

58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN

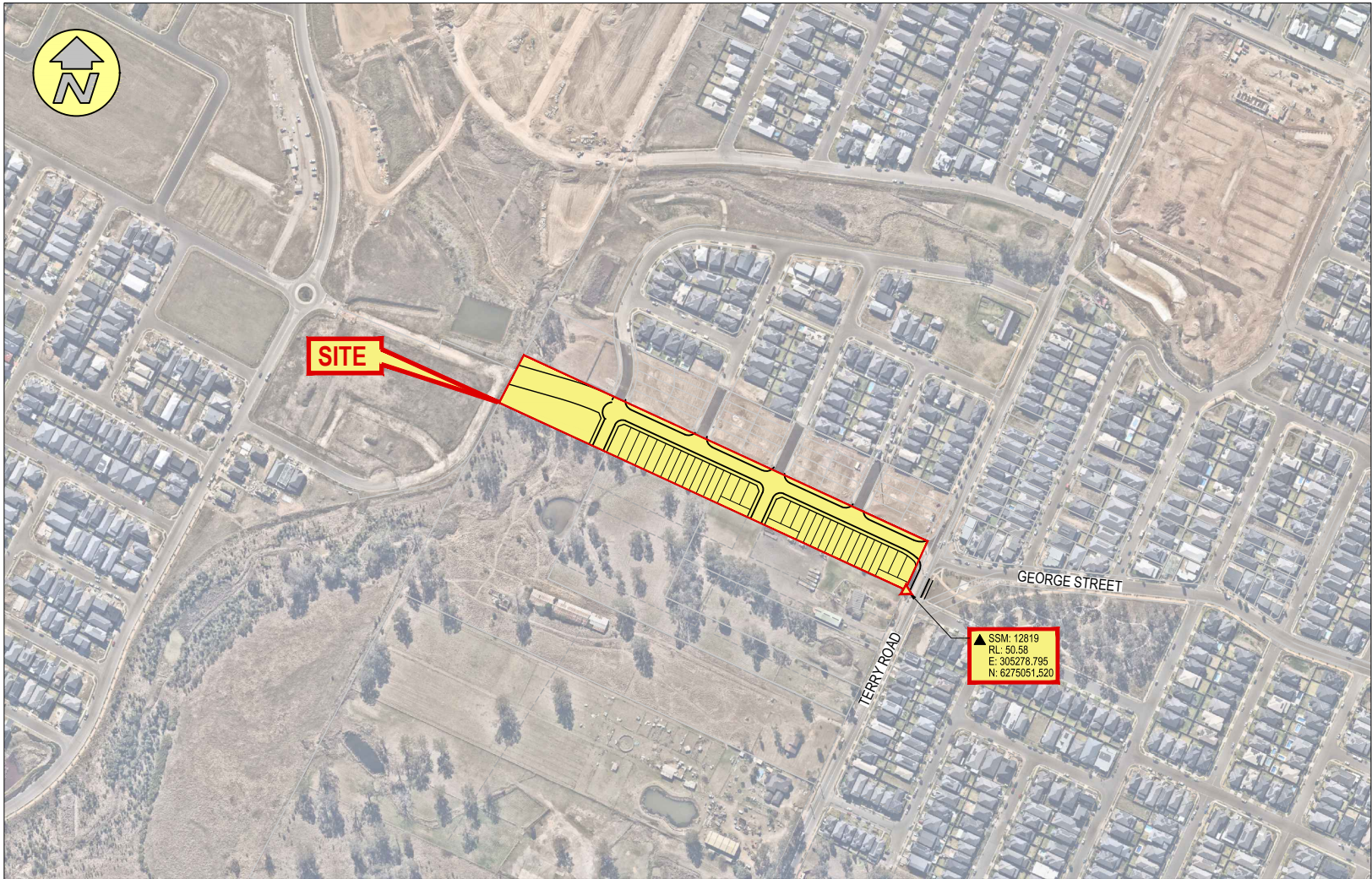
FOR SUBDIVISION WORKS CERTIFICATE

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024



LOCALITY PLAN
N.T.S.

LGA THE HILLS SHIRE COUNCIL

D.A. 589/2016/ZE
LOT 1
D.P. 535036

CLIENT:
VISY CASTLE PTY LTD

DRAWING LIST

No.	SHEET TITLE
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000	COVER SHEET
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002	GENERAL NOTES AND LEGEND
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101	BASIN CATCHMENT PLAN
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103	SOIL & WATER MANAGEMENT NOTES AND DETAILS
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402	ROSARIO STREET & KEENELAND STREET LONGITUDINAL & TYPICAL SECTION
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58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN



LEGEND

--- SITE BOUNDARY

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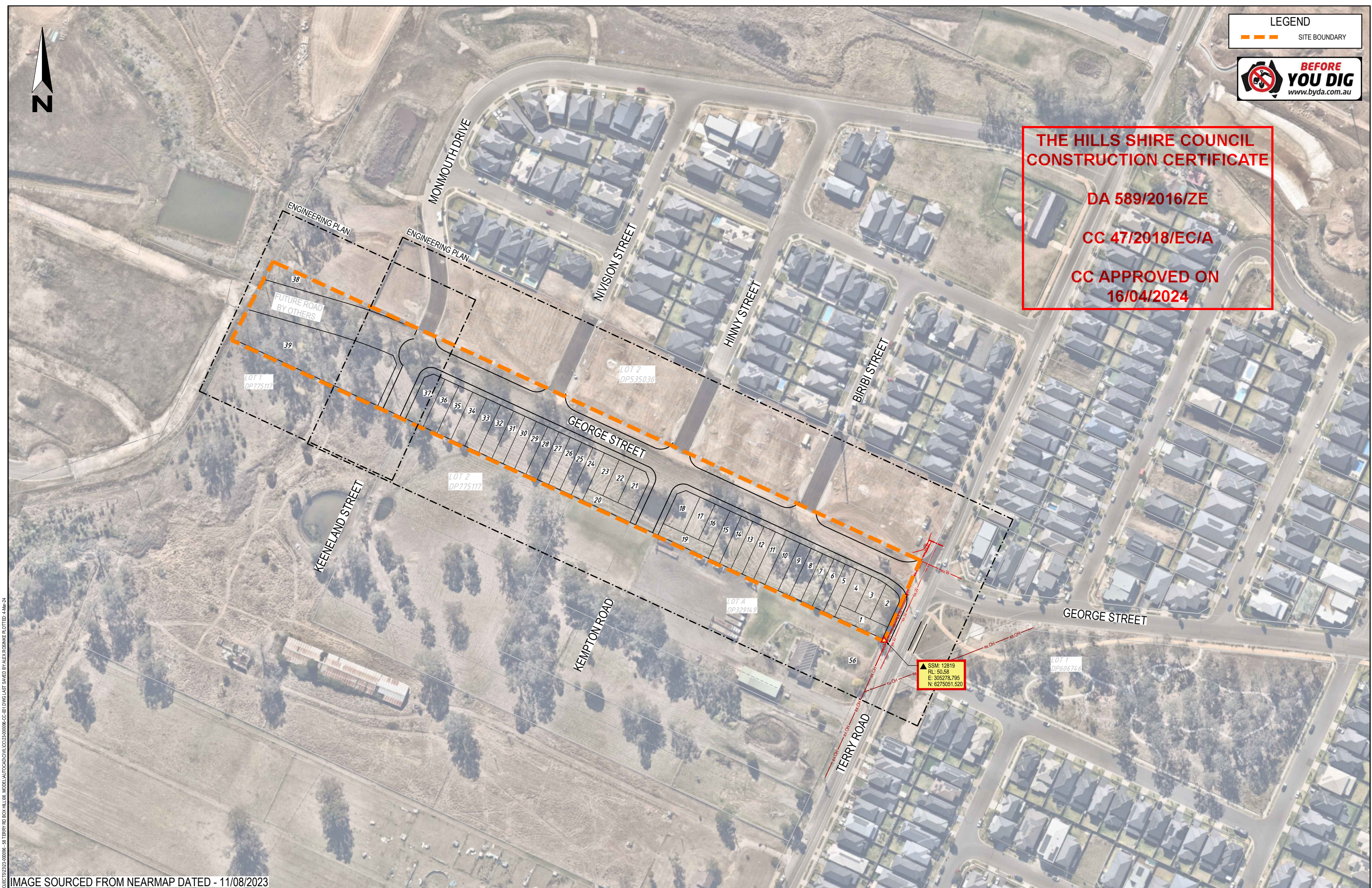


IMAGE SOURCED FROM NEARMAP DATED - 11/08/2023

AMENDMENTS						STATUS		SCALE	CLIENT	PROJECT	DRAWING TITLE
FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	FOR SUBDIVISION WORKS CERTIFICATE					
A M E N D M E N T S	1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER		VISY CASTLE Pty Ltd	 www.egis-group.com © 2023 Egis Consulting Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
	2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS				
	3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE				
	4	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE				
	5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE				
	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE				
	7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE				
AMENDMENT DETAILS						AUTHORISED FOR ISSUE:					
						BY: ENRIQUE FRANCO SIGN:  DATE: 16/04/24					
										DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY	
										PROJECT No. 23-000096 DRAWING No. 001 STAGE REVISION 7	

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GENERAL

- ## EARTHWORKS

- ## EGIS GENERAL

- EC4. PIPES GREATER THAN 750Ø ARE TO BE CONSTRUCTED FROM SULPHATE RESISTANT CEMENT.

ROADWORKS

- ## STORMWATER

- DIGITAL MODELS CREATED BY EGIS UNDER THIS COMMISSION ARE CREATED FOR THE PURPOSE OF THE PREPARATION OF DRAWINGS AND ESTIMATES OF QUANTITIES. INFORMATION CONTAINED IN THE DRAWINGS TAKES PRECEDENCE OVER THE DIGITAL MODEL UPON WHICH IT WAS BASED. USE OF DIGITAL MODELS, CREATED BY Egis, BY OTHER PARTIES TO SET OUT WORKS OR FOR OTHER REASONS IS DONE ENTIRELY AT THE RISK OF THE PARTY SO USING THE DIGITAL MODEL.

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Document Set ID: 21259437
Version: 2, Version Date: 16/04/2024

Site Name: 58 Terry Rd, Box Hill					
Site Location: 58 Terry Rd, Box Hill					
Precinct/Stage: SWC					
Other Details:		16001733			
Site area		Sub-catchment or Name of Structure			Notes
		Basin 01			
Total catchment area (ha)		1.696			
Disturbed catchment area (ha)		1.644			
Soil analysis (enter sediment type if known, or laboratory particle size data)					
Sediment Type (C, F or D) if known:		D			From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)					Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)					
% clay (fraction finer than 0.002 mm)					E.g. enter 10 for dispersion of 10%
Dispersion percentage					
% of whole soil dispersible					See Section 6.3.3(e). Auto-calculated
Soil Texture Group		D			Automatic calculation from above
Rainfall data					
Design rainfall depth (no of days)		5			See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentage)		85			
x-day, y-percentage rainfall event (mm)		32.2			
Rainfall R-factor (if known)					Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)		11.86			
RUSLE Factors					
Rainfall erosivity (R-factor)		3030			Auto-filled from above
Soil erodibility (K-factor)		0.038			
Slope length (m)		80			
Slope gradient (%)		7.5			
Length/gradient (LS-factor)		1.90			
Erosion control practice (P-factor)		1.3			
Ground cover (C-factor)		1			RUSLE LS factor calculated for a high till/interill ratio.
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)					
Storage (soil zone design (no of months)		2			Minimum is generally 2 months
Cv/ (Volumetric runoff coefficients)		0.5			See Table F2, page F-4 in Appendix F
Calculations and Type D/F Sediment Basin Volumes					
Soil loss (t/ha/yr)		285			See Table 4.2, page 4-13
Soil Loss Class		3			
Soil loss (m ³ /ha/yr)		219			Conversion to cubic metres
Sediment basin storage (soil) volume (m ³)		60.088			See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m ³)		273.000			See Sections 6.3.4(i) for calculations
Sediment basin total volume (m ³)		333.088			

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).



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VOLUME REQUIRED = 333 CU.M
VOLUME ACHIEVED = 700 CU.M
AT WEIR R.L.: 35

BASIN 01 TO BE USED AS SEDIMENT
BASIN DURING CONSTRUCTION

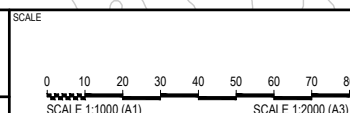
GEORGE STREET

SEDIMENT BASIN CATCHMENT

▲ SSM: 12819
RL: 50.58
E: 305278.795
N: 6275051.520

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	
INTERMEDIATE ISSUES	1	VC	MS	MC		25/08/2017	
	1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
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STATUS	FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:		
BY: ENRIQUE FRANCO	SIGN:	
BE(Hons) MIEAust. CPEng		
NER	DATE:	1/4/24



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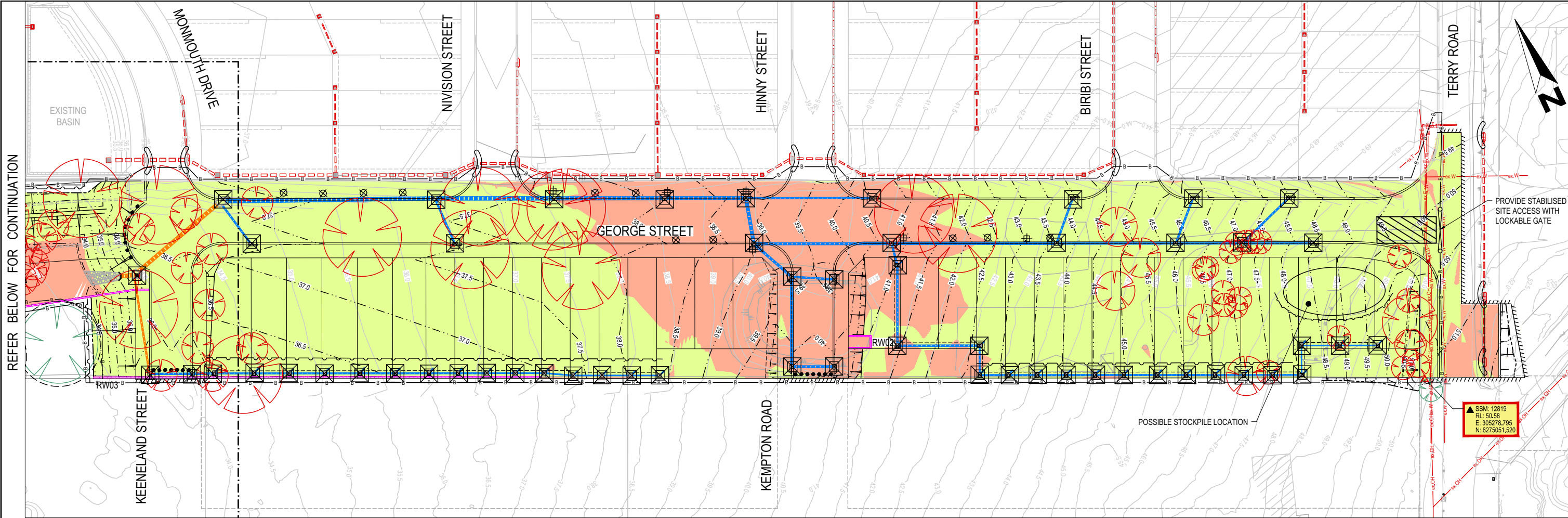
PROJECT

**58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN**

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DRAWING TITLE			
BASIN CATCHMENT PLAN			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	101		7



* REFER TO SHEET 101 FOR SEDIMENT BASIN CATCHMENT PLAN

NOTE

BARRIER FENCING TO BE ERECTED AT LOT BOUNDARIES WITH ADJACENT OWNERS TO THE SOUTH OF DEVELOPMENT.

LEGEND

- SEDIMENT FENCE (SD 6-8)
- BARRIER FENCE
- CATCH DRAIN/ DIVERSION BANK (SD 5-5)
- STABILISED ACCESS POINT
- GEOTEXTILE INLET FILTER (SD 6-12) DURING CONSTRUCTION OF THE ROAD. MESH & GRAVEL INLET FILTER (SD 6-11) AFTER CONSTRUCTION OF INTEL. FILTER TO BE REMOVED AFTER COMPLETION OF ALL WORKS AND PRIOR TO SUBDIVISION CERTIFICATE
- MESH & GRAVEL INLET FILTER (SD 6-11)
- EXISTING CONTOUR (ORIGINAL NATURAL SURFACE)
- PROPOSED CONTOUR
- CUT AREA
- FILL AREA
- TREES TO BE REMOVED
- TREES TO BE RETAINED
- TREE PROTECTION ZONE, REFER TO ARBORIST REPORT DATED 09/10/2015 FOR DETAILS

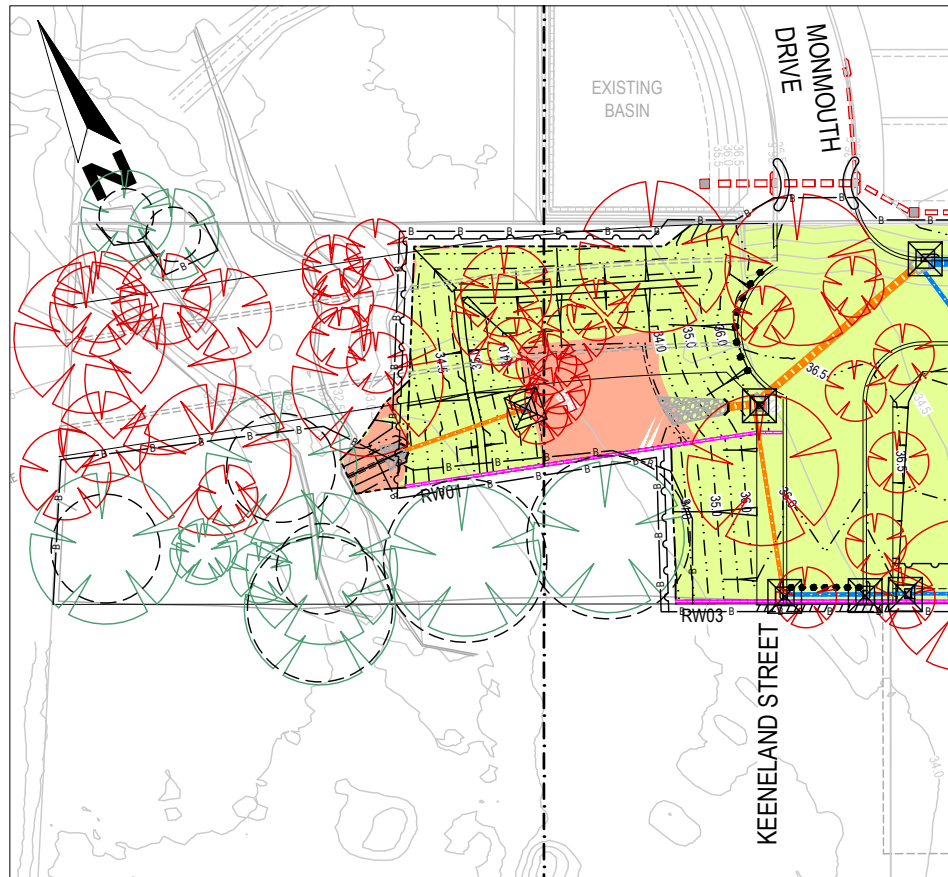


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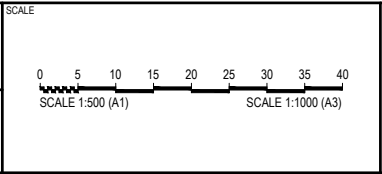
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NER	
DATE:	



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PROJECT
58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

DRAWING TITLE	SOIL & WATER MANAGEMENT PLAN
PROJECT No.	23-000096
DRAWING No.	102
STAGE	
REVISION	7

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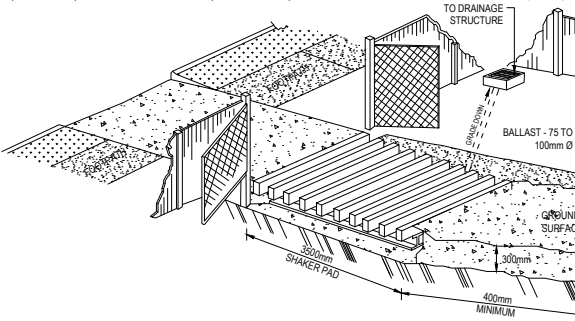
1. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO THE COMMENCEMENT OF ANY WORKS BEING CARRIED OUT. ALL SOIL AND EROSION MEASURES SHALL BE MAINTAINED AND KEPT IN PLACE FOR THE FULL DURATION OF THE WORKS AND SHALL ONLY BE REMOVED AT FINAL STABILISATION OF THE WORKS. WHERE IT IS NECESSARY TO UNDERTAKE STRIPPING IN ORDER TO CONSTRUCT A SEDIMENT CONTROL DEVICE ONLY SUFFICIENT GROUND SHALL BE STRIPPED TO ALLOW CONSTRUCTION.
2. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED AS INDICATED ON THESE DRAWINGS. LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT.
3. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ANY NECESSARY CONTROL IS IN PLACE EVEN THOUGH SUCH CONTROL MAY NOT BE SHOWN ON THE PLAN.
4. THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS AND ALL EMPLOYEES OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSTREAM AREAS
5. APART FROM SEDIMENT BASINS, THE CONTRACTOR SHALL REGULARLY MAINTAIN SEDIMENT AND EROSION CONTROL STRUCTURES AND DESILT SUCH STRUCTURES PRIOR TO THE REDUCTION IN CAPACITY OF 30% DUE TO ACCUMULATED SEDIMENT. THE SEDIMENT SHALL BE DISPOSED OF ON SITE IN A MANNER APPROVED BY THE ENGINEER.
6. THE CONTRACTOR SHALL TEMPORARILY REHABILITATE WITHIN TEN (10) DAYS ANY DISTURBED AREAS PROVIDING A MINIMUM 60% COVER. FINAL REHABILITATION IS TO BE PROVIDED WITHIN A FURTHER 60 DAYS WITH A MINIMUM 70% COVER.
7. THE CONTRACTOR SHALL PROVIDE WATERING OF THE VEGETATED BATTERS FOR MAINTENANCE PERIOD. PLANT, MACHINERY AND VEHICLES SHALL NOT BE DRIVEN OVER GRASSED AREAS UNLESS ON AN APPROVED HAULAGE ROUTE.
8. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS QUICKLY AS POSSIBLE TO MINIMISE RISK OF EROSION.
9. SITE ACCESS SHALL BE RESTRICTED TO THE NOMINATED POINTS. THE CONTRACTOR SHALL PROVIDE STABILISED SITE ACCESS.
10. DUST AND SITE DISTURBANCE MUST BE KEPT TO A MINIMUM. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS MUST BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO REDUCE WIND EROSION. ERECT BARRIER FENCING TO MINIMISE LAND DISTURBANCE BY PREVENTING VEHICULAR AND PEDESTRIAN ACCESS TO AREAS BEING REHABILITATED AND LANDS THAT DO NOT NEED TO BE DISTURBED BY THIS PROJECT.
11. STOCKPILE TOPSOILS, SUBSOILS AND OTHER MATERIALS SEPARATELY.
12. TOPSOIL SHALL BE STORED IN LOW MOUNDS NO MORE THAN 2 METRES HIGH AND RE-USED WITHIN TWO MONTHS TO MAINTAIN ACTIVE POPULATIONS OF BENEFICIAL SOIL MICROBES AND SEED.
13. PLACE ALL STOCKPILES AT LEAST FIVE METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS, ESPECIALLY EARTH BANKS AND ROADS. IF NECESSARY, EARTH BANKS OR DRAINS WILL BE CONSTRUCTED TO DIVERT LOCALISED RUN-ON.
14. TURN TOPSOIL STOCKPILES OVER TO AERATE THEM AT MONTHLY INTERVALS. ENSURE VEGETATION IS NOT INCORPORATED INTO THE SOIL.
15. AVOID REVERSING THE SOIL PROFILE MATERIALS DURING FILL OPERATIONS - REPLACE DISTURBED SOILS IN THEIR ORIGINAL ORDER
16. ON COMPLETION OF MAJOR EARTHWORKS AND BEFORE ADDING TOPSOIL, LEAVE DISTURBED LANDS WITH A LOOSE SURFACE. ALTERNATELY, DISTURBED AREAS PREVIOUSLY COMPACTED BY CONSTRUCTION WORKS WILL BE RIPPED TO MORE THAN 200-MM ALONG THE CONTOUR BEFORE APPLYING TOPSOIL
17. PROVIDING MATERIALS ARE AVAILABLE, SPREAD TOPSOIL TO A MINIMUM DEPTH OF 75mm IN REVEGETATION AREAS ON SLOPES OF 4(H):1(V) OR LESS AND TO A DEPTH OF 40 TO 60mm IN REVEGETATION AREAS STEEPER THAN 4:1.
18. LEAVE TOPSOIL IN A SCARIFIED OR ROUGH CONDITION ONCE REPLACED TO HELP MOISTURE INFILTRATION AND REDUCE SOIL EROSION.
19. ENSURE SOIL IS THOROUGHLY SOAKED TO A DEPTH OF 75mm (RAIN OR IRRIGATION) IMMEDIATELY BEFORE PLANTING.

-
- 1.5 M STAR PICKETS AT MAX. 2.5 M CENTRES
- 500 mm TO 600 mm
- 600 mm MIN.
- SELF-SUPPORTING GEOTEXTILE
- DIRECTION OF FLOW
- ON SOIL, 150 mm X 100 mm TRENCH WITH COMPACTED BACKFILL AND ON ROCK, SET INTO SURFACE CONCRETE
- SECTION DETAIL
- DISTURBED AREA
- UNDISTURBED AREA
- DIRECTION OF FLOW
- 1.5 M STAR PICKETS AT MAX. 2.5 M CENTRES
- 20 M MAX. (UNLESS STATED OTHERWISE ON SWMP/ESCP)
- FLOW
- PLAN
- MIN. 1.5 M
- STAR PICKETS AT MAXIMUM 2.5 M SPACINGS

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 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5m 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 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SD 6-8

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)



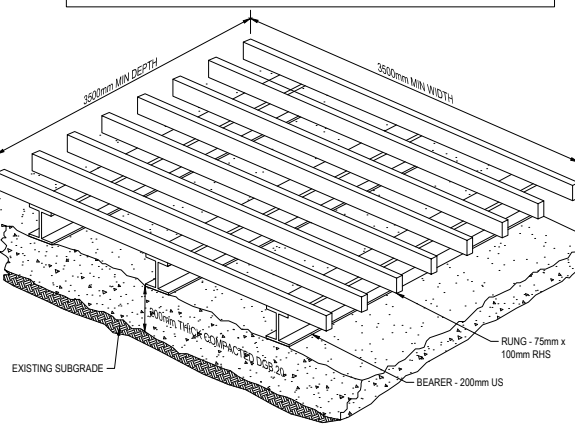
- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST). IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION

A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSORY IN TYPE II SAP'S)

- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION.
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL.
- MUST BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL.
- MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE.
- MUST BE A MINIMUM OF 3.5m IN LENGTH.
- MUST BE A MINIMUM OF 3.5m IN WIDTH.
- MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 - 250mm.
- RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75mm.
- MUST HAVE A MINIMUM CLEAR DEPTH OF 300mm IE FORM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL.

THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYRES OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE.



1.2 M STAR PICKET DRIVEN 600 MM INTO GROUND

20 METRES MAX. (UNLESS STATED OTHERWISE ON SWIMPSPEC)

FLOW

STRAW BALES TIGHTLY ABUTTING TOGETHER

ELEVATION

ANGLE FIRST STAKE TOWARD PREVIOUS BALE

PLAN

NYLON OR WIRE BINDINGS

1.5 M TO 2 M

DISTURBED AREA

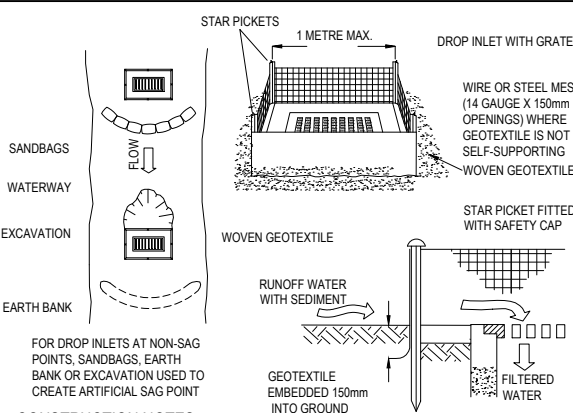
2:1 SLOPE

BALES EMBEDDED 100 MM INTO GROUND

SECTION AA

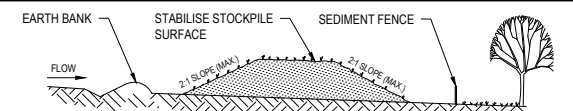
1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAW IS TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. LEAN AGAINST THE BALE FILTER TO PREVENT DOWNFLOW FROM A DISTURBED BARRIAGE. ENSURE THE BALES ARE PLACED 1.102 METRES DOWNFLOW FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

SD 6-7



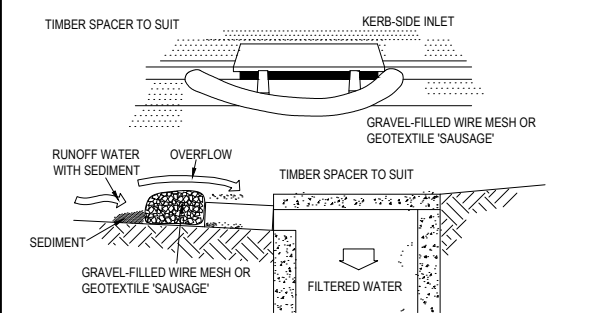
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

SD 6-12



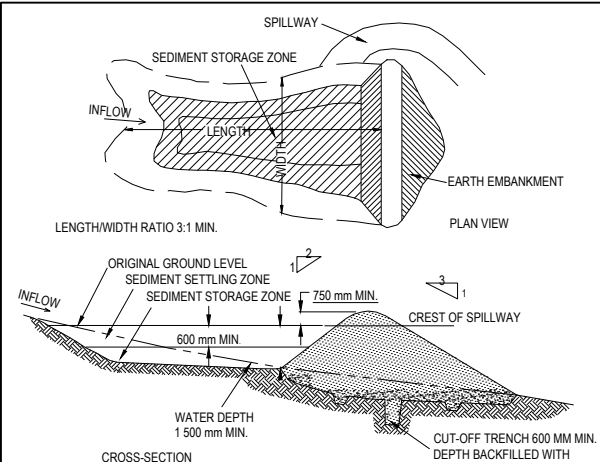
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
 - MAXIMUM BATTER SLOPE REDUCED TO 1:4
 - CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
 - ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE

SD 4-1



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 PIPE AND FIT IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 100mm 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.

SD 6-11



1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIALS.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

SD 6-4

**CC APPROVED ON
16/04/2024**

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
	VC	MS	MC		25/08/2017	
1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS
3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
4	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	EF	17/11/2013	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:		
BY: ENRIQUE FRANCO	SIGN:	
BE(Hons) MIEAust. CPEng		
NER	DATE:	11/5/14

SCALE

CLIENT

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PROJECT

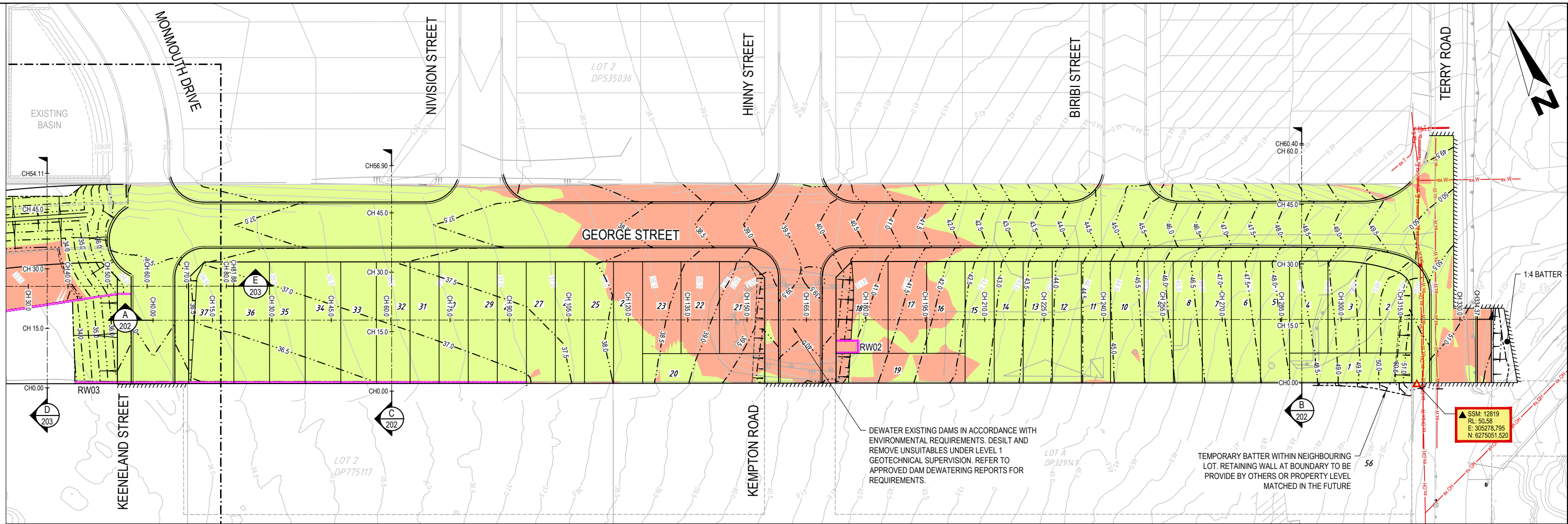
**58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN**

DISCLAIMER

ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE			
SOIL & WATER MANAGEMENT NOTES AND DETAILS			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	103		7

REFER BELOW FOR CONTINUATION

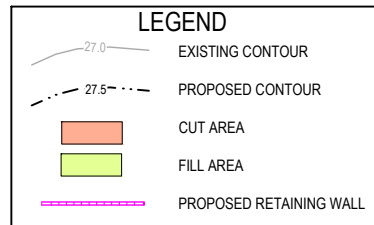


**THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE**

DA 589/2016/ZE

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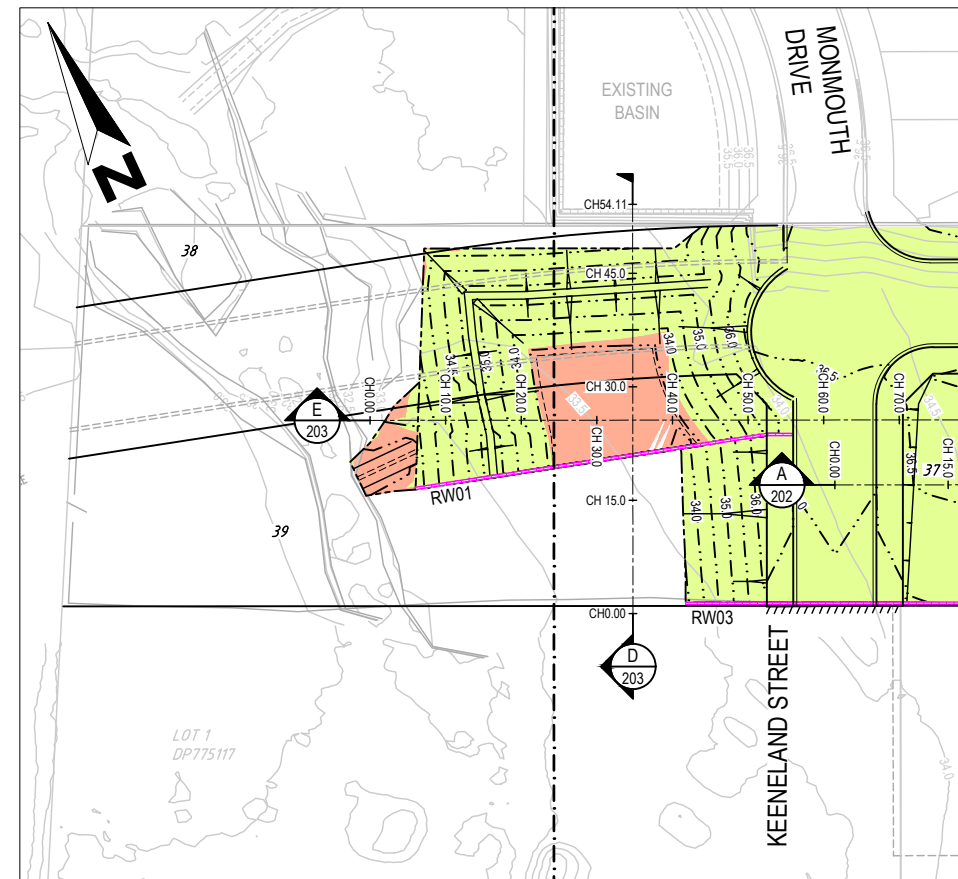
**CC APPROVED ON
16/04/2024**



CUT & FILL VOLUMES

CUT = 1,645m³
FILL = 12,021m³
BALANCE = 10,376m³

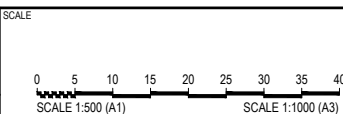
NOTE:
VOLUMES BASED ON DESIGN TO
EXISTING SURFACE



REFER ABOVE FOR CONTINUATION

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2	VC	VS	MC	25/09/2017	ISSUE FOR TENDER
3	VC	MS	MC	10/11/2017	ISSUE FOR COUNCIL COMMENTS
4	VC	MS	MC	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	MS	MC	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE:	
BY: ENRIQUE FRANCO SIGN:	
BE(Hons) MIEAust. CPEng	
NER	
DATE:	



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PROJECT	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
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DRAWING TITLE	BULK EARTHWORKS PLAN
PROJECT No.	23-000096
DRAWING No.	201
STAGE	
REVISION	7

