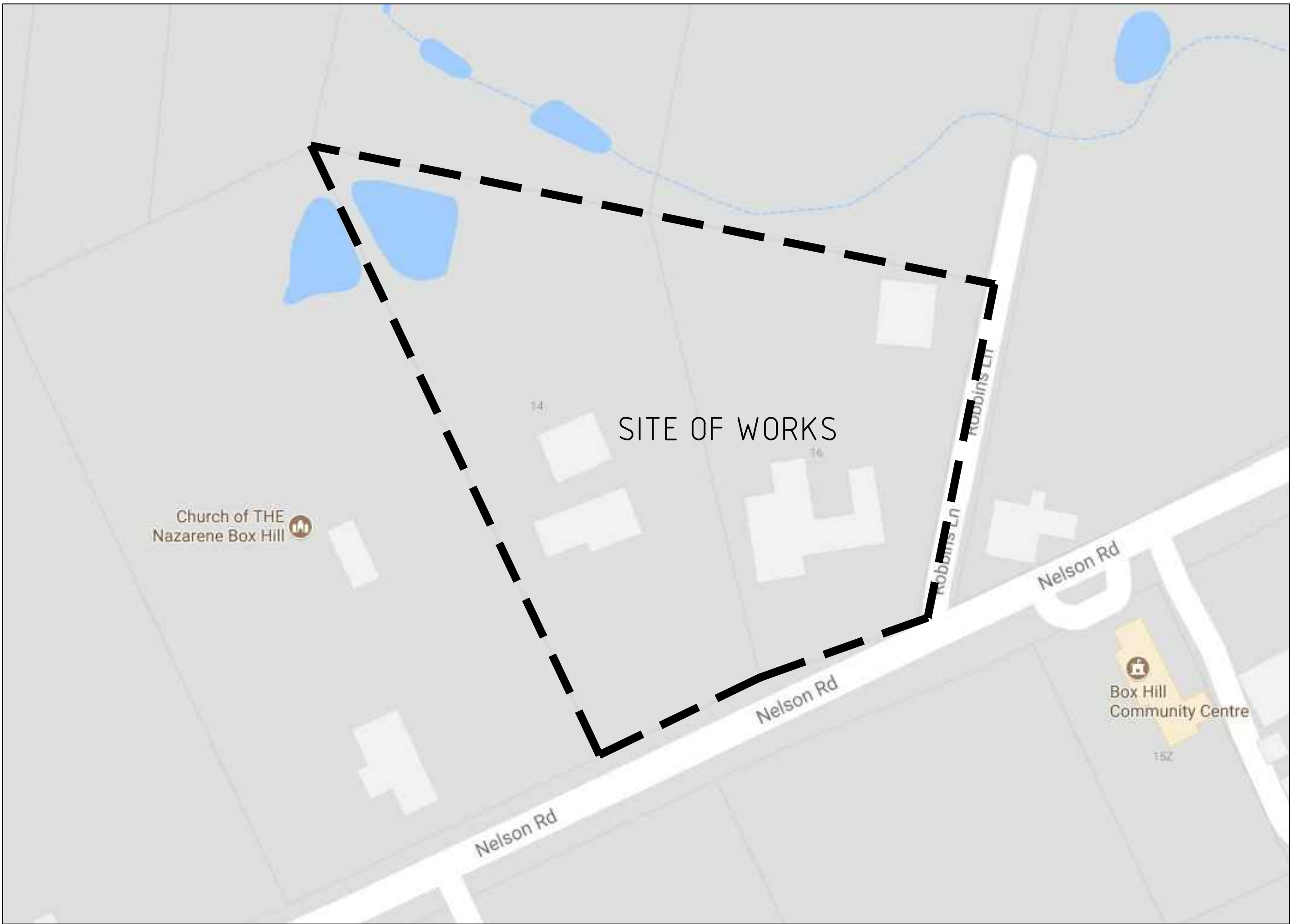


14-16 NELSON ROAD, BOX HILL

PROPOSED SUBDIVISION

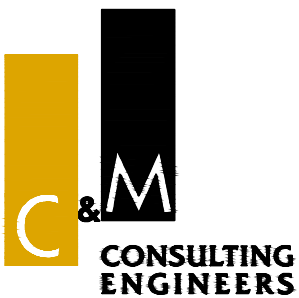
CONCEPT CIVIL ENGINEERING WORKS FOR D.A.

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
01843_100	COVER SHEET, DRAWING INDEX
01843_110	GENERAL NOTES SHEET & LEGEND
01843_201	GENERAL ARRANGEMENT PLAN - SHEET01
01843_202	GENERAL ARRANGEMENT PLAN - SHEET02
01843_231	BULK EARTHWORKS PLAN
01843_301	ROAD LONGITUDINAL SECTIONS - SHEET01
01843_302	ROAD LONGITUDINAL SECTIONS - SHEET02
01843_401	TYPICAL ROAD SECTIONS
01843_601	TEMPORARY DETENTION CATCHMENT PLAN
01843_621	TEMPORARY STORMWATER DETENTION BASIN DETAILS
01843_701	EROSION & SEDIMENT CONTROL PLAN
01843_702	EROSION & SEDIMENT CONTROL DETAILS SHEET



LOCALITY PLAN
NOT TO SCALE

NOT FOR CONSTRUCTION



CIVIL AND HYDRAULIC
ENGINEERING DESIGN AND
PROJECT MANAGEMENT

SUITE 26
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14-16 NELSON ROAD, BOX HILL

CIVIL ENGINEERING DESIGN

LGA	HILLS SHIRE COUNCIL	DA	-
STATUS	DEVELOPMENT APPROVAL	PROJECT No.	PN01843

GENERAL NOTES:

1.

ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE HILLS SHIRE COUNCIL SPECIFICATION.
2.

THE CONSTRUCTOR SHALL PREPARE A DILAPIDATION REPORT FOR THE EXISTING INFRASTRUCTURE WITHIN THE ROAD RESERVE, INCLUDING BUT NOT LIMITED TO KERBS, GUTTERS, FOOTPATHS, VEHICULAR CROSSINGS, STREET SIGNS, SERVICE FITTING COVERS, ETC.
3.

THE CONSTRUCTOR SHALL REVIEW, BE AWARE AND AT ALL TIMES COMPLY WITH THE SPECIFIC REQUIREMENTS FOR THIS DEVELOPMENT AS SET OUT IN THE DEVELOPMENT APPROVAL FOR THE PROJECT.
4.

ANY CHANGES MADE BY THE CONSTRUCTOR TO ANY LEVEL, DIMENSION, LOCATION, POSITION, ALIGNMENT ETC., OF ANY OF THE WORKS SHOWN ON THE DRAWINGS WITHOUT THE WRITTEN CONSENT OF C&M CONSULTING ENGINEERS PTY. LTD. AND OR THE PRINCIPAL CERTIFYING AUTHORITY IS DONE SO AT THE CONSTRUCTORS OWN RISK.
5.

THE CONSTRUCTOR SHALL ALLOW TO LIAISE WITH AND PROVIDE SUFFICIENT NOTICE TO THE PRINCIPAL CERTIFYING AUTHORITY TO ENSURE THAT ALL WORKS ARE INSPECTED TO ENABLE COMPLIANCE CERTIFICATES TO BE ISSUED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONSTRUCTOR SHALL LIAISE WITH THE PRINCIPAL CERTIFYING AUTHORITY PRIOR TO ANY CONSTRUCTION WORKS COMMENCING AND PREPARE AN INSPECTION AND TEST PLAN WITH A MUTUALLY AGREED WITNESS AND HOLD POINTS FOR THE CONSTRUCTION WORKS.
6.

IF THE PRINCIPAL CERTIFYING AUTHORITY IS NOT THE HILLS SHIRE COUNCIL, THEN THE CONSTRUCTOR MUST CONTACT THE HILLS SHIRE COUNCIL'S WORKS DIVISION TO ENABLE THEIR INSPECTION OF ALL WORKS (INCLUDING EROSION AND SEDIMENT CONTROL MEASURES) WITHIN THE ROAD RESERVE AREA.
7.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL ACCESS TO THE SITE. THE ACCESS SHALL BE ALL WEATHER SAFE ACCESS TO THE CONTRACTOR'S SITE FACILITIES AT ALL TIMES FOR THE DURATION OF THE CONTRACT.
8.

A TEMPORARY HOARDING OR FENCE OF MINIMUM 1.5m HIGH IS TO BE PROVIDED AROUND THE SITE TO PROTECT THE PUBLIC PRIOR TO COMMENCEMENT OF WORKS. HOARDINGS OR FENCES ARE TO BE STRUCTURALLY ADEQUATE. THE CONTRACTOR SHALL OBTAIN AN APPROVAL FROM COUNCIL PRIOR TO ERECTING THE HOARDING OR FENCE.
9.

ALL NEW WORKS SHALL MAKE A SMOOTH CONNECTION WITH ANY FORMATIONS, STRUCTURES, ETC.
10.

ALL ALTERATIONS AND/OR ADDITIONS TO EXISTING WORK, THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE EXISTING WORK BEFORE PROCEEDING AND NOTIFY THE SUPERINTENDENT OF DISCREPANCIES.
11.

THE CONTRACTOR SHALL USE MANUFACTURED ITEMS IN THE WORK ONLY IN ACCORDANCE WITH THE CURRENT PUBLISHED RECOMMENDATIONS OF THE MANUFACTURER RELEVANT TO SUCH USE.
12.

THE WORKS SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THERE IS MINIMUM DISTURBANCE TO EXISTING TREES AND VEGETATION.
13.

THE PUBLIC FOOTWAY AND ROADWAY FRONTING THE SITE SHALL BE MAINTAINED IN A SAFE AND UNOBSTRUCTED MANNER AT ALL TIMES DURING THE CONSTRUCTION WORKS.
14.

THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR REPAIRING TO THE SATISFACTION OF THE ASSET OWNER, ANY DAMAGE CAUSED TO ANY EXISTING INFRASTRUCTURE WITHIN THE ROAD RESERVE, INCLUDING BUT NOT LIMITED TO KERBS, GUTTERS, FOOTPATHS, VEHICULAR CROSSINGS, STREET SIGNS, SERVICE FITTING COVERS, ETC.
15.

THE SITE SHALL BE KEPT IN A TIDY CONDITION AT ALL TIMES. LITTER RUBBISH AND BUILDING RUBBLE SHALL BE PLACED IN CONTAINERS OR BINS AND REGULARLY REMOVED FROM SITE AS REQUIRED.

EARTHWORKS NOTES:

1.

THE CONTRACTOR SHALL STRIP THE MATERIAL CLASSIFIED AS TOPSOIL OR MATERIAL CONTAINING ORGANIC MATTER TO A LEVEL APPROVED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER AND THE SUPERINTENDENT. THE STRIPPED TOPSOIL SHOULD BE REMOVED AND STOCKPILED PRIOR TO ANY EARTHWORKS OPERATIONS.
2.

