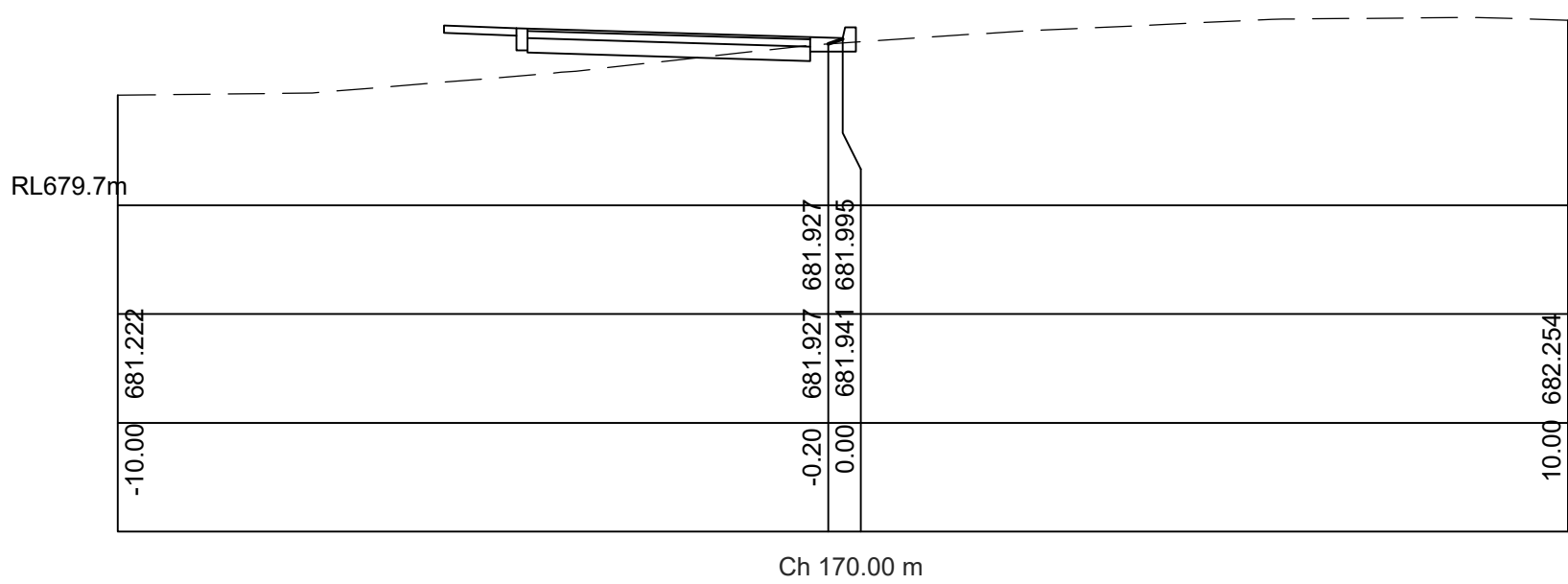
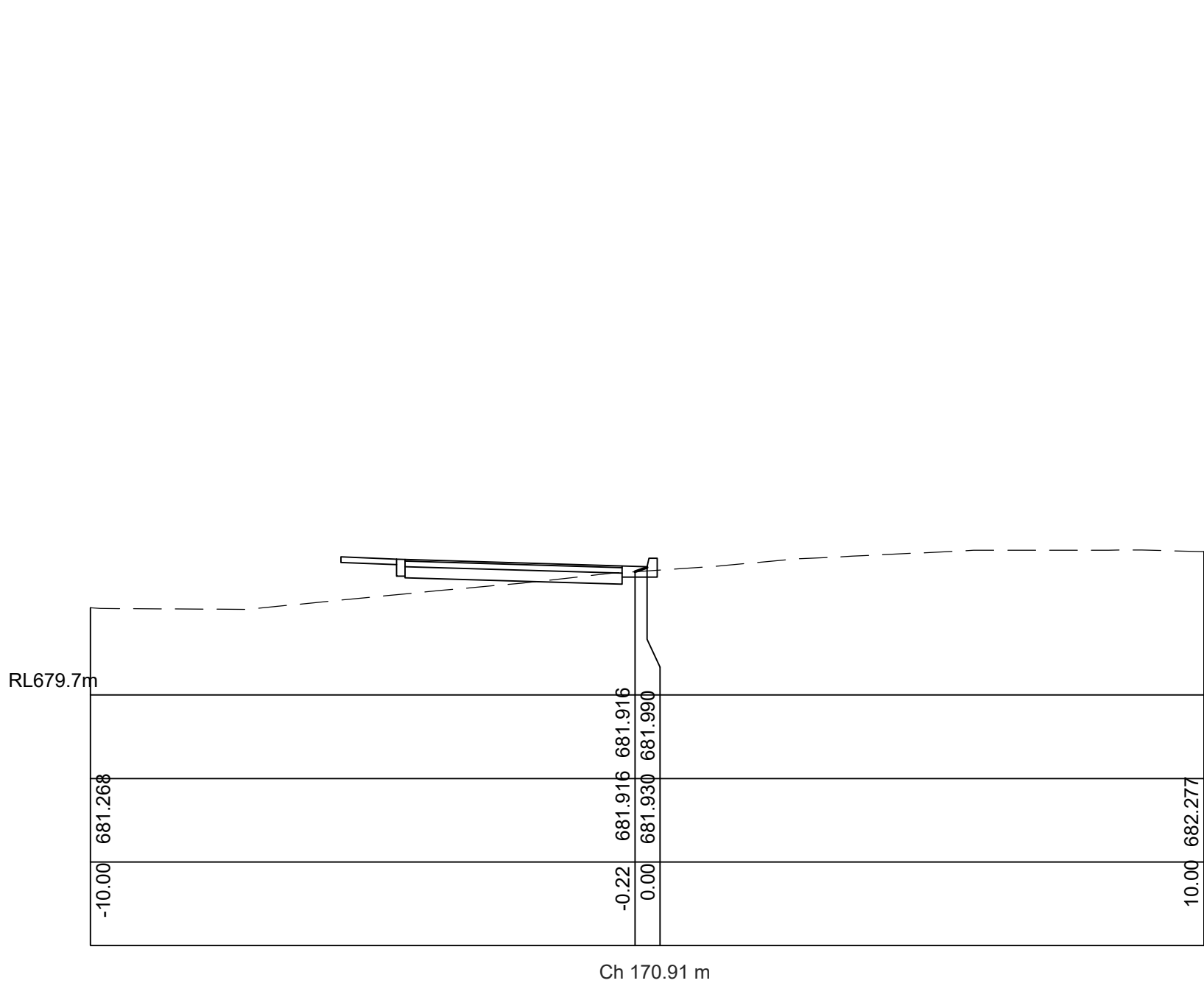
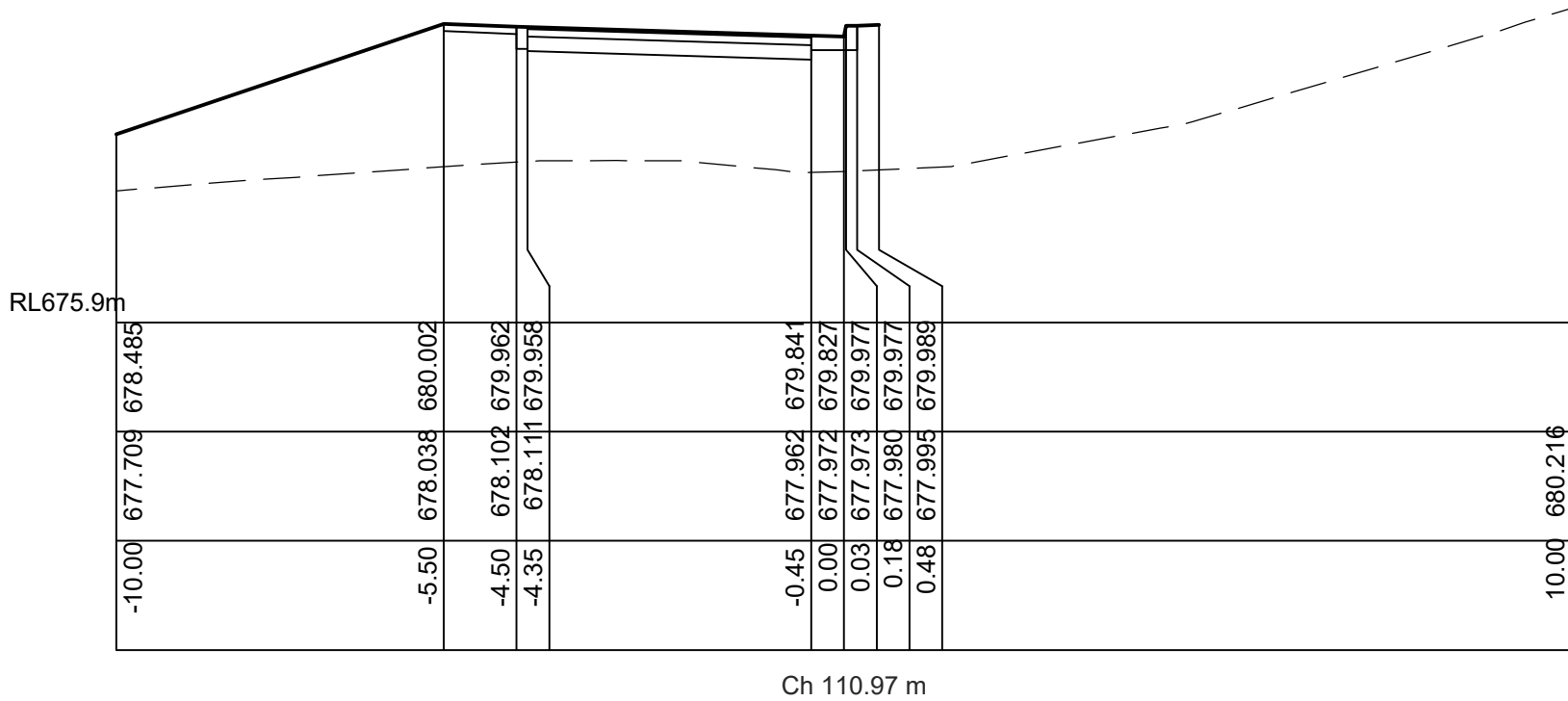
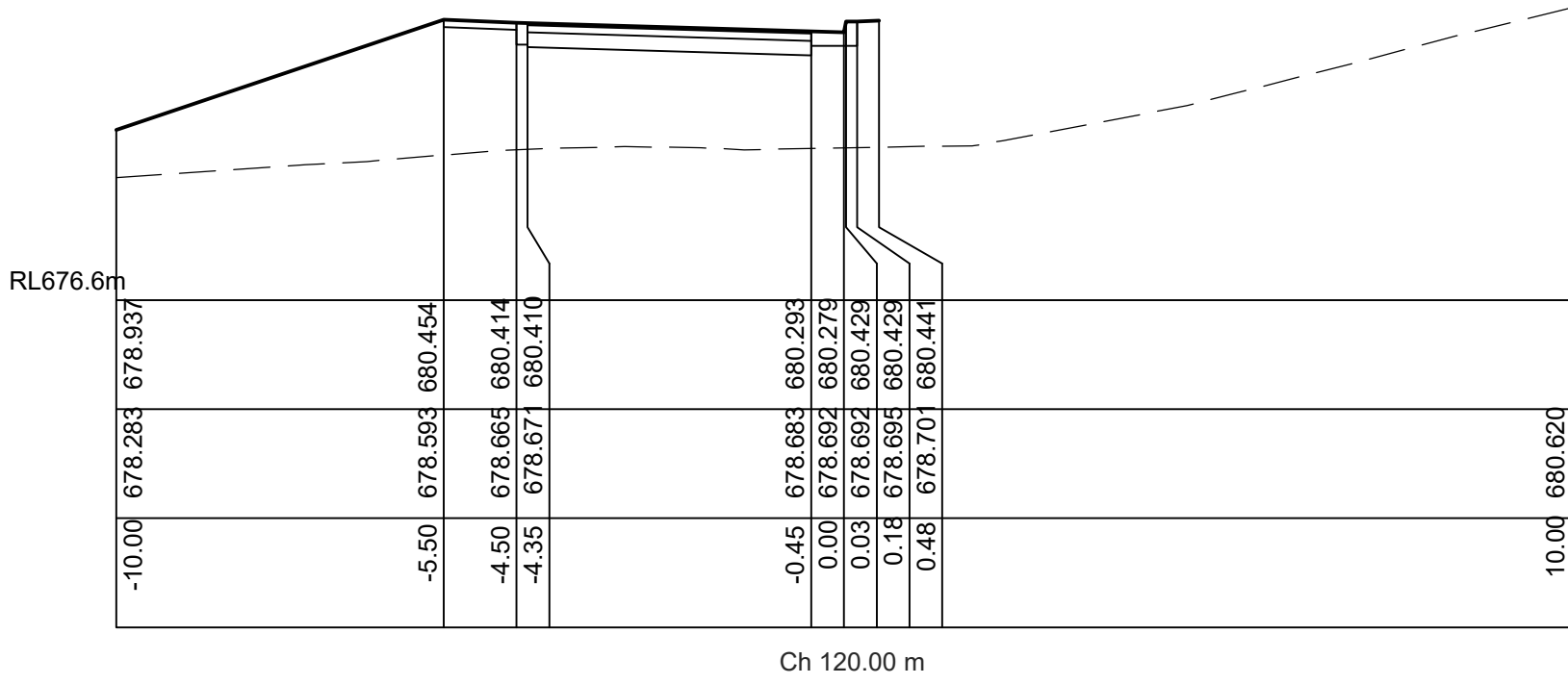
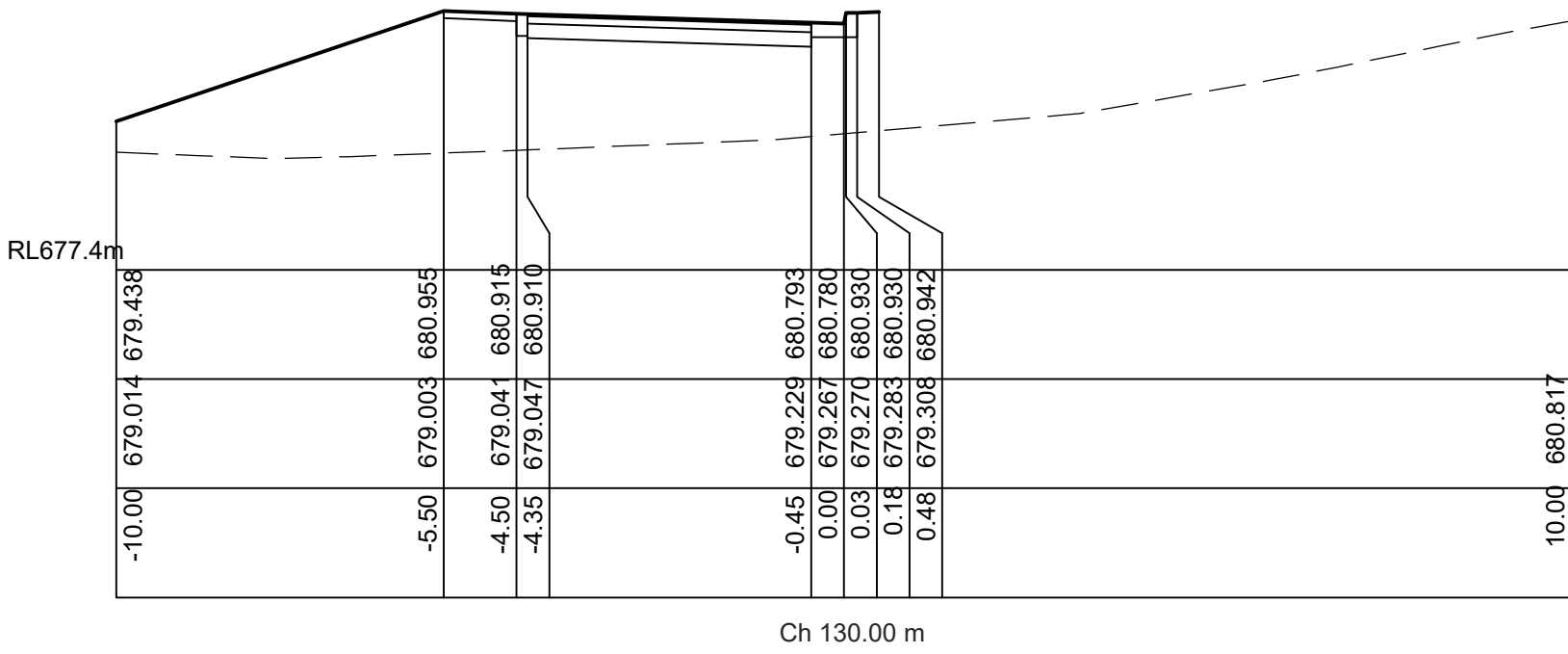
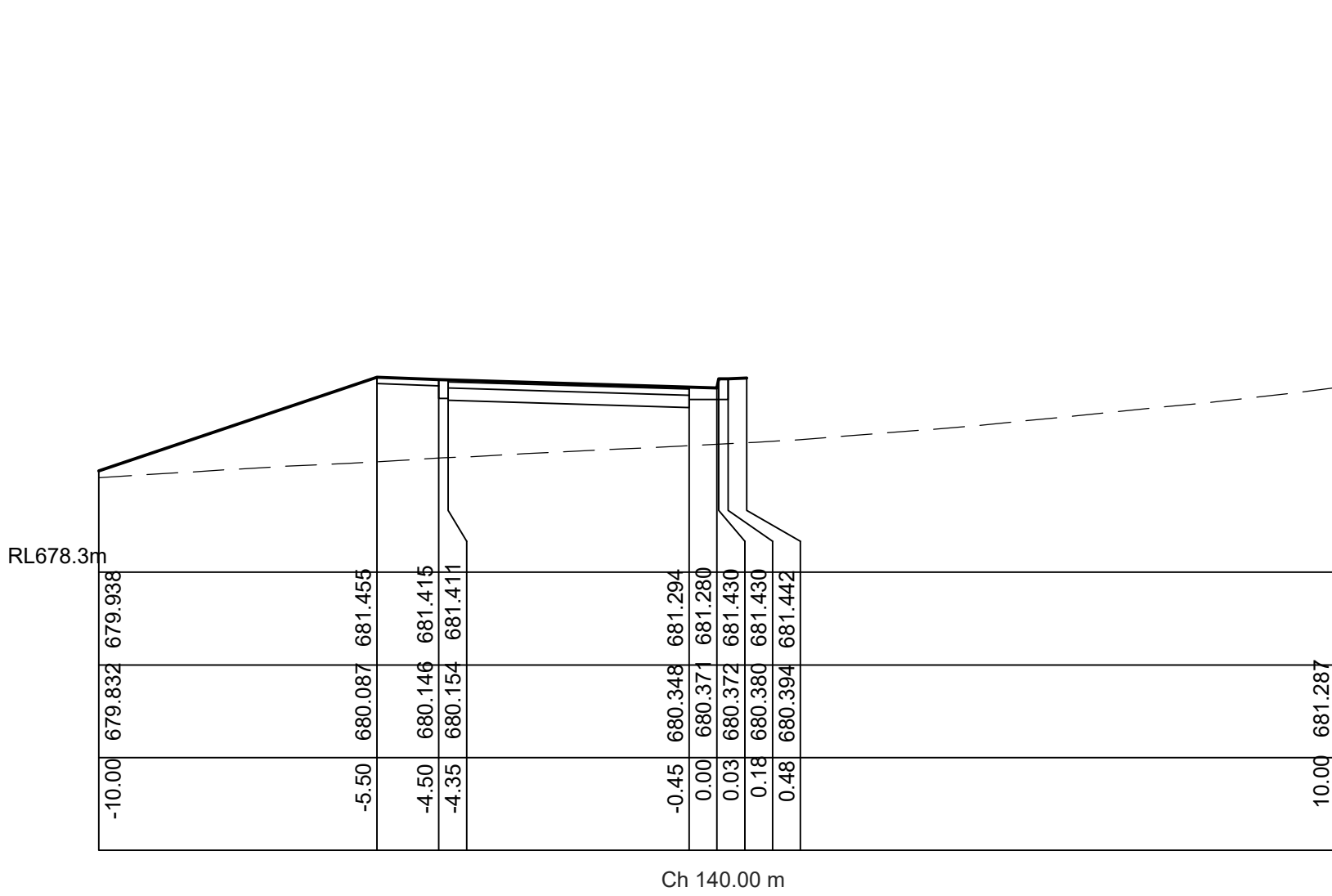
SCALE: 1:100

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	D	2018.08.02	SECTION 96 - PRELIMINARY ISSUE	TF, LP			SCALE	DATE	DRAWN	CHECKED
	E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP			1:100 @ A1	2017.12.14	TF	LP
	H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP			JOB	DRAWING	REVISION	
	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP			16104	DA-C-131	K	
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP						



CROSS SECTIONS - ROAD 1A (CON'T)

SCALE: 1:100



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E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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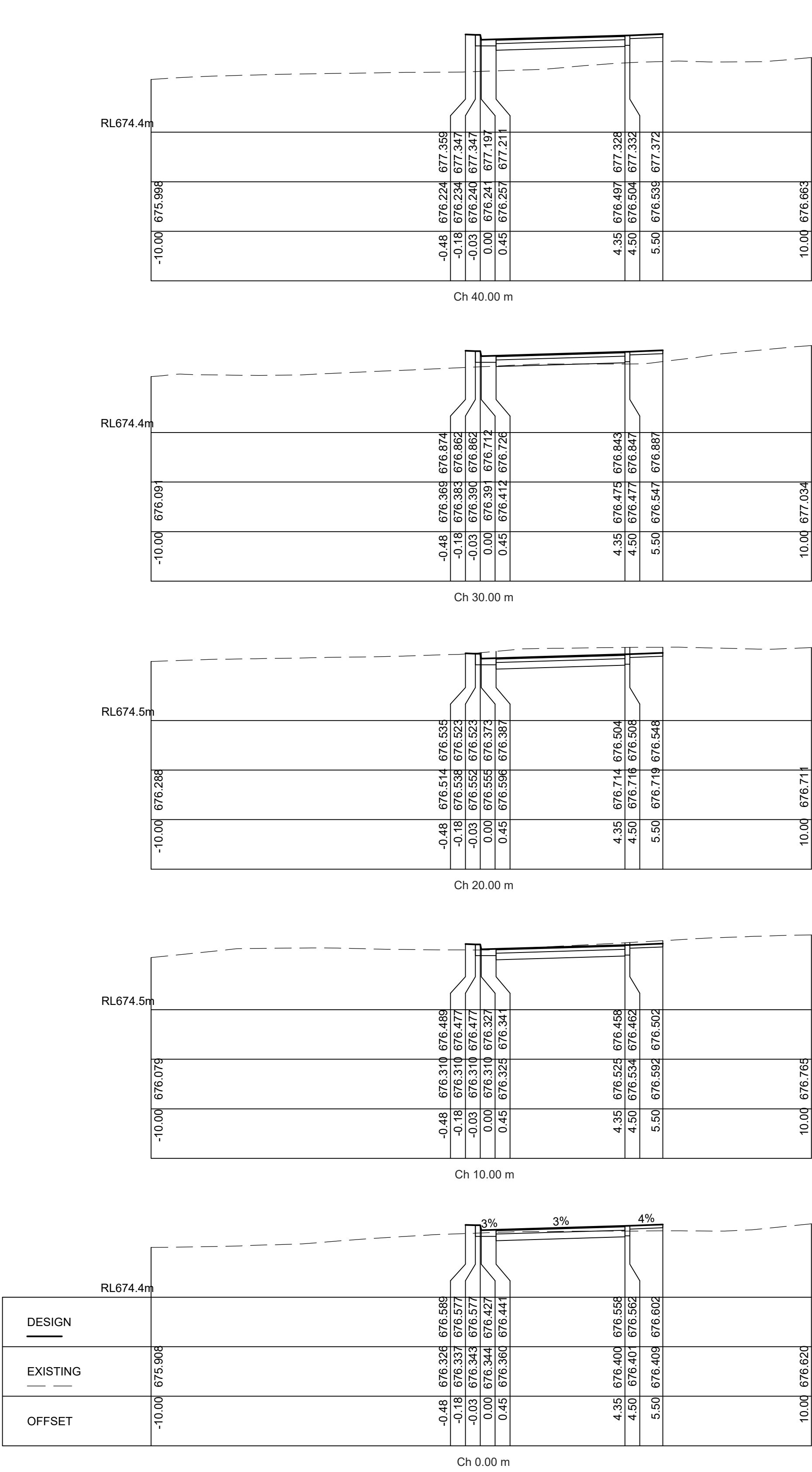
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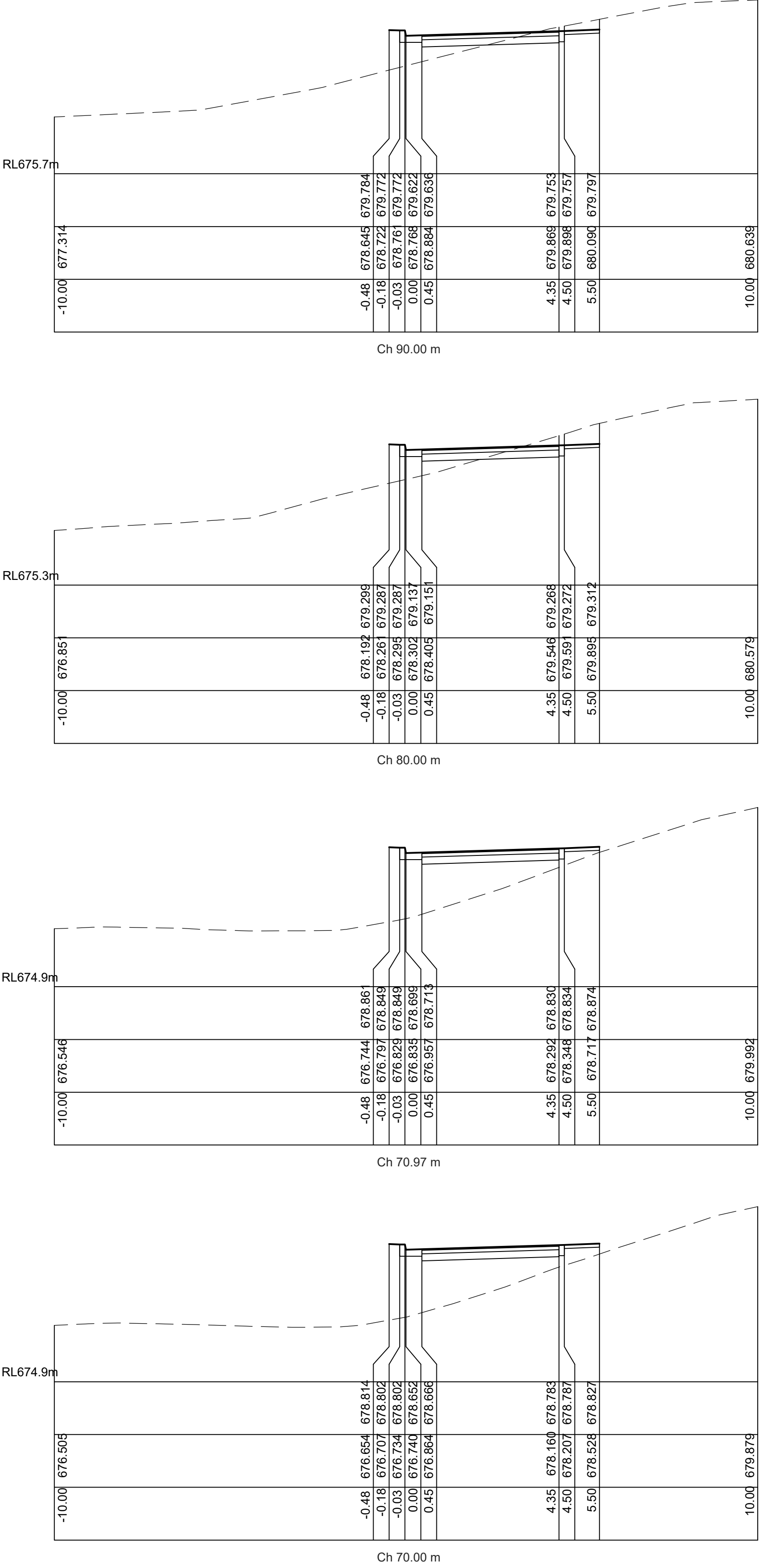
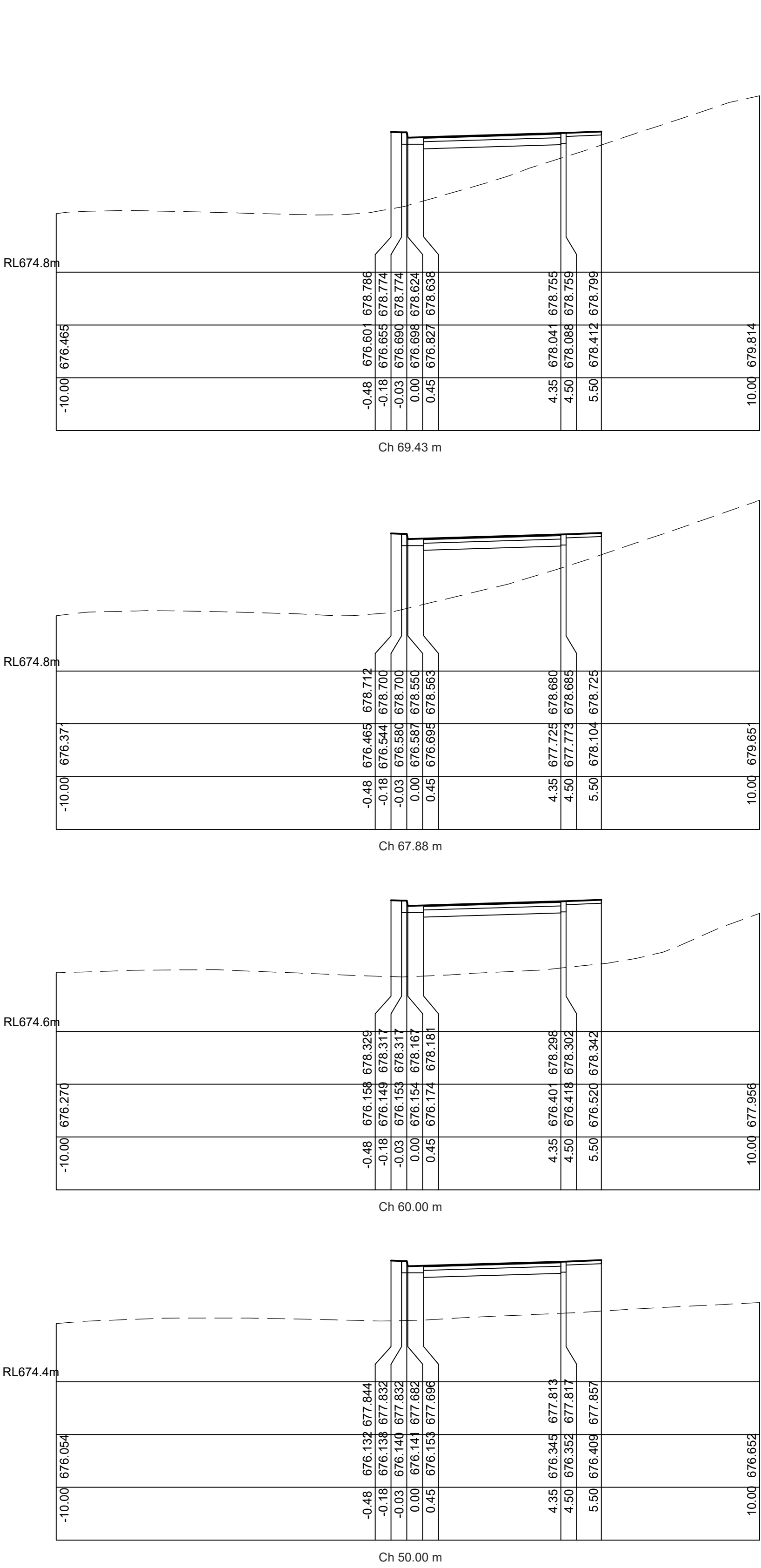
PROJECT
2-18 Centennial Road, Bowral, 2576

DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 2

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-132		K



CROSS SECTIONS - ROAD 1B
SCALE: 1:100



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E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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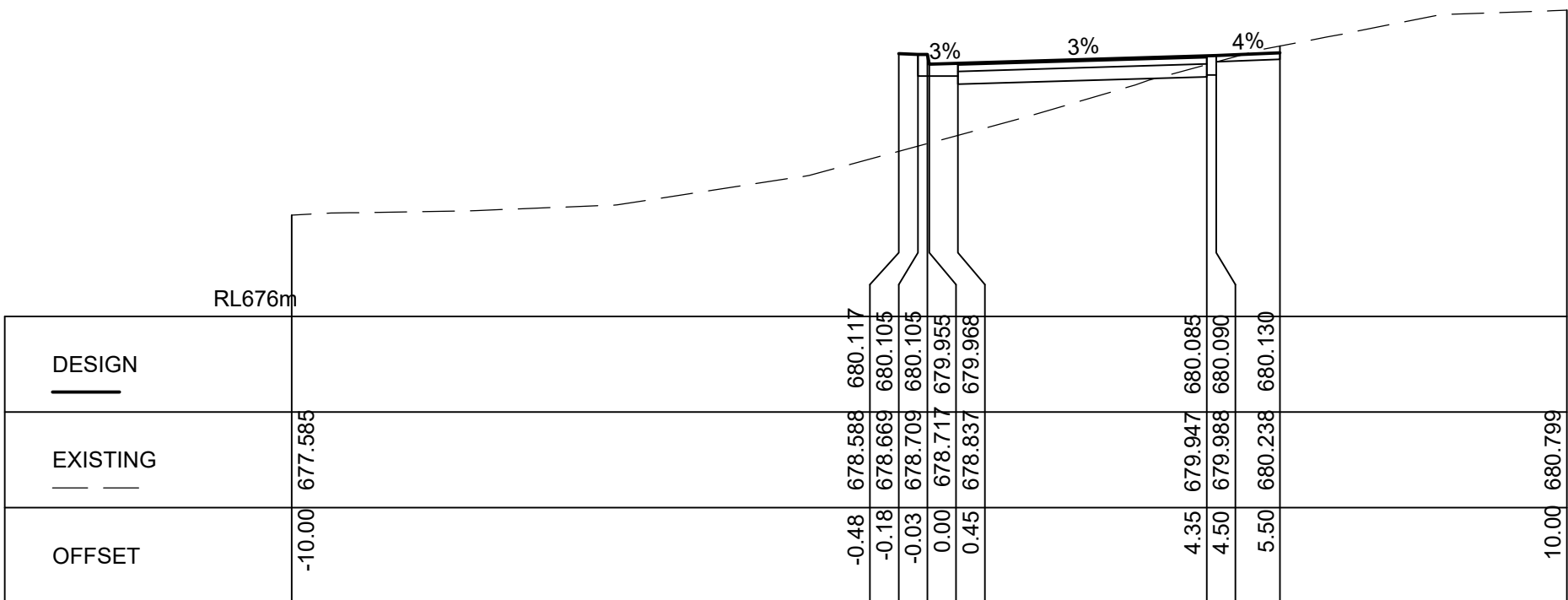
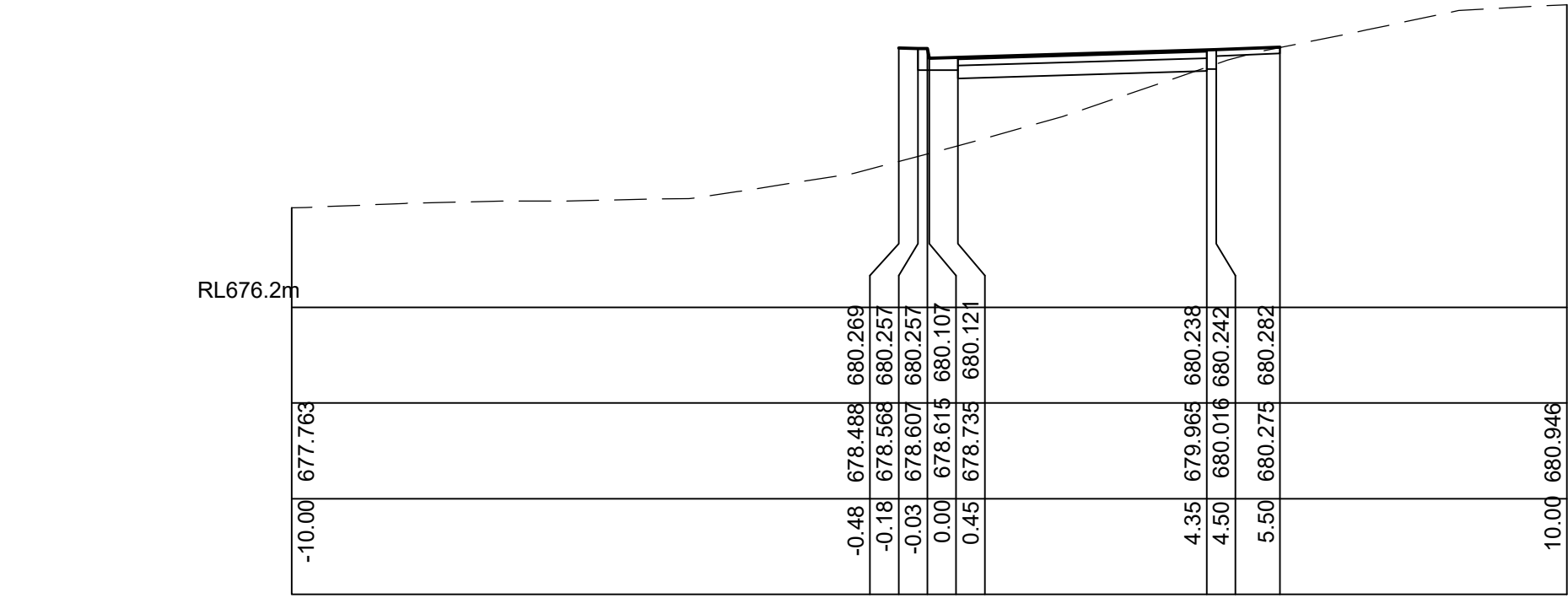
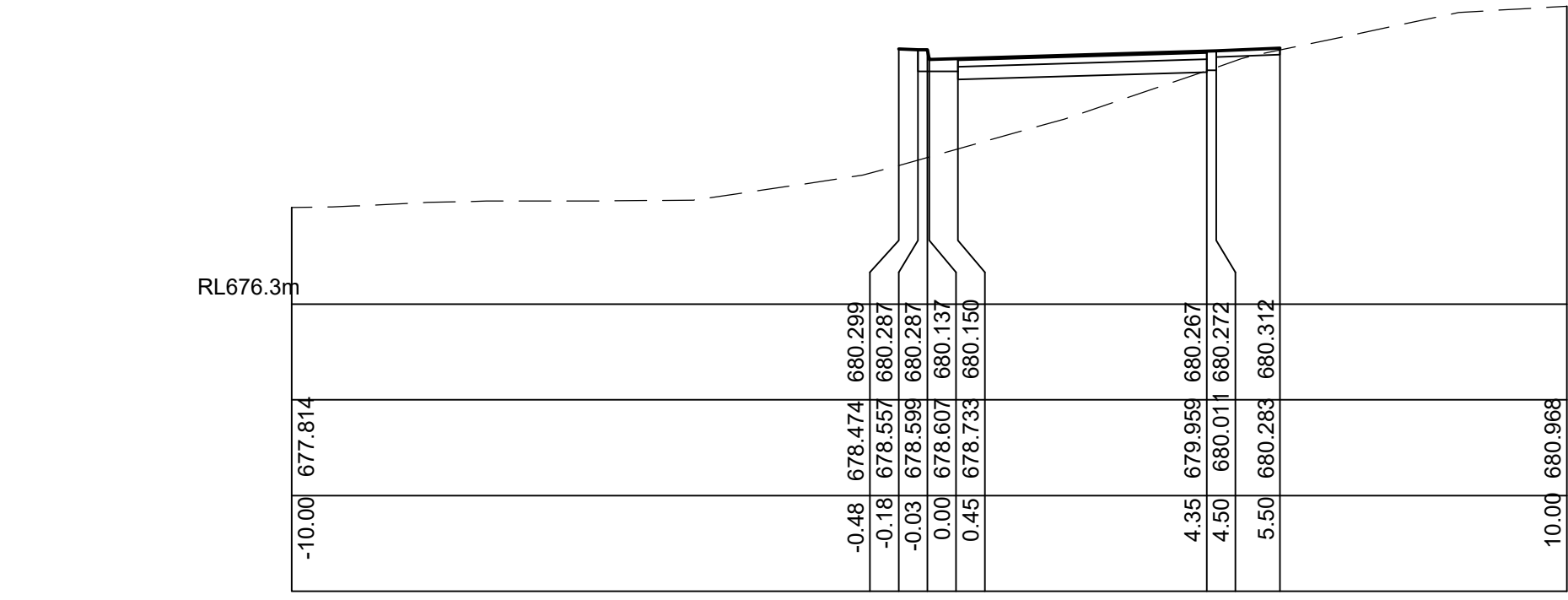
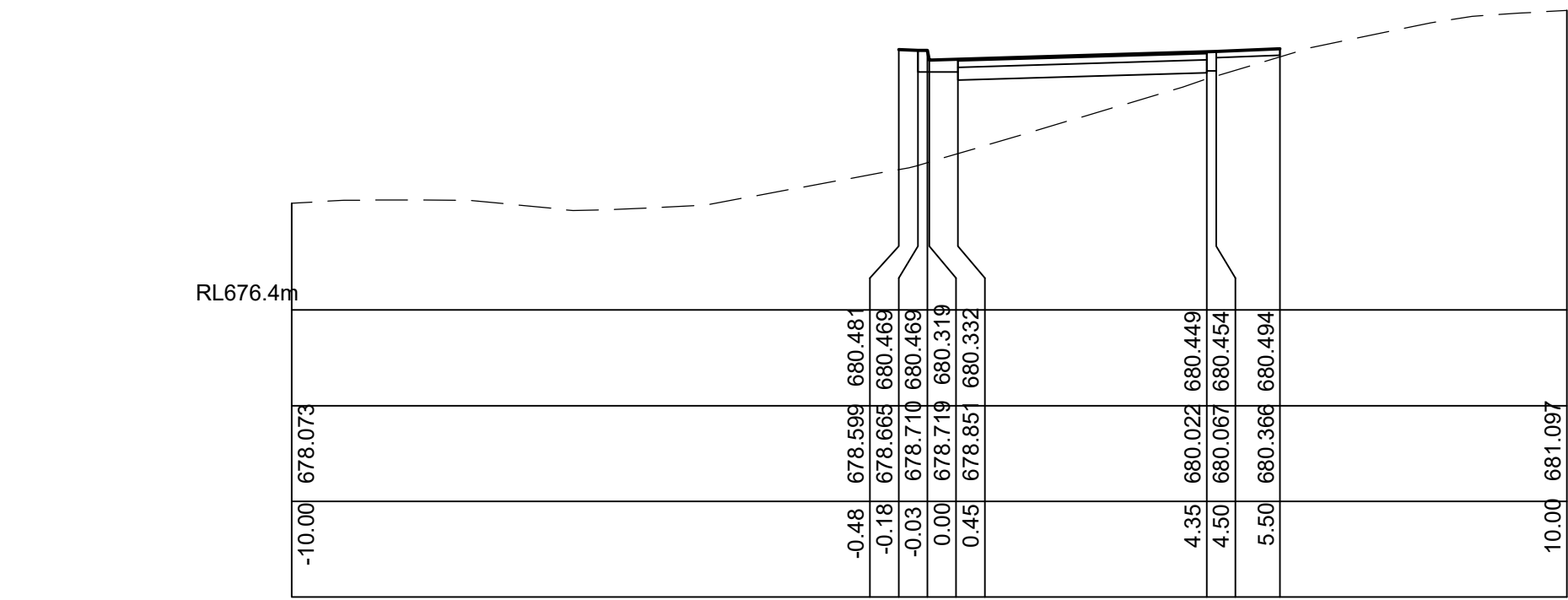
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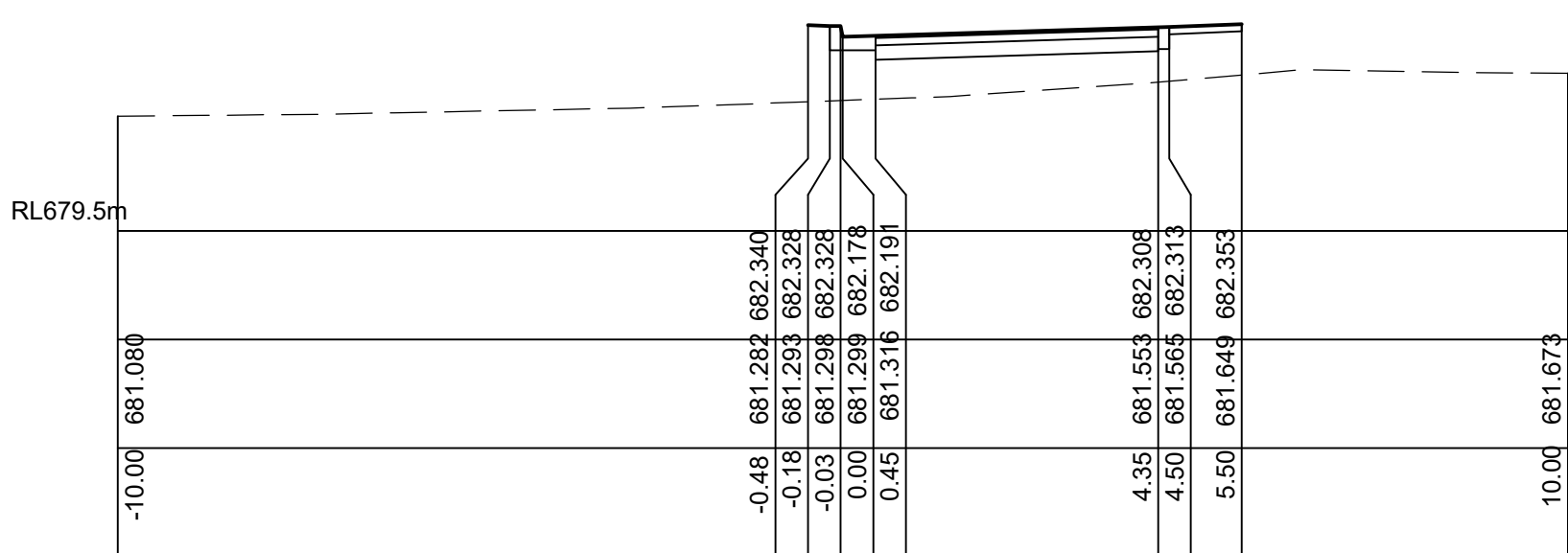
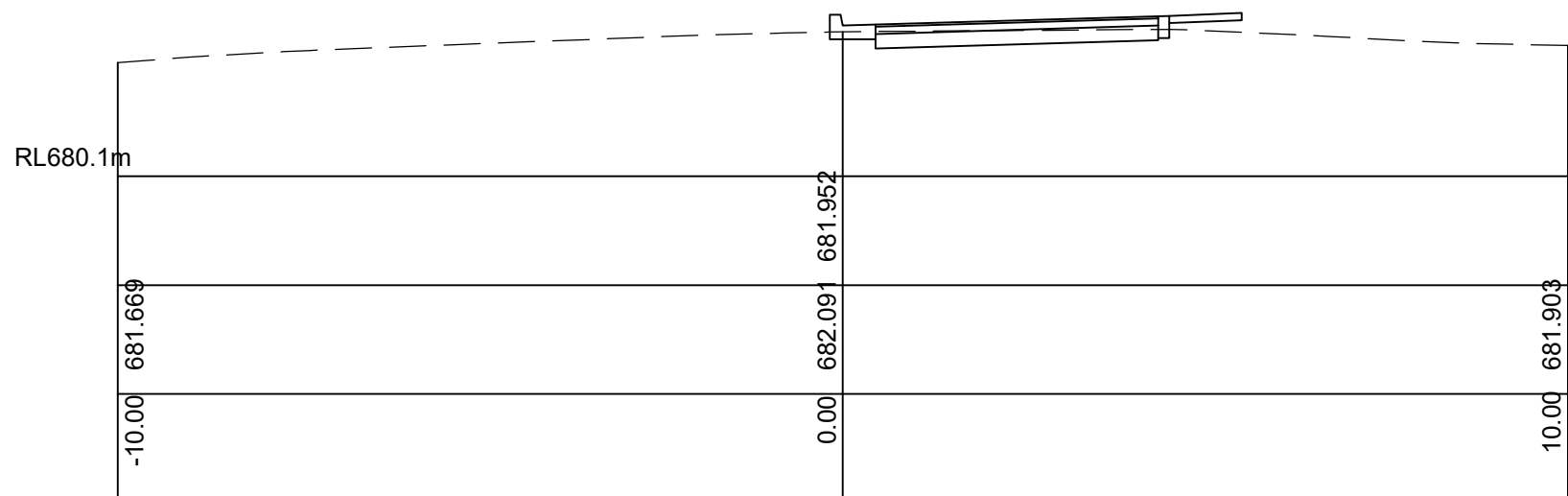
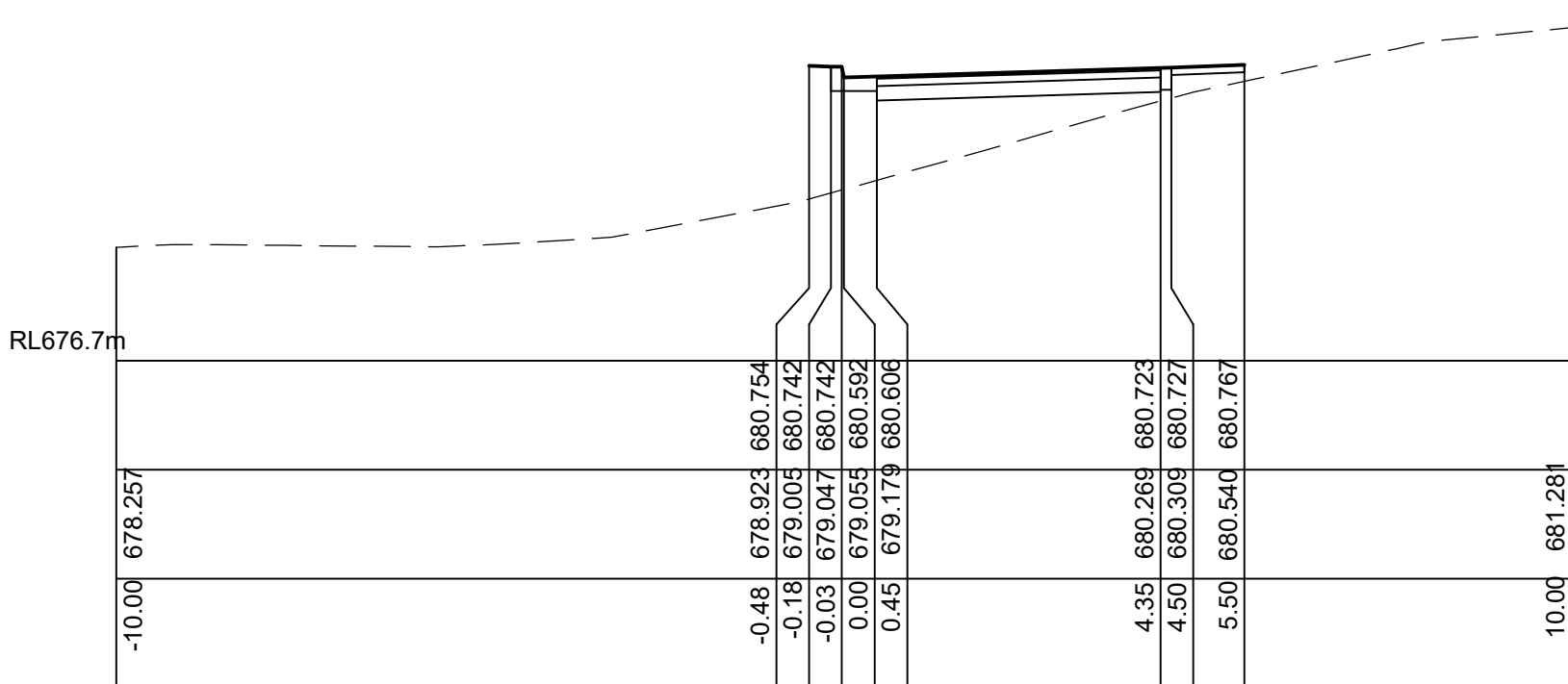
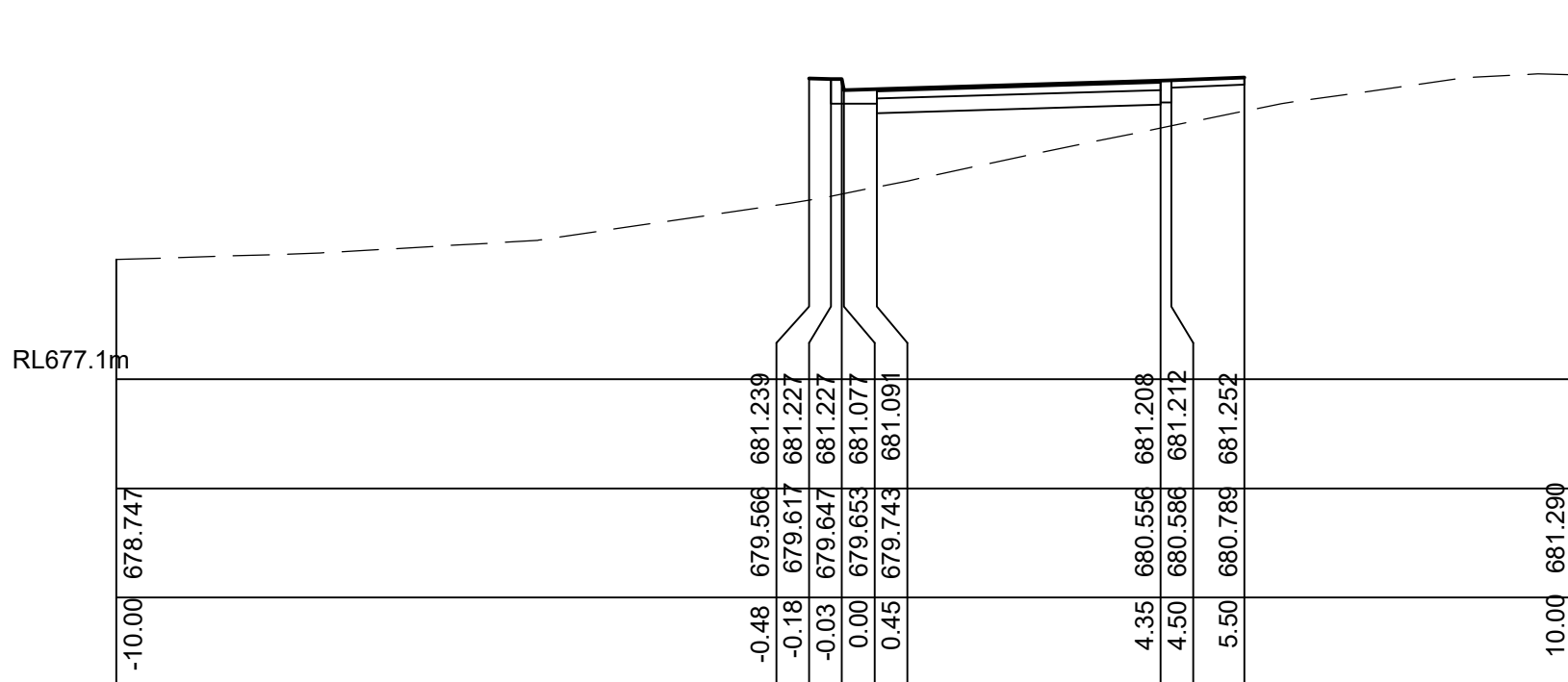
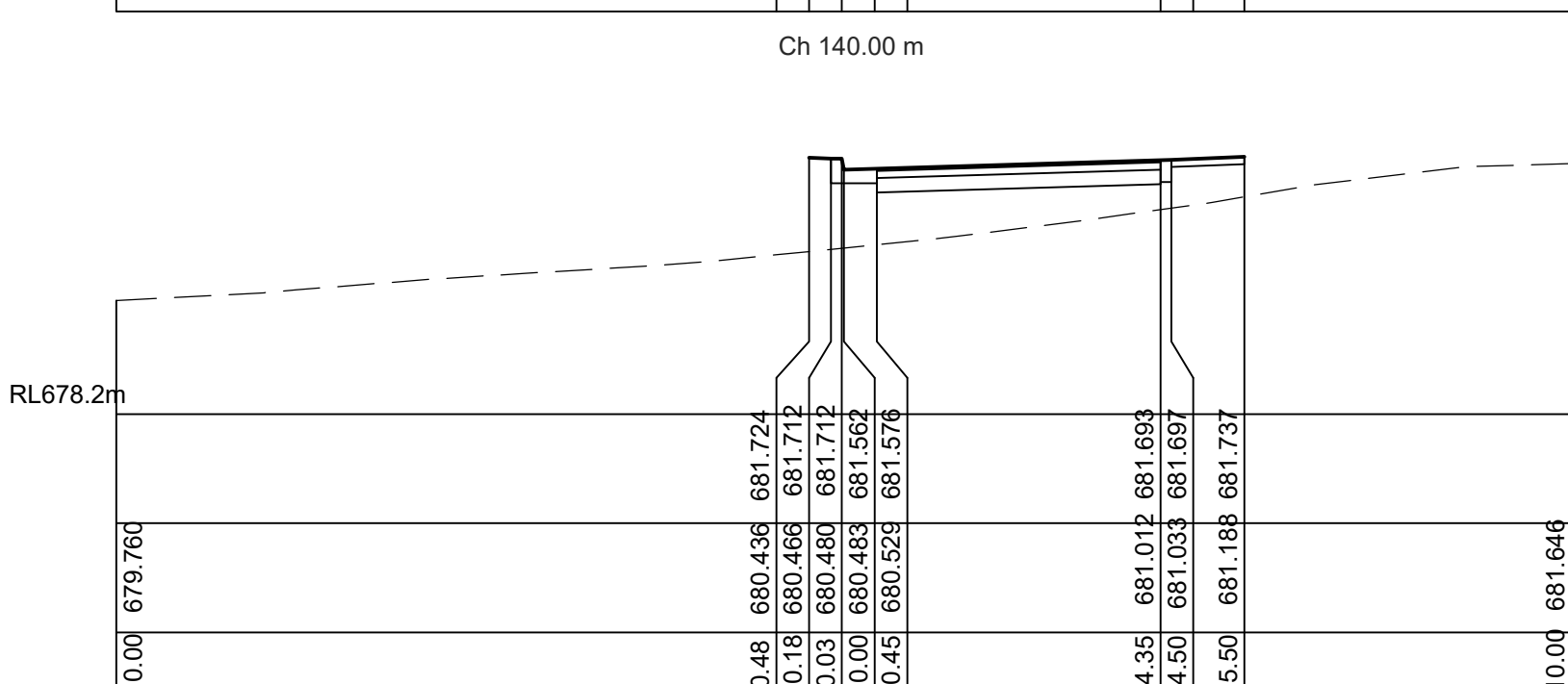
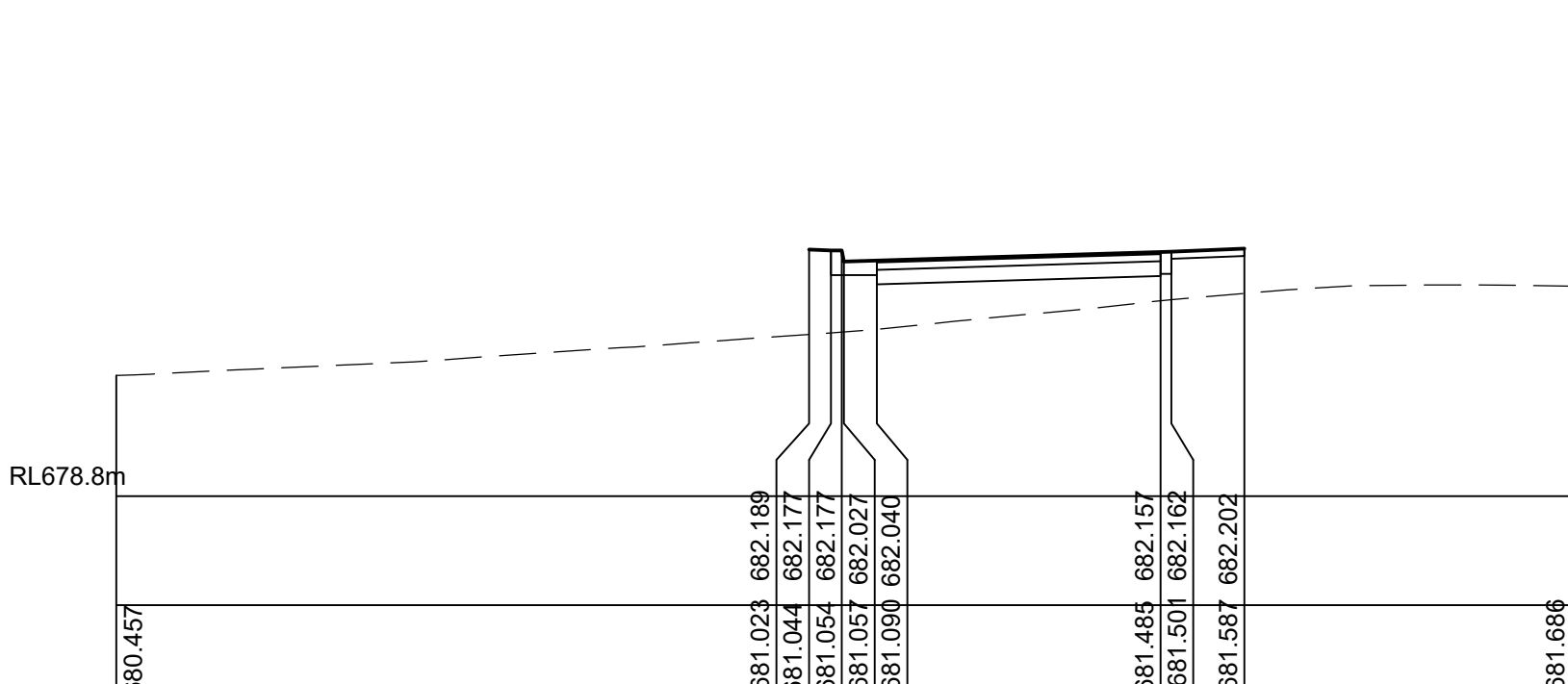
PROJECT
2-18 Centennial Road, Bowral, 2576

DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 3

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING	REVISION	
16104	DA-C-133	K	



CROSS SECTIONS - ROAD 1B (CON'T)
SCALE: 1:100



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D	2018.08.02	SECTION 96 - PRELIMINARY ISSUE	TF, LP
E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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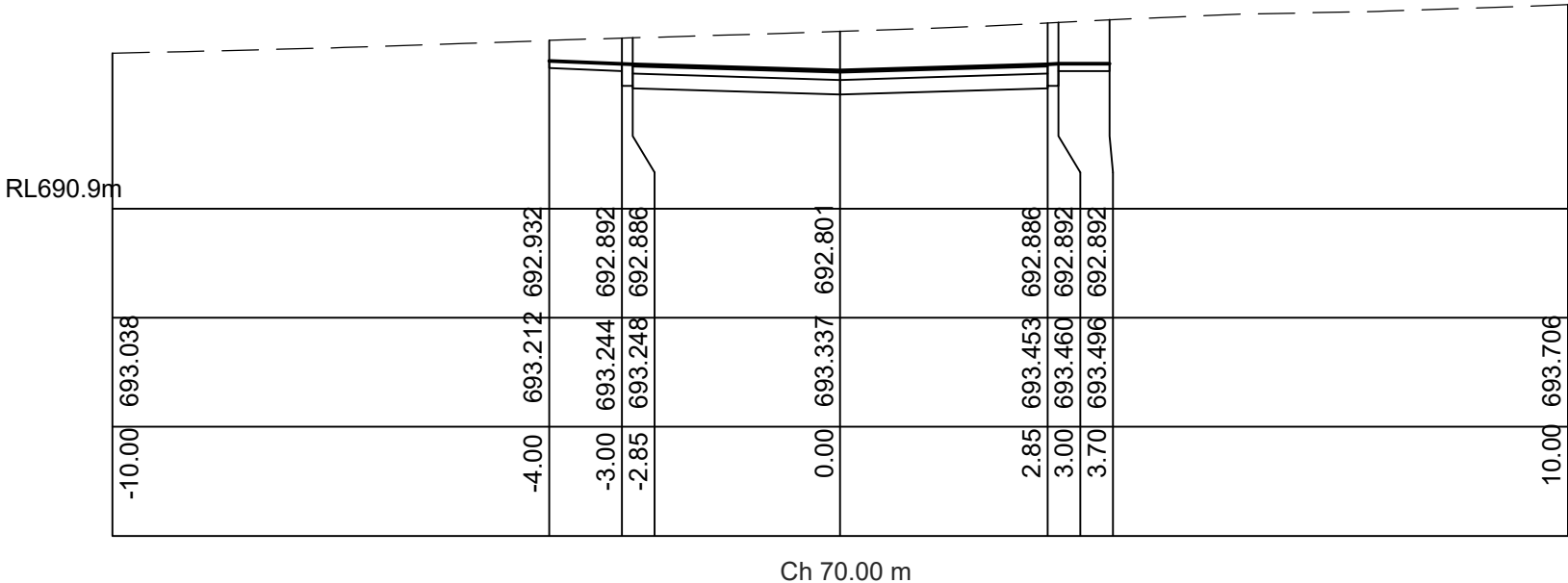
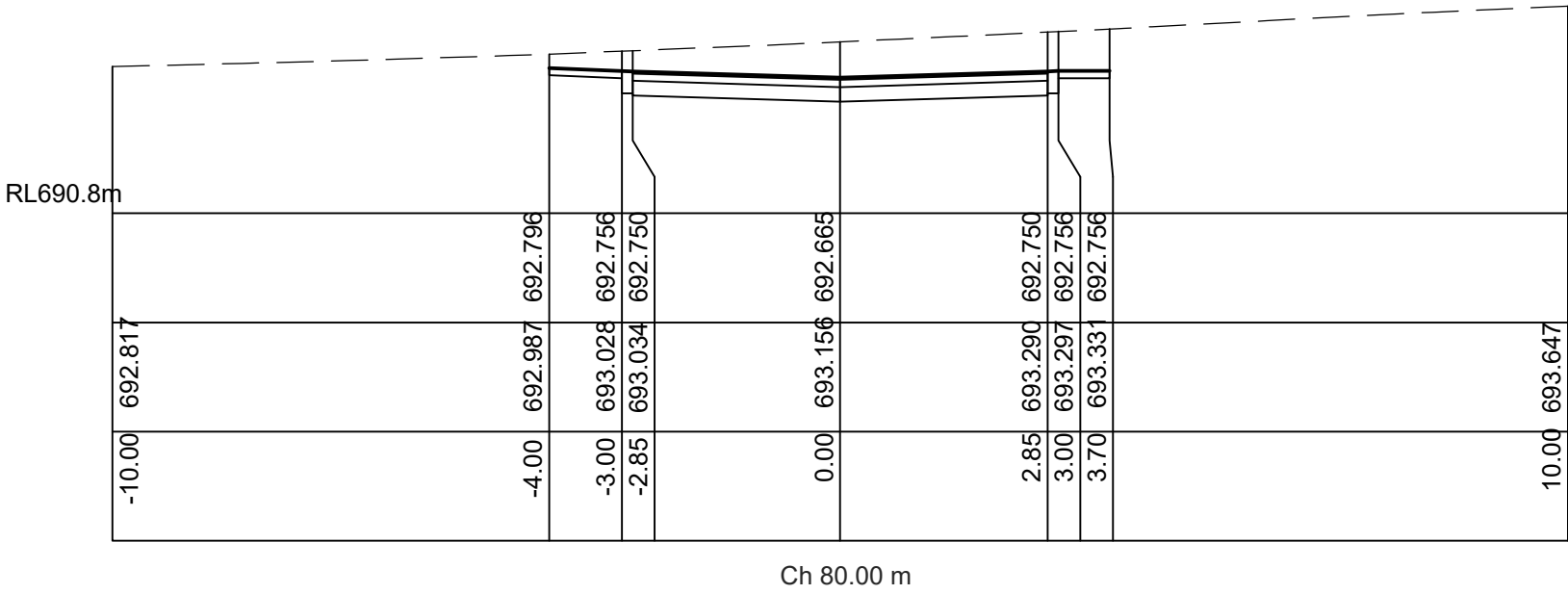
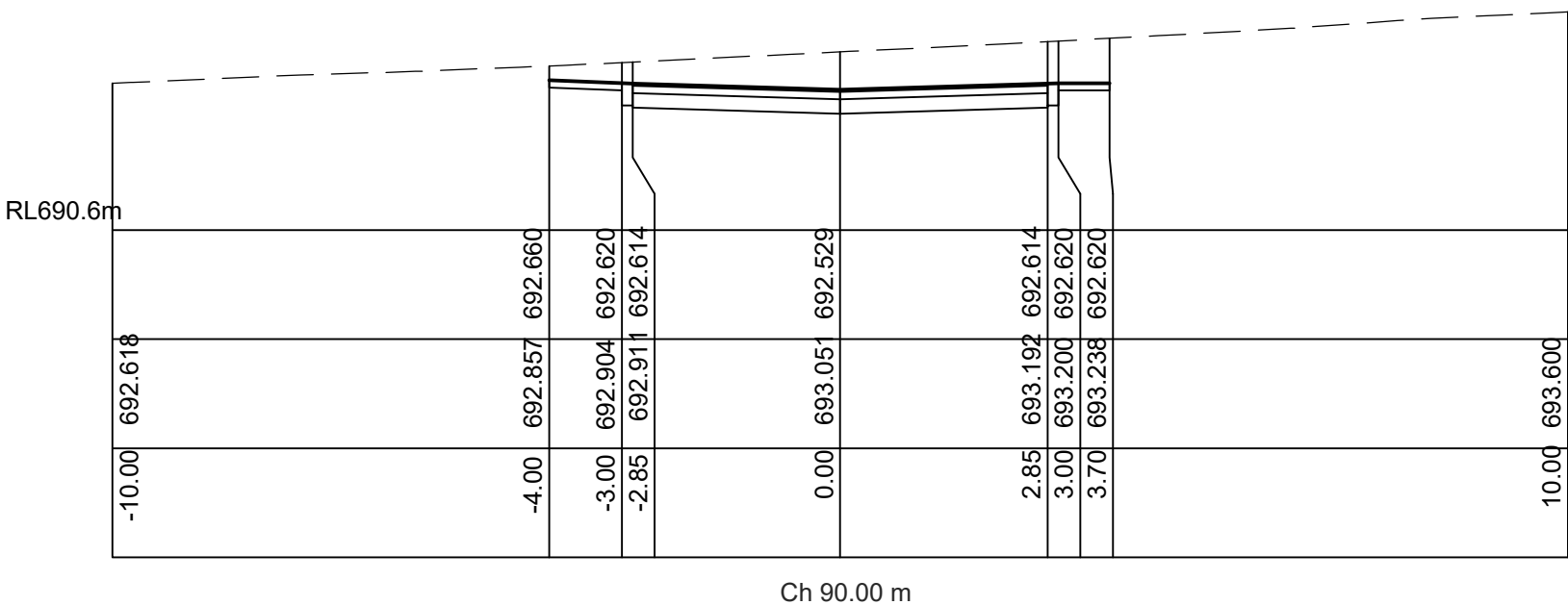
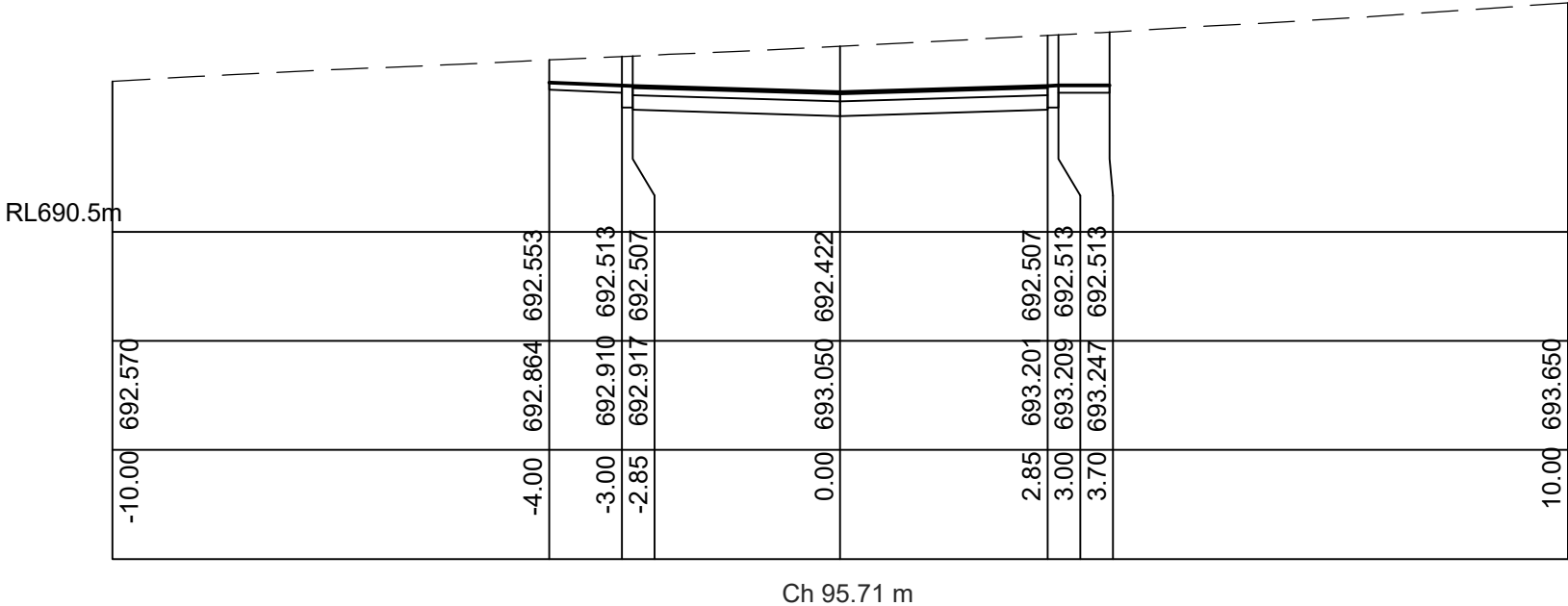
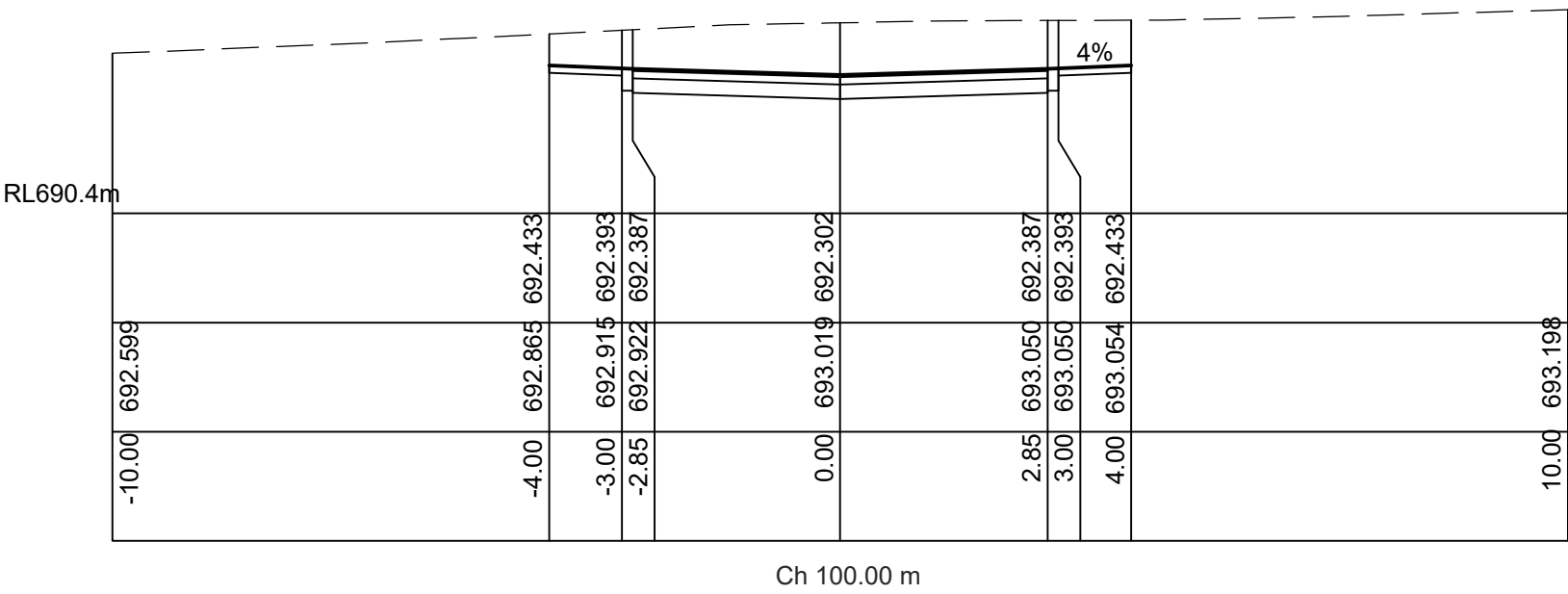
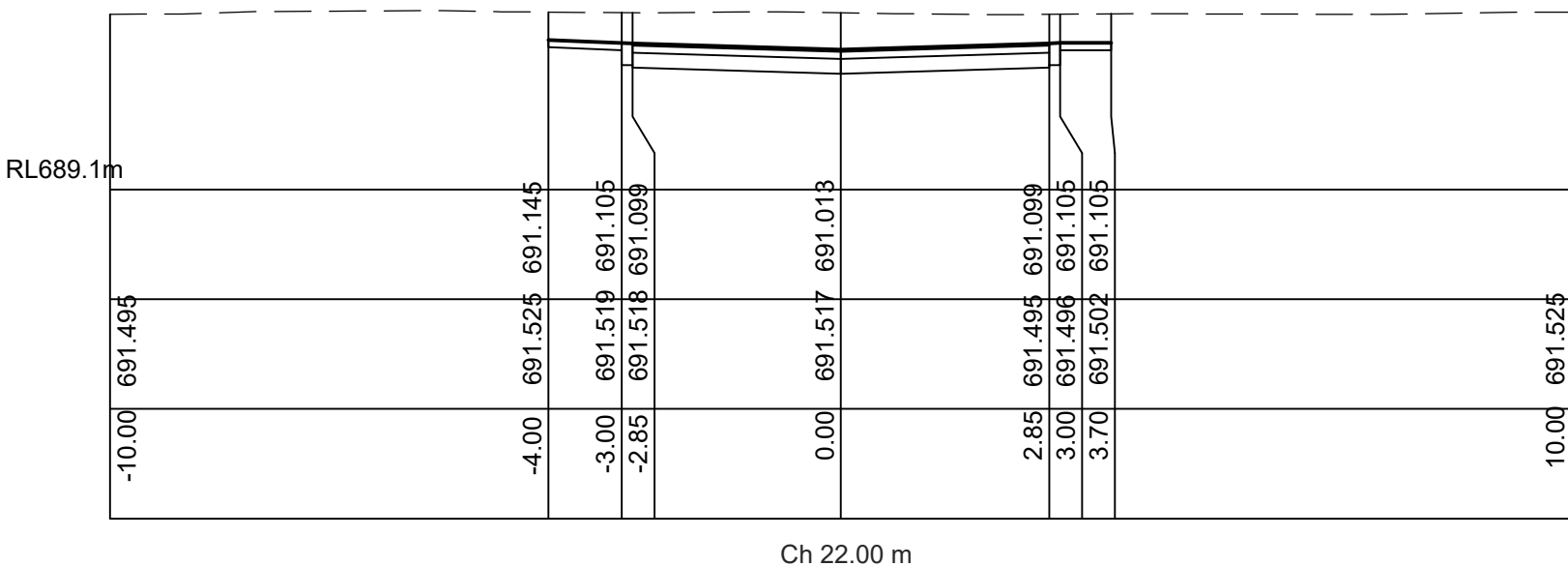
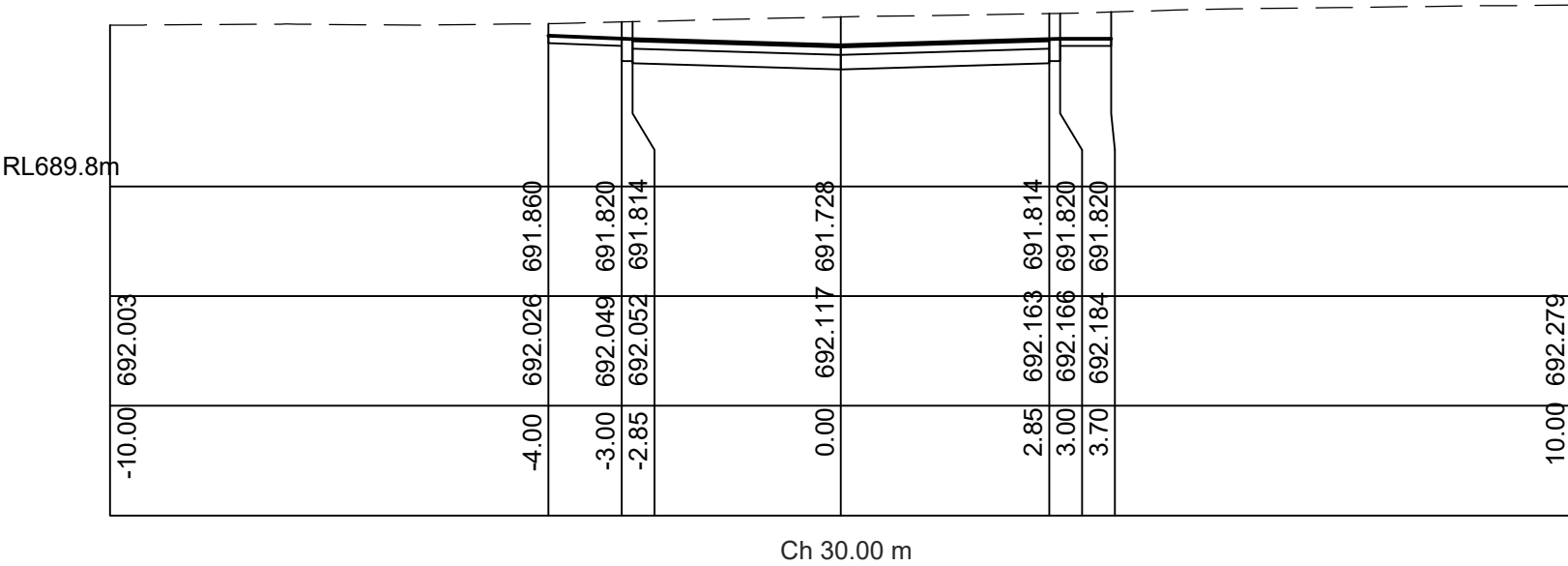
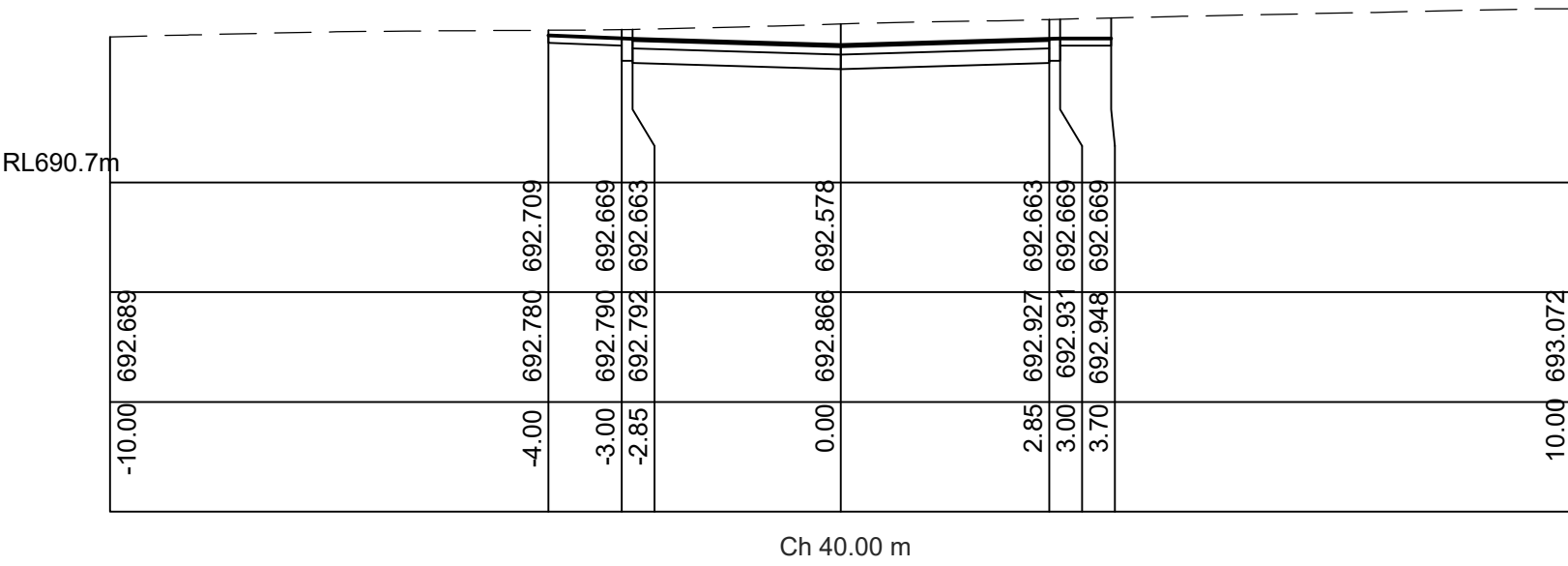
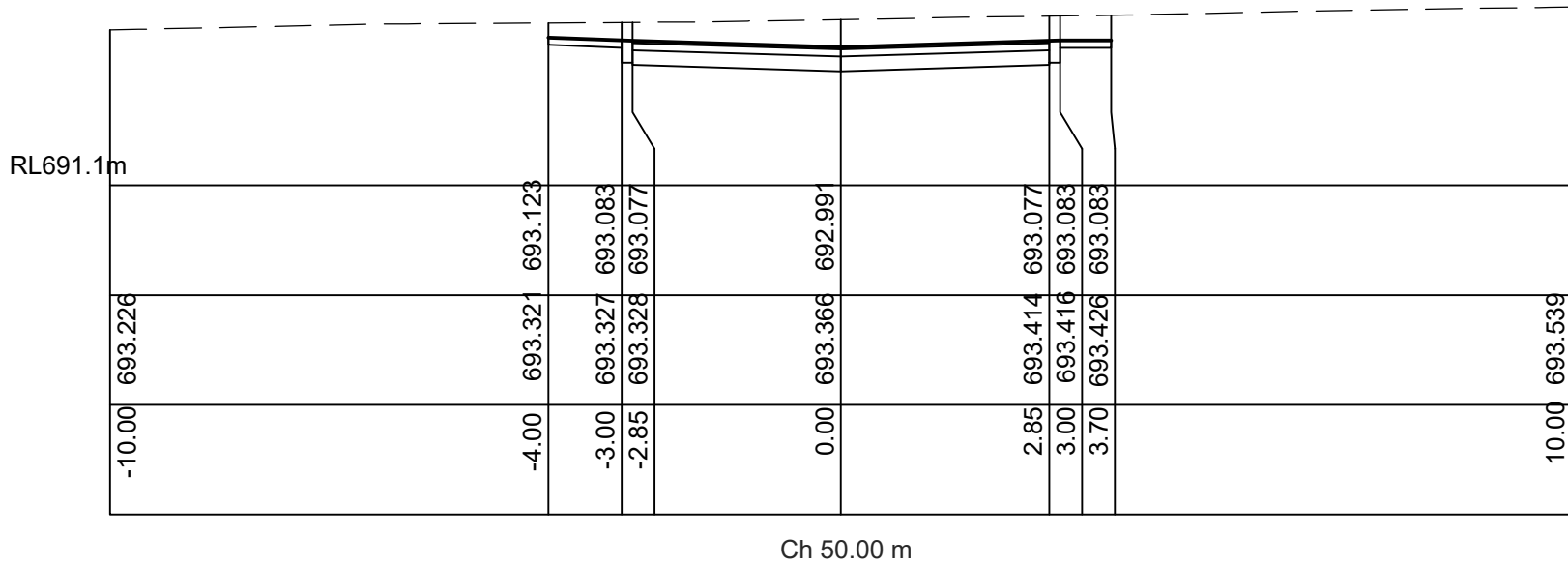
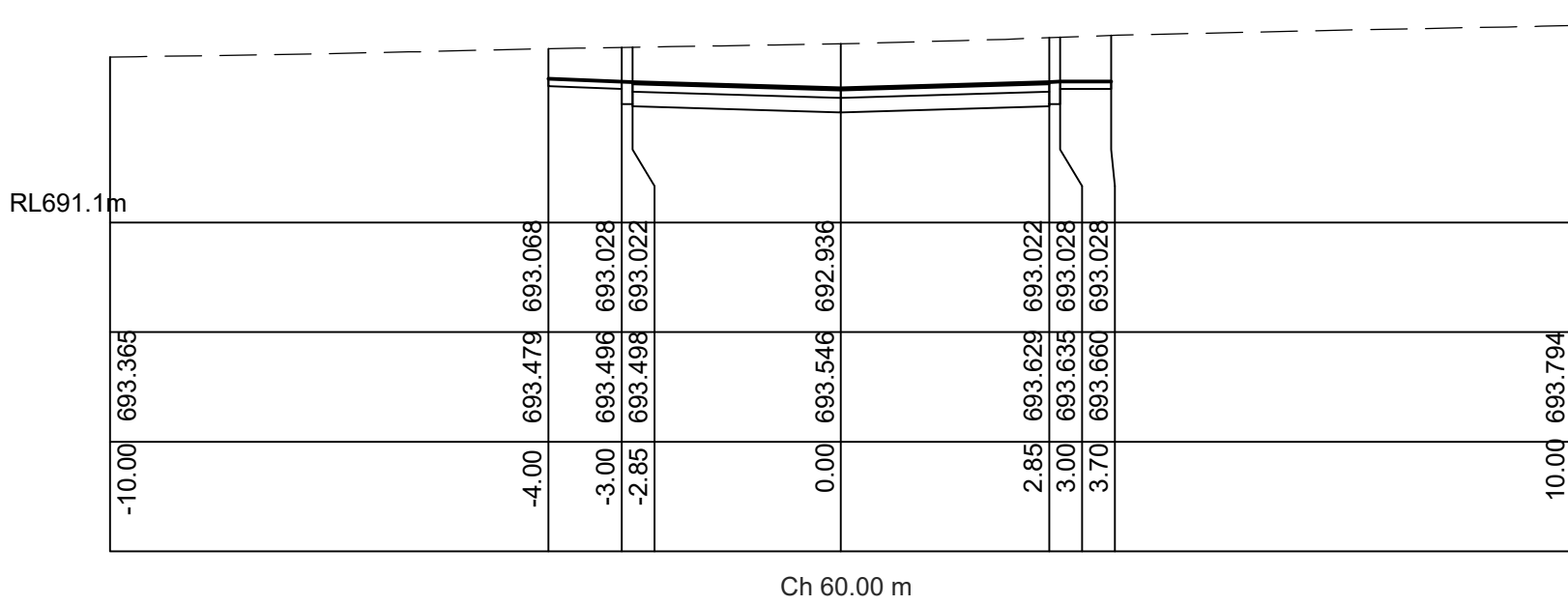
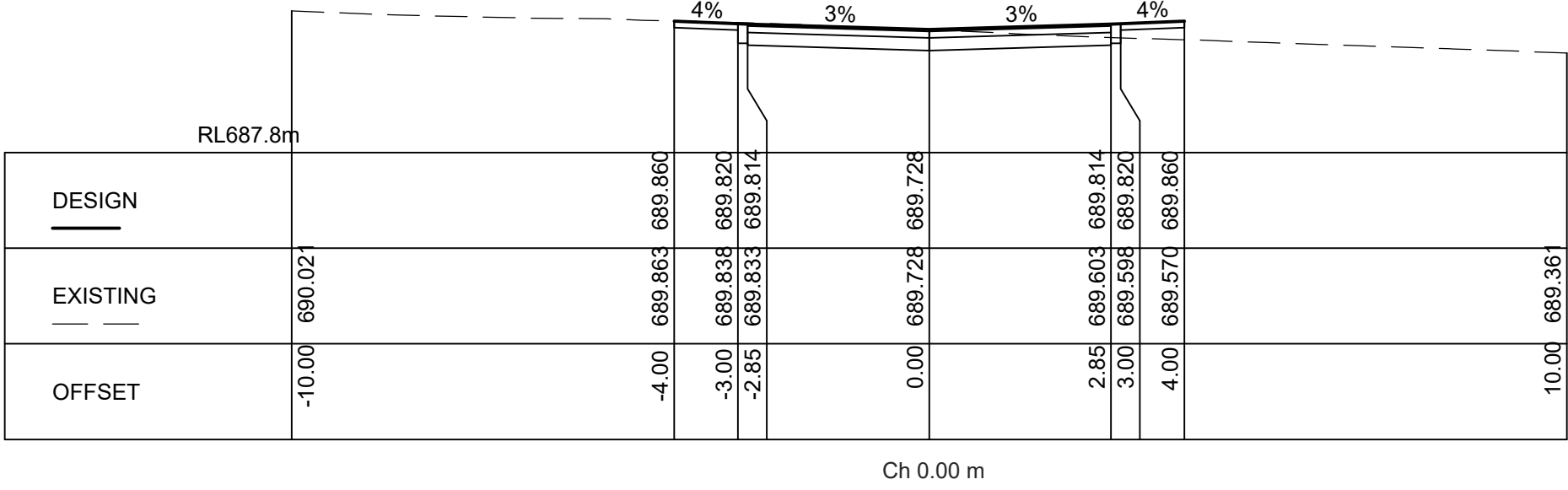
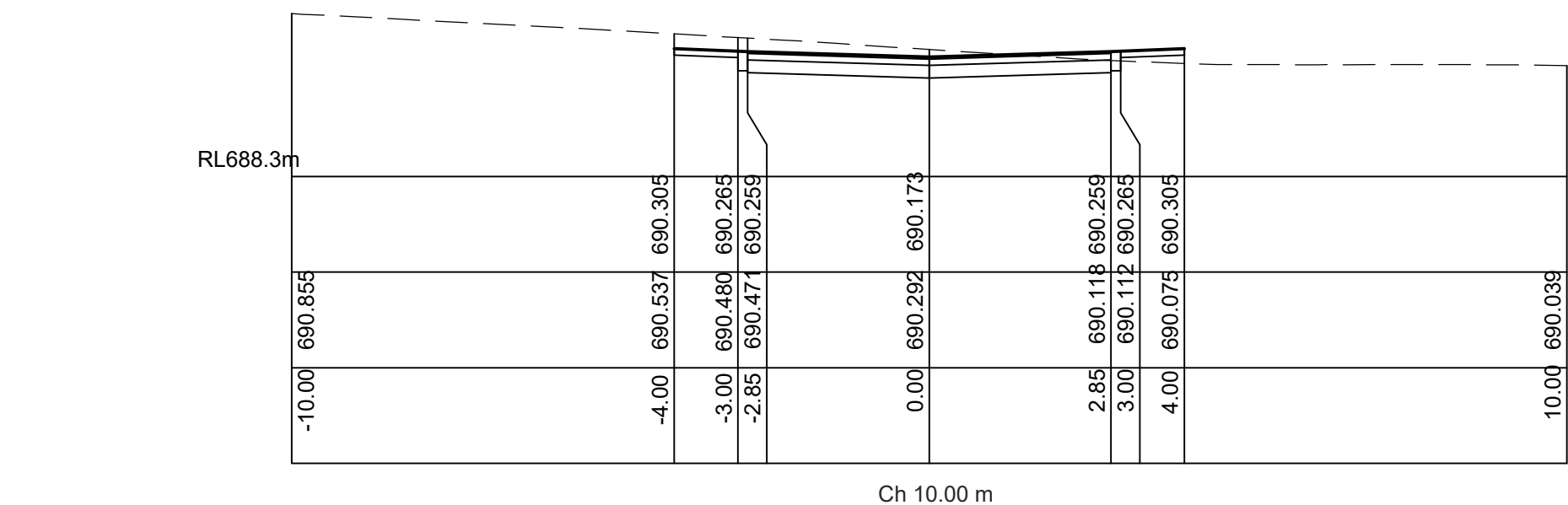
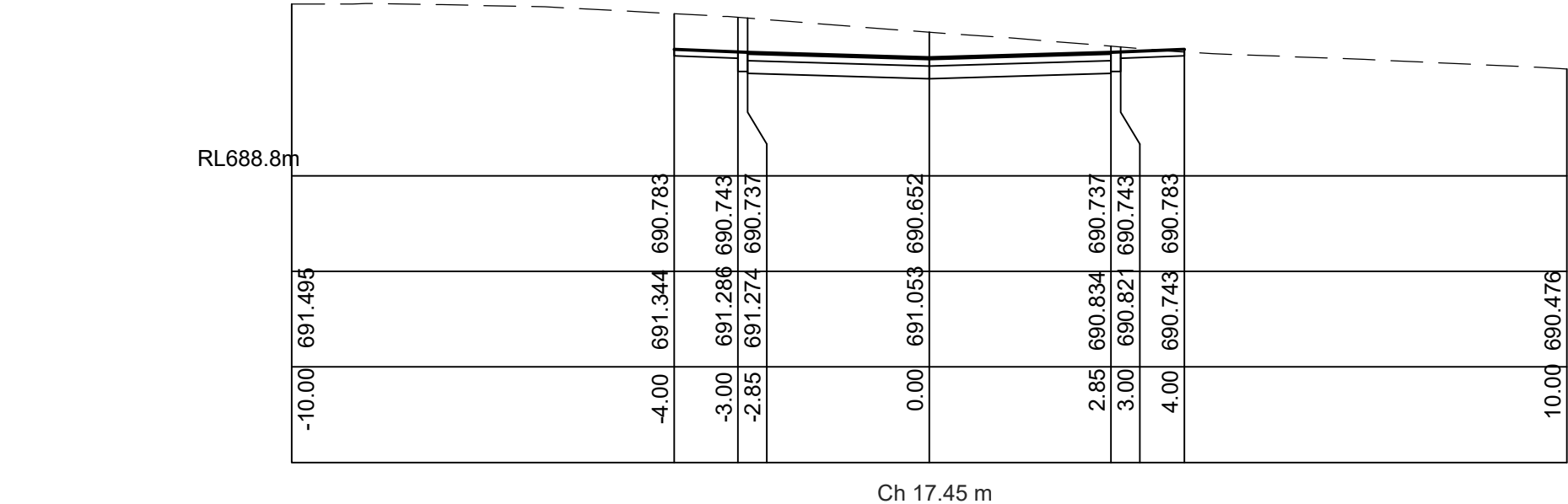
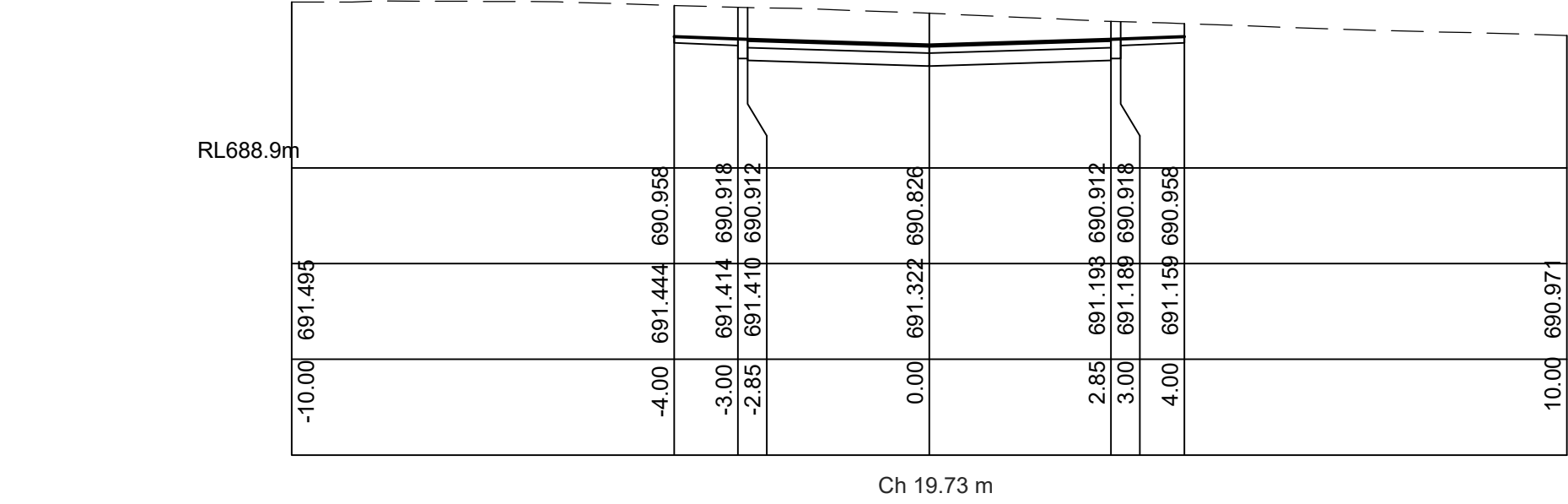
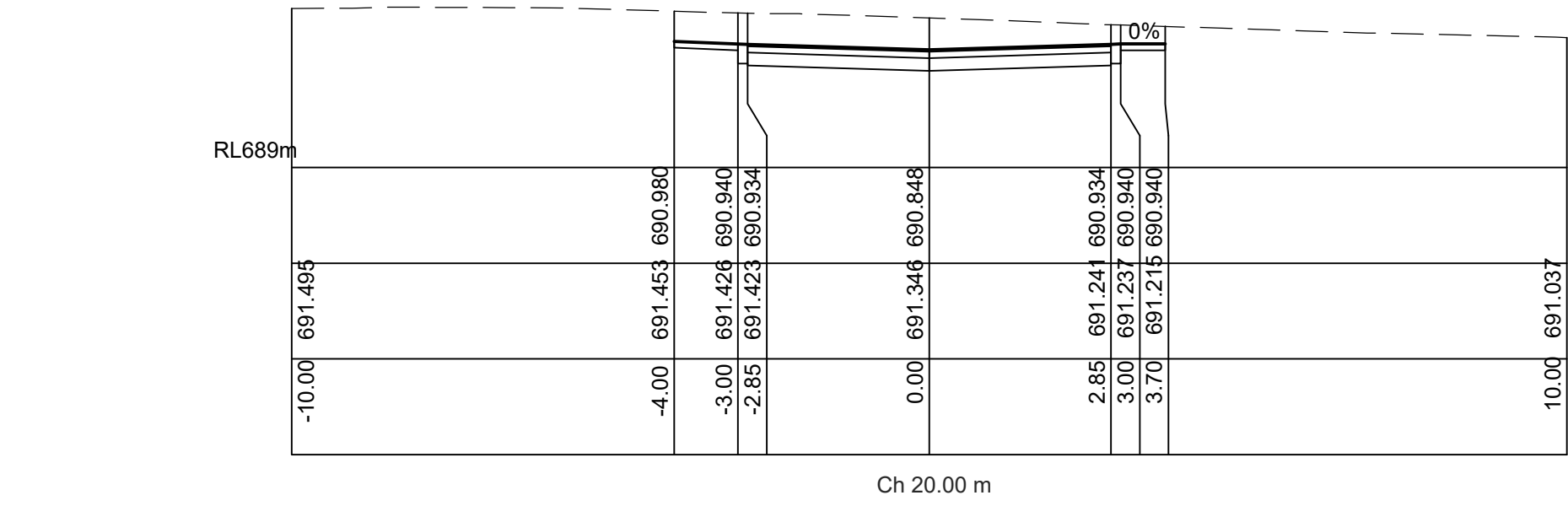
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DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 4