LEGEND

CUT AREA

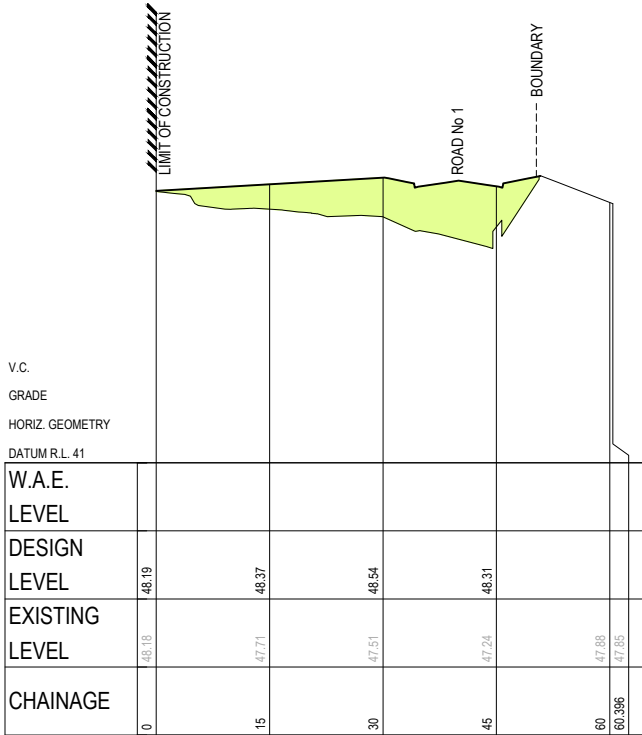
FILL AREA

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CONSTRUCTION CERTIFICATE

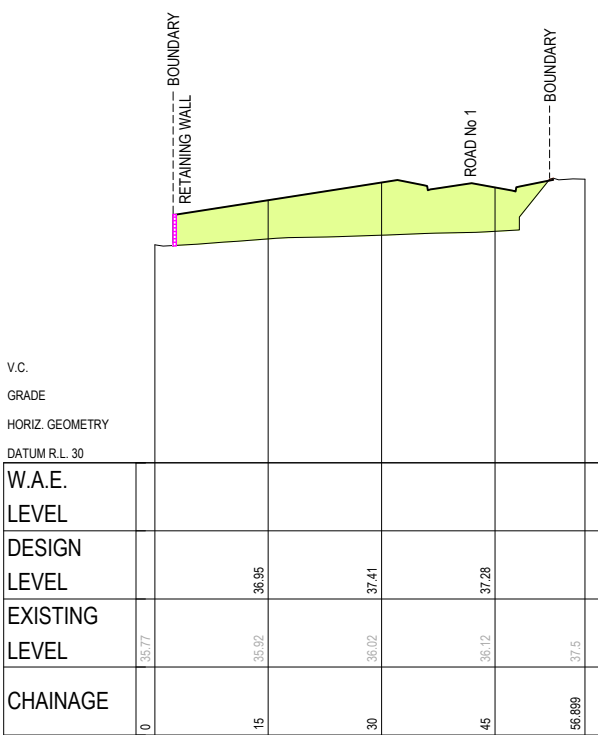
DA 589/2016/ZE

CC 47/2018/EC/A

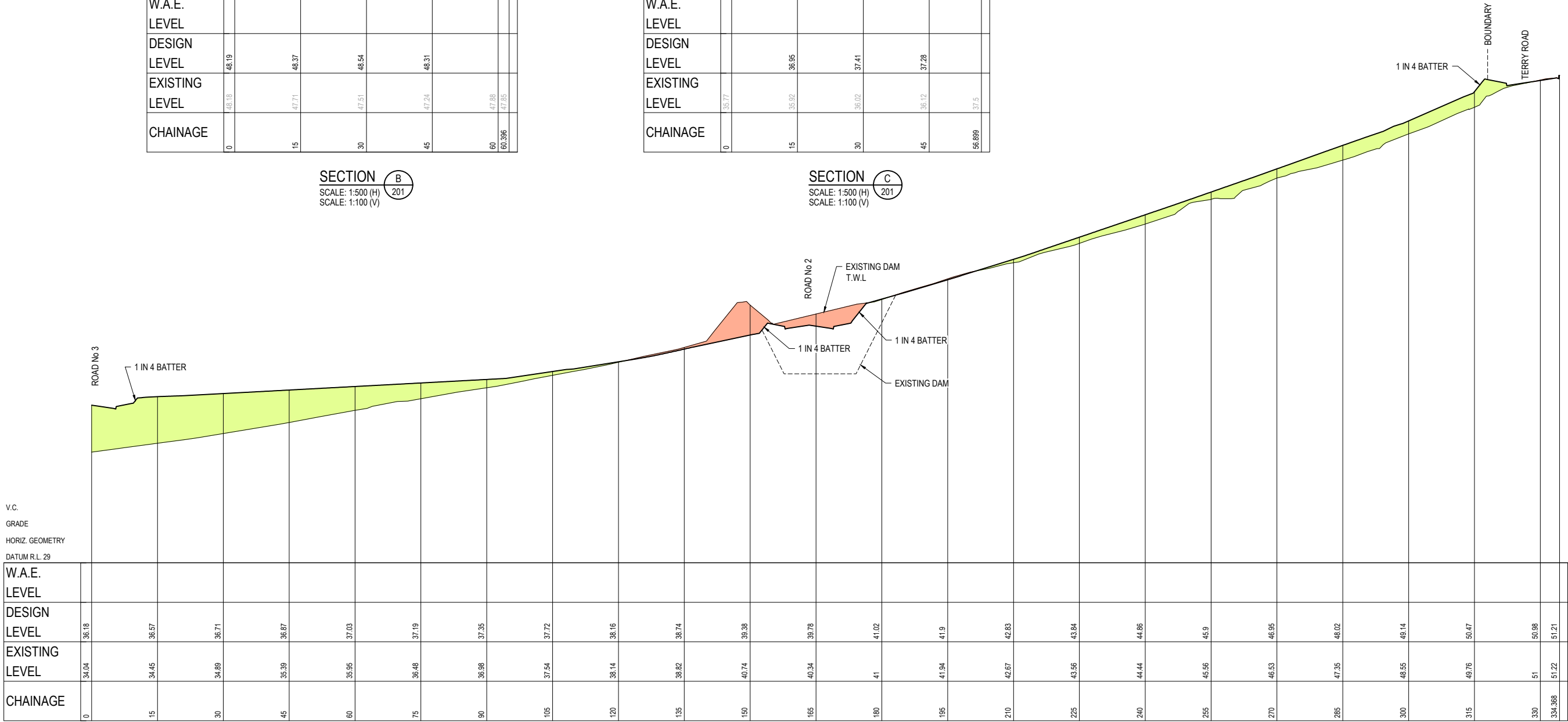
CC APPROVED ON
16/04/2024



SECTION B
SCALE: 1:500 (H)
SCALE: 1:100 (V)



SECTION C
SCALE: 1:500 (H)
SCALE: 1:100 (V)



SECTION A
SCALE: 1:500 (H)
SCALE: 1:100 (V)

AMENDMENT DETAILS						STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE	
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	2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS					
	3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
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	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
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						BY: ENRIQUE FRANCO SIGN: 						
						BE(Hons) MIEAust. CPEng NER	DATE: 					

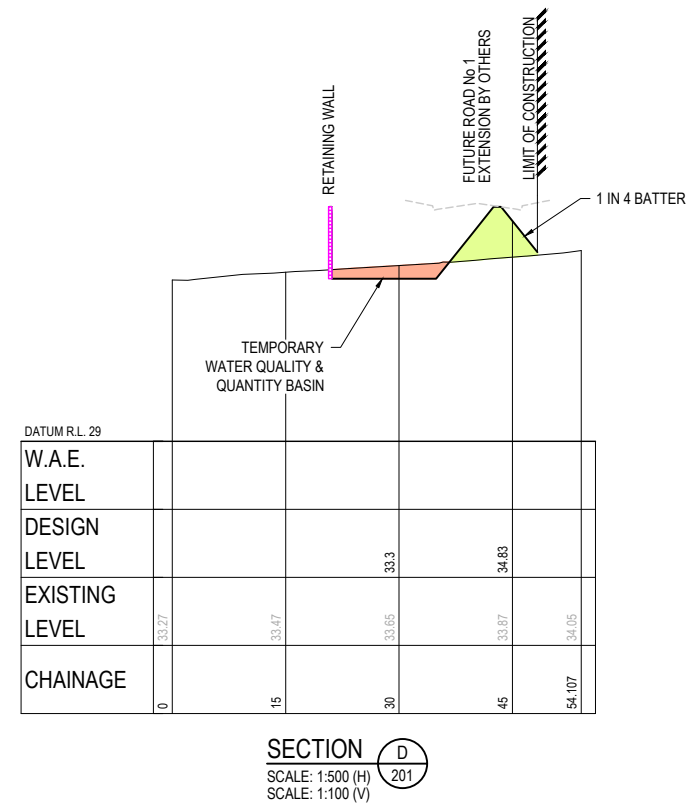
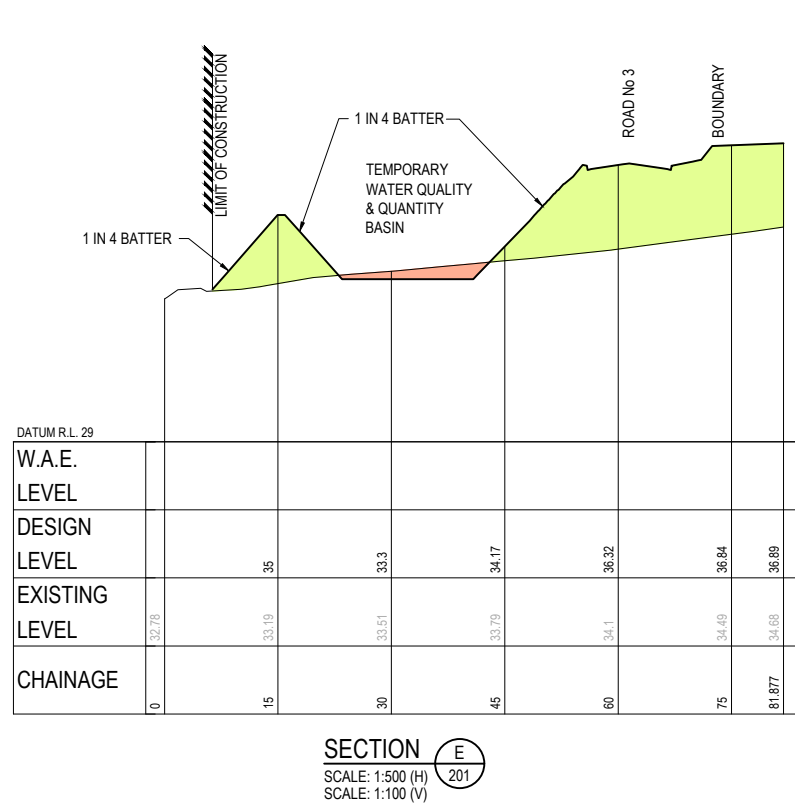
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THE HILLS SHIRE COUNCIL CONSTRUCTION CERTIFICATE

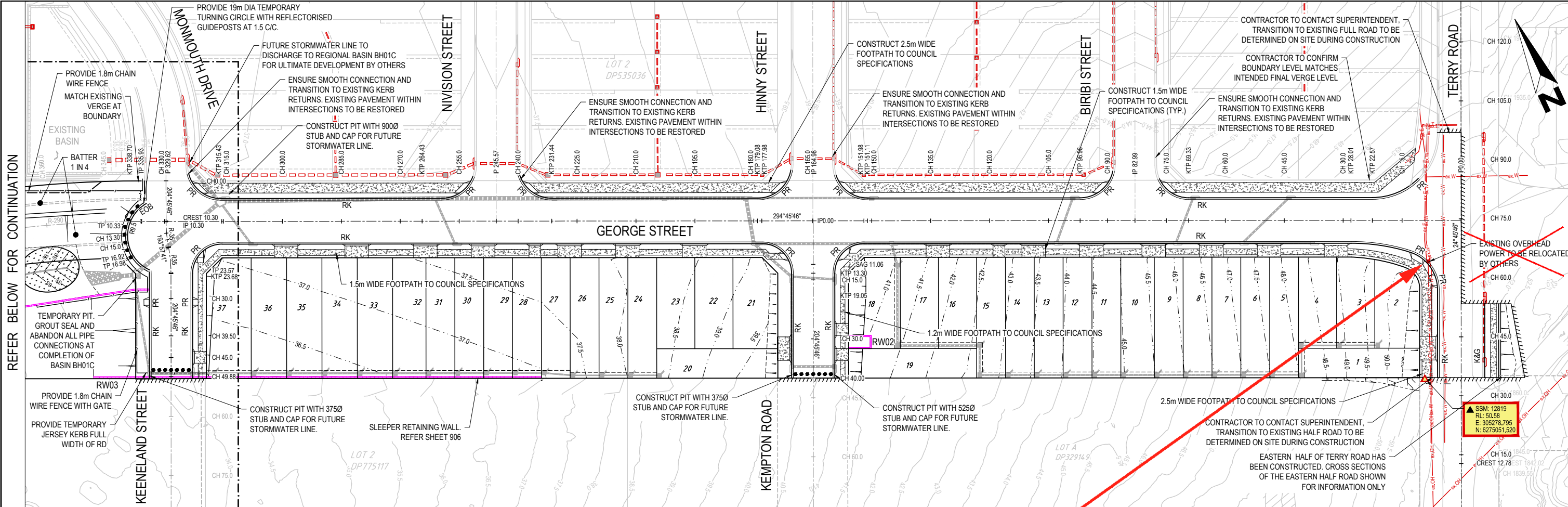
DA 589/2016/ZE

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16/04/2024**



REVISIONS	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	STATUS FOR SUBDIVISION WORKS CERTIFICATE	SCALE 0 1 2 3 4 5 6 7 8 SCALE 1:100 (A1) SCALE 1:200 (A3) 0 5 10 15 20 25 30 35 40 SCALE 1:500 (A1) SCALE 1:1000 (A3)	CLIENT VISY CASTLE Pty Ltd egis www.egis-group.com © 2023 Egis Consulting Pty Ltd	PROJECT 58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY.	DRAWING TITLE BULK EARTHWORKS SECTIONS SHEET 02 OF 02		
	FIRST ISSUE	VC	MS	MC								25/08/2017	
	1	VC	VS	MC								25/09/2017	ISSUE FOR TENDER
	2	VC	MS	MC								10/11/2017	ISSUE FOR COUNCIL COMMENTS
	3	VC	MS	MC	SAG							09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	4	VC	MS	MC	SAG							11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE						
	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE	BY: ENRIQUE FRANCO SIGN: BE(Hons) MIE Aust. CP Eng NER	17/11/2024				
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE	DATE:						



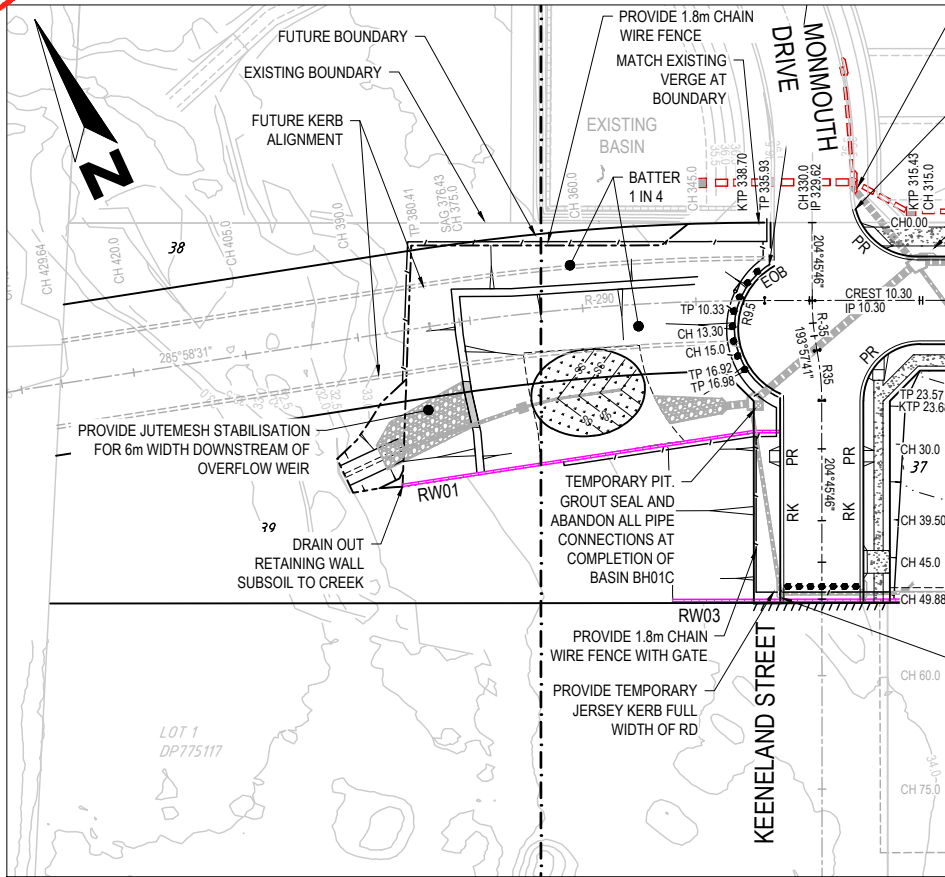
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16/04/2024**

**The under-grounding of the existing electrical services fronting
the site and removal of all redundant poles and cables must be
completed with the Subdivision.**



- NOTE**
- PEDESTRIAN RAMPS (PR) TO BE CONSTRUCTED TO STANDARD DRAWING 'SD.30' BY HILLS SHIRE COUNCIL.
 - TREE GUARD TO BE CONSTRUCTED TO STANDARD DRAWING SD.50 BY HILLS SHIRE COUNCIL AND TO INCLUDE TIMBER SURROUNDS.
 - PROVIDE THE FOLLOWING STREET TREE SPECIES:
 - GEORGE ST - BRUSH BOX BOTH SIDES
 - TERRY RD - BRUSH BOX BOTH SIDES
 - ROSARIO ST - WATER GUM BOTH SIDES
 - KEENLAND ST - SNOW IN SUMMER (EAST SIDE) AND THIN LEAVED STRINGYBARK (WEST SIDE)
 - No.60 TERRY ROAD BOX HILL (LOT 2 DP 535036) WAS PROPOSED FOR DEVELOPMENT IN REVISION 05. ROAD AND LOT REGARDING FOR THIS SITE NOW EXISTING



DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS	STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE
1	VC	MS	MC	25/08/2017						58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	ENGINEERING PLAN
2	VC	VS	MC	25/09/2017							
3	VC	MS	MC	10/11/2017							
4	VC	MS	MC	09/01/2018							
5	VC	VC	-	19/03/2018							
6	MGC	JH	MC	17/11/2023							
7	FM	JS	FM	04/03/2024							

BY: ENRIQUE FRANCO SIGN:  DATE: 

BE(Hons) MIEAust. CPEng NER

0 5 10 15 20 25 30 35 40

SCALE 1:500 (A1) SCALE 1:1000 (A3)

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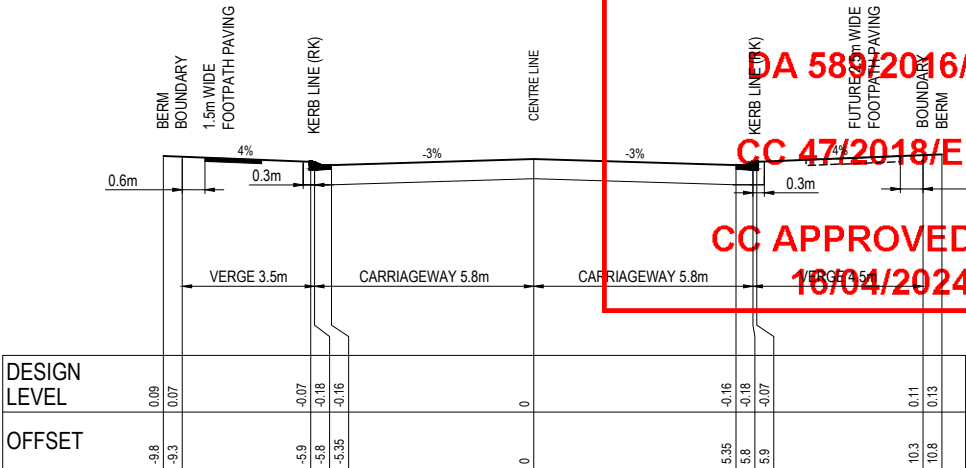
PROJECT No. 23-000096
DRAWING No. 301
STAGE
REVISION 7

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 58/2016/ZE

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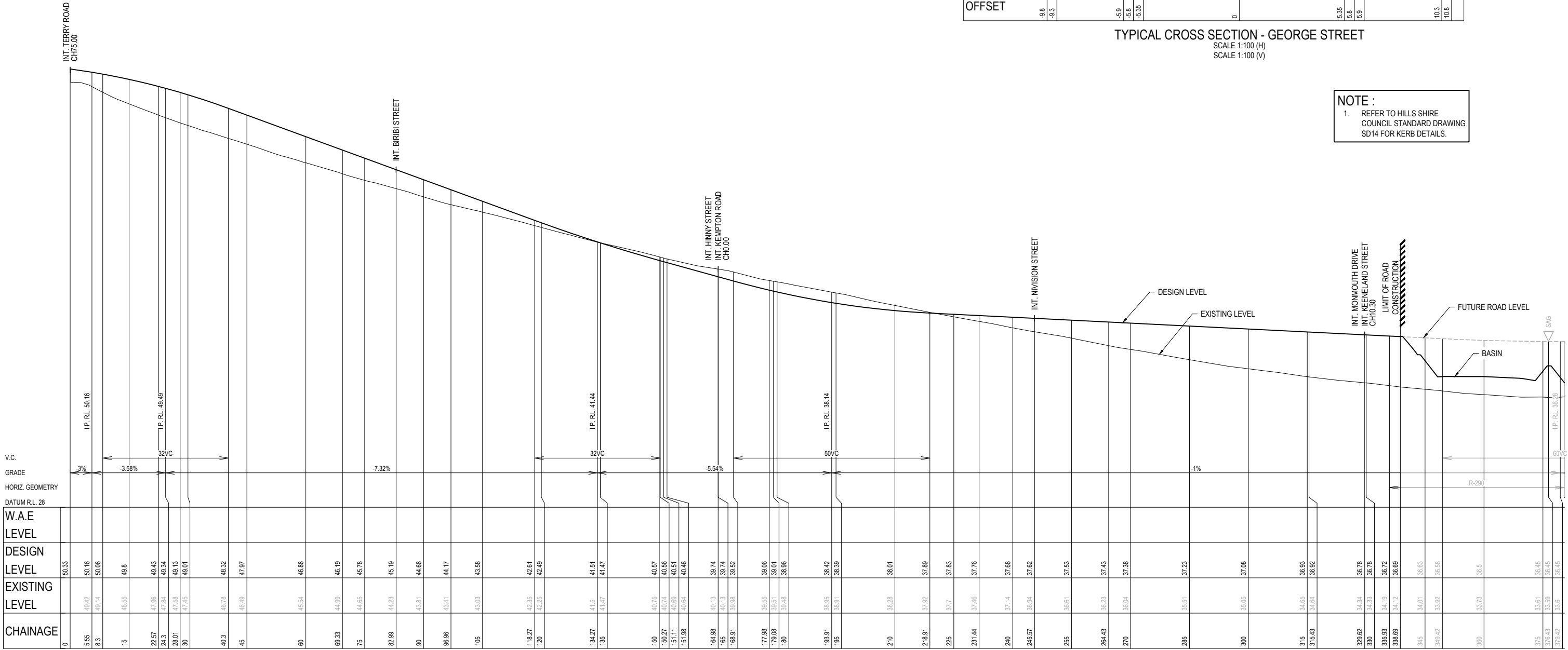


TYPICAL CROSS SECTION - GEORGE STREET

SCALE 1:100 (H)
SCALE 1:100 (V)

NOTE :

- REFER TO HILLS SHIRE COUNCIL STANDARD DRAWING SD14 FOR KERB DETAILS.



LONGITUDINAL SECTION CENTRELINE - GEORGE STREET

SCALE 1:500 (H)
SCALE 1:100 (V)

DESIGN	DRAWN	CHECK	APPRO	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT	DRAWING TITLE
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6	MGC	JH	MC	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
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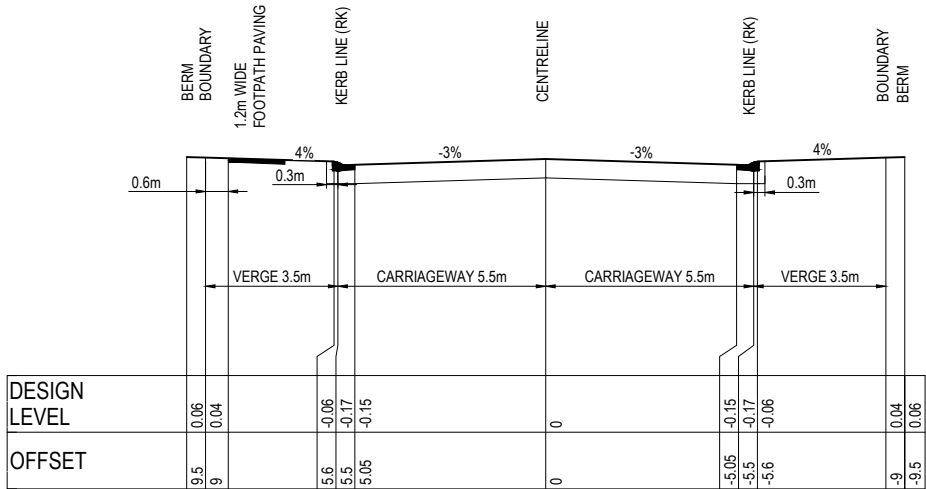
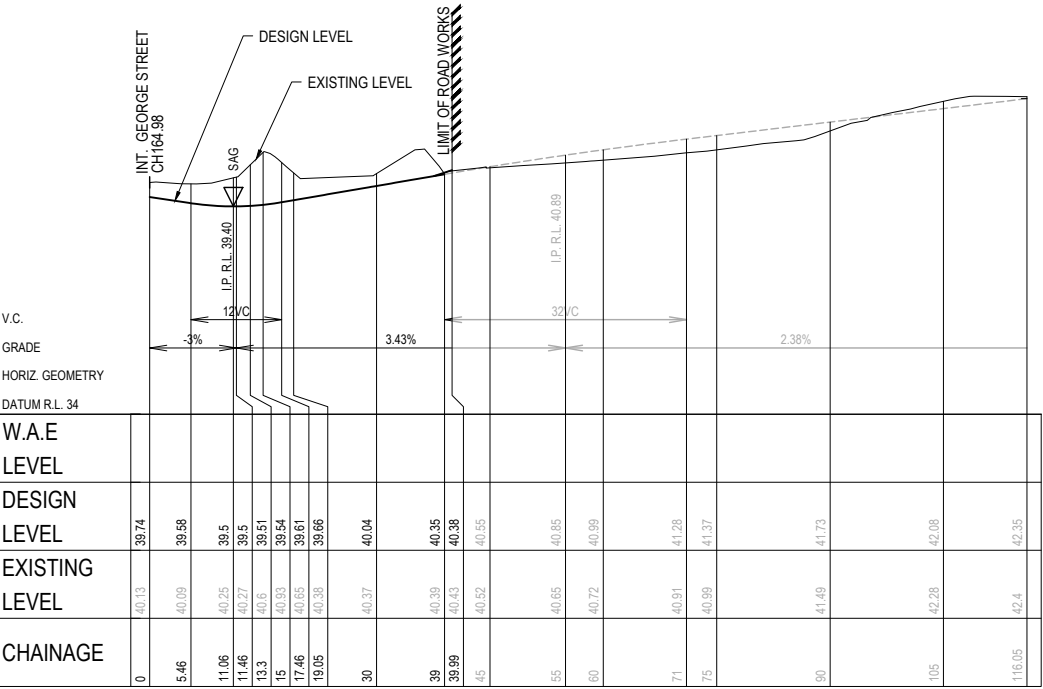
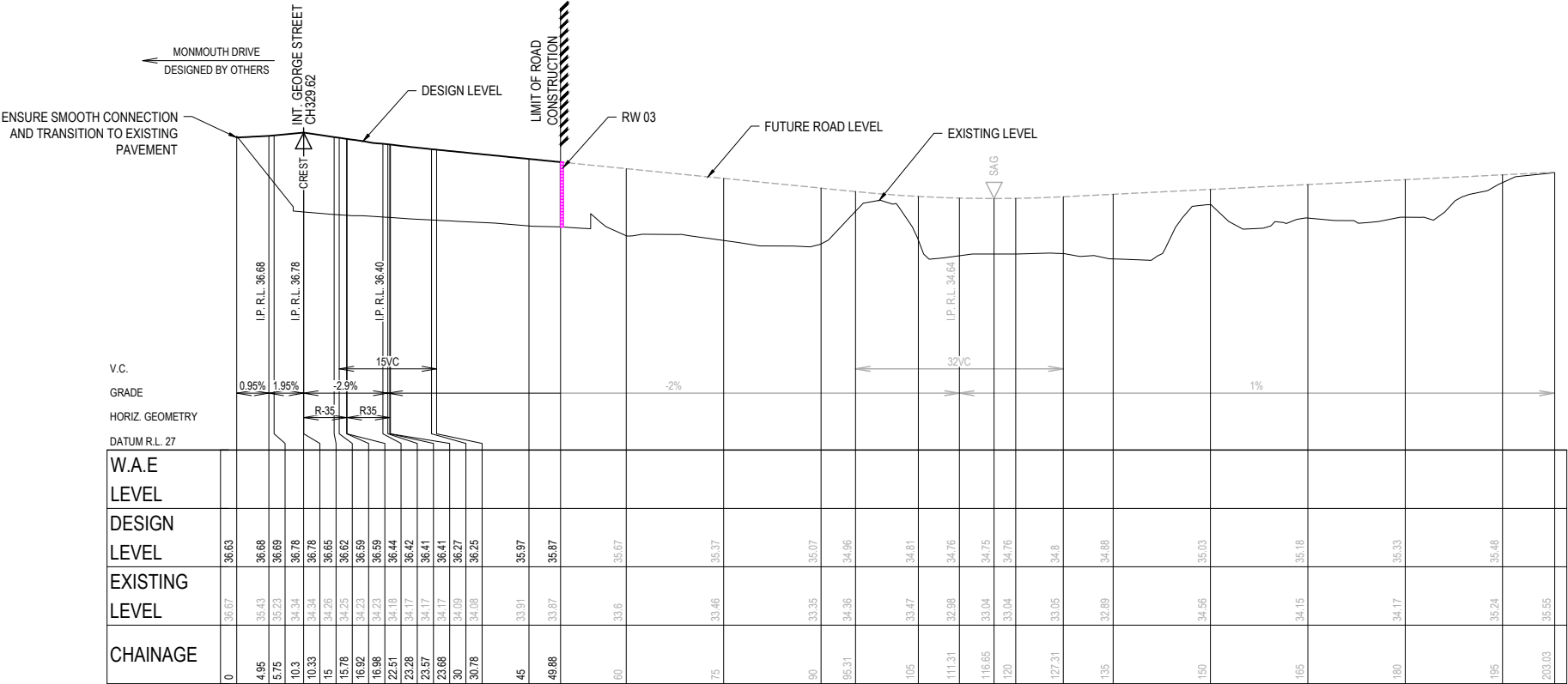
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CONSTRUCTION CERTIFICATE

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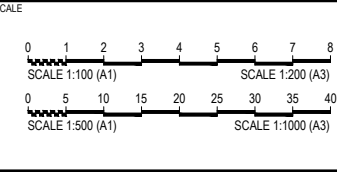
CC APPROVED ON
16/04/2024

NOTE :
REFER TO HILLS SHIRE COUNCIL
STANDARD DRAWING SD14 FOR
KERB DETAILS.



FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	
	VC	MS	MC	MC	25/08/2017		
AMENDMENTS	1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
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	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
	7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS
FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE:
BY: ENRIQUE FRANCO SIGN:
BE(Hons) MIEAust. CPEng
NER
DATE:



CLIENT

VISY CASTLE Pty Ltd



PROJECT

58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

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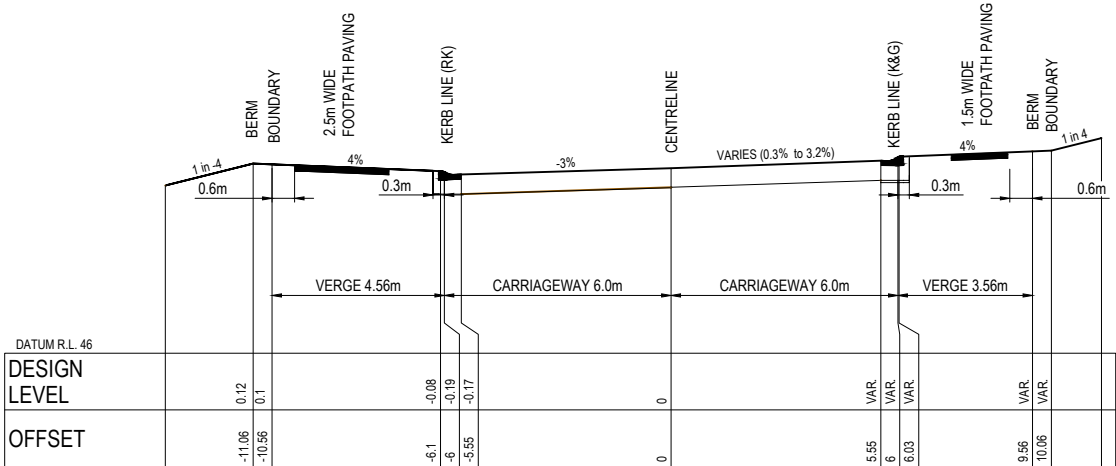
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ROSARIO STREET & KEENELAND STREET LONGITUDINAL & TYPICAL SECTION			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	402		7

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

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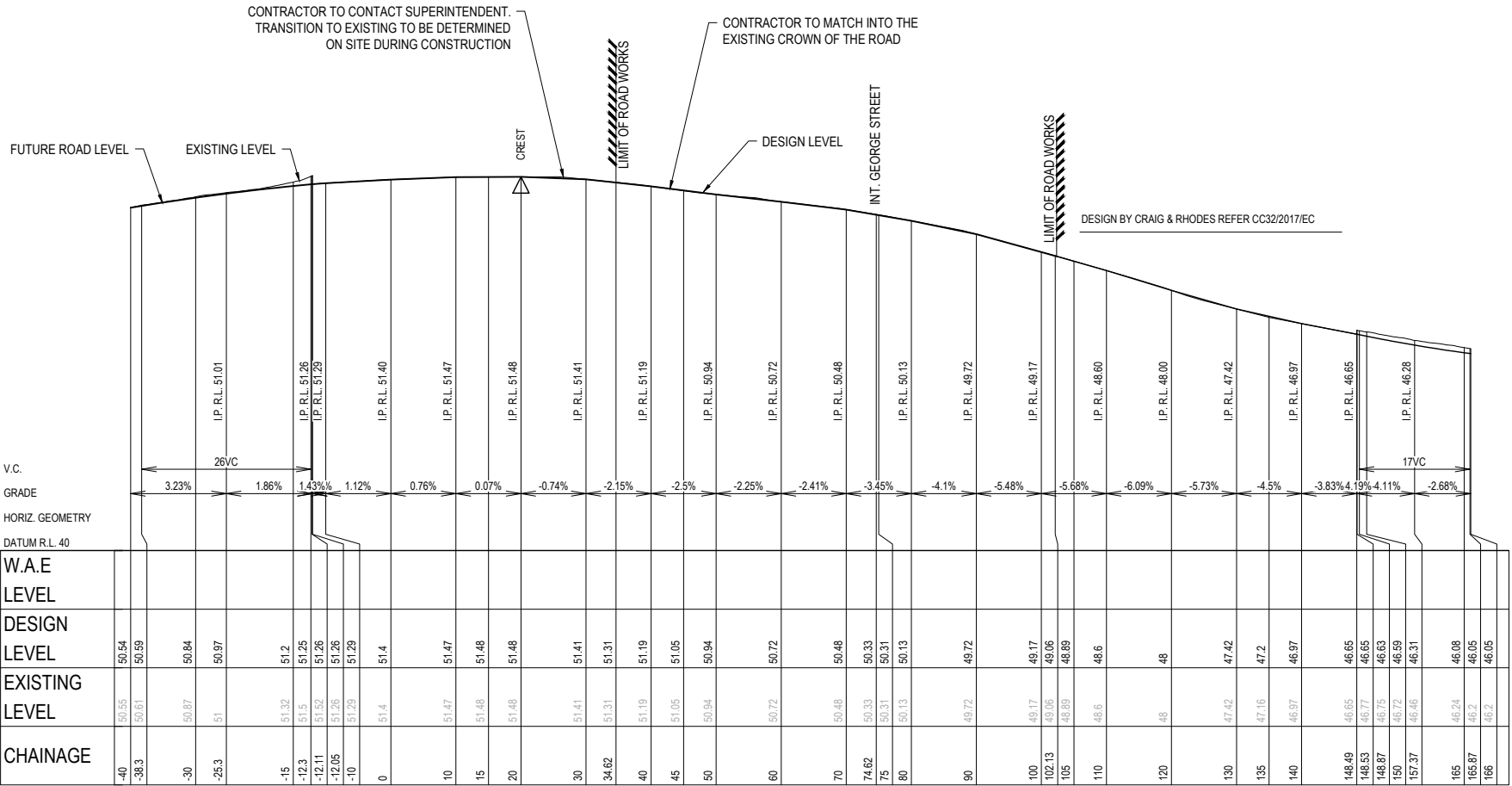
CC APPROVED ON
16/04/2024



TYPICAL CROSS SECTION TERRY ROAD - CH34.618 - CH53.4

SCALE 1:100 (H)
SCALE 1:100 (V)

NOTE :
REFER TO HILLS SHIRE COUNCIL
STANDARD DRAWING SD14 FOR
KERB DETAILS.