THE MAXIMUM HEIGHT OF TOPSOIL STOCKPILES SHALL NOT EXCEED 2.5M AND THE MAXIMUM BATTER SLOPE SHALL NOT EXCEED 2H : 1V.
3.

ALL EARTHWORKS OPERATIONS SHALL BE CARRIED OUT TO LEVEL 1 SUPERVISION IN ACCORDANCE WITH AS3798 - 2007. THE CONTRACTOR SHALL ISSUE A WRITTEN LETTER FROM THE GEOTECHNICAL CONSULTANT THAT THEY HAVE BEEN ENGAGED ACCORDINGLY AND TAKES FULL RESPONSIBILITY OF THE EARTHWORKS OPERATION.
4.

THE CONTRACTOR SHALL OVER-EXCAVATE TO REMOVE ALL UNACCEPTABLE FILL MATERIAL CONTAINING DELETERIOUS MATERIALS SUCH AS ORGANIC MATTER AND CONSTRUCTION MATERIALS. ALL OVER-EXCAVATED AREAS SHALL BE REPLACED WITH SUITABLE MATERIAL WITH A CBR AT LEAST EQUAL TO THE SPECIFIED SUBGRADE CBR, SOURCED FROM ON SITE, IF AVAILABLE, OR IMPORTED.
5.

WET MATERIAL WILL NOT BE REGARDED AS UNSUITABLE. SHOULD WET MATERIAL BE ENCOUNTERED, THE CONTRACTOR SHALL DRY THE MATERIAL SUFFICIENTLY BY RE-WORKING, OR SPREADING IT TO ALLOW DRYING. ALL ASSOCIATED COSTS SHALL BE BORNE BY THE CONTRACTOR.
6.

ALL EXCESS EARTHWORKS MATERIALS, INCLUDING EXCESS MATERIALS FROM THE STORMWATER AND SERVICE TRENCH EXCAVATIONS SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE BY THE CONTRACTOR AT THE CONTRACTOR'S COST.
7.

ALL BATTER SLOPES SHALL BE A MAXIMUM OF 1V:5H (U.N.O.)
8.

UNLESS NOTED OTHERWISE OR APPROVED ALL FILL MUST BE CONSTITUTED OF VIRGIN EXCAVATED NATURAL MATERIAL (VENM).
9.

THE CONTRACTOR SHALL EXCAVATE AND/OR PLACE AND COMPACT FILL TO CONFORM TO THE LINES, GRADES, CROSS SECTIONS, AND DIMENSIONS SHOWN ON THE DRAWINGS, ALLOWING FOR PAVEMENT/SLAB AND TOPSOIL LAYERS.
10.

FREQUENCIES OF COMPACTION TESTS FOR EARTHWORKS SHALL BE AS FOLLOWS (WHICHEVER IS GREATER NUMBER):
- LARGE SCALE OPERATION (> 1500 m2)

a.

1 TEST PER LAYER PER MATERIAL TYPE PER 2500 m², OR

b.

1 TEST PER 500m³, OR

c.

3 TESTS PER LOT (MATERIAL TYPE AND MOISTURE).
11.

COMPACTION REQUIREMENTS FOR EARTHWORKS SHALL BE AS FOLLOWS:
- a.

GENERAL FILL - 95% OF SMDD
- b.

TOP 500MM UNDER PAVEMENT OR STRUCTURE: 100% OF SMDD
- c.

BACKFILL WITHIN 2M OF STRUCTURES: 100% OF SMDD
12.

MOISTURE CONTENT TO BE IN THE RANGE OF - 2% TO +2% OF THE OPTIMUM MOISTURE CONTENT.
13.

ALL COMPACTION TEST RESULTS SHALL BE PROVIDED TO THE SUPERINTENDENT.
14.

ALL SITE REGRADED AREAS AFTER FORMATION, SHALL BE COVERED WITH A 150MM SELECT TOPSOIL LAYER. TOPSOIL STOCKPILED PRIOR TO EARTHWORKS OPERATIONS CAN BE REUSED FOR THIS PURPOSE PROVIDED ANY DELETERIOUS MATERIAL IS REMOVED PRIOR TO PLACING.
15.

ALL DISTURBED AND DENUDED AREAS SHALL BE REGRADED WITHIN 7 DAYS AFTER THE COMPLETION OF EARTHWORKS FORMATION.

SERVICES NOTES:

1.

IT IS THE CONSTRUCTORS RESPONSIBILITY TO NOTIFY THE RELEVANT SERVICES AUTHORITIES OF THE WORKS AND VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO ANY CONSTRUCTION ACTIVITIES COMMENCING.
2.

THE CONSTRUCTOR SHALL LIAISE AND COORDINATE THE TIMING OF THE CONSTRUCTION OF THE WORKS WITH THE RELEVANT SERVICES AUTHORITIES AND/OR OTHER CONSTRUCTORS INSTALLING SERVICES CONCURRENTLY AT THIS SITE.
3.

THE LOCATION OF ALL EXISTING SERVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY AND HAVE BEEN TAKEN FROM INFORMATION PROVIDED BY THE RELEVANT SERVICE AUTHORITIES.
4.

THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE CAUSED TO EXISTING SERVICES AS A RESULT OF THE CONSTRUCTION WORKS.

STORMWATER NOTES:

1.

STORMWATER DESIGN CRITERIA:
MINOR STORM ARI: 10 YEARS
MAJOR STORM ARI: 100 YEARS
IFD DATA LOCALITY: BOX HILL
2.

PIPES DN375 AND LARGER TO BE STEEL REINFORCED CONCRETE PIPES CLASS '2" APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O.
3.

PIPES DN300 AND SMALLER SHALL BE GRADE SH (SEWER GRADE) uPVC WITH RUBBER RING JOINTS.
4.

EQUIVALENT STRENGTH FIBRE REINFORCED CONCRETE PIPES MAY BE USED UP TO DN450.
5.

PIPES FOR SUB-SOIL DRAINS SHALL BE SLOTTED 100MM DIAMETER CLASS 1000 WRAPPED IN GEOFABRIC, U.O.N, COMPLYING WITH THE REQUIREMENTS OF AS 2439.
6.

PRECAST PITS, WHERE ALLOWED, AND THE INSITU BASE SHALL COMPLY WITH THE REQUIREMENT OF THE MANUFACTURER.
7.

PROVIDE STEP IRONS FOR PITS DEEPER THAN 1.2m.
8.

COMPRESSIVE STRENGTH FOR CAST IN-SITU PITS SHALL BE 25MPa UNLESS NOTED OTHERWISE.
9.

ALL PITS SHALL BE BENCHED AND FLOW STREAMLINED.
10.

ALL MILD STEEL FIXTURES INCLUDING GRATES, FRAMES, STEP IRONS, LADDERS, ETC., SHALL BE HOT DIP GALVANISED. GALVANISING SHALL COMPLY WITH THE REQUIREMENTS OF AS 1214 OR AS 1650, AS APPROPRIATE.
11.

GEOFABRIC FILTER SHALL BE PERMEABLE, NON-WOVEN FABRIC MANUFACTURED FROM A POLYMER SUCH AS POLYPROPYLENE OR POLYESTER OF MASS NOT LESS THAN 135G/M2.
12.

THE MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:
CONCRETE AND FRC PIPES: EXTERNAL PIPE DIAMETER PLUS 400MM.
uPVC PIPE: EXTERNAL DIAMETER OF PIPE PLUS 200MM.
SUBSOIL PIPE: 250MM.
13.

ALL PIPES SHALL BE PLACED CENTRALLY WITHIN THE TRENCH WITH EQUAL CLEARANCE EACH SIDE.
14.

100mm DIA. SUBSOIL DRAINAGE PIPE 3m LONG WRAPPED IN FILTER SOCK TO BE PROVIDED IN PIPE TRENCHES UPSTREAM OF ALL PITS.
15.

PIPE BEDDING MATERIAL SHALL BE CLEAN COARSE RIVER SAND WITH DEPTH AS FOLLOWS:
CONCRETE AND FRC PIPES: 100MM (175MM IN ROCK)
uPVC PIPE: 75MM (100MM IN ROCK)
SUBSOIL DRAINS: 50MM
16.

ALL PIPES SHALL BE BACKFILLED WITH GRANULAR MATERIAL SUCH AS QUARRY FINES OR COARSE RIVER SAND TO A MINIMUM OF 150MM ABOVE THE PIPE. THE GRANULAR MATERIAL SHALL BE PLACED IN 150MM THICK MAXIMUM LAYERS AND COMPACTED TO ACHIEVE A DENSITY INDEX (DI) OF 70%. FREQUENCIES OF COMPACTION TESTS FOR TRENCHES SHALL BE 1 TEST PER 2 LAYERS PER 40 LINEAR METRE.
17.

BACKFILL THE REMAINDER OF THE TRENCH ABOVE THE SAND TO SUBGRADE LEVEL WITH TRENCH MATERIAL. PLACE AND COMPACT MATERIALS IN LAYERS NOT EXCEEDING 150MM LOOSE THICKNESS. MATERIAL LOWER THAN 500MM BELOW SUBGRADE LEVEL SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD MAXIMUM DRY DENSITY. THE TOP 500MM BELOW PAVEMENT SUBGRADE LEVELS SHALL BE COMPACTED TO AT LEAST 100% STANDARD MAXIMUM DRY DENSITY.
18.

FILTER MATERIAL FOR SUBSOIL SHALL BE COARSE SAND OR CRUSHED STONE COMPLYING WITH ONE OF THE GRADINGS IN THE TABLE BELOW, WHERE NOTED ON THE DRAWINGS THE 7MM CRUSHED ROCK FILTER MATERIAL SHALL BE ENCLOSED WITHIN FILTER FABRIC SHEET AS SPECIFIED. FILTER MATERIAL SHALL BE PLACED IN 250MM LAYERS AND COMPACTED TO DENSITY INDEX (DI) OF 60%.
- AS SIEVE

SIZE (mm)

SAND

7mm ROCK
- 9.5

100

100
- 6.7

-

75-100
- 4.75

90-100

20-55
- 2.36

75-100

0-15
- 1.18

50-90
- 0.6

20-60
- 0.3

10-30
- 0.15

2-10
- 0.075

0-3

0-2
19.

UNLESS OTHERWISE DETAILED OR PERMITTED, THE MINIMUM GRADE OF ALL PIPE WORKS SHALL BE 10%.
20.

PRIOR TO ISSUE OF PRACTICAL COMPLETION THE CONTRACTOR SHALL CARRY OUT CCTV SURVEY OF ALL PIPES AND SUBMIT DVD AND WRITTEN REPORT THAT ALL PIPES ARE FREE OF DEFECTS LAID TO THE SPECIFICATION.