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-134		K



CROSS SECTIONS - ROAD 2
SCALE: 1:100

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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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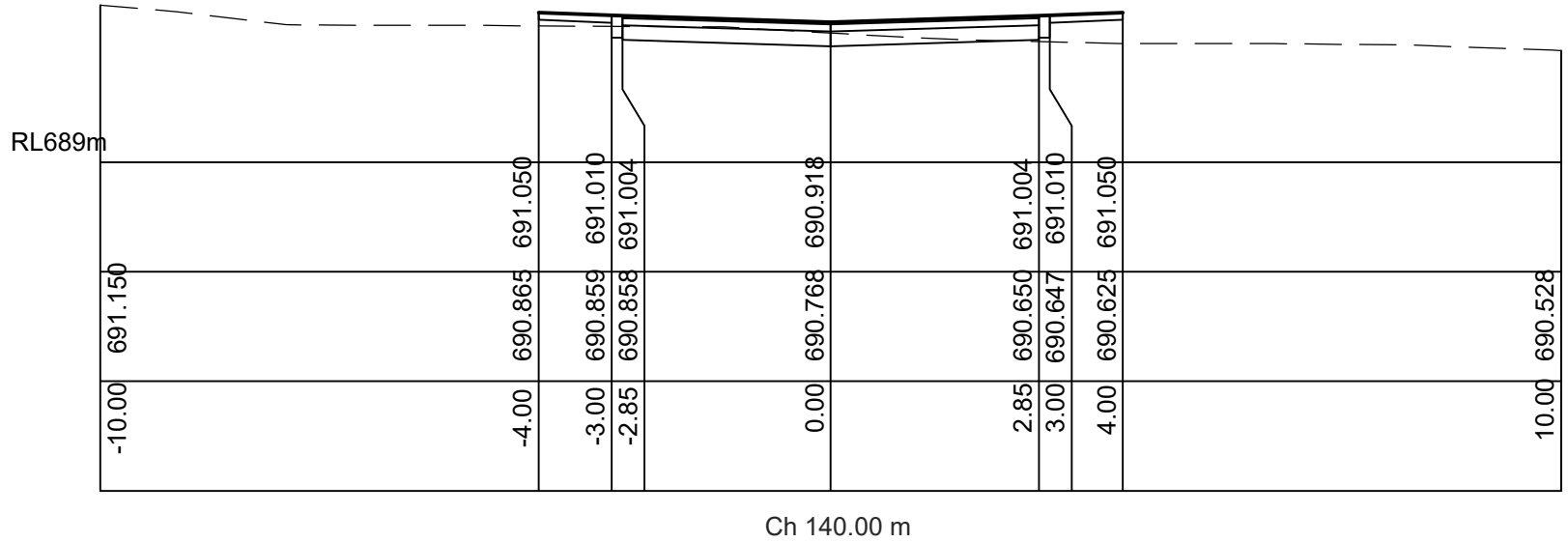
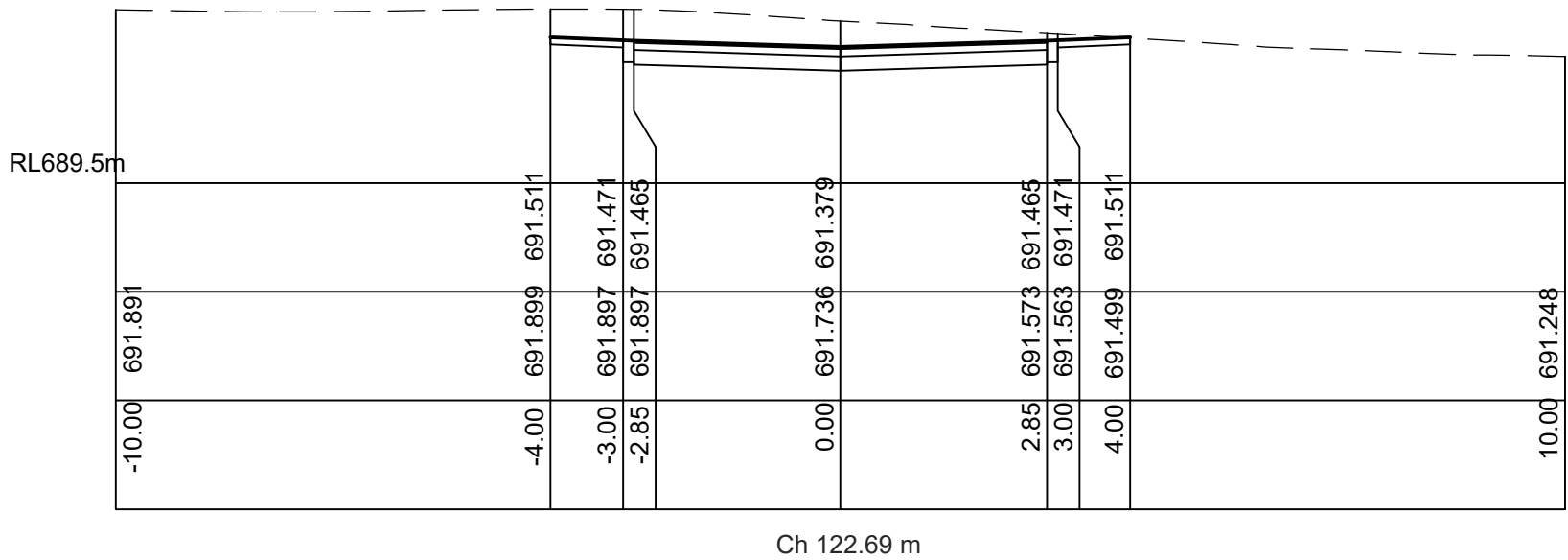
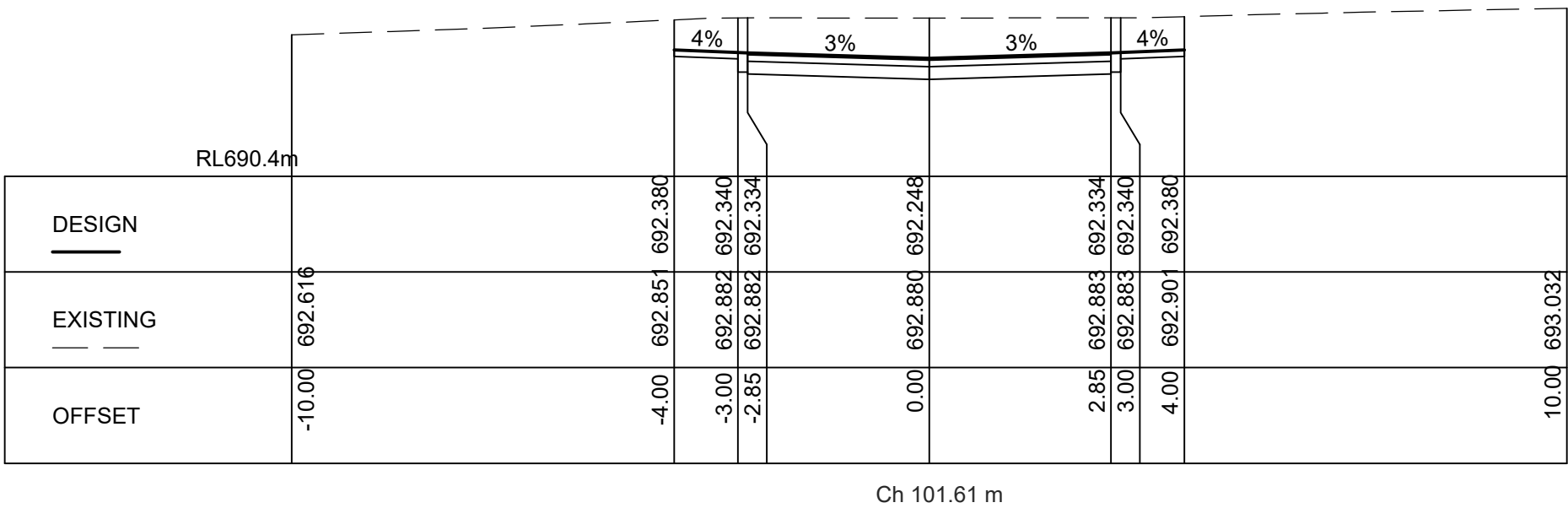
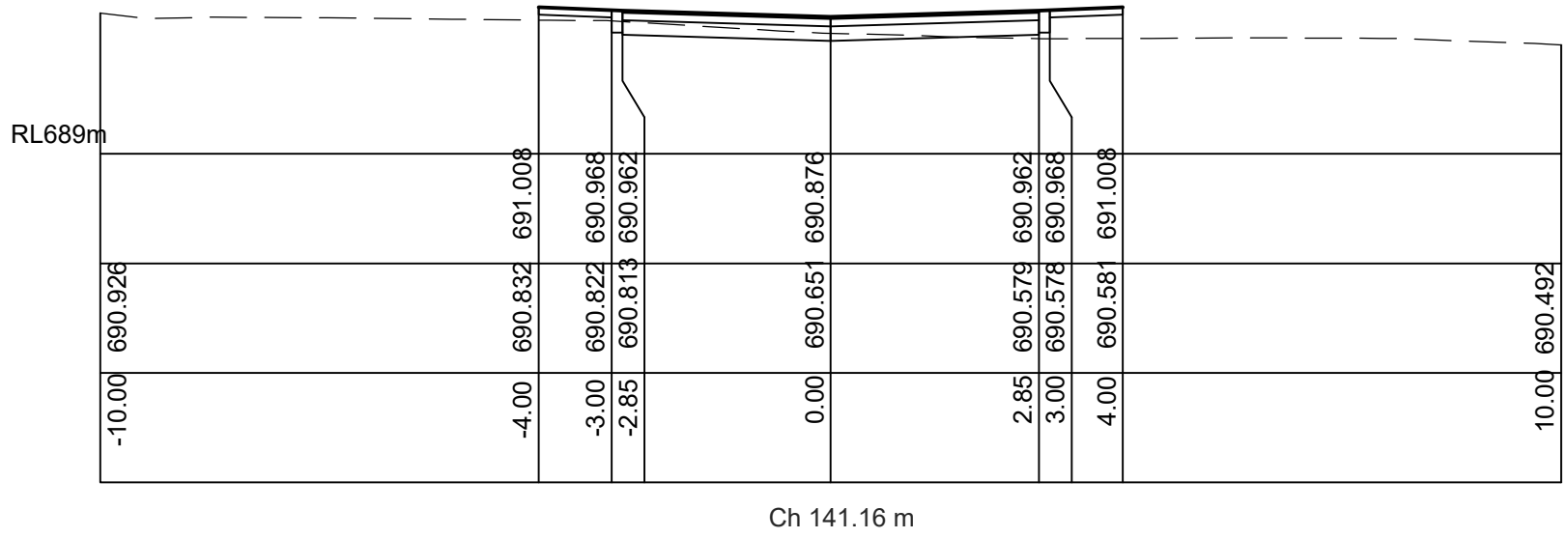
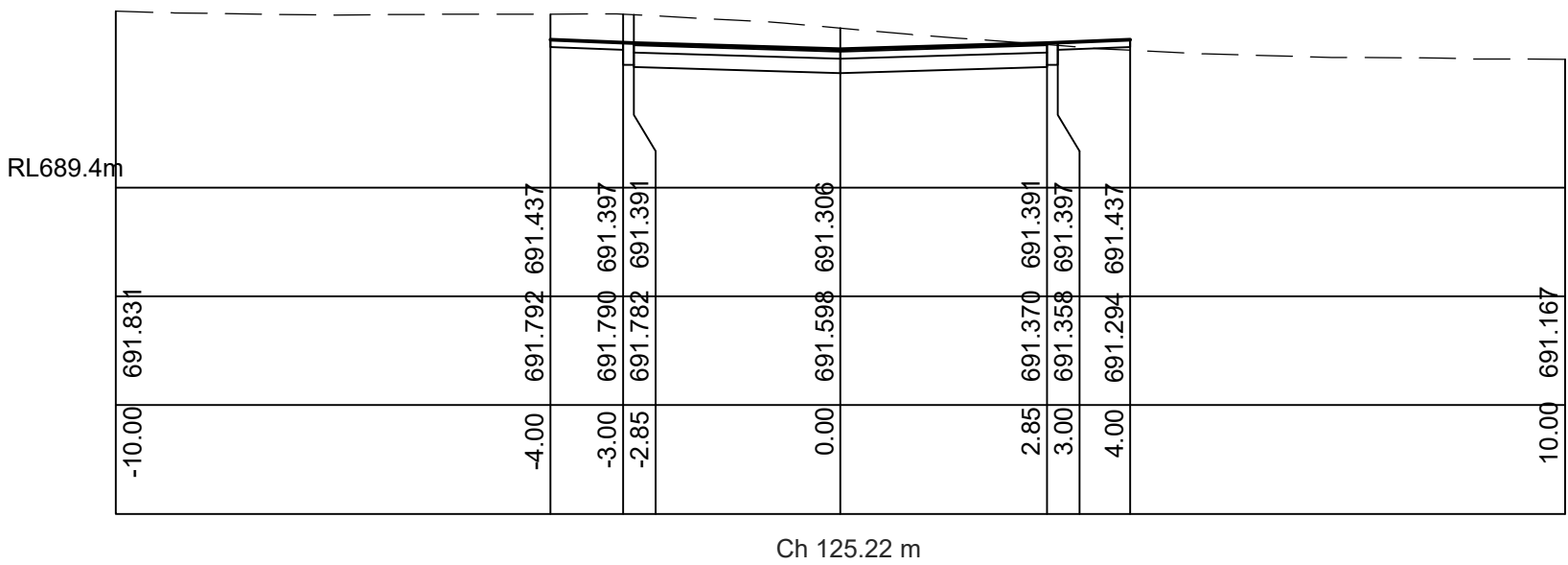
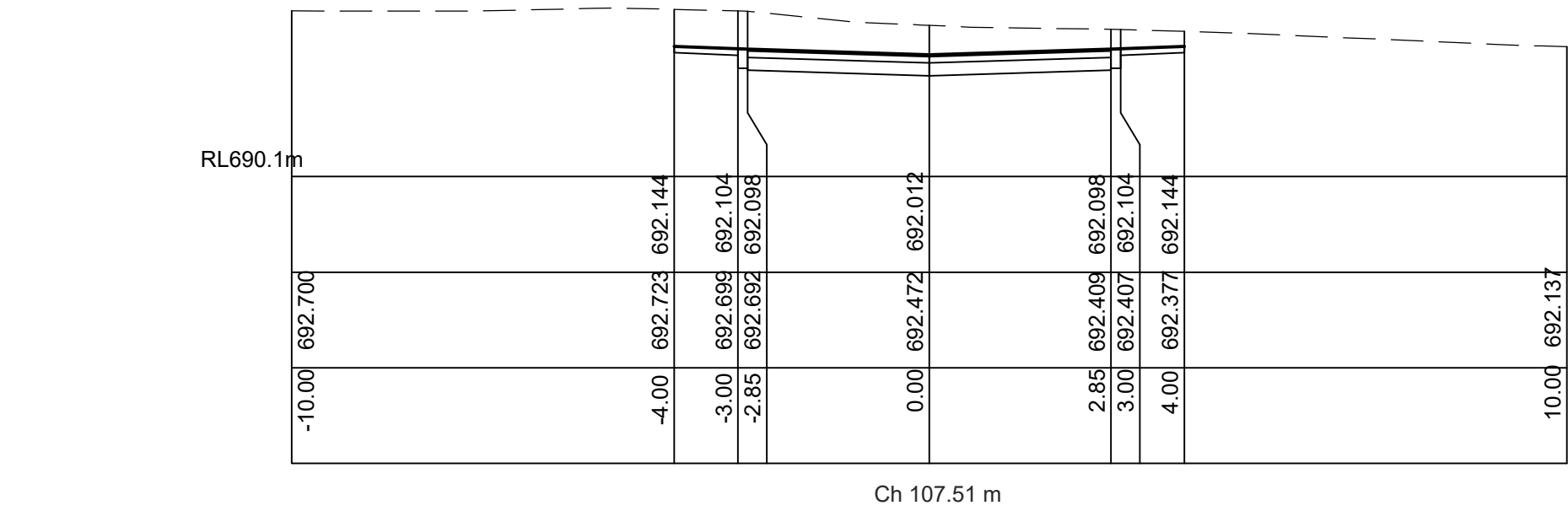
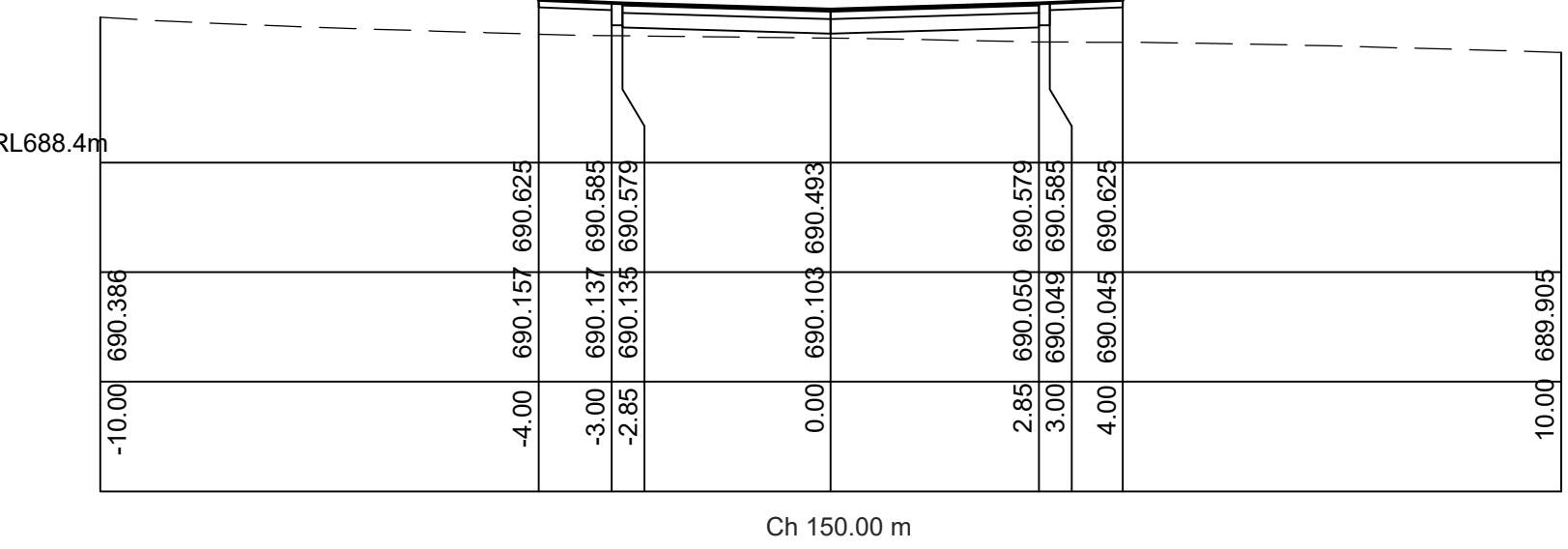
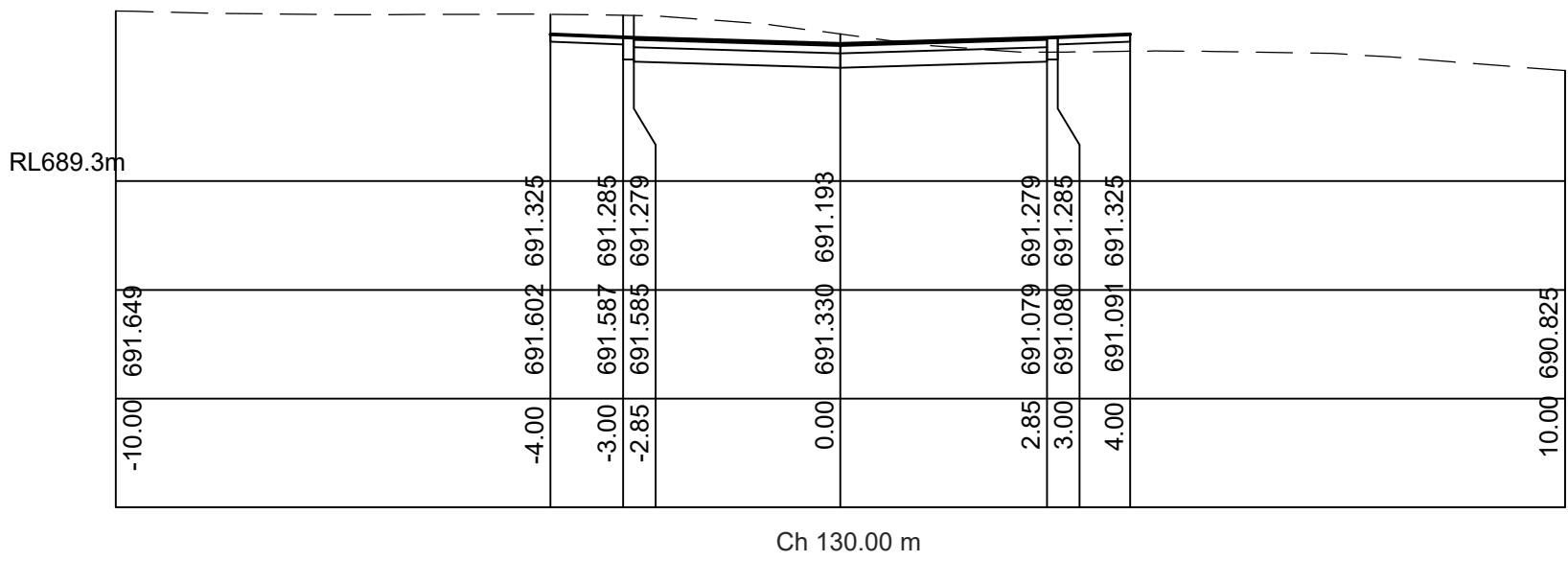
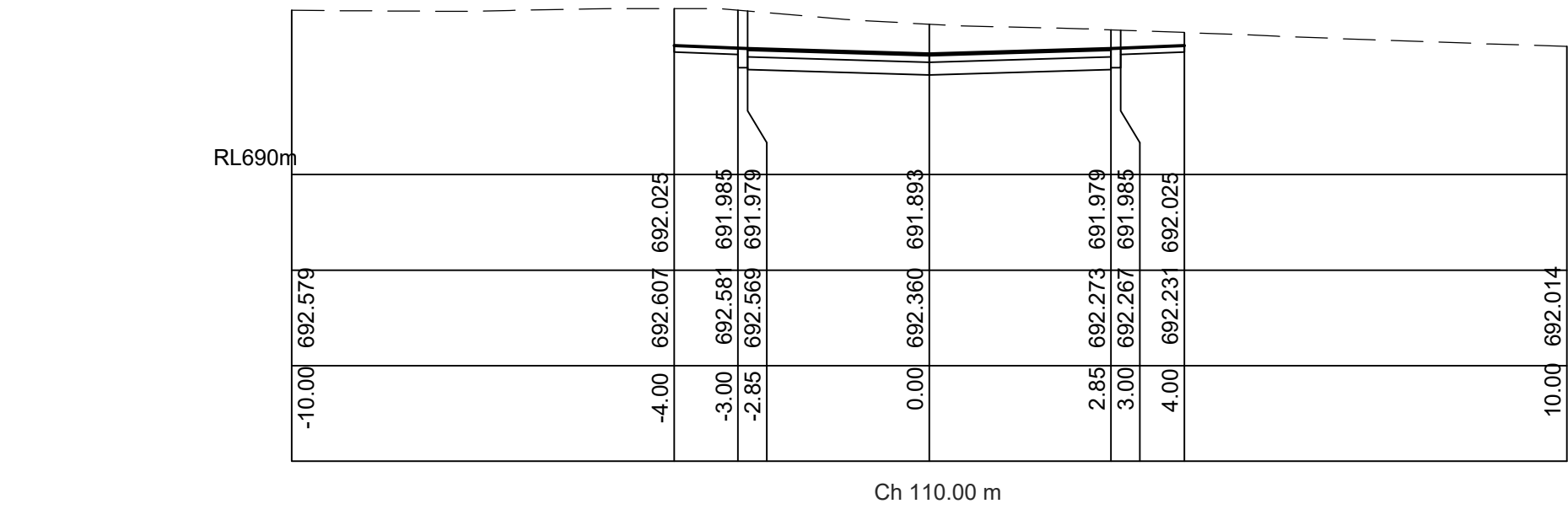
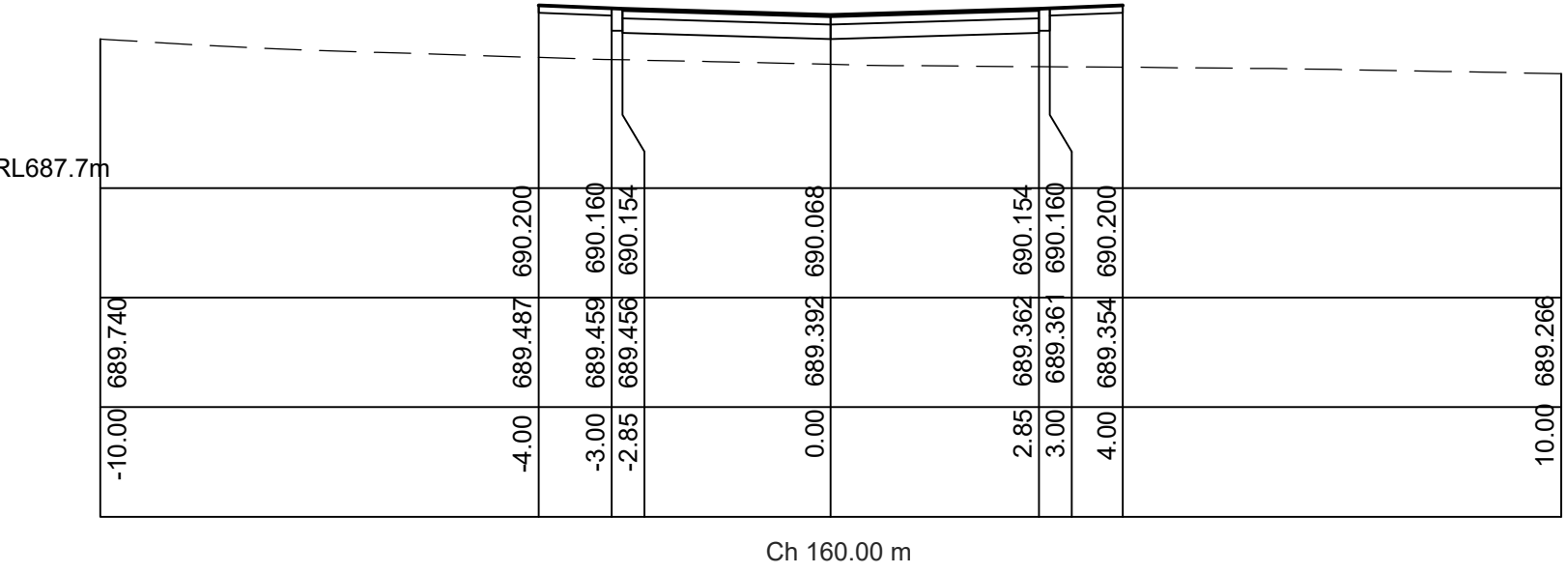
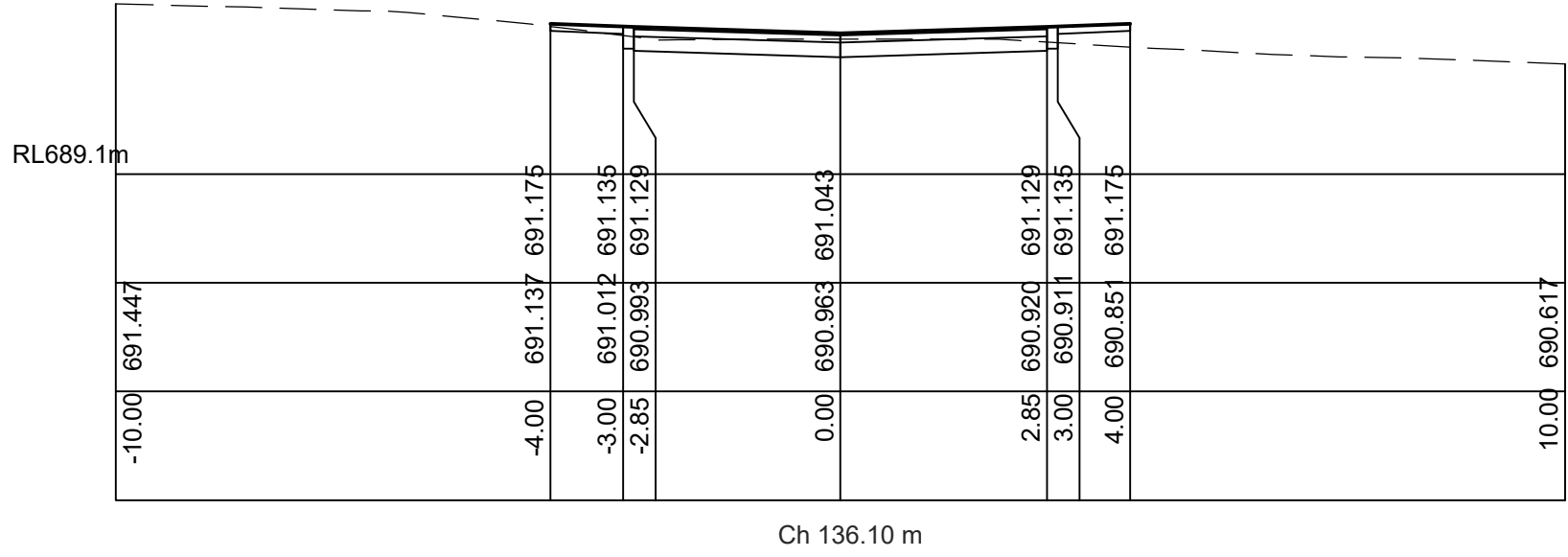
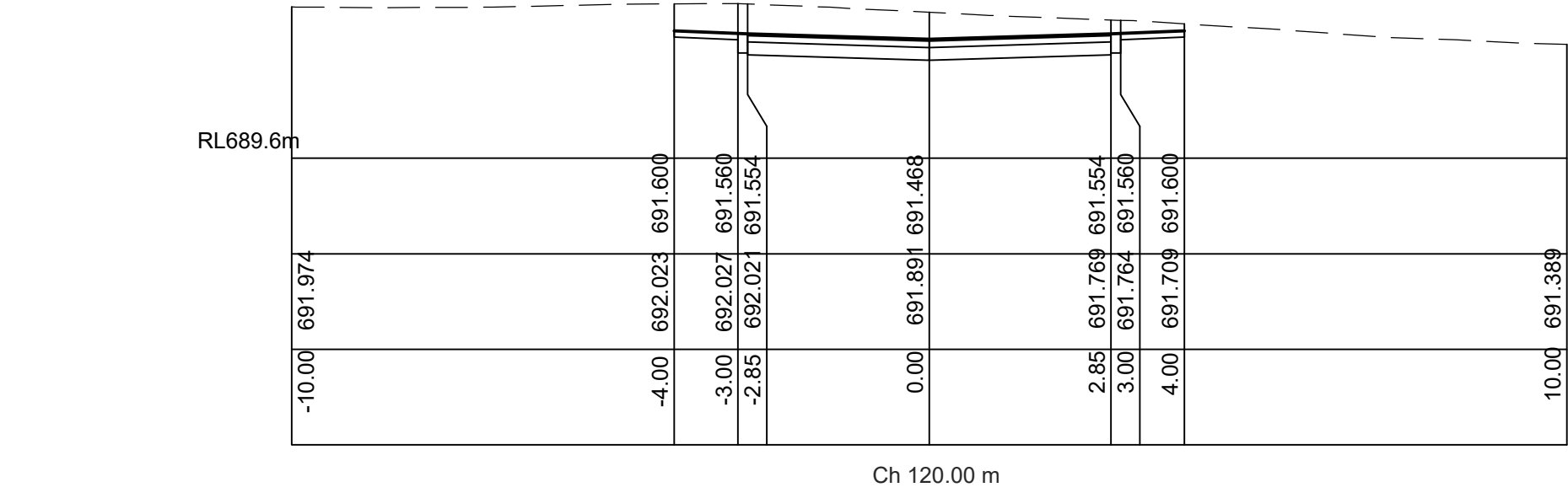
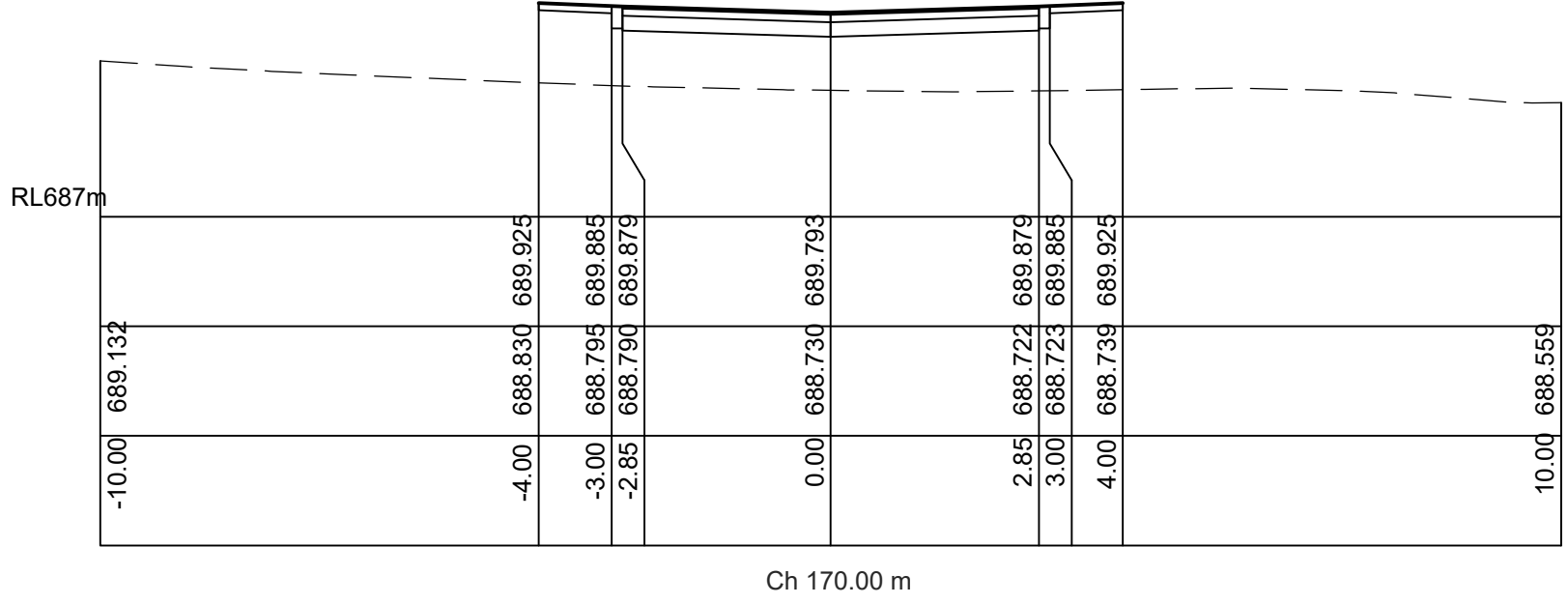
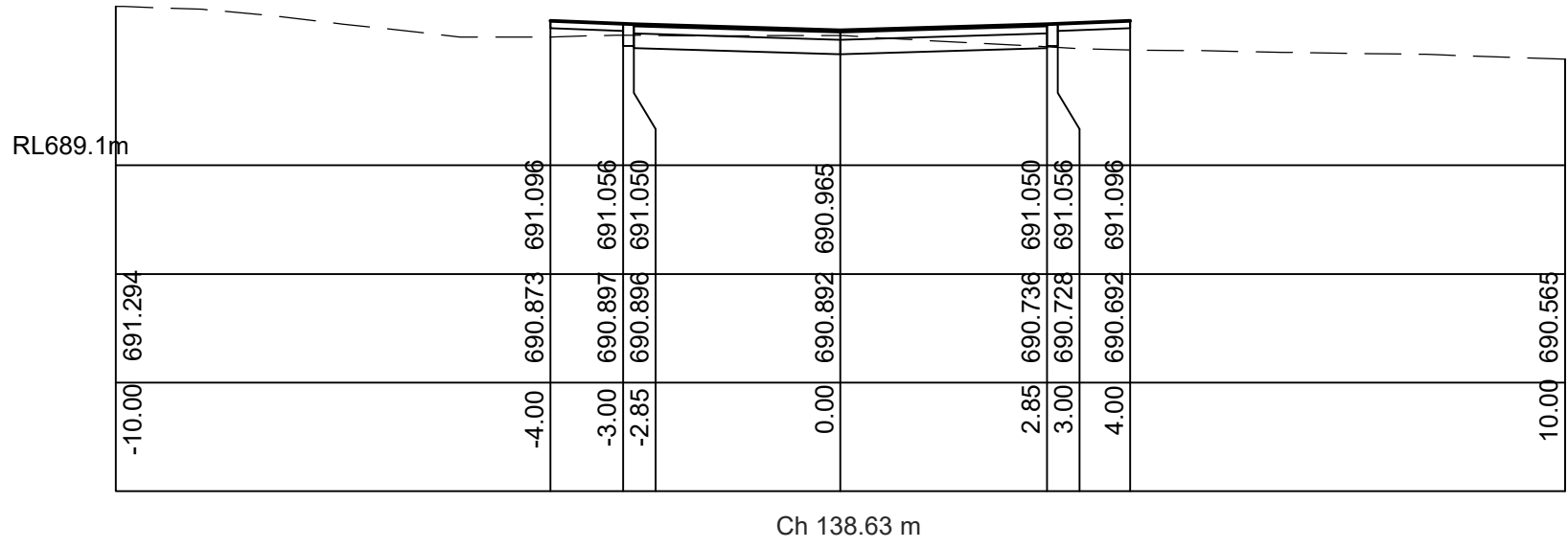
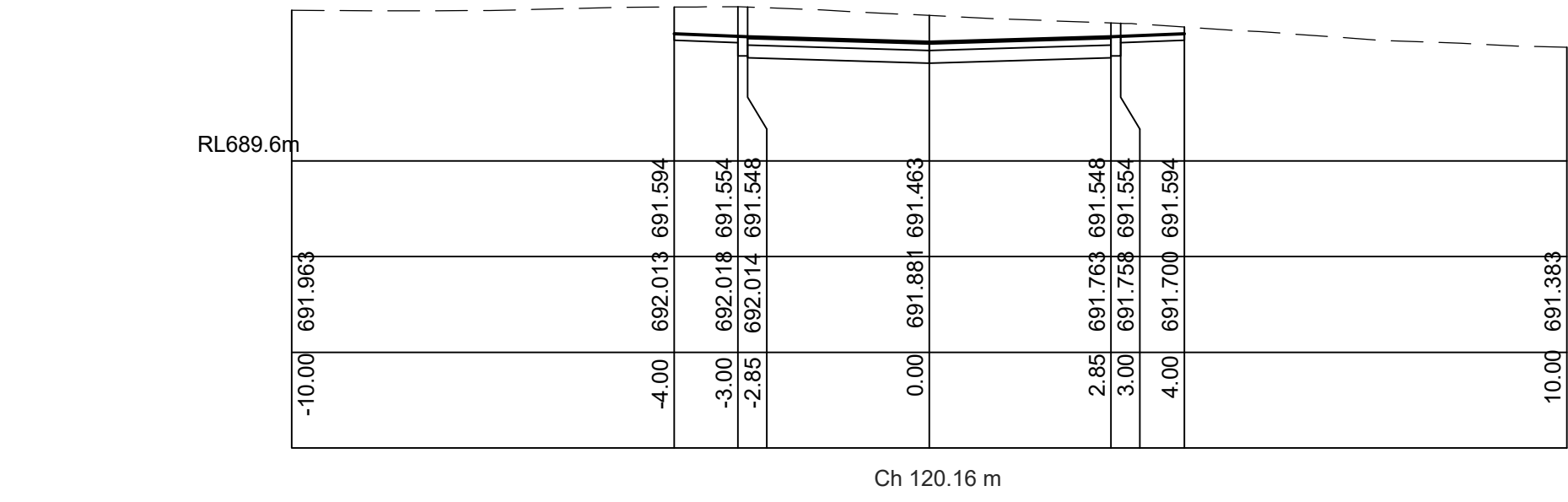
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PROJECT
2-18 Centennial Road, Bowral, 2576

DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 5

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-135		K



CROSS SECTIONS - ROAD 2 (CONT)
SCALE: 1:100

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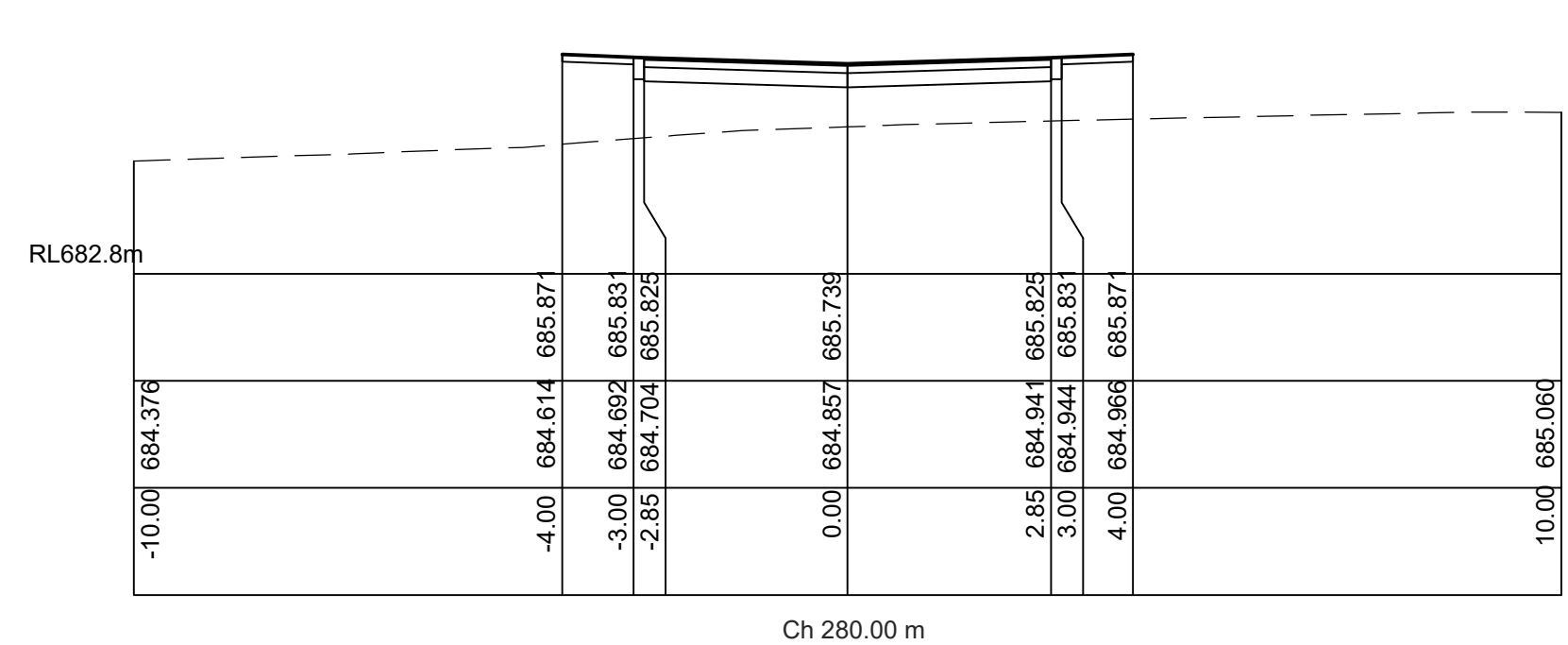
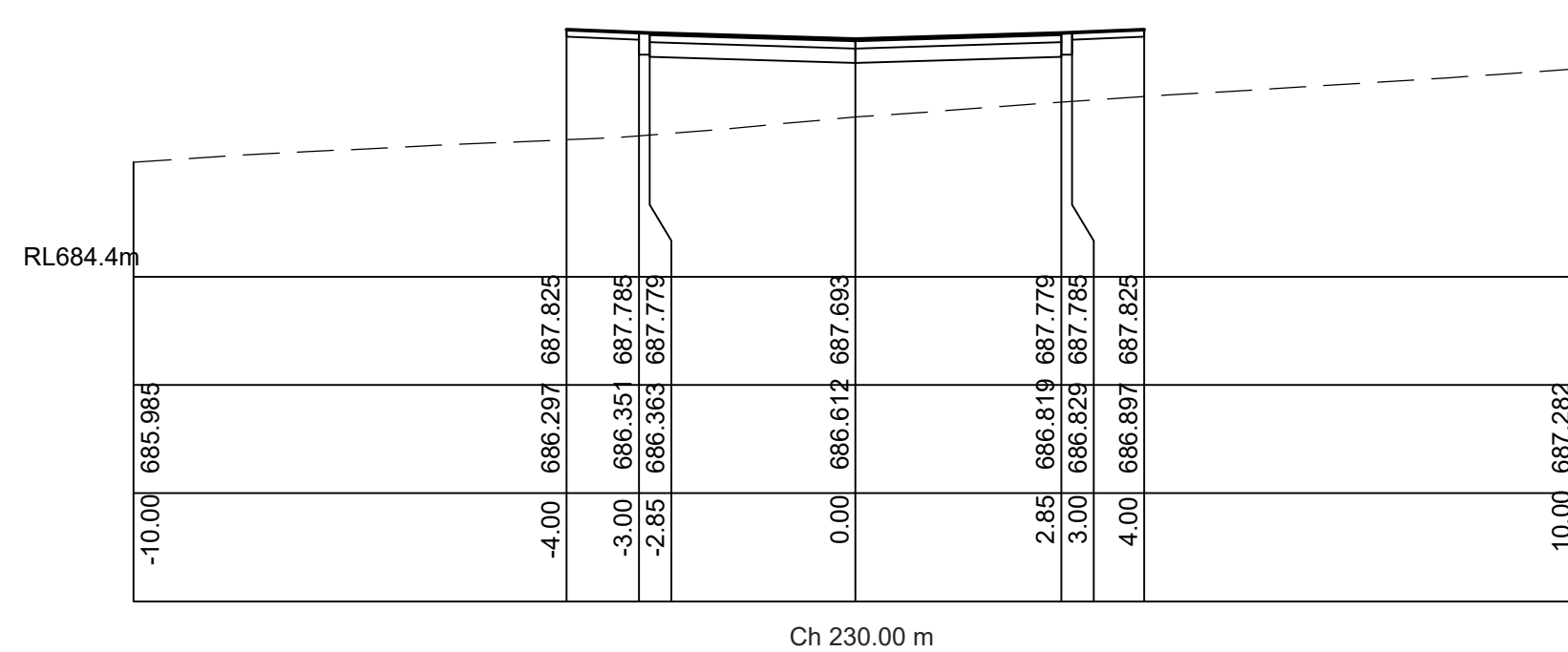
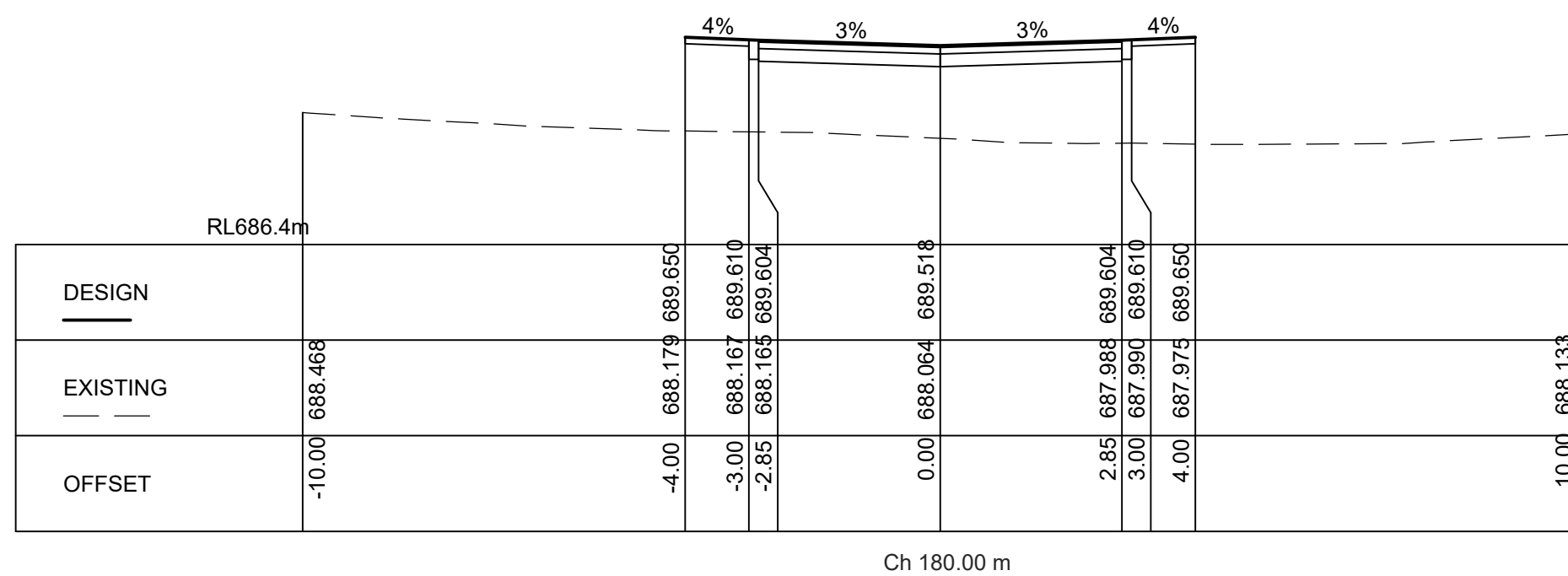
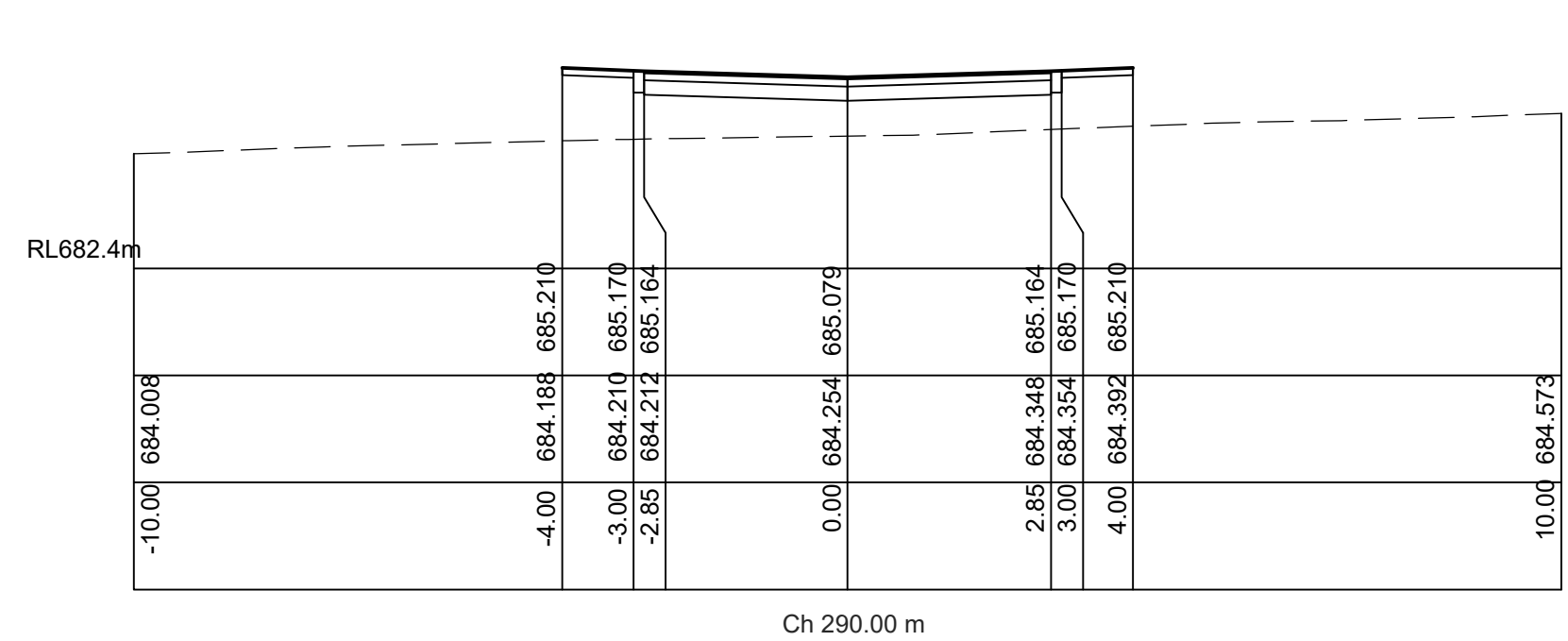
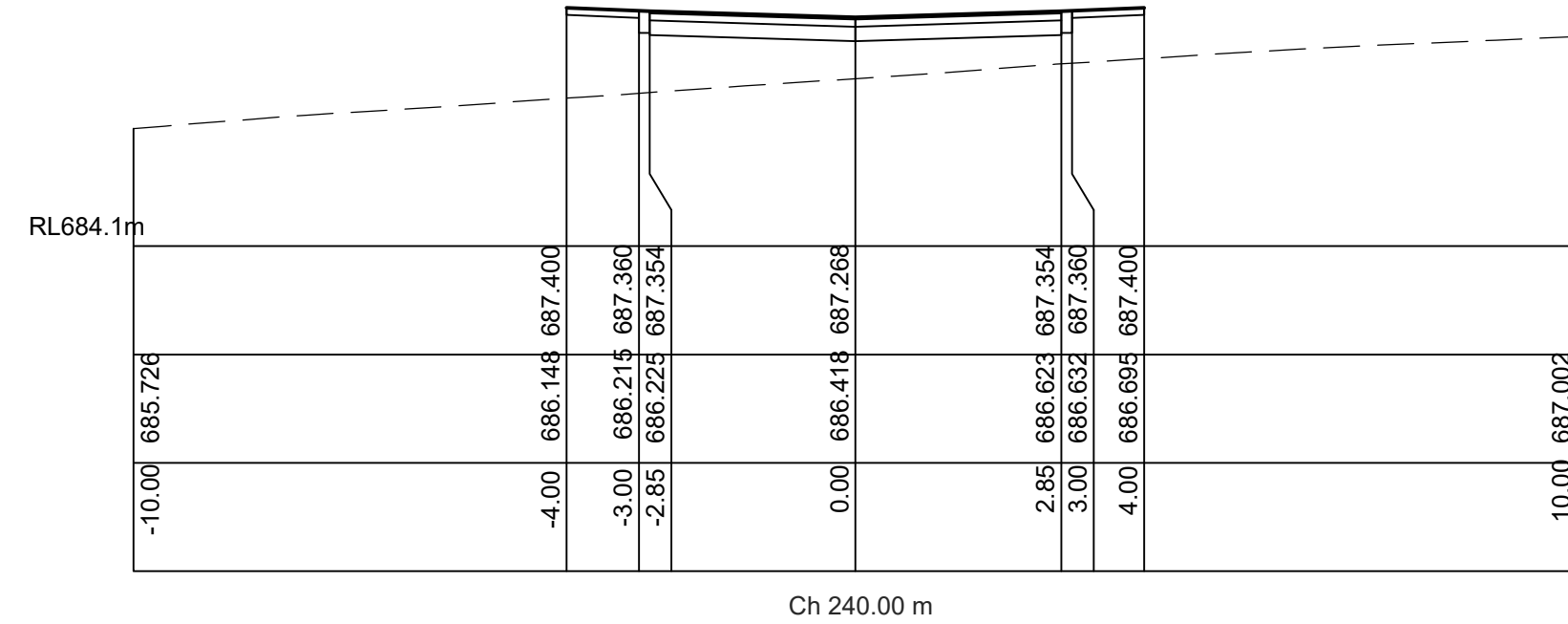
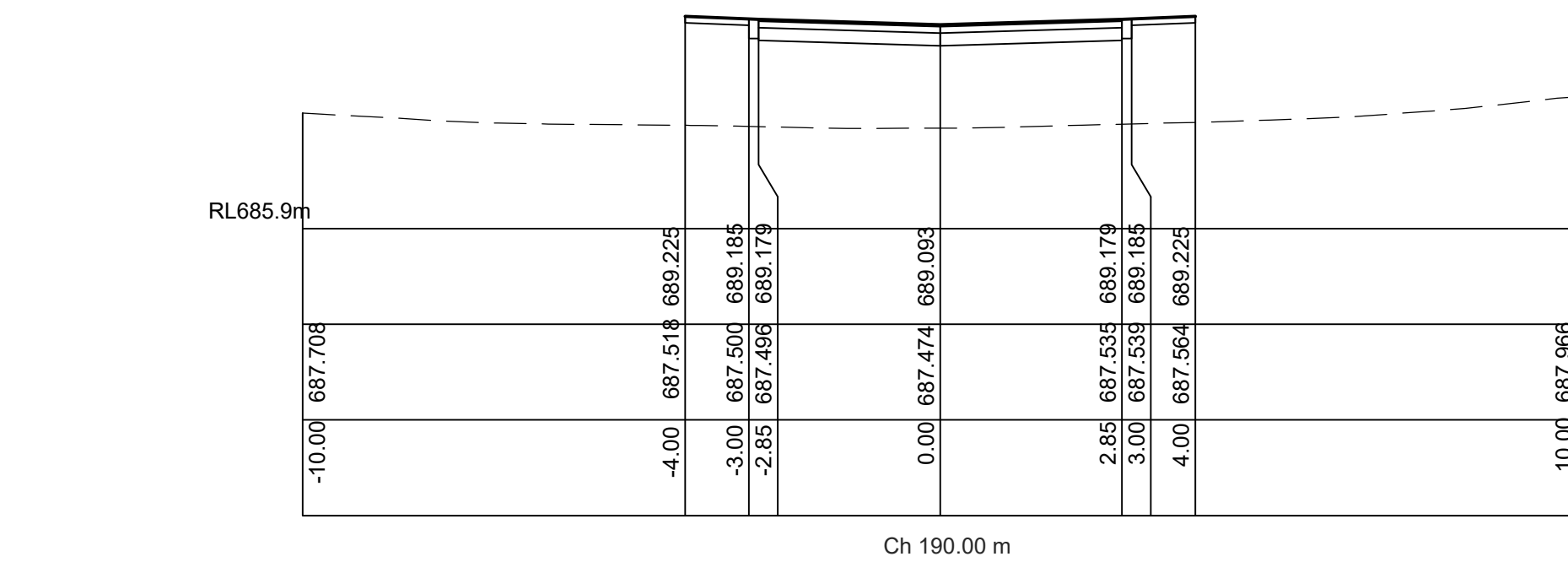
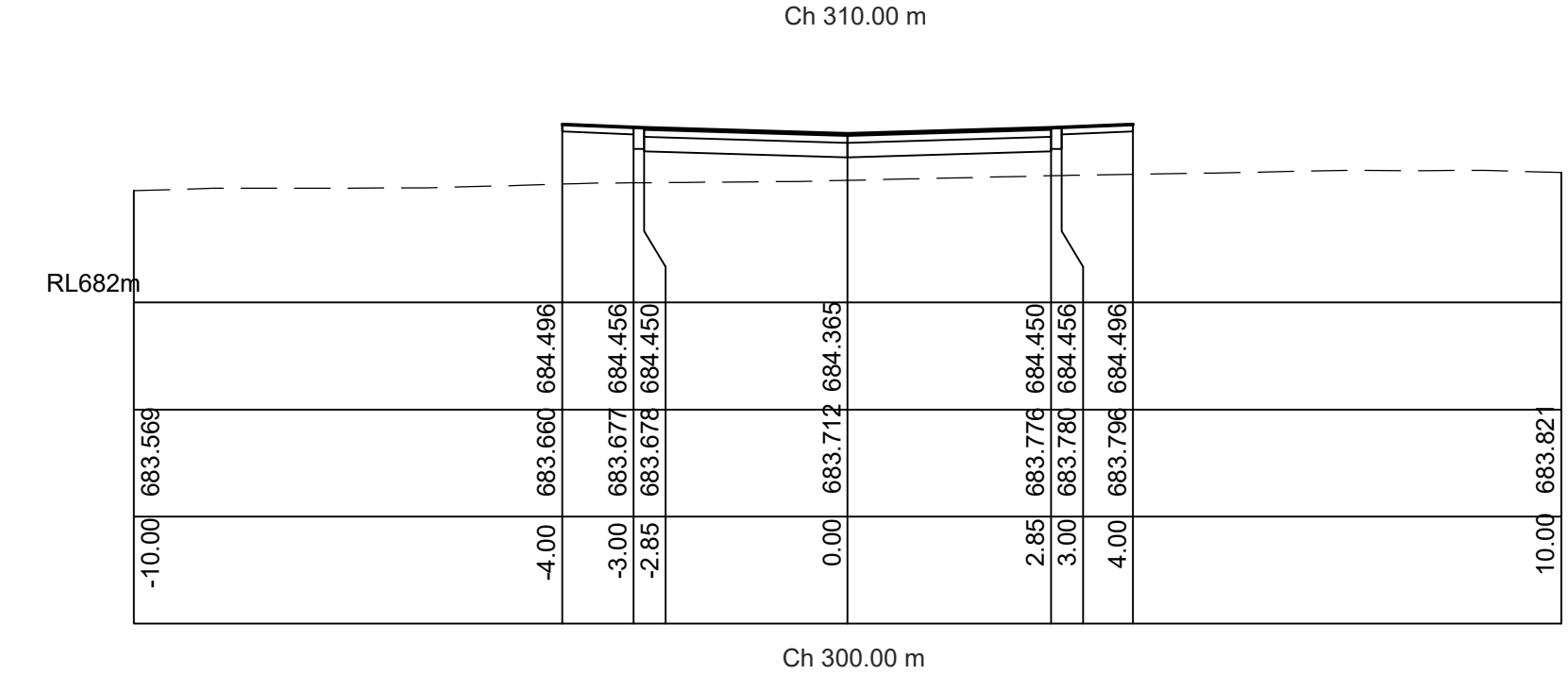
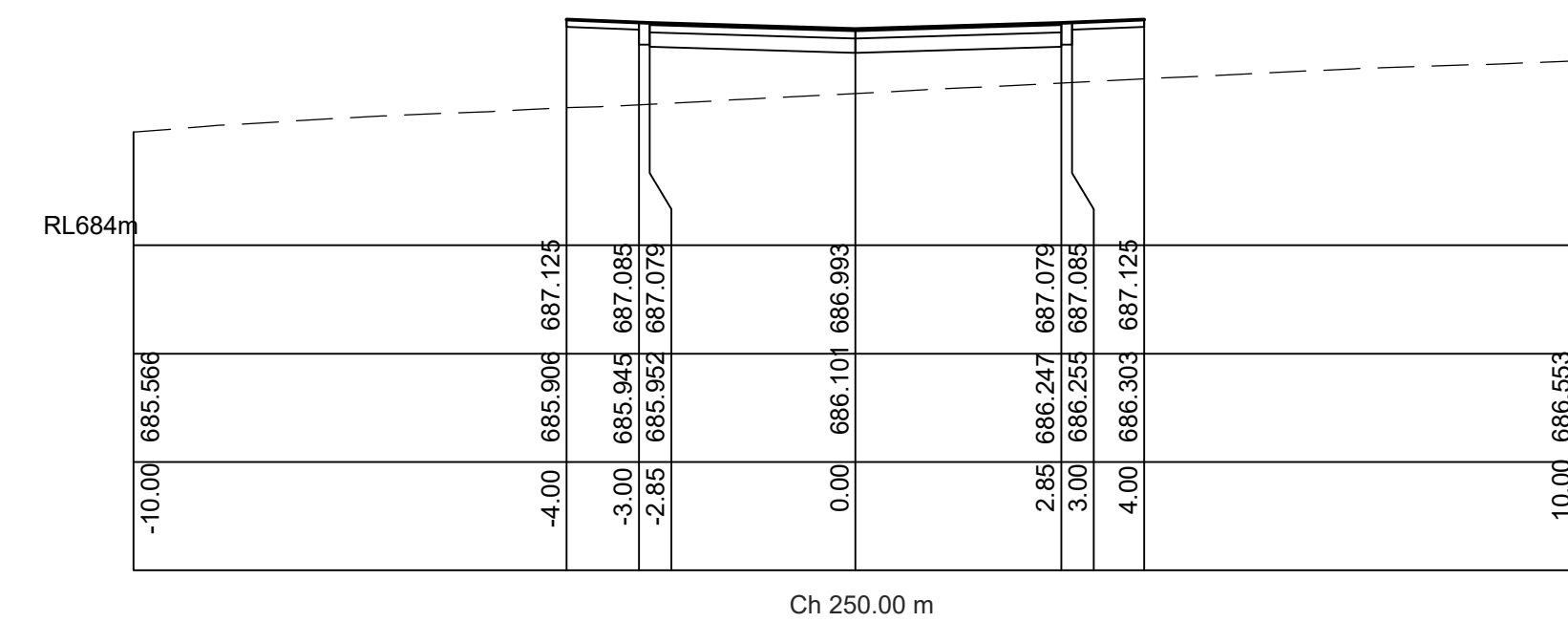
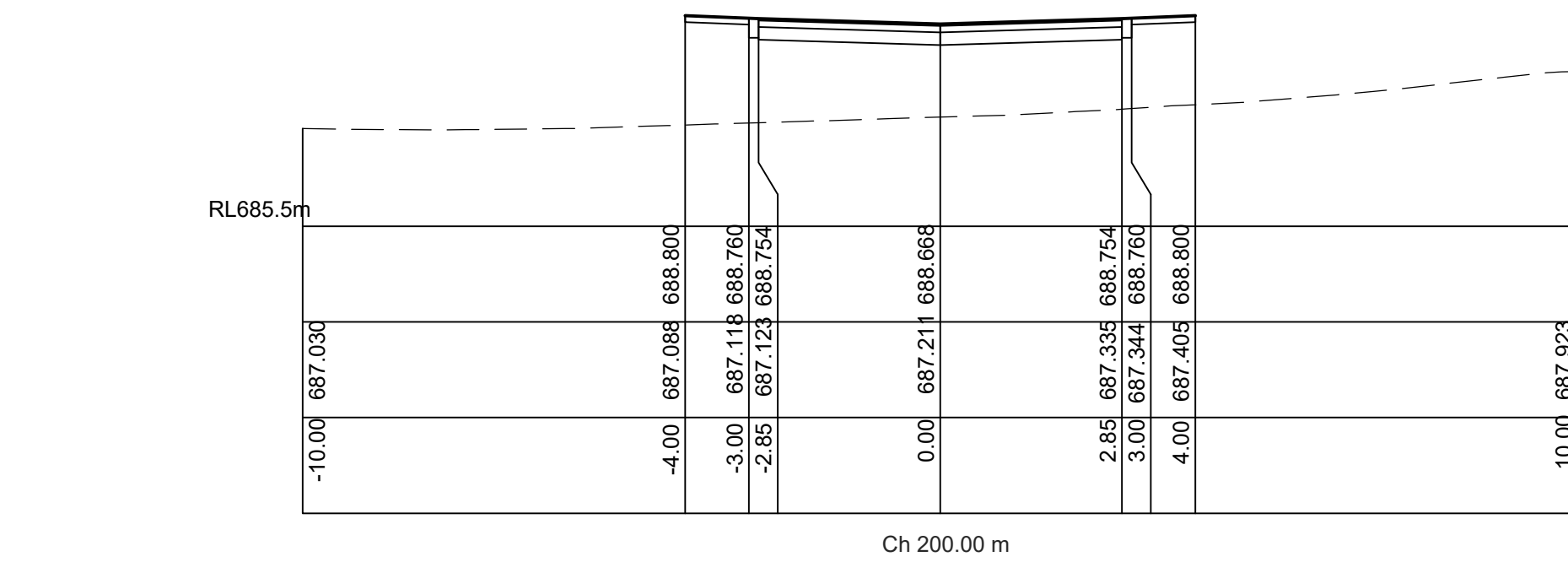
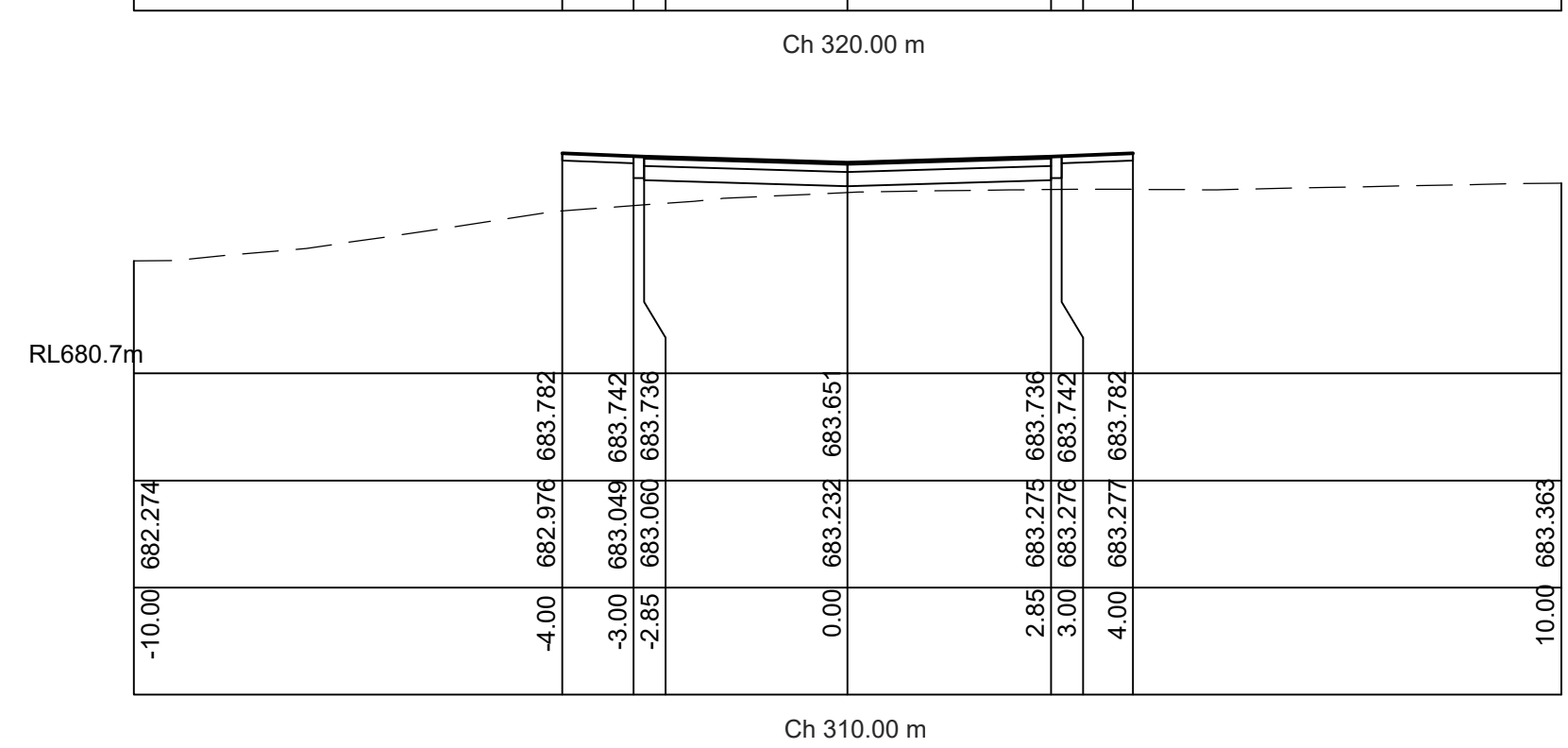
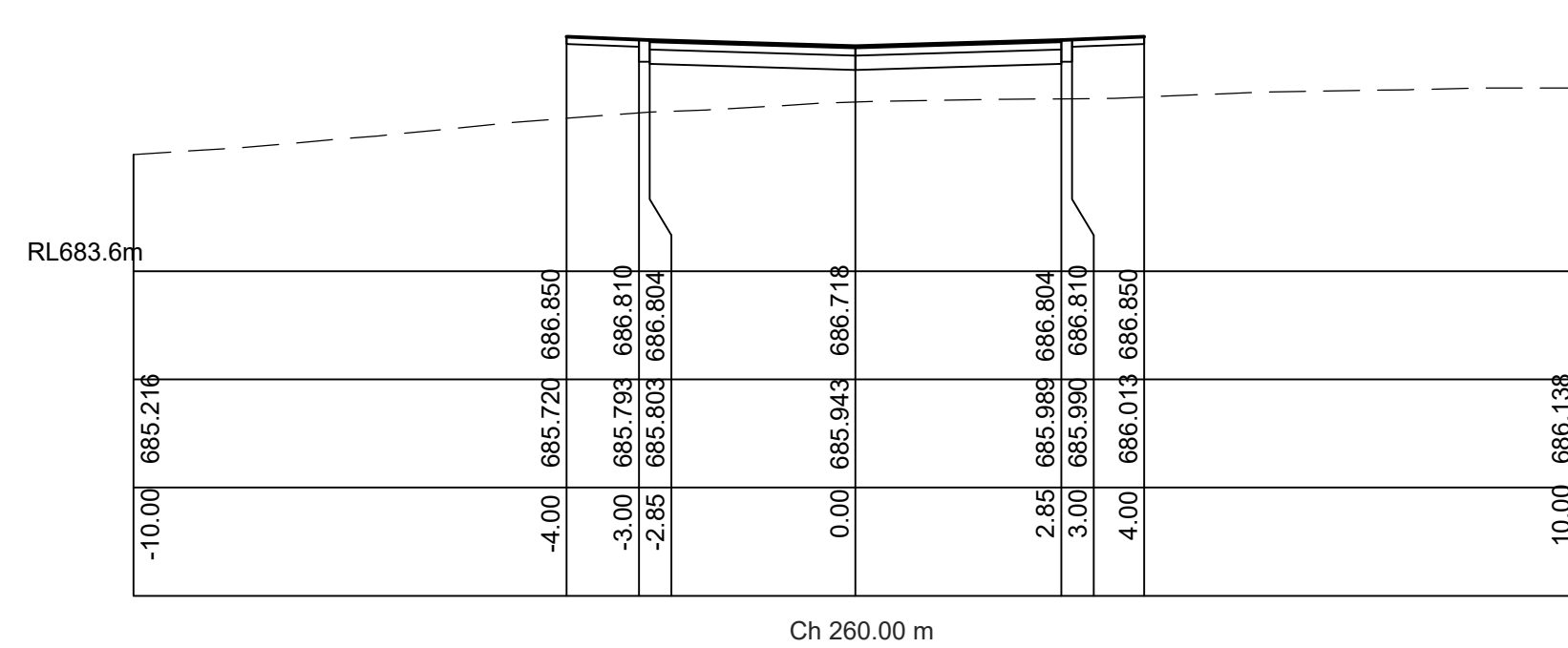
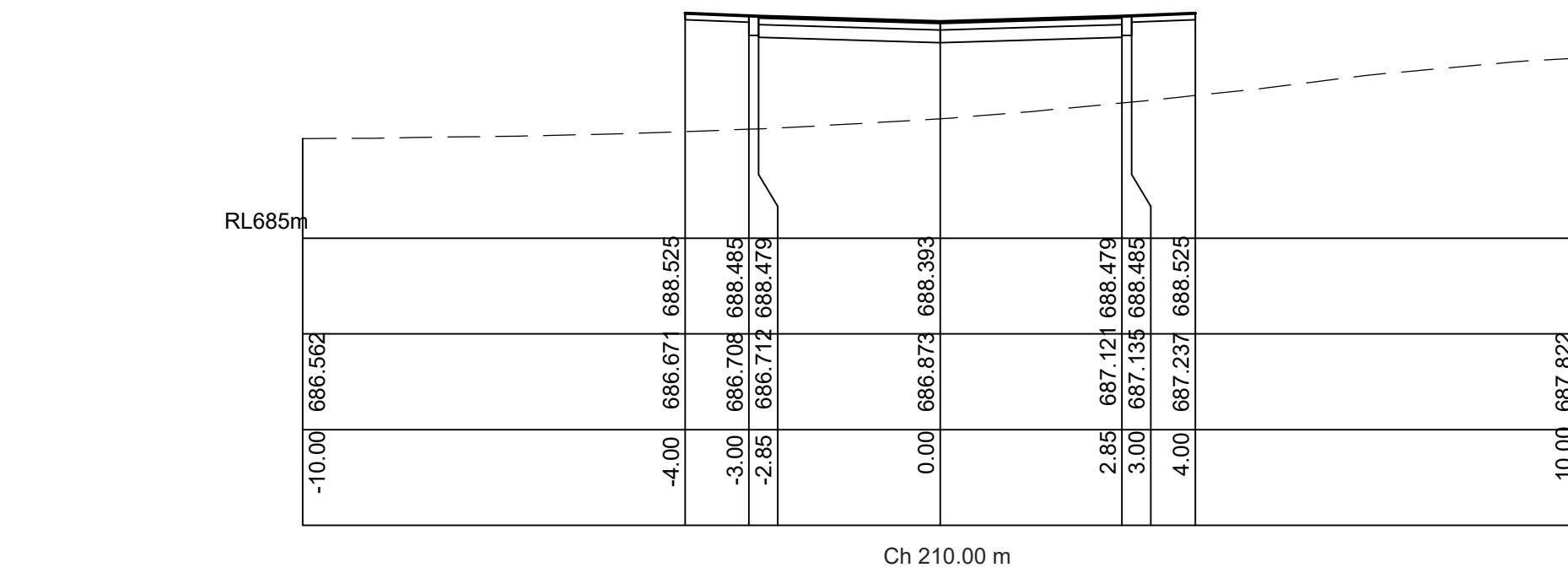
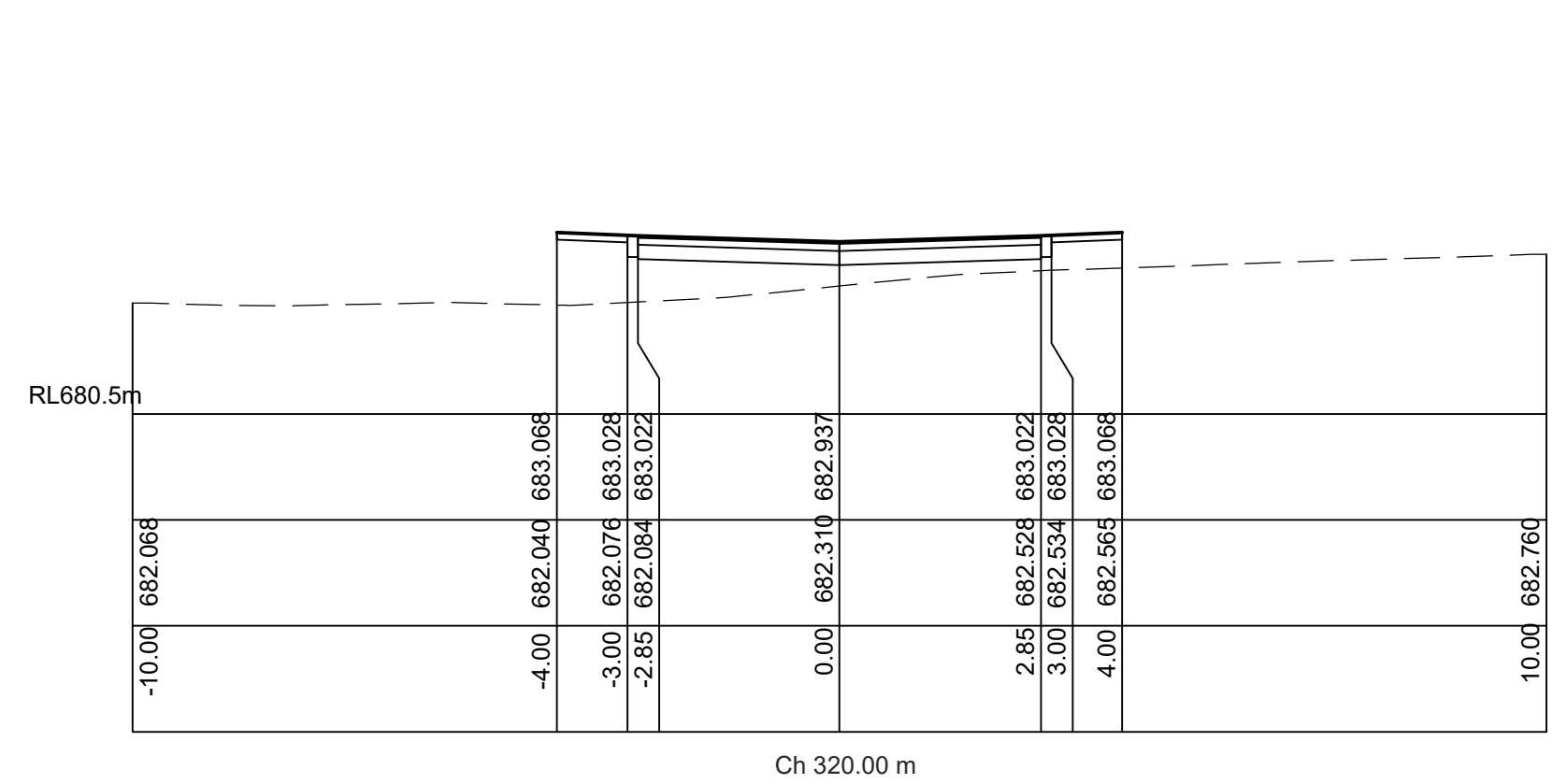
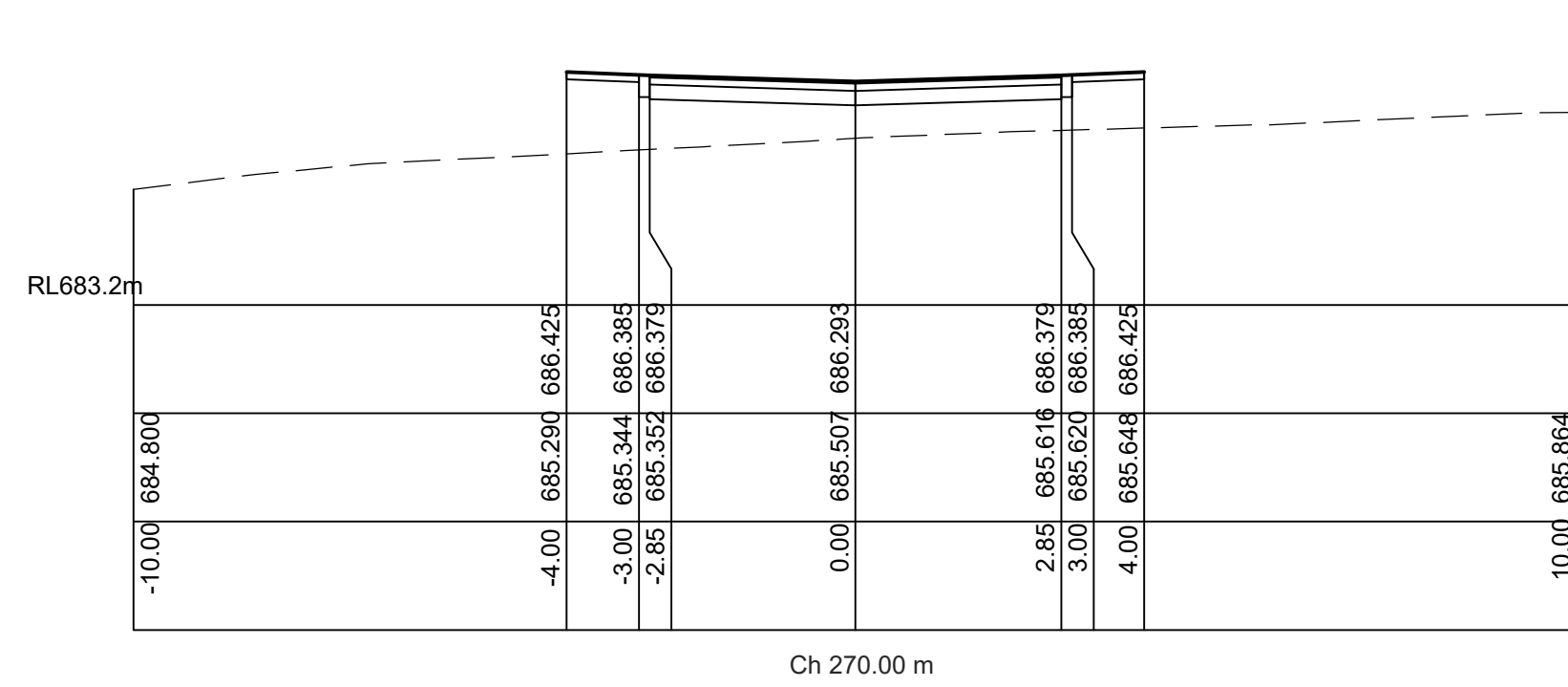
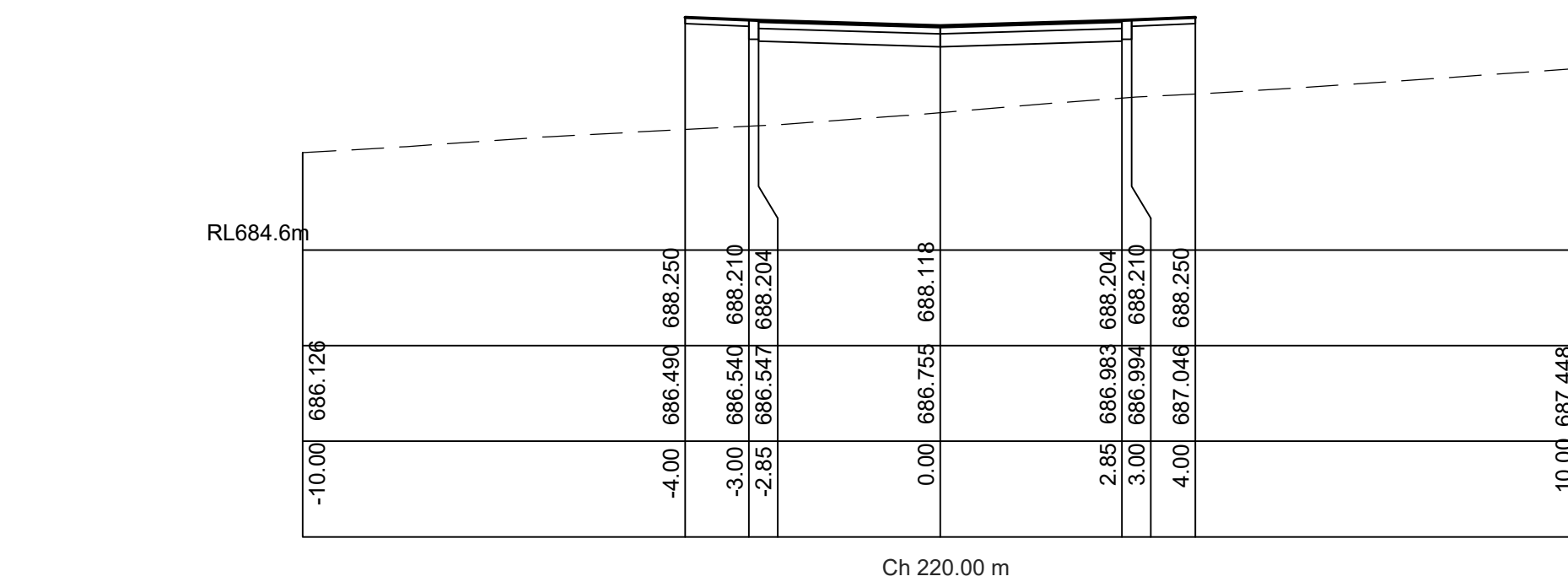
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PROJECT
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DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 6