LONGITUDINAL SECTION CENTRELINE - TERRY ROAD

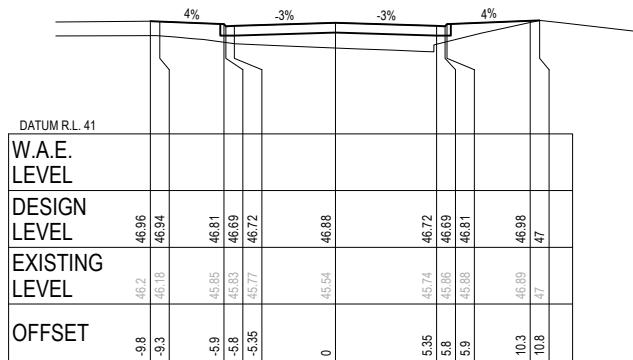
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FIRST ISSUE	DESIGN	DRAWN	CHECK	APPRO.	DATE						
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3	VC	MS	MC	SAG	09/01/2018						
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AMENDMENT DETAILS						AUTHORISED FOR ISSUE:					
						BY: ENRIQUE FRANCO SIGN: 					
						BE(Hons) MIEAust. CPEng NER					
						DATE: 16/04/24					

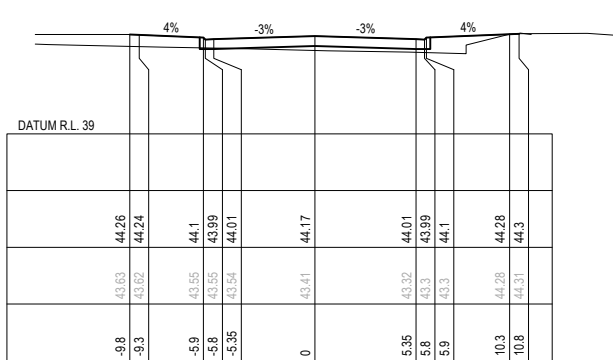
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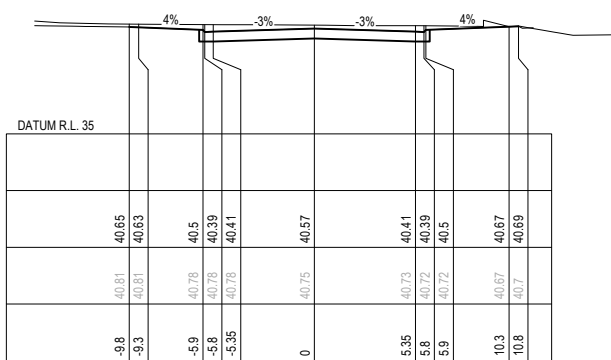
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16/04/2024



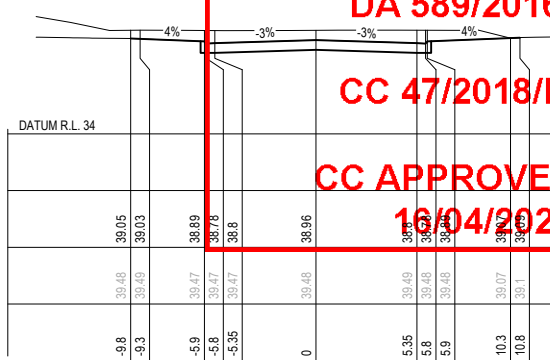
CH 60



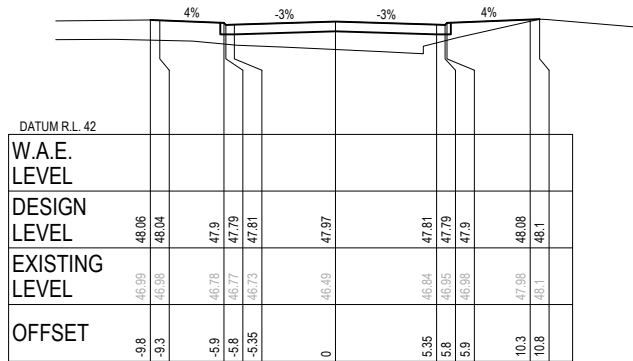
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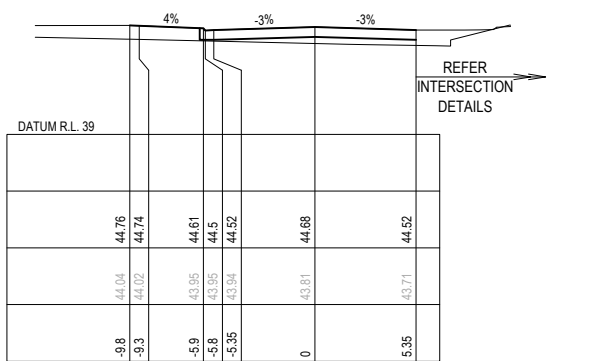
CH 150



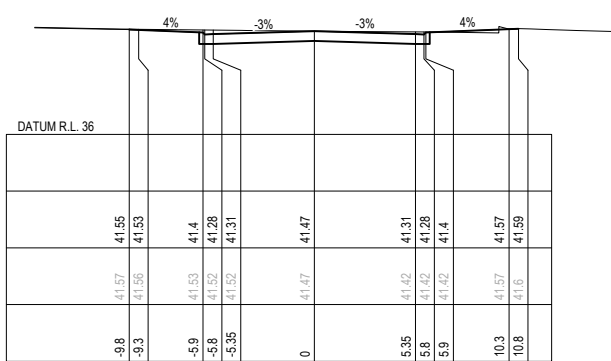
CH 180



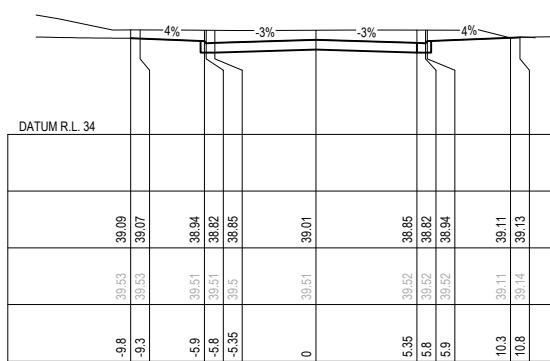
CH 45



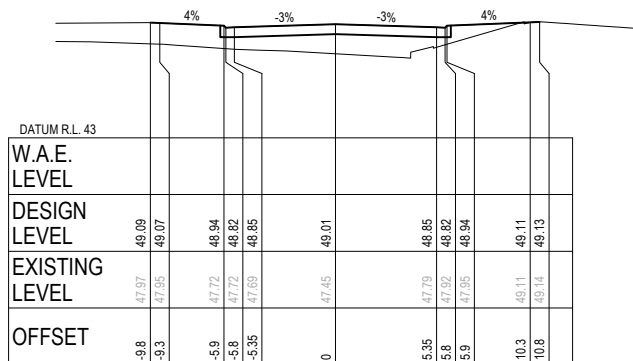
CH 90



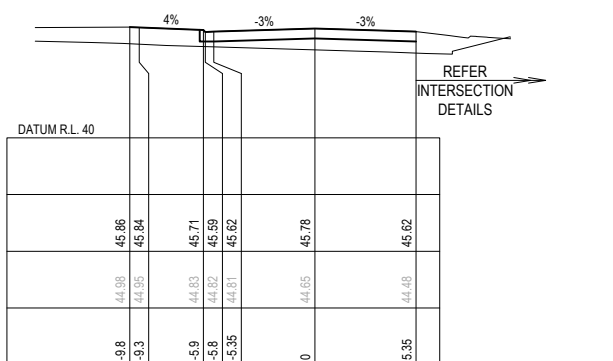
CH 135



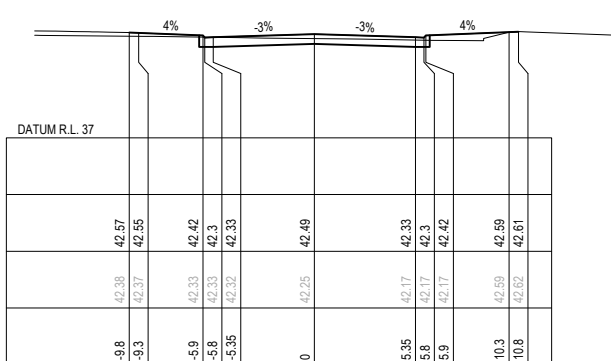
KTP 179.082



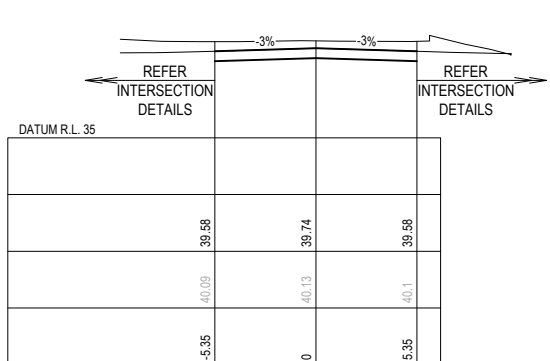
CH 30



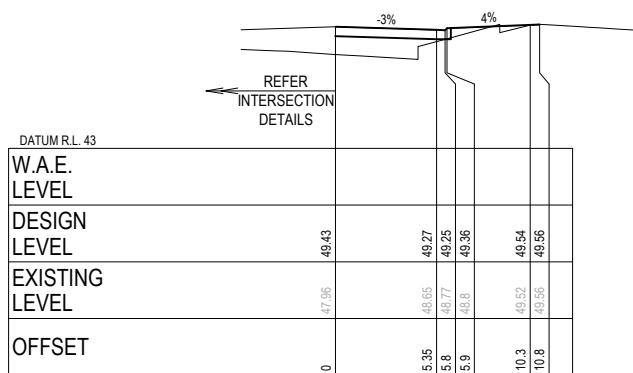
CH 75



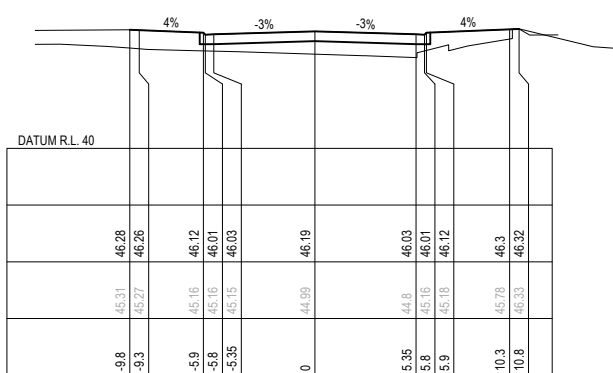
CH 120



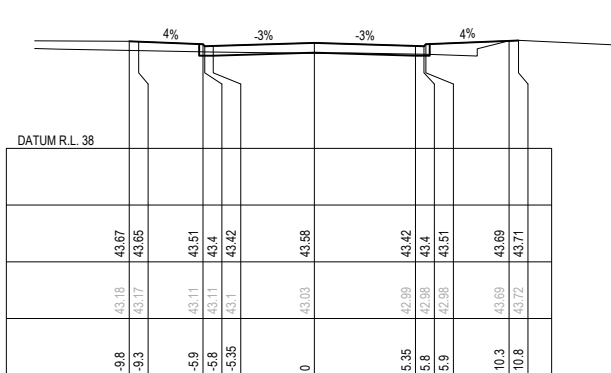
CH 165



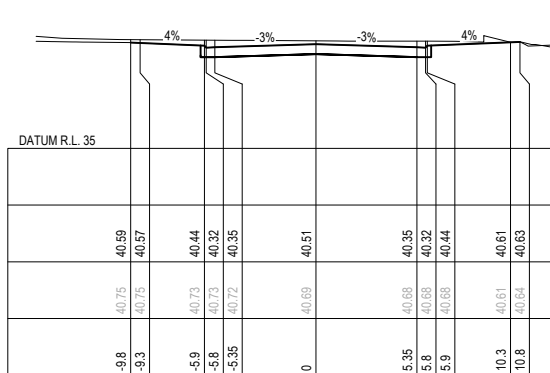
KTP 22.572



KTP 69.332



CH 105

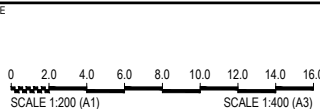


KTP 151.107

GEORGE STREET
CROSS SECTIONS
SCALE 1:200 (NAT.)

FOR SUBDIVISION
WORKS CERTIFICATE

AUTHORISED FOR ISSUE:
BY: ENRIQUE FRANCO SGN:
BE(Hons) MIEAust. CPEng
NER
DATE:



CLIENT

VISY CASTLE Pty Ltd



PROJECT

58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO
CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT
FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE

GEORGE STREET - CROSS
SECTIONS SHEET 01 OF 02

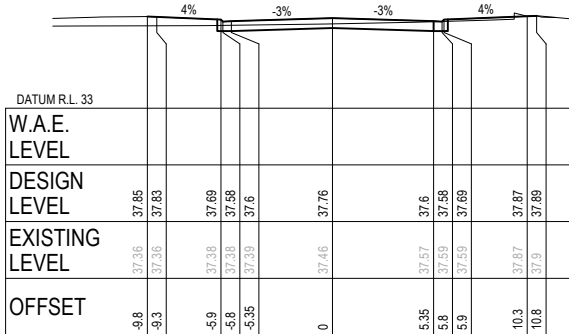
PROJECT No. 23-000096
DRAWING No. 501
STAGE
REVISION 7

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

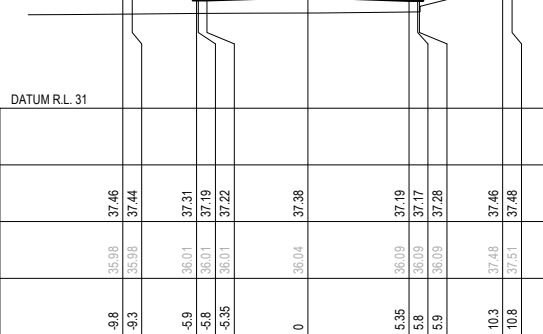
DA 589/2016/ZE

CC 47/2018/EC/A

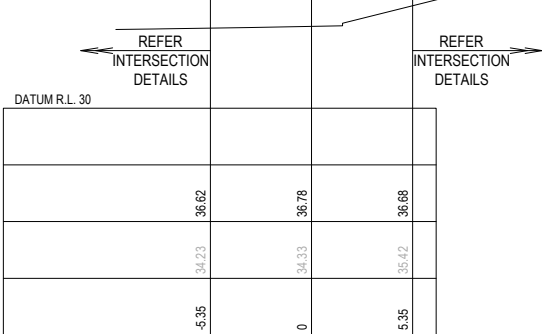
**CC APPROVED ON
16/04/2024**



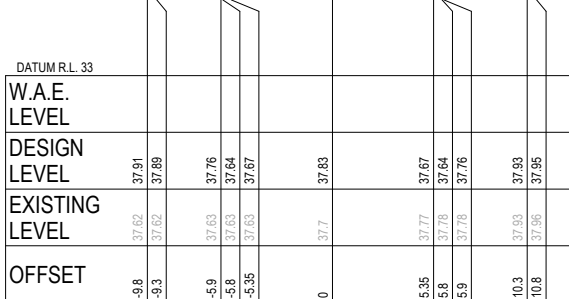
KTP 231.4



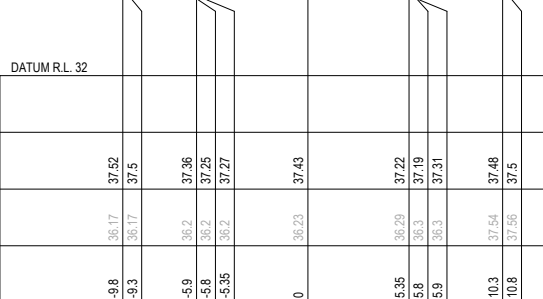
CH 270



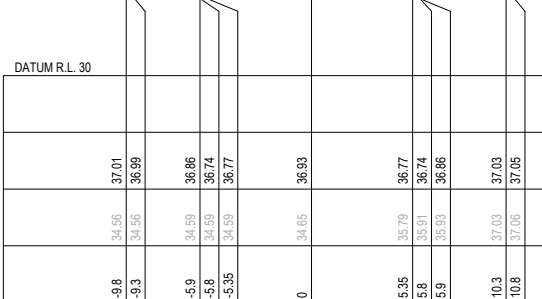
CH 330



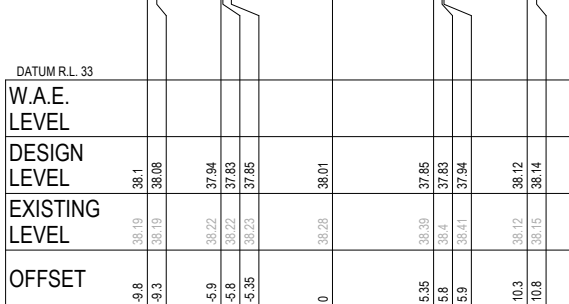
CH 22



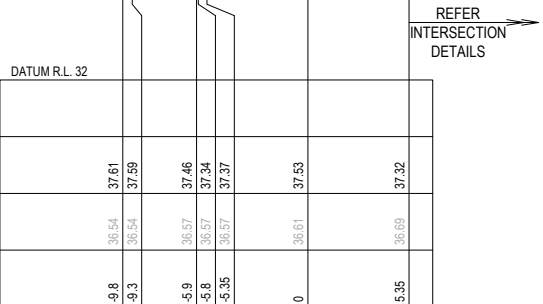
KTP 264.43



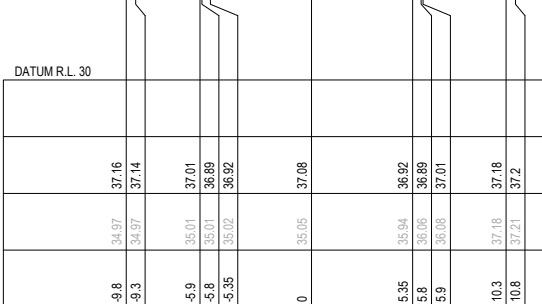
CH 315



CH 21



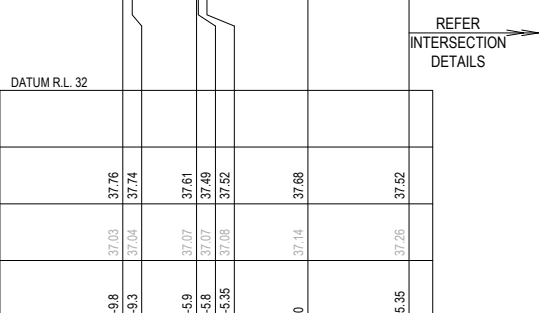
CH 255



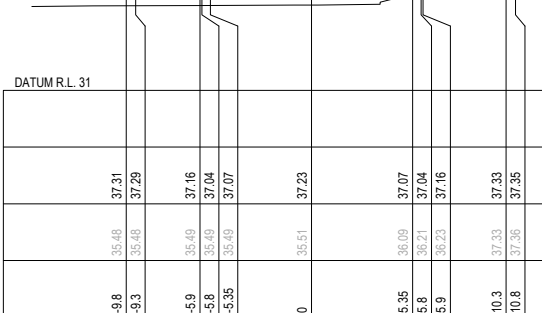
CH 300



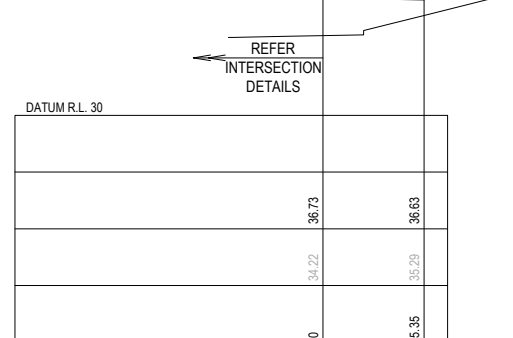
CH 19



CH 240



CH 285



KTP 334.653

GEORGE STREET (CONT.

CROSS SECTIONS

SCALE 1:200 (NAT

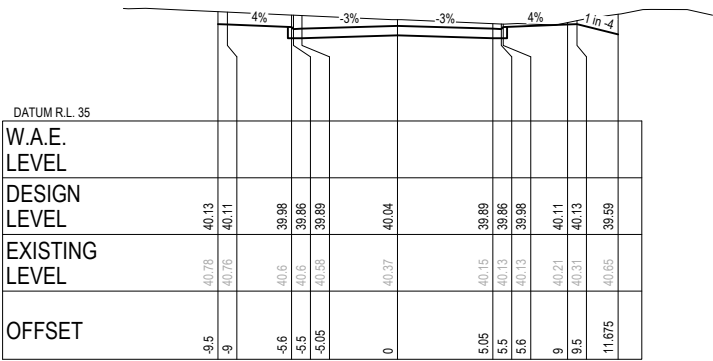
A M E D I U M T E R M I N I S T S	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE		
	1	VC	MS	MC	25/08/2017								ISSUE FOR TENDER	
	2	VC	MS	MC	25/09/2017								ISSUE FOR COUNCIL COMMENTS	
	3	VC	MS	MC	10/11/2017								ISSUE FOR CONSTRUCTION CERTIFICATE	
	4	VC	MS	MC	09/01/2018								ISSUE FOR CONSTRUCTION CERTIFICATE	
	5	VC	MS	MC	11/01/2018								ISSUE FOR CONSTRUCTION CERTIFICATE	
	6	VC	VC	-	19/03/2018								ISSUE FOR CONSTRUCTION CERTIFICATE	
	7	MGC	JH	MC	EF								17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
	8	FM	JS	FM	EF								04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
	9	FM	JS	FM	EF								04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
						AUTHORISED FOR ISSUE:	BY: ENRIQUE FRANCO	SIGN: 						
							BE(Hons) MIEAust. CPEng NER	DATE: 						
														
														
										www.egis-group.com				
										© 2023 Egis Consulting Pty Ltd				
										DISCLAIMER				
										ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY.				
										PROJECT No.	DRAWING No.	STAGE	REVISION	
										23-000096	502		7	

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

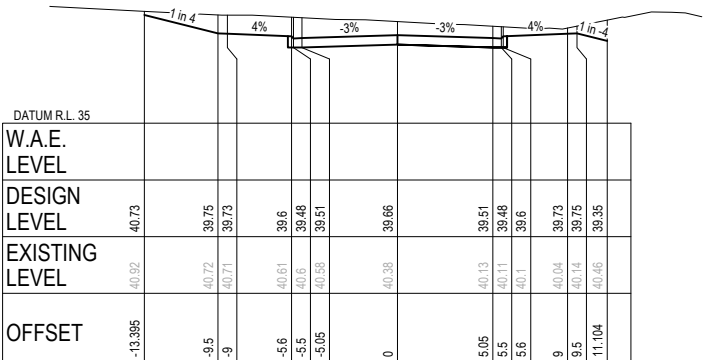
DA 589/2016/ZE

CC 47/2018/EC/A

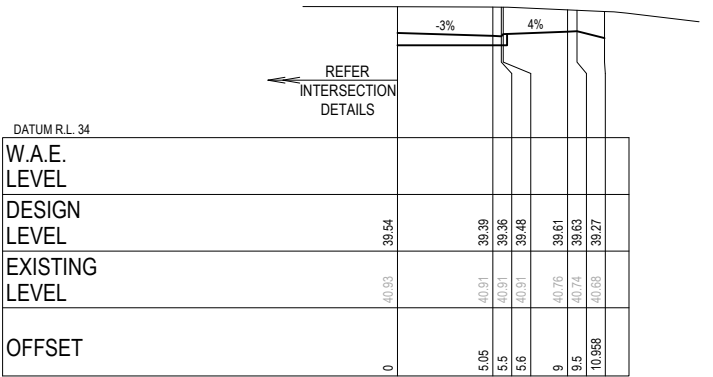
CC APPROVED ON
16/04/2024



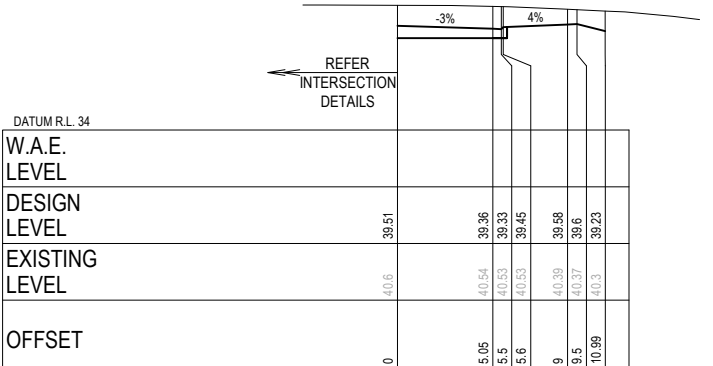
CH 30



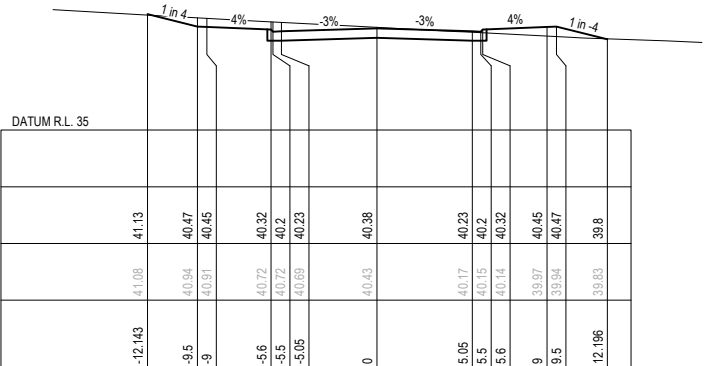
KTP 19.049



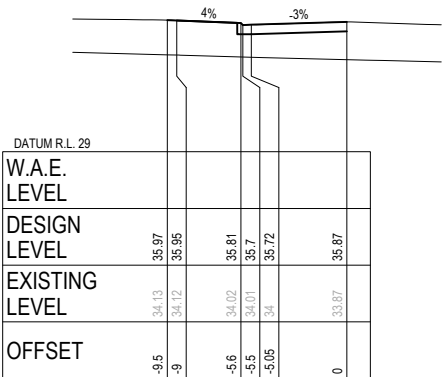
CH 15



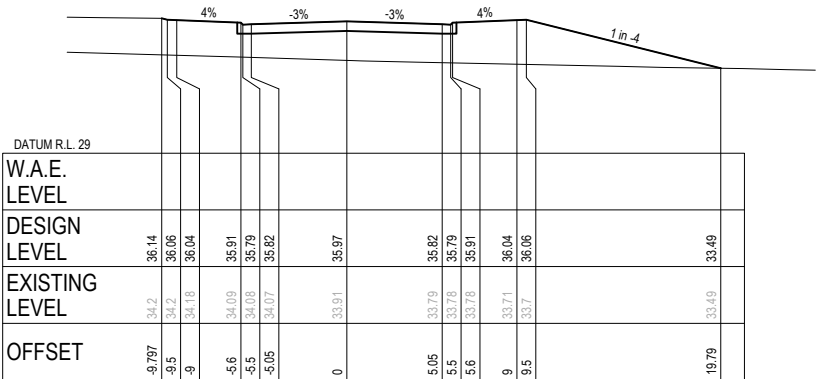
KTP 13.3



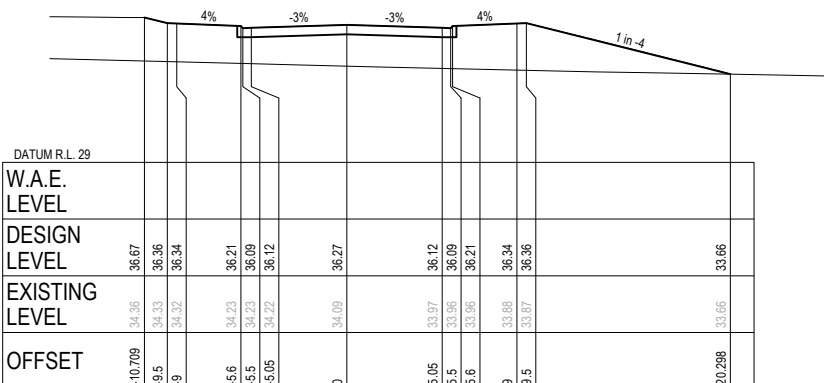
CH 40



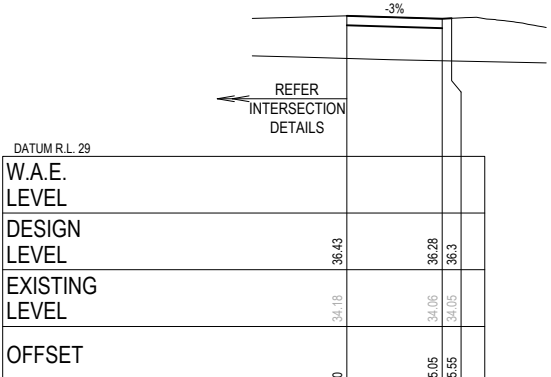
CH 49.88



CH 45



CH 30



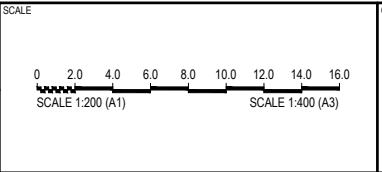
CH 22.84

KEMPTON ROAD
CROSS SECTIONS
SCALE 1:200 (NAT.)

KEENELAND STREET
CROSS SECTIONS
SCALE 1:200 (NAT.)

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS
1	VC	MS	MC		25/08/2017	
2	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
3	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS
4	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	VC	-	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	
FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:	
BY: ENRIQUE FRANCO SIGN:	
BE(Hons) MIEAust. CPEng	
NER	
DATE:	



CLIENT

VISY CASTLE Pty Ltd



PROJECT

58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

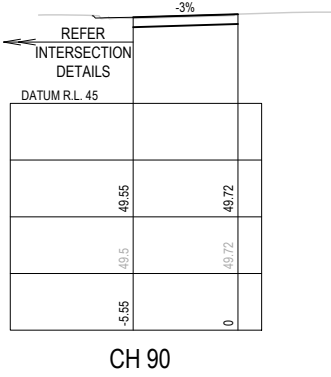
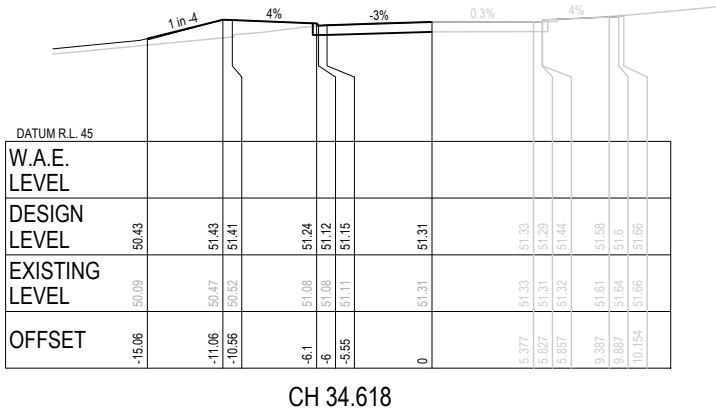
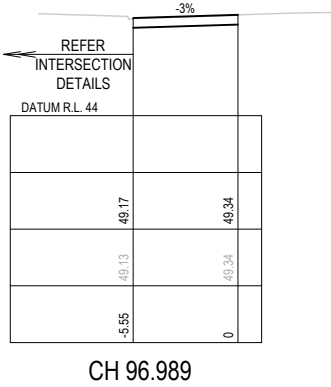
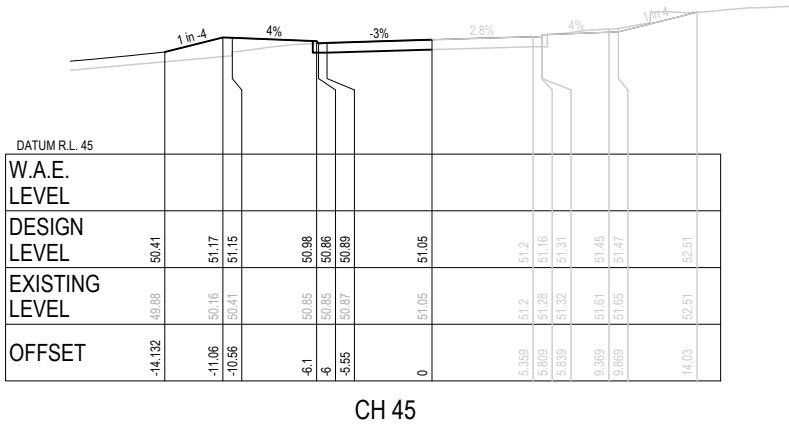
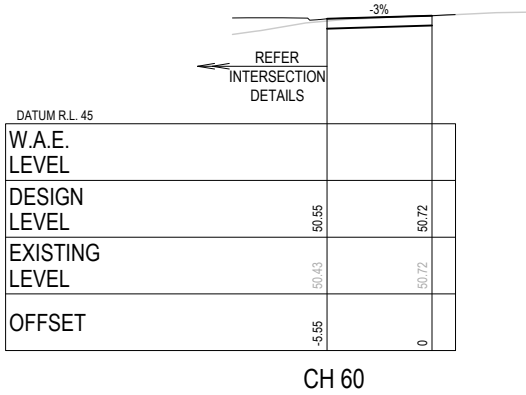
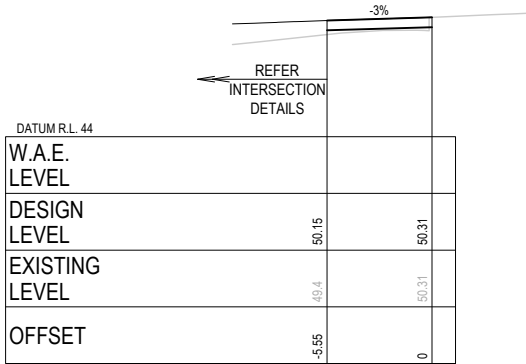
DRAWING TITLE			
ROSARIO STREET & KEENELAND STREET - CROSS SECTIONS			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	503		7

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

NOTE:
1. EXISTING HALF OF TERRY ROAD CROSS
SECTIONS SHOWN FOR INFORMATION
ONLY.



TERRY ROAD
CROSS SECTIONS
SCALE 1:200 (NAT.)

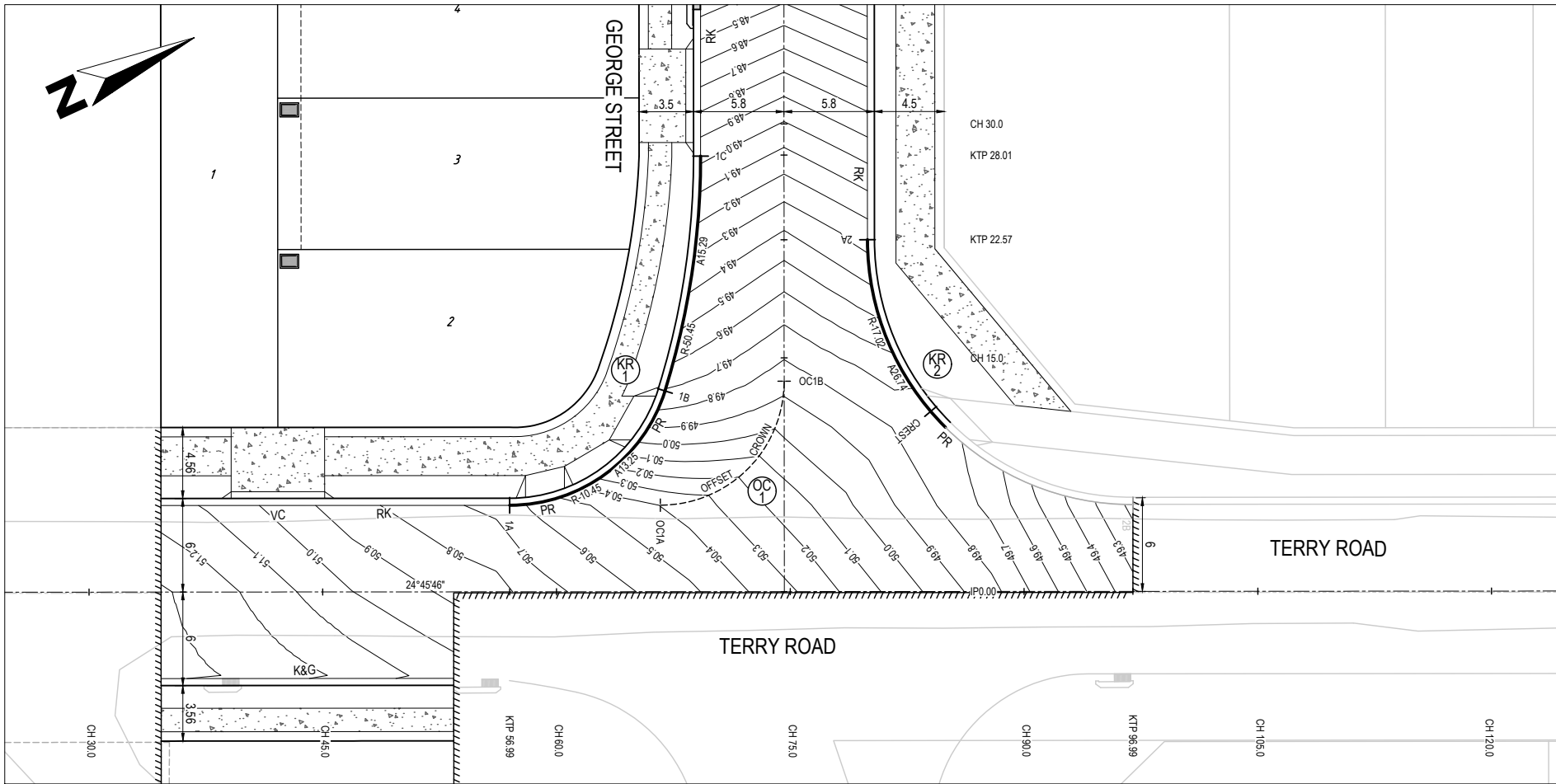
THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2018/2E

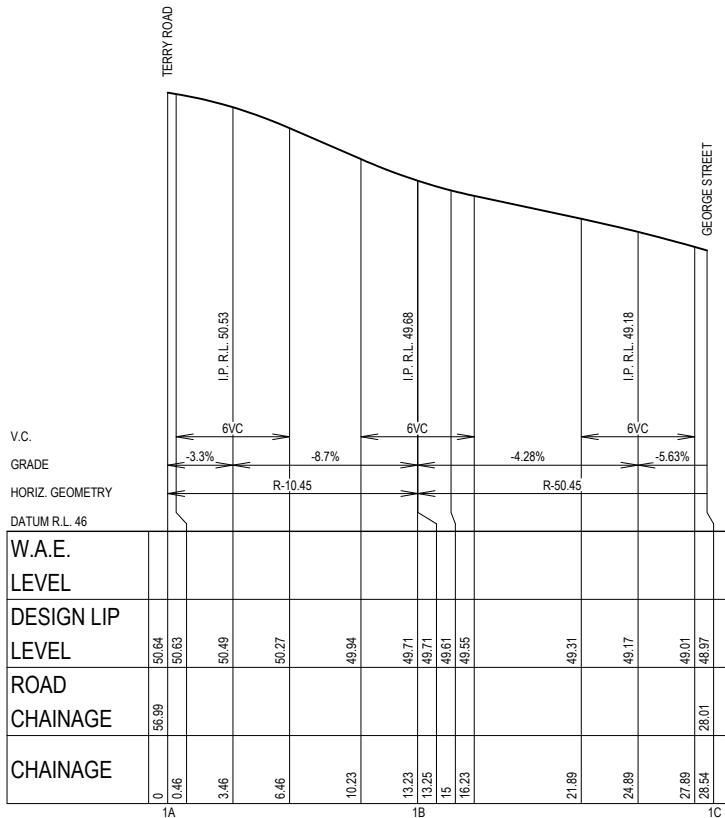
CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

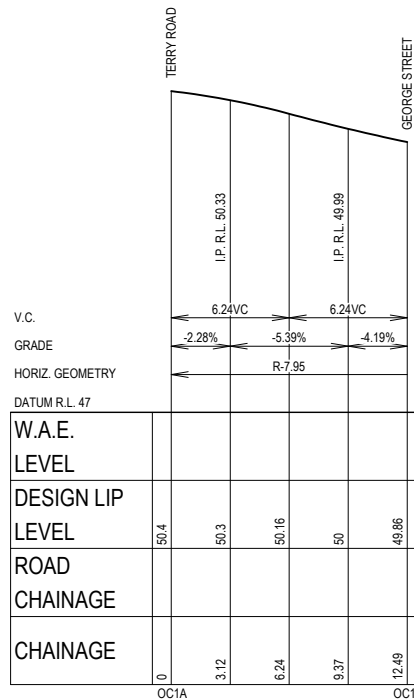
NOTE:
1. ALL SETOUTS & LEVELS REFER TO CP AS
GUTTER LINE UNLESS OTHERWISE NOTED
2. ALL KERB LINES ARE STANDARD ROLL
KERB UNLESS OTHERWISE NOTED
3. ENSURE SMOOTH CONNECTION AND
TRANSITION TO EXISTING KERB RETURNS,
EXISTING PAVEMENT WITHIN
INTERSECTION TO BE RESTORED



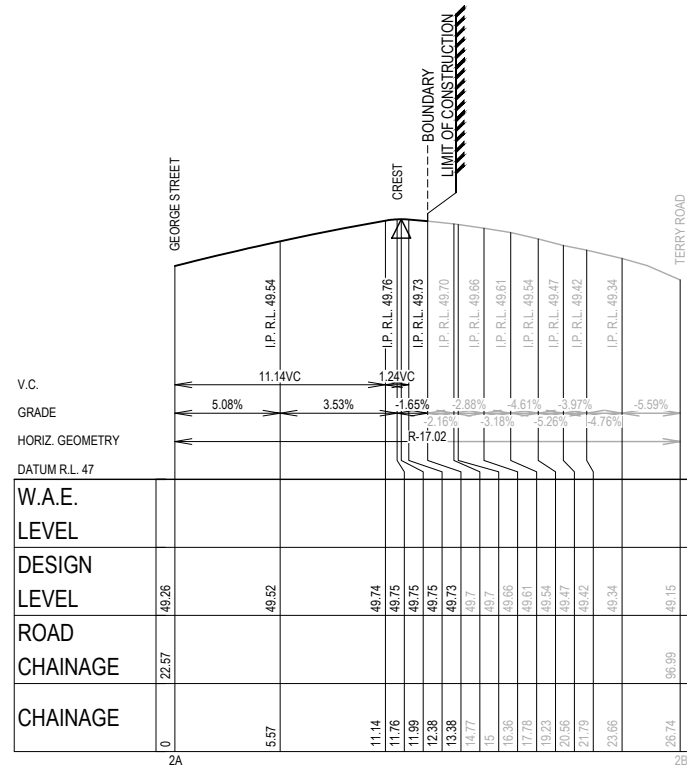
PLAN
SCALE 1:200



KERB RETURN No.1
SCALE 1:200 (H)
SCALE 1:40 (V)