ENVIRONMENTAL CONTROL NOTES:

TREES CONTROL

1.

COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE IS TO BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL. THIS INCLUDES DAMAGE TO TREE ROOT SYSTEMS.
2.

TREES TO BE RETAINED MUST BE FENCED OFF.
3.

ALL AREAS LEFT UNDISTURBED TO BE FENCED OFF FROM CONSTRUCTION WORKS.

EROSION AND SEDIMENT CONTROL

1.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, THE RELEVANT STATE AUTHORITIES AND THE SUPERINTENDENT. TO THIS END, THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.
2.

NO CONSTRUCTION WORKS ARE TO COMMENCE ON SITE UNTIL ALL EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE AND HAVE BEEN INSPECTED AND APPROVED BY THE COUNCIL ENGINEER AND/OR SUPERINTENDENT.
3.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REGULARLY INSPECTED, IN PARTICULAR AFTER STORMS, AND REPAIRED OR MAINTAINED AS REQUIRED TO ENSURE THE MEASURES CORRECT AND EFFICIENT FUNCTION THROUGHOUT THE DURATION OF THE WORKS, UNTIL SUCH TIME AS THE COUNCIL ENGINEER AND/OR SUPERINTENDENT AUTHORISES THE REMOVAL OF SUCH MEASURES.
4.

ALL STOCKPILES SHALL BE CLEAR OF ALL TREES AND DRAINAGE LINES (INCLUDING OVERLAND FLOW PATHS) AND PROTECTED FROM EROSION.
5.

N THE CASE OF THE TEMPORARY CONSTRUCTION EXIT, THE CONTRACTOR SHALL UNDERTAKE WEEKLY SURFACE CLEANING BY DRAG BROOM OR EQUIVALENT, TO REMOVE ALL BUILD UP OF FOREIGN MATERIAL TO THE SATISFACTION OF THE SUPERINTENDENT.

TRAFFIC CONTROLS

1.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF TRAFFICS INCLUDING VEHICLES AND PEDESTRIANS TO THE SATISFACTION OF COUNCIL, THE RELEVANT STATE AUTHORITIES AND THE SUPERINTENDENT.
2.

THE CONTRACTOR IS TO PREPARE A TRAFFIC MANAGEMENT PLAN TO THE REQUIREMENTS OF THE RMS - TRAFFIC CONTROL AT WORK SITE, AS 1742 - AUSTRALIAN STANDARD MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND LOCAL COUNCIL STANDARDS.

OTHER ENVIRONMENTAL CONTROLS

1.

OTHER ENVIRONMENTAL CONTROLS LIKE NOISE, DUST, VIBRATION, FLORA & FAUNA, FIRE, HAZMAT, AND CONTAMINATIONS MUST BE CONTROLLED TO THE REQUIREMENT OF THE COUNCIL AND THE RELEVANT STATE AUTHORITIES.

KERBING NOTES:

1.

ALL KERBS, GUTTERS, EDGE STRIPS, LAYBACKS AND CROSSINGS TO BE BUILT ON A MINIMUM OF 100mm THICK SUBBASE. THE SUBBASE SHALL BE EXTENDED 150mm BEHIND BACK OF KERB.
2.

CONCRETE SHALL BE OF 25MPa COMPRESSIVE STRENGTH (F'c) AT 28 DAYS UNLESS LOTED OTHERWISE IN CONCRETE NOTES.
3.

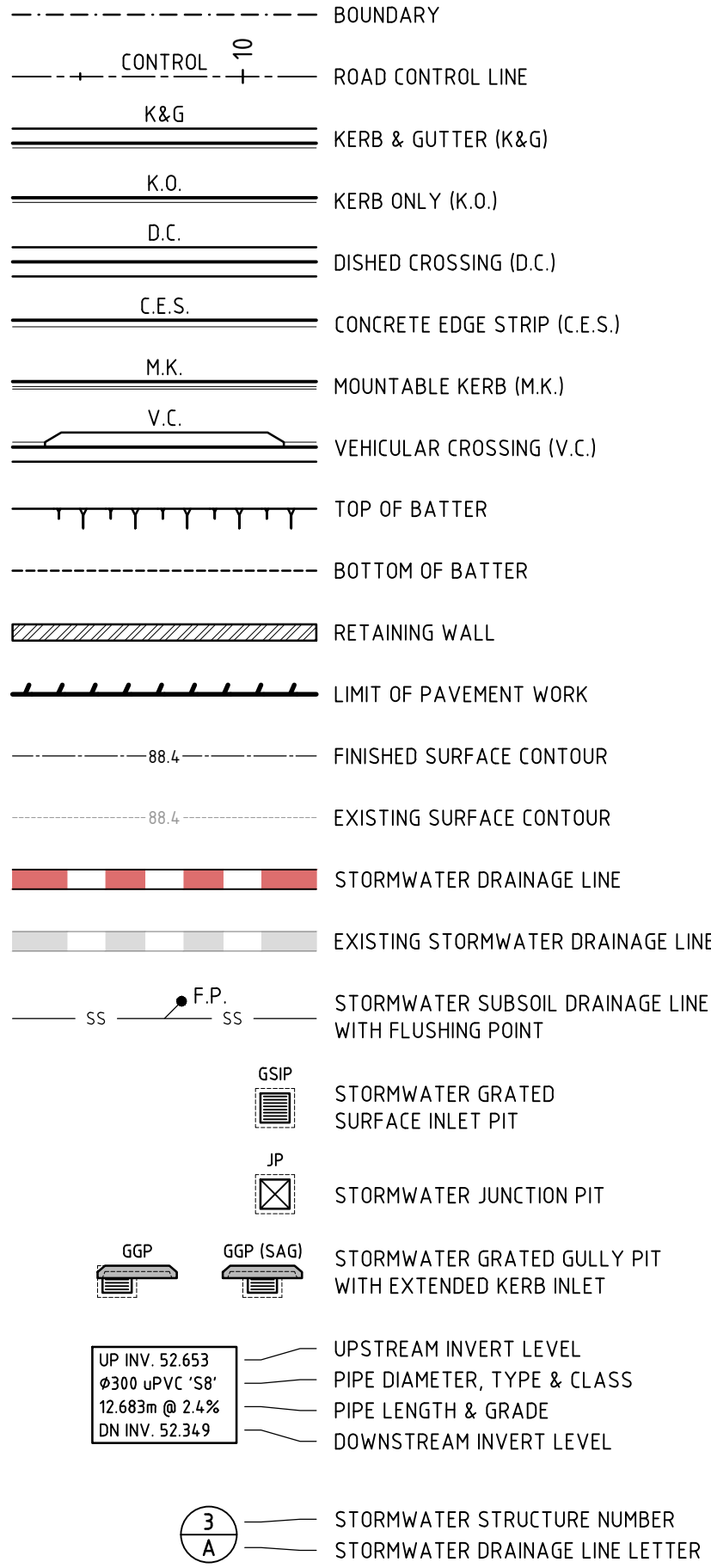
EXPANSION JOINTS OF APPROVED BITUMEN IMPREGNATED JOINTING MATERIAL OR EQUIVALENT SHALL BE PLACED AT 12m INTERVALS, AT JUNCTIONS WITH EXISTING WORK, KERB TRANSITIONS AND ADJACENT TO GULLY PITS. WEAKENED PLANE JOINTS (DUMMY JOINTS) SHALL BE CUT AT 3m INTERVALS.
4.

FOR INTEGRAL KERB, ALL JOINTS SHOULD MATCH THE SLAB JOINTS.
5.

ALL KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISH.
6.

ALL RAMPED CROSSINGS TO BE BROOMED FINISH.