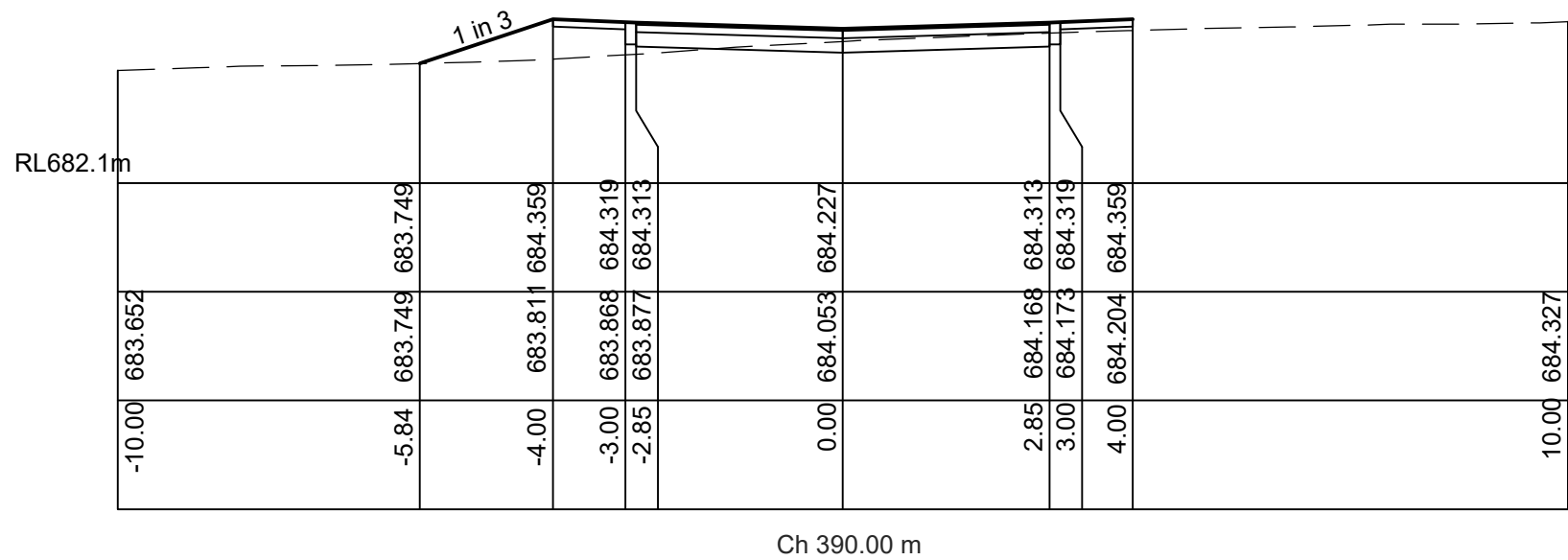
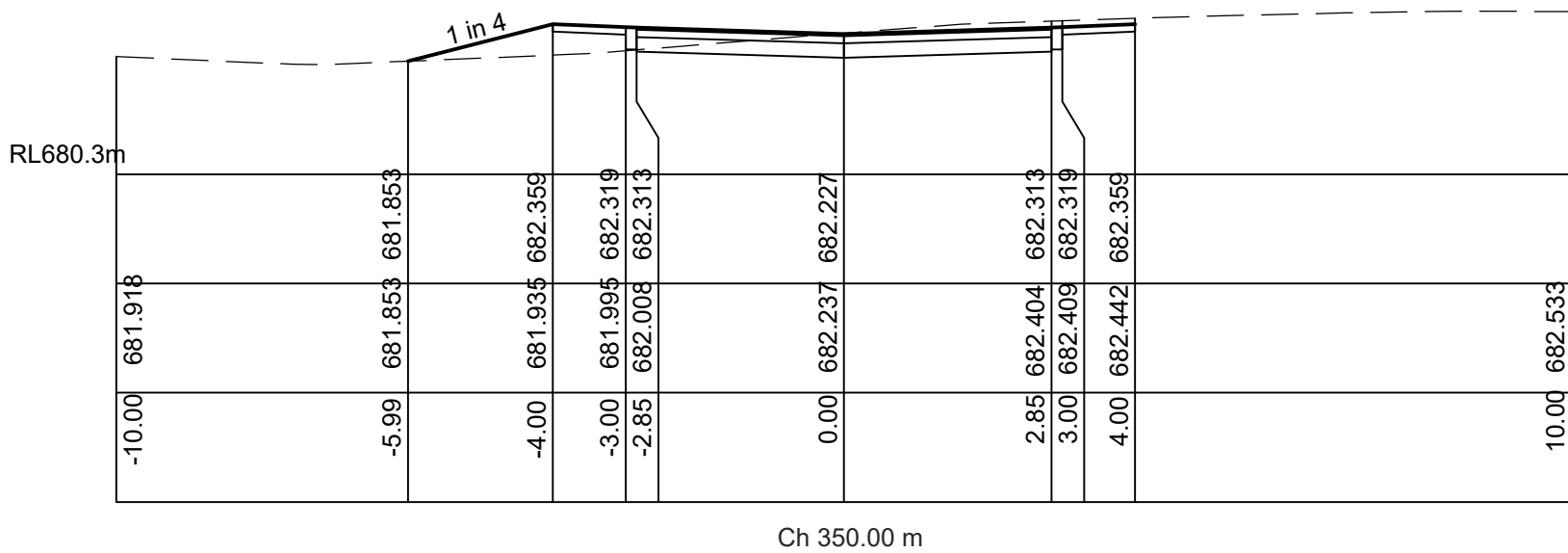
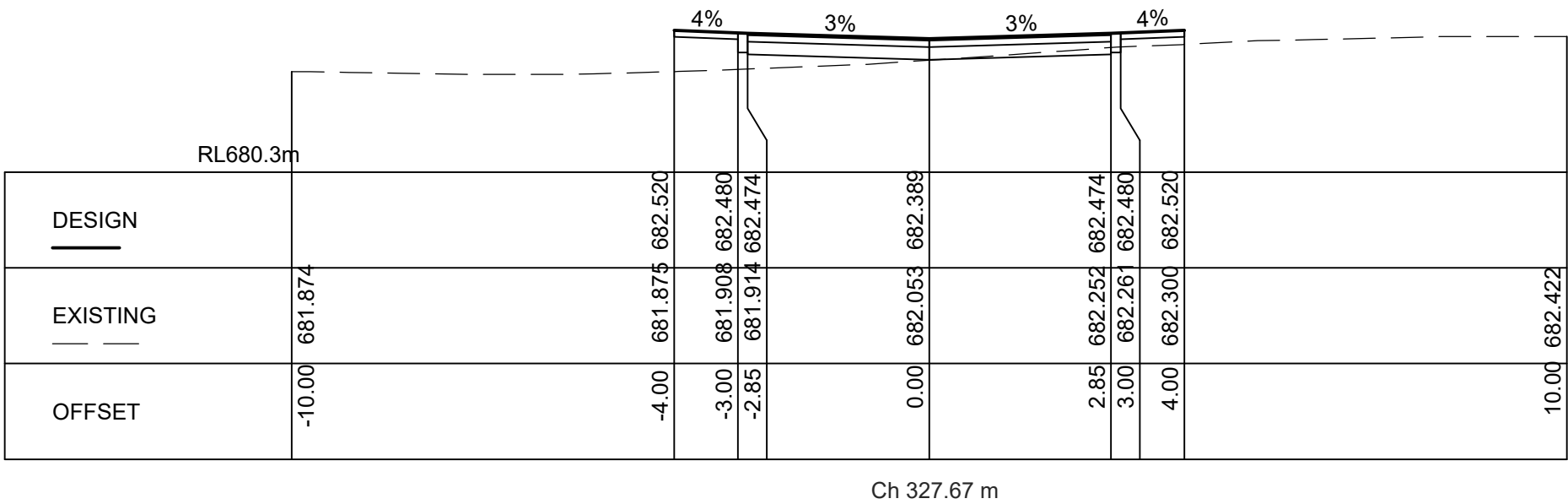
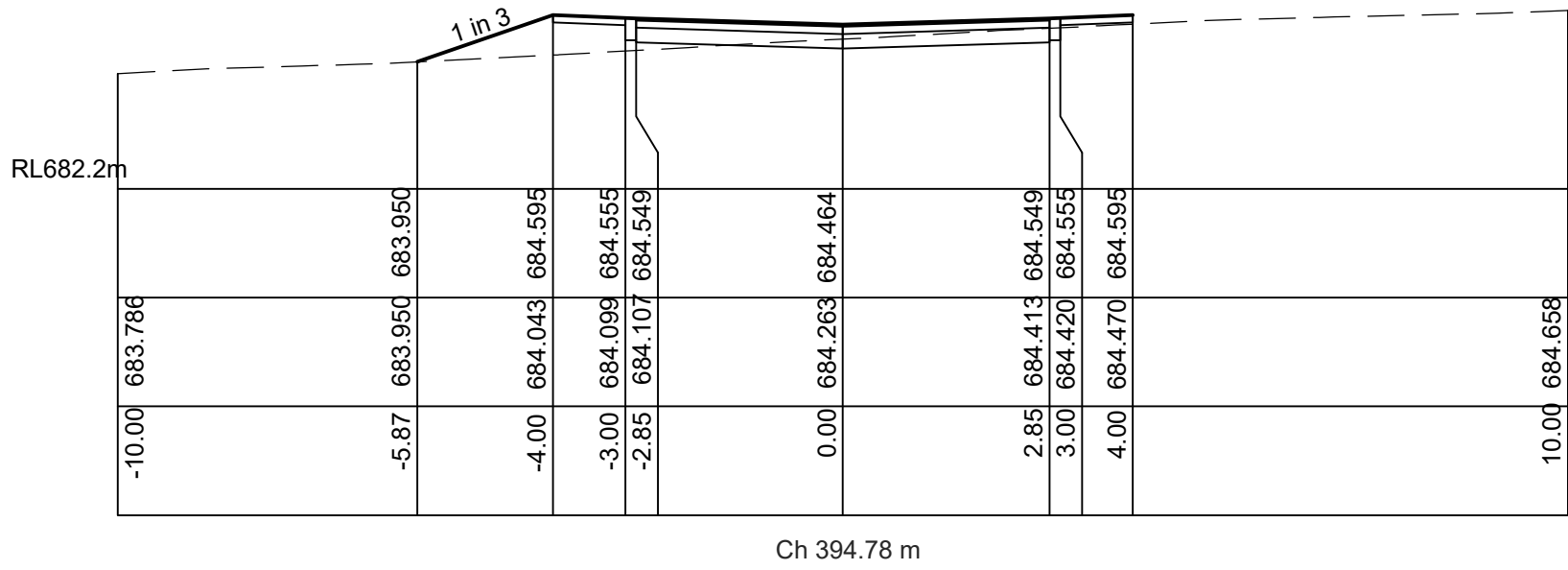
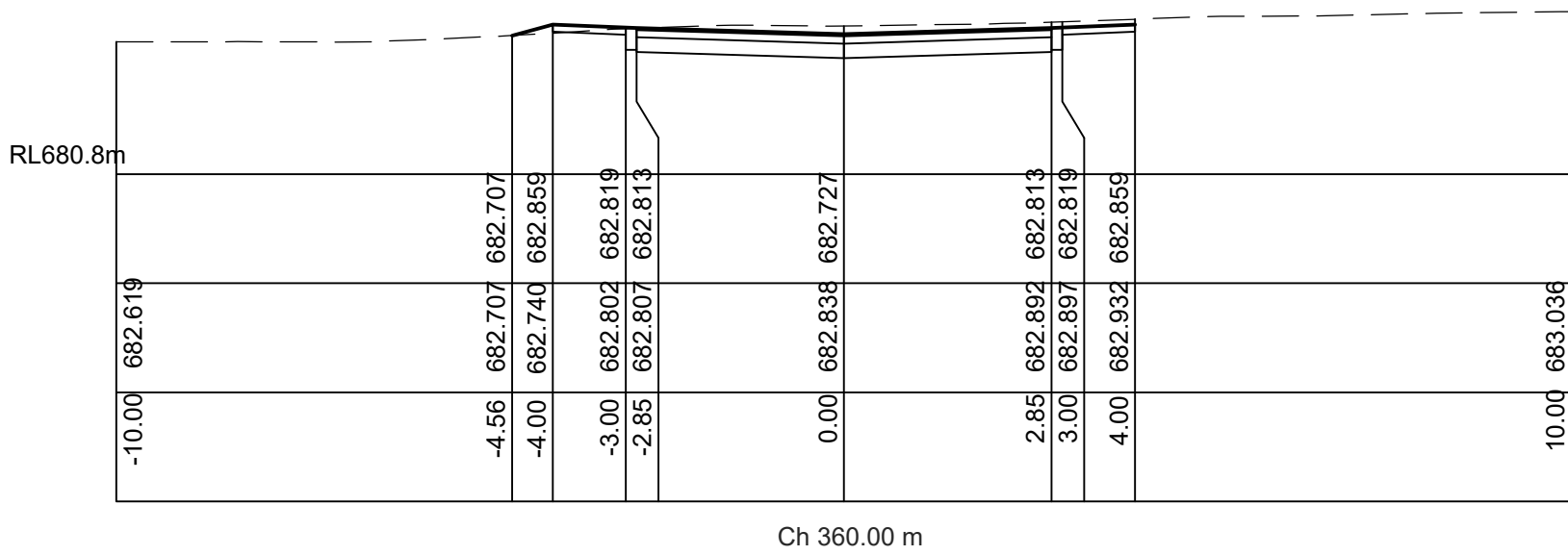
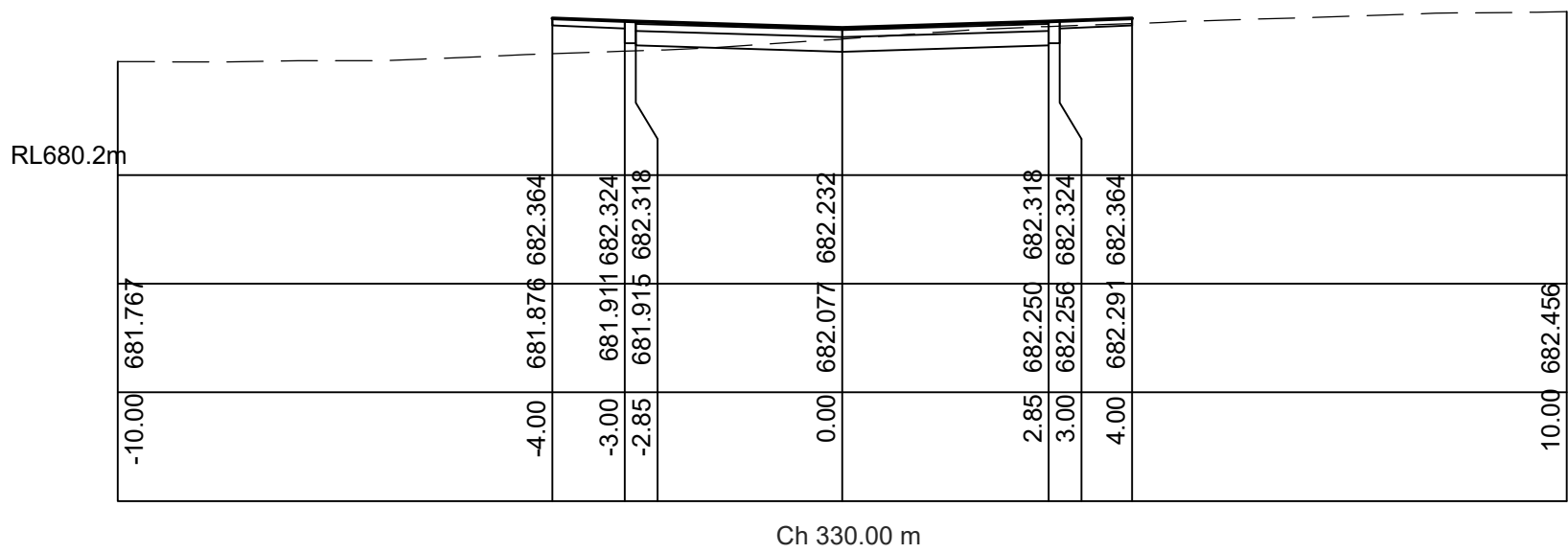
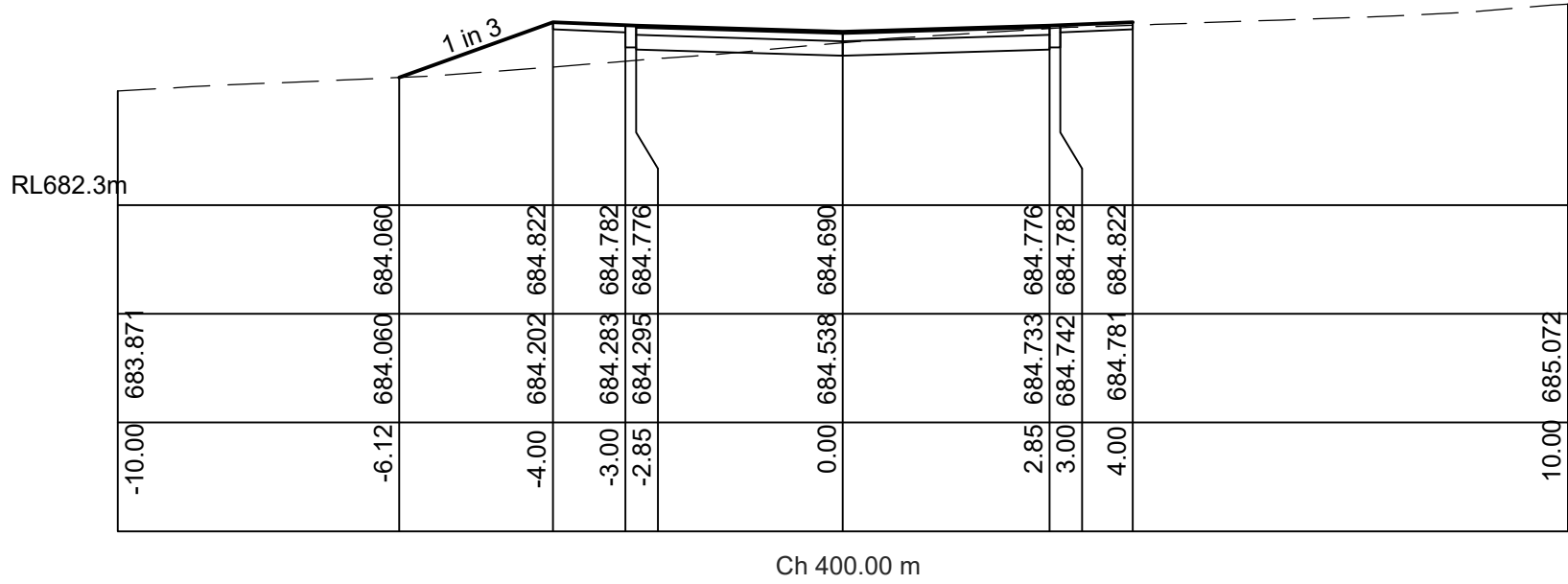
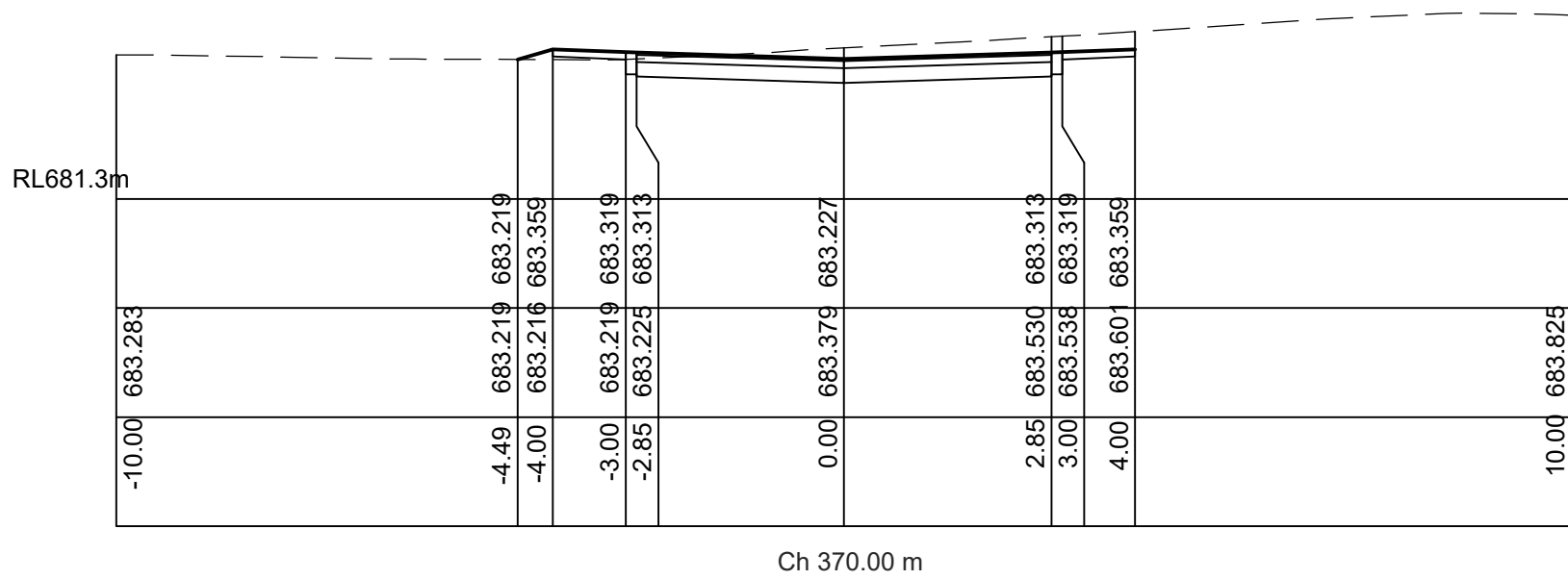
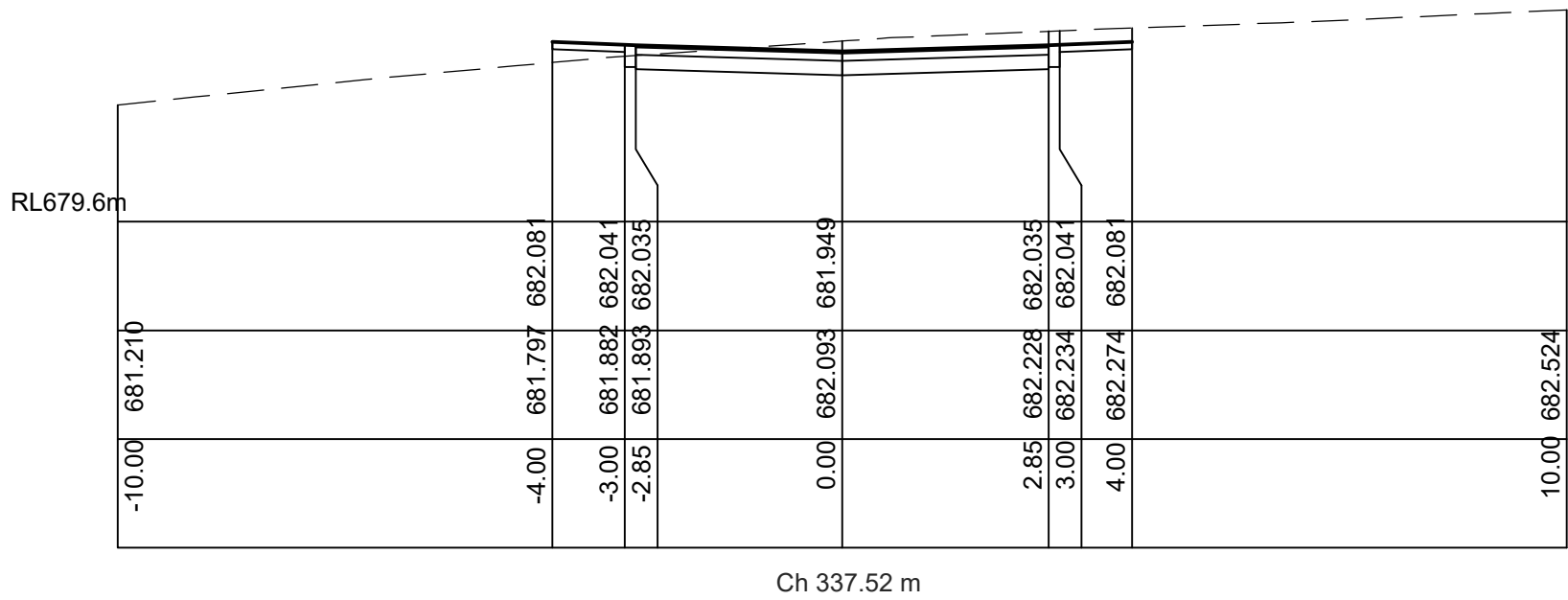
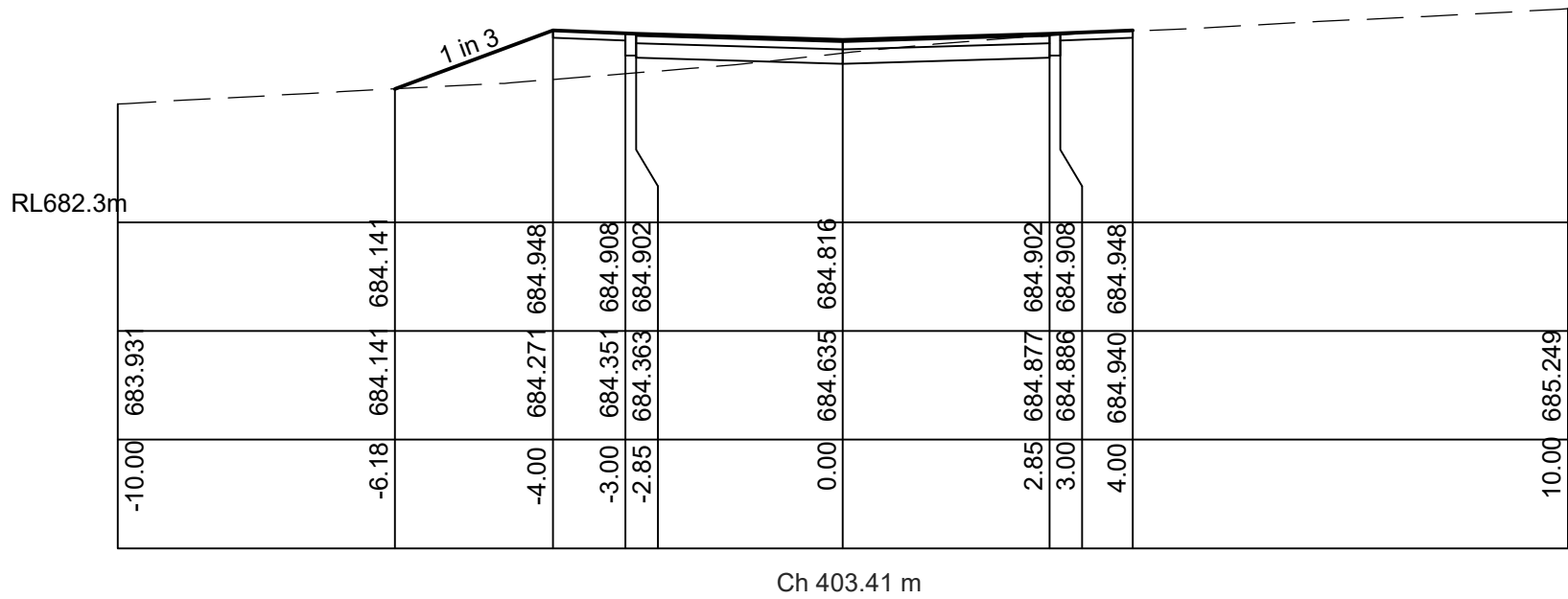
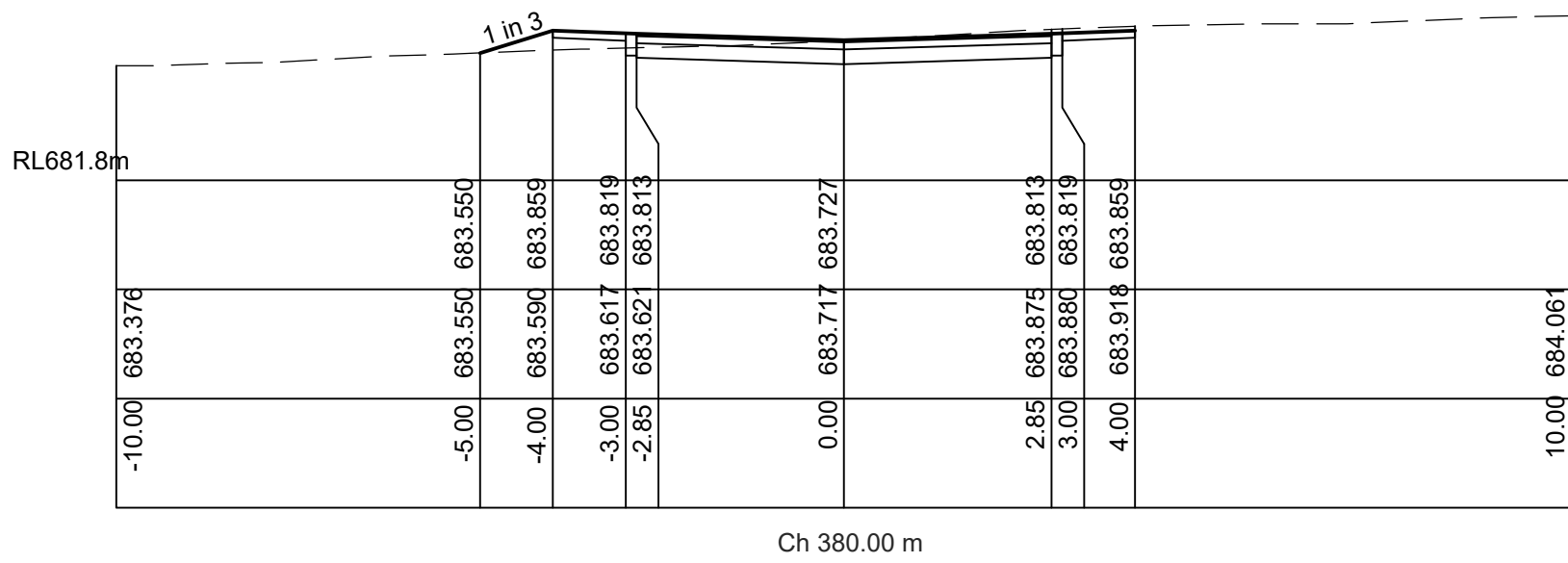
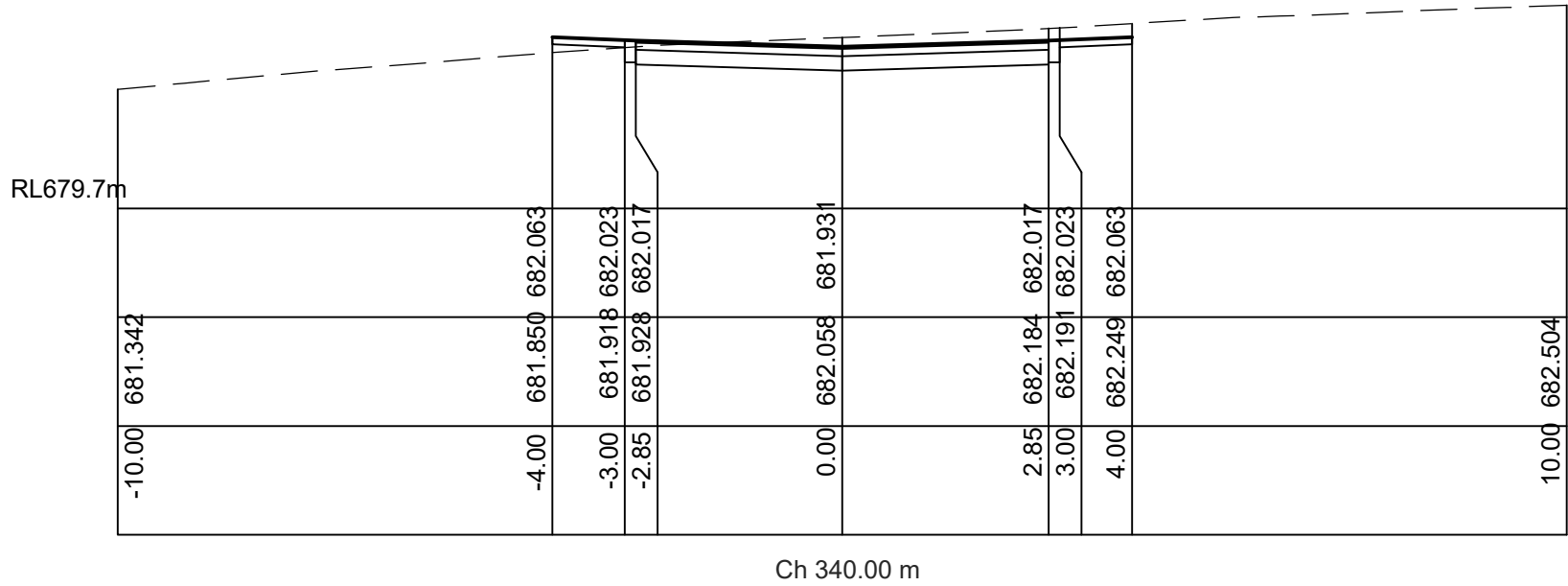
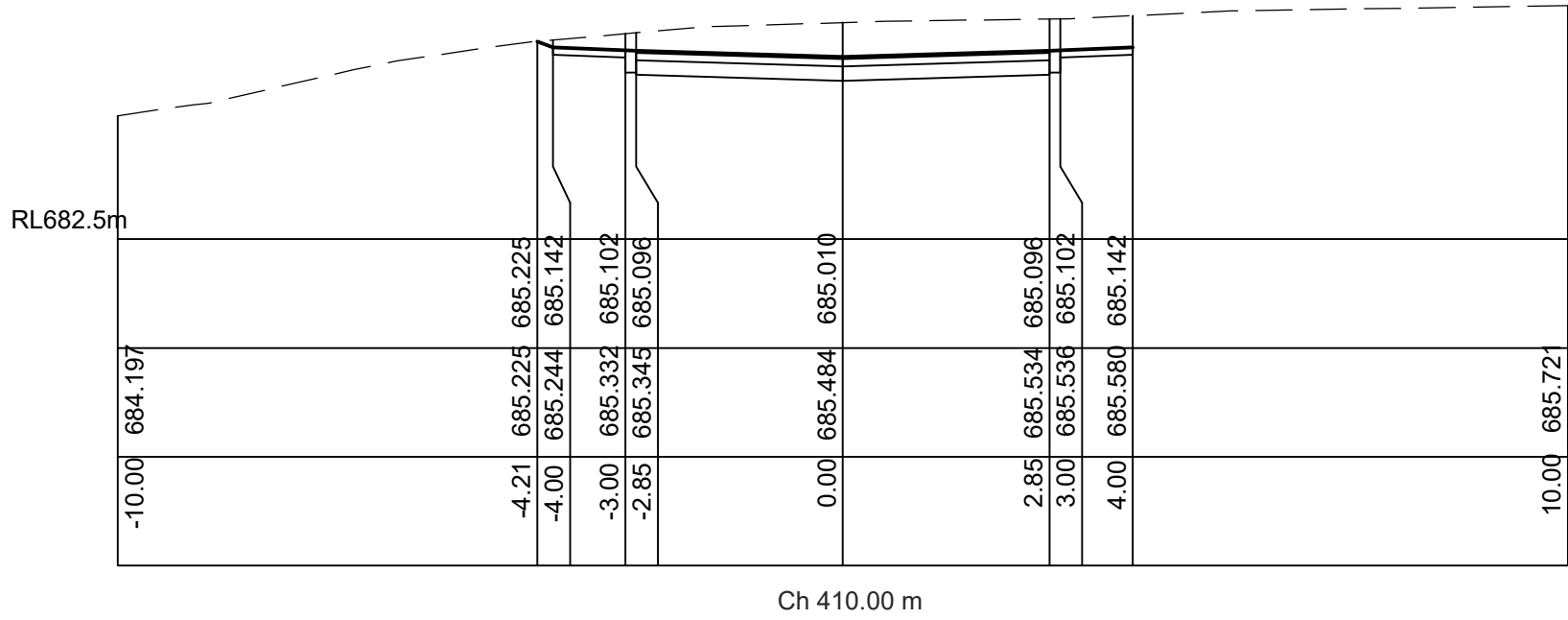
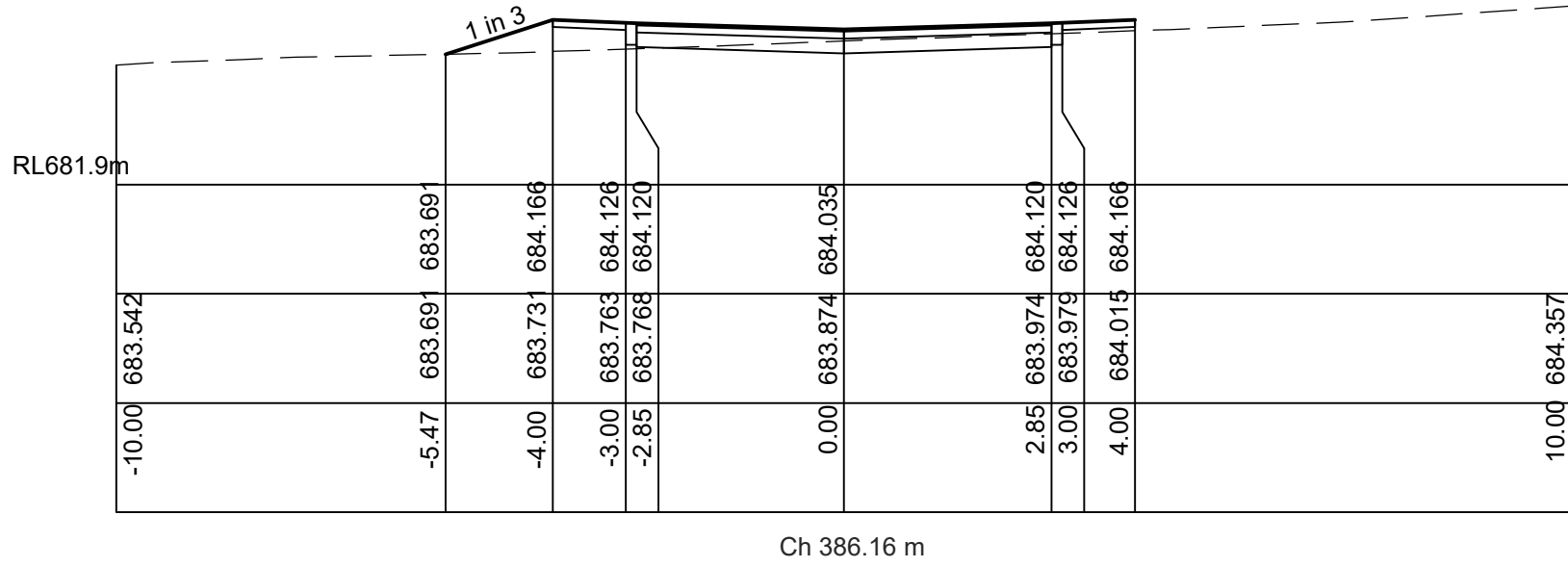
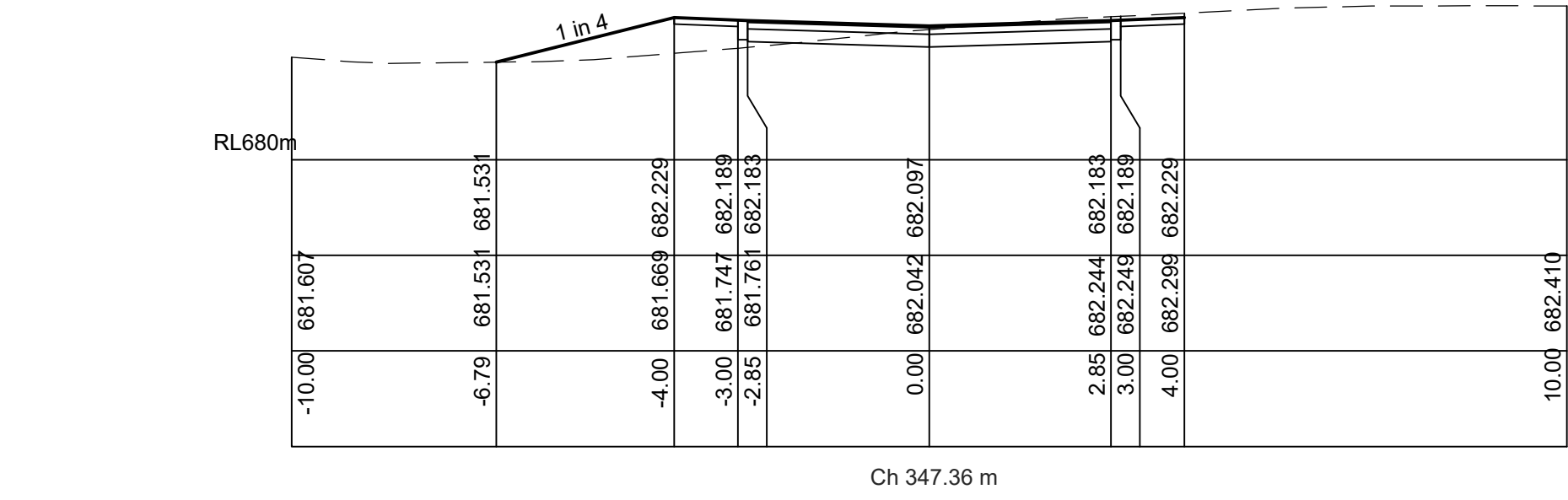
SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-136		K



CROSS SECTIONS - ROAD 2 (CON'T)

SCALE: 1:100

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CROSS SECTIONS - ROAD 2 (CON'T)
SCALE: 1:100

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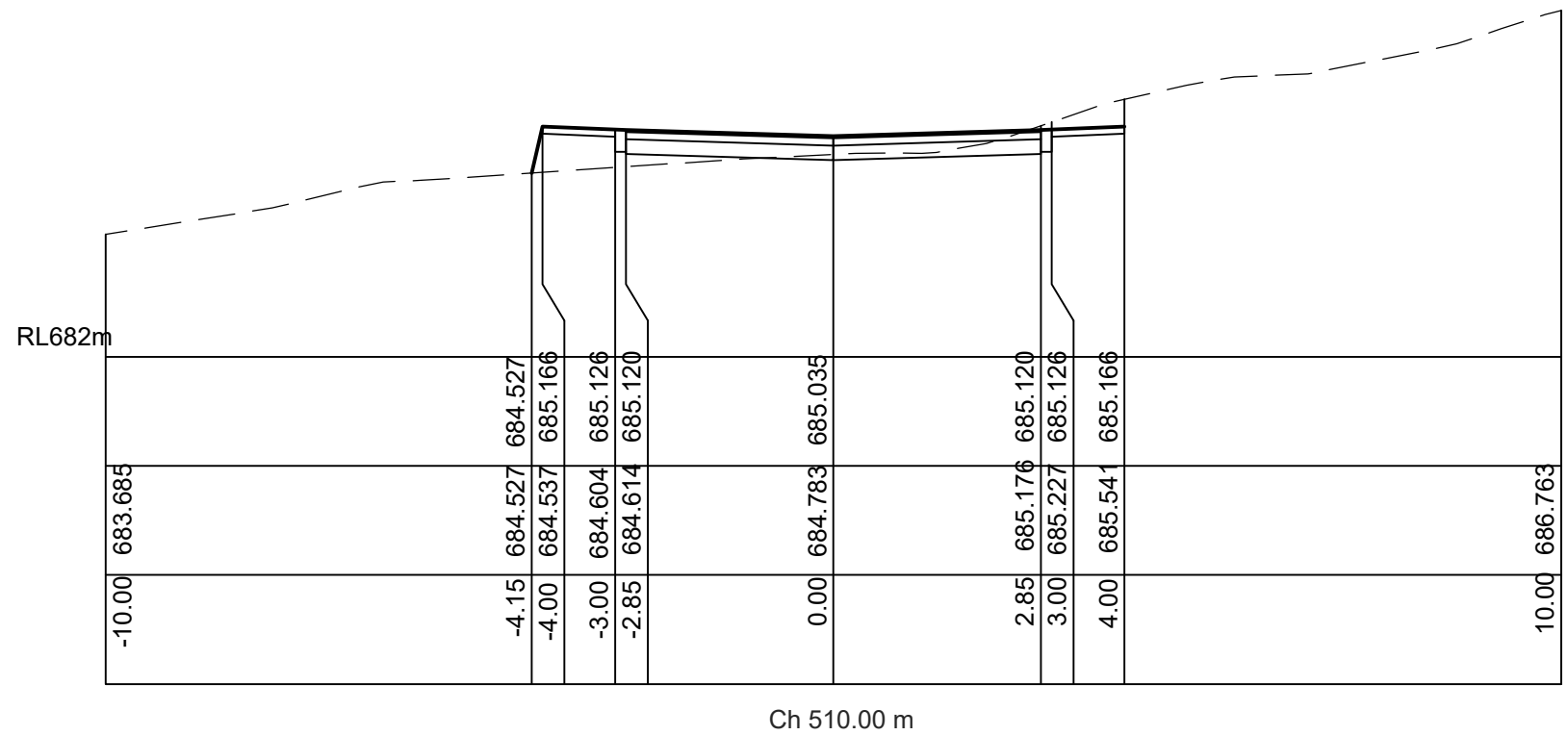
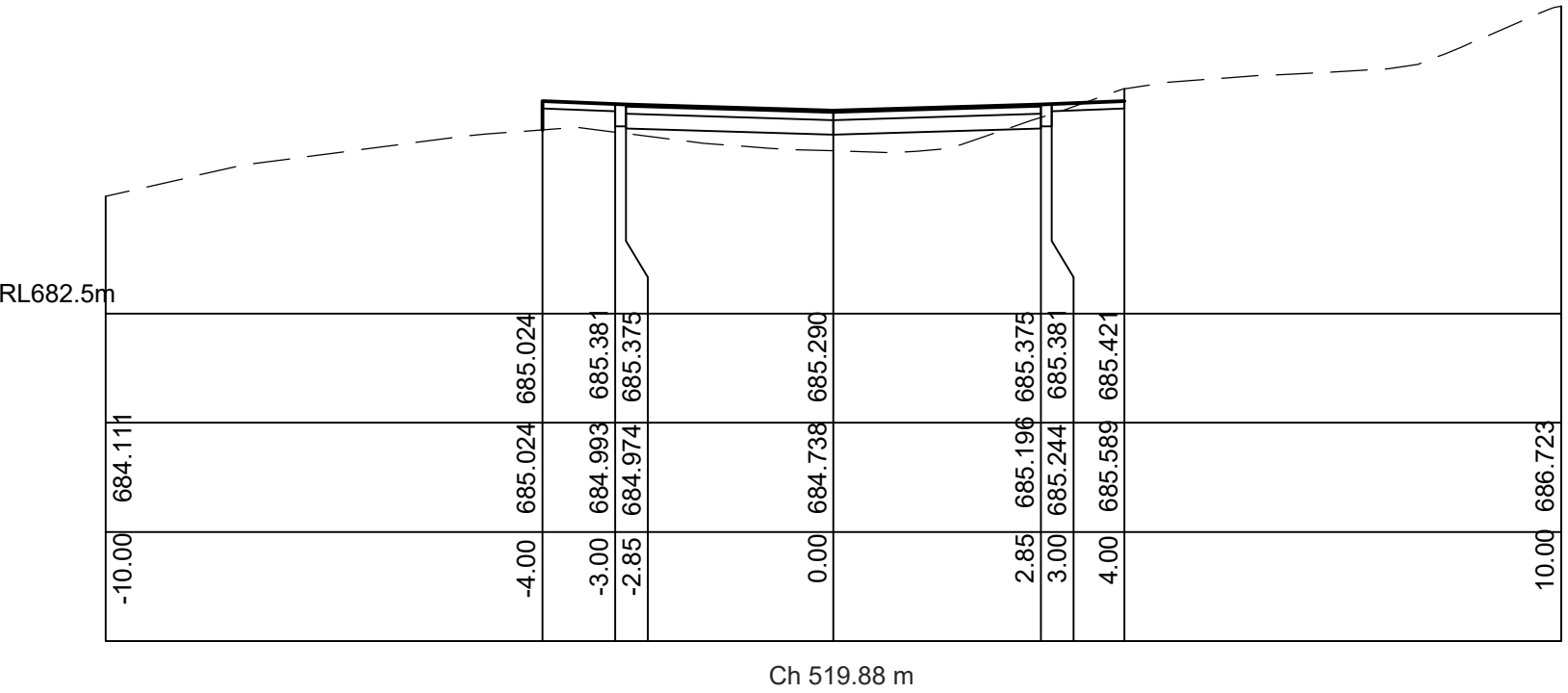
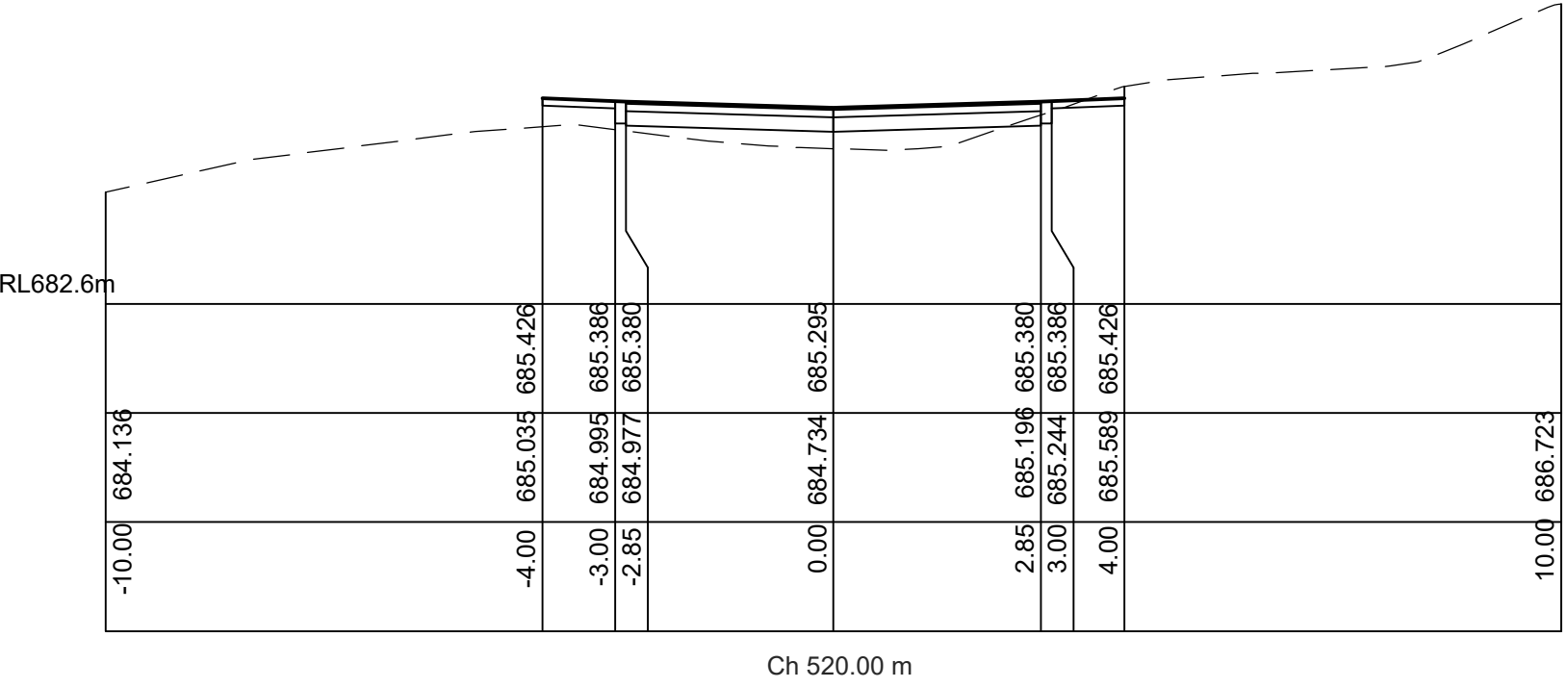
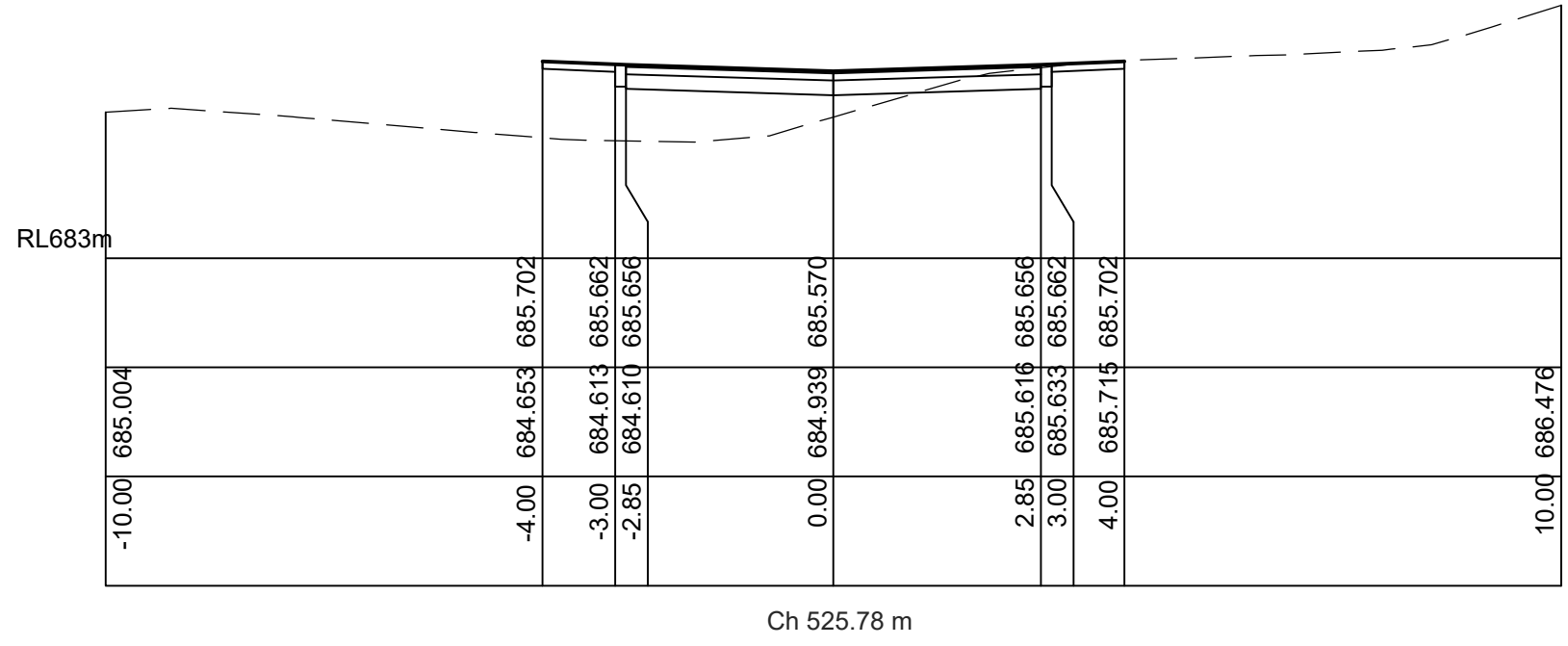
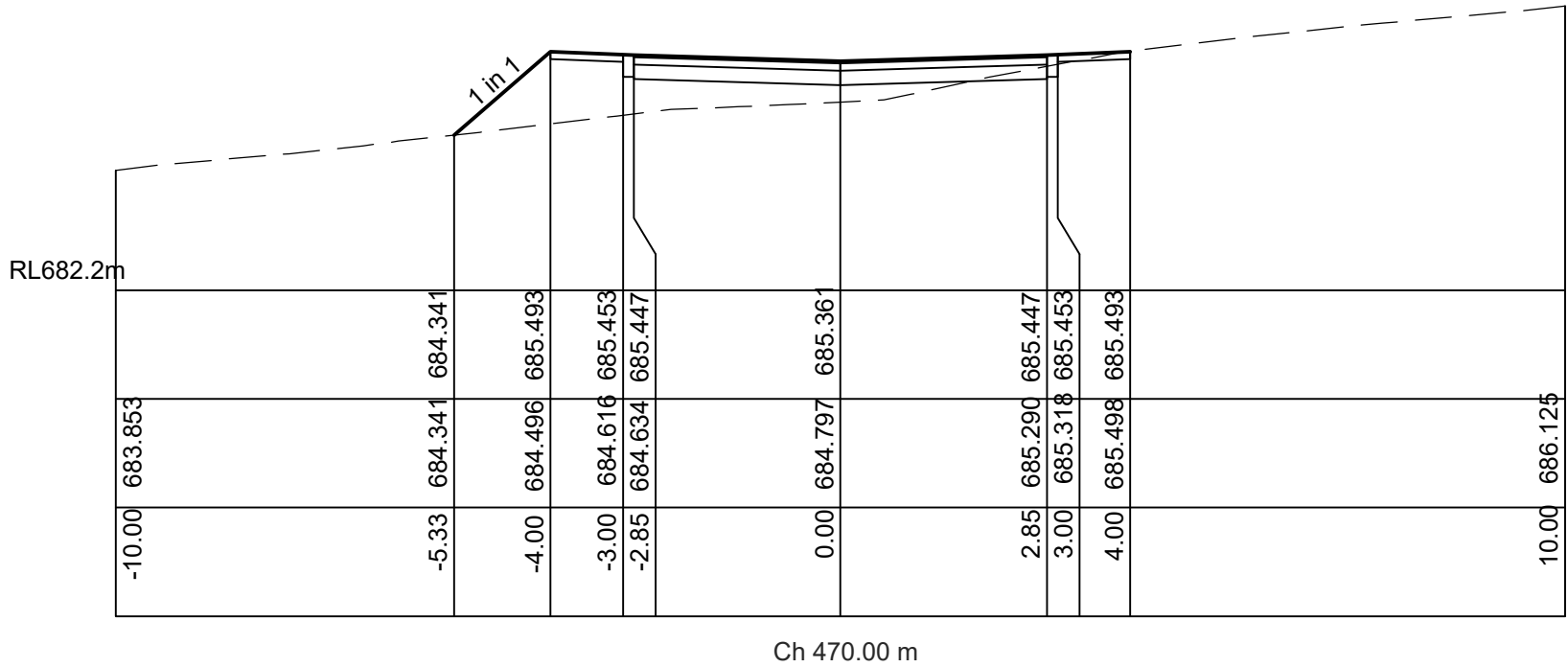
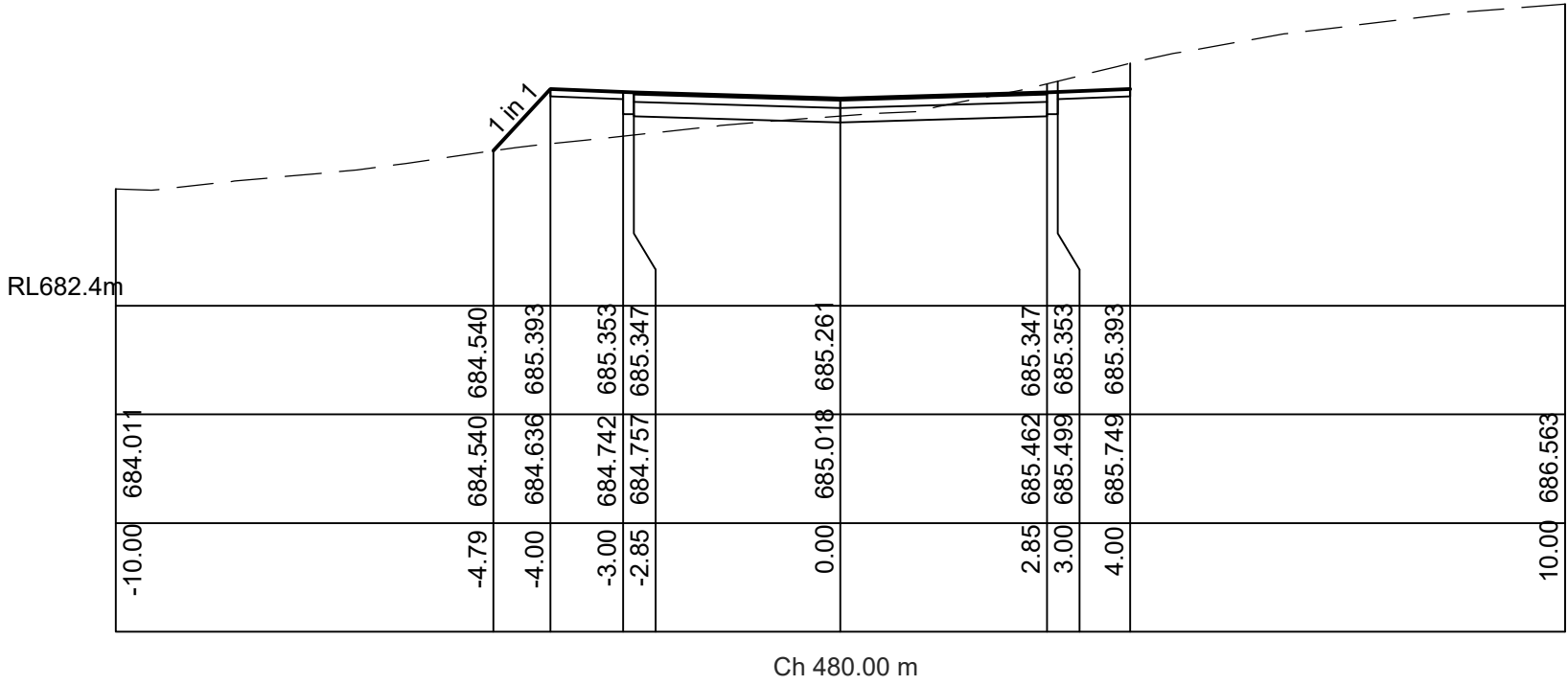
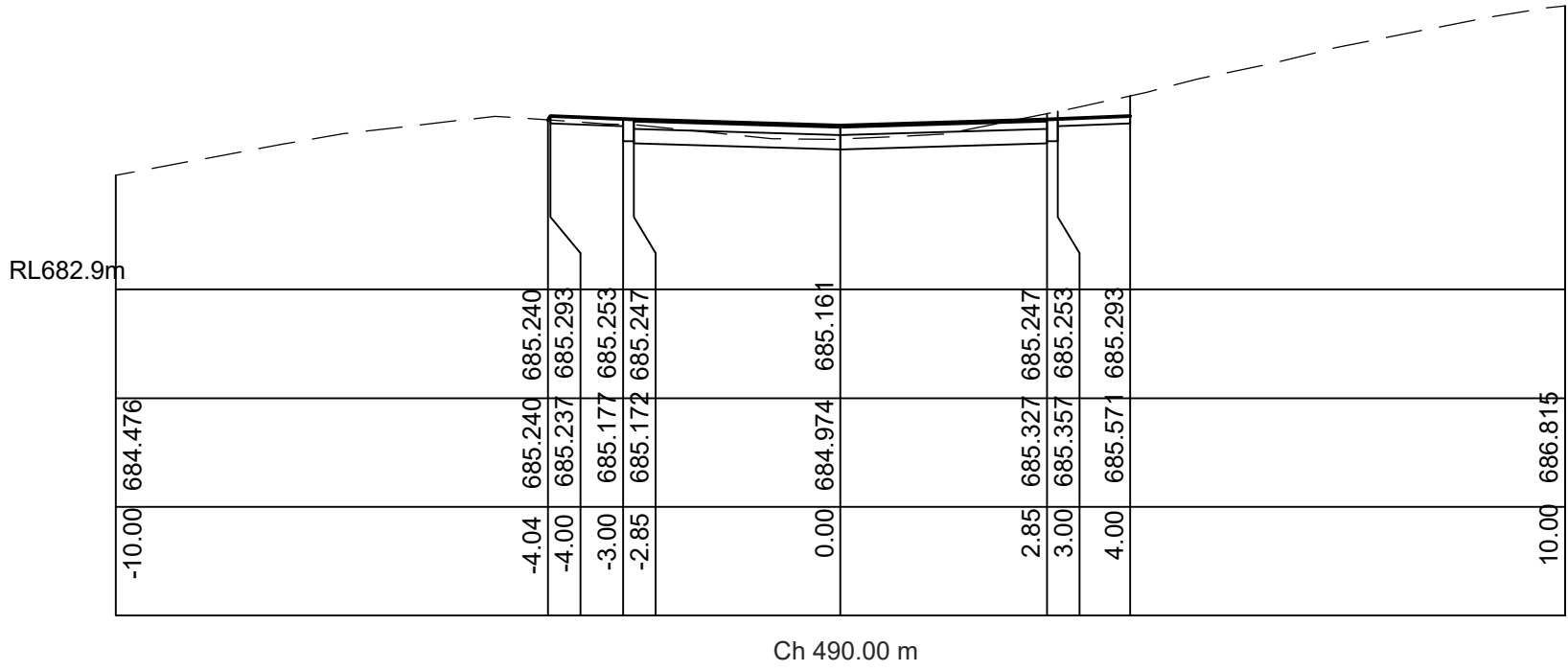
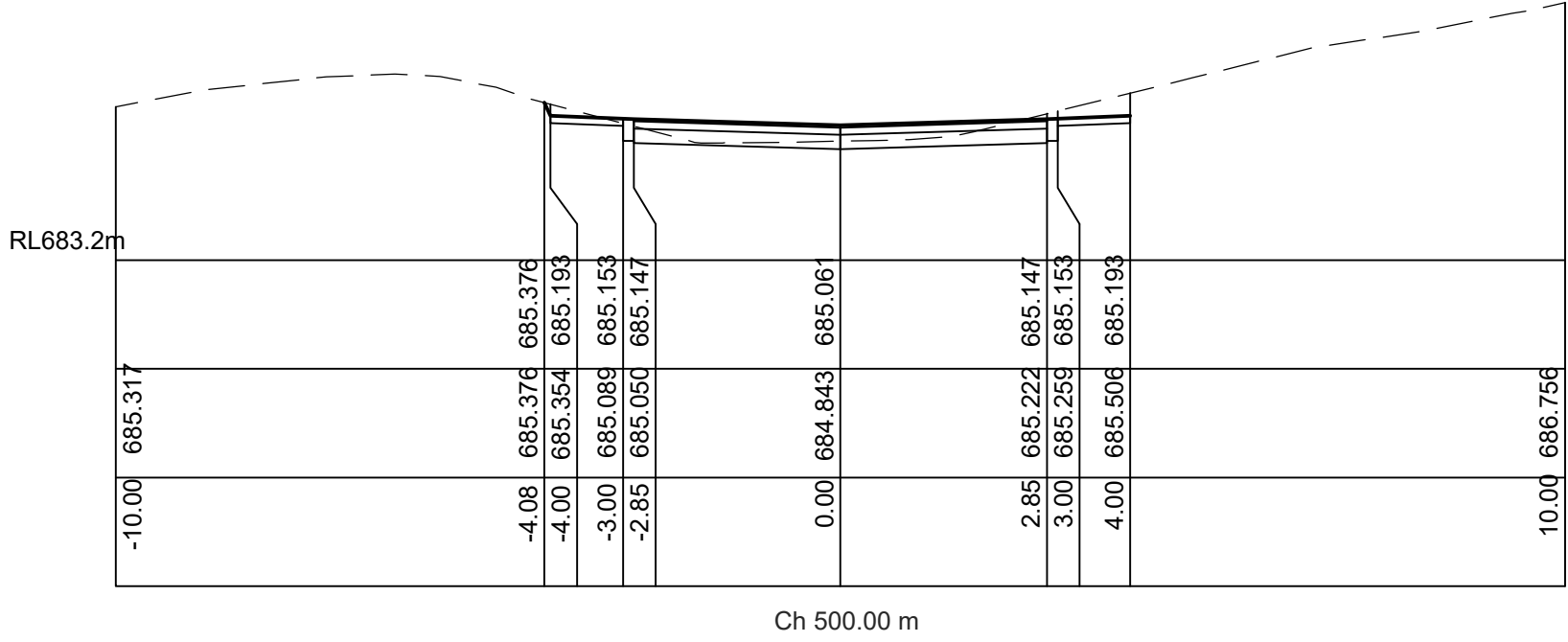
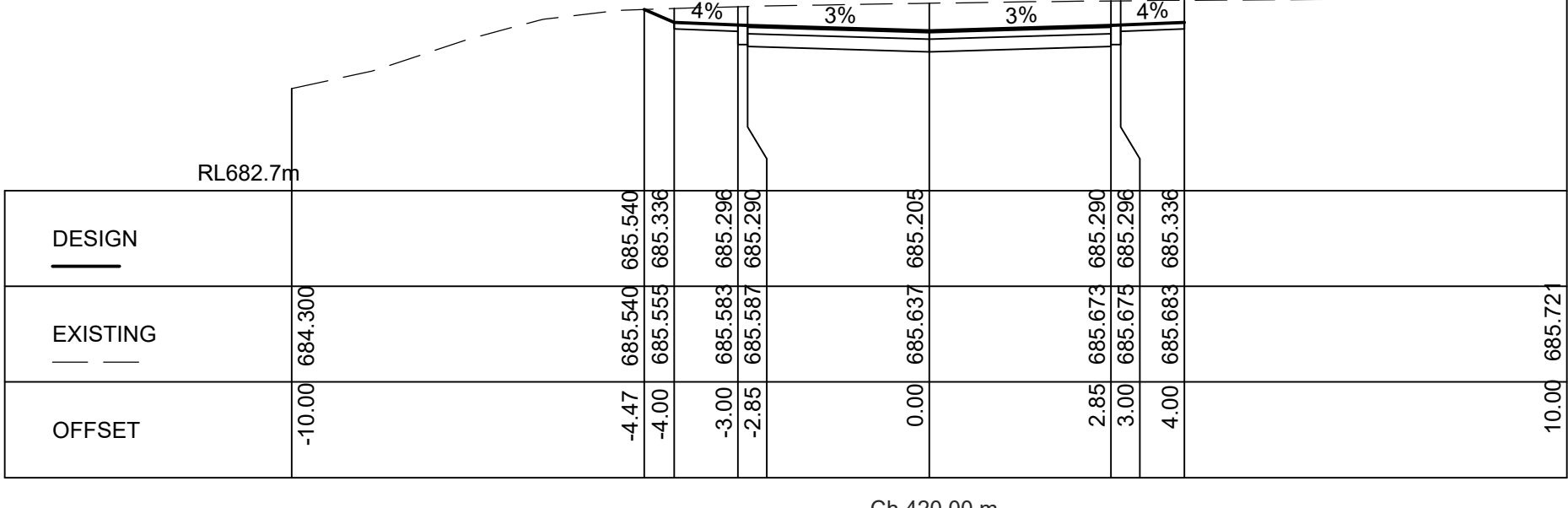
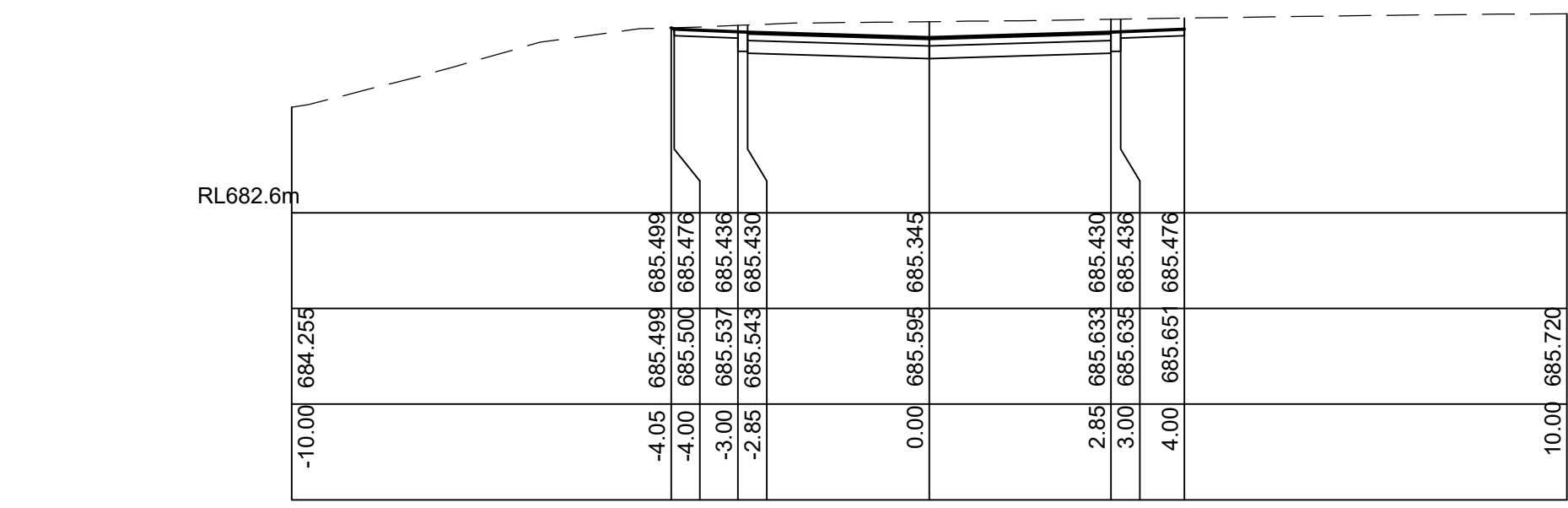
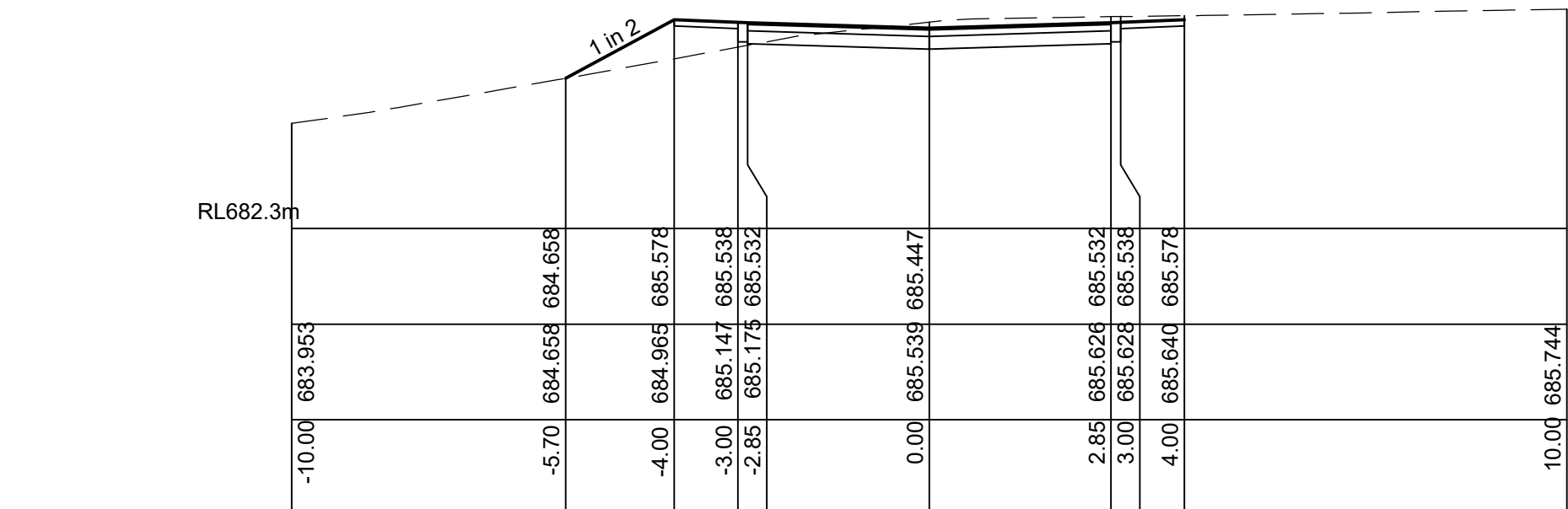
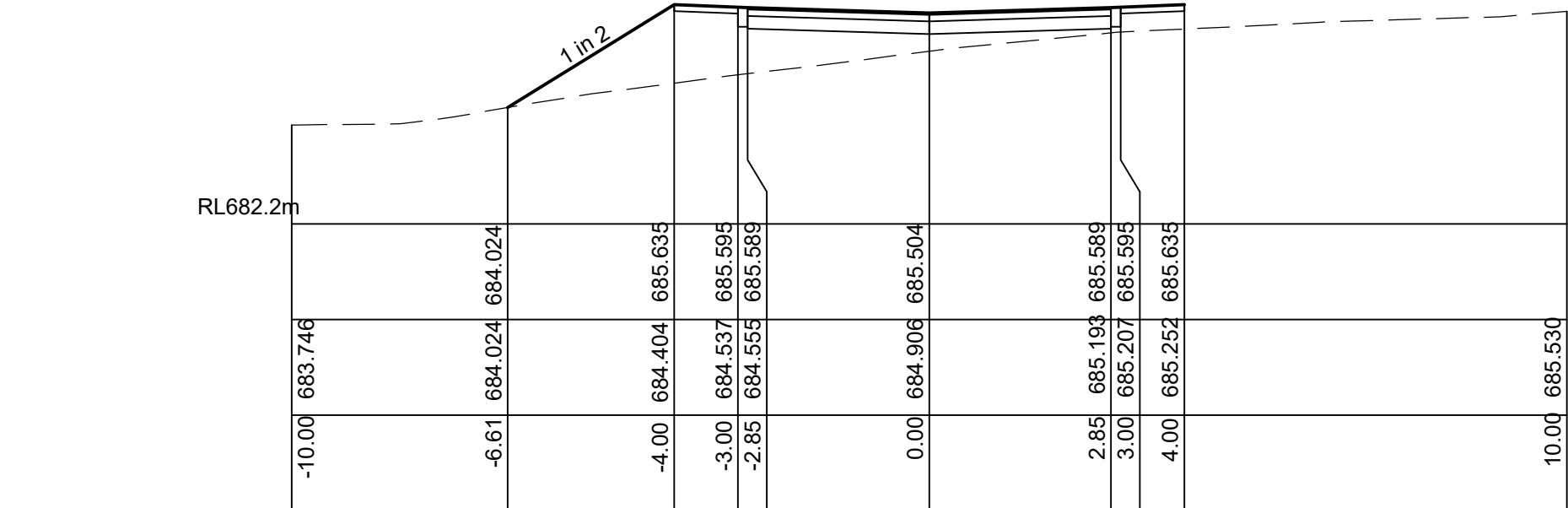
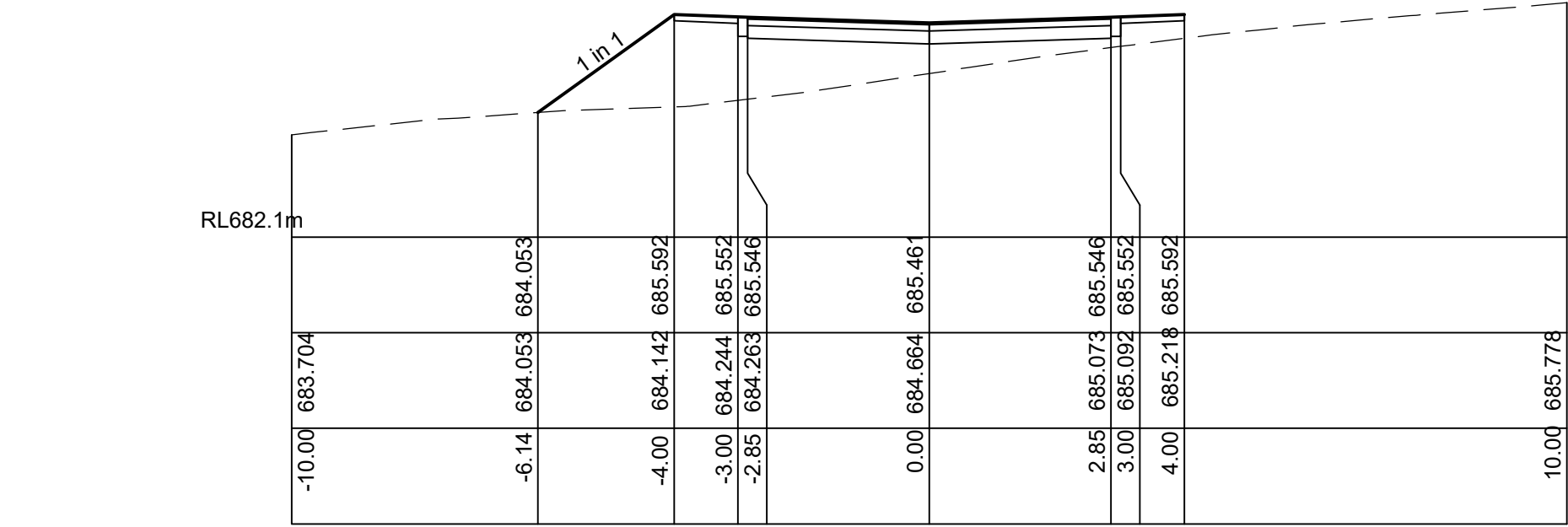
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DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 8