OFFSET CROWN No.1
SCALE 1:200 (H)
SCALE 1:40 (V)



KERB RETURN No.2
SCALE 1:200 (H)
SCALE 1:40 (V)

DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT	DRAWING TITLE
1	VC	MS	MC	25/08/2017		FOR SUBDIVISION WORKS CERTIFICATE	0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 SCALE 1:40 (A1)	VISY CASTLE Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	INTERSECTION DETAILS KR No.1 & 2 AND OC No.1
2	VC	VS	MC	25/09/2017	ISSUE FOR TENDER		0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 SCALE 1:200 (A1)			
3	VC	MS	MC	10/11/2017	ISSUE FOR COUNCIL COMMENTS					
4	VC	MS	MC	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
5	VC	MS	MC	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
6	VC	MS	MC	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
7	VC	MS	MC	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
8	VC	MS	MC	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
9	VC	MS	MC							
10	VC	MS	MC							
11	VC	MS	MC							
12	VC	MS	MC							
13	VC	MS	MC							
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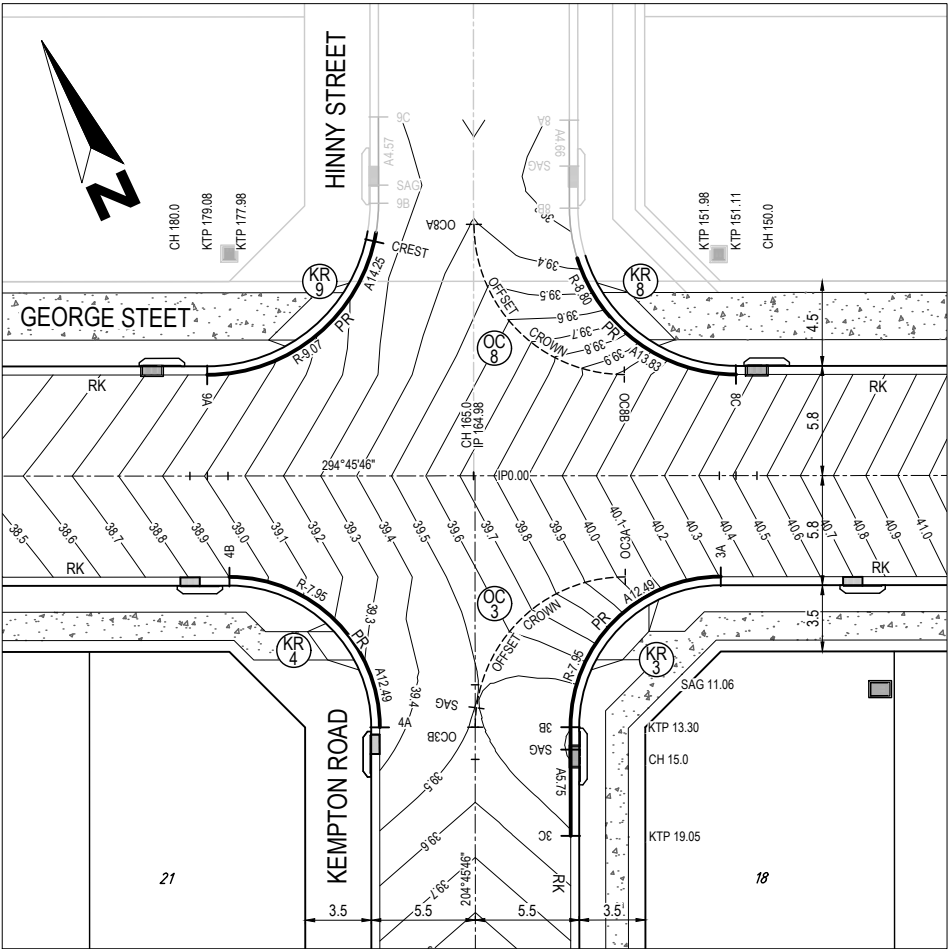
NOTE:
1. ALL SETOUT & LEVELS REFER TO LIP OF GUTTER LINE UNLESS OTHERWISE NOTED
2. ALL KERB LINES ARE STANDARD ROLL KERB UNLESS OTHERWISE NOTED
3. ENSURE SMOOTH CONNECTION AND TRANSITION TO EXISTING KERB RETURNS, EXISTING PAVEMENT WITHIN INTERSECTION TO BE RESTORED

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

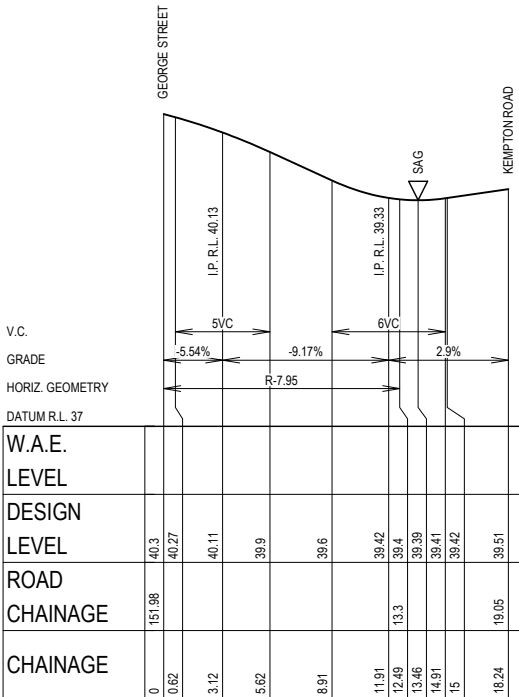
DA 589/2016/ZE

CC 47/2018/EC/A

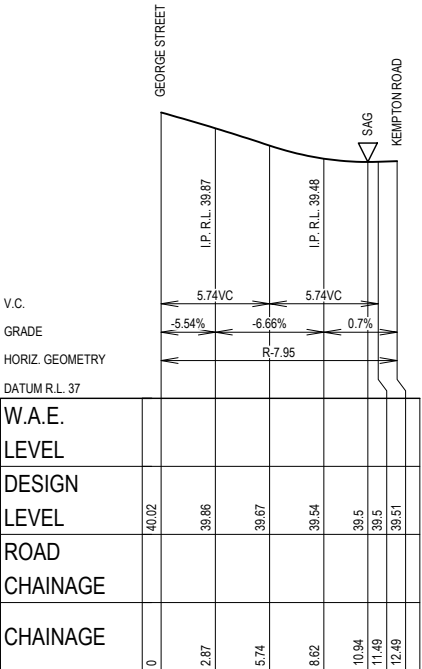
CC APPROVED ON
16/04/2024



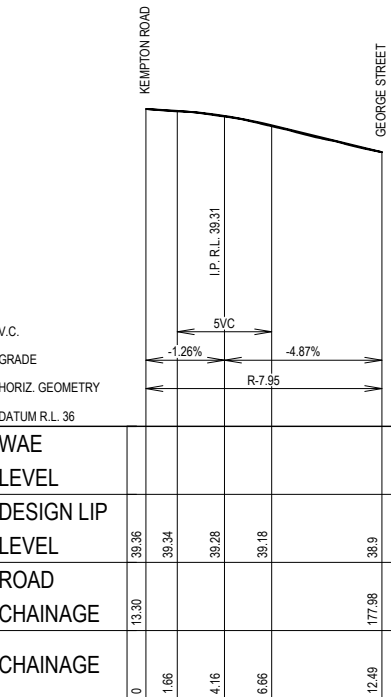
PLAN
SCALE 1:200



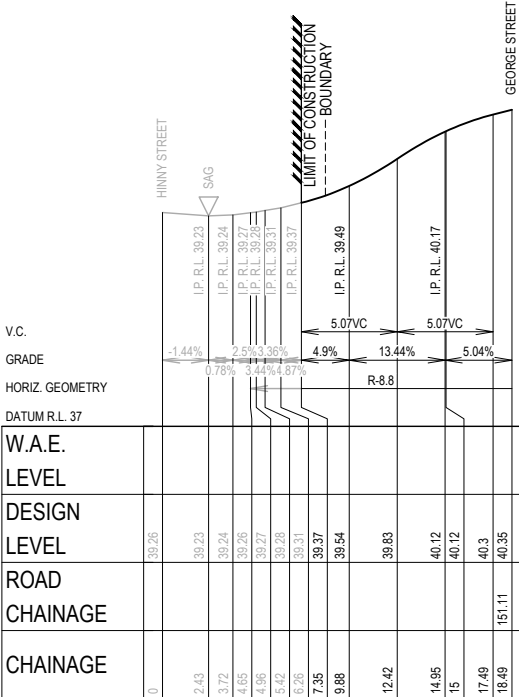
Kerb Return No.3
SCALE 1:200 (H)
SCALE 1:40 (V)



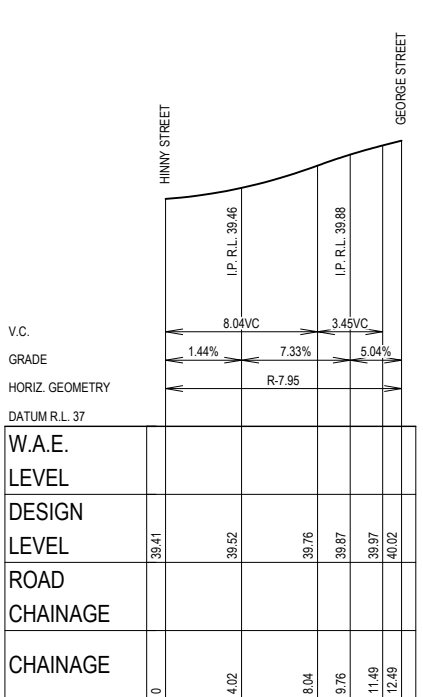
Offset Crown No.3
SCALE 1:200 (H)
SCALE 1:40 (V)



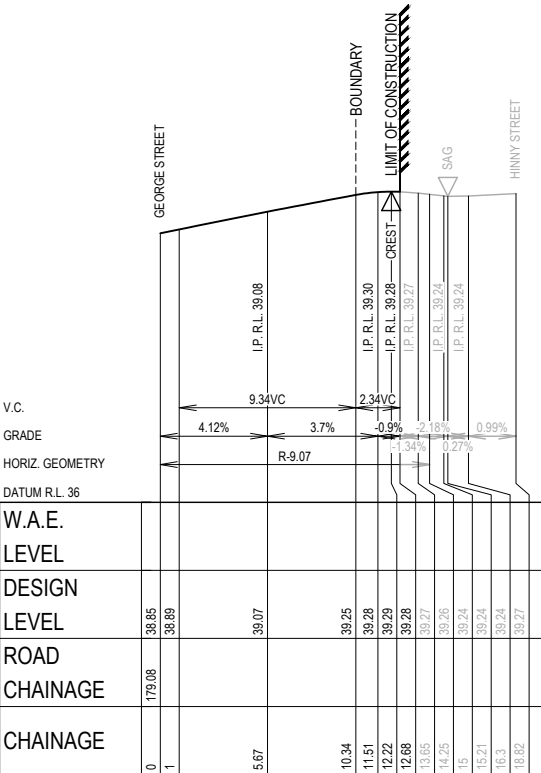
Kerb Return No.4
SCALE 1:200 (H)
SCALE 1:40 (V)



Kerb Return No.8
SCALE 1:200 (H)
SCALE 1:40 (V)



Offset Crown No.8
SCALE 1:200 (H)
SCALE 1:40 (V)



Kerb Return No.9
SCALE 1:200 (H)
SCALE 1:40 (V)

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	VC	SAG	11/01/2018
6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	VC	SAG	11/01/2018
6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	VC	SAG	11/01/2018
6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	VC	SAG	11/01/2018
6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	VC	SAG	11/01/2018
6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
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3	VC	MS	MC	10/11/2017
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5	VC	VC	SAG	11/01/2018
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DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
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6	MGC	JH	MC	19/03/2018
7	FM	JS	FM	17/11/2023
8	FM	JS	FM	04/03/2024

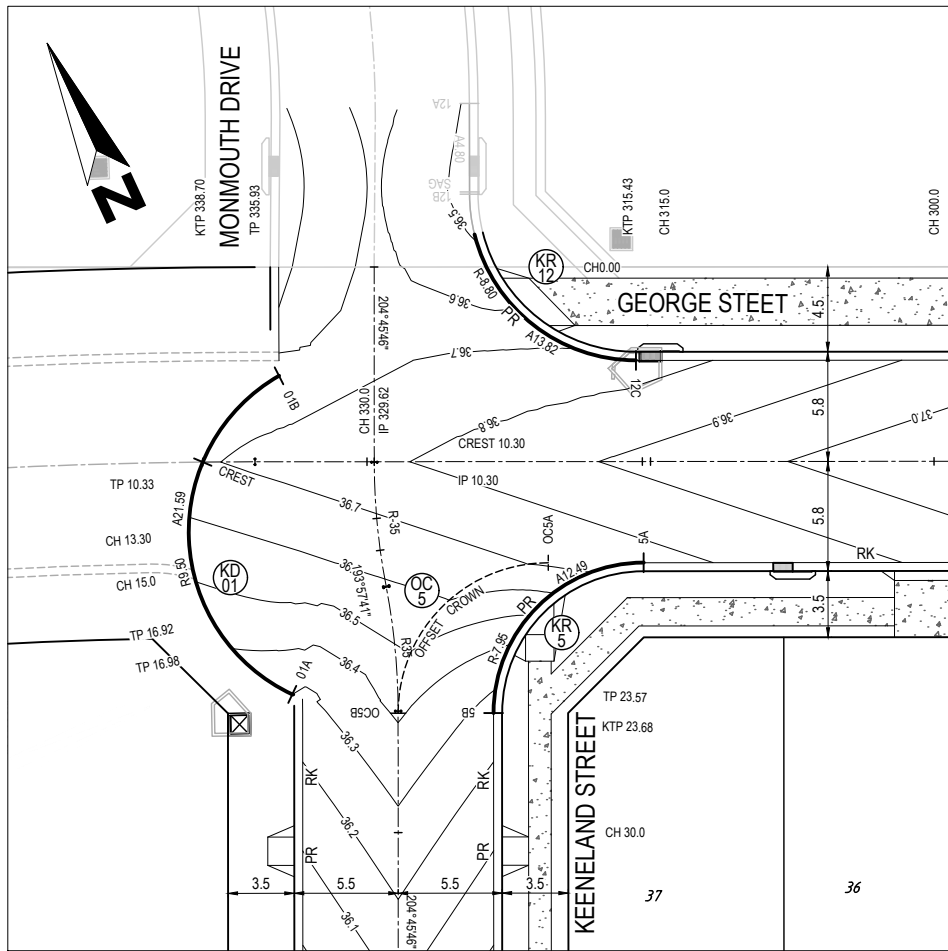
THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2018/21

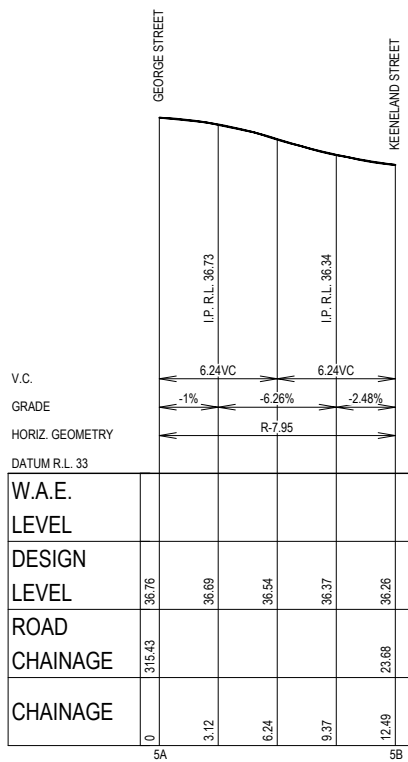
CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

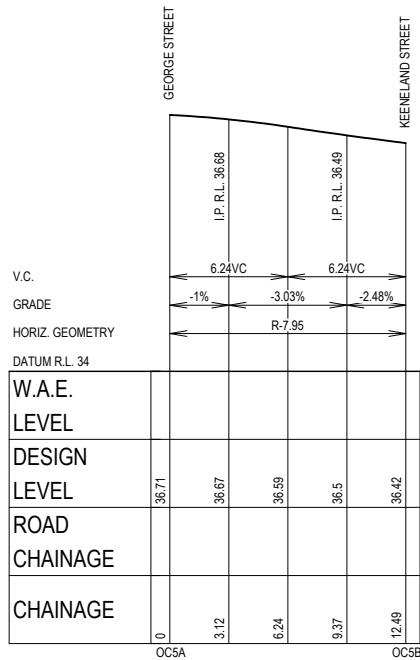
NOTE:
1. ALL SETOUT & LEVELS REFER TO IP OF
GUTTER LINE UNLESS OTHERWISE NOTED
2. ALL KERB LINES ARE STANDARD ROLL
KERB UNLESS OTHERWISE NOTED
3. ENSURE SMOOTH CONNECTION AND
TRANSITION TO EXISTING KERB RETURNS,
EXISTING PAVEMENT WITHIN
INTERSECTION TO BE RESTORED



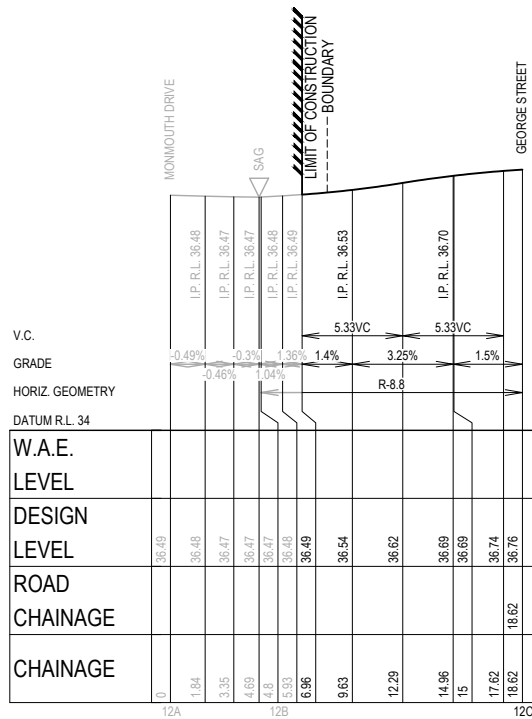
PLAN
SCALE 1:200



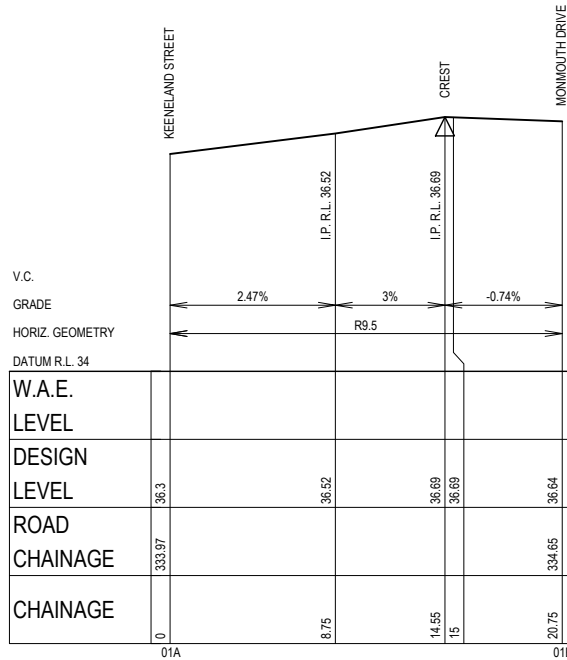
KERB RETURN No.5
SCALE 1:200 (H)
SCALE 1:40 (V)



OFFSET CROWN No.5
SCALE 1:200 (H)
SCALE 1:40 (V)



KERB RETURN No.12
SCALE 1:200 (H)
SCALE 1:40 (V)



KERB DEVELOPMENT No.01
SCALE 1:200 (H)
SCALE 1:40 (V)

DESIGN	DRAWN	CHECK	APPROD.	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
5	VC	MS	MC	11/01/2018
6	VC	MS	MC	19/03/2018
7	VC	MS	MC	17/11/2023
8	VC	MS	MC	04/03/2024

STATUS	FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE:	BY: ENRIQUE FRANCO SIGN: 
BE(Hons) MIEAust. CPEng NER	DATE: 16/04/24

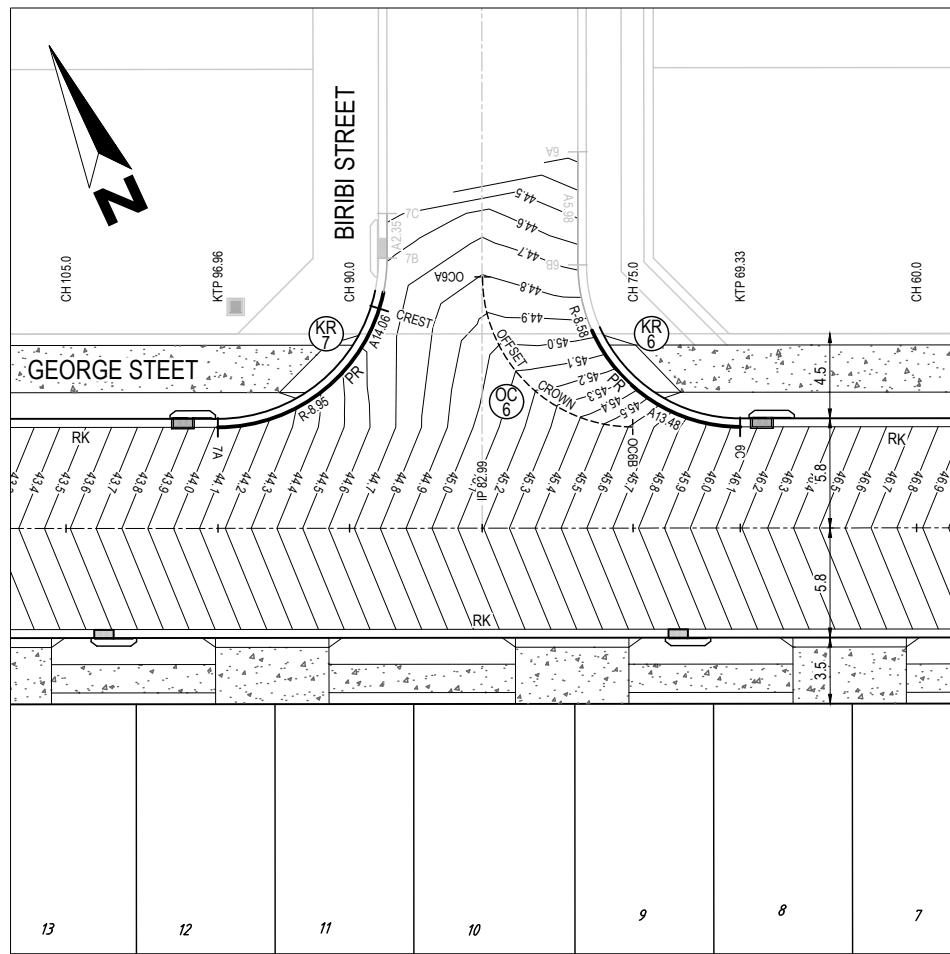
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SCALE 1:40 (A1)	SCALE 1:80 (A3)
SCALE	0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0
SCALE 1:200 (A1)	SCALE 1:400 (A3)

CLIENT	VISY CASTLE Pty Ltd
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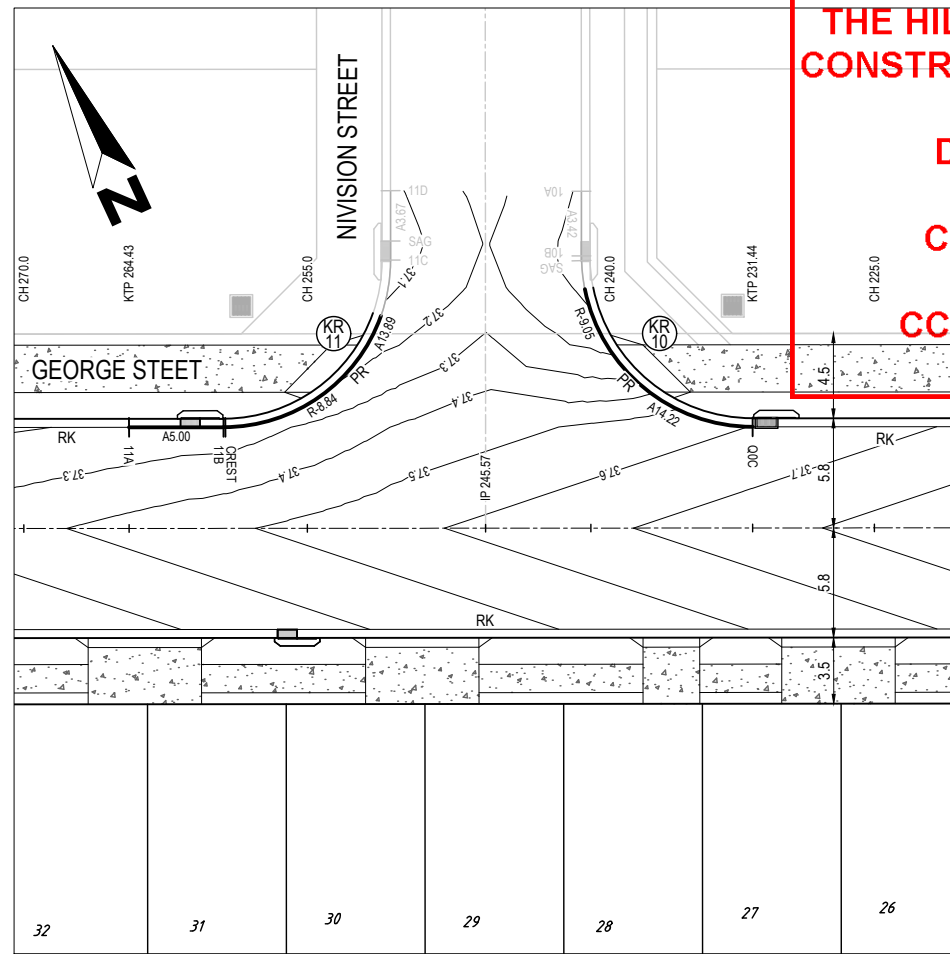
PROJECT	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
www.egis-group.com	

DRAWING TITLE	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
DISCLAIMER	ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

PROJECT No.	23-000096
DRAWING No.	603
STAGE	
REVISION	7



PLAN
SCALE 1:200

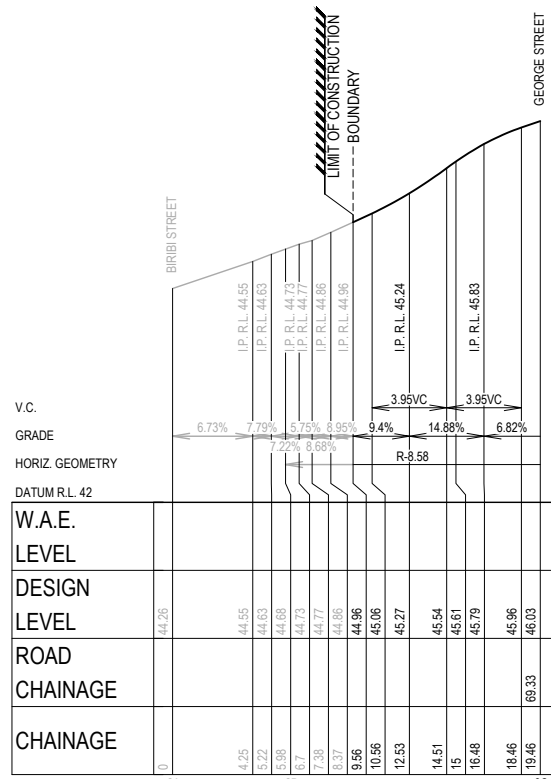


PLAN
SCALE 1:200

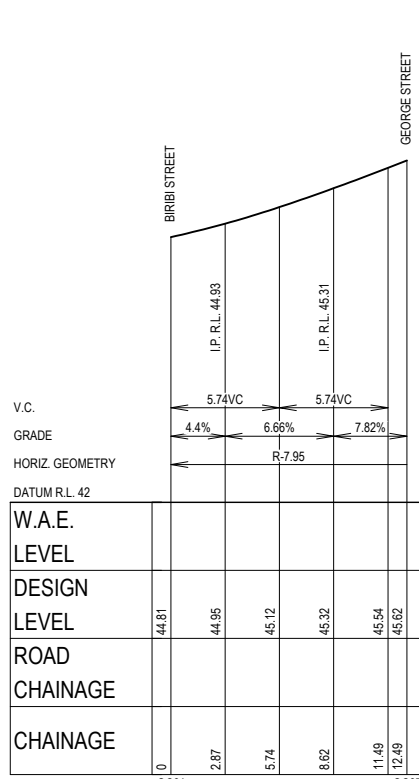
**THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE**

NOTE:
1. ALL SETBACKS REFER TO V.C.
OUTER LINE UNLESS OTHERWISE NOTED
2. ALL KERB LINES ARE STANDARD ROLL
KERB UNLESS OTHERWISE NOTED
3. ENSURE SMOOTH CONNECTION AND
TRANSITION TO EXISTING KERB RETURNS,
EXISTING PAVEMENT WITHIN
INTERSECTION TO BE RESTORED

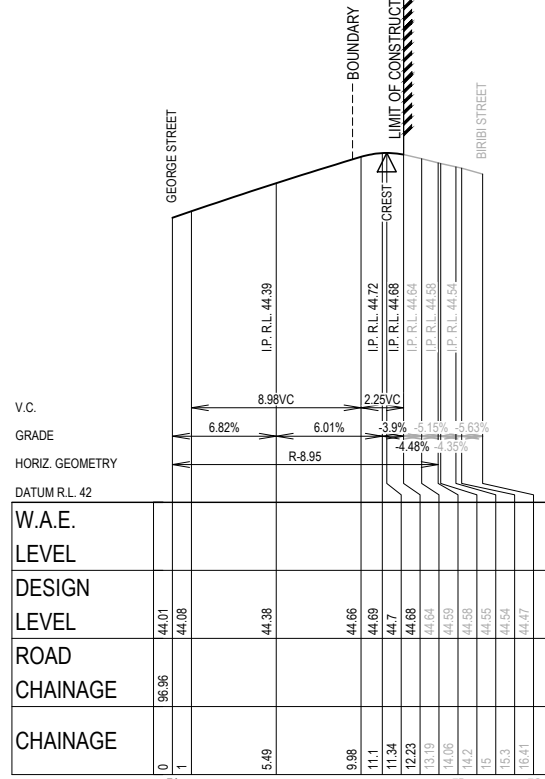
DA 58/2018/EC
CC 47/2018/EC/A
**CC APPROVED ON
16/04/2024**



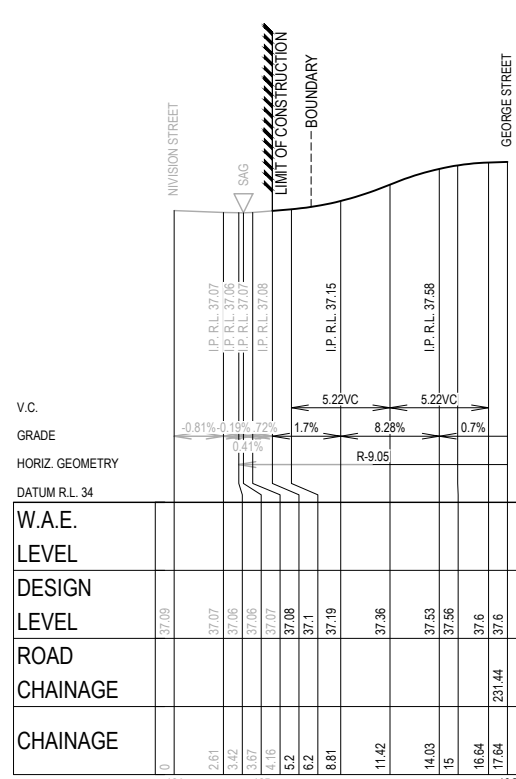
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SCALE 1:200 (H)
SCALE 1:40 (V)



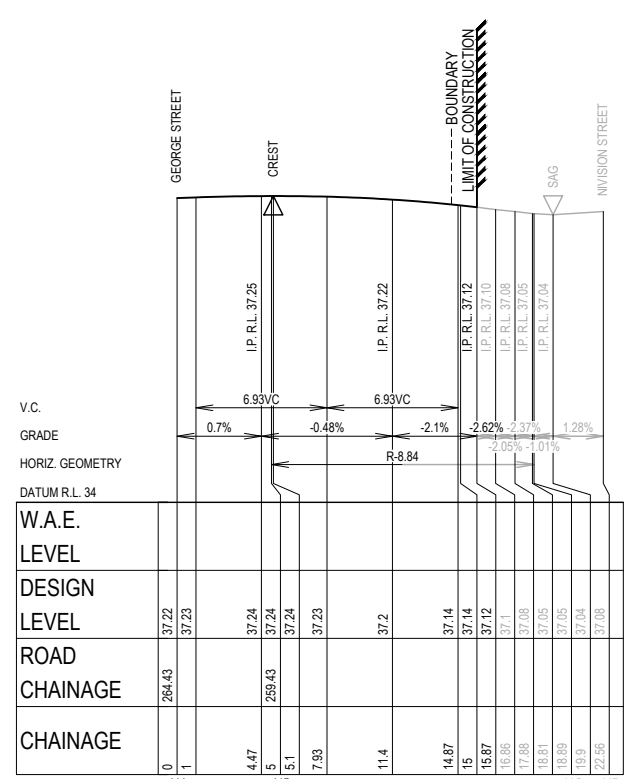
OFFSET CROWN No.6
SCALE 1:200 (H)
SCALE 1:40 (V)



KERB RETURN No.7
SCALE 1:200 (H)
SCALE 1:40 (V)



KERB RETURN No.10
SCALE 1:200 (H)
SCALE 1:40 (V)



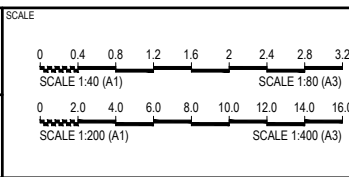
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SCALE 1:200 (H)
SCALE 1:40 (V)

DESIGN	DRAWN	CHECK	APPRO	DATE
1	VC	MS	MC	25/08/2017
2	VC	VS	MC	25/09/2017
3	VC	MS	MC	10/11/2017
4	VC	MS	MC	09/01/2018
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6	MGC	JH	MC	19/03/2018
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AMENDMENT DETAILS

AMENDMENT	DATE	DESCRIPTION
1	25/08/2017	ISSUE FOR TENDER
2	25/09/2017	ISSUE FOR COUNCIL COMMENTS
3	10/11/2017	ISSUE FOR CONSTRUCTION CERTIFICATE
4	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	19/03/2018	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
8	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE:	BY: ENRIQUE FRANCO SIGN: 
BE(Hons) MIEAust. CPEng NER	DATE: 16/04/2024



CLIENT
VISY CASTLE Pty Ltd



PROJECT
**58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN**

DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO
CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT
FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

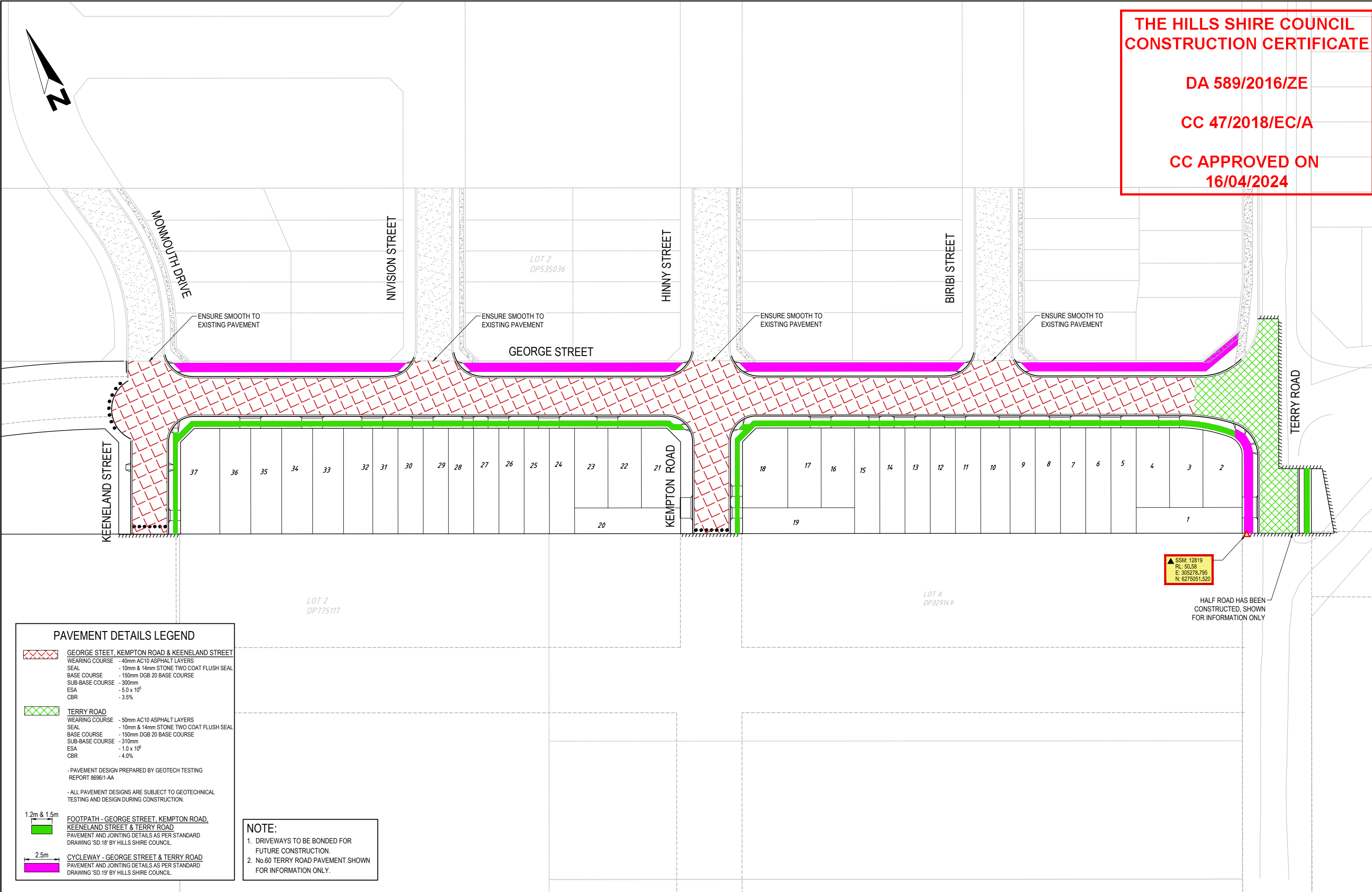
DRAWING TITLE	PROJECT No.	DRAWING No.	STAGE	REVISION
INTERSECTION DETAILS KR No.6, 7, 10 & 11 AND OC No.6	23-000096	604		7

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024



PAVEMENT DETAILS LEGEND

GEORGE STREET, KEMPTON ROAD & KEENELAND STREET

- WEARING COURSE - 40mm AC10 ASPHALT LAYERS
- SEAL - 10mm & 14mm STONE TWO COAT FLUSH SEAL
- BASE COURSE - 150mm DGB 20 BASE COURSE
- SUB-BASE COURSE - 300mm
- ESA - 5.0 x 10⁵
- CBR - 3.5%

TERRY ROAD

- WEARING COURSE - 50mm AC10 ASPHALT LAYERS
- SEAL - 10mm & 14mm STONE TWO COAT FLUSH SEAL
- BASE COURSE - 150mm DGB 20 BASE COURSE
- SUB-BASE COURSE - 310mm
- ESA - 1.0 x 10⁶
- CBR - 4.0%

- PAVEMENT DESIGN PREPARED BY GEOTECH TESTING REPORT 8696/1-AA

- ALL PAVEMENT DESIGNS ARE SUBJECT TO GEOTECHNICAL TESTING AND DESIGN DURING CONSTRUCTION.