LEGEND



- ✱RL91.86

FINISHED SURFACE LEVEL
- ✱GRL91.86

FINISHED STORMWATER PIT
LID/GRATE LEVEL
- ✱TOW84.20
BOW84.00

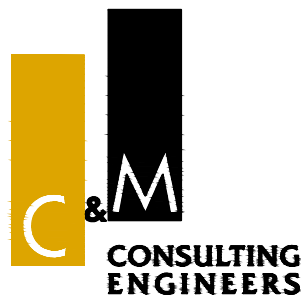
TOP OF WALL LEVEL
BOTTOM OF WALL LEVEL

NOT FOR CONSTRUCTION

02	BK	31/10/18	ES	REVISED DA
01	BK	03/10/17	AM	ISSUE FOR DEVELOPMENT APPROVAL
REV.	DES.	DATE	VER.	DESCRIPTION

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PROJECT VERIFIER'S SIGNATURE:	DATE:
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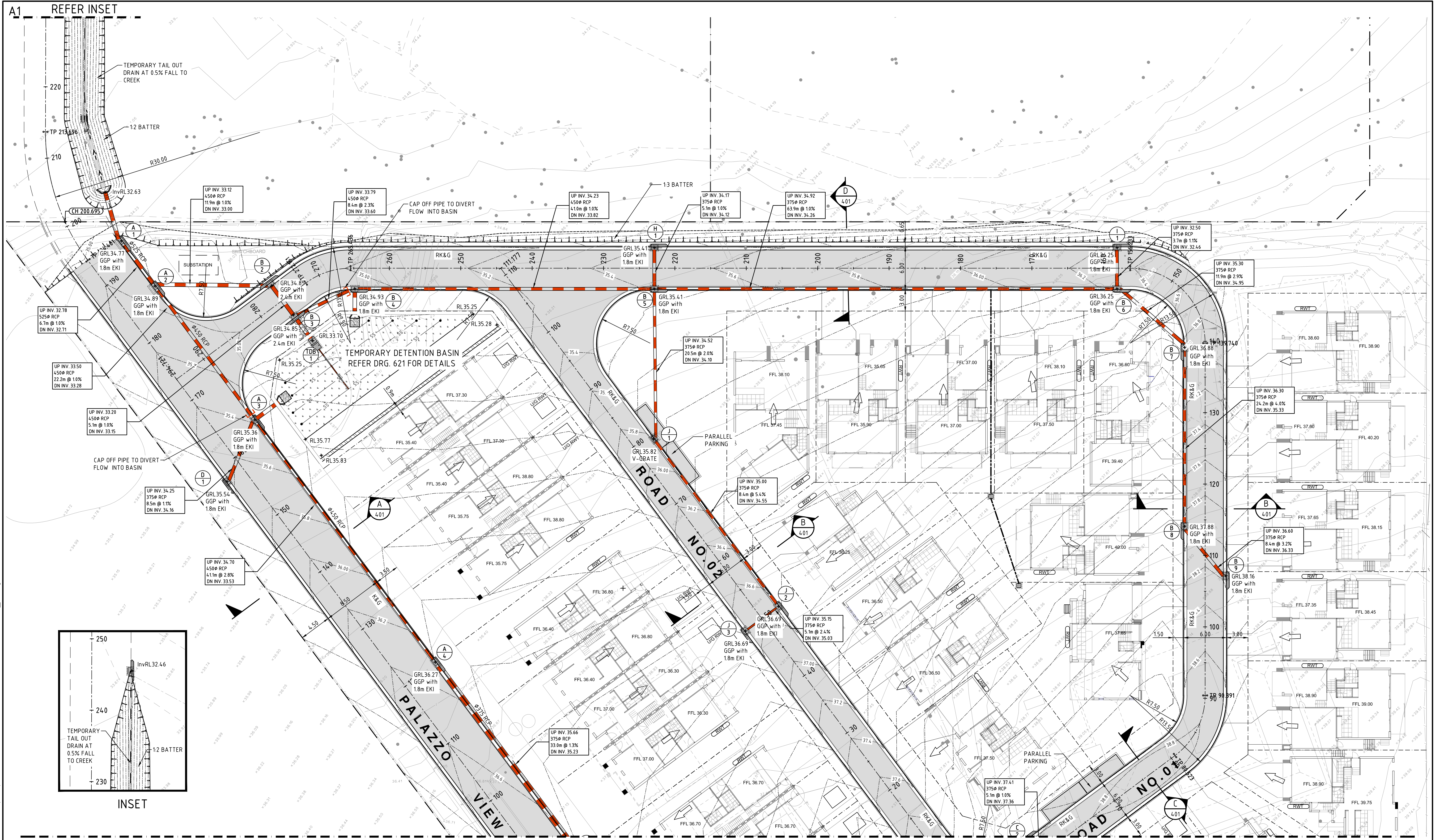
CIVIL AND HYDRAULIC
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DESIGNER	B.KIM	DATE	03/10/2017
ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL
VERIFIER	A.MANCONE	SCALE @ A1	N/A
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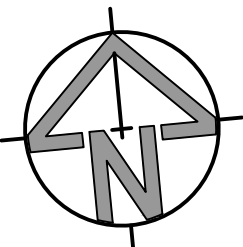
14-16 NELSON ROAD, BOX HILL			
GENERAL NOTES SHEET			
STATUS	DEVELOPMENT APPLICATION	DRAWING No.	01843__110
		REVISION	02



FOR CONTINUATION REFER DRG_202

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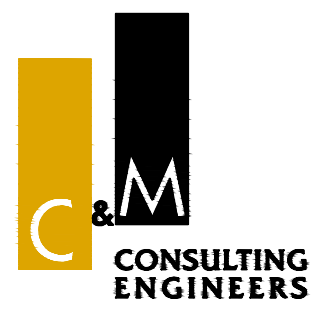
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03	BK	07/12/17	AM	REVISED DESIGN
02	BK	10/10/17	AM	REVISED BALUSTER ST DESIGN
01	BK	03/10/17	AM	ISSUE FOR DEVELOPMENT APPROVAL
REV.	DES.	DATE	VER.	DESCRIPTION



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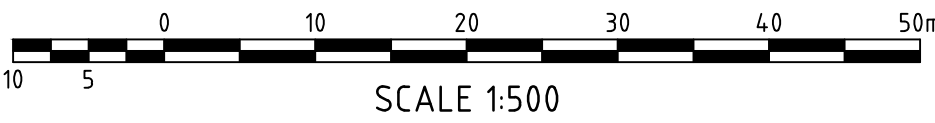
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DESIGNER	B.KIM	DATE	03/10/2017
ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL
VERIFIER	A.MANCONE	SCALE @ A1	1:250
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14-16 NELSON ROAD, BOX HILL	
GENERAL ARRANGEMENT PLAN - SHEET01	
STATUS	DEVELOPMENT APPLICATION
DRAWING No.	01843_201
REVISION	05



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Levels Table				
No.	From Depth	To Depth	Colour	Depth Range Volume
1	-3.000	-2.500		2m ³
2	-2.500	-2.000		16m ³
3	-2.000	-1.500		77m ³
4	-1.500	-1.000		242m ³
5	-1.000	-0.500		621m ³
6	-0.500	0.000		3764m ³
7	0.000	0.500		438m ³
8	0.500	1.000		13m ³

CUT

FILL

PRELIMINARY CUT VOLUME = 4,722m³

PRELIMINARY FILL VOLUME = 451m³

PRELIMINARY NET VOLUME = 4,271m³
(CUT REQUIRED)

EARTHWORKS NOTES:

- PRELIMINARY BULK EARTHWORKS VOLUMES ARE BASED ON:
- NO STRIPPING OF EXISTING PRIOR TO EARTHWORKS.
 - NO BOXING OF PAVEMENT BELOW FINISHED SURFACE LEVELS
 - EARTHWORKS QUANTITY DOES NOT INCLUDE ALLOWANCES FOR EXCAVATION OF FOOTINGS.
 - EARTHWORKS QUANTITY DOES NOT INCLUDE ALLOWANCES FOR STORMWATER, SEWER & SERVICE TRENCHING.

EARTHWORKS QUANTITIES ARE FOR INFORMATION ONLY AND DO NOT FORM PART OF THE CONTRACT

CUT FILL CONTOUR LEGEND

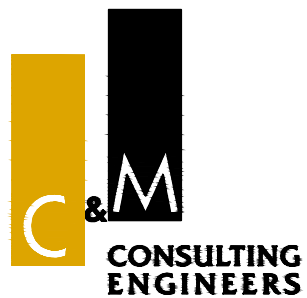
- 0.50 ----- DEPTH CONTOUR (FILL)
- -0.50 ----- DEPTH CONTOUR (CUT)

REV.	DES.	DATE	VER.	DESCRIPTION
02	BK	30/09/18	E.S.	REVISED LAYOUT
01	BK	06/07/17	AM	ISSUE FOR DEVELOPMENT APPROVAL

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BAULKHAM HILLS NSW 2153

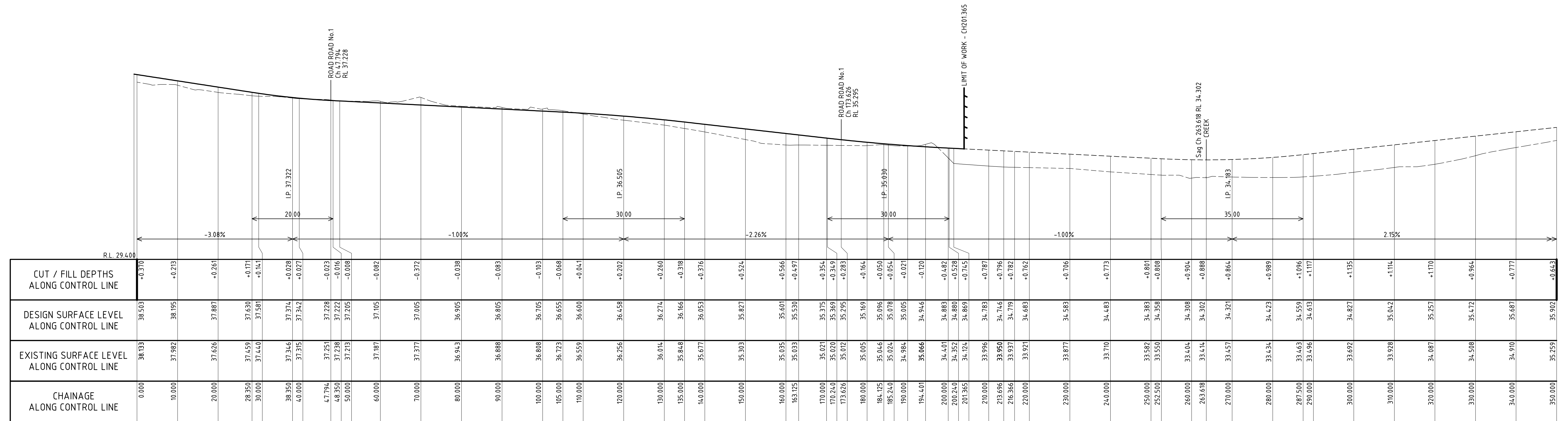
PHONE: (02) 9680 3100
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ABN 21 118 134 240

DESIGNER	B.KIM	DATE	03/10/2017
ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL
VERIFIER	A.MANCONE	SCALE @ A1	1:500
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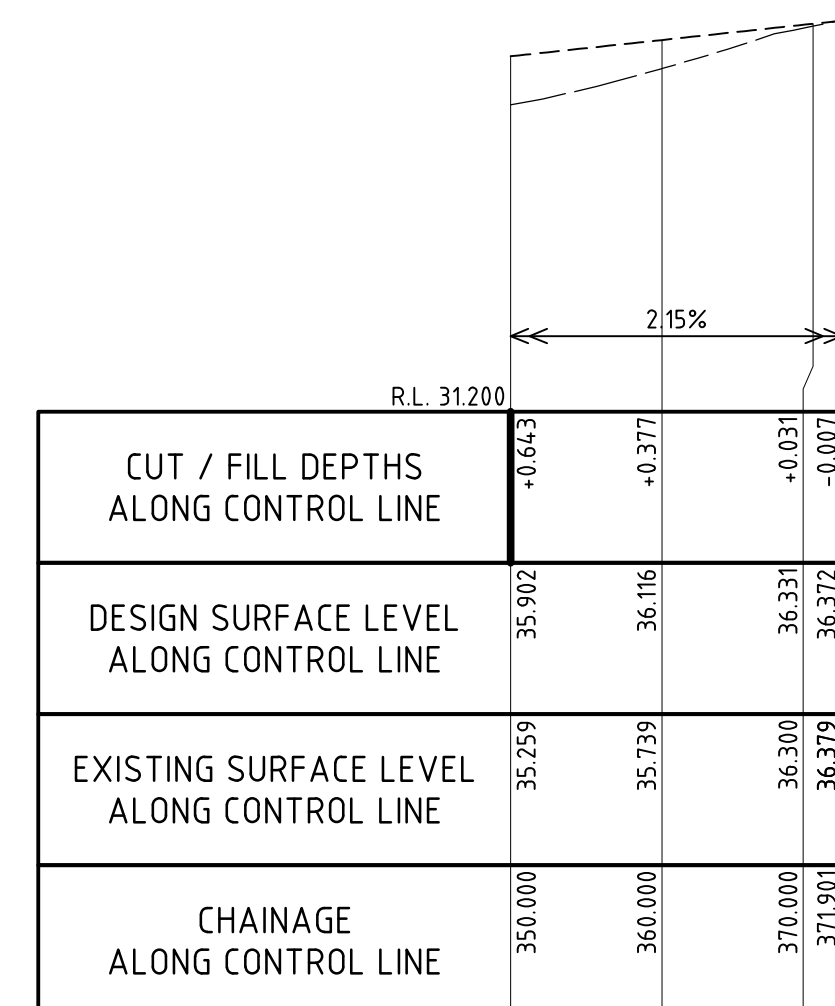
14-16 NELSON ROAD, BOX HILL