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-138		K



CROSS SECTIONS - ROAD 2 (CON'T)
SCALE: 1:100

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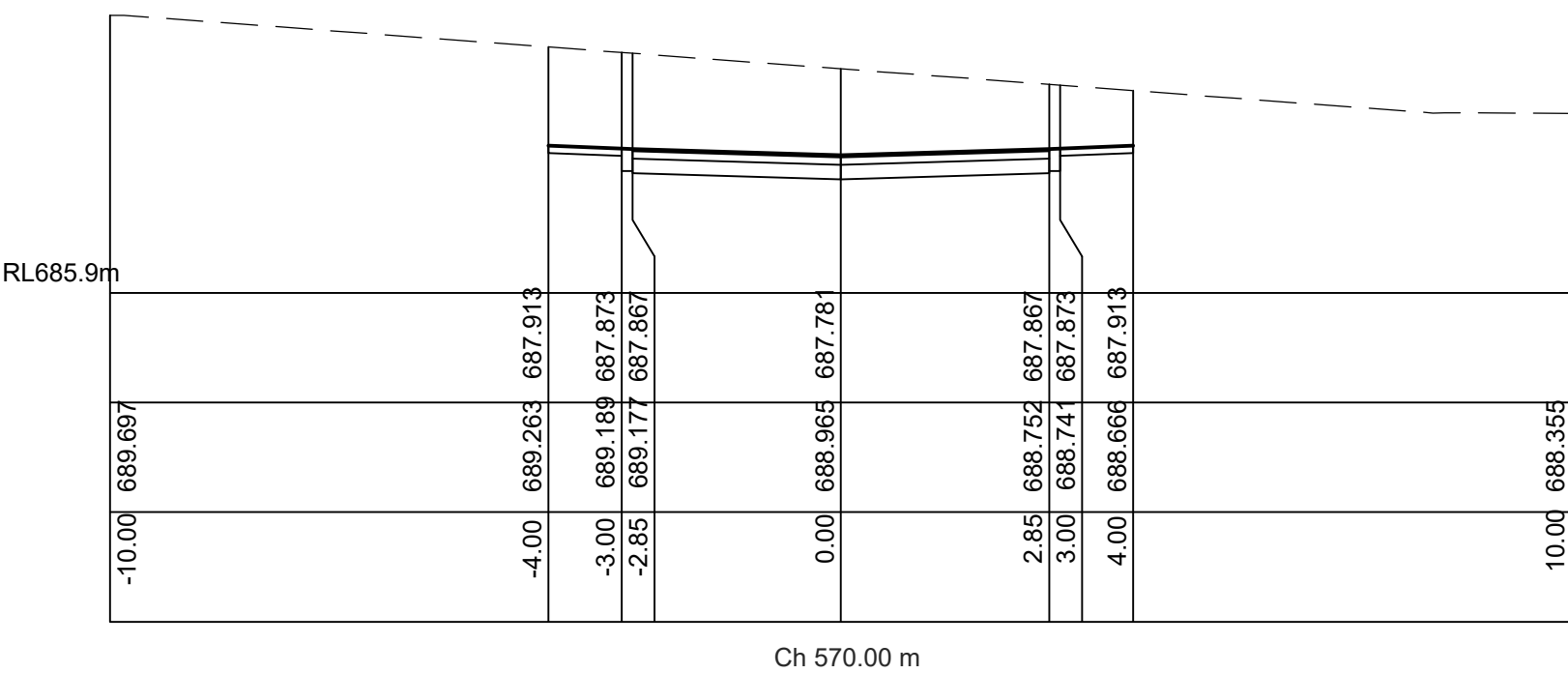
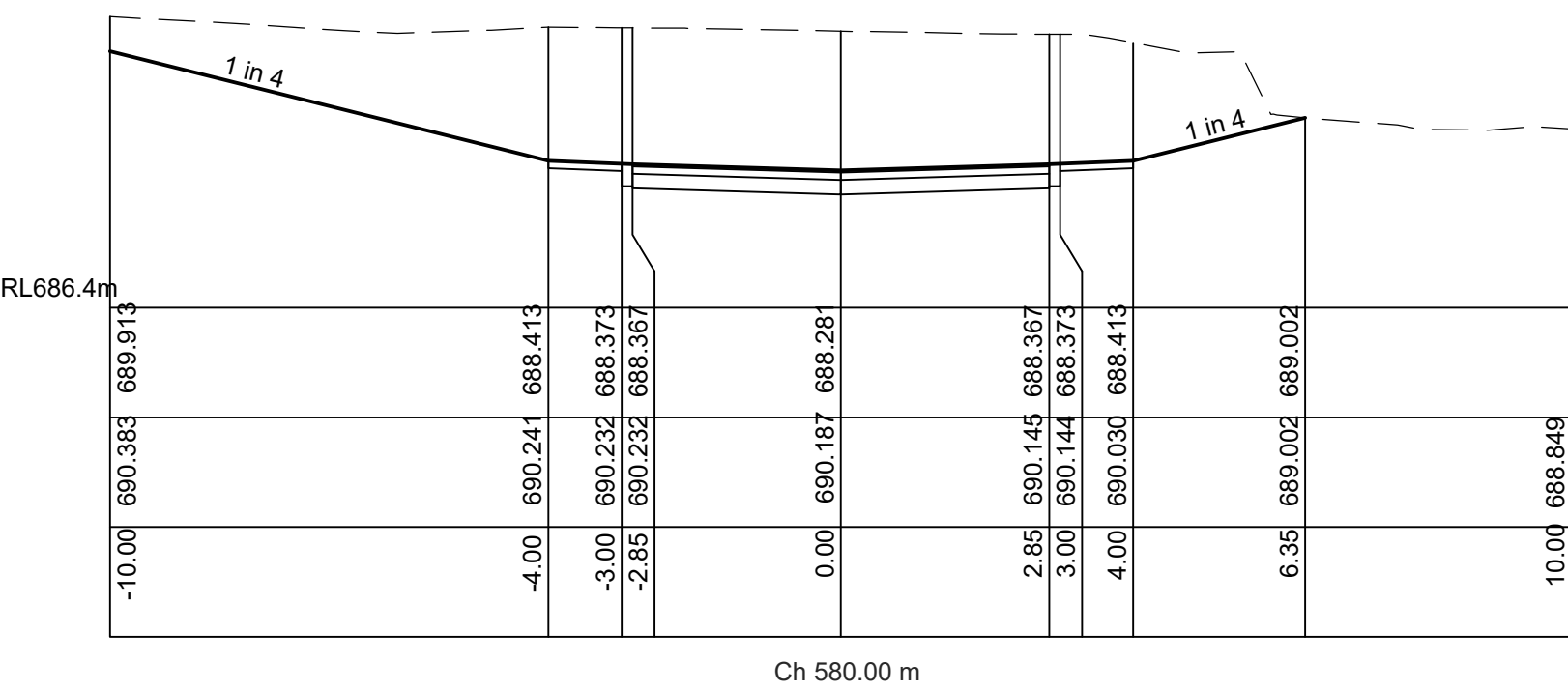
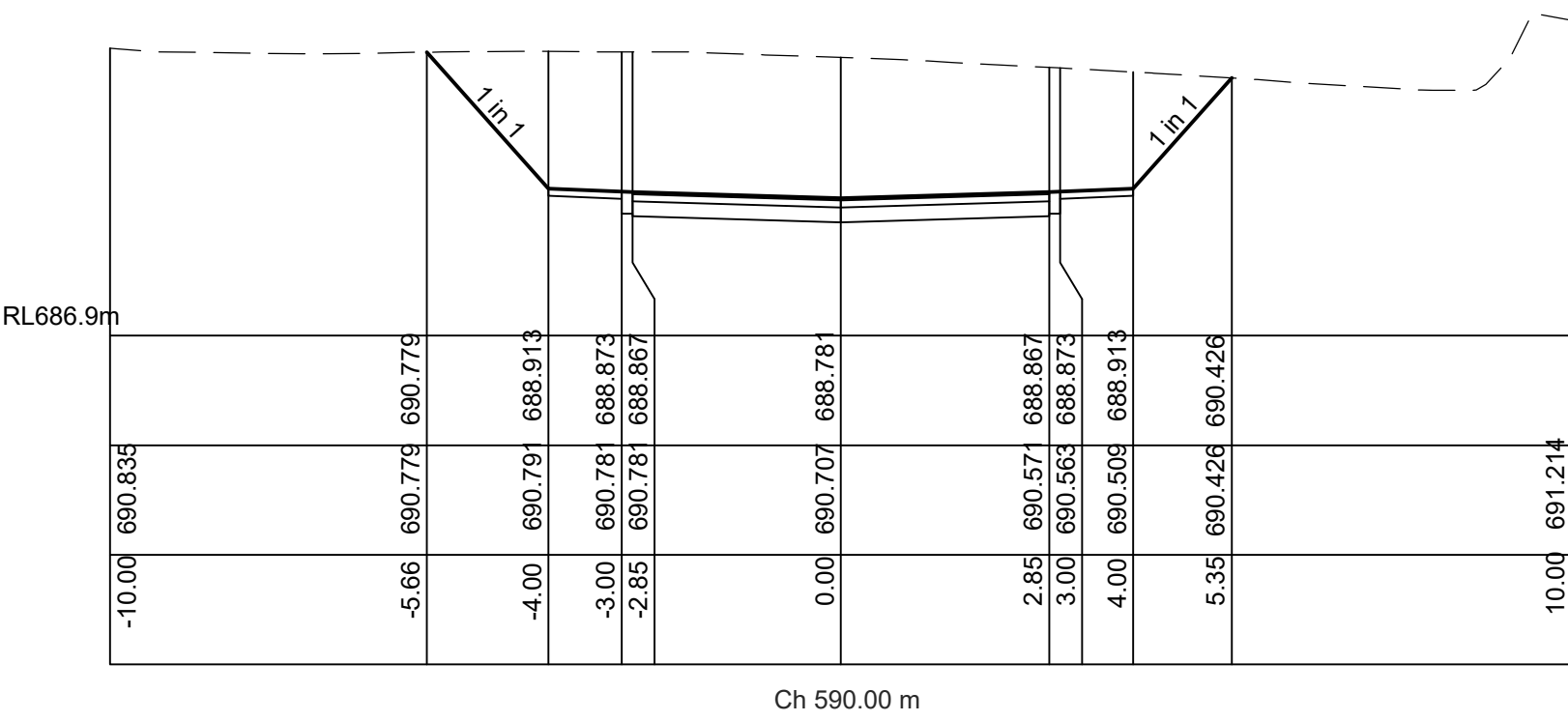
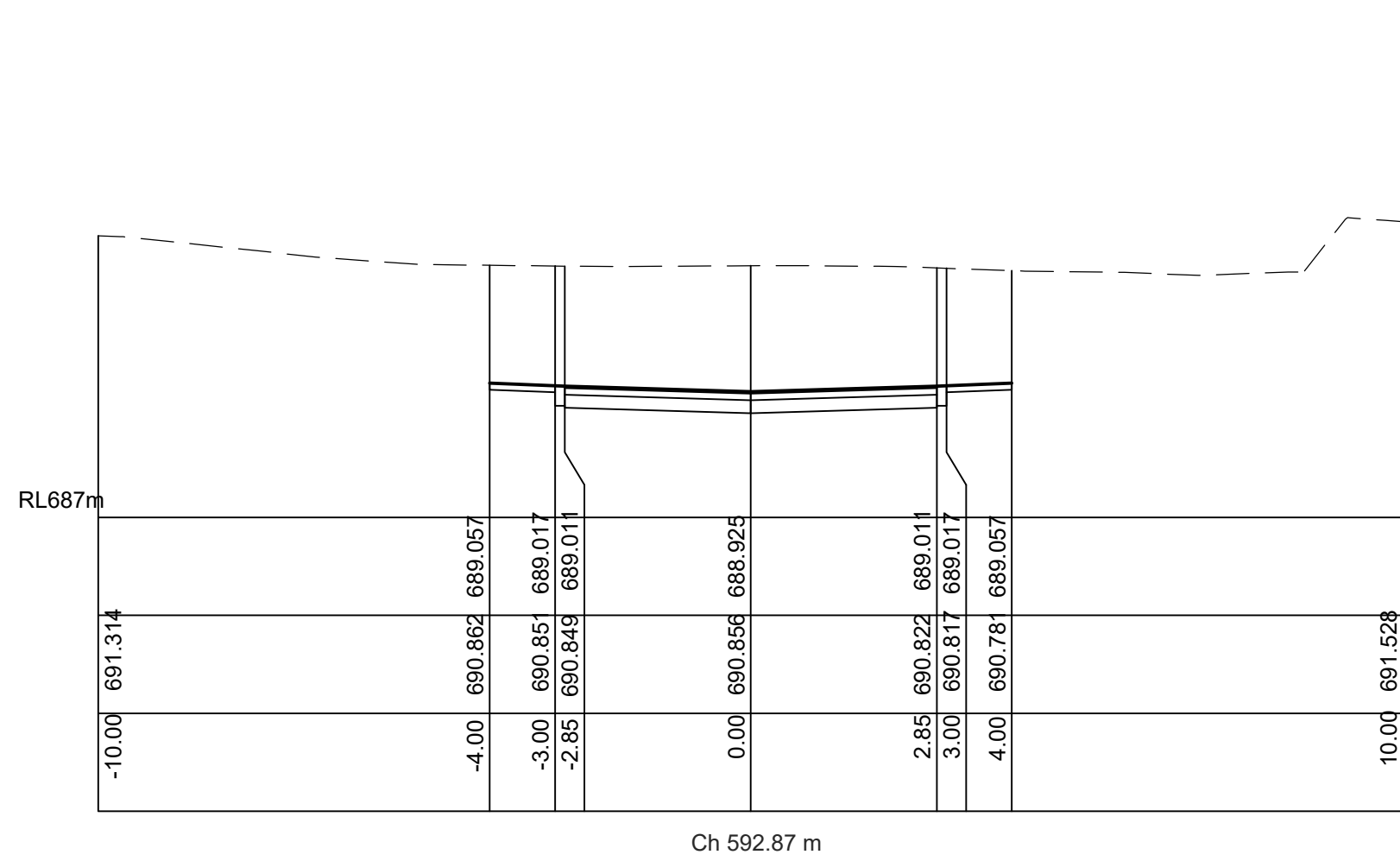
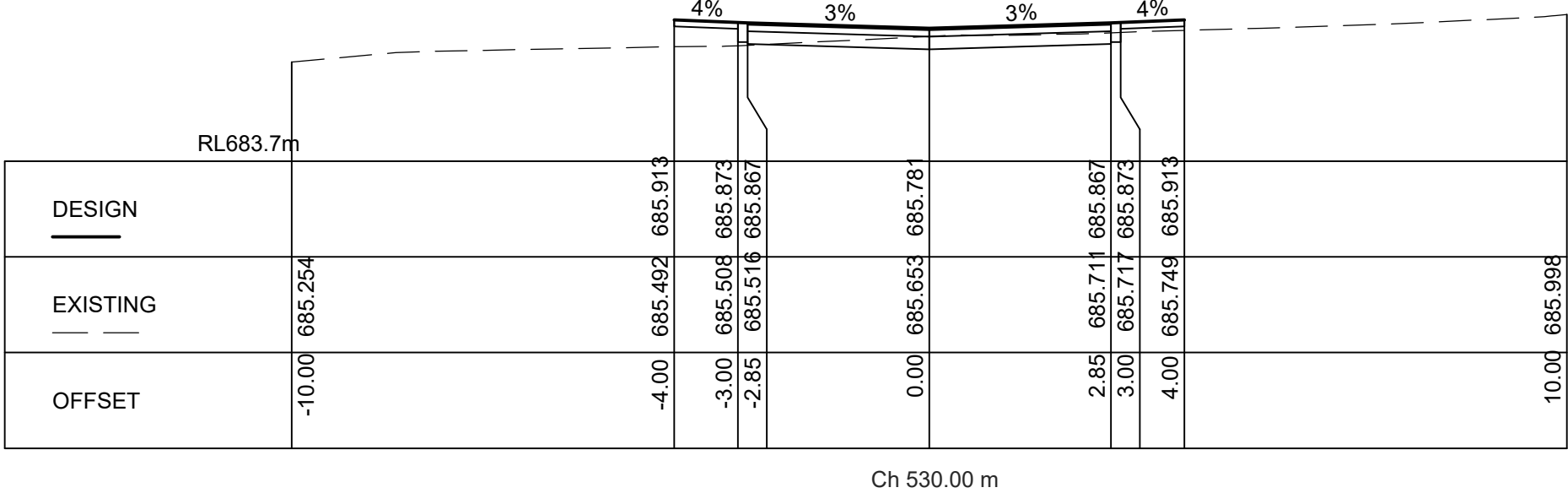
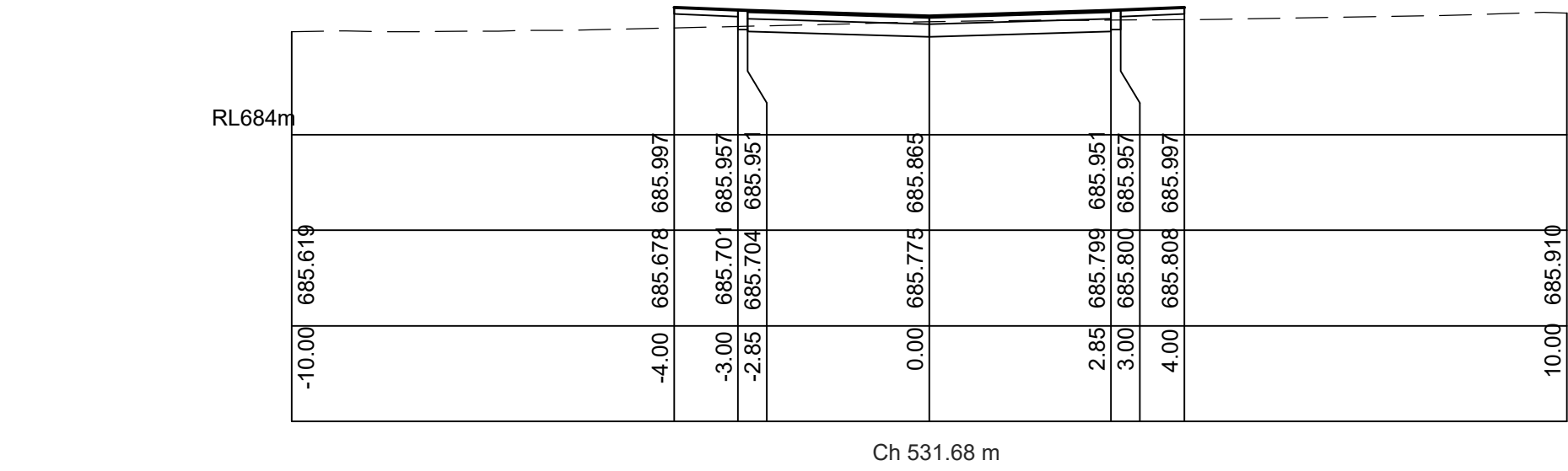
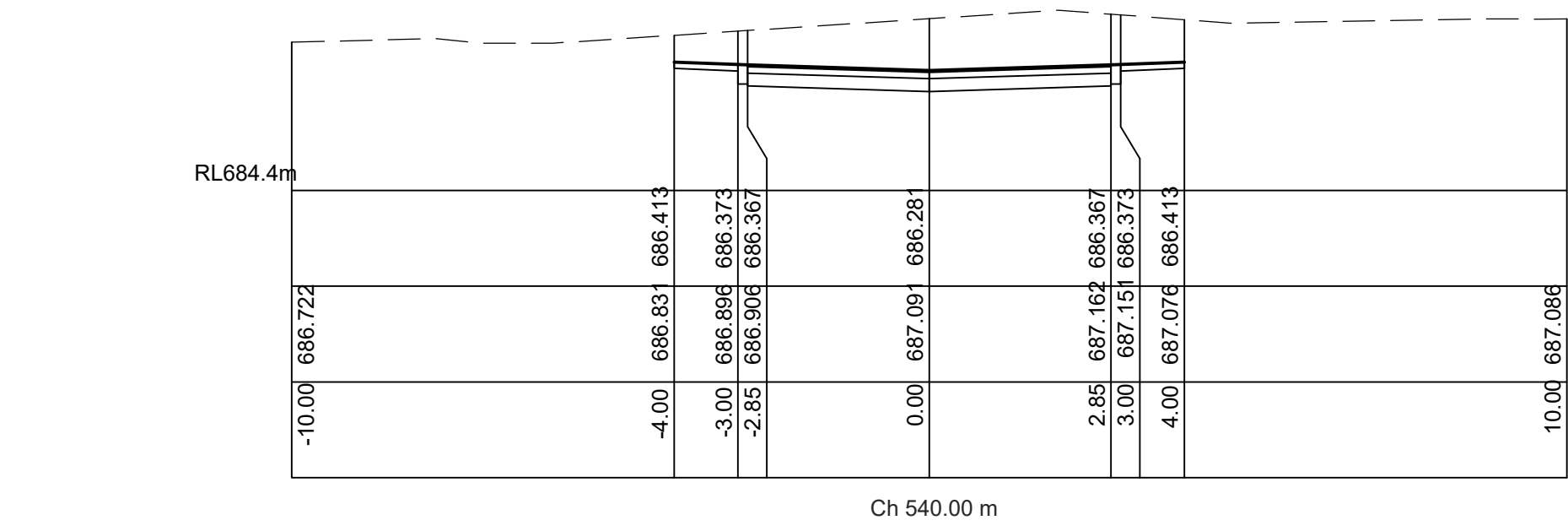
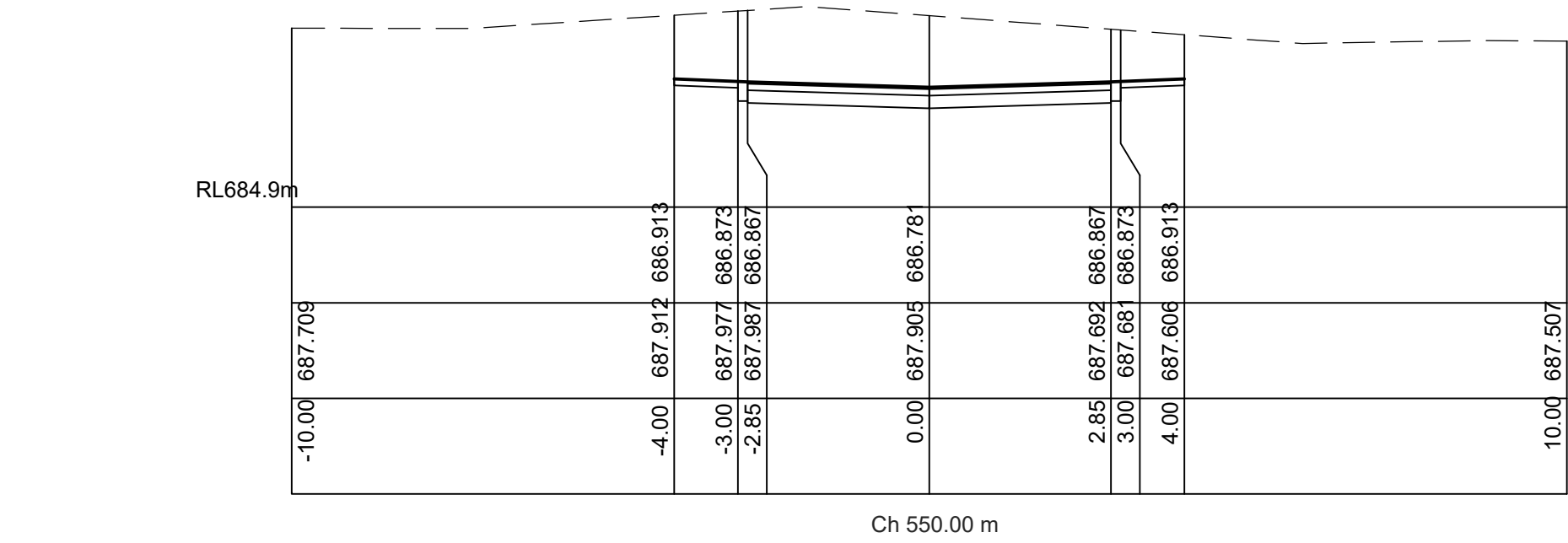
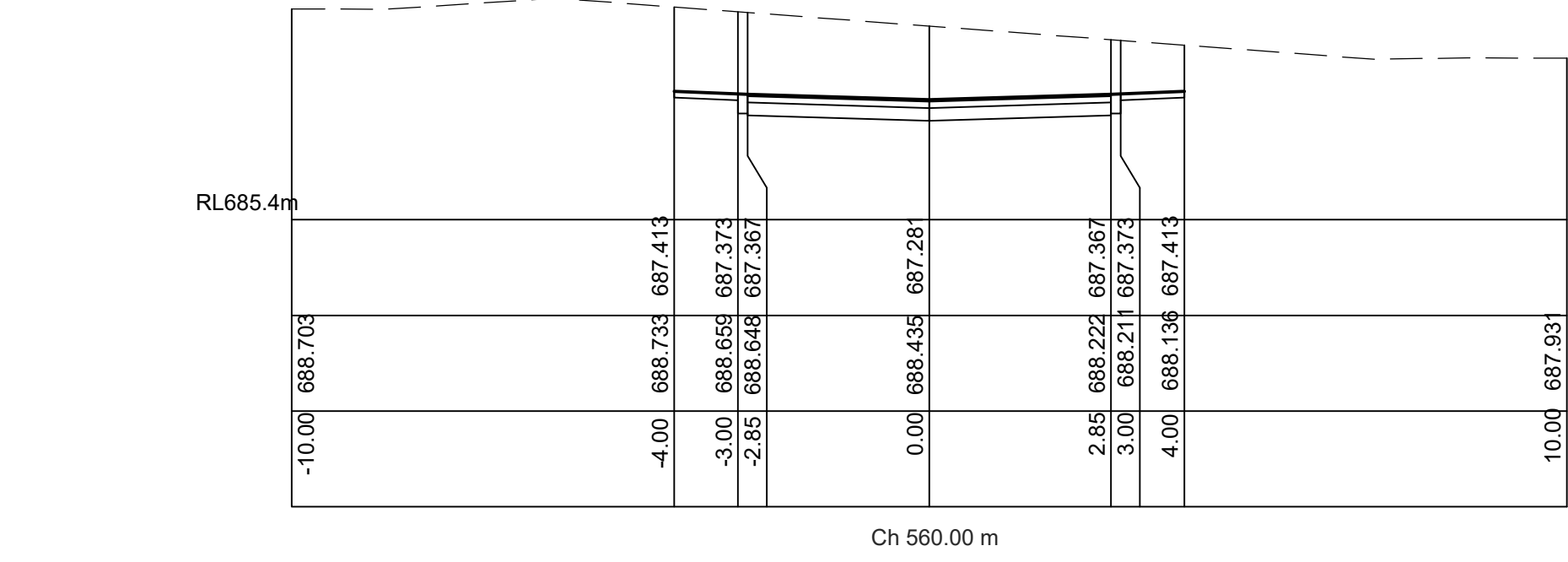
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INTERNAL ROADS
CROSS SECTIONS - SHEET 9

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1:100 @ A1	2017.12.14	TF	LP
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CROSS SECTIONS - ROAD 2 (CONT)
SCALE: 1:100