1.2m & 1.5m

2.5m

FOOTPATH - GEORGE STREET, KEMPTON ROAD, KEENELAND STREET & TERRY ROAD

PAVEMENT AND JOINTING DETAILS AS PER STANDARD DRAWING 'SD.18' BY HILLS SHIRE COUNCIL.

CYCLEWAY - GEORGE STREET & TERRY ROAD

PAVEMENT AND JOINTING DETAILS AS PER STANDARD DRAWING 'SD.19' BY HILLS SHIRE COUNCIL.

NOTE:

1. DRIVEWAYS TO BE BONDED FOR FUTURE CONSTRUCTION.
2. No.60 TERRY ROAD PAVEMENT SHOWN FOR INFORMATION ONLY.

AMENDMENT DETAILS						STATUS		SCALE		CLIENT		PROJECT		DRAWING TITLE	
FIRST	DESIGN	DRAWN	CHECK	APPRO	DATE	FOR SUBDIVISION WORKS CERTIFICATE		0 5 10 15 20 25 30 35 40		VISY CASTLE Pty Ltd		58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN		PAVEMENT PLAN	
1	VC	MS	MC		25/08/2017	BY: ENRIQUE FRANCO SIGN: [Signature]		SCALE 1:500 (A1)		www.egis-group.com		ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY		PROJECT No. 23-000096	
2	VC	VS	MC		25/09/2017	BE(Hons) MIEAust. CPEng		SCALE 1:1000 (A3)		© 2023 Egis Consulting Pty Ltd		DRAWING No. 701		STAGE	
3	VC	MS	MC		10/11/2017	NER						REVISION		7	
4	VC	MS	MC	SAG	09/01/2018										
5	VC	MS	MC	SAG	11/01/2018										
6	VC	VC	-	SAG	19/03/2018										
7	MGC	JH	MC	EF	17/11/2023										
8	FM	JS	FM	EF	04/03/2024										



LINEMARKING LEGEND

LINE TYPE	USE	DIMENSIONS (m) (FOR DIMENSIONS SHOWN * SEE MARKER SPACING COLUMN.)	COLOUR	RAISED MARKER TYPE	MARKER SPACING (m)	
					NORMAL SPACING (A)	ALTERNATIVE SPACING (B)
BB	1. REPLACES DIVIDING (SEPARATION) LINE IF RESTRICTED SIGHT DISTANCE FOR BOTH DIRECTIONS OR 2. APPROACH TO MEDIAN ISLAND OR 3. APPROACHES TO A PEDESTRIAN CROSSING		WHITE		12	12
TB1	GIVE WAY LINE (USED ON RIGHT SIDE OF ROAD)		WHITE	NOT REQUIRED	-	-
TB	GIVE WAY LINE (USED WITH SIGNS)		WHITE	NOT REQUIRED	-	-

LEGEND

 STREET SIGN

SS

THE HILLS SHIRE COUNCIL

CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON

16/04/2024

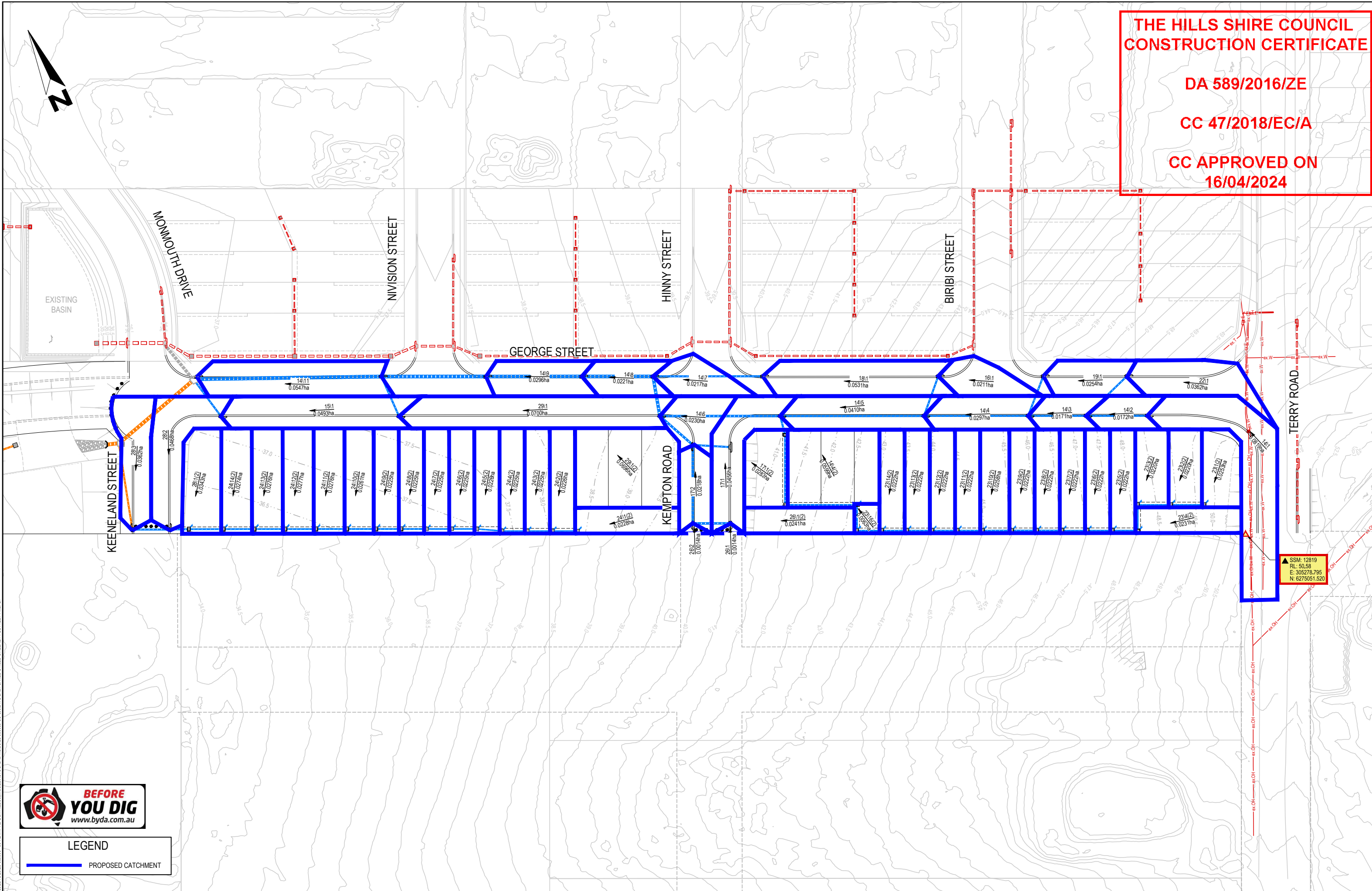
AMENDMENTS	DESIGN DRAWN CHECK APPD. DATE					STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE
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	VC VS MC 25/09/2017										
	VC MS MC 10/11/2017										
	VC MS MC SAG 09/01/2018										
	VC MS MC SAG 11/01/2018										
	VC VC - SAG 19/03/2018										
	MGC JH MC EF 17/11/2023										
FM JS FM EF 04/03/2024					AMENDMENT DETAILS	AUTHORISED FOR ISSUE: BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPEng NER DATE: 16/04/2024	SCALE	CLIENT	PROJECT	DRAWING TITLE	
0 5 10 15 20 25 30 35 40											
SCALE 1:500 (A1) SCALE 1:1000 (A3)											
VISY CASTLE Pty Ltd											
											
www.egis-group.com											
© 2023 Egis Consulting Pty Ltd											
58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN											
DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY					PROJECT No. 23-000096	DRAWING No. 702	STAGE	REVISION 7			

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

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CC APPROVED ON
16/04/2024



LEGEND

PROPOSED CATCHMENT

AMENDMENT	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
1	VC	MS	MC		25/08/2017	
2	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
3	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS
4	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	VC	-	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS

FOR SUBDIVISION
WORKS CERTIFICATE

AUTHORISED FOR ISSUE:

BY: ENRIQUE FRANCO SIGN: 
BE(Hons) MIEAust. CPEng
NER

DATE: 

SCALE

0 5 10 15 20 25 30 35 40

SCALE 1:500 (A1)

SCALE 1:1000 (A3)

CLIENT

VISY CASTLE Pty Ltd


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PROJECT

58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO
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FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE

CATCHMENT PLAN

PROJECT No. 23-000096

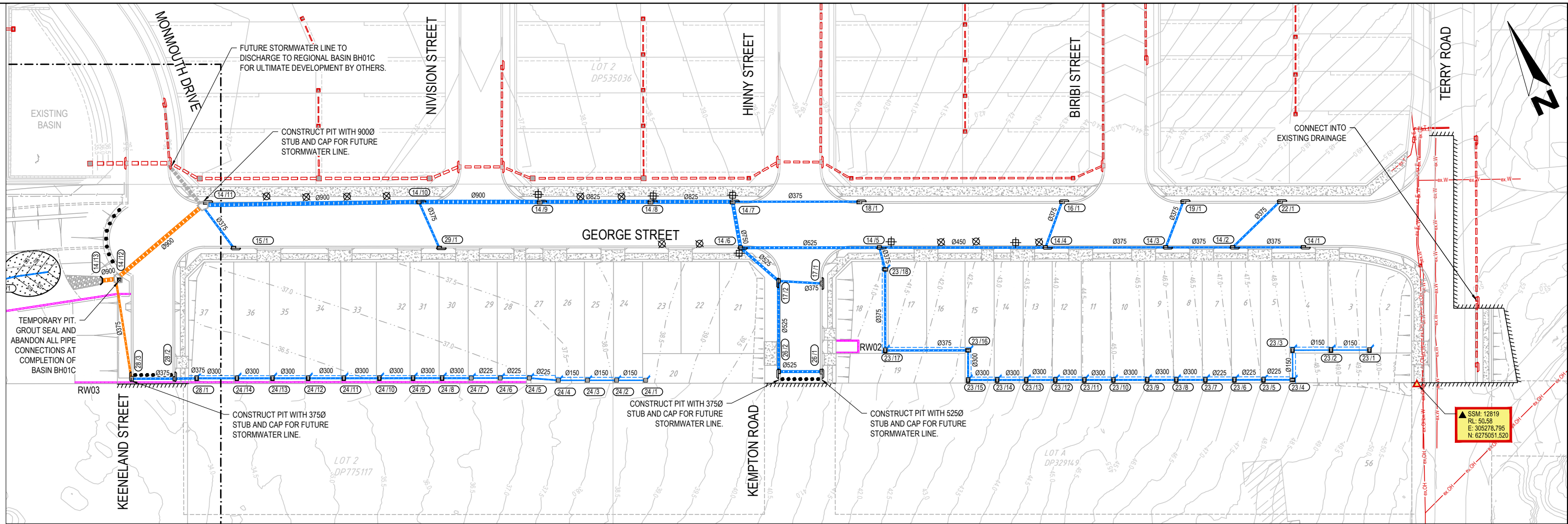
DRAWING No. 800

STAGE

REVISION

7

REFER BELOW FOR CONTINUATION



NOTES:

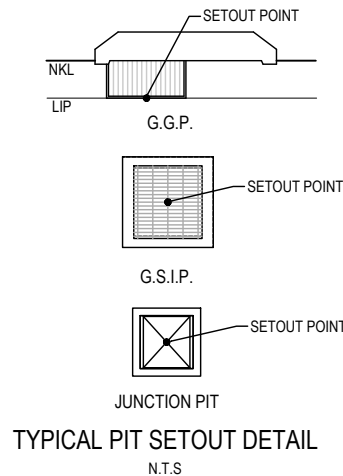
1. MODELLED USING 12D - RATIONAL METHOD
2. COLEBROOK WHITE ROUGHNESS FACTOR
3. RC PIPES - 0.3mm
4. PVC PIPES - 0.03mm
5. RRJ2 DENOTES RUBBER RING JOINT CLASS 2 PIPE ALL PVC PIPE TO BE CLASS SH.
6. THE PRESSURE CHANGE COEFFICIENT 'K' HAS BEEN DETERMINED DETERMINED USING MISSOURI CHARTS AND HARE'S EQUATIONS.
7. PITS DEEPER THAN 1.8m TO BE CONCRETE REINFORCED, REFER HILLS SHIRE COUNCIL STD DWG SD.5.
8. PITS DEEPER THAN 3.0m ARE TO BE STRUCTURALLY DESIGNED. REFER DRAWING No. 901 FOR STANDARD PIT DETAILS.
9. CONCRETE 32MPa COMPRESSIVE STRENGTH AT 28 DAYS.
10. PIT BLOCKAGE FACTORS
PITS ON GRADE 10%
PITS IN SAG 20%
11. CATCHMENT IDENTIFICATION:
CATCH ID =
(1P) DENOTES CATCHMENT 1 PERVIOUS
(1I) DENOTES CATCHMENT 1 IMPERVIOUS
(2P) DENOTES CATCHMENT 2 PERVIOUS
(2I) DENOTES CATCHMENT 2 IMPERVIOUS
(3P) DENOTES CATCHMENT 3 PERVIOUS
(3I) DENOTES CATCHMENT 3 IMPERVIOUS

LAND USE:

ROAD- 80% IMPERVIOUS
RESIDENTIAL - 80% IMPERVIOUS
MEDIUM DENSITY - 80% IMPERVIOUS

PIT TYPE:

1. G.G.P. E.K.I. - GRATED GULLY PIT EXTENDED KERB INLET
2. G.S.I.P. - GRATED SURFACE INLET PIT
3. J.P. - JUNCTION PIT
4. H.W. - HEADWALL
5. D.C. - DIRECT CONNECTION
6. S.J. - SLOPE JUNCTION
7. BEND - BEND IN LINE
8. GPT - GROSS POLLUTANT TRAP



THE HILLS SHIRE COUNCIL CONSTRUCTION CERTIFICATE

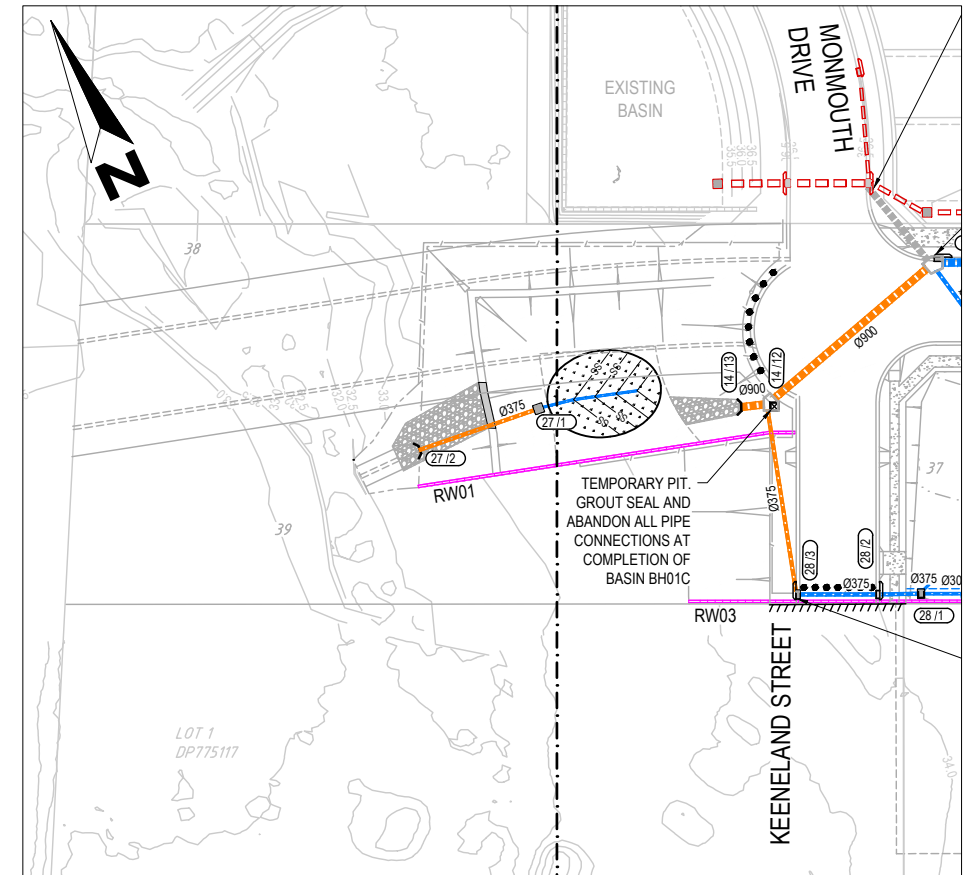
DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

LEGEND

- ⊗ PROVIDE ROOF WATER OUTLET IN KERB. REFER TO COUNCIL STANDARD DRAWING SD.13 FOR DETAIL.
- ⊕ PROVIDE STUB FOR ROOF WATER CONNECTION TO REAR OF LINTEL. REFER DETAIL DRAWING No.901
- TEMPORARY DRAINAGE LINE



REFER ABOVE FOR CONTINUATION

DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS
1	VC	MS	MC	25/08/2017	
2	VC	VS	MC	25/09/2017	ISSUE FOR TENDER
3	VC	MS	MC	10/11/2017	ISSUE FOR COUNCIL COMMENTS
4	VC	MS	MC	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	VC	-	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE:	
BY: ENRIQUE FRANCO SIGN:	
BE(Hons) MIEAust. CPEng	
NER	
DATE:	

SCALE	0 15 30 45 60 75 90 105 120
SCALE 1:1500 (A1)	SCALE 1:3000 (A3)

CLIENT	VISY CASTLE Pty Ltd
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PROJECT	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY	

DRAWING TITLE	DRAINAGE PLAN
PROJECT No.	23-000096
DRAWING No.	801
STAGE	
REVISION	7

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

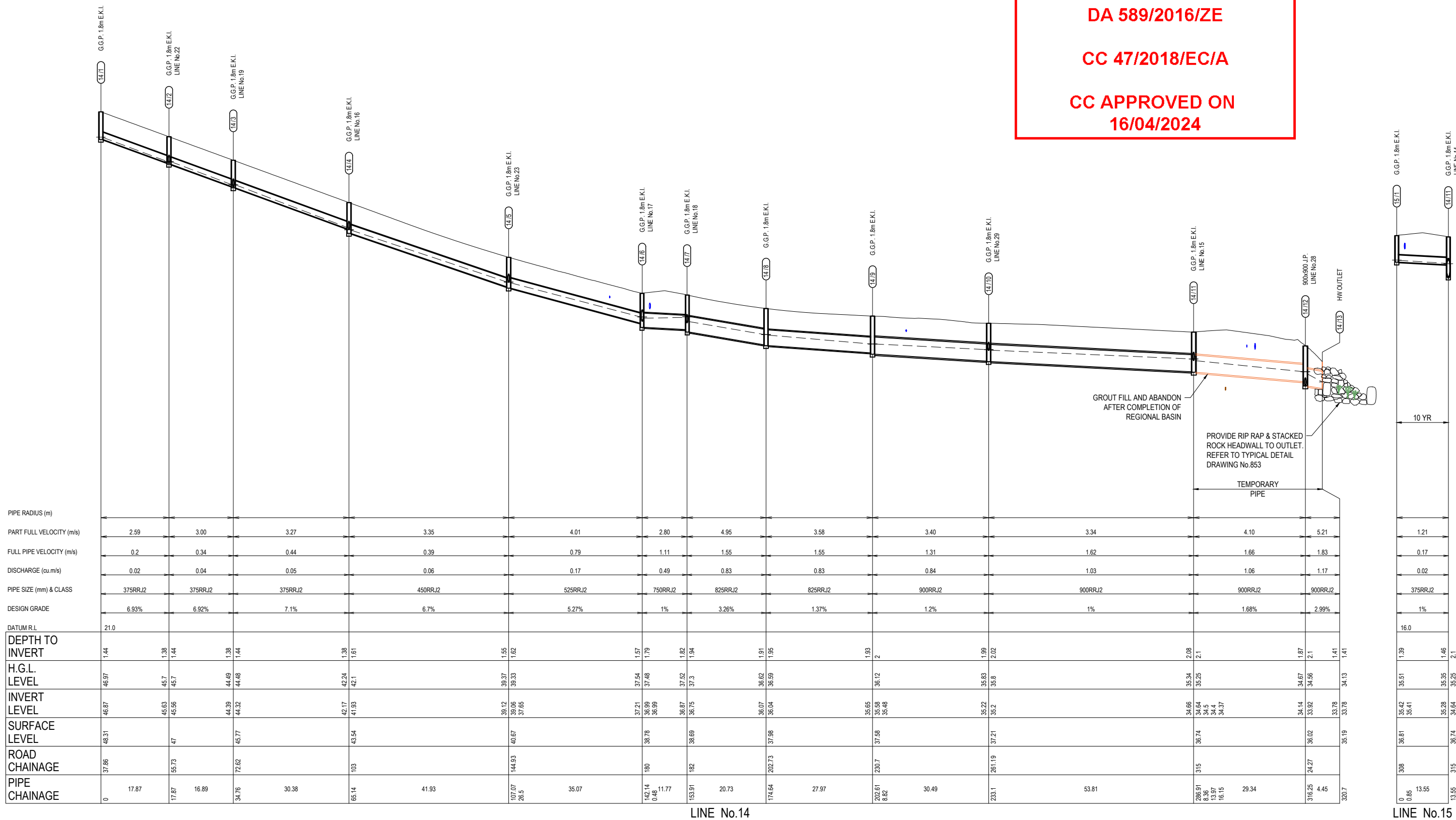
CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

LEGEND

INDICATIVE PROPOSED
SEWER PIPE

INDICATIVE PROPOSED
WATER PIPE



DRAINAGE LONGITUDINAL SECTIONS

SCALE 1:500 (H)
SCALE 1:100 (V)

DESIGN	DRAWN	CHECK	APPROD.	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT	DRAWING TITLE
1	VC	MS	MC	25/08/2017		FOR SUBDIVISION WORKS CERTIFICATE	0 1 2 3 4 5 6 7 8 SCALE 1:100 (A1)	VISY CASTLE Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	DRAINAGE LONGITUDINAL SECTIONS SHEET 01 OF 03
2	VC	VS	MC	25/09/2017	ISSUE FOR TENDER		0 15 30 45 60 75 90 105 120 SCALE 1:1500 (A1)			
3	VC	MS	MC	10/11/2017	ISSUE FOR COUNCIL COMMENTS					
4	VC	MS	MC	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
5	VC	VC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
6	MGC	JH	MC	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
7	FM	JS	FM	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					

BY: ENRIQUE FRANCO SIGN: 

BE(Hons) MIEAust. CPEng
NER

DATE: 

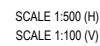
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PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	802		7

**CC APPROVED ON
16/04/2024**

INDICATIVE PROPOSED
POTABLE WATER PIPE

Document Set ID: 21259437
Version: 2, Version Date: 16/04/2024

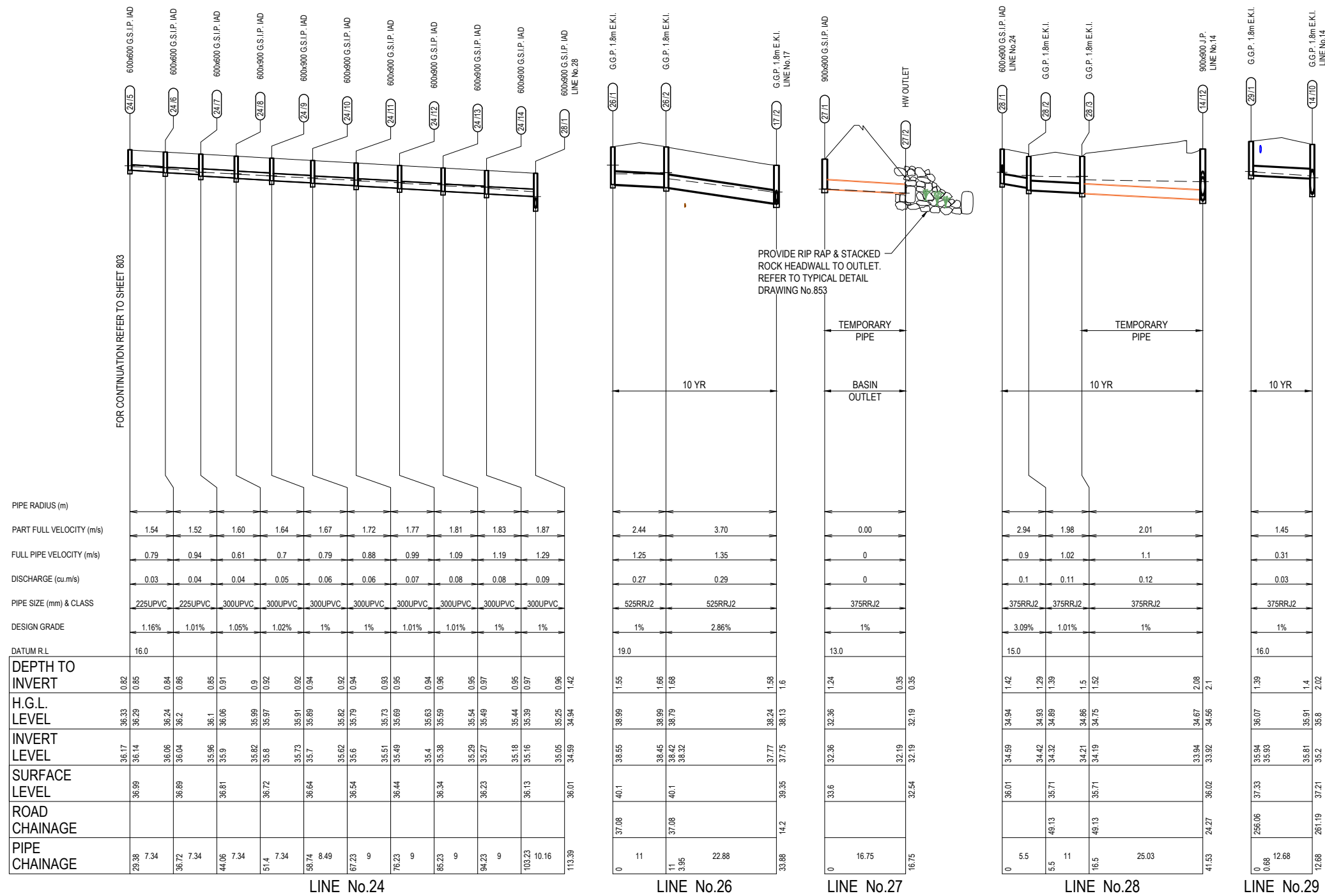
THE HILLS SHIRE COUNCIL CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

**CC APPROVED ON
16/04/2024**

LEGEND

INDICATIVE PROPOSED
WASTE WATER PIPEINDICATIVE PROPOSED
POTABLE WATER PIPE

DRAINAGE LONGITUDINAL SECTIONS

SCALE 1:500 (H)
SCALE 1:100 (V)

DESIGN FIRST ISSUE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836
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12D MODEL - HYDROLOGICAL DESIGN SHEET
MINOR 10 YEAR STORM EVENT

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

Node Name	Node Type	Setout Easting (m)	Setout Northing (m)	Setout RL (m)	Road Name (-)	Road Chaining (m)	Road Offset (m)	Catch ID (-)	Time Tc (min)	Intensity I (mm/hr)	Runoff C	Area A (ha)	Full CA (ha)	Full Sum CA (ha)	Full Qc-CIA (L/s)	Partial CA (ha)	Partial Sum CA (ha)	Partial Qc-CIA (L/s)	Catchment Flow Qc (L/s)	Approach Flow Qa (L/s)	Road Capacity (L/s)	Flooded Depth (m)	Flooded Width (m)	Flooded Vel Dep (sq.m/s)	Road Grade (%)	Road Xfall (%)	Max Pond Depth (m)	Choke Factor (-)	Inlet Curve Name (-)	Inlet Flow Qg (L/s)	Bypass Flow Qb (L/s)	Bypass Node (-)	
141	G.P. 1.8m E.K.I.	305267.53	6275095.34	48.31	ROAD No 1	37.86	-5.35	1P	10	112.59	0.46	0.0164	0.0075	0.06	18.8	0.0038	0.0562	23	23	23	1841.9	0.042	1.06	0.05	6.9	3		0.9	CALIBRE 5% grade 3% xfall	22.5	0.5	1412	
142	G.P. 1.8m E.K.I.	305251.3	6275102.83	47	ROAD No 1	55.73	-5.35	1P	10	112.59	0.46	0.0034	0.0016	0.0126	3.9	0.0008	0.0118	4.8	4.8	5.3	1884.5	0.024	0.46	0.02	7.3	3		0.9	CALIBRE 7% grade 3% xfall	5.3		1413	
143	G.P. 1.8m E.K.I.	305235.97	6275109.9	45.77	ROAD No 1	72.62	-5.35	1P	10	112.59	0.46	0.0034	0.0016	0.0125	3.9	0.0008	0.0118	4.8	4.8	4.8	1884.5	0.024	0.44	0.02	7.3	3		0.9	CALIBRE 7% grade 3% xfall	4.8		1414	
144	G.P. 1.8m E.K.I.	305208.38	6275122.63	43.54	ROAD No 1	103	-5.35	1P	10	112.59	0.46	0.0059	0.0027	0.0218	6.8	0.0014	0.0204	8.3	8.3	8.3	1884.5	0.029	0.62	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	8.3		1415	
145	G.P. 1.8m E.K.I.	305170.3	6275140.19	40.67	ROAD No 1	144.93	-5.35	1P	10	112.59	0.46	0.0082	0.0038	0.0739	23.1	0.0019	0.0692	28.3	28.3	28.3	1886.5	0.047	1.21	0.05	5.9	3		0.9	CALIBRE 5% grade 3% xfall	27.2	1.2	1711	
								2P	10	112.59	0.46	0.012	0.0055																				
146	G.P. 1.8m E.K.I.	305138.46	6275154.88	38.78	ROAD No 1	180	-5.35	2i	5	147.22	0.8	0.0479	0.0384			0.0384																	
147	G.P. 1.8m E.K.I.	305141.13	6275165.43	38.69	ROAD No 1	182	5.35	1P	10	112.59	0.46	0.0043	0.0021	0.0168	5.3	0.0011	0.0157	6.4	6.4	6.4	1490	0.029	0.62	0.02	4.7	3		0.9	CALIBRE 3% grade 3% xfall	6.4		291	
								1i	5	147.22	0.8	0.0184	0.0147			0.0147																	
147	G.P. 1.8m E.K.I.	305141.13	6275165.43	38.69	ROAD No 1	182	5.35	1P	10	112.59	0.46	0.0043	0.0021	0.0159	5	0.001	0.0149	6.1	6.1	6.1	1460.8	0.029	0.6	0.02	4.5	3		0.9	CALIBRE 3% grade 3% xfall	6.1		1418	
								1i	5	147.22	0.8	0.0174	0.0139			0.0139																	
148	G.P. 1.8m E.K.I.	305122.3	6275174.12	37.98	ROAD No 1	202.73	5.35	1P	10	112.59	0.46	0.0044	0.0021	0.0162	5.1	0.001	0.0151	6.2	6.2	6.2	1099.3	0.032	0.72	0.02	2.6	3		0.9	CALIBRE 1% grade 3% xfall	6.2		1419	
								1i	5	147.22	0.8	0.0177	0.0141			0.0141																	
149	G.P. 1.8m E.K.I.	305096.9	6275185.83	37.58	ROAD No 1	230.7	5.35	1P	10	112.59	0.46	0.0059	0.0027	0.0217	6.8	0.0014	0.0203	8.3	8.3	8.3	696.7	0.042	1.04	0.02	1	3		0.9	CALIBRE 1% grade 3% xfall	8.3		LOST	
								1i	5	147.22	0.8	0.0237	0.019			0.019																	
1410	G.P. 1.8m E.K.I.	305089.41	6275199.01	37.21	ROAD No 1	261.19	5.8																										
1411	G.P. 1.8m E.K.I.	305020.36	6275221.14	36.74	ROAD No 1	315	5.35	1P	10	112.59	0.46	0.0109	0.005	0.04	12.5	0.0025	0.0375	15.3	15.3	15.3	621.8	0.049	1.44	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	15.3		LOST	
								1i	5	147.22	0.8	0.0438	0.035			0.035																	
1412	900x900 J.P.	304992.54	6275212.79	36.02	ROAD No 3	24.27	8.39																										
1413	HW OUTLET	304988.49	6275214.63	35.19																													
151	G.P. 1.8m E.K.I.	305022.23	6275208.5	36.81	ROAD No 1	308	-5.35	1P	10	112.59	0.46	0.0099	0.0045	0.0361	11.3	0.0023	0.0338	13.8	13.8	18.4	696.7	0.054	1.47	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	18.3	0.1	2812	
								1i	5	147.22	0.8	0.0394	0.0315			0.0315																	
161	G.P. 1.8m E.K.I.	305216.66	6275130.59	43.85	ROAD No 1	98.82	5.35	1P	10	112.59	0.46	0.0042	0.0019	0.0154	4.8	0.001	0.0144	5.9	5.9	5.9	1884.5	0.026	0.49	0.02	7.3	3		0.9	CALIBRE 7% grade 3% xfall	5.9		181	
								1i	5	147.22	0.8	0.0168	0.0135			0.0135																	
171	G.G.P. 2.4m E.K.I. SAG	305152.76	6275137.82	39.37	ROAD No 2	14.85	-5.05	1P	10	112.59	0.46	0.0081	0.0042	0.0541	16.9	0.0021	0.0507	20.7	20.7	21.9	300.4	0.029					0.15	0.8	CALIBRE (sags only)	21.9		1712	
								1i	5	147.22	0.8	0.0364	0.0292			0.0292																	
								2P	10	112.59	0.46	0.0057	0.0026			0.0026																	
								2i	5	147.22	0.8	0.0226	0.0181			0.0181																	
172	G.G.P. 1.8m E.K.I.	305143.86	6275142.64	39.35	ROAD No 2	14.2	5.05	1P	10	112.59	0.46	0.0044	0.0021	0.016	5	0.001	0.015	6.1	6.1	6.1						2.2	3		0.9	CALIBRE 1% grade 3% xfall	6.1		LOST
								1i	5	147.22	0.8	0.0174	0.014			0.014																	
181	G.G.P. 1.8m E.K.I.	305170.18	6275152.03	40.39	ROAD No 1	150	5.35	1P	10	112.59	0.46	0.0186	0.0049	0.0389	12.2	0.0024	0.0364	14.9	14.9	14.9	1646.1	0.038	0.92	0.04	5.6	3		0.9	CALIBRE 5% grade 3% xfall	14.9		LOST	
								1i	5	147.22	0.8	0.0425	0.034			0.034																	
181	G.G.P. 1.8m E.K.I.	305244.48	6275117.76	46.09	ROAD No 1	68.18	5.35	1P	10	112.59	0.46	0.0051	0.0023	0.0186	5.8	0.0012	0.0175	7.1	7.1	7.1	1969.3	0.028	0.56	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	7.1		LOST	
								1i	5	147.22	0.8	0.0204	0.0163			0.0163																	
221	G.G.P. 1.8m E.K.I.	305266.64	6275107.54	47.88	ROAD No 1	43.78	5.35	1P	10	112.59	0.46	0.0072	0.0033	0.0265	8.3	0.0017	0.0248	10.2	10.2	10.2	1884.5	0.032	0.7	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	10.2		191	
								1i	5	147.22	0.8	0.029	0.0232			0.0232																	
231	600x900 G.S.I.P. IAD	305271.59	6275064.41	49.72				2P	10	112.59	0.46	0.0051	0.0023	0.0185	5.8	0.0012	0.0173	7.1	7.1	7.1	793.8	0.008	3.02	0				0.9	CALIBRE G.S.I.P. I.A.D.	7.1		232	
								2i	5	147.22	0.8	0.0202	0.0162			0.0162																	
232	600x900 G.S.I.P. IAD	305262.77	6275068.47	48.9				2P	10	112.59	0.46	0.0044	0.0021	0.0161	5	0.001	0.0151	6.2	6.2	6.2								0.9	CALIBRE G.S.I.P. I.A.D.	6.2		233	
								2i	5	147.22	0.8	0.0176	0.0141			0.0141																	
233	600x900 G.S.I.P. IAD	305253.95	6275072.54	48.13				2P	10	112.59	0.46	0.0044	0.0021	0.0161	5	0.001	0.0151	6.2	6.2	6.2								0.9	CALIBRE G.S.I.P. I.A.D.	6.2		234	
								2i	5	147.22	0.8	0.0176	0.0141			0.0141																	
234	600x900 G.S.I.P. IAD	305250.81	6275065.73	48.04				2P	10	112.59	0.46	0.0046	0.0021	0.0169	5.3	0.0011	0.0159	6.5	6.5	6.5								0.9	CALIBRE G.S.I.P. I.A.D.	6.5		235	
								2i	5	147.22	0.8	0.0185	0.0148			0.0148																	
235	600x900 G.S.I.P. IAD	305244.14	6275068.81	47.54				2P	10	112.59	0.46	0.0044	0.0021	0.0162	5.1	0.001	0.0152	6.2	6.2	6.2								0.9	CALIBRE G.S.I.P. I.A.D.	6.2		236	
								2i	5	147.22	0.8	0.0177	0.0142			0.0142																	
236	600x900 G.S.I.P. IAD	305237.48	6275071.88	47.03				2P	10	112.59	0.46	0.0044	0.0021	0.0162	5.1	0.001	0.0152	6.2	6.2	6.2								0.9	CALIBRE G.S.I.P. I.A.D.	6.2		237	
								2i	5	147.22	0.8	0.0177	0.0142			0.0142																	
237	600x900 G.S.I.P. IAD	305230.82	6275074.95	46.51				2P	10	112.59	0.46	0.0044	0.0021	0.0162	5.1	0.001	0.0152	6.2	6.2	6.2								0.9	CALIBRE G.S.I.P. I.A.D.	6.2			

MINOR 10 YEAR STORM EVENT

FOR CONTINUATION REFER TO DWG. No.811

[illegible]