BULK EARTHWORKS PLAN

STATUS DEVELOPMENT APPLICATION DRAWING No. 01843__231 REVISION 02

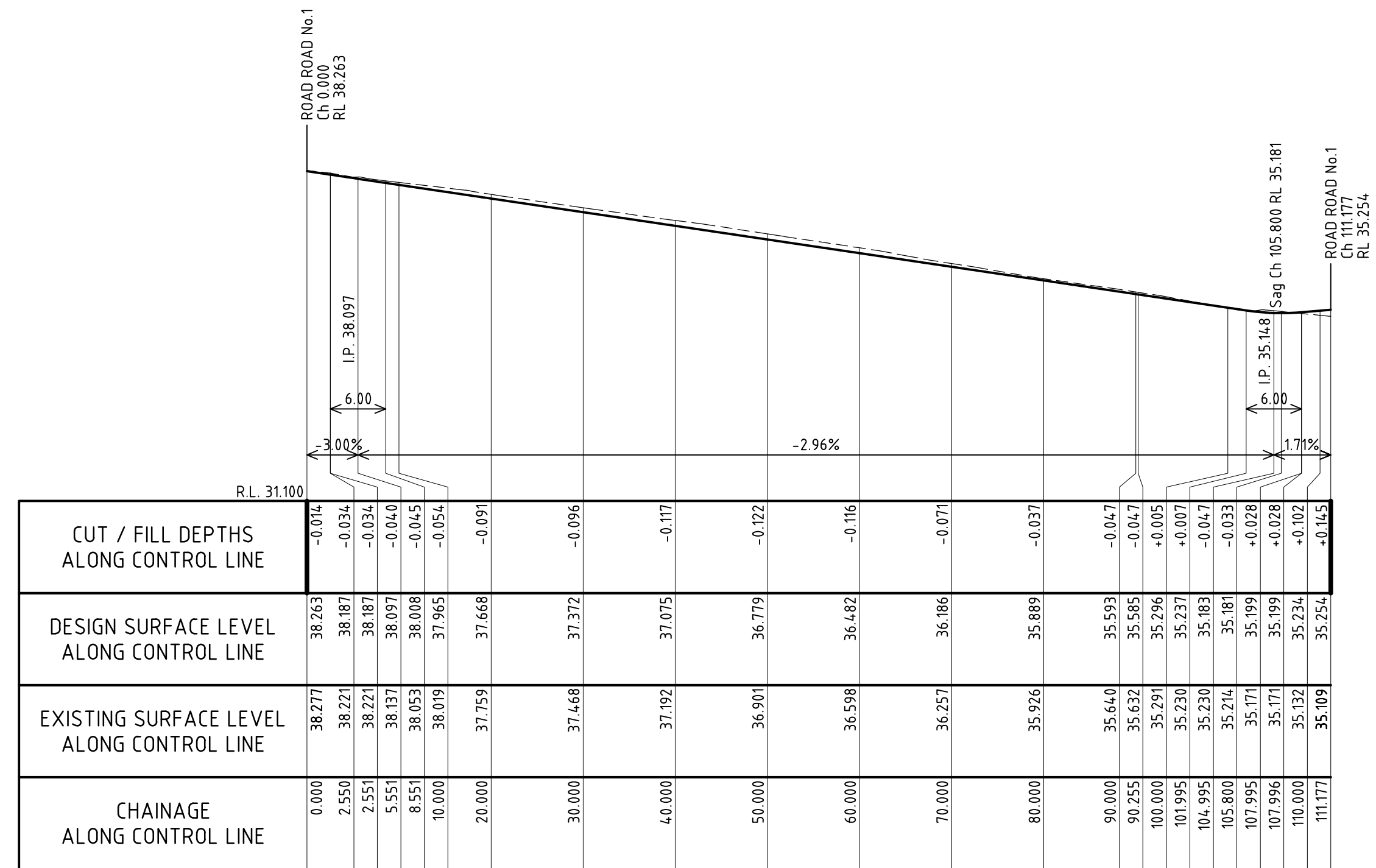


LONGITUDINAL SECTION ALONG CL-PALAZZO VIEW
1:500 (H) & 1:100 (V)



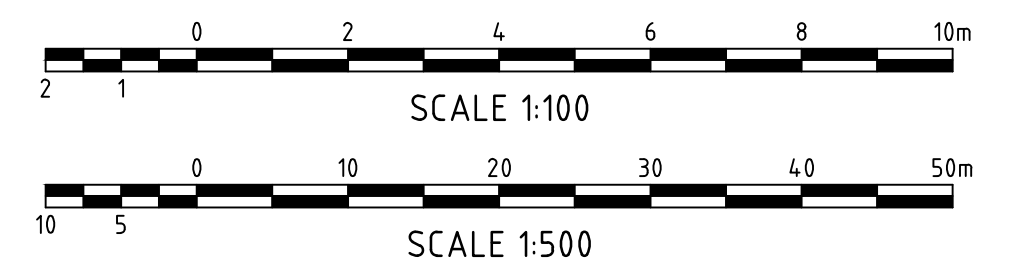
LONGITUDINAL SECTION ALONG CL-PALAZZO VIEW
1:500 (H) & 1:100 (V)

					THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW PROJECT VERIFIER'S SIGNATURE:
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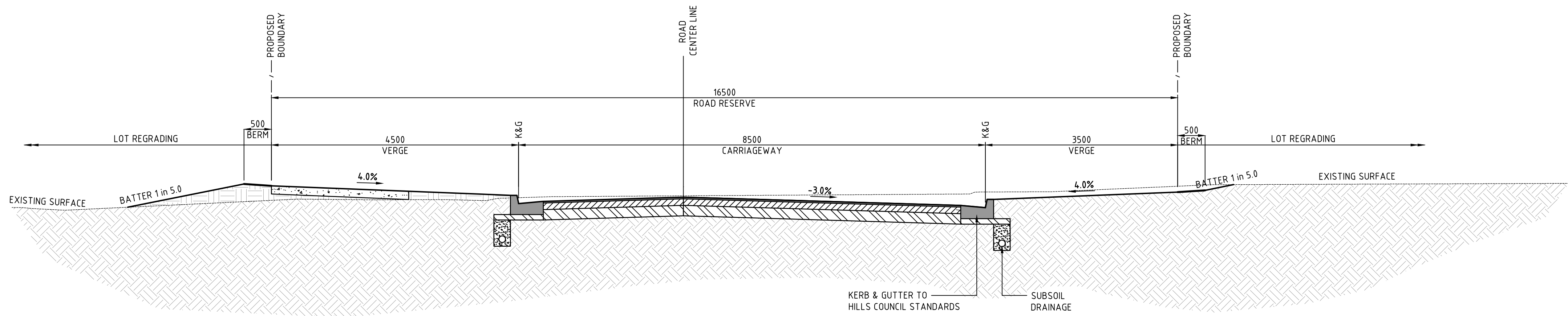


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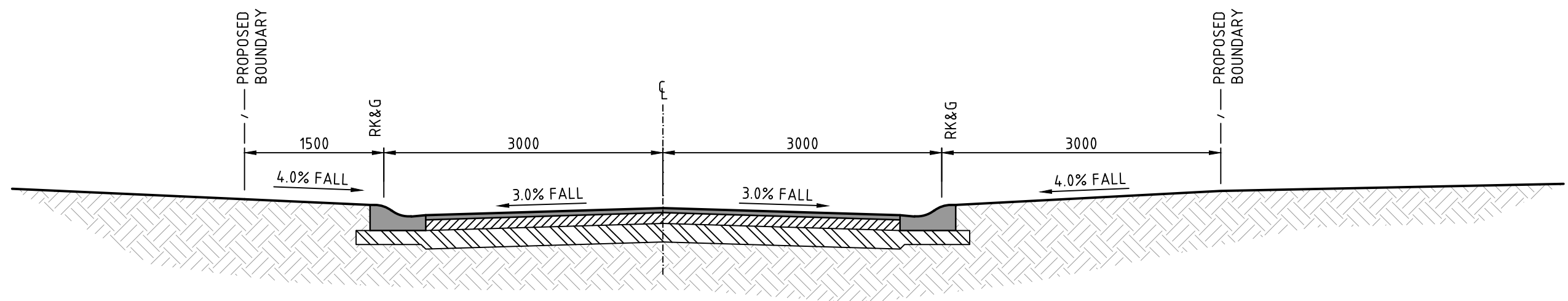
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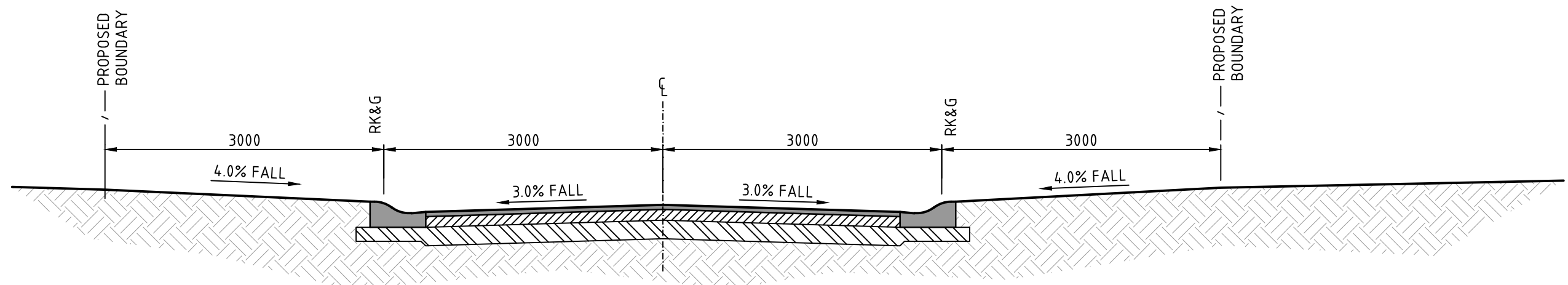
						THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW	CLIENT	 CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT SUITE 26 11 - 13 BROOKSHOLLOW AVE BAULKHAM HILLS NSW 2153 PHONE: (02) 9680 3100 FAX: (02) 9634 6989 ABN 21 118 134 240	DESIGNER	B.KIM	DATE	03/10/2017	14-16 NELSON ROAD, BOX HILL							
									PROJECT VERIFIER'S SIGNATURE:	DATE:		ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL	ROAD LONGITUDINAL SECTIONS - SHEET 02				
03	TT	13/06/19	ES	REVISED DA								VERIFIER	A.MANCONE	SCALE @ A1	1:250 (H), 1:50 (V)					
02	BK	31/10/18	ES	REVISED DA								© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.			STATUS	DEVELOPMENT APPLICATION	DRAWING No.	01843_302	REVISION	03
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REV.	DES.	DATE	VER.	DESCRIPTION																