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J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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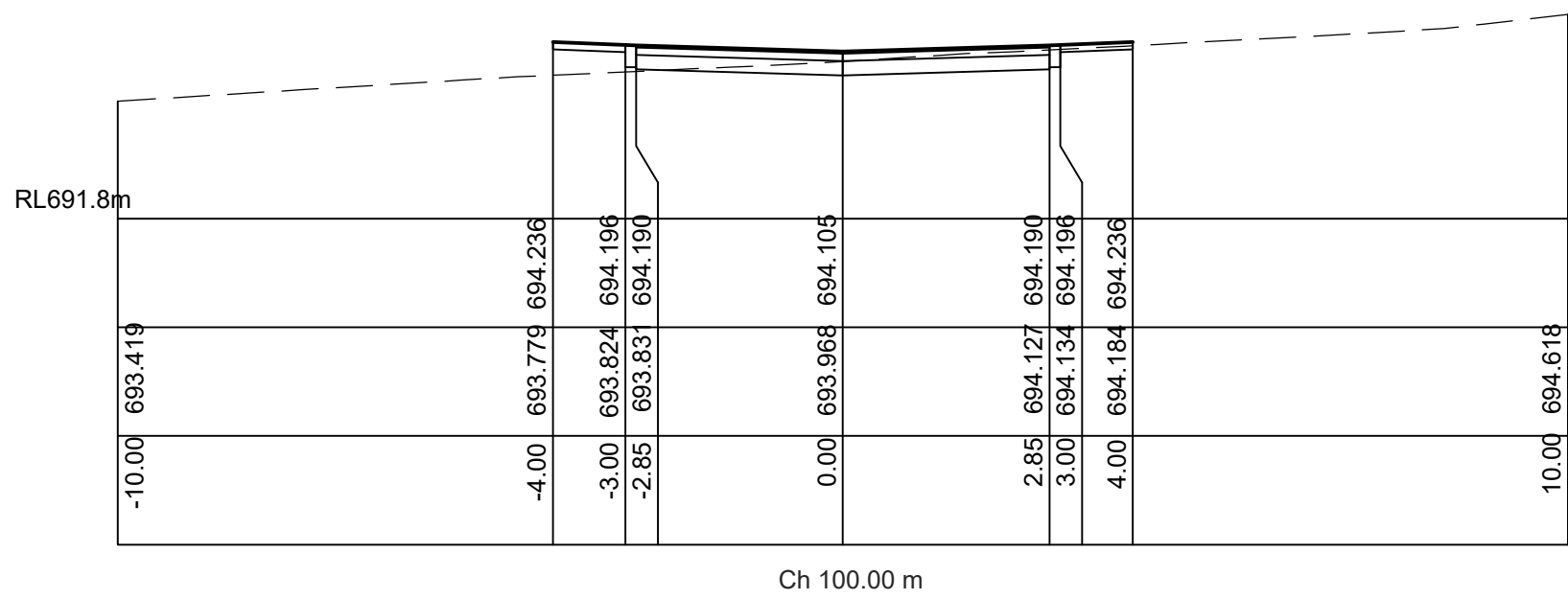
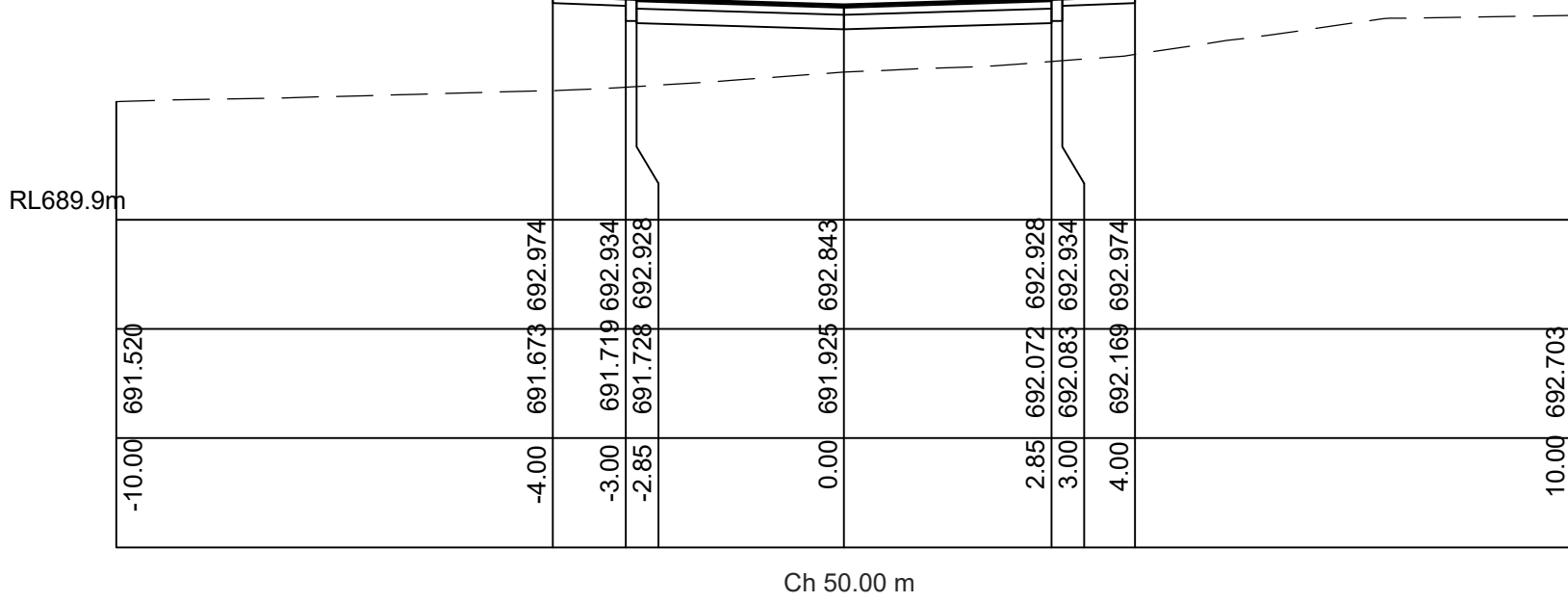
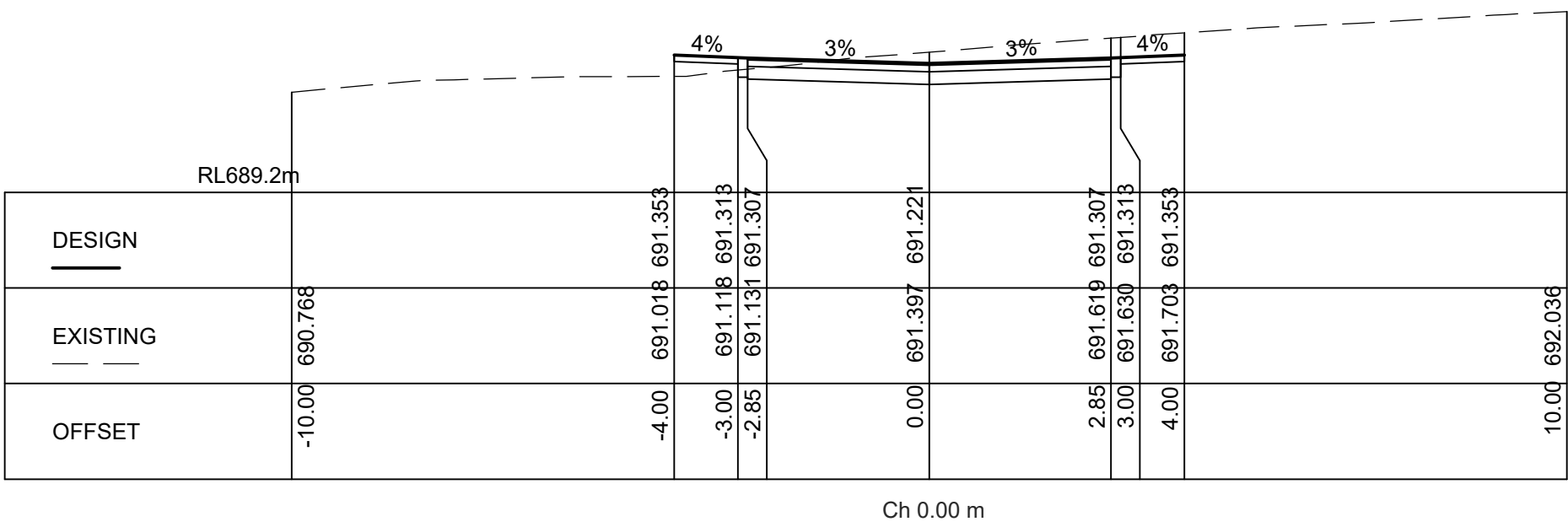
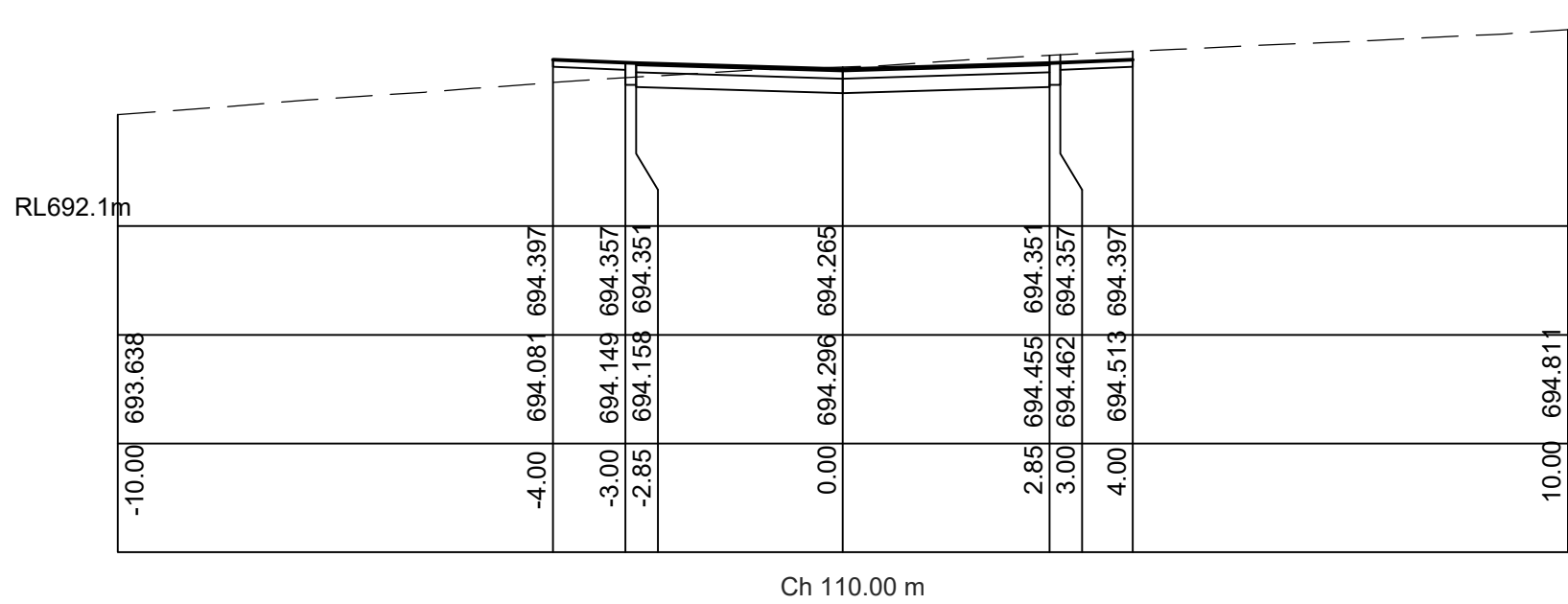
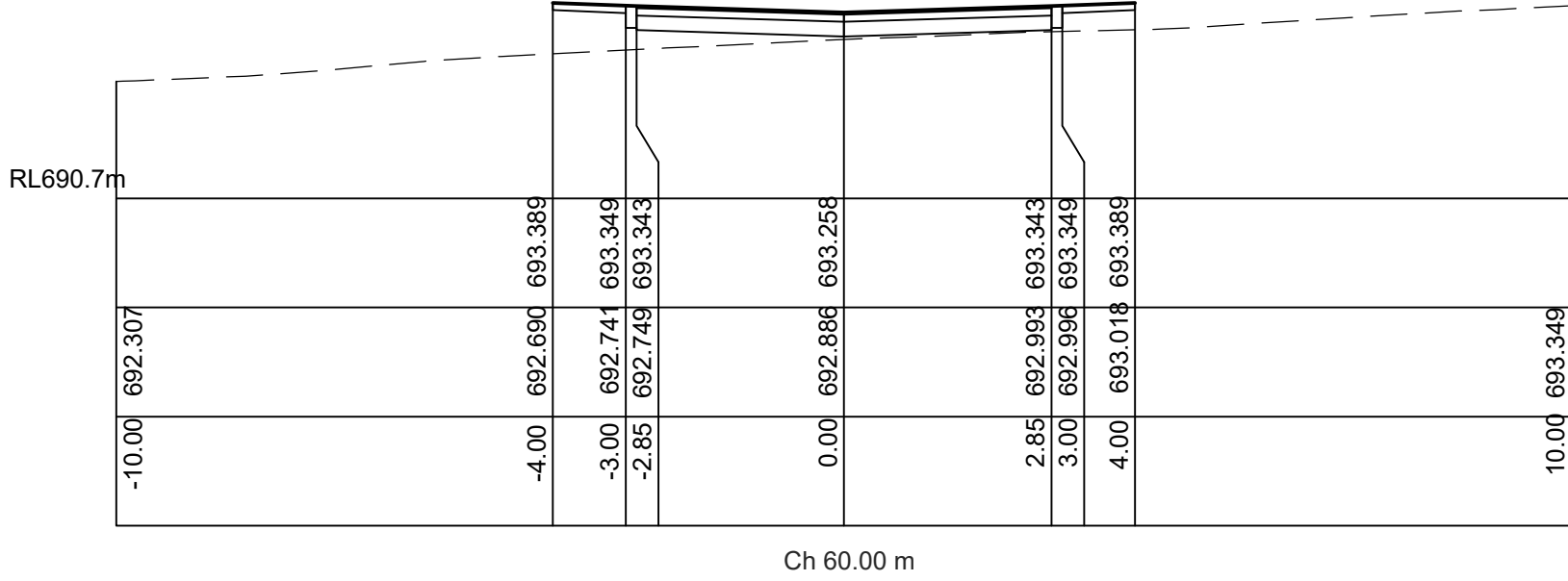
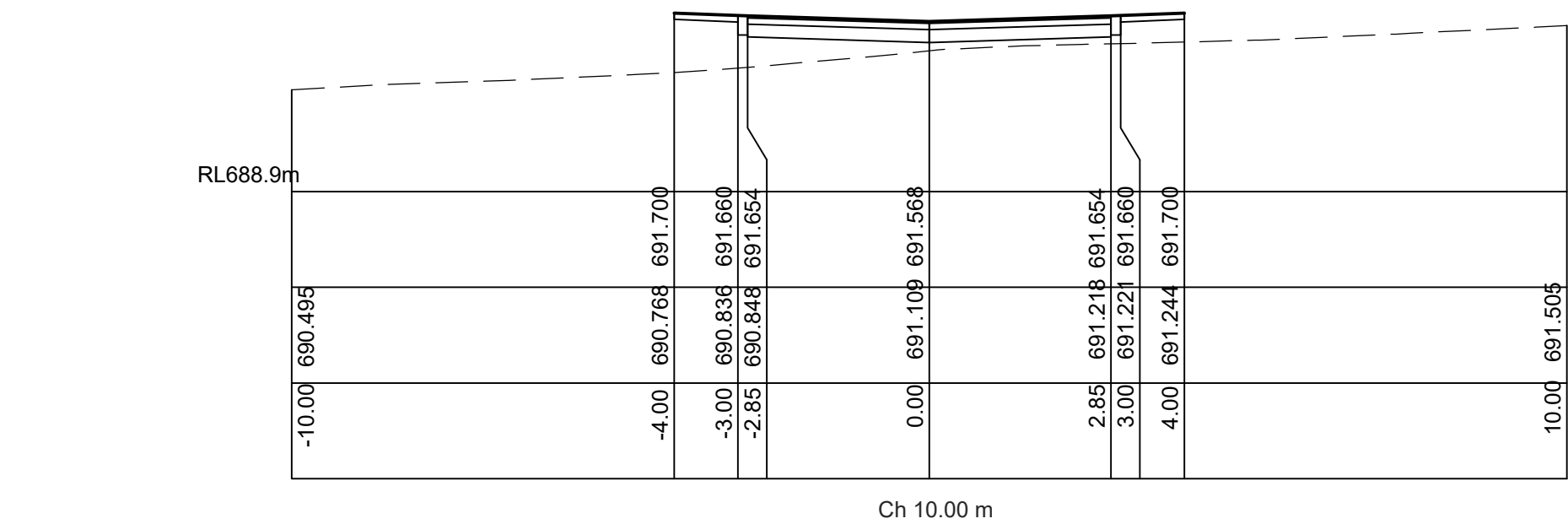
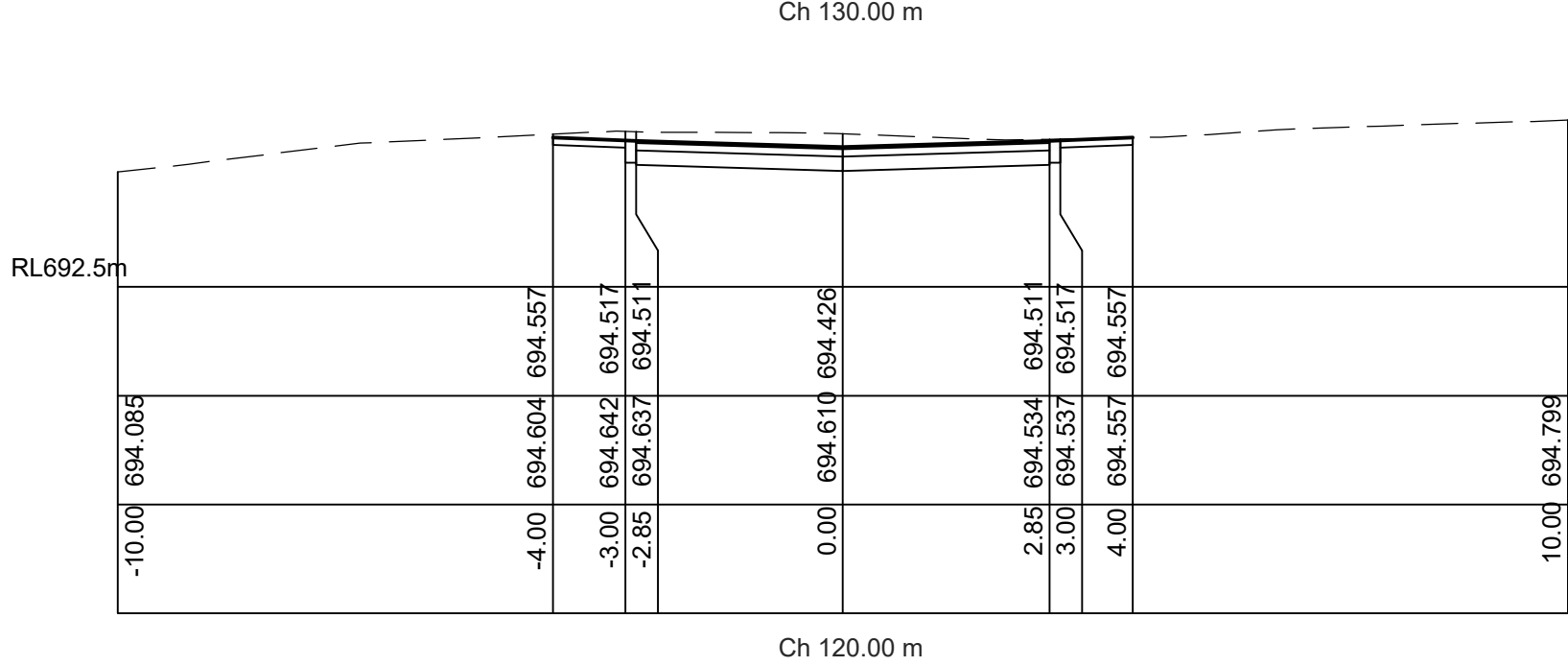
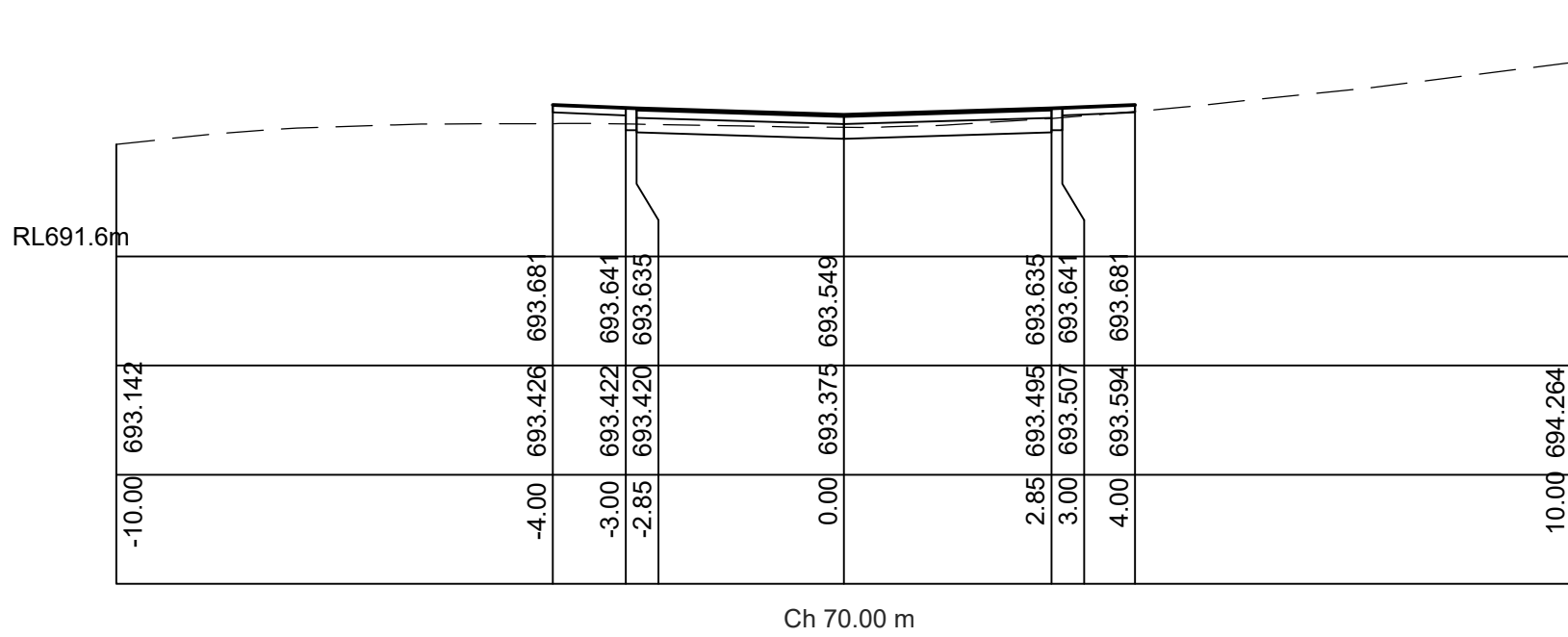
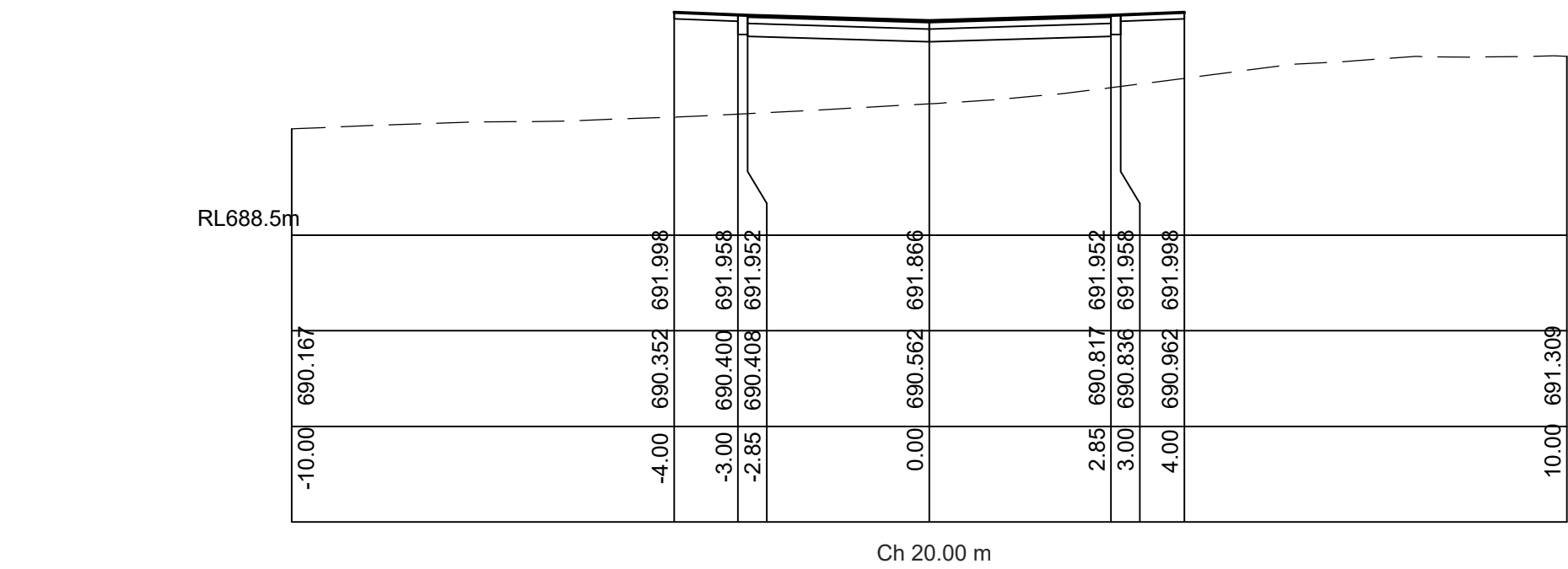
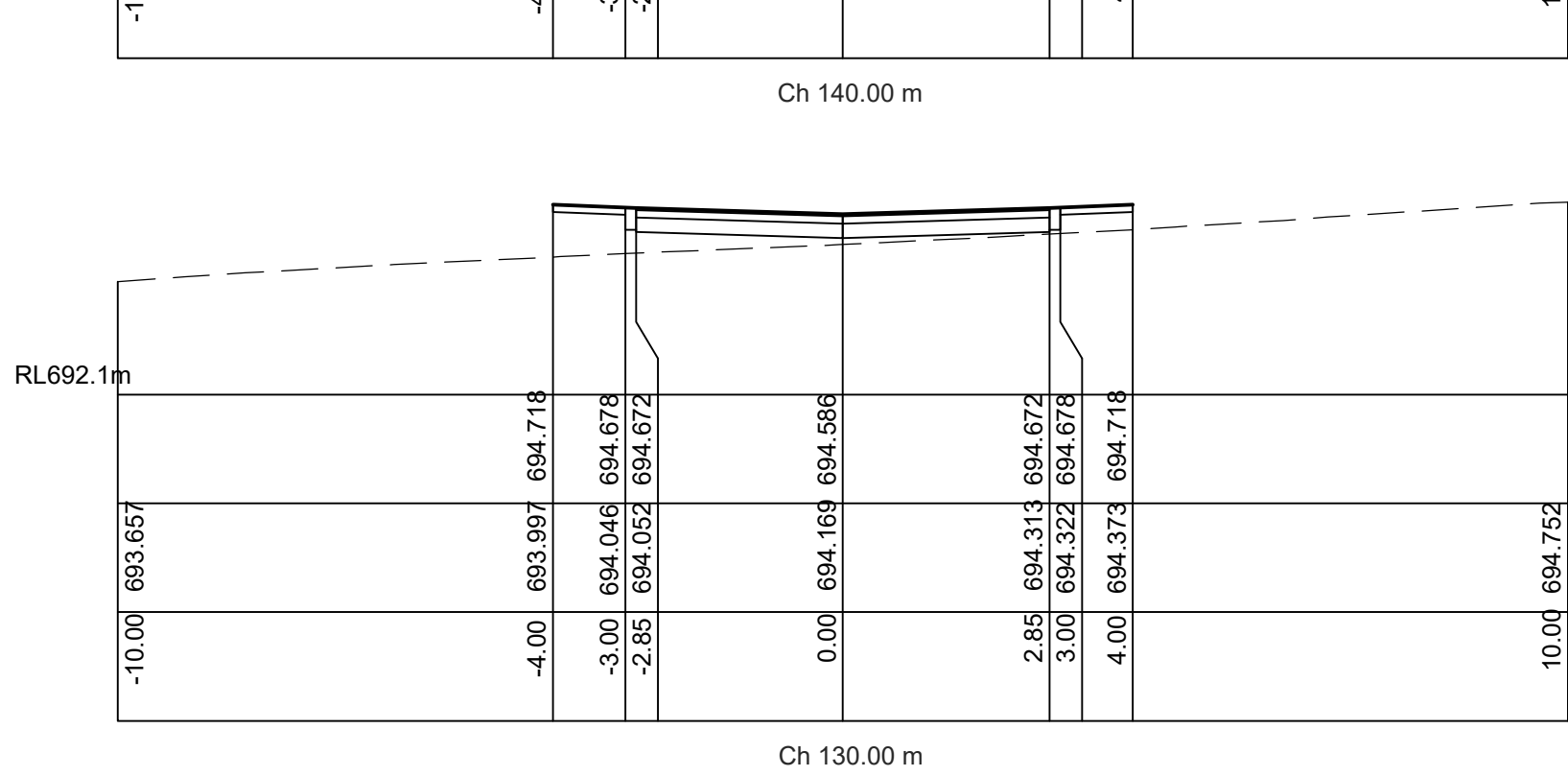
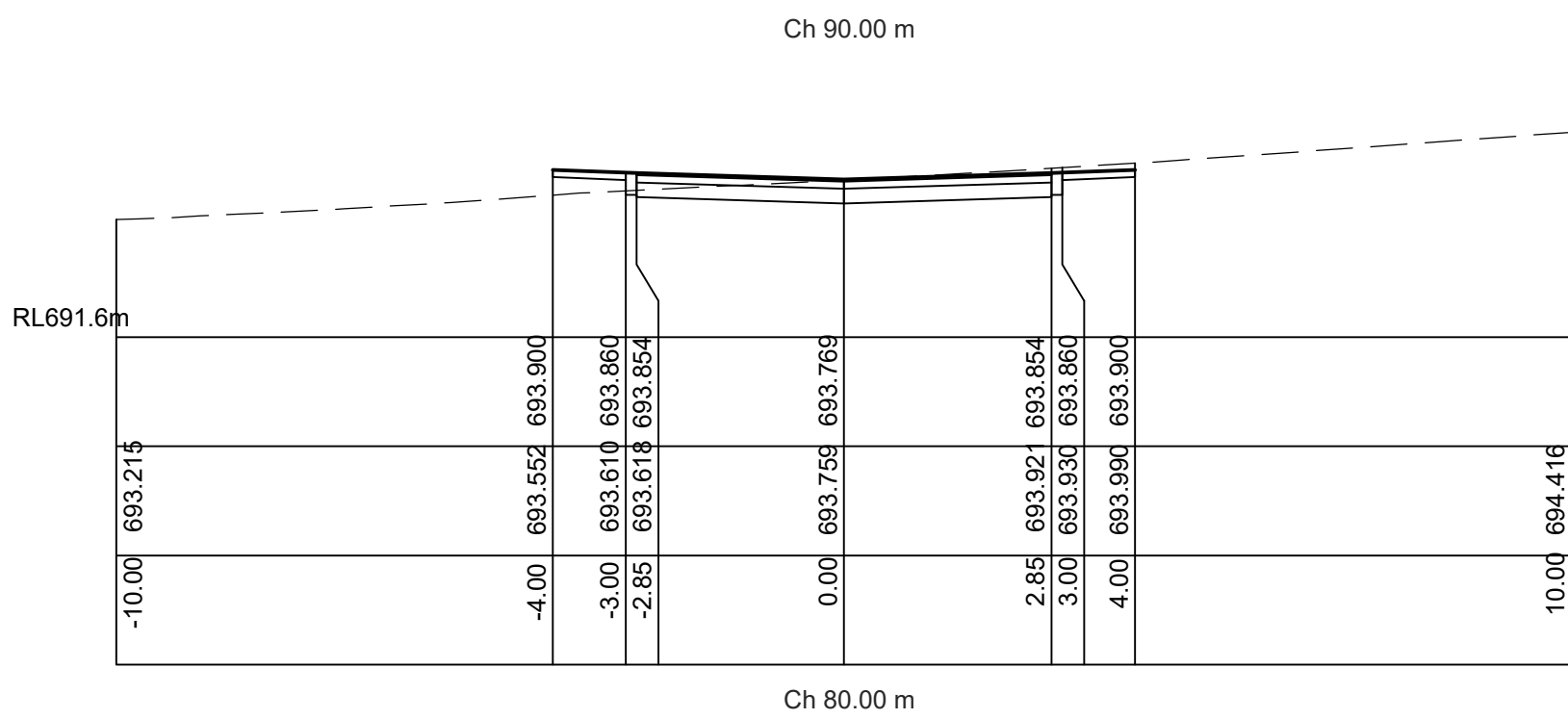
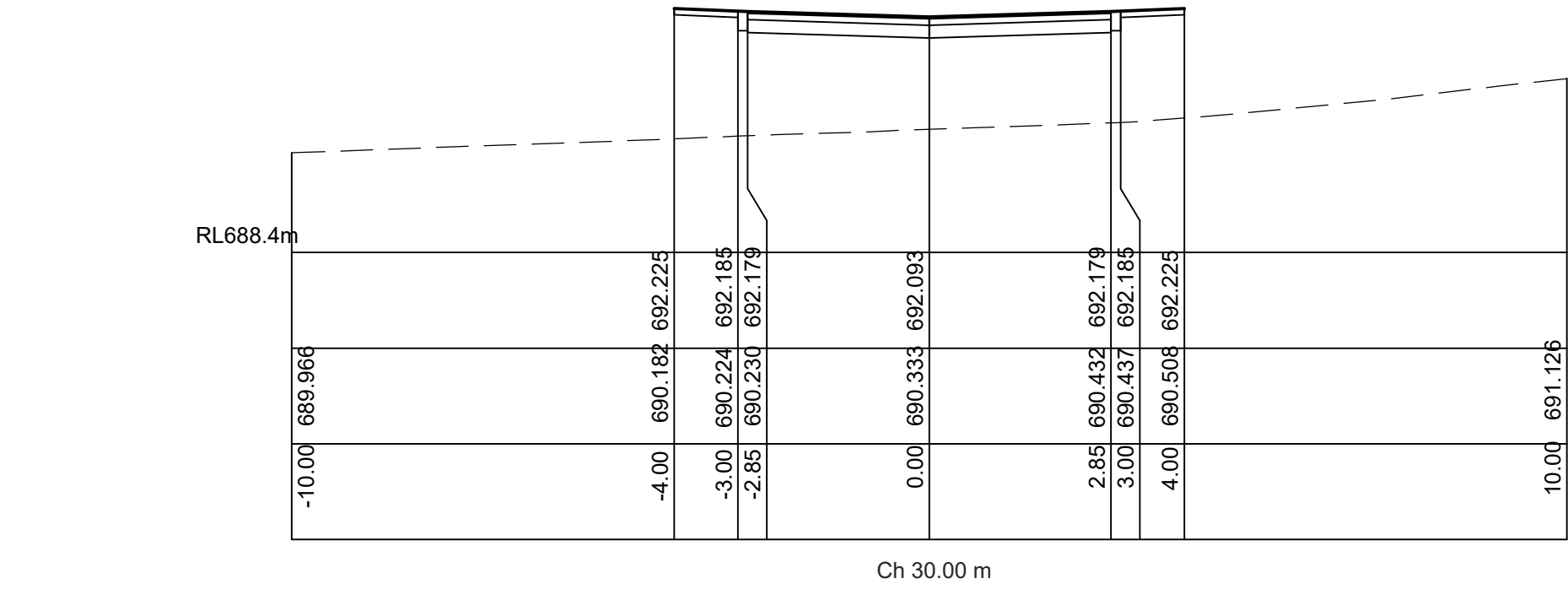
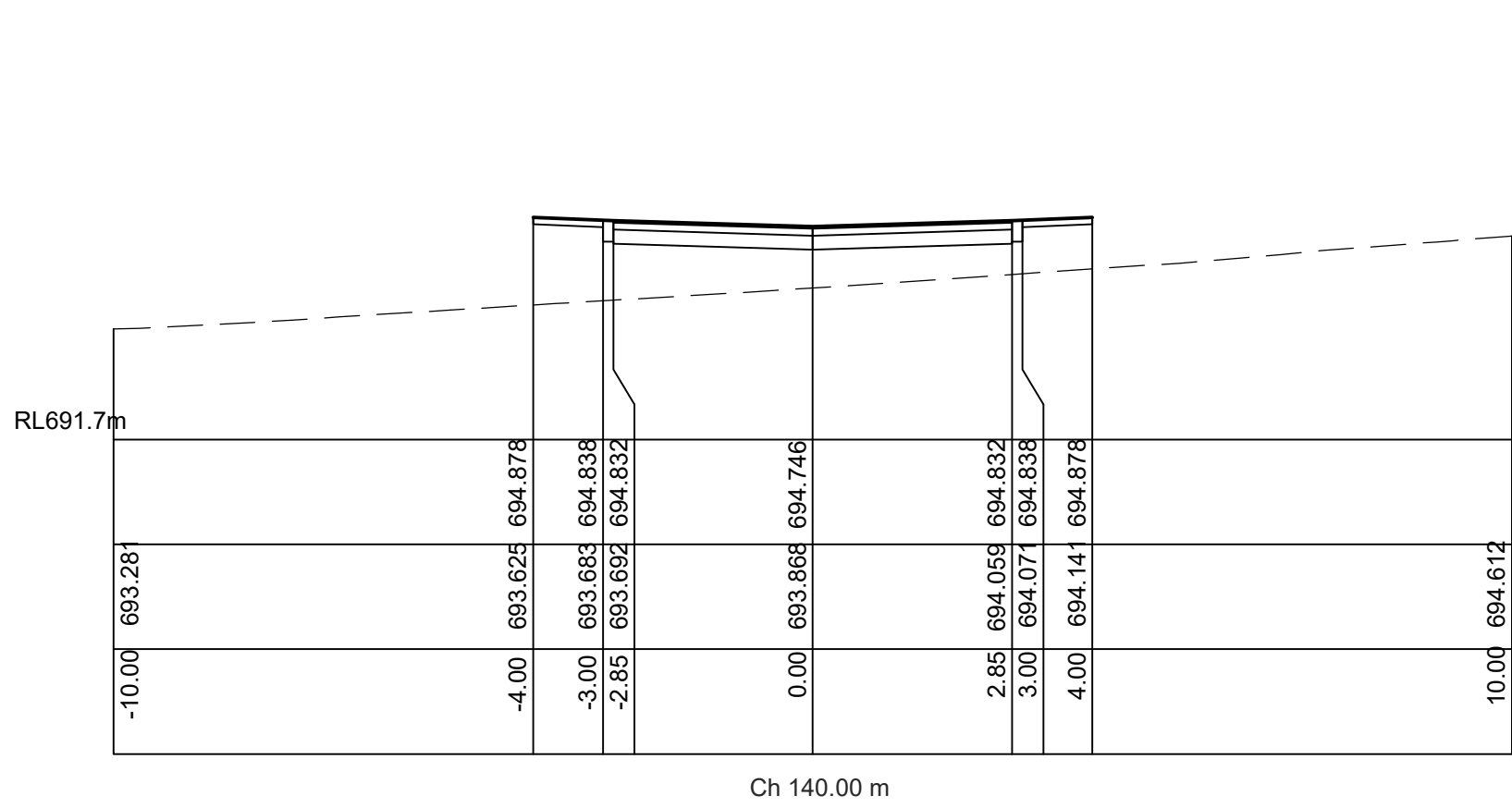
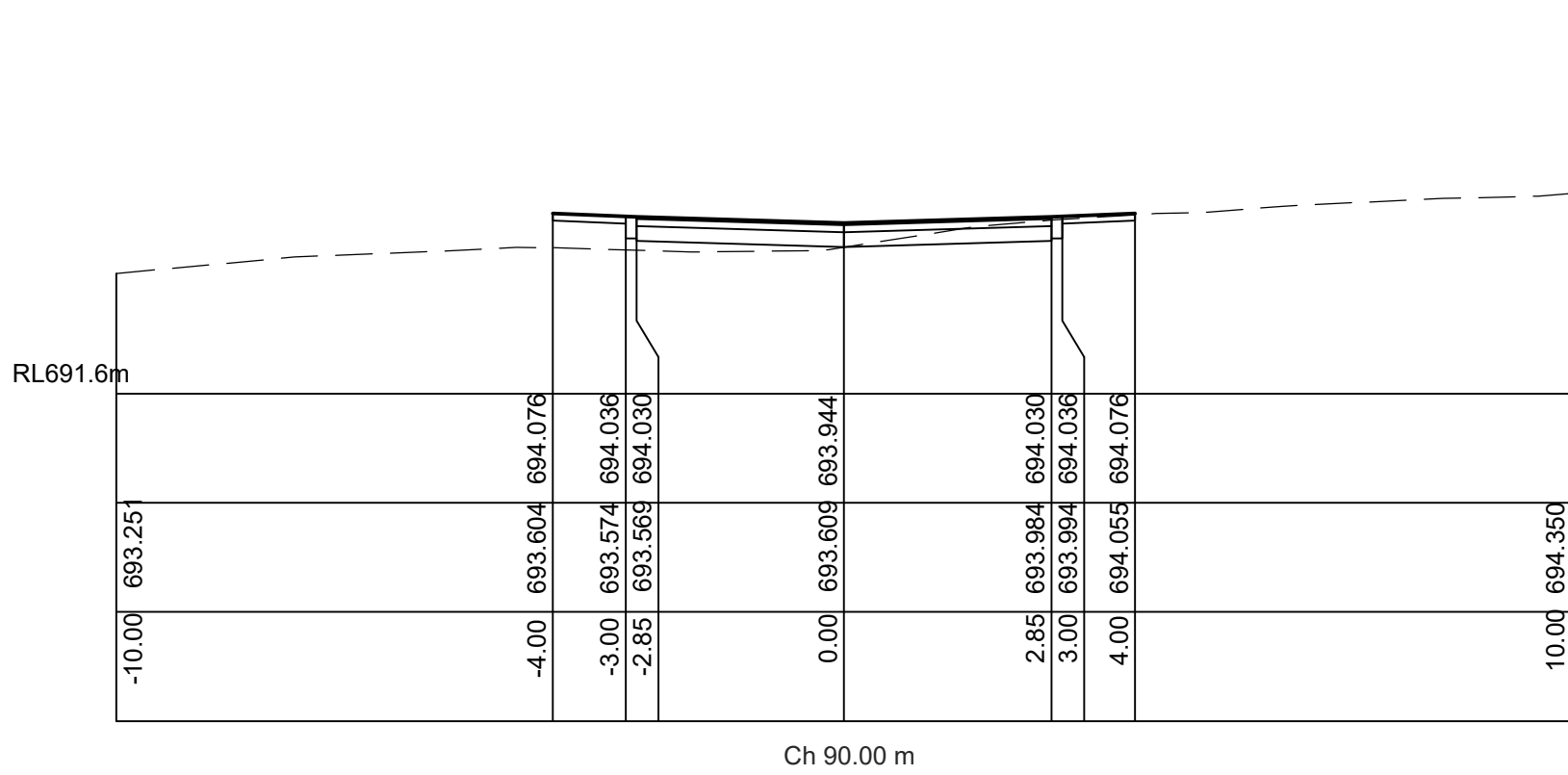
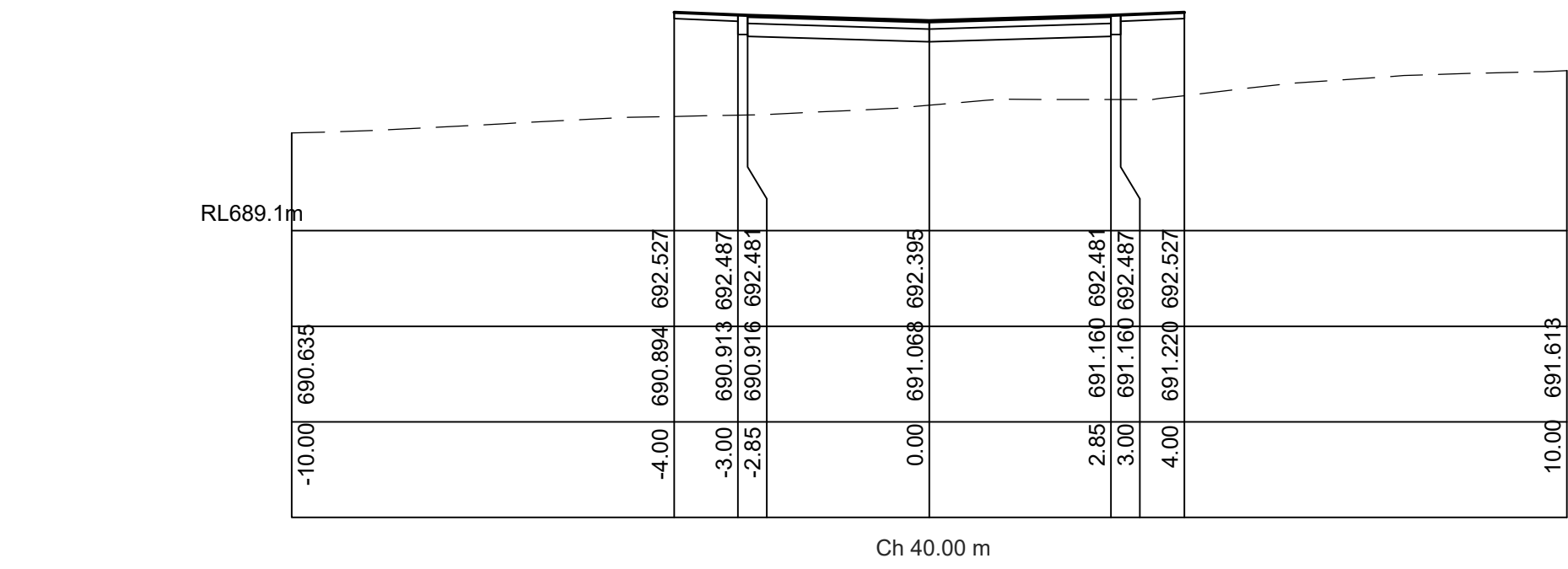
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CROSS SECTIONS - SHEET 10

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1:100 @ A1	2017.12.14	TF	LP
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CROSS SECTIONS - ROAD 3

SCALE: 1:100

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J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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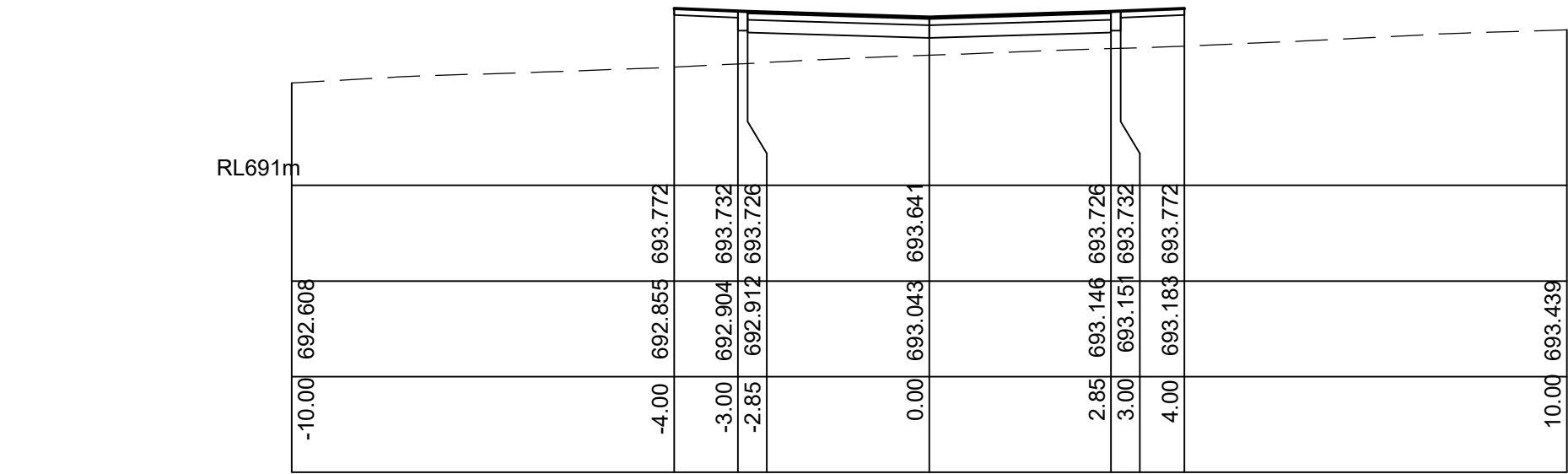
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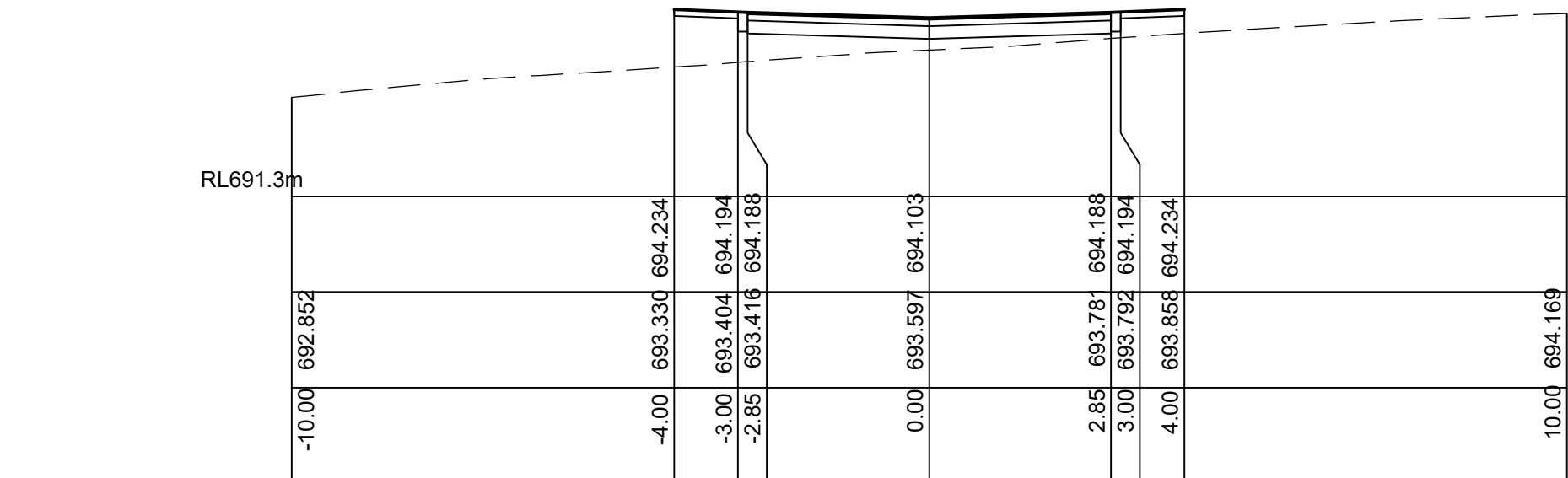
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DRAWING TITLE
CIVIL WORKS
INTERNAL ROADS
CROSS SECTIONS - SHEET 11

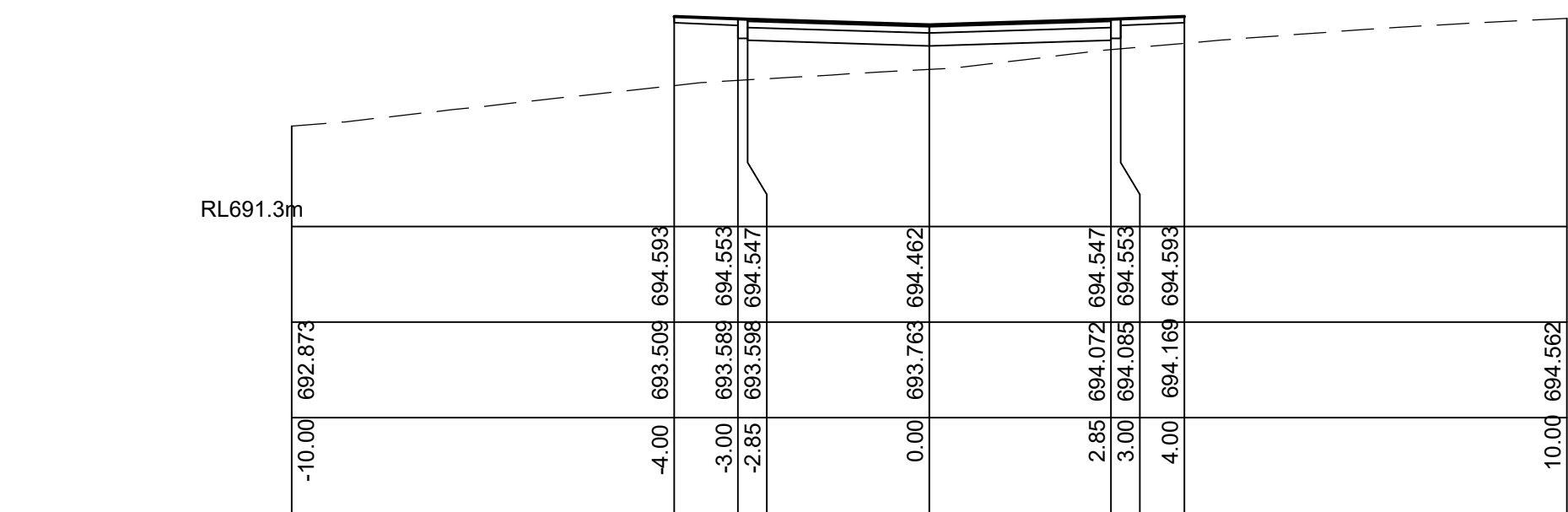
SCALE 1:100 @ A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-141		REVISION K



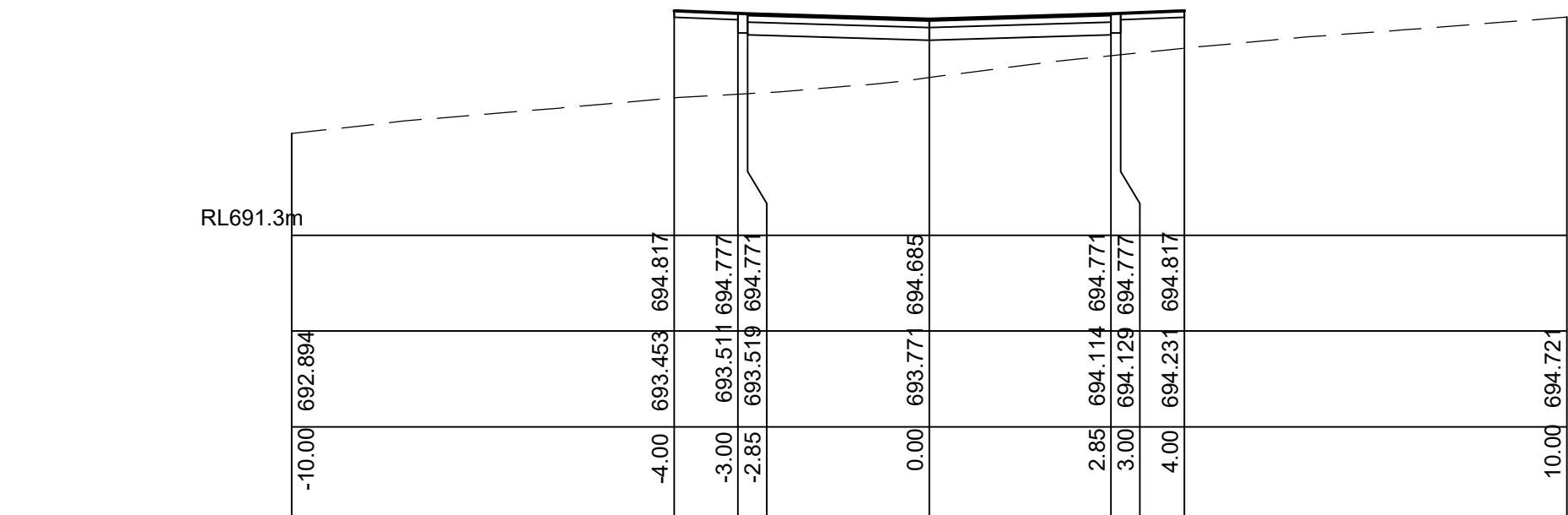
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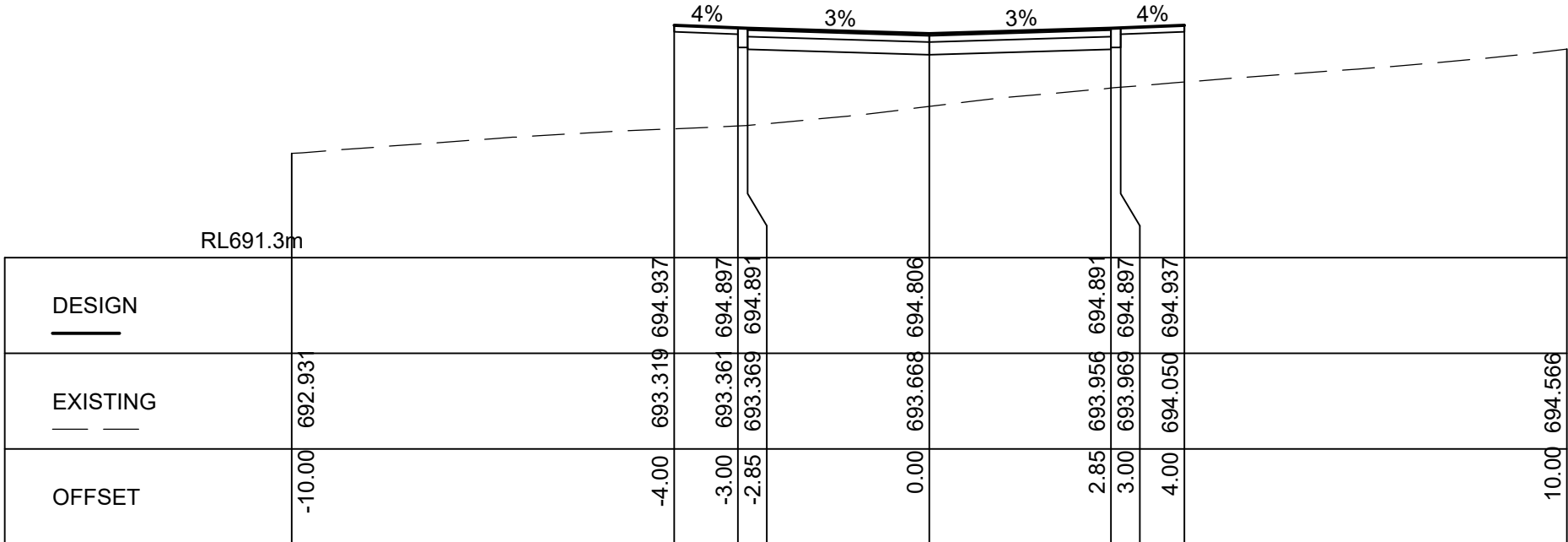
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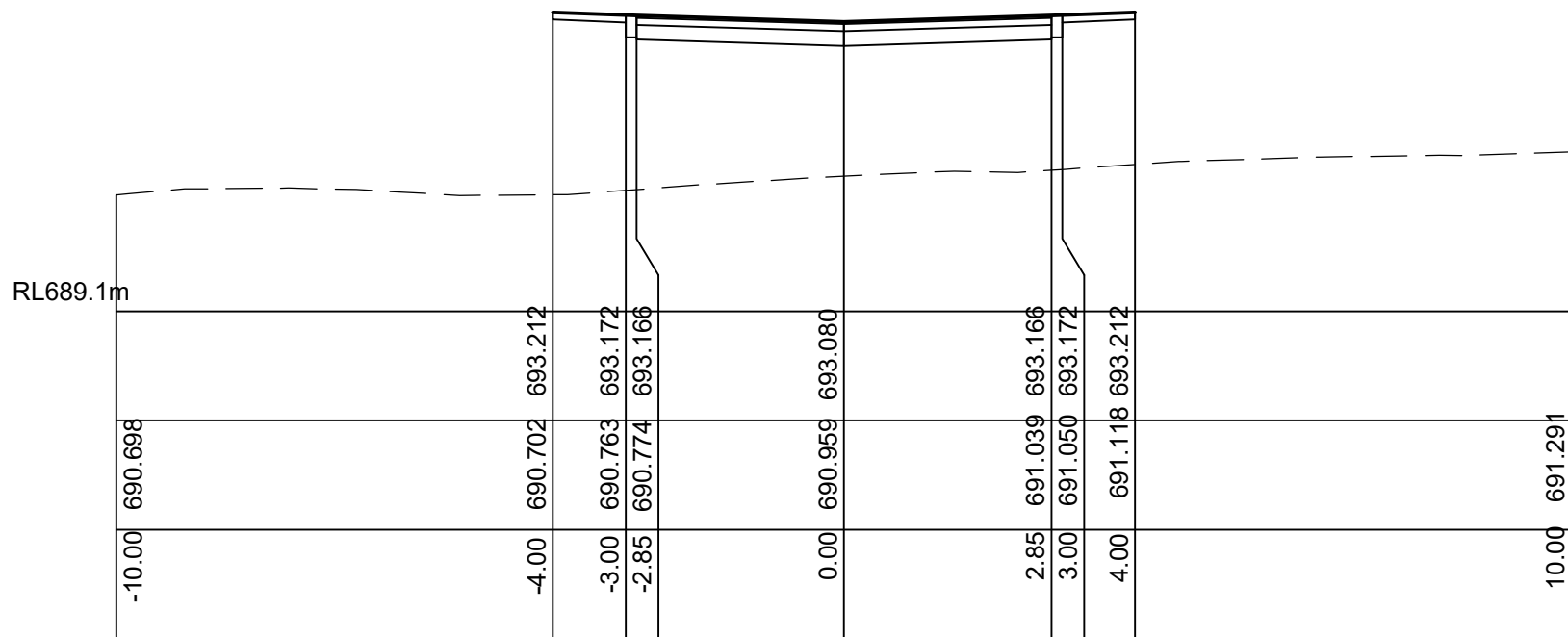
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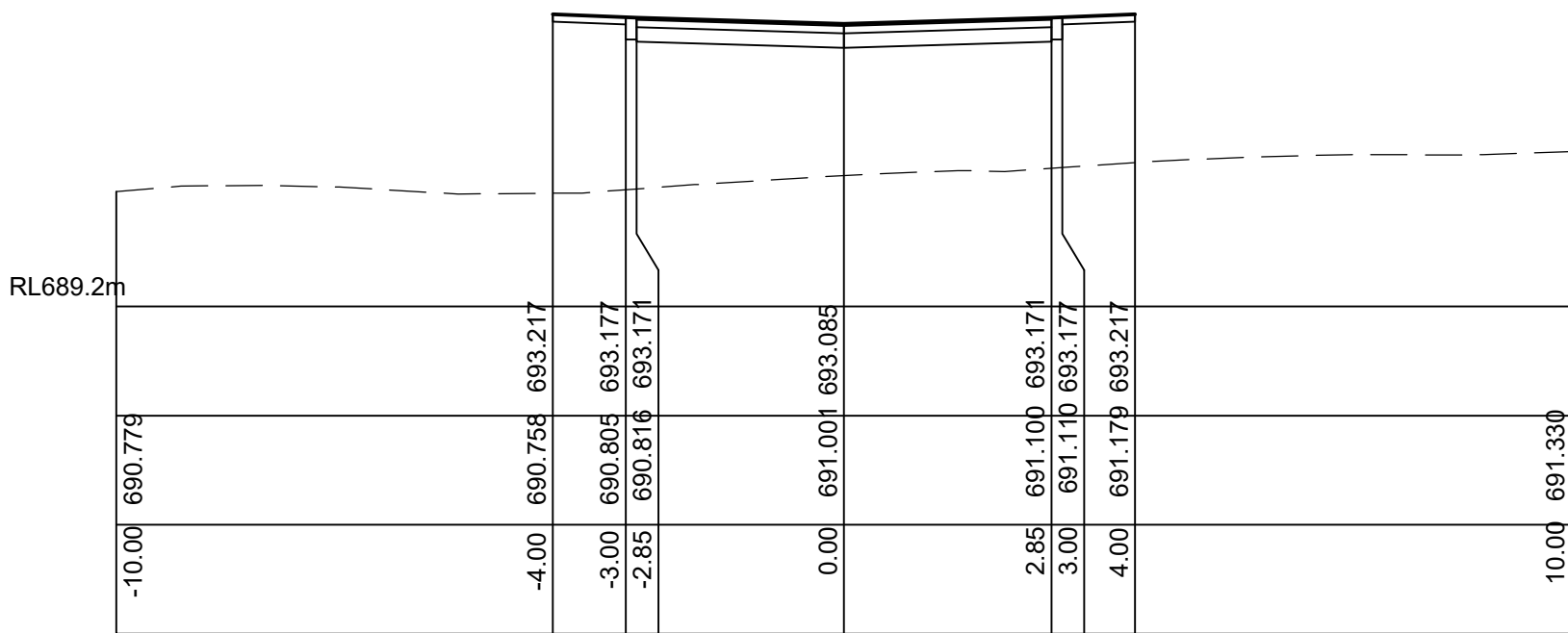
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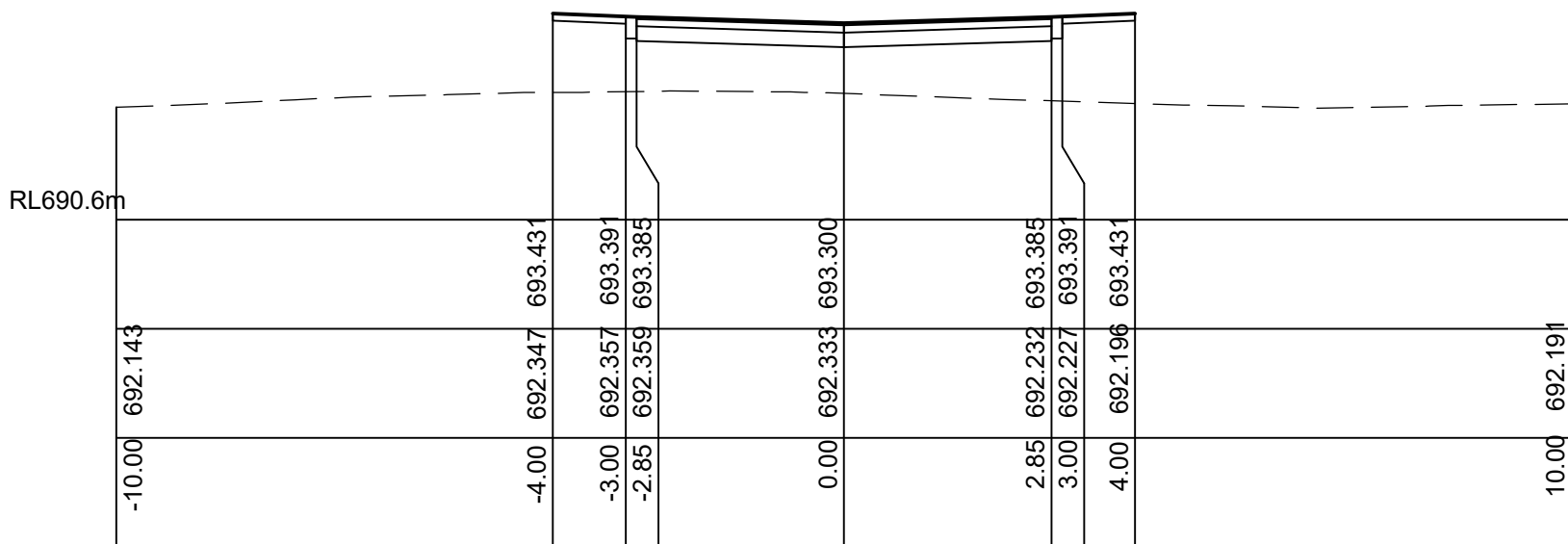
Ch 150.00 m