MINOR 10 YEAR STORM EVENT

ID	Type	Length (m)	Pipe Size (mm)	Area m² (sq.m)	Pipe Grade (%)	Pipe Length (m)	Ft-Int (mm)	Ft-Ext (mm)	Ft-Sum (ha)	Ft-COA (mm)	Prt-Area (mm)	Prt-Sum Sum CA (ha)	Q-COA (L/s)	Catchment (L/s)	Dred Pipe (L/s)	Flow Opt (L/s)	Peak Flow (L/s)	Net Emiss (L/s)	Pipe Q (L/s)	Capacity (L/s)	Q/Cap Ratio (%)	Vf-F/H (m/s)	Norm Depth Vel Vm-Q/A (m/s)	Capacity Vel Vc-Q/A-Cap/H (m/s)	US Node Grate RL	US Pipe IL	DS L DS IL	DS Node Grate RL	Cover Limit (m)	Cover Min (m)	Pipe Band (deg)	DS Drop (-)	US Node Kd	US Wd Kd (-)	V-Peak (m)	P-H Head Loss (Kd V-Peak) (m)	W-E Loss (Kd V-Peak) (m)	Pipe Head Loss (m)	US HGL US HGL	DS HGL DS HGL	DS Node HGL	HGL Grade	Flow Grade	Forecast			
1410 to 1412	RJ2	17.87	375	0.11	6.93	14.4	10	112.59	0.06	18.8	5	147.22	0.0562	23	23	-0.5	22.5	574.8	0.04	0.2	2.59	0.87	5.2	48.31	46.87	45.63	47	1	1	0	0.068	4.5	0	0.01	1.21	46.98	46.97	45.7	45.7	7.1	14.1	1.33					
1412 to 1413	RJ2	16.89	375	0.11	6.92	14.4	10.15	111.95	0.0991	30.8	5.15	145.83	0.0929	37.6	37.6		37.6	574	0.07	0.34	3	1.01	5.2	47	45.56	44.39	45.77	1	1	0	0.067	0.9	0.01	0.01	1.13	45.7	45.47	44.49	44.49	7.15	14	1.3					
1413 to 1414	RJ2	30.38	375	0.11	7.1	14.1	10.29	111.35	0.1302	40.3	5.29	144.51	0.1222	49	49		49	581.8	0.08	0.44	3.27	1.09	5.27	45.77	44.32	42.17	43.54	1	1	0	0.237	0.7	0.01	0.01	1.76	44.49	44.48	42.24	42.12	7.39	13.5	12.8					
1414 to 1415	RJ2	41.93	450	0.159	6.7	14.9	10.54	106.26	0.1674	51.3	5.54	148.15	0.1573	62.1	62.1		62.1	911.4	0.07	0.39	3.35	1.12	5.73	43.54	41.93	39.12	40.67	1	1	0	0.063	2	0.01	0.02	2.77	42.12	42.11	39.37	39.37	6.51	15.4	14.3					
1415 to 1416	RJ2	35.07	525	0.216	5.27	19	10.34	106.76	0.4784	141.9	5.89	142.89	0.4442	171.4	171.4	-1.2	107.2	1208.8	0.14	0.79	4.01	1.47	5.58	40.67	39.06	37.21	38.78	1	1	80.2	0.219	1.27	0.03	0.04	1.83	39.37	39.33	37.34	37.34	5.12	19.5	13					
1416 to 1417	RJ2	11.77	150	0.042	9.98	11.85	10.55	0.5849	17.1	6.25	135.32	0.0471	20.2	20.2	265	49.02	1332.8	0.37	1.11	2.8	1.87	3.02	38.78	36.99	36.87	36.89	1	1	-80.2	0.128	0.96	1	0.06	0.06	0.02	37.54	37.48	37.52	37.55	-0.33	-306	1.24					
1417 to 1418	RJ2	23.82	225	0.036	3.87	12.12	10.56	0.508	3.26	12.12	10.56	0.508	3.26	12.12	10.56	0.508	3.26	12.12	0.08	0.12	0.28	0.48	2.18	35.82	34.84	34.84	34.84	1	1	0	0.038	1.79	21	0.03	0.22	0.26	0.02	37.54	37.48	37.52	37.55	-0.33	-306	1.24			
1418 to 1419	RJ2	27.97	625	0.535	1.37	73	11.52	104.34	0.6559	190.1	6.45	135	0.6129	229.8	229.8	601	830.8	2000.1	0.042	1.55	5.58	1.98	3.74	37.98	36.04	35.65	37.58	1	1	0	0.089	0.24	0.12	0.03	0.35	36.62	36.59	35.12	35.12	16.6	60.2	1.37					
1419 to 1410	RJ2	30.49	600	0.636	1.2	83.1	12.16	103.49	0.6776	194.8	6.69	133.52	0.6337	235	235	601	836	836	0.2539	0.36	1.31	3.4	2.1	37	37.58	35.58	35.32	37.21	1	1	0	0.022	0.24	0.09	0.03	0.35	36.12	36.12	35.83	35.83	0.98	102.3	1.46				
1410 to 1411	UPVC	53.81	900	0.636	1	100	12.41	102.64	0.7798	222.3	6.94	137.52	0.7318	268.2	268.2	768	1036.8	-4.5	1031.6	2143.7	0.48	1.62	3.34	2.28	3.37	37.21	35.2	34.66	36.74	1	1.05	-42.1	0.021	0.21	0.13	0.03	0.52	35.83	35.8	35.34	35.34	0.86	116.5	1.39			
1411 to 1412	RJ2	29.34	900	0.636	1.88	59.4	12.86	101.1	0.8559	240.4	7.39	129.09	0.8054	288.8	288.8	768	1056.8	-0.1	1056.7	2787	0.38	1.66	4.1	2.31	4.38	36.74	34.64	34.14	36.02	1	1	41.9	0.229	0.63	0.14	0.09	0.46	35.34	35.25	34.67	34.67	1.98	50.5	1.41			
1412 to 1413	RJ2	4.45	900	0.636	2.96	33.4	13.1	100.31	1.1902	331.6	7.59	127.92	1.1236	399.3	399.3	768	1167.3		1167.3	3720.2	0.31	1.83	5.21	2.41	5.85	36.02	33.92	33.78	35.19	1	0.46	0	0.273	0.64	0.17	0.11	0	34.67	34.56	34.17	34.13	96.4	10.4	1.35			
1510 to 1411	RJ2	13.55	375	0.11	1	99.6	10	112.59	0.0361	11.3	5	147.22	0.0338	13.8	13.8		13.8	4.5	18.3	216.8	0.08	0.17	1.21	0.82	1.96	36.81	35.42	35.28	36.74	1	-1	-101	0.644	9.7	0	0.01	0.12	35.53	35.51	35.35	35.34	1.18	85	1.28			
1610 to 1414	RJ2	12.33	375	0.11	2.29	43.6	10	112.59	0.0154	4.8	5	147.22	0.0144	5.9	5.9		5.9	5	329.4	0.02	0.05	1.17	0.6	2.98	43.85	42.44	42.16	43.54	1	1	70.2	0.231	4.5	0	0	0.25	42.5	42.5	42.12	42.12	2.45	40.7	1.35				
171 to 1712	RJ2	11.02	375	0.11	1.01	99.3	10	112.59	0.0541	16.9	5	147.22	0.0507	20.7	20.7		20.7	1.2	21.9	217.2	0.1	0.2	1.28	0.86	1.97	39.37	37.98	37.87	39.35	1	1	37.9	0.117	4.5	0	0.01	0	0	0.01	0	38.24	38.24	38.24	38.24	0	-33704.7	1.13
172 to 146	RJ2	12.74	525	0.216	3.14	13.9	10.28	111.3	0.0897	27.8	5.09	146.36	0.0834	33.9	33.9	285	318.9	1.2	320.1	931.7	0.34	1.48	3.92	1.89	4.3	39.35	37.35	35.38	38.78	1	1	39	0.359	0.92	0.93	0.11	0.1	0.1	0	38.24	38.13	37.56	37.54	4.49	22.3	1.11	
1810 to 1417	RJ2	32	375	0.11	5.14	19.5	10	112.59	0.0389	12.2	5	147.22	0.0364	14.9	14.9		14.9	14.9	494.4	0.03	0.13	2.06	0.77	4.48	40.39	38.91	37.28	38.69	1	1	0	0.1516	7	0	0.01	1.51	39	38.99	37.52	37.55	44.2	27.1	1.39				
1910 to 1413	RJ2	12.42	375	0.11	2.43	41.1	10	112.59	0.0186	5.8	5	147.22	0.0175	7.1	7.1		7.1	7.1	339.1	0.02	0.06	1.27	0.63	3.07	40.99	44.69	44.38	45.77	1	1	69.1	0.061	9.7	0	0	0.27	44.75	44.75	44.75	44.75	4.49	20.5	48.8	1.34			
2010 to 1413	RJ2	16.89	375	0.11	6.92	14.4	10.15	111.95	0.0991	30.8	5.15	145.83	0.0929	37.6	37.6		37.6	574	0.07	0.34	3	1.01	5.2	47	45.56	44.39	45.77	1	1	0	0.067	0.9	0.01	0.01	1.13	45.7	45.47	44.49	44.49	7.15	14	1.3					
231 to 232	UPVC	9.71	150	0.018	8.05	12.4	10	112.59	0.0185	5.8	5	147.22	0.0173	7.1	7.1		7.1	7.1	53.7	0.03	0.4	2.18	0.77	3.15	49.72	48.03	48.15	48.9	0.6	0.6	0	0.092	4.5	0.01	0.04	0.78	49.04	49.01	48.22	48.22	8.11	12.3	0.68				
232 to 233	UPVC	9.71	150	0.018	7.48	13.4	10.08	112.24	0.0346	10.8	5.08	146.26	0.0325	13.2	13.2		13.2	13.2	53.6	0.25	0.75	2.52	0.98	3.04	48.9	48.05	47.33	48.13	0.6	0.6	-90	0.021	1.95	0.03	0.06	0.63	48.22	48.16	47.52	47.58	6.23	16	0.68				
233 to 234	UPVC	7.5	150	0.018	1	100	10	116.19	0.0508	15.8	5.16	145.71	0.0476	19.3	19.3		19.3	19.3	19.3	1	1.09	1.24	1.21	1.09	48.13	47.31	47.23	48.04	0.6	0.6	0.054	1.98	2.43	0.02	0.12	0.05	0.07	47.58	47.44	47.36	47.38	1	99.8	0.54			
234 to 235	UPVC	7.34	225	0.04	6.25	16	10.22	111.63	0.0677	21	5.22	145.12	0.0635	25.6	25.6		25.6	25.6	142.6	0.18	0.64	2.74	1.04	3.59	48.04	47.18	46.72	47.54	0.6	0.6	0	0.033	2.21	2.89	0.02	0.04	0.15	0.06	0.46	47.38	47.31	46.87	46.87	6.01	16.6	0.67	
235 to 236	UPVC	7.34	225	0.04	6.43	15.5	10.29	111.37	0.0839	26	5.2	145.31	0.0784	31.7	31.7		31.7	31.7	144.7	0.22	0.8	2.94	1.13	3.64	47.54	46.69	46.22	47.03	0.6	0.6	0	0.044	1.06	0.03	0.04	0.47	46.87	46.84	46.38	46.38	6.25	16	0.67				
236 to 237	UPVC	7.34	225	0.04	6.43	15.6	10.35	111.1	0.1001	30.9	5.27	144.74	0.0937	37.7	37.7		37.7	37.7	144.7	0.26	0.95	3.08	1.22	3.64	47.03	46.17	45.72	46.51	0.6	0.6	0	0.118	0.94	0.05	0.04	0.15	46.38	46.34	45.78	45.75	7.58	13.2	0.65				
237 to 238	UPVC	7.34	300	0.071	6.08	16.5	10.47	110.84	0.1163	35.8	5.33	144.17	0.109	43.6	43.6		43.6	43.6	299.5	0.15	0.62	3.06	1.13	4.24	46.51	45.59	45.14	46.03	0.6	0.6	0	0.04	0.74	0.02	0.02	0.44	45.75	45.75	45.29	45.29	6.21	16.1	0.77				
238 to 239	UPVC	7.34	300	0.071	6.08	16.5	10.47	110.84	0.1326	40.7	5.31	144.35	0.1236	49.6	49.6		49.6	49.6	299.5	0.17	0.7	3.17	1.18	4.24	46.03	45.51	44.65	45.54	0.6	0.6	0	0.048	0.77	0.03	0.02	0.44	45.29	45.27	44.81	44.81	6.27	16	0.73				
239 to 240	UPVC	8.53	300	0.071	6.01	16.6	10.53	110.32	0.1488	45.6	5.37	143.78	0.1389	55.5	55.5		55.5	55.5	298	0.19	0.78	3.26	1.23	4.22	45.54	44.61	44.09	44.99	0.6	0.6	0	0.031	0.72	0.03	0.02	0.51	44.81	44.79	44.29	44.29	5.9	16.9	0.73				
240 to 241	UPVC	7.34	300	0.071	5.75	17.4	10.8	110.01	0.1676	51.2	5.44	143.13	0.1567	62.3	62.3		62.3	62.3	291.3	0.21	0.88	3.31	1.29	4.12	44.99	44.60	43.64	44.53	0.6	0.6	0	0.038	0.73	0.04	0.02	0.42	44.29	44.26	43.84	43.84	5.74	17.4	0.7				
241 to 2																																															

**CC APPROVED ON
16/04/2024**

	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
		VC	MS	MC		25/08/2017	
AMENDMENTS	1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
	2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS
	3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	4	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
	7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

STATUS	FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:	BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPENG NER	
	DATE: _____	

SCALE

CLIENT

VISY CASTLE Pty Ltd



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PROJECT

**58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN**

DISCLAIMER

ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE			
DRAINAGE CALCULATIONS			
SHEET 02 OF 06			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	812		7

12D MODEL - HYDROLOGICAL DESIGN SHEET
MINOR 20 YEAR STORM EVENT

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

Node Name	Node Type	Setout Easting (m)	Setout Northing (m)	Setout RL (m)	Road Name (-)	Road Chainage (m)	Road Offset (m)	Catch ID	Time Tc (min)	Intensity I (mm/hr)	Runoff C	Area A (ha)	Full CA (ha)	Full Sum CA (ha)	Full Qc-CIA (L/s)	Partial CA (ha)	Partial Sum CA (ha)	Partial Qc-CIA (L/s)	Catchment Flow Qc (L/s)	Approach Flow Qa (L/s)	Road Capacity (L/s)	Flooded Depth (m)	Flooded Width (m)	Flooded Vel Dep (sq.m/s)	Road Grade (%)	Road Xfall (%)	Max Pond Depth (m)	Choke Factor (-)	Inlet Curve Name (-)	Inlet Flow Qg (L/s)	Bypass Flow Qb (L/s)	Bypass Node (-)		
141	G.G.P. 1.8m E.K.I.	305267.53	6275096.34	48.31	ROAD No 1	37.86	-5.35	1P	10	129.21	0.46	0.0164	0.0075	0.06	21.5	0.0038	0.0562	26.4	26.4	26.4	1841.9	0.044	1.13	0.05	6.9	3		0.9	CALIBRE 5% grade 3% xfall	25.5	0.8	1412		
142	G.G.P. 1.8m E.K.I.	305251.3	6275102.83	47	ROAD No 1	55.73	-5.35	1P	10	129.21	0.46	0.0034	0.0016	0.0126	4.5	0.0008	0.0118	5.5	5.5	6.4	1884.5	0.026	0.52	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	6.4		1413		
143	G.G.P. 1.8m E.K.I.	305235.97	6275109.9	45.77	ROAD No 1	72.62	-5.35	1P	10	129.21	0.46	0.0034	0.0016	0.0125	4.5	0.0008	0.0118	5.5	5.5	5.5	1884.5	0.025	0.47	0.02	7.3	3		0.9	CALIBRE 7% grade 3% xfall	5.5		144		
144	G.G.P. 1.8m E.K.I.	305208.38	6275122.63	43.54	ROAD No 1	103	-5.35	1P	10	129.21	0.46	0.0039	0.0027	0.0218	7.8	0.0014	0.0204	9.6	9.6	9.6	1884.5	0.031	0.68	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	9.6		1415		
145	G.G.P. 1.8m E.K.I.	305170.3	6275140.19	40.67	ROAD No 1	144.93	-5.35	1P	10	129.21	0.46	0.0062	0.0038	0.0739	26.5	0.0019	0.0692	32.5	32.5	32.5	1686.5	0.049	1.29	0.06	5.9	3		0.9	CALIBRE 5% grade 3% xfall	30.5	2	1711		
146	G.G.P. 1.8m E.K.I.	305138.46	6275154.88	38.78	ROAD No 1	180	-5.35	1P	10	129.21	0.46	0.0046	0.0021	0.0168	6	0.0011	0.0157	7.4	7.4	7.4	1490	0.031	0.67	0.02	4.7	3		0.9	CALIBRE 3% grade 3% xfall	7.4		291		
147	G.G.P. 1.8m E.K.I.	305141.13	6275165.43	38.69	ROAD No 1	182	5.35	1P	10	129.21	0.46	0.0043	0.002	0.0159	5.7	0.001	0.0149	7	7	7	1460.8	0.03	0.65	0.02	4.5	3		0.9	CALIBRE 3% grade 3% xfall	7		1418		
148	G.G.P. 1.8m E.K.I.	305122.3	6275174.12	37.98	ROAD No 1	202.73	5.35	1P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0151	7.1	7.1	7.1	1099.3	0.034	0.77	0.02	2.6	3		0.9	CALIBRE 1% grade 3% xfall	7.1		1419		
149	G.G.P. 1.8m E.K.I.	305096.9	6275185.83	37.58	ROAD No 1	230.7	5.35	1P	10	129.21	0.46	0.0059	0.0027	0.0217	7.8	0.0014	0.0203	9.5	9.5	9.5	696.7	0.044	1.11	0.02	1	3		0.9	CALIBRE 1% grade 3% xfall	9.5		LOST		
1410	G.G.P. 1.8m E.K.I.	305089.41	6275199.01	37.21	ROAD No 1	261.19	5.8	1P	10	129.21	0.46	0.0109	0.005	0.04	14.4	0.0025	0.0375	17.6	17.6	17.6	621.8	0.052	1.52	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	17.6		LOST		
1411	G.G.P. 1.8m E.K.I.	305020.36	6275221.14	36.74	ROAD No 1	315	5.35	1P	10	129.21	0.46	0.0438	0.035			0.035																		
1412	900x900 J.P.	304992.54	6275212.79	36.02	ROAD No 3	24.27	8.39	1P	10	129.21	0.46	0.0099	0.0045	0.0361	12.9	0.0023	0.0338	15.9	15.9	22.2	696.7	0.058	1.59	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	21.3	0.8	282		
1413	HW OUTLET	304988.49	6275214.63	35.19				1P	10	129.21	0.46	0.0394	0.0315			0.0315																		
151	G.G.P. 1.8m E.K.I.	305022.23	6275208.5	36.81	ROAD No 1	308	-5.35	1P	10	129.21	0.46	0.0099	0.0045	0.0361	12.9	0.0023	0.0338	15.9	15.9	22.2	696.7	0.058	1.59	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	21.3	0.8	282		
161	G.G.P. 1.8m E.K.I.	305216.66	6275130.59	43.85	ROAD No 1	98.82	5.35	1P	10	129.21	0.46	0.0042	0.0019	0.0154	5.5	0.001	0.0144	6.8	6.8	6.8	1884.5	0.027	0.54	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	6.8		181		
171	G.G.P. 2.4m E.K.I. SAG	305152.76	6275137.82	39.37	ROAD No 2	14.85	-5.05	1P	10	129.21	0.46	0.0091	0.0042	0.0541	19.4	0.0021	0.0507	23.8	23.8	25.8	300.4	0.032					0.15	0.8	CALIBRE (sags only)	25.8		172		
172	G.G.P. 1.8m E.K.I.	305143.86	6275142.64	39.35	ROAD No 2	14.2	5.05	1P	10	129.21	0.46	0.0044	0.002	0.016	5.7	0.001	0.015	7	7	7							2.2	3		0.9	CALIBRE 1% grade 3% xfall	7		LOST
181	G.G.P. 1.8m E.K.I.	305170.18	6275152.03	40.39	ROAD No 1	150	5.35	1P	10	129.21	0.46	0.0106	0.0049	0.0389	14	0.0024	0.0364	17.1	17.1	17.1	1646.1	0.04	0.98	0.04	5.6	3		0.9	CALIBRE 5% grade 3% xfall	17.1		LOST		
181	G.G.P. 1.8m E.K.I.	305244.48	6275117.76	46.09	ROAD No 1	68.18	5.35	1P	10	129.21	0.46	0.0051	0.0023	0.0186	6.7	0.0012	0.0175	8.2	8.2	8.2	1969.3	0.029	0.61	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	8.2		LOST		
221	G.G.P. 1.8m E.K.I.	305266.64	6275107.54	47.88	ROAD No 1	43.78	5.35	1P	10	129.21	0.46	0.0072	0.0033	0.0265	9.5	0.0017	0.0248	11.7	11.7	11.7	1884.5	0.033	0.76	0.04	7.3	3		0.9	CALIBRE 7% grade 3% xfall	11.7		191		
231	600x900 G.S.I.P. IAD	305271.59	6275064.41	49.72				2P	10	129.21	0.46	0.0051	0.0023	0.0185	6.6	0.0012	0.0173	8.1	8.1	8.1	793.8	0.009	3.17	0				0.9	CALIBRE G.S.I.P. I.A.D.	8.1		232		
232	600x900 G.S.I.P. IAD	305262.77	6275068.47	48.9				2P	10	129.21	0.46	0.0044	0.002	0.0161	5.8	0.001	0.0151	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		233		
233	600x900 G.S.I.P. IAD	305253.95	6275072.54	48.13				2P	10	129.21	0.46	0.0044	0.002	0.0161	5.8	0.001	0.0151	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		234		
234	600x900 G.S.I.P. IAD	305250.81	6275065.73	48.04				2P	10	129.21	0.46	0.0046	0.0021	0.0169	6.1	0.0011	0.0159	7.4	7.4	7.4								0.9	CALIBRE G.S.I.P. I.A.D.	7.4		235		
235	600x900 G.S.I.P. IAD	305244.14	6275068.81	47.54				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		236		
236	600x900 G.S.I.P. IAD	305237.48	6275071.88	47.03				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		237		
237	600x900 G.S.I.P. IAD	305230.82	6275074.95	46.51				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		238		
238	600x900 G.S.I.P. IAD	305224.15	6275078.03	46.03				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		239		
239	600x900 G.S.I.P. IAD	305217.49	6275081.1	45.54				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		2310		
2310	600x900 G.S.I.P. IAD	305209.74	6275084.68	44.99				2P	10	129.21	0.46	0.0052	0.0024	0.0189	6.8	0.0012	0.0177	8.3	8.3	8.3								0.9	CALIBRE G.S.I.P. I.A.D.	8.3		2311		
2311	600x900 G.S.I.P. IAD	305203.08	6275087.75	44.53				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		2312		
2312	600x900 G.S.I.P. IAD	305196.41	6275090.83	44.07				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		2313		
2313	600x900 G.S.I.P. IAD	305189.75	6275093.9	43.61				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		2314		
2314	600x900 G.S.I.P. IAD	305183.08	6275096.97	43.15				2P	10	129.21	0.46	0.0044	0.002	0.0162	5.8	0.001	0.0152	7.1	7.1	7.1								0.9	CALIBRE G.S.I.P. I.A.D.	7.1		2315		
2315	600x900 G.S.I.P. IAD	305176.42	6275100.05	42.7				2P	10	129.21	0.46	0.0013	0.0006	0.0046	1.7	0.0003	0.0043	2	2	2								0.9	CALIBRE G.S.I.P. I.A.D.	0		2317		
2316	600x900 G.S.I.P. IAD	305179.56	6275106.86	42.63				2P	10	129.21	0.46	0.0013	0.0006	0.0046	1.7	0.0003	0.0043	2	2	2								0.9	CALIBRE G.S.I.P. I.A.D.	0		2317		
2317	600x900 G.S.I.P. IAD	305160.56	6275115.82	41.44				2P	10	129.21	0.46	0.0046	0.0021	0.0167	6	0.001	0.0156	7.3	7.3	7.3								0.9	CALIBRE G.S.I.P. I.A.D.	0		2318		
2318	600x900 G.S.I.P. IAD	305169.12	6275134.18	41.05				2P	10	129.21	0.46	0.0045	0.0021	0.0165	5.9	0.001	0.0155	7.3	7.3	7.3								0.9	CALIBRE G.S.I.P. I.A.D.	0		1711		
241	600x600 G.S.I.P. IAD	305102.47	6275134.16	38.39				2P	10	129.21	0.46	0.0045	0.0021	0.0165	5.9	0.001	0.0155	7.3	7.3	7.3								0.9	CALIBRE G.S.I.P. I.A.D.	7.3		2412		
242	600x600 G.S.I.P. IAD	305095.81	6275137.23	38.05				2P	10	129.21	0.46	0.0045	0.0021	0.0165	5.9	0.001	0.0155	7.3	7.3	7.3								0.9	CALIBRE G.S.I.P. I.A.D.	7.3		2413		
243	600x600 G.S.I.P. IAD	305089.14	6275140.31	37.7				2P	10	129.21	0.46	0.0045	0.0021	0.0165	5.9	0.001	0.015																	

MINOR 20 YEAR STORM EVENT

FOR CONTINUATION REFER TO DWG. No.813

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MINOR 20 YEAR STORM EVENT

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FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT TITLE	PROJECT	DRAWING TITLE
	VC	MS	MC									
A M M E N D M E N T S	1	VC	VS	MC	25/08/2017	ISSUE FOR TENDER	FOR SUBDIVISION WORKS CERTIFICATE		VISY CASTLE Pty Ltd	 www.egis-group.com © 2023 Egis Consulting Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	DRAINAGE CALCULATIONS SHEET 04 OF 06
	2	VC	MS	MC	10/11/2017	ISSUE FOR COUNCIL COMMENTS						
	3	VC	MS	MC	SAG 09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE						
	4	VC	MS	MC	SAG 11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE						
	5	VC	VC	-	SAG 19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE						
	6	MGC	JH	MC	EF 17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE						
	7	FM	JS	FM	EF 04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE						
						AUTHORISED FOR ISSUE: BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPEng NER DATE: 1/11/24	DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY					
						PROJECT No. 23-000096 DRAWING No. 814 STAGE REVISION 7						

Document Set ID: 21259437
Version: 2, Version Date: 16/04/2024

12D MODEL - HYDROLOGICAL DESIGN SHEET
MAJOR 100 YEAR STORM EVENT

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

Node Name	Node Type	Setout Easting (m)	Setout Northing (m)	Setout RL (m)	Road Name (-)	Road Chainage (m)	Road Offset (m)	Catch ID (-)	Time Tc (min)	Intensity I (mm/hr)	Runoff C (ha)	Area A (ha)	Full CA (ha)	Full Sum CA (ha)	Full Qc-CIA (L/s)	Partial CA (ha)	Partial Sum CA (ha)	Partial Qc-CIA (L/s)	Catchment Flow Qc (L/s)	Approach Flow Qa (L/s)	Road Capacity (L/s)	Flooded Depth (m)	Flooded Width (m)	Flooded Vel Dep (sq.m/s)	Road Grade (%)	Road Xfall (%)	Max Pond Depth (m)	Choke Factor (-)	Inlet Curve Name (-)	Inlet Flow Qg (L/s)	Bypass Flow Qb (L/s)	Bypass Node (-)	
141	G.P. 1.8m E.K.I.	305267.53	6275086.34	48.31	ROAD No 1	37.86	-5.35	1P	10	167.33	0.56	0.0164	0.0092	0.0616	28.6	0.0046	0.057	34.7	34.7	34.7	1841.9	0.048	1.28	0.06	6.9	3		0.9	CALIBRE 5% grade 3% xfall	32.3	2.4	1412	
142	G.P. 1.8m E.K.I.	305251.3	6275102.83	47	ROAD No 1	55.73	-5.35	1P	10	167.33	0.56	0.0656	0.0524	0.0019	6	0.001	0.0119	7.3	7.3	9.7	1884.5	0.031	0.68	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	9.7		1413	
143	G.P. 1.8m E.K.I.	305235.97	6275109.9	45.77	ROAD No 1	72.62	-5.35	1P	10	167.33	0.56	0.0034	0.0019	0.0129	6	0.001	0.0119	7.3	7.3	7.3	1884.5	0.028	0.57	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	7.3		1414	
144	G.P. 1.8m E.K.I.	305208.38	6275122.63	43.54	ROAD No 1	103	-5.35	1P	10	167.33	0.56	0.0039	0.0033	0.0224	10.4	0.0017	0.0207	12.6	12.6	12.6	1884.5	0.034	0.79	0.04	7.3	3		0.9	CALIBRE 7% grade 3% xfall	12.6		1415	
145	G.P. 1.8m E.K.I.	305170.3	6275140.19	40.67	ROAD No 1	144.93	-5.35	1P	10	167.33	0.56	0.0082	0.0046	0.0759	35.3	0.0023	0.0702	42.7	42.7	42.7	1686.5	0.053	1.45	0.07	5.9	3		0.9	CALIBRE 5% grade 3% xfall	38	4.7	1711	
146	G.P. 1.8m E.K.I.	305138.46	6275154.88	38.78	ROAD No 1	180	-5.35	1P	10	167.33	0.56	0.0046	0.0026	0.0173	8	0.0013	0.016	9.7	9.7	9.7	1490	0.034	0.78	0.03	4.7	3		0.9	CALIBRE 3% grade 3% xfall	9.7		291	
147	G.P. 1.8m E.K.I.	305141.13	6275165.43	38.69	ROAD No 1	182	5.35	1P	10	167.33	0.56	0.0043	0.0024	0.0163	7.6	0.0012	0.0151	9.2	9.2	9.2	1460.8	0.034	0.76	0.03	4.5	3		0.9	CALIBRE 3% grade 3% xfall	9.2		1418	
148	G.P. 1.8m E.K.I.	305122.3	6275174.12	37.98	ROAD No 1	202.73	5.35	1P	10	167.33	0.56	0.0044	0.0025	0.0166	7.7	0.0012	0.0154	9.3	9.3	9.3	1099.3	0.037	0.89	0.02	2.6	3		0.9	CALIBRE 1% grade 3% xfall	9.3		1419	
149	G.P. 1.8m E.K.I.	305096.9	6275185.83	37.58	ROAD No 1	230.7	5.35	1P	10	167.33	0.56	0.0059	0.0033	0.0223	10.4	0.0017	0.0206	12.5	12.5	12.5	696.7	0.048	1.25	0.02	1	3		0.9	CALIBRE 1% grade 3% xfall	12.5		LOST	
1410	G.P. 1.8m E.K.I.	305089.41	6275199.01	37.21	ROAD No 1	261.19	5.8	1P	10	167.33	0.56	0.0109	0.0061	0.0411	19.1	0.0031	0.0381	23.2	23.2	23.2	621.8	0.057	1.71	0.03	1	3		0.9	CALIBRE 1% grade 3% xfall	22.1	1	LOST	
1411	G.P. 1.8m E.K.I.	305020.36	6275221.14	36.74	ROAD No 1	315	5.35	1P	10	167.33	0.56	0.0438	0.035			0.035																	
1412	900x900 J.P.	304992.54	6275212.79	36.02	ROAD No 3	24.27	8.39	1P	10	167.33	0.56	0.0099	0.0055	0.0371	17.2	0.0028	0.0343	20.9	20.9	32.8	696.7	0.066	1.86	0.04	1	3		0.9	CALIBRE 1% grade 3% xfall	29.9	3	2812	
1413	HW OUTLET	304988.49	6275214.63	35.19																													
151	G.P. 1.8m E.K.I.	305022.23	6275208.5	36.81	ROAD No 1	308	-5.35	1P	10	167.33	0.56	0.0099	0.0055	0.0371	17.2	0.0028	0.0343	20.9	20.9	32.8	696.7	0.066	1.86	0.04	1	3		0.9	CALIBRE 1% grade 3% xfall	29.9	3	2812	
161	G.P. 1.8m E.K.I.	305216.66	6275130.59	43.85	ROAD No 1	98.82	5.35	1P	10	167.33	0.56	0.0042	0.0024	0.0158	7.4	0.0012	0.0147	8.9	8.9	8.9	1884.5	0.03	0.65	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	8.9		181	
171	G.P. 2.4m E.K.I. SAG	305152.76	6275137.82	39.37	ROAD No 2	14.85	-5.05	1P	10	167.33	0.56	0.0091	0.0051	0.0555	25.8	0.0026	0.0514	31.3	31.3	109.6	300.4	0.079					0.15	0.8	CALIBRE (sags only)	109.6		1712	
172	G.P. 1.8m E.K.I.	305143.86	6275142.64	39.35	ROAD No 2	14.2	5.05	1P	10	167.33	0.56	0.0044	0.0024	0.0164	7.6	0.0012	0.0152	9.2	9.2	9.2						2.2	3		0.9	CALIBRE 1% grade 3% xfall	9.2		LOST
181	G.P. 1.8m E.K.I.	305170.18	6275152.03	40.39	ROAD No 1	150	5.35	1P	10	167.33	0.56	0.0106	0.006	0.04	18.6	0.003	0.037	22.5	22.5	22.5	1646.1	0.044	1.11	0.05	5.6	3		0.9	CALIBRE 5% grade 3% xfall	22.1	0.5	LOST	
181	G.P. 1.8m E.K.I.	305244.48	6275117.76	46.09	ROAD No 1	68.18	5.35	1P	10	167.33	0.56	0.0051	0.0028	0.0191	8.9	0.0014	0.0177	10.8	10.8	10.8	1969.3	0.033	0.71	0.03	7.3	3		0.9	CALIBRE 7% grade 3% xfall	10.8		LOST	
221	G.P. 1.8m E.K.I.	305266.64	6275107.54	47.88	ROAD No 1	43.78	5.35	1P	10	167.33	0.56	0.0072	0.0041	0.0272	12.7	0.002	0.0252	15.3	15.3	15.3	1884.5	0.037	0.87	0.04	7.3	3		0.9	CALIBRE 7% grade 3% xfall	15.3		191	
231	600x900 G.S.I.P. IAD	305271.59	6275064.41	49.72				2P	10	167.33	0.56	0.0051	0.0028	0.019	8.8	0.0014	0.0176	10.7	10.7	10.7	793.8	0.01	3.5	0.01				0.9	CALIBRE G.S.I.P. I.A.D.	10.7		2312	
232	600x900 G.S.I.P. IAD	305262.77	6275068.47	48.9				2P	10	167.33	0.56	0.0044	0.0025	0.0166	7.7	0.0012	0.0153	9.3	9.3	9.3								0.9	CALIBRE G.S.I.P. I.A.D.	9.3		2313	
233	600x900 G.S.I.P. IAD	305253.95	6275072.54	48.13				2P	10	167.33	0.56	0.0044	0.0025	0.0166	7.7	0.0012	0.0153	9.3	9.3	9.3								0.9	CALIBRE G.S.I.P. I.A.D.	9.3		2314	
234	600x900 G.S.I.P. IAD	305250.81	6275065.73	48.04				2P	10	167.33	0.56	0.0046	0.0026	0.0174	8.1	0.0013	0.0161	9.8	9.8	9.8								0.9	CALIBRE G.S.I.P. I.A.D.	9.8		2315	
235	600x900 G.S.I.P. IAD	305244.14	6275068.81	47.54				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2316	
236	600x900 G.S.I.P. IAD	305237.48	6275071.88	47.03				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2317	
237	600x900 G.S.I.P. IAD	305230.82	6275074.95	46.51				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2318	
238	600x900 G.S.I.P. IAD	305224.15	6275078.03	46.03				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2319	
239	600x900 G.S.I.P. IAD	305217.49	6275081.1	45.54				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2310	
2310	600x900 G.S.I.P. IAD	305209.74	6275084.68	44.99				2P	10	167.33	0.56	0.0052	0.0029	0.0194	9	0.0014	0.0179	10.9	10.9	10.9								0.9	CALIBRE G.S.I.P. I.A.D.	10.9		2311	
2311	600x900 G.S.I.P. IAD	305203.08	6275087.75	44.53				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2312	
2312	600x900 G.S.I.P. IAD	305196.41	6275090.83	44.07				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2313	
2313	600x900 G.S.I.P. IAD	305189.75	6275093.9	43.61				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2314	
2314	600x900 G.S.I.P. IAD	305183.08	6275096.97	43.15				2P	10	167.33	0.56	0.0044	0.0025	0.0167	7.7	0.0012	0.0154	9.4	9.4	9.4								0.9	CALIBRE G.S.I.P. I.A.D.	9.4		2315	
2315	600x900 G.S.I.P. IAD	305176.42	6275100.05	42.7				2P	10	167.33	0.56	0.0013	0.0007	0.0047	2.2	0.0004	0.0044	2.7	2.7	2.7								0.9	CALIBRE G.S.I.P. I.A.D.	0		2317	
2316	600x900 G.S.I.P. IAD	305179.56	6275106.86	42.63				2P	10	167.33	0.56	0.0013	0.0007	0.0047	2.2	0.0004	0.0044	2.7	2.7	2.7								0.9	CALIBRE G.S.I.P. I.A.D.	0		2318	
2317	600x900 G.S.I.P. IAD	305160.56	6275115.82	41.44				2P	10	167.33	0.56	0.0046	0.0025	0.0171	8	0.0013	0.0158	9.6	9.6	9.6								0.9	CALIBRE G.S.I.P. I.A.D.	0		171	
2318	600x900 G.S.I.P. IAD	305169.12	6275134.18	41.05				2P	10	167.33	0.56	0.0046	0.0025	0.0171	8	0.0013	0.0158	9.6	9.6	9.6								0.9	CALIBRE G.S.I.P. I.A.D.	0		242	
241	600x600 G.S.I.P. IAD	305102.47	6275134.16	38.39				2P	10	167.33	0.56	0.0045	0.0025	0.017	7.9	0.0013	0.0157	9.6	9.6	9.6								0.9	CALIBRE G.S.I.P. I.A.D.	9.6		2413	
242	600x600 G.S.I.P. IAD	305095.81	6275137.23	38.05				2P	10	167.33	0.56	0.0045	0.0025	0.017	7.9	0.0013	0.0157	9.5	9.5	9.5								0.9	CALIBRE G.S.I.P. I.A.D.	9.5		2414	

MAJOR 100 YEAR STORM EVENT

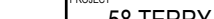
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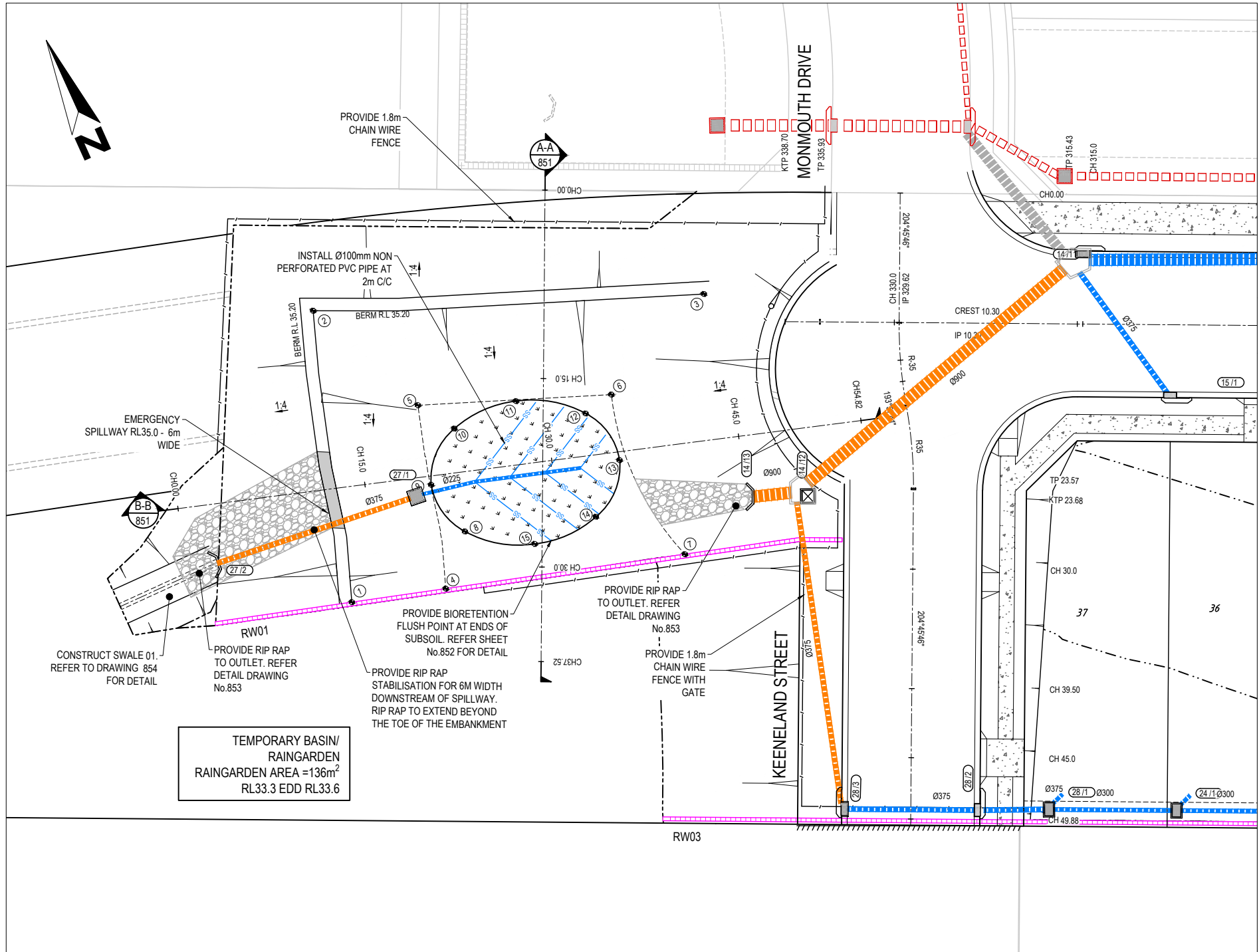
[illegible]