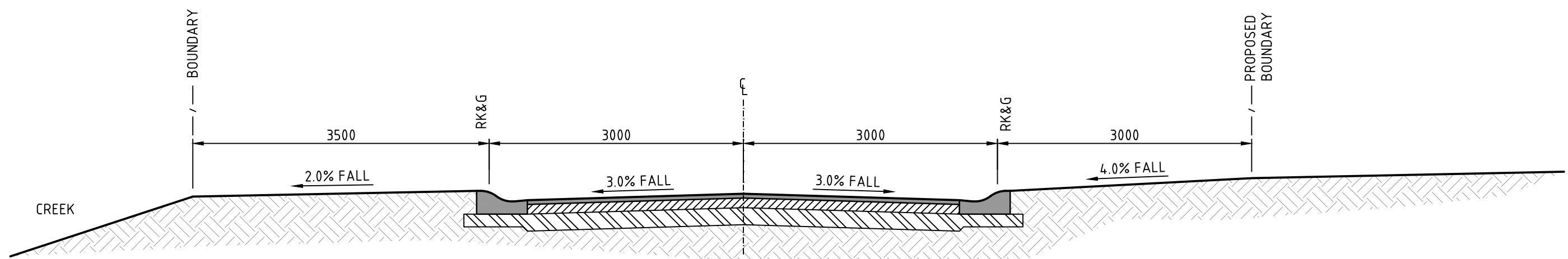
SECTION A PALAZZO VIEW
SCALE 1:50



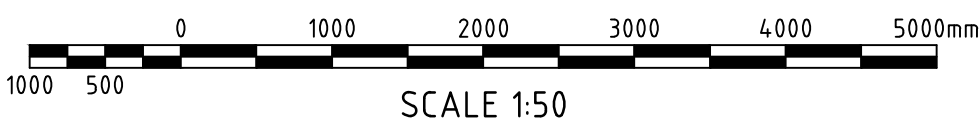
SECTION B INTERNAL ACCESS ROAD
SCALE 1:50



SECTION C INTERNAL ACCESS ROAD
SCALE 1:50



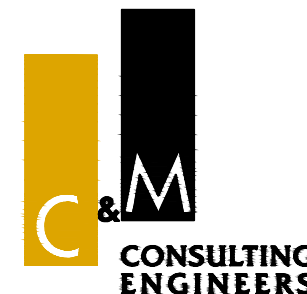
SECTION D INTERNAL ACCESS ROAD
SCALE 1:50



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					PROJECT VERIFIER'S SIGNATURE: DATE:						ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL	TYPICAL ROAD SECTIONS				
											VERIFIER	A.MANCONE	SCALE @ A1	1:50					
											© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.								
03	BK	31/10/18	ES	REVISED DA										STATUS	DEVELOPMENT APPLICATION	DRAWING No.	01843_401	REVISION	03
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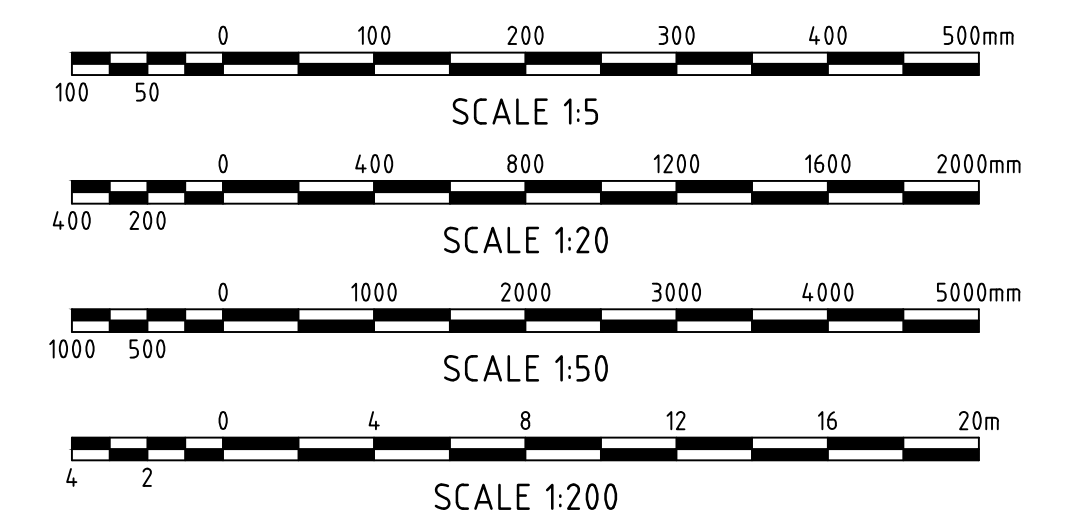


CAD FILENAME: Q:\C&M\Projects\01801-0900\PN-01843 - NELSON ROAD 14-16, BOX HILL\ACAD\01843_601.dwg

					THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW	CLIENT	 CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT SUITE 26 11 - 13 BROOKHOLLOW AVE BAULKHAM HILLS NSW 2153 PHONE: (02) 9680 3100 FAX: (02) 9634 6989 ABN 21 118 134 240 © THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.	DESIGNER	B.KIM	DATE	03/10/2017	14-16 NELSON ROAD, BOX HILL				
								PROJECT VERIFIER'S SIGNATURE:	DATE:	ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL	TEMPORARY DETENTION CATCHMENT PLAN		
03	TT	13/06/19	ES	REVISED DA						VERIFIER	A.MANCONE	SCALE @ A1	1:500			
02	BK	31/10/18	ES	REVISED DA						© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.						
01	BK	03/10/17	AM	ISSUE FOR DEVELOPMENT APPROVAL												
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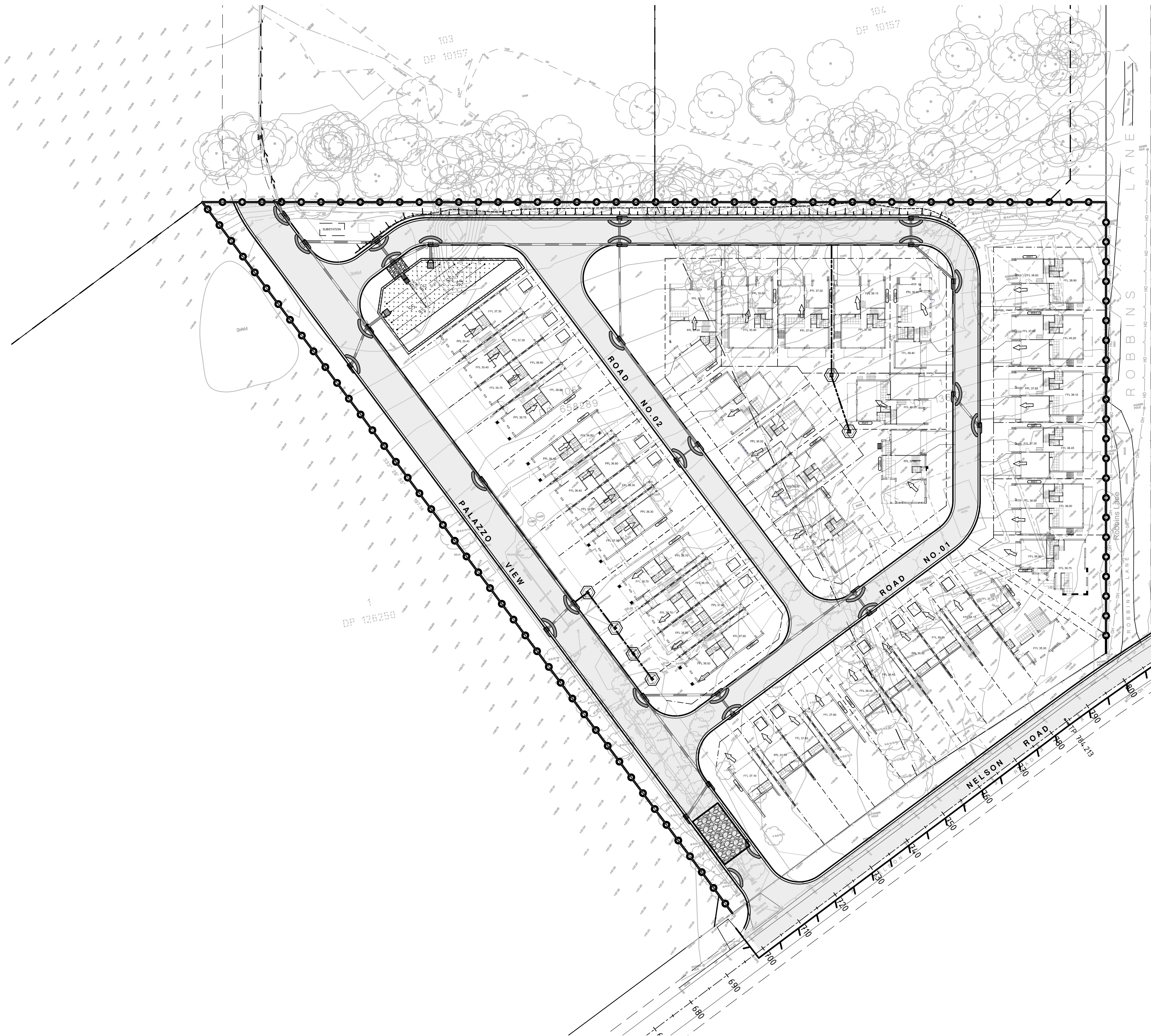


STORM EVENT (AEP)	PRE DEVELOPMENT FLOW (l/s)	POST DEVELOPMENT FLOW (l/s)	TOP WATER LEVEL IN BASIN (RL AHD)
50%	213	212	34.09
20%	329	260	34.36
10%	450	295	34.57
5%	545	399	34.78
2%	658	657	34.86
1%	783	777	34.90