Ch 210.27 m



Ch 210.00 m



Ch 200.00 m

CROSS SECTIONS - ROAD 3 (CON'T)

SCALE: 1:100

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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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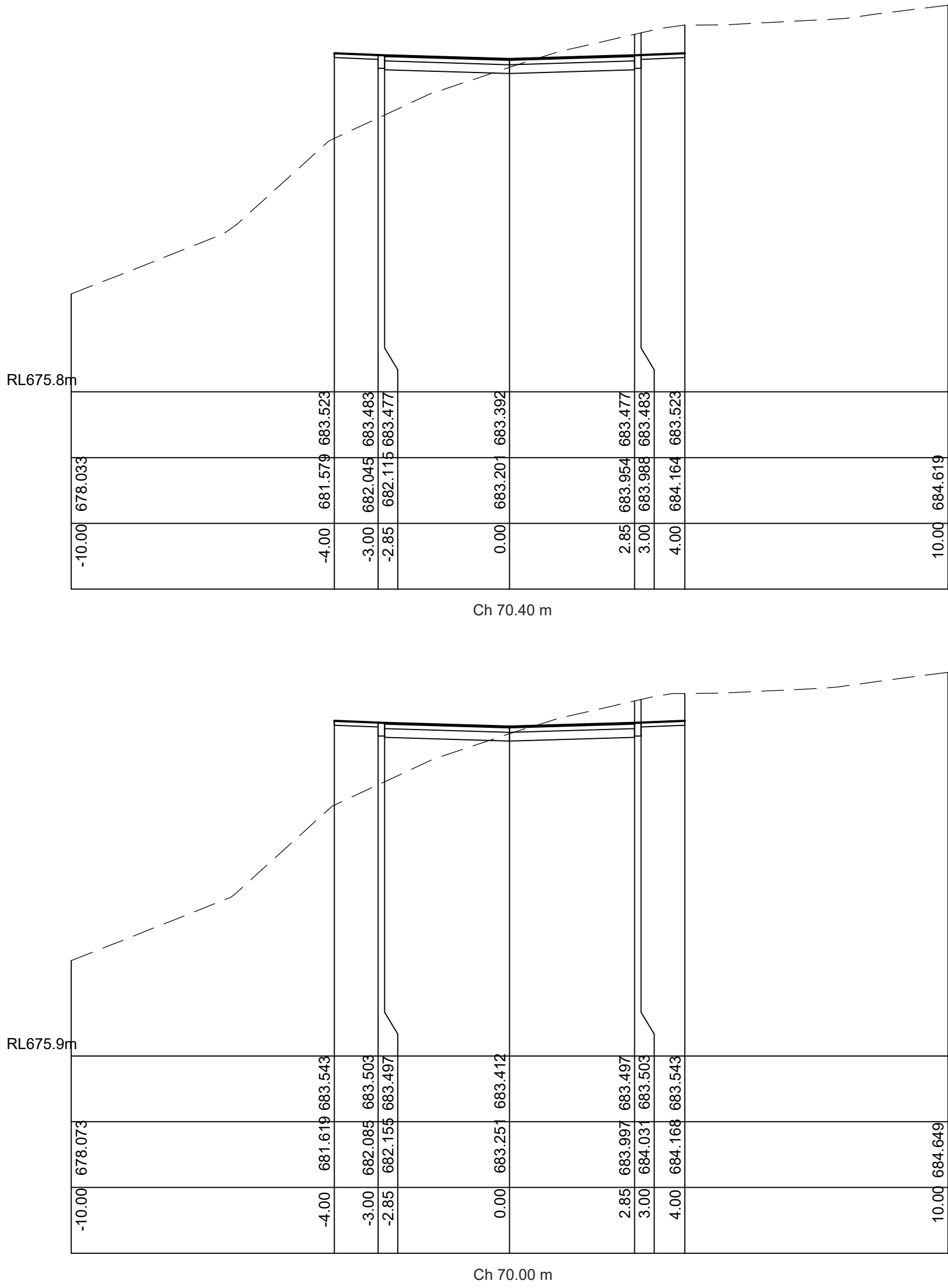
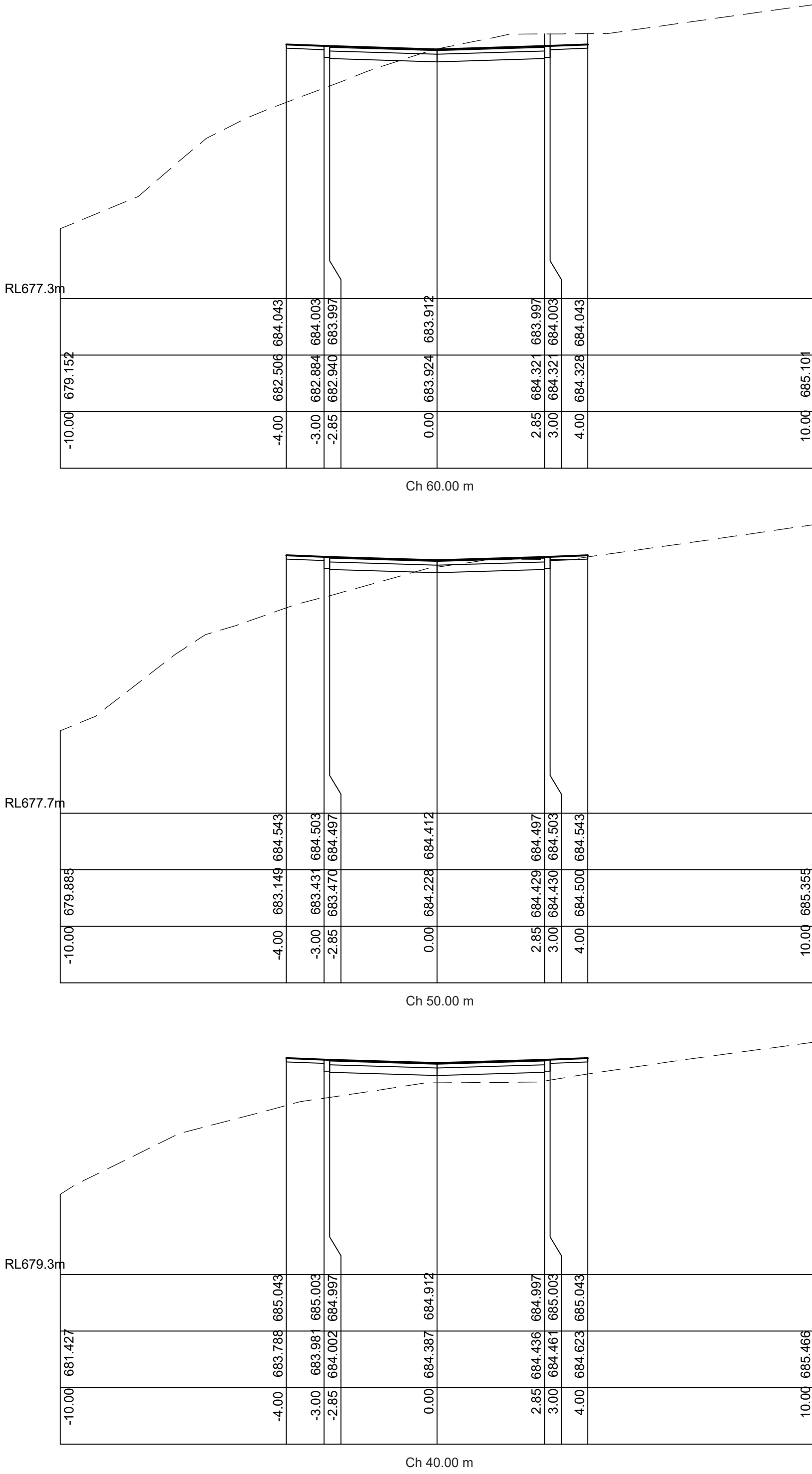
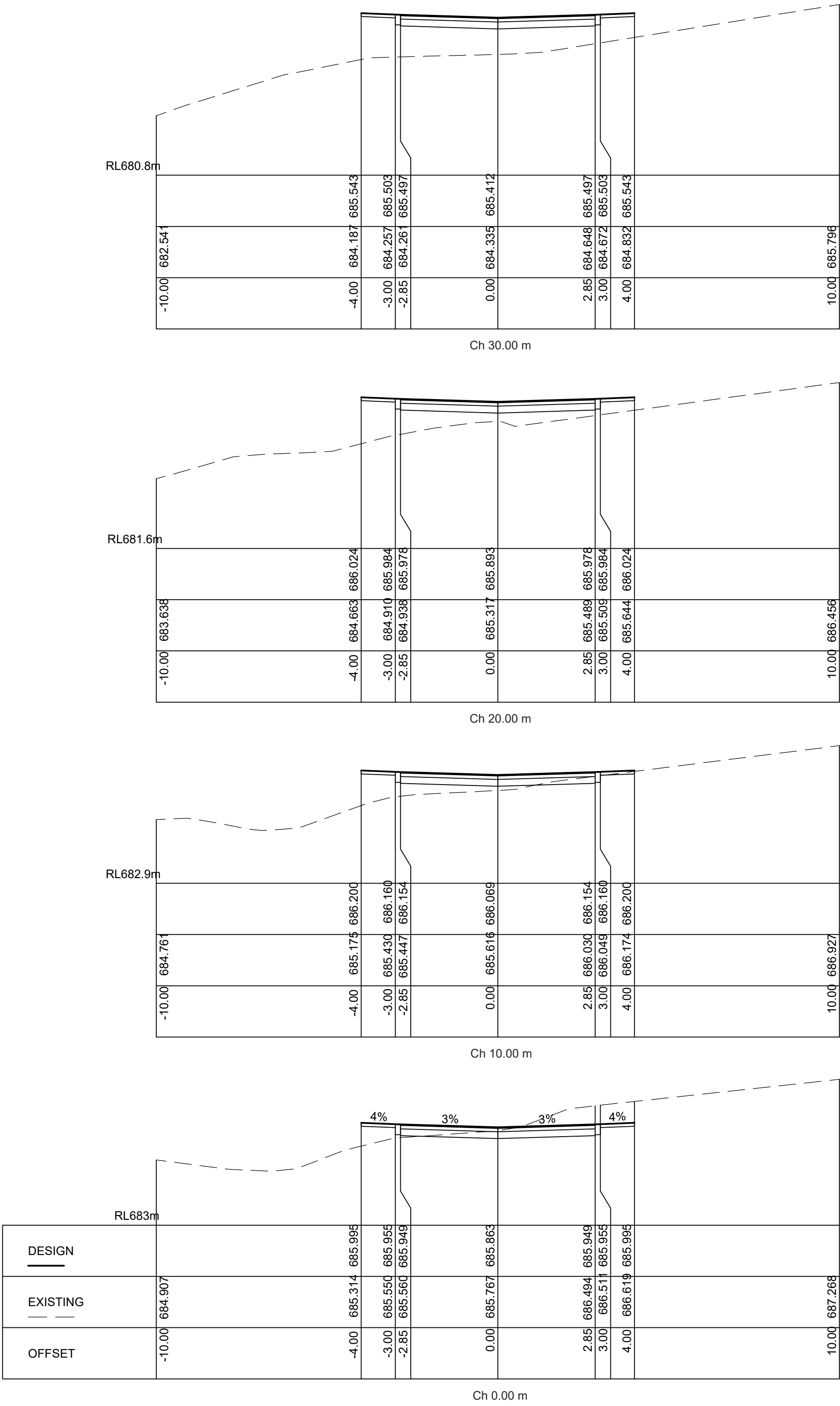
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INTERNAL ROADS
CROSS SECTIONS - SHEET 12

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-142		K



CROSS SECTIONS - ROAD 4
SCALE: 1:100

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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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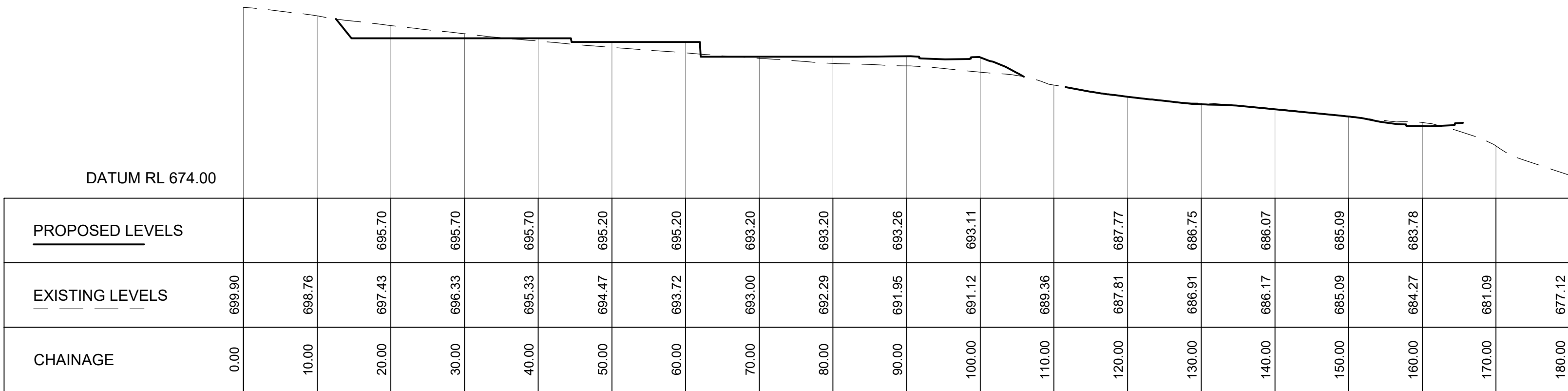
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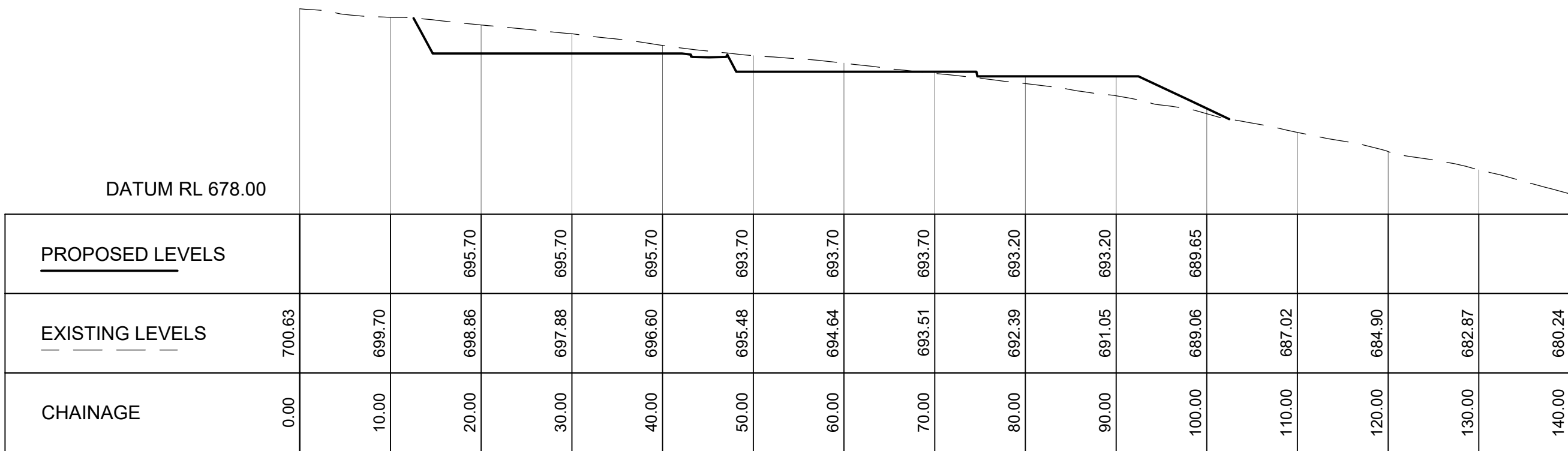
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DRAWING TITLE
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INTERNAL ROADS
CROSS SECTIONS - SHEET 13

SCALE	DATE	DRAWN	CHECKED
1:100 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
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SITE SECTION 02 LONG SECTION



SITE SECTION 01 LONG SECTION

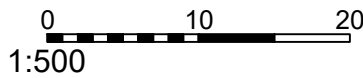
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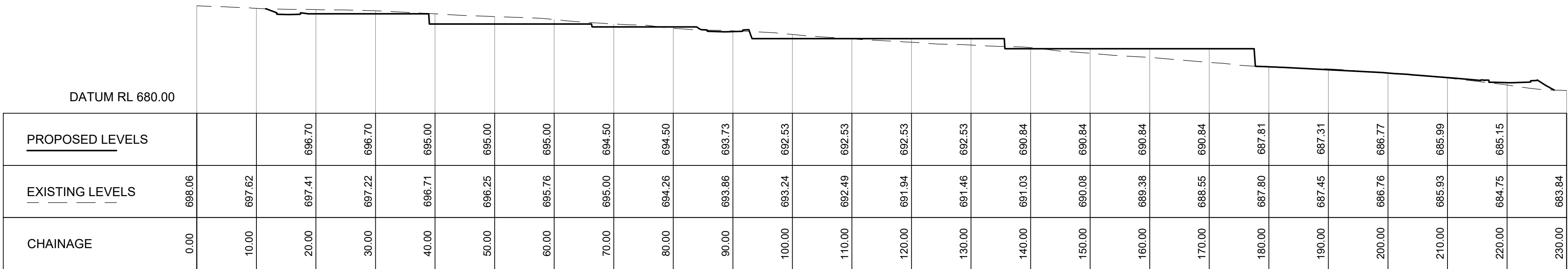


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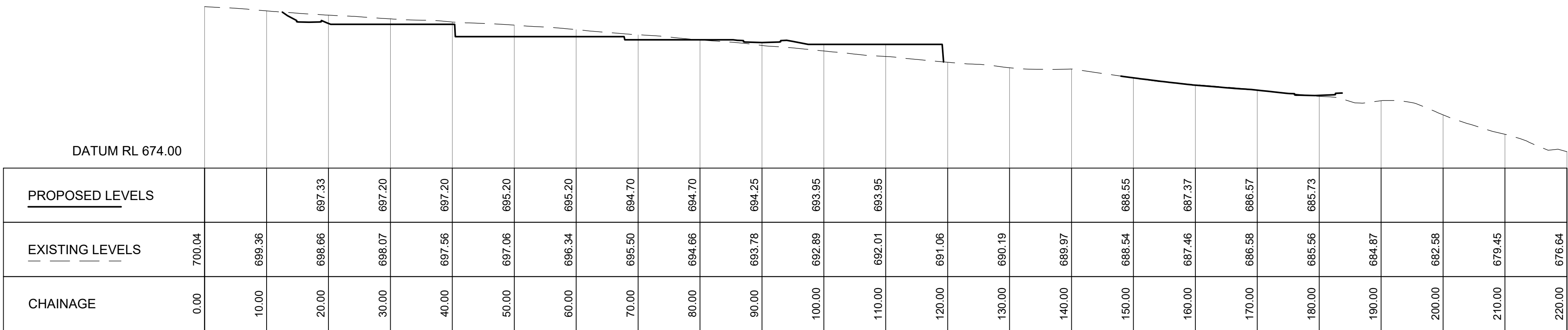
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DRAWING TITLE
CIVIL WORKS
BULK EARTHWORKS
SITE SECTIONS - SHEET 1

SCALE 1:500 @ A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-161	REVISION K	



SITE SECTION 04 LONG SECTION



SITE SECTION 03 LONG SECTION

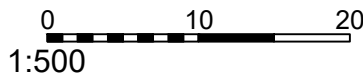
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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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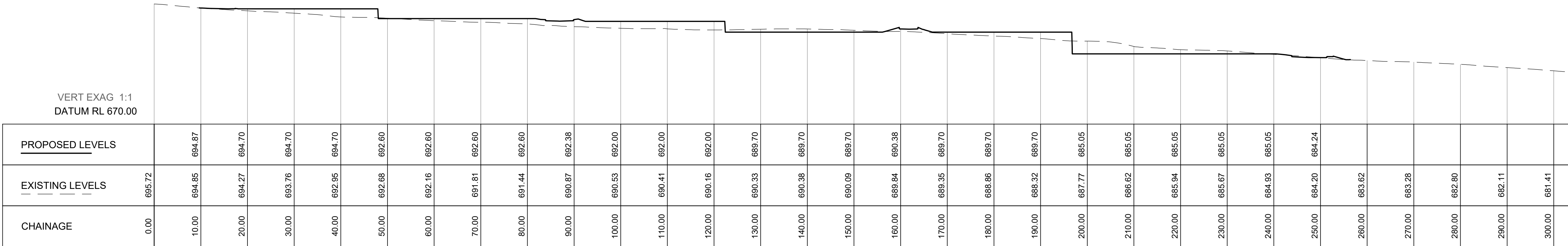
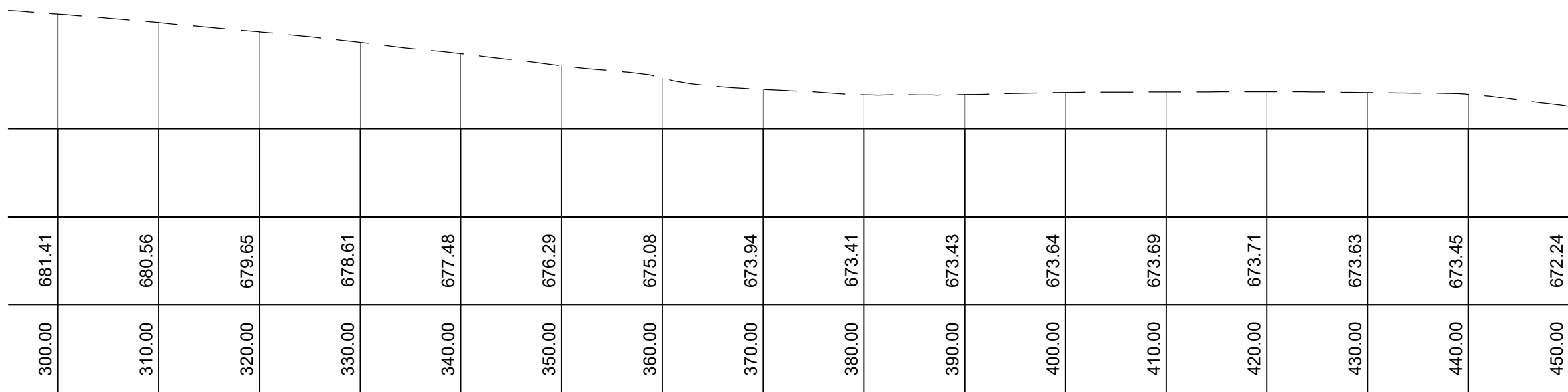


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SITE SECTIONS - SHEET 2

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SITE SECTION 05 LONG SECTION

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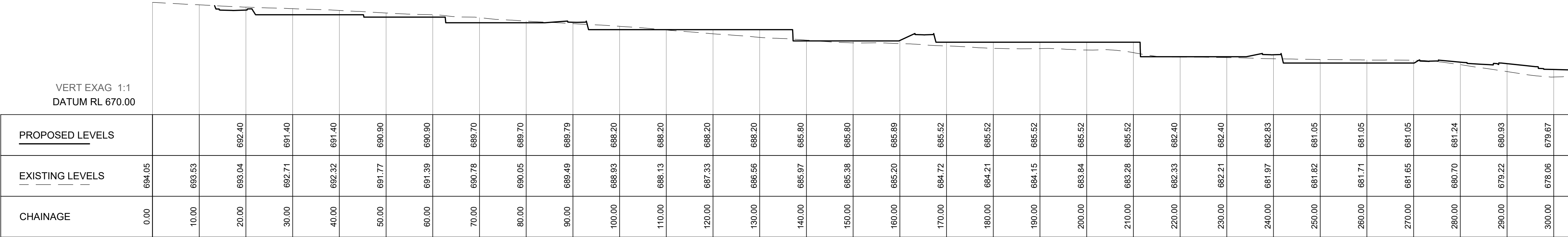
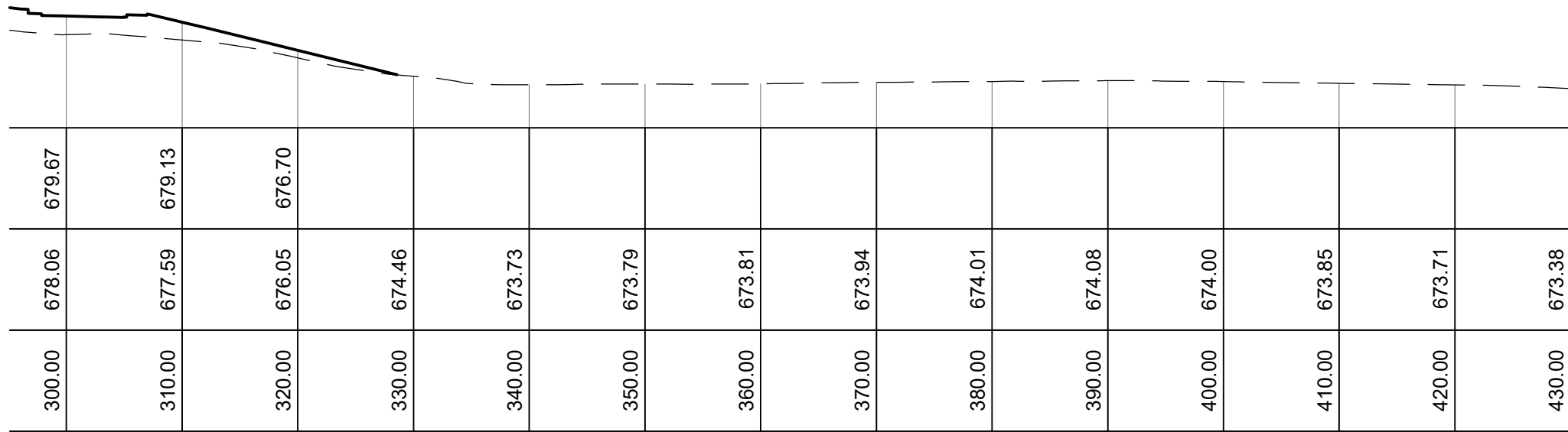
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DRAWING TITLE
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SITE SECTIONS - SHEET 3

SCALE 1:500 @ A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
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SITE SECTION 06 LONG SECTION

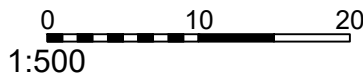
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K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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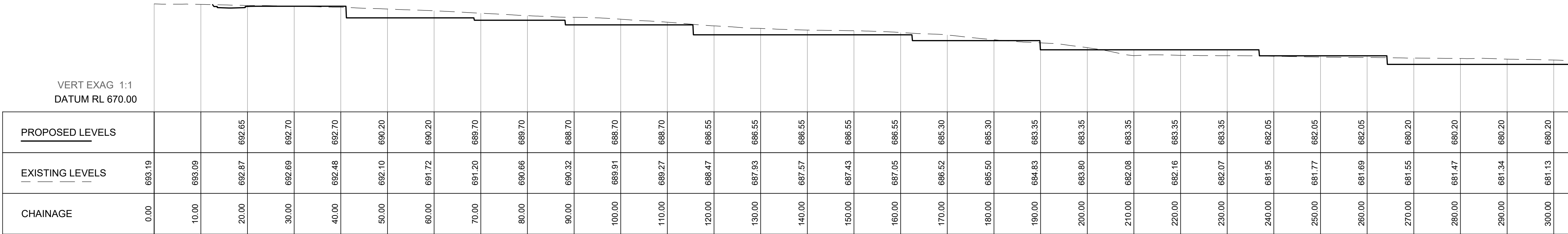
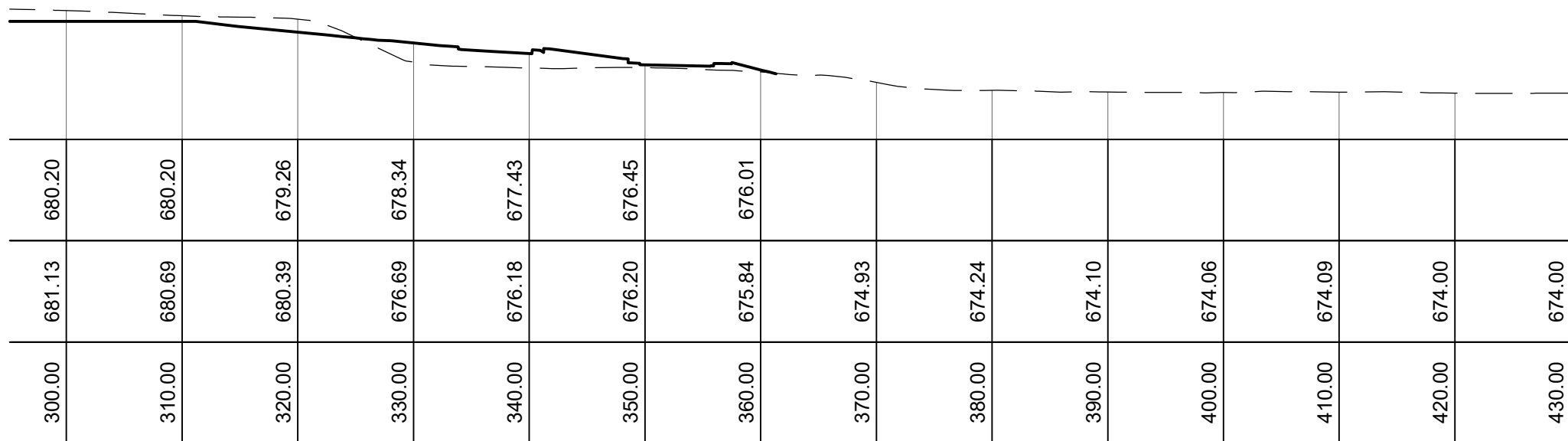


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BULK EARTHWORKS
SITE SECTIONS - SHEET 4

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JOB	DRAWING		REVISION
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SITE SECTION 07 LONG SECTION

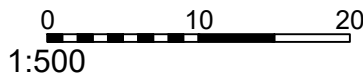
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D	2018.08.02	SECTION 06 - PRELIMINARY ISSUE	TF, LP
E	2018.09.05	DEVELOPMENT APPLICATION - PRELIMINARY ISSUE	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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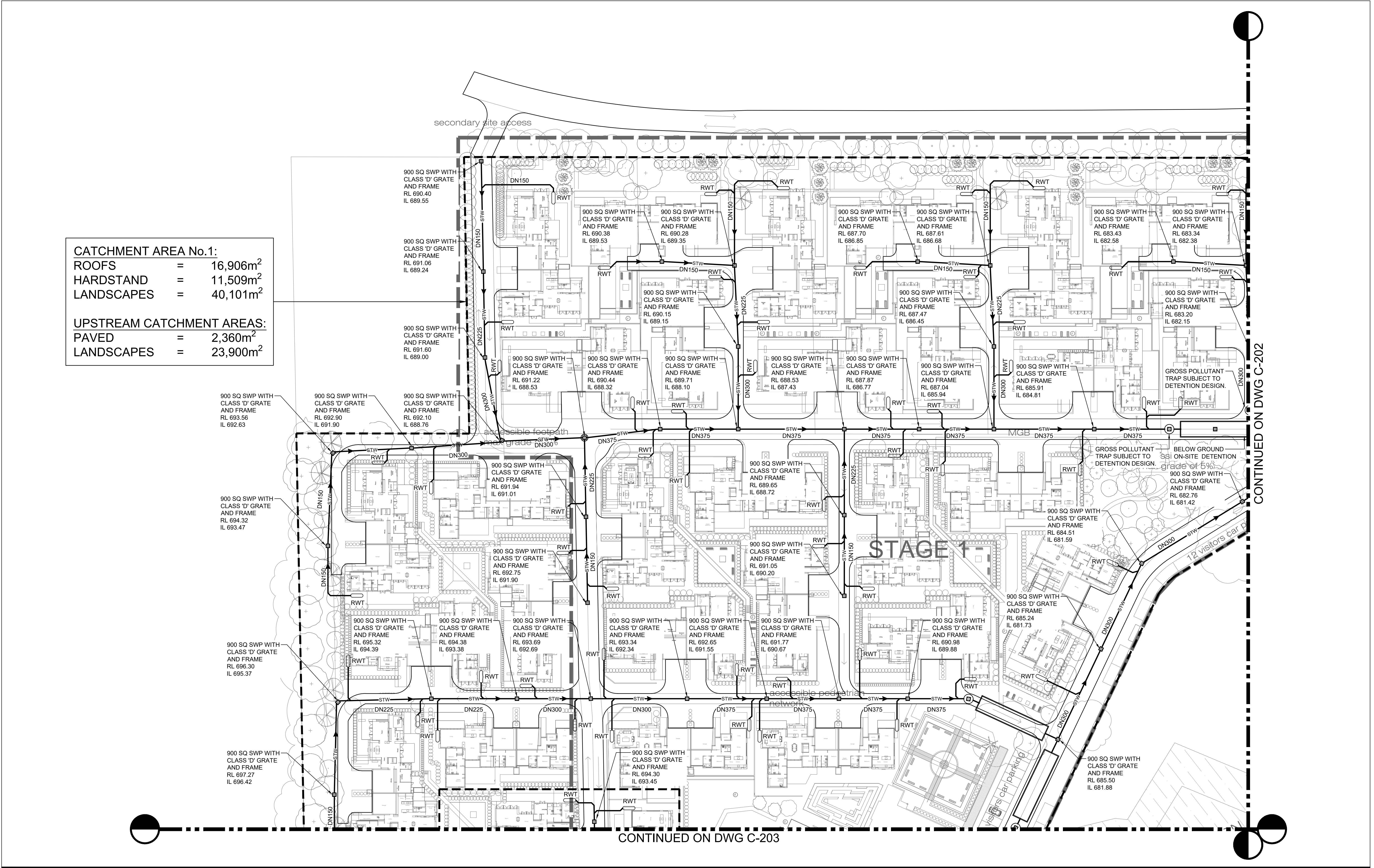


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PROJECT
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DRAWING TITLE
CIVIL WORKS
BULK EARTHWORKS
SITE SECTIONS - SHEET 5

SCALE	DATE	DRAWN	CHECKED
1:500 @ A1	2017.12.14	TF	LP
JOB	DRAWING		REVISION
16104	DA-C-165		K



CATCHMENT AREA No.1:		
ROOFS	=	16,906m ²
HARDSTAND	=	11,509m ²
LANDSCAPES	=	40,101m ²
UPSTREAM CATCHMENT AREAS:		
PAVED	=	2,360m ²
LANDSCAPES	=	23,900m ²

IMPORTANT NOTES:
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REVISION	DATE	DESCRIPTION	BY
A	2017.12.13	ISSUED FOR COORDINATION	TF, LP
B	2017.12.14	ISSUED FOR COORDINATION	TF, LP
C	2017.12.20	ISSUED FOR DEVELOPMENT APPLICATION	TF, LP
D	2018.09.07	DEVELOPMENT APPLICATION ISSUED FOR COORDINATION	TF, LP
H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP

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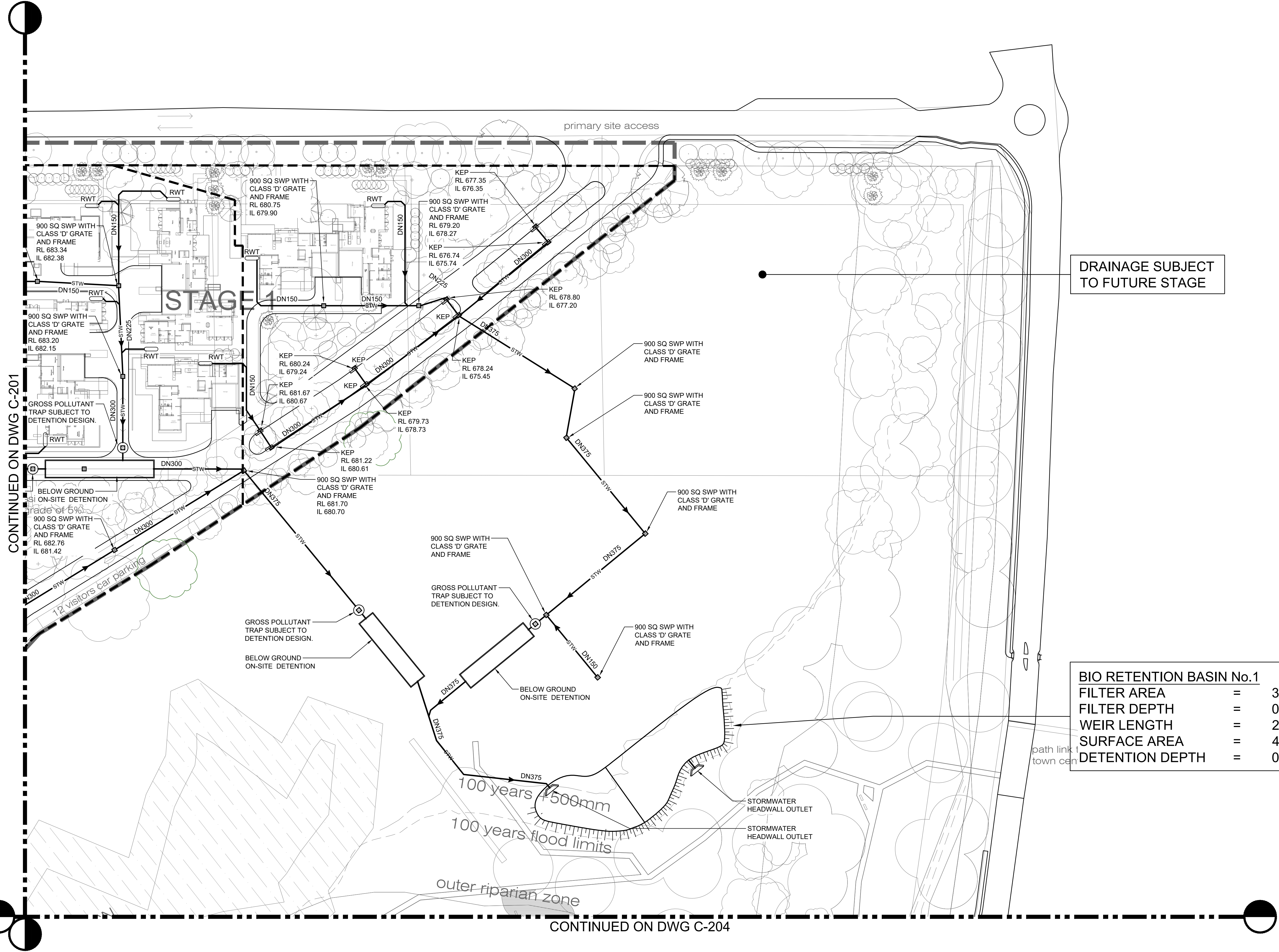
PROJECT

2-18 Centennial Road, Bowral, 2576

DRAWING TITLE

CIVIL WORKS
SITE STORMWATER DRAINAGE PLAN
SHEET 1

SCALE 1:500@A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-201	REVISION K	



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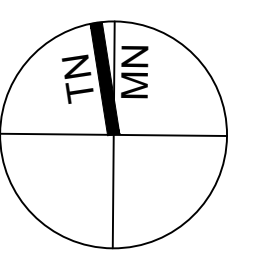
PROJECT
2-18 Centennial Road, Bowral, 2576

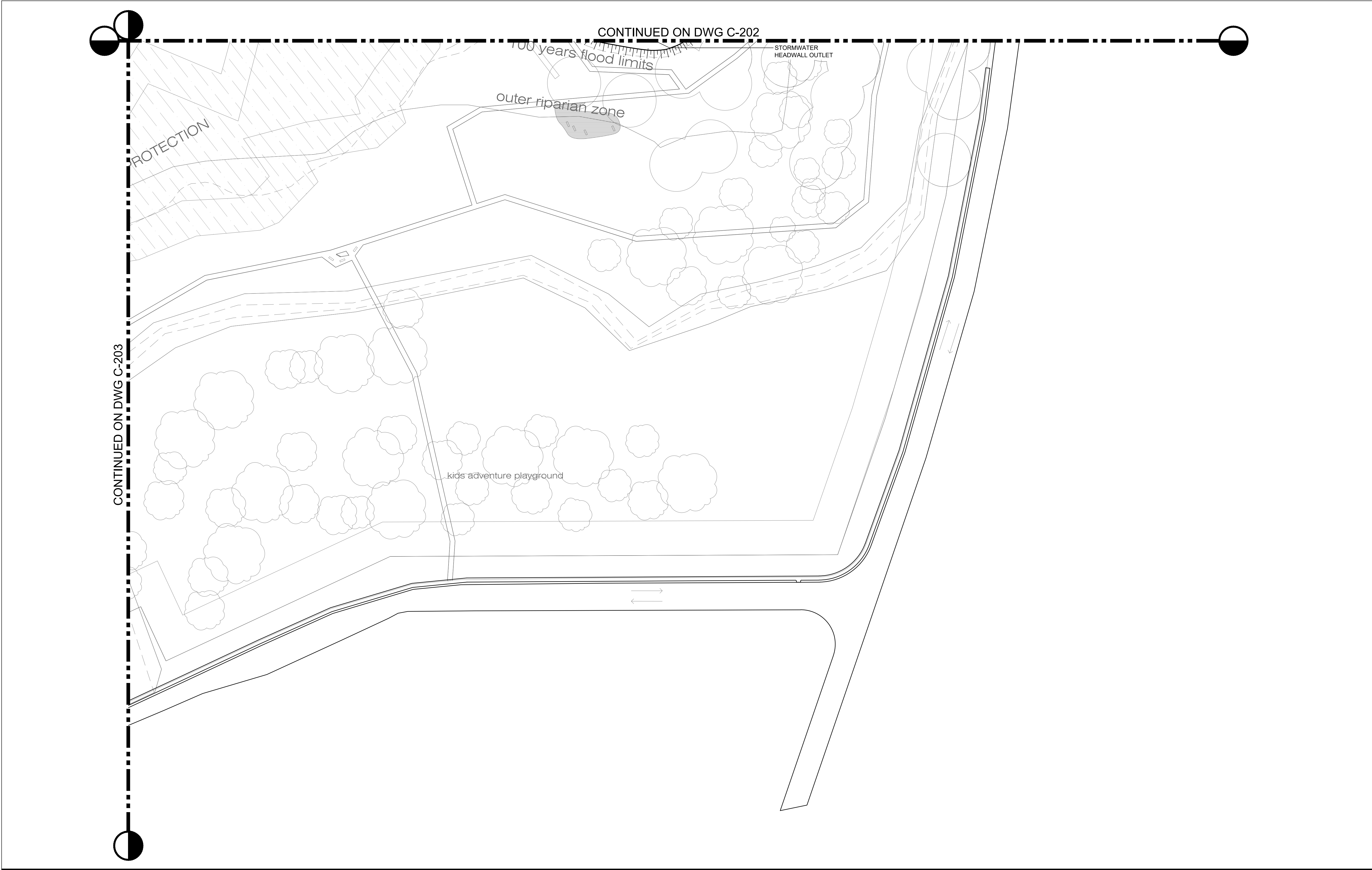
DRAWING TITLE CIVIL WORKS SITE STORMWATER DRAINAGE PLAN SHEET 2			
SCALE	DATE	DRAWN	CHECKED
1:500@A1	2017.12.14	TF	LP
JOB	DRAWING	REVISION	
16104	DA-C-202	K	

CONTINUED ON DWG C-201

CATCHMENT AREA No.3:	
ROOFS	= 4,835m ²
HARDSTAND	= 2,084m ²
LANDSCAPES	= 7,623m ²
UPSTREAM CATCHMENT AREAS:	
PAVED	= 1,770m ²
LANDSCAPES	= 17,890m ²

BIO RETENTION BASIN No.2	
FILTER AREA	= 100m ²
FILTER DEPTH	= 0.5m
WEIR LENGTH	= 2m
SURFACE AREA	= 150m ²
DETENTION DEPTH	= 0.4m

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FOR APPROVAL	H	2018.09.10	DEVELOPMENT APPLICATION ISSUE	TF, LP
	J	2018.09.20	DEVELOPMENT APPLICATION ISSUE	TF, LP
	K	2018.09.27	DEVELOPMENT APPLICATION ISSUE	TF, LP
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 0 10 20 1:500				
CLIENT Waterbrook 43 Bridge St, Hurstville NSW 2220 P +61 2 9199 8775 PROJECT 2-18 Centennial Road, Bowral, 2576				
DRAWING TITLE CIVIL WORKS SITE STORMWATER DRAINAGE PLAN SHEET 3 SCALE 1:500@A1 DATE 2017.12.14 DRAWN TF CHECKED LP JOB 16104 DRAWING DA-C-203 REVISION K				



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DRAWING TITLE CIVIL WORKS SITE STORMWATER DRAINAGE PLAN SHEET 4			
SCALE 1:500@A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-204		REVISION K



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DRAWING TITLE
CIVIL WORKS
BUS BAY DETAIL PLAN

SCALE 1:100 @ A1	DATE 2017.12.14	DRAWN TF	CHECKED LP
JOB 16104	DRAWING DA-C-301		REVISION K