MAJOR 100 YEAR STORM EVENT

ID	Pipe Type	Pipe Length (ft)	Pipe Size [in]	Pipe Area [sq.in]	Pipe Grade [%]	Pipe Grade (ft/mile)	Full-Size (mm)	Full-Size (in)	Sum CA (ha)	Q-CurCA (L/s)	Part-Size (mm)	I (mm/hr)	Paranas Sum CA (L/s)	Q-CurCA (L/s)	Catchment Flow Qc (L/s)	Dred Pipe Flow Qd (L/s)	Pipe Peak Flow Qp (L/s)	Nat Bypass Flow Qb (L/s)	Capacity Flow Qc+Qb (L/s)	Q/Capac (%)	Full Pipe Vel Vm-Q/A (m/s)	Nat Ver-Q/A (m/s)	Crit Depth Vel Vs-Q/Acc (m/s)	Capacity Vel Vcap-Qmp (m/s)	US Grade No US L/S	Pipe US D/L	Dis. Grade No L/S	Gate Cover Limit [mm]	Cover Min [mm]	US Bend US B Deg	Pipe US Drop (deg)	US Node Kw (-)	US Node Kw (-)	Pipe Head (m)	Phd Loss (Kw/Khead)	WSE Loss (Kw/Khead)	Pipe Head (m)	US Node HGL [m]	US Pipe HGL [m]	Pipe HGL US HGL	BS Node HGL [m]	HGL Grade (%)	HGL Grade (ft/mile)	Flooded US Node						
1410 to 1412	RJ2	17.87	375	0.11	6.93	14.4	10	167.33	0.0616	28.6	5	219.06	0.057	34.7	34.7		34.7	-2.4	32.3	574.8	0.06	0.29	2.87	0.96	5.2	48.31	46.87	45.63	47	1	1	0	0.068	4.5	0	0.02	0.52	1.24	47.01	46.99	45.75	45.75	6.98	14.3	1.29					
1412 to 1413	RJ2	16.89	375	0.11	6.92	14.4	10	165.38	0.0108	47	5	215.98	0.0402	56.8	56.8		56.8		56.8	574.4	0.1	0.51	3.38	1.14	5.2	47	45.56	44.39	43.57	1	1	0	0.067	1.03	0.01	0.01	0.01	1.16	45.75	45.73	44.54	44.54	7.07	14.2	1.26					
1413 to 1414	RJ2	30.38	375	0.11	7.1	14.1	10.19	166.38	0.1338	61.5	5.29	219.02	0.124	74	74		74		74	581.8	0.13	0.67	3.67	1.25	5.27	45.77	44.32	42.7	43.44	1	1	0	0.237	0.7	0.02	0.02	0.02	1.66	44.54	44.52	42.26	42.18	7.46	13.4	1.23					
1414 to 1415	RJ2	41.93	450	0.159	6.7	14.9	10.54	163.86	0.172	78.3	5.54	211.48	0.1596	93.8	93.8		93.8		93.8	918.1	0.1	0.59	3.77	1.27	5.73	43.54	41.93	39.12	40.67	1	1	0	0.063	2	0.02	0.04	0.02	2.72	42.18	42.14	39.48	39.48	6.34	15.8	1.37					
1415 to 1416	RJ2	35.07	525	0.216	5.27	19	11.36	158.62	0.4915	216.6	5.89	206.6	0.451	258.8	258.8		258.8	-4.7	254.1	1208.8	0.21	1.17	4.47	1.71	5.58	40.67	39.06	37.21	40.67	1	1	80.2	0.219	1.23	0.07	0.09	1.32	39.48	39.4	38.18	38.17	3.53	28.3	1.19						
1416 to 1417	RJ2	11.77	750	0.442	1	99.8	11.65	156.75	0.0609	261.6	3.31	202.2	0.5573	313	313		489		802	1332.8	0.6	1.82	3.15	2.29	3.02	38.78	36.99	36.87	38.69	1	1	-80.2	0.128	0.9	0.94	0.17	0.15	0.16	0.04	38.17	38.01	37.99	38.05	0.37	272.2	0.61				
1417 to 1418	RJ2	21.73	825	0.535	5.26	30.7	11.65	156.72	0.0572	285	6.34	201.85	0.5088	341.3	341.3		967		1306.3	-0.5		1307.9	306.4	0.42	2.45	5.56	27.5	5.79	36.89	36.75	30.7	38.68	1	1	0	0.035	1.74	2.02	0.31	0.53	0.62	0.67	38.05	37.43	36.8	36.8	3.07	32.5	0.64	
1418 to 1419	RJ2	2.97	825	0.535	5.26	30.7	11.65	156.72	0.0572	285	6.34	201.85	0.5088	341.3	341.3		967		1306.3	-0.5		1307.9	306.4	0.42	2.45	5.56	27.5	5.79	36.89	36.75	30.7	38.68	1	1	0	0.035	1.74	2.02	0.31	0.53	0.62	0.67	38.05	37.43	36.8	36.8	3.07	32.5	0.64	
1419 to 1420	RJ2	20.49	900	0.636	1.2	83.1																																												

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16/04/2024**

DESIGN DRAWN CHECK APPD. DATE 1 2 3 4 5 6 7	VC	MS	MC		25/08/2017	AMENDMENT DETAILS	STATUS FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT VISY CASTLE Pty Ltd	 www.egis-group.com © 2023 Egis Consulting Pty Ltd	PROJECT 58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	DRAWING TITLE DRAINAGE CALCULATIONS SHEET 06 OF 06		
	1	VC	VS	MC									25/09/2017	ISSUE FOR TENDER
	2	VC	MS	MC									10/11/2017	ISSUE FOR COUNCIL COMMENTS
	3	VC	MS	MC	SAG								09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	4	VC	MS	MC	SAG								11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	5	VC	VC	-	SAG								19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
	6	MGC	JH	MC	EF								17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
	7	FM	JS	FM	EF								04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
AUTHORISED FOR ISSUE: BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPEng NER DATE: 														
PROJECT 58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN														
DRAWING TITLE DRAINAGE CALCULATIONS SHEET 06 OF 06														
DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY.														
PROJECT No. 23-000096 DRAWING No. 816 STAGE REVISION 7														



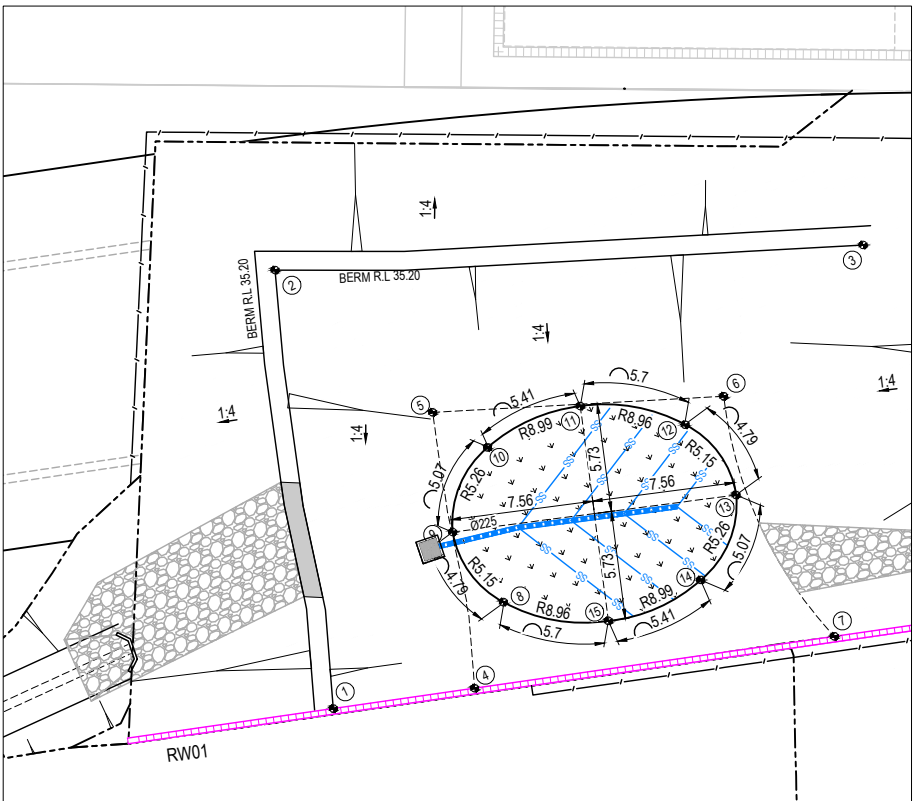
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POINT	EASTING	NORTHING	HEIGHT
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3	304991.607	6275230.865	35.200
4	304963.230	6275217.942	33.300
5	304967.209	6275232.161	33.300
6	304981.596	6275226.602	33.400
7	304981.708	6275212.612	33.400
8	304966.487	6275221.473	32.364
9	304965.567	6275225.954	32.364
10	304969.094	6275229.272	32.398
11	304974.463	6275229.247	32.436
12	304979.113	6275226.070	32.476
13	304980.043	6275221.575	32.492
14	304976.484	6275218.246	32.459
15	304971.147	6275218.281	32.424

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

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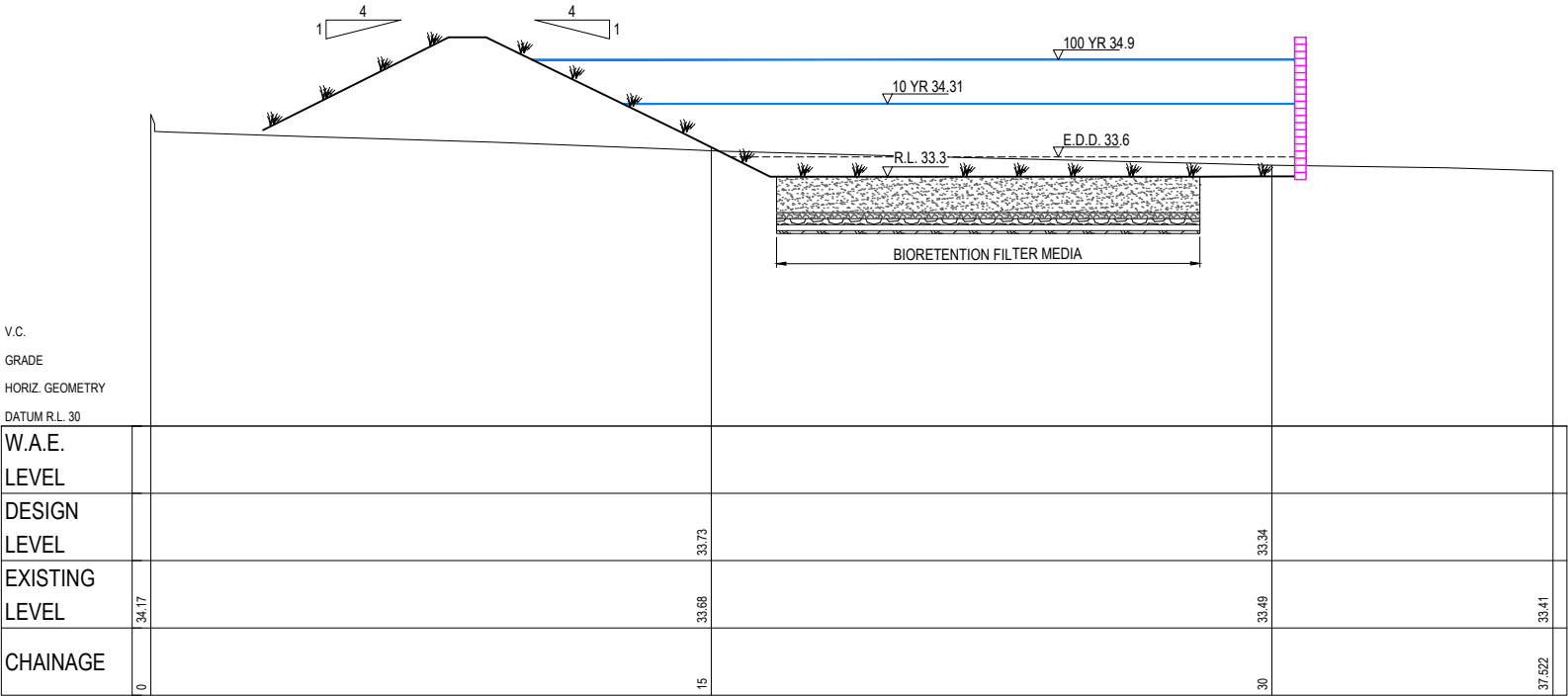
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FIRST ISSUE	DESIGN	DRAWN	CHECK	APPRO.	DATE	FOR SUBDIVISION WORKS CERTIFICATE		0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0		VISY CASTLE Pty Ltd		58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN		BASIN DETAIL PLAN	
1	VC	MS	MC		25/08/2017	BY: ENRIQUE FRANCO SIGN: <i>[Signature]</i>		SCALE 1:200 (A1)				www.egis-group.com		PROJECT No. 23-000096	
2	VC	VS	MC		25/09/2017	BE(Hons) MIEAust. CPEng		SCALE 1:400 (A3)				egis		DRAWING No. 850	
3	VC	MS	MC		10/11/2017	NER						DISCLAIMER		STAGE	
4	VC	MS	MC	SAG	09/01/2018	DATE: <i>[Signature]</i>						ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY		REVISION	
5	VC	MS	MC	SAG	11/01/2018									7	
6	MGC	JH	MC	EF	17/11/2023										
7	FM	JS	FM	EF	04/03/2024										

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

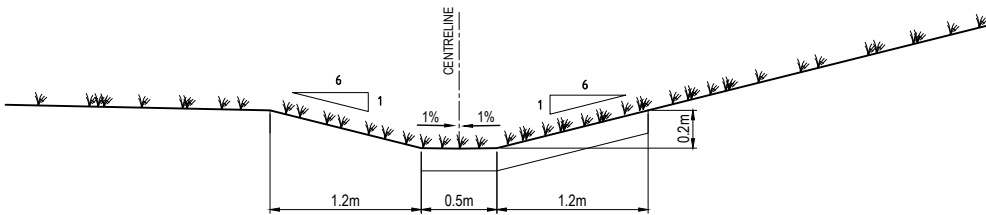
DA 589/2016/ZE

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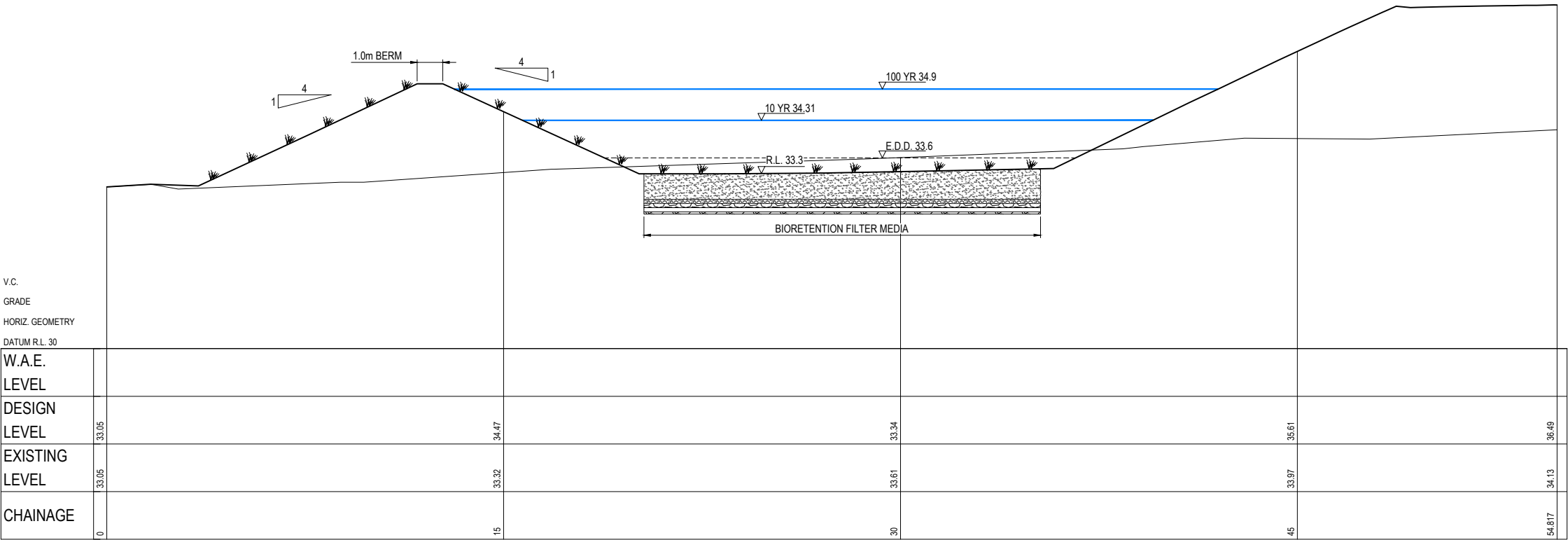
CC APPROVED ON
16/04/2024



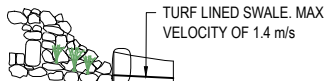
SECTION A-A
SCALE: 1:100 (H)
SCALE: 1:50 (V)



TYPICAL DIVERSION SWALE SECTION
SCALE 1:100 (H) SCALE 1:100 (V)



SECTION B-B
SCALE: 1:100 (H)
SCALE: 1:50 (V)



V.C.		
GRADE		
HORIZ. GEOMETRY		
DATUM R.L. 28		
WAE		
LEVEL		
DESIGN		
LEVEL	32.17	32.09
EXISTING		
LEVEL	32.78	32.54
CHAINAGE	0	7.88

LONGITUDINAL SECTION - INVERT SWALE 01
SCALE 1:500 (H)
SCALE 1:100 (V)

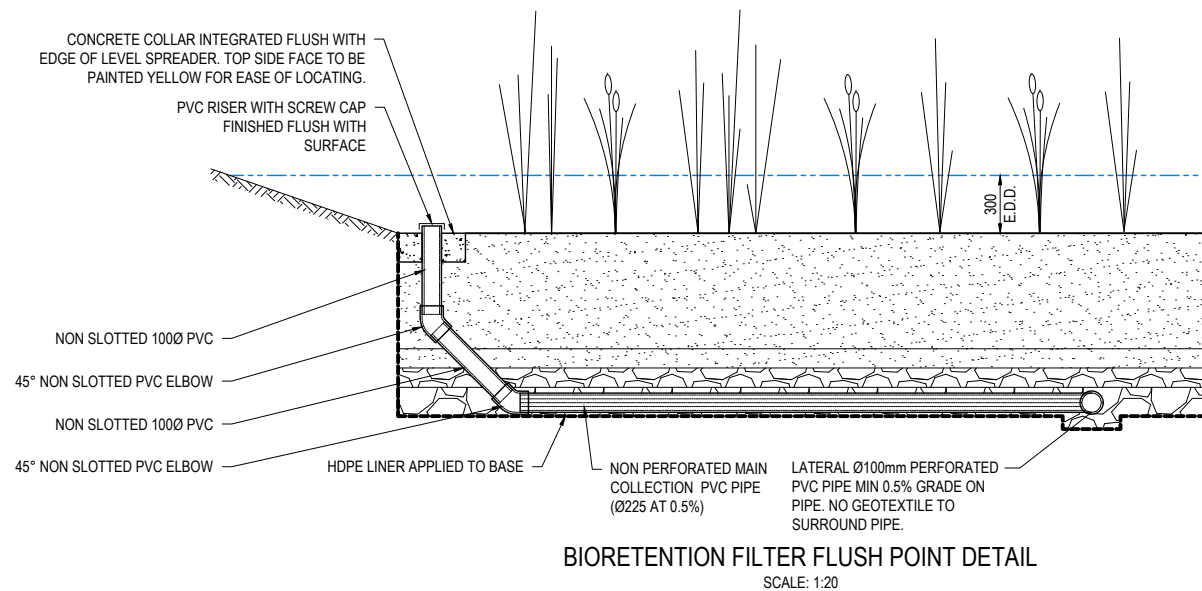
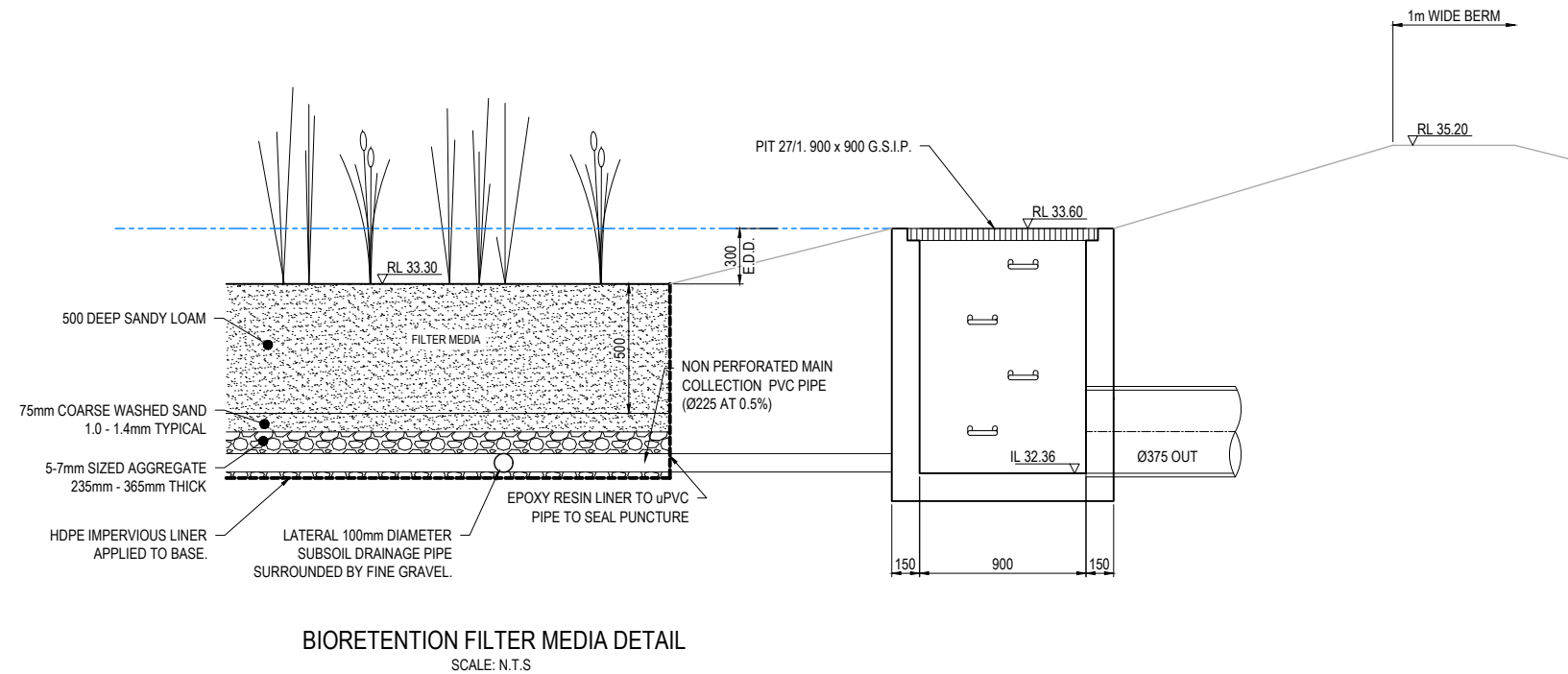
FIRST ISSUE				AMENDMENT DETAILS				STATUS		SCALE		CLIENT		PROJECT		DRAWING TITLE	
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2	VC	VS	MC	25/09/2017				BY: ENRIQUE FRANCO SIGN: [Signature] BE(Hons) MIEAust. CPEng NER DATE: 16/04/24									
3	VC	MS	MC	10/11/2017													
4	VC	MS	MC	09/01/2018													
5	VC	MS	MC	11/01/2018													
6	VC	VC	-	19/03/2018													
7	MGC	JH	MC	17/11/2023													
8	FM	JS	FM	04/03/2024													

THE HILLS SHIRE COUNCIL CONSTRUCTION CERTIFICATE

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16/04/2024**



FILTER MEDIA SPECIFICATION

THE FILTER MEDIA SHALL GENERALLY BE A LOAMY SAND AND BE FREE OF CONTAMINANTS SUCH AS RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND WEEDS AND SHOULD NOT BE HYDROPHOBIC.

THE FILTER MEDIA SHALL BE WELL GRADED.

1. pH BETWEEN 5.5 TO 7.5
2. ELECTRICAL CONDUCTIVITY (EC) < 1.2 dS/m
3. ORGANIC MATTER CONTENT < 5% w/w
4. PHOSPHOROUS CONTENT < 35 mg/kg
5. TOTAL SILT & CLAY CONTENT (<0.05mm) < 3% w/w
6. HYDRAULIC CONDUCTIVITY BETWEEN 100 & 300 mm/h

THE COARSE SAND TRANSITION LAYER SHALL BE OF A
CLEAN WELL GRADED SAND/COARSE SAND MATERIAL
CONTAINING LITTLE OR NO FINES.

THE DRAINAGE LAYER SHALL BE OF A CLEAN FINE GRAVEL CONSISTING OF 2-5mm WASHED SCREENINGS.

CONSTRUCTION NOTES

1. FILTER MEDIA SPECIFICATION & GRADING IS TO BE VERIFIED BY THE SUPERINTENDENT PRIOR TO PLACEMENT. RELEVANT MATERIAL SPECIFICATION SHEETS ARE TO BE PROVIDED BY THE CONTRACTOR.
2. SUBSOIL DRAINAGE PIPES WITHIN THE BIORETENTION SYSTEM ARE TO BE SLOTTED 100mm uPVC CONSISTENT WITH AS/NZS 1254. JOINTS ARE TO BE SOLVENT CEMENT GLUED AND BENDS ARE TO BE 45° TO MINIMISE BLOCKAGE.
3. FILTER MEDIA TO BE LIGHTLY COMPACTED USING A SINGLE PASS VIBRATING PLATE OR ROLLER (E.C. DRUM LAWN ROLLER). UNDER NO CIRCUMSTANCES SHOULD HEAVY COMPACTION OR MULTIPLE PASSES BE MADE.
4. FILTER MEDIA TO BE INSTALLED IN TWO LIFTS UNLESS DEPTH OF MEDIA IS < 500mm.
5. LINER IS TO BE A 0.75mm (30 mil) POLYETHYLENE PRODUCT OR EQUIVALENT.
6. PLANTING DENSITIES AND SPECIES ARE TO BE PLANTED TO THE LANDSCAPE ARCHITECT REQUIREMENTS.

NOTE :

FILTER MEDIA TO BE INSTALLED ON COMPLETION OF 80% OF HOUSES BUILT OR 2 YEARS AFTER REGISTRATION, WHICHEVER IS FIRST.

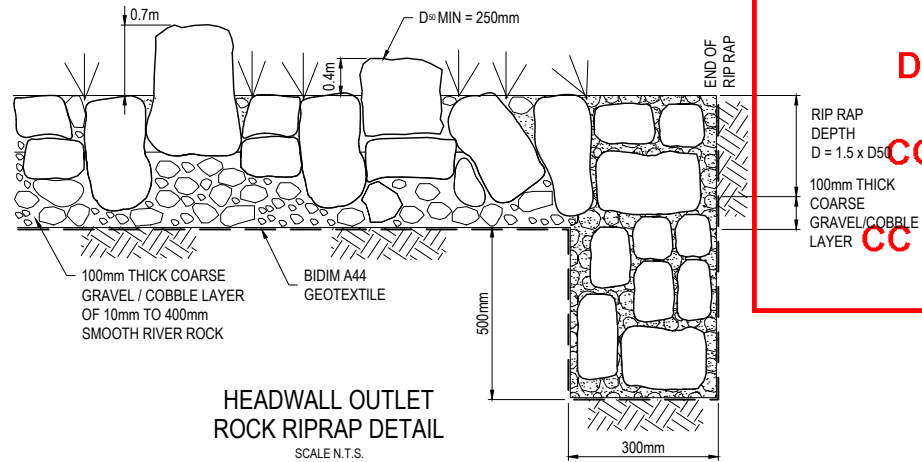
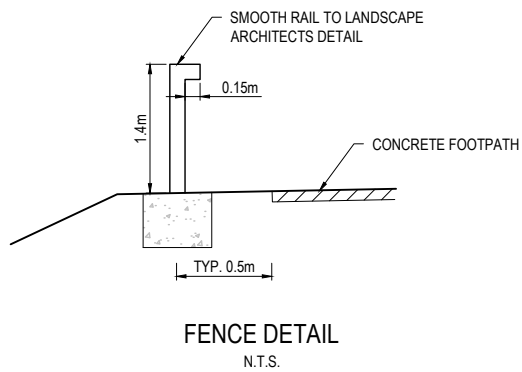
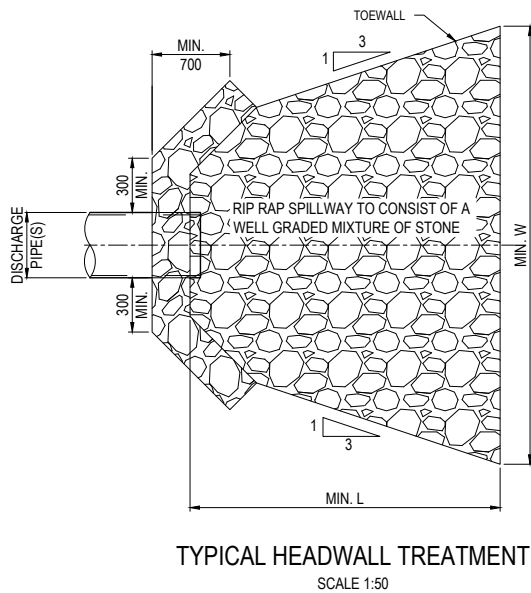
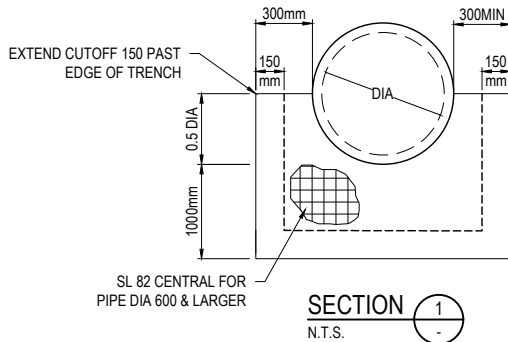
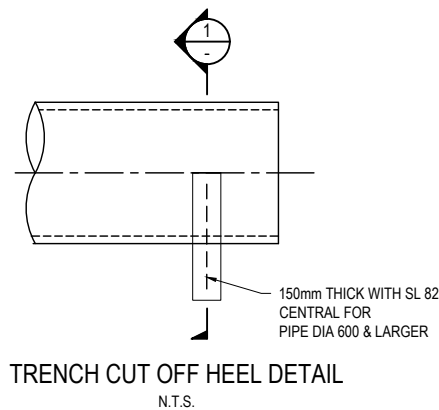
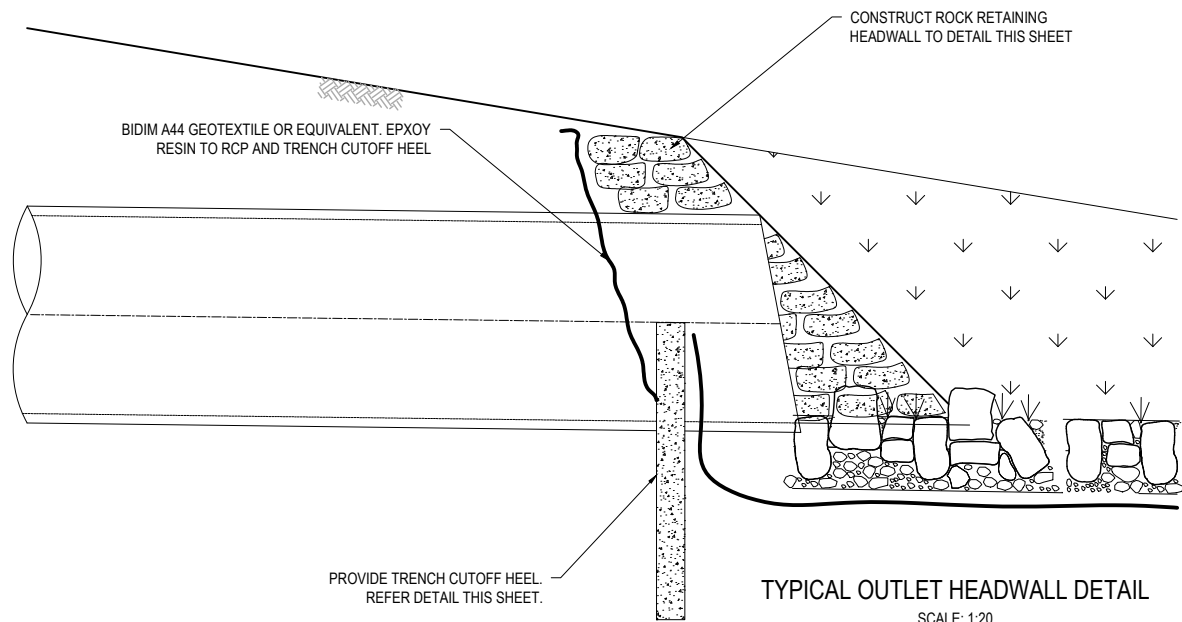
A M E N D E D E E F E E S T A T U S I S S U E S	DESIGN	DRAWN	CHECK	APPD.	DATE				
	FIRST ISSUE	VC	MS	MC		25/08/2017			
	1	VC	VS	MC		25/09/2017	ISSUE FOR TENDER		
	2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS		
	3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE		
	4	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE		
	5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE		
	6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE		
7	FM	JS	FM	FF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE			
AMENDMENT DETAILS							STATUS		
FOR SUBDIVISION WORKS CERTIFICATE							AUTHORISED FOR ISSUE:		
BY: ENRIQUE FRANCO SIGN: 									
BE(Hons) MIE Aust. CP Eng NER									
DATE: _____									
SCALE							CLIENT		
							VISY CASTLE Pty Ltd		
									
							www.egis-group.com		
							© 2023 Egis Consulting Pty Ltd		
PROJECT							DRAWING TITLE		
58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN							BIORETENTION DETAILING		
DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY.							PROJECT No. DRAWING No. STAGE REVISION		
							23-000096 852 7		

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

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16/04/2024



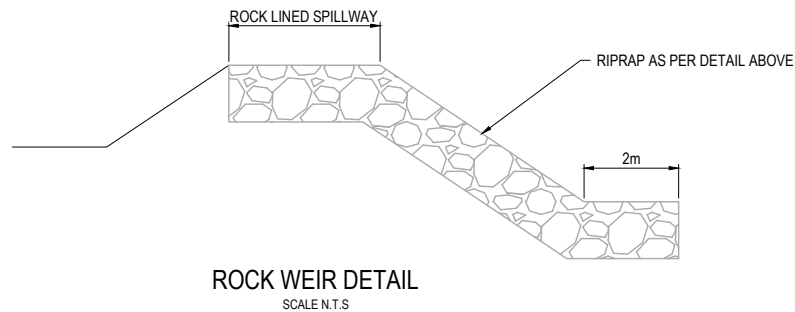
ROCK RIPRAP NOTES:

- ALL RIPRAP MUST CONSIST OF HARD, DURABLE ANGULAR RUN-OF-QUARRY SANDSTONE ROCK; RESISTANT TO WEATHERING & WATER ACTION; FREE FROM OVERBURDEN, SPOIL, SHALE & ORGANIC MATERIAL; & SHALL MEET THE GRADATION REQUIREMENTS SPECIFIED.
- ROUNDED STONES/BOULDERS WILL NOT BE ACCEPTABLE.
- SHALE & ROCK WITH SHALE SEAMS WILL NOT BE ACCEPTABLE.
- ALL ROCK & COBBLES TO BE PACKED WITH TOPSOIL. GAPS IN RIPRAP TO BE PLANTED AS SPECIFIED IN VMP, OR WITH SUITABLE NATIVE GRASSES/SEDGES.
- RIPRAP SHALL BE PLACED ON THE PREPARED SLOPE IN A MANNER THAT WILL PRODUCE A REASONABLY WELL GRADED MASS OF STONE WITH THE MINIMUM PRACTICAL PERCENTAGE OF VOIDS.
- LARGER STONES SHALL BE WELL DISTRIBUTED & THE ENTIRE MASS OF STONE SHALL CONFORM TO THE GRADATION SPECIFIED BY THE ENGINEERING PLANS.
- RIPRAP IS TO BE PLACED BY HAND AND CROW-BARRED INTO PLACE TO ENSURE FIT WITH MINIMUM VOIDS.
- THE MINIMUM THICKNESS OF THE RIPRAP LAYER IS TO BE 2.1 TIMES THE d50 ROCK SIZE & NOT BE LESS THAN 300mm FOR PRACTICAL PLACEMENT.
- ALL RIPRAP MUST BE PLACED OVER A MINIMUM 100mm COARSE GRAVEL / COBBLE LAYER OF 10mm TO 40mm SMOOTH RIVER ROCK. VOIDS ARE TO BE FILLED IN DURING PLACEMENT AND LIGHTLY WASHED IN TO THE ABOVE LAYER WITH TOPSOIL AS THE ROCK WORK IS BOUGHT UP.
- ALL ROCK IS TO BE A HARD DURABLE ROCK WITH A POINT INDEX LOAD IS50 GREATER THAN 1.0MPa AS DETERMINED IN ACCORDANCE WITH AS4133.4.1 -2007
- THE MINIMUM DENSITY OF STONE USED SHALL NOT BE LESS THAN 2200 kg/cu.m. TYPICAL ROCK WEIGHT RANGES FOR RIPRAP ARE:

M50 - 60kg (NOM 300MD)
M15 - 25kg
M100 - 120kg

OUTLET RIP RAP SIZING			
HEADWALL	LENGTH	WIDTH	ROCK SIZING
14113	5.4m	3.06m	d ₅₀ = 500mm
2712	1.2m	1.0m	d ₅₀ = 100mm

AS PER HILLS SHIRE COUNCIL STANDARD DRAWING SD.10



ROCK RIP RAP	
ROCKED AREA	SIZE (m)
BASIN SPILLWAY	D ₅₀ = 0.5

AMENDMENT DETAILS						STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE
FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE						
1	VC	MS	MC		25/08/2017			0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 SCALE 1:50 (A1)	VISY CASTLE Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	HEADWALL DETAIL
2	VC	VS	MC		25/09/2017			0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 SCALE 1:20 (A1)			
3	VC	MS	MC	SAG	10/11/2017			0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 SCALE 1:40 (A3)	www.egis-group.com © 2023 Egis Consulting Pty Ltd	ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY	PROJECT No. 23-000096 DRAWING No. 853 STAGE REVISION 7
4	VC	MS	MC	SAG	09/01/2018						
5	VC	VC	-	SAG	11/01/2018				BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPEng NER	DATE: 16/04/2024	
6	MGC	JH	MC	EF	17/11/2023						
7	FM	JS	FM	EF	04/03/2024						

GENERAL NOTES:

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH;
 - AS1170(2002) - STRUCTURAL DESIGN ACTIONS,
 - AS3600(2018) - CONCRETE STRUCTURES,
 - AS4678(2002) - EARTH-RETAINING STRUCTURES,
 - STANDARDS ASSOCIATION OF AUSTRALIA (SAA) CODES, AND
 - NATIONAL CONSTRUCTION CODE.
- ALL WORK SHALL BE UNDERTAKEN IN A SAFE AND RESPONSIBLE MANNER AND IN ACCORDANCE WITH ALL WORKCOVER REQUIREMENTS AND WH&S ACT REGULATIONS.
- DO NOT SCALE FROM THE DRAWINGS. VERIFY ALL DIMENSIONS AND LEVELS FOR SETTING OUT AND OFF-SITE WORK BEFORE CONSTRUCTION AND FABRICATION BEGIN. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS ARE IN METRES TO THE AUSTRALIAN HEIGHT DATUM.
- DURING CONSTRUCTION MAINTAIN THE STRUCTURE IN A STABLE CONDITION AND ENSURE NO PART IS OVERSTRESSED. PROVIDE ALL TEMPORARY PROPPING AND BRACING NECESSARY TO ACHIEVE THIS. ANY TEMPORARY WORKS SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY.
- WHERE STRUCTURAL CERTIFICATION IS REQUIRED BY COUNCIL, THE CONTRACTOR SHALL GIVE 'EGIS' A MINIMUM OF 24HRS' NOTICE TO COMPLETE THE INSPECTION PRIOR TO ANY CONCRETE BEING POURED. THE ELEMENTS WHICH 'EGIS' ARE REQUIRED TO INSPECT ARE THOSE OUTSIDE COUNCIL SPECIFICATIONS, AND NOT BEING INSPECTED BY COUNCIL. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING WITH COUNCIL AND NOTIFYING 'EGIS' FOR INSPECTION OF ALL ELEMENTS NOT BEING INSPECTED BY COUNCIL.
- PRIOR TO THE COMMENCEMENT OF WORKS THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES. ANY DAMAGE TO EXISTING SERVICES IS TO BE RECTIFIED AT THE CONTRACTORS EXPENSE. SERVICES SHOWN ON 'EGIS' DRAWINGS ARE INDICATIVE ONLY.
- ENSURE THAT SUFFICIENT TOLERANCES ARE PROVIDED AND INTEGRATED THROUGHOUT ALL ELEMENTS OF THE WORKS.
- COPYRIGHT OF ALL DRAWINGS AND DOCUMENTS PROVIDED BY EGIS FOR THIS PROJECT REMAIN ITS PROPERTY. THE PRINCIPAL ALONE SHALL HAVE A LICENCE TO USE THESE DOCUMENTS IN CONNECTION WITH THE PROJECT BUT SHALL NOT USE OR MAKE COPIES OF SUCH DOCUMENTS OTHER THAN IN CONNECTION WITH THIS PROJECT.
- ALL LEVELS SHOWN ARE FOR INFORMATION ONLY.