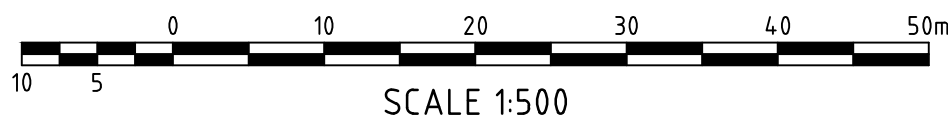


NOT FOR CONSTRUCTION

						THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW		CLIENT		CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT SUITE 26 11 - 13 BROOKHOLLOW AVE BAULKHAM HILLS NSW 2153 PHONE: (02) 9680 3100 FAX: (02) 9634 6989 ABN 21 118 134 240	DESIGNER	B.KIM	DATE	03/10/2017	14 - 16 NELSON ROAD, BOX HILL							
04	TT	13/06/19	ES	REVISED DA		PROJECT VERIFIER'S SIGNATURE: _____ DATE: _____					ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL	TEMPORARY STORMWATER DETENTION BASIN DETAILS							
03	BK	31/10/18	ES	REVISED DA							VERIFIER	A.MANCONI	SCALE @ A1	AS NOTED								
02	BK	07/12/17	AM	REVISED DESIGN							© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.											
01	BK	03/10/17	AM	ISSUE FOR DEVELOPMENT APPROVAL																		
REV.	DES.	DATE	VER.	DESCRIPTION																		
															STATUS	DEVELOPMENT APPLICATION		DRAWING No.	01843_621		REVISION	04



- LEGEND**
- SEDIMENT FENCE
 - TEMPORARY DIVERSION CHANNEL
 - GEOTEXTILE INLET FILTER (FOR PITS WITHIN LANDSCAPED AREAS)
 - GEOTEXTILE INLET FILTER (FOR PITS WITHIN PAVEMENT AREAS)
 - MESH & GRAVEL INLET FILTER
 - MESH & GRAVEL KERB FILTER
 - STRAW BALE FILTER
 - STABILISED SITE ACCESS



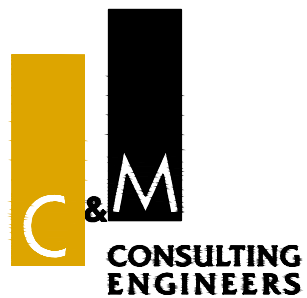
NOT FOR CONSTRUCTION

REV.	DES.	DATE	VER.	DESCRIPTION
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02	BK	31/10/18	ES	REVISED DA
01	BK	03/10/17	AM	ISSUE FOR DEVELOPMENT APPROVAL

THIS DRAWING IS NOT TO BE USED FOR
TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

PROJECT VERIFIER'S SIGNATURE: DATE:

CLIENT



CIVIL AND HYDRAULIC
ENGINEERING DESIGN AND
PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

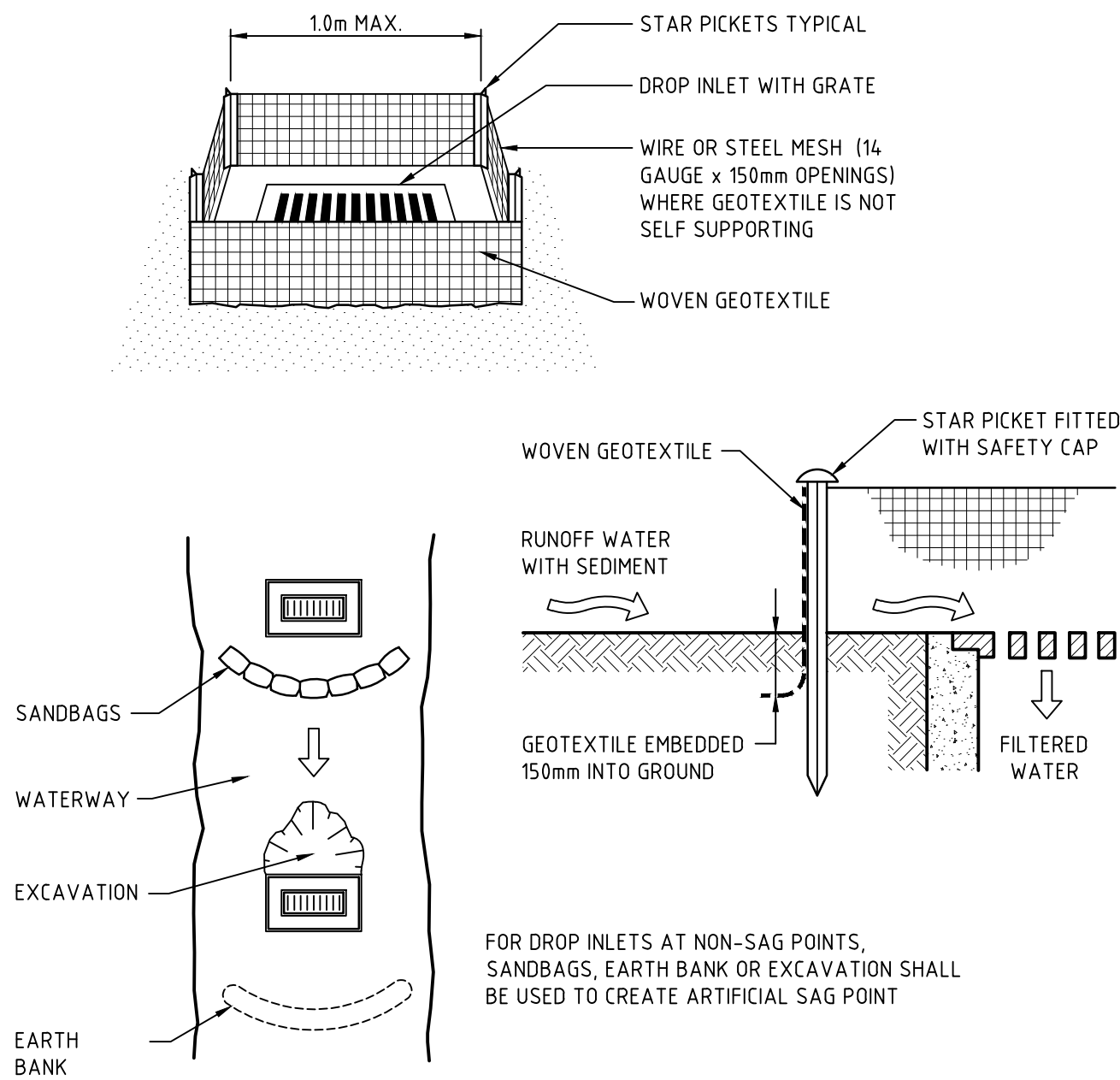
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNER	B.KIM	DATE	03/10/2017
ENGINEER	X.PHILP	LGA	HILLS SHIRE COUNCIL
VERIFIER	A.MANCONE	SCALE @ A1	1:500
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14-16 NELSON ROAD, BOX HILL

EROSION & SEDIMENT CONTROL PLAN

STATUS DEVELOPMENT APPLICATION DRAWING No. 01843_701 REVISION 03

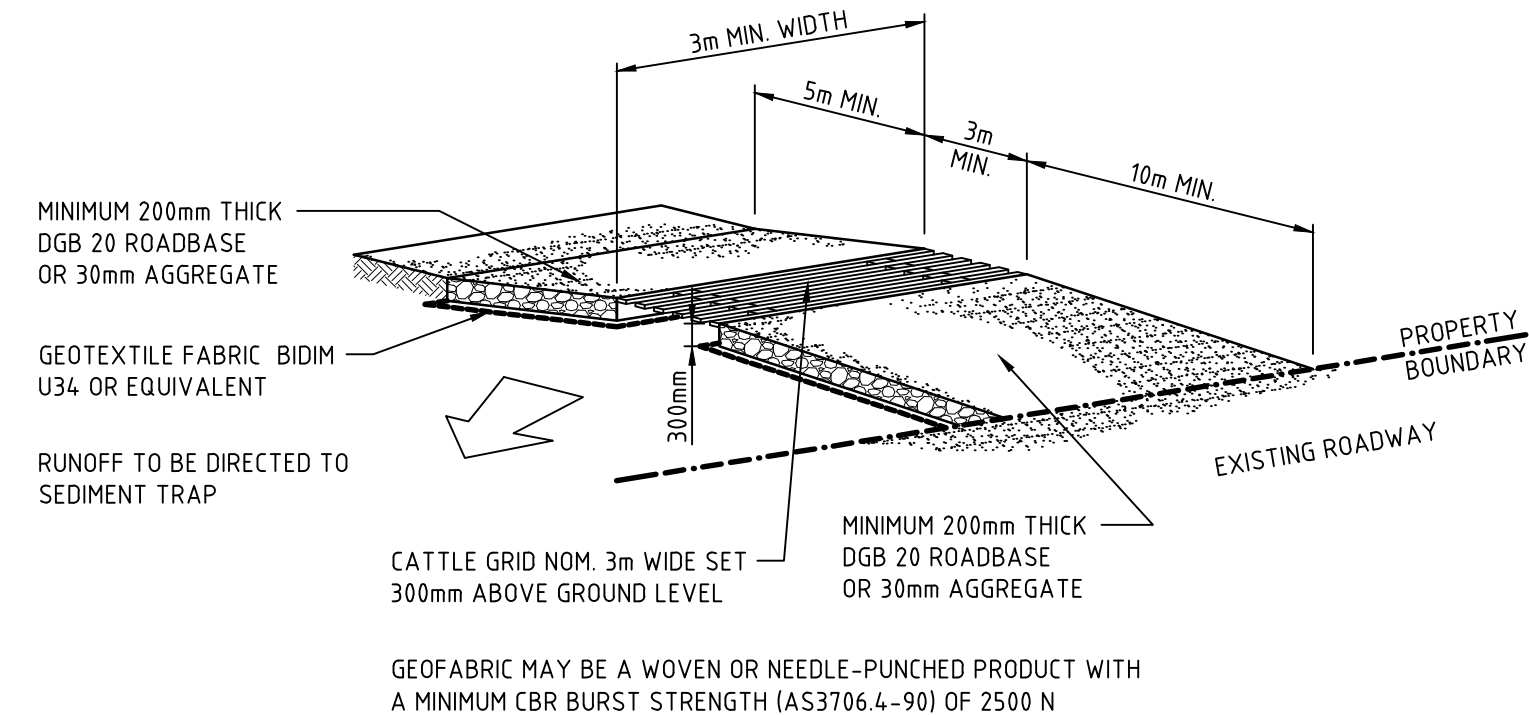


CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
3. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER DETAIL
FOR PITS WITHIN LANDSCAPED AREAS

NOT TO SCALE

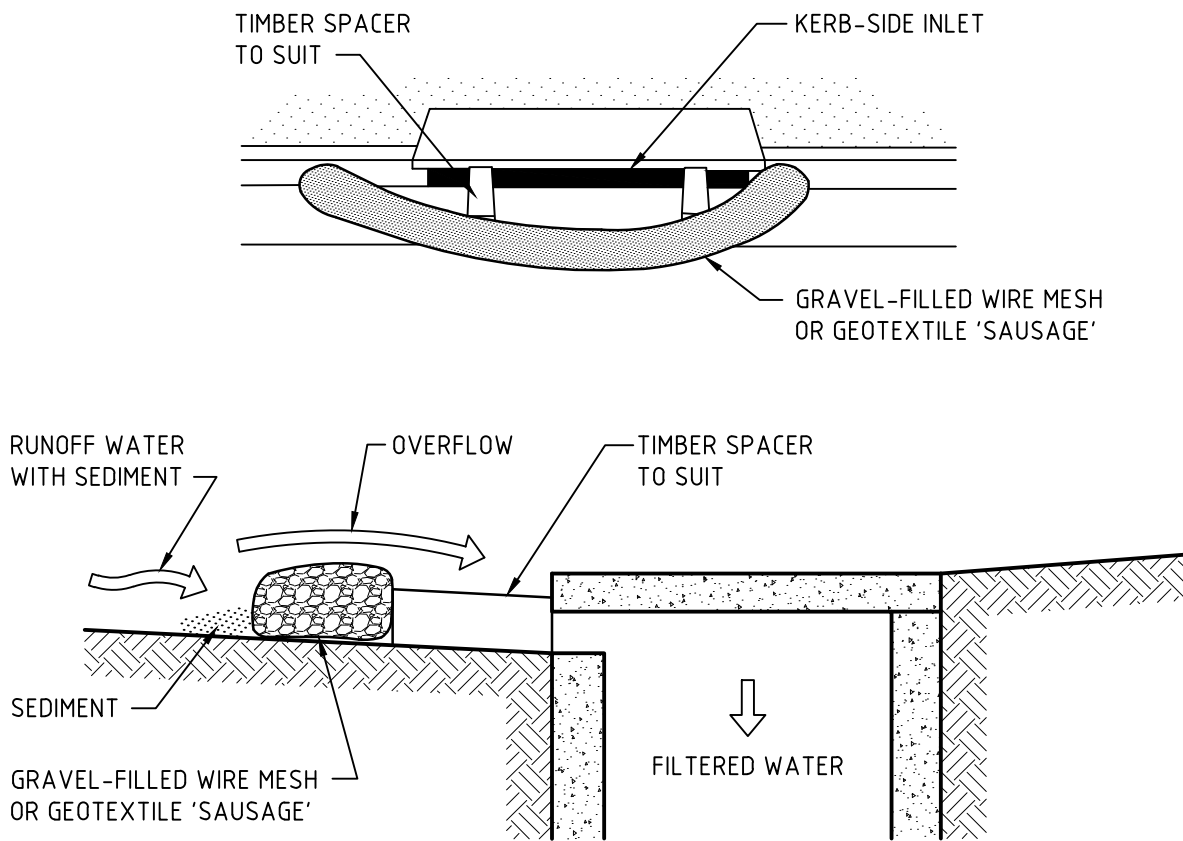


CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS WITH SHAKER GRID DETAIL

NOT TO SCALE

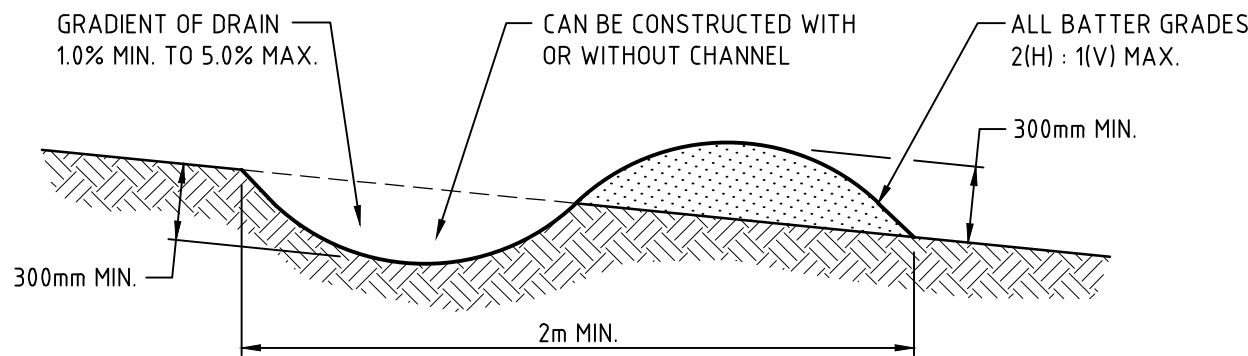


CONSTRUCTION NOTES:

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH AND GRAVEL INLET FILTER DETAIL

NOT TO SCALE



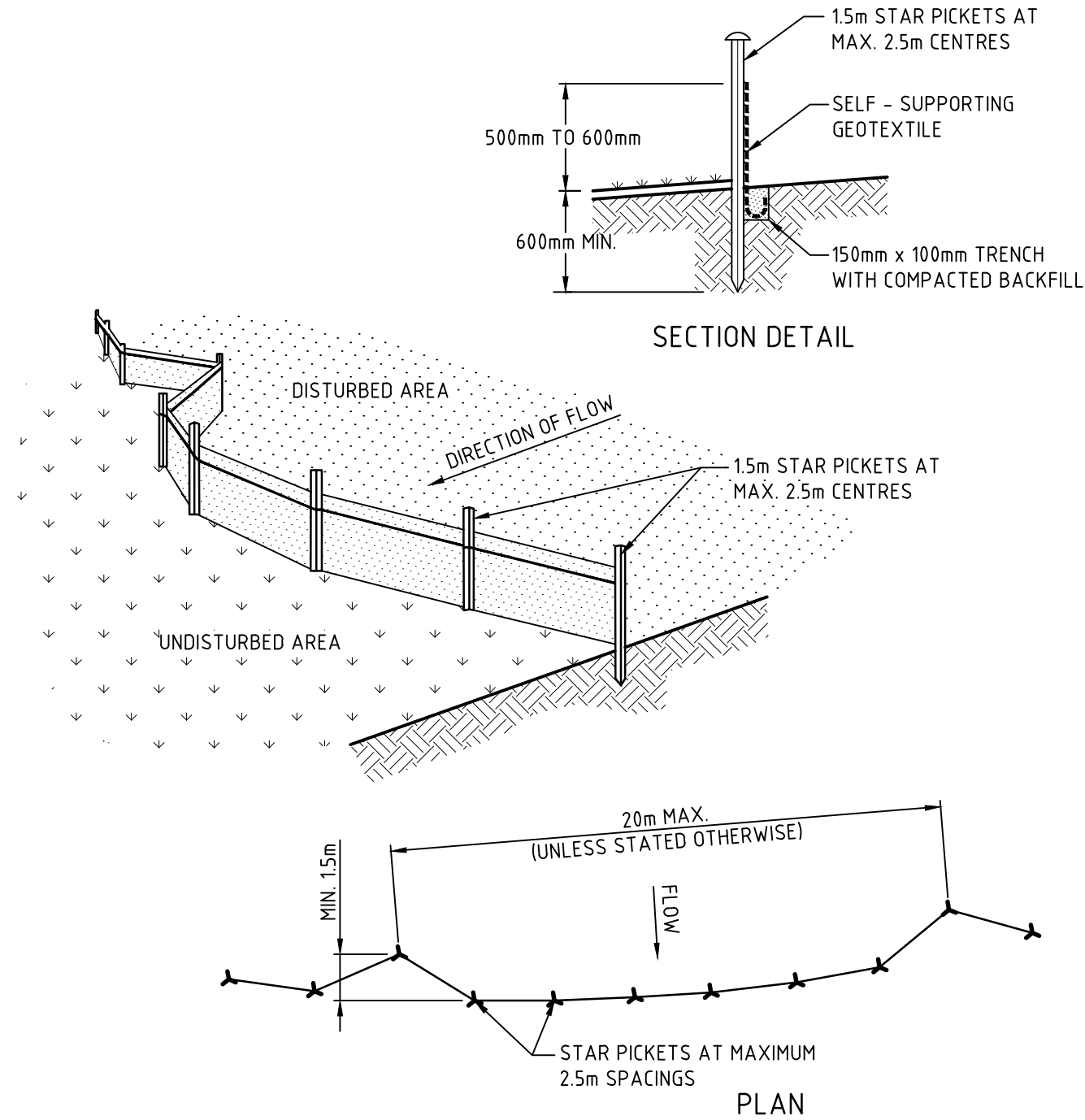
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE UPSLOPE LENGTH IS 80 METRES.

CONSTRUCTION NOTES:

1. BUILD WITH GRADIENTS BETWEEN 1% AND 5%.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

TEMPORARY DIVERSION CHANNEL (LOW FLOW)

NOT TO SCALE

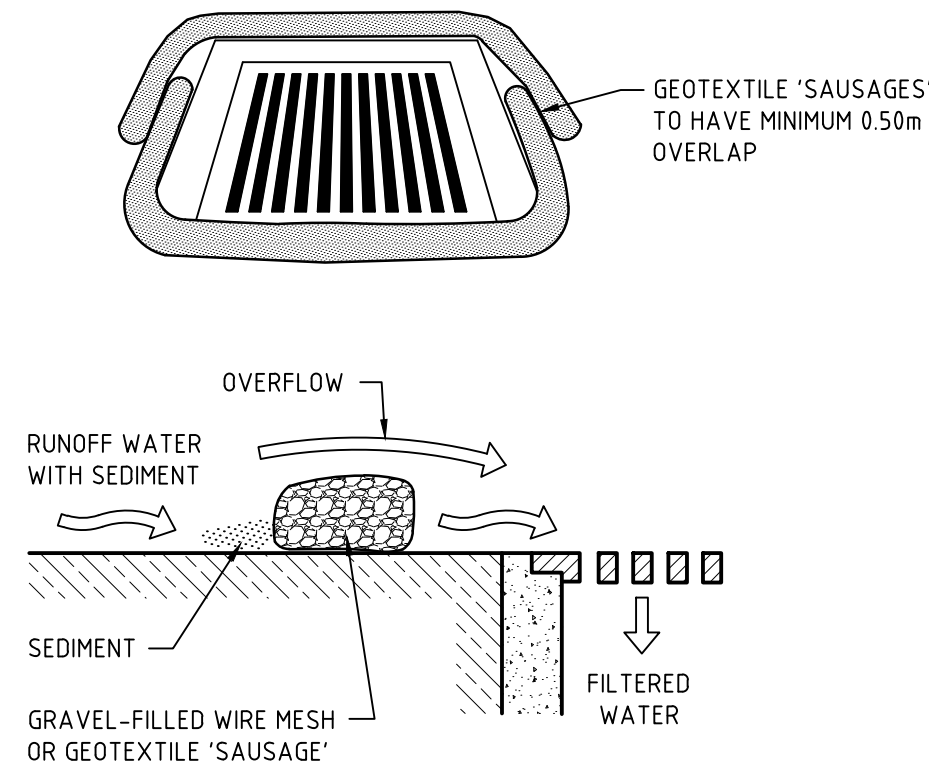


CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO THE GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150-mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE DETAIL

NOT TO SCALE



CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER DETAIL
FOR PITS WITHIN PAVEMENT AREAS

NOT TO SCALE

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