LEGEND / ABBREVIATIONS:

ABBREVIATION	DESCRIPTION
HORIZ	HORIZONTAL
VERT	VERTICAL
CRS	CENTRES
BTM	BOTTOM
EF	EACH FACE
EW	EACH WAY
UNO	UNLESS NOTED OTHERWISE
TYP	TYPICAL
CL	CENTRELINE
DWG	DRAWING
N.T.S.	NOT TO SCALE

CONCRETE NOTES:

- COMPRESSIVE STRENGTH (F_c) FOR CAST IN SITU CONCRETE SHALL BE A MINIMUM 32MPa AT 28 DAYS.
- CONCRETE EXPOSURE CLASS B1.
- NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- ALL CONCRETE FORMWORK SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED AND MAINTAINED IN ACCORDANCE WITH AS3610(2018).
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
- CONSTRUCTION JOINTS SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- CURING OF CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT.
- CONDUITS, PIPES, ETC. SHALL ONLY BE LOCATED IN THE MIDDLE THIRD OF THE SLAB DEPTH. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO REINFORCEMENT.
- SIZES IF CONCRETE MEMBERS DO NOT INCLUDE THE THICKNESS OF APPLIED FINISHES.

REINFORCEMENT NOTES:

- REINFORCEMENT SYMBOLS;
 - S DENOTES GRADE 250 S HOT ROLLED DEFORMED BARS TO AS4671
 - N DENOTES GRADE D 500 N BARS TO AS4671
 - SL & RL DENOTES GRADE 250 HOT ROLLED PLAIN BARS TO AS4671SQUARE AND RECTANGULAR MESH RESPECTIVELY
- NUMBER OF BARS IN GROUP ——— BAR GRADE & TYPE
- NOMINAL BAR SIZE IN mm ——— BAR SPACING IN mm
- COVER TO REINFORCEMENT SHALL BE 40mm U.N.O.
- IF DURING CONSTRUCTION THE WALL THICKNESS IS GREATER THAN SPECIFIED, COVER TO REINFORCEMENT SHALL BE NO GREATER THAN 60mm TO INTERNAL FACE OF WALL.
- ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON PLASTIC CHAIRS AT NO GREATER THAN 1.0 METRE CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATING INTERSECTIONS.
- REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.

FORMWORK NOTES:

- DESIGN AND CONSTRUCTION AND STRIPPING TIMES TO COMPLY WITH AS3610 AND AS3600 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- THE DESIGN CERTIFICATION & PERFORMANCE OF THE FORMWORK AND FALSE WORK IS THE RESPONSIBILITY OF THE BUILDER.
- DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN LOAD FOR STRENGTH OR SERVICEABILITY AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT ON THE DRAWINGS.
- FORMWORK TO REMAIN IN POSITION FOR A MINIMUM OF 14 DAYS UNO AFTER CONCRETE POUR.

POST-INSTALLED ANCHOR NOTES:

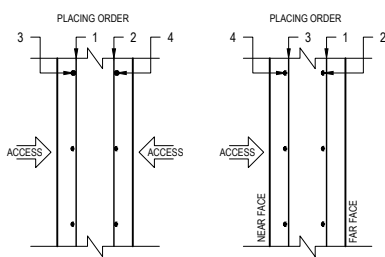
- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS.
- ALL REINFORCEMENT ANCHORS SHALL BE GRADE N500.
- HOLES SHALL BE DRILLED AND CLEANED PER MANUFACTURER'S INSTRUCTIONS.
- ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACINGS INDICATED IN THE MANUFACTURERS' LITERATURE.
- CARE SHALL BE GIVEN TO AVOID CONFLICTS WITH EXISTING REINFORCEMENT WHEN DRILLING HOLES.
- POST-INSTALLED ANCHORS SHALL ALWAYS BE INSTALLED IN CONJUNCTION WITH AN ADHESIVE SPECIFIED BY THE MANUFACTURER.

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

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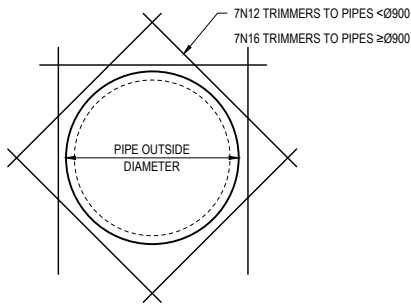
CC 47/2018/EC/A

CC APPROVED ON
16/04/2024



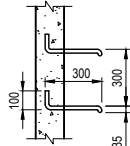
WALL REINFORCEMENT PLACING
ORDER DETAIL

SCALE 1:10

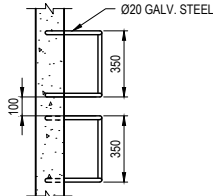


NOTE: TRIMMER BARS TO COG INTO
INTERSECTION WALLS AND SLAB
PIPE PENETRATION TRIMMER DETAIL

SCALE 1:20



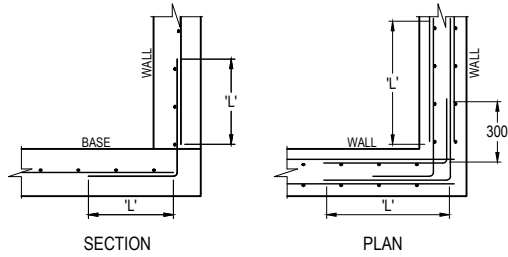
ELEVATION



PLAN

STEP IRONS DETAIL

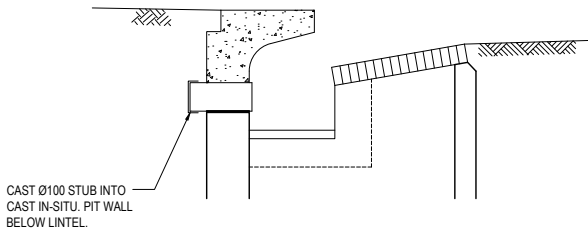
SCALE: NTS
STEP IRONS SHALL BE STAGGERED AT 300 CENTRES



CORNER/LAPPING DETAIL

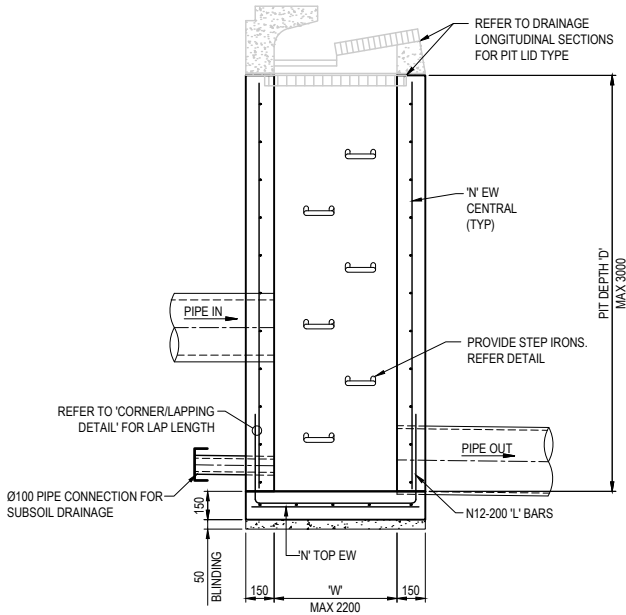
SCALE 1:20

BAR SIZE	MIN. LAP LENGTH 'L' mm
N12	600
N16	800
N20	1000
N24	1300



ROOF WATER CONNECTION
TO REAR OF LINTEL

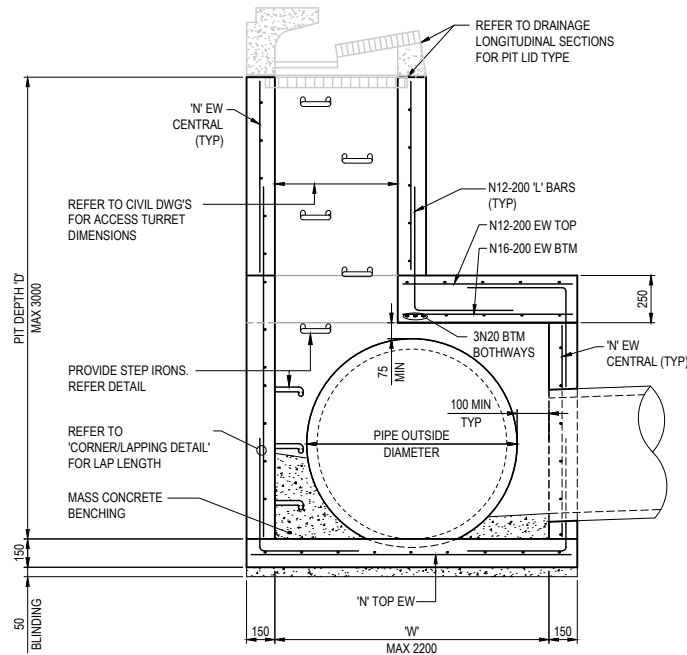
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PIT DETAIL

SCALE: 1:20

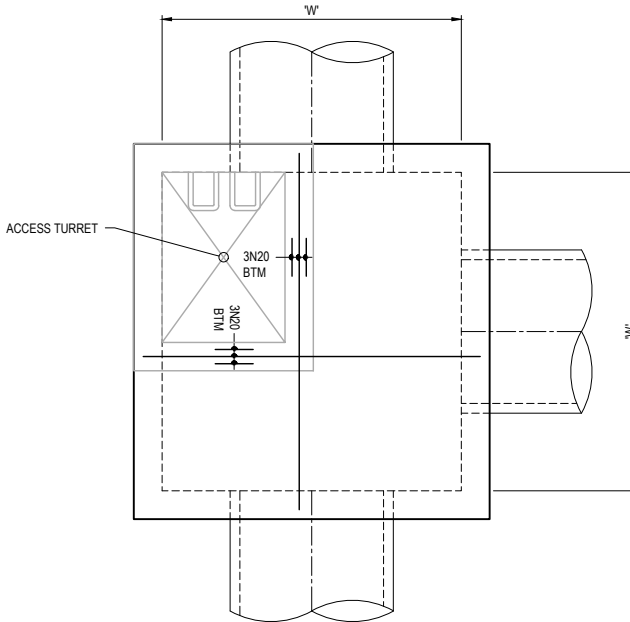
PIT DEPTH 'D'mm	REO 'N'
MAX 2000	SL82
MAX 3000	N12-200



PIT WITH
EXTENDED CHAMBER DETAIL

SCALE: 1:20

PIT DEPTH 'D'mm	REO 'N'
MAX 2000	SL82
MAX 3000	N12-200



ROOF PLAN DETAIL

SCALE: 1:20

FILE: I:\510\5101\BROWMAN LOCAL\PROJECTS\2023-200096 - 58 TERRY RD BOX HILL\06 MODEL\AUTOCAD\CIVIL\CD3-3-000096-CC-801.DWG LAST SAVED BY: ED SNEYDY PLOTTED: 4/4/2024

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS
1	VC	MS	MC		25/08/2017	
2	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
3	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS
4	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
5	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE
6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE

FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:	
BY: ENRIQUE FRANCO SIGN:	
BE(Hons) MIEAust. CPEng	
NER	DATE: 16/04/24

SCALE	
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	SCALE 1:40 (A3)

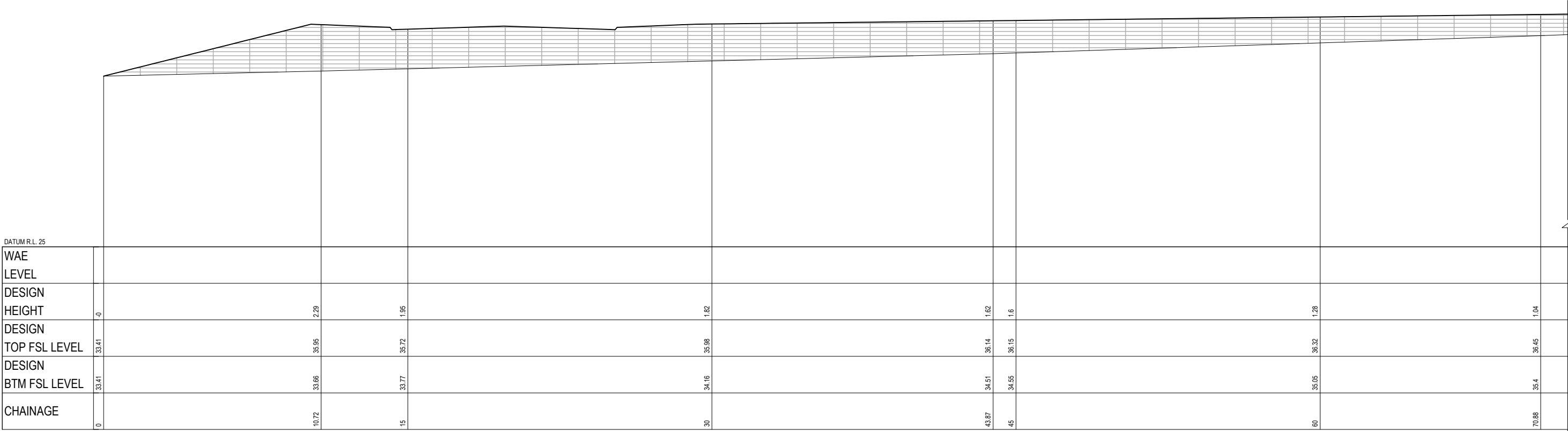
CLIENT
VISY CASTLE Pty Ltd

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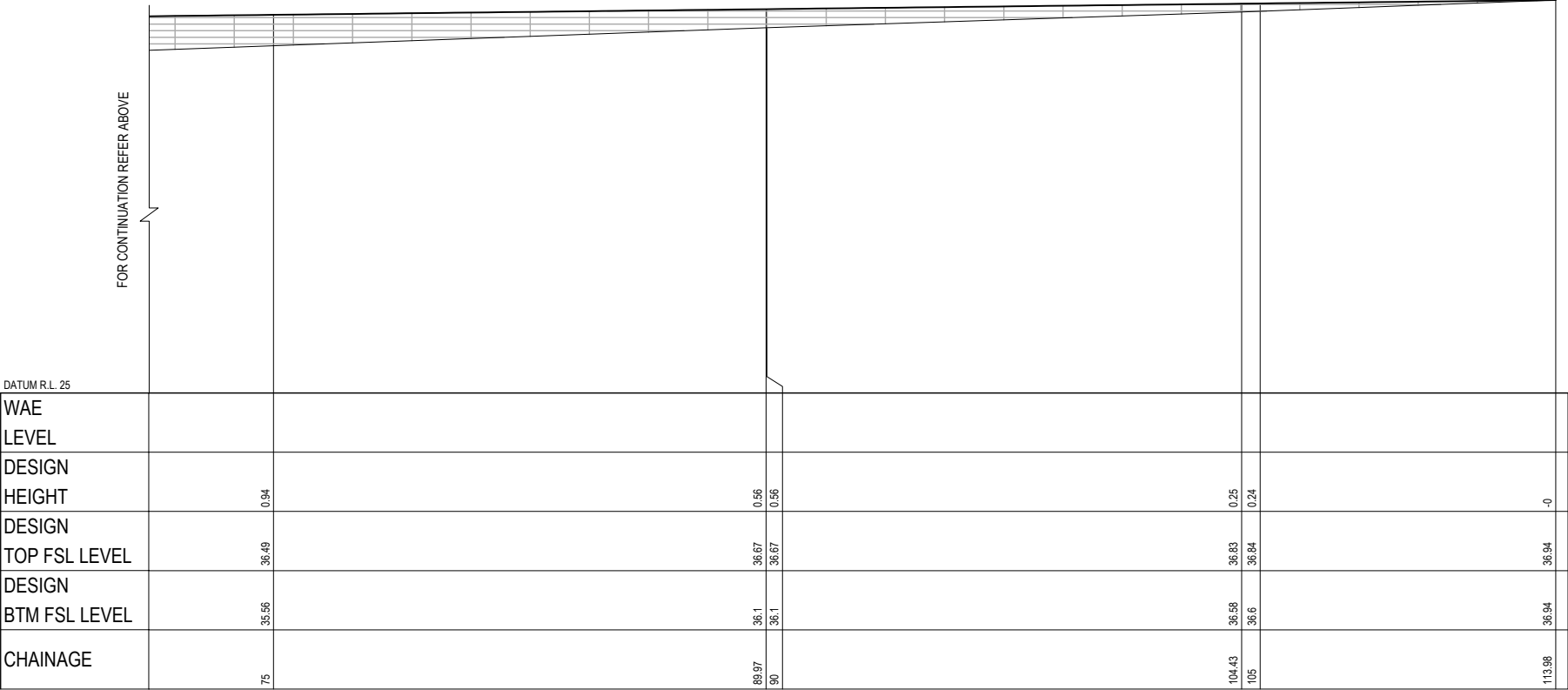
PROJECT
58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN
DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE			
STANDARD PIT DETAILS			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	901		7

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LONGITUDINAL SECTION - RETAINING WALL 03
SCALE 1:100 (H)
SCALE 1:100 (V)



LONGITUDINAL SECTION - RETAINING WALL 03 (CONT.)
SCALE 1:100 (H)
SCALE 1:100 (V)

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024

NOTE:
DETAIL DESIGN OF RW03 TO BE PREPARED AND
CONSTRUCTED BY THE ENGAGED CONTRACTOR.

AMENDMENT DETAILS						STATUS	FOR SUBDIVISION WORKS CERTIFICATE	SCALE	CLIENT	PROJECT	DRAWING TITLE					
FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE											
1	VC	VS	MC		25/08/2017	ISSUE FOR TENDER										
2	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS										
3	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE										
4	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE										
5	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE										
6	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE										
7	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE										
						AUTHORISED FOR ISSUE:		BY: ENRIQUE FRANCO SIGN:  BE(Hons) MIEAust. CPEng NER								
						DATE:										
								SCALE 1:100 (A1) SCALE 1:200 (A3)		VISY CASTLE Pty Ltd						
								 www.egis-group.com © 2023 Egis Consulting Pty Ltd		58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN						
								DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY		DRAWING No. 903 STAGE REVISION 7						

CONSTRUCTION NOTES

GENERAL

- G1 COPYRIGHT OF ALL DRAWINGS AND DOCUMENTS PROVIDED BY EGIS GROUP (NSW) Pty Ltd FOR THIS PROJECT REMAIN ITS PROPERTY. THE PRINCIPAL ALONE SHALL HAVE A LICENCE TO USE THESE DOCUMENTS IN CONNECTION WITH THE PROJECT BUT SHALL NOT USE OR MAKE COPIES OF SUCH DOCUMENTS OTHER THAN IN CONNECTION WITH THIS PROJECT
- G2 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERED TO THE ARCHITECT AND ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- G3 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE BUILDING CODE OF AUSTRALIA EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- G4 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEERING DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS
- G5 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES. ANY EXCAVATION IN THE VICINITY OF NEIGHBOURING BUILDINGS IS THE RESPONSIBILITY OF THE BUILDER. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE CONSULTING ENGINEER PRIOR TO COMMENCEMENT OF WORK.
- G6 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- G7 GIVE THE STRUCTURAL ENGINEER 24 HOURS NOTICE FOR SITE INSPECTION AND ALLOW TIME FOR THE INSPECTION AND RECTIFICATION WORK.

FOUNDATIONS

- F1 ALL RESIDENTIAL FOOTINGS TO BE CONSTRUCTED IN ACCORDANCE WITH AS 2870.
- F2 FOOTINGS HAVE BEEN DESIGNED TO BEAR ON CONTROLLED FILL WITH AN ALLOWABLE BEARING INTENSITY OF 150 KPa TO BE VERIFIED BY A GEOTECHNICAL ENGINEER.
- F3 THE BUILDER SHALL OBTAIN APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.
- F4 FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE.
- F5 DO NOT BACKFILL BEHIND:
(A) CANTILEVER RETAINING WALLS BEFORE THEY REACH THEIR REQUIRED DESIGN STRENGTH.
(B) PROPPED RETAINING WALLS UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED. ENSURE FREE DRAINING BACKFILL AND DRAINAGE IS IN PLACE.
- F6 FOOTINGS TO BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID SOFTENING OR DRYING OUT BY EXPOSURE.

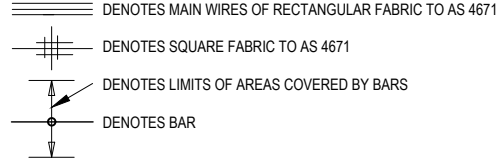
BLOCKWORK

- B1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700.
- B2 REINFORCED CONCRETE BLOCKWORK SHALL COMPLY WITH THE FOLLOWING U.N.O.
- BLOCKS SHALL BE STRENGTH GRADE 15 CONFORMING TO AS 2733
- MORTAR SHALL COMPRISE 1 CEMENT : 5 SAND.
- PROVIDE CLEANOUT HOLES AT BASE OF ALL WALLS AND ROD CORE HOLES TO REMOVE PROTRUDING MORTAR FINS.
- CORE FILLING GROUT TO BE F'c=32 MPa, 10mm AGGREGATE, 230mm SLUMP +/- 30mm
- PROVIDE 60mm COVER FROM THE OUTSIDE OF THE BLOCKWORK TO ALLOW ADEQUATE GROUT COVER.
- B3 PROVIDE VERTICAL CONTROL JOINTS AT 10m MAX CENTRES, AND 5m MAXIMUM FROM CORNERS IN ALL MASONRY WALLS, UNLESS SHOWN OTHERWISE ON THE STRUCTURAL DRAWINGS.
- B4 BACKFILL TO RETAINING WALLS TO BE FREE DRAINING GRANULAR MATERIAL. PROVIDE SUB-SOIL DRAIN OR WEEP HOLES.

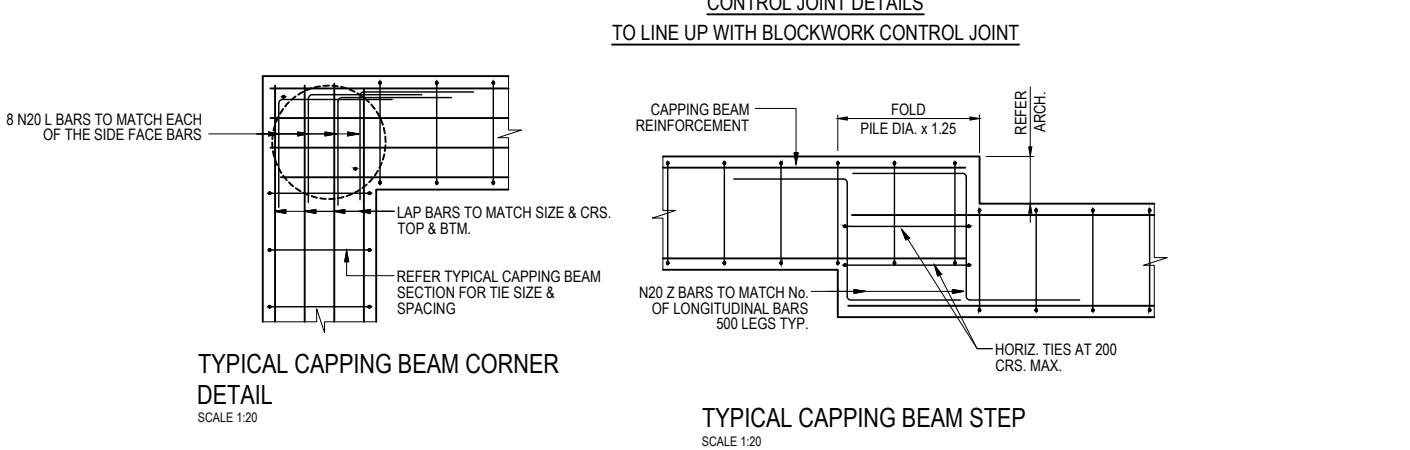
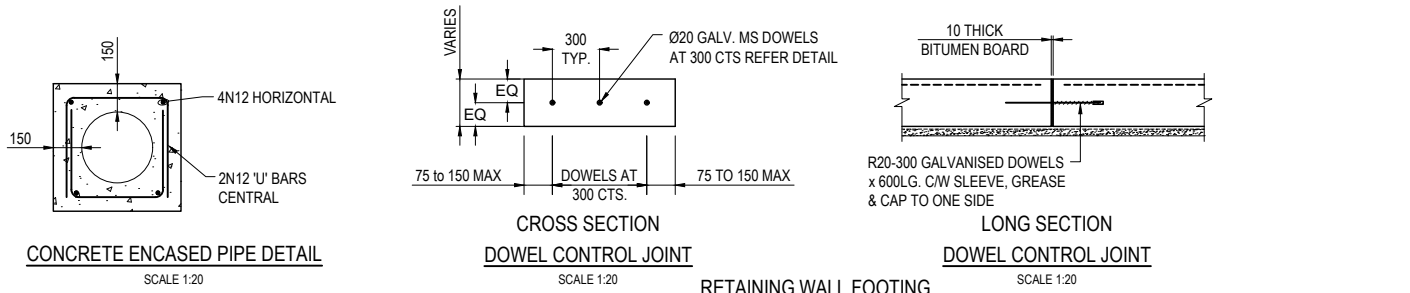
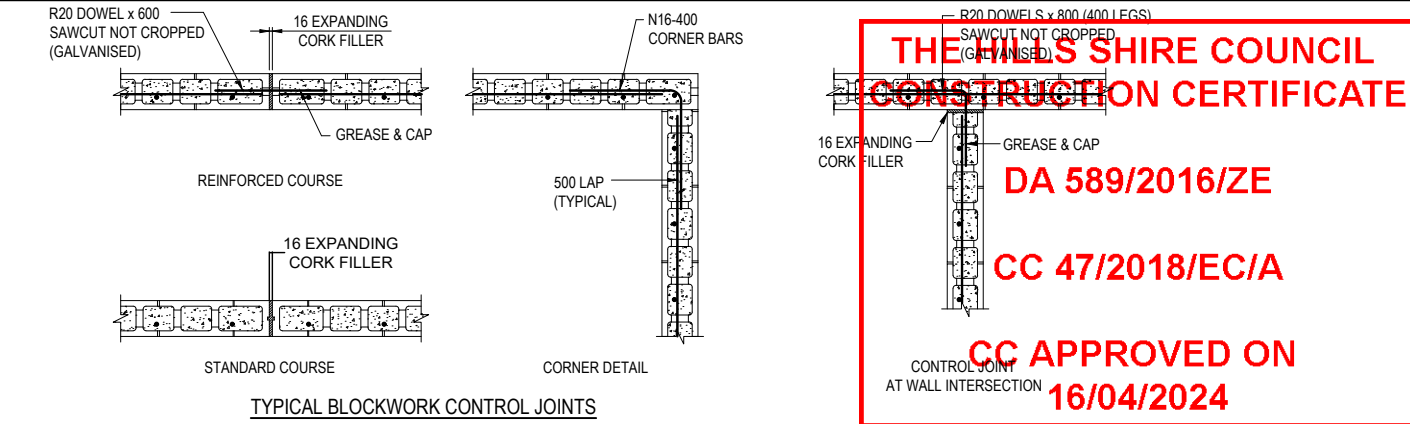
FORMWORK

- F1 DESIGN AND CONSTRUCTION AND STRIPPING TIMES TO COMPLY WITH AS 3610 AND AS 3600 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- F2 THE DESIGN CERTIFICATION & PERFORMANCE OF THE FORMWORK AND FALSE WORK IS THE RESPONSIBILITY OF THE BUILDER.
- F3 DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN LOAD FOR STRENGTH OR SERVICEABILITY AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT ON THE DRAWINGS.

CONCRETE

- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS
- C2 CONCRETE QUALITY:
ALL THE REQUIREMENTS OF THE ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.
- C3 PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600
- C4 NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- C5 CONCRETE STRENGTH AND COVER - REFER TO RELEVANT DRAWING
- C6 CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- C7 DEPTH OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- C8 FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC. REFER TO ARCHITECT'S DETAILS, MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
- C9 CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- C10 CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS MAY BE USED WHERE NO FLOOR FINISHES ARE PROPOSED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.
- C11 FORMWORK TO REMAIN IN POSITION FOR A MINIMUM OF 14 DAYS U.N.O. WHERE SLABS AND BEAMS ARE TO SUPPORT BRICKWORK OVER, FORMWORK AND PROPS MUST BE REMOVED PRIOR TO COMMENCEMENT OF THIS BRICKWORK.
- C12 ALL CONCRETE TO BE MECHANICALLY VIBRATED AND THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.
- C13 LOCATION OF CONDUITS, PIPES, ETC., GREATER THAN 25mm DIA FOR BEAMS NEEDS TO BE APPROVED BY THE ENGINEER.
- C14 LOCATION OF CONDUITS, PIPES, ETC., FOR SLABS TO BE LOCATED BETWEEN THE TOP AND BOTTOM REINFORCEMENT.
- C15 REINFORCEMENT SYMBOLS;

SL DENOTES GRADE D500L REINFORCING SQUARE FABRIC TO AS 4671
RL DENOTES GRADE D500L REINFORCING RECTANGULAR FABRIC TO AS 4671
R DENOTES GRADE 250R HOT ROLLED PLAIN BARS TO AS 1302
N DENOTES GRADE D500N BARS TO AS 4671

- C16 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY IN TRUE PROJECTION.
- C17 SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN AND SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. FOR FABRIC THE OUTMOST WIRES SHOULD BE OVERLAPPED BY AT LEAST THE SPACING OF THESE OUTERMOST WIRES PLUS 25mm.
- C18 WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWING.
- C19 BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF THE WIRE.
- C20 ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH N12-400 CTS.
- C21 PROVIDE UPWARD CAMBER TO FORMWORK OF CANTILEVERS OF L/120, WHERE L IS THE SHORTEST PROJECTION BEYOND COLUMN OR WALL FACE, AND TO FORMWORK OF SLABS WHERE NOTED ON PLAN. MAINTAIN THE SLAB AND BEAM DEPTHS SHOWN.
- C22 ALL REINFORCEMENT TO BE ACCURATELY PLACED IN POSITION SHOWN TIED AND ADEQUATELY SUPPORTED TO GIVE SPECIFIED COVER.
- C23 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED.



BORED PILES

1. THE INSTALLATION OF THE PILES SHALL BE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND AS2159.
2. A LIMITED FOUNDATION INVESTIGATION IS AVAILABLE, REFER TO THE GEOTECHNICAL REPORT USED IN THE DESIGN DATA. SHOULD ANY FURTHER INFORMATION BE REQUIRED THE CONTRACTOR SHALL ARRANGE THE WORK AT OWN COST.
3. POSITIONS OF SERVICES ARE GIVEN FOR GUIDANCE ONLY. LOCATIONS AND/OR DEPTH MAY NOT BE ACCURATELY REPRESENTED AND OTHER SERVICES MAY EXIST ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE POSITION OF ALL SERVICES PRIOR TO COMMENCING PILING. EXCAVATE AS REQUIRED TO CONFIRM THE LOCATION OF ADJACENT SERVICES.
4. THE CONTRACTOR SHALL ENGAGE AND PAY FOR A GEOTECHNICAL ENGINEER TO VERIFY ON SITE THAT THE BASE BEARING & SKIN FRICTION VALUES ASSUMED IN DESIGN HAVE BEEN ACHIEVED.
5. UNLESS NOTED OTHERWISE THE CENTRELINE OF THE BORED PIER IS TO COINCIDE WITH CENTRELINE OF COLUMN ABOVE. REFER TO THE ARCHITECTURAL DRAWINGS FOR COLUMN SETOUT DETAILS.
6. UNLESS NOTED OTHERWISE ON THE DRAWINGS, INSTALLATION TOLERANCES SHALL BE IN ACCORDANCE WITH AS 2159.
7. PROVIDE TEMPORARY LINERS WHERE LOOSE SOIL OR WATER INGRESS ARE LIKELY TO AFFECT THE INTEGRITY OF THE BORE HOLE BEFORE PLACEMENT OF CONCRETE. REMOVE LINERS AT TIME OF CONCRETING. TAKE CARE TO AVOID VOIDS.
8. ORIENT REINFORCEMENT CAGES TO ALLOW DRILLING OF ANCHOR HOLES WITHOUT CUTTING MAIN VERTICAL BARS.
9. BORED CAST INSITU REINFORCED CONCRETE PILES UNDER COLUMNS AND WALLS SHALL COMPLY WITH THE FOLLOWING, UNLESS NOTED OTHERWISE:
- MINIMUM CONCRETE GRADE f_c = 32MPa WITH A MINIMUM CEMENT CONTENT OF 400kg/CUBIC METRE
- CONCRETE SLUMP SHALL BE IN THE RANGE OF 100mm TO 180mm AT THE POINT OF DISCHARGE
- MINIMUM CLEAR CONCRETE COVER TO REINFORCEMENT = 50mm
10. PLACE CONCRETE USING A BOTTOM DUMP BUCKET OR A TREMIE PIPE TO LIMIT THE FREE FALL OF CONCRETE TO A MAXIMUM OF 1200mm. A MINIMUM OF 900mm AT THE TOP OF EACH PILE SHALL BE THOROUGHLY COMPACTED THROUGH INTERNAL VIBRATION.
11. PROVIDE A SURVEY PLAN COMPILED BY A REGISTERED SURVEYOR SHOWING THE AS BUILT LOCATION OF THE PILES RELATIVE TO THEIR DESIGN POSITION PRIOR TO CONSTRUCTION OF THE PILE CAPS. FOR SHORING PILES, PROVIDE A SECOND SURVEY PLAN SHOWING THE AS-BUILT LOCATIONS OF THE PILES AS THE BOTTOM OF THE EXCAVATION. PILES WILL NOT BE ACCEPTED UNTIL SURVEY PLANS ARE SUPPLIED.
12. IF BORED PILES ARE OUTSIDE INSTALLATION TOLERANCE ADVISE THE ENGINEER AND DESIGN & CONSTRUCT ANY NECESSARY MODIFICATIONS TO THE PILECAPS OR FOOTINGS DPCIMETED TO ENSURE THAT THE LOADS FROM THE SUPERSTRUCTURE ARE ADEQUATELY TRANSFERRED INTO THE PILES. THE COSTS OF ANY SUCH MODIFICATIONS SHALL BE BORNE BY THE CONTRACTOR.
13. PILECAP AND GROUND BEAM SIZES ARE BASED ON PILE DIAMETERS AS NOTED ON THE DRAWINGS. ANY CHANGE TO PILE DIAMETERS OR NUMBERS MAY AFFECT PILECAP AND GROUND BEAM SIZES. THE COST OF SUCH CHANGE INCLUDING ANY REDOCUMENTATION, SHALL BE BORNE BY THE CONTRACTOR.
14. VERIFY SEWER ALIGNMENTS ON SITE PRIOR TO ANY ANCHOR PLACEMENT. ADVISE THE ENGINEER IF ANY CLASHES OCCUR.

Authorised for Issue:
BY: FRED MOSHIRI
BE Civil, MS (Structural), PhD (Structural)
MIEAust, CPEng, NER
PRINCIPAL - STRUCTURES
SIGN:
DATE:



FILE: I:\5104501\BROWMAN LOCAL PROJECT\5104501-000096 - 58 TERRY RD BOX HILL JOB MODEL\AUTOCAD\CIVIL\5104501-000096 - CC-961DWG.LAST SAVED BY: EED SWENBY PLOTTED: 4/4/2024

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT	DRAWING TITLE
1	VC	MS	MC		25/08/2017		FOR SUBDIVISION WORKS CERTIFICATE	0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 SCALE 1:20 (A1) SCALE 1:40 (A3)	VISY CASTLE Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	RETAINING WALL NOTES & TYPICAL DETAILS
2	VC	VS	MC		25/09/2017	ISSUE FOR TENDER					
3	VC	MS	MC		10/11/2017	ISSUE FOR COUNCIL COMMENTS					
4	VC	MS	MC	SAG	09/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
5	VC	MS	MC	SAG	11/01/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
6	VC	VC	-	SAG	19/03/2018	ISSUE FOR CONSTRUCTION CERTIFICATE					
7	MGC	JH	MC	EF	17/11/2023	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					
8	FM	JS	FM	EF	04/03/2024	ISSUE FOR SUBDIVISION WORKS CERTIFICATE					

BY: ENRIQUE FRANCO SIGN: 
BE(Hons) MIEAust. CPEng
NER
DATE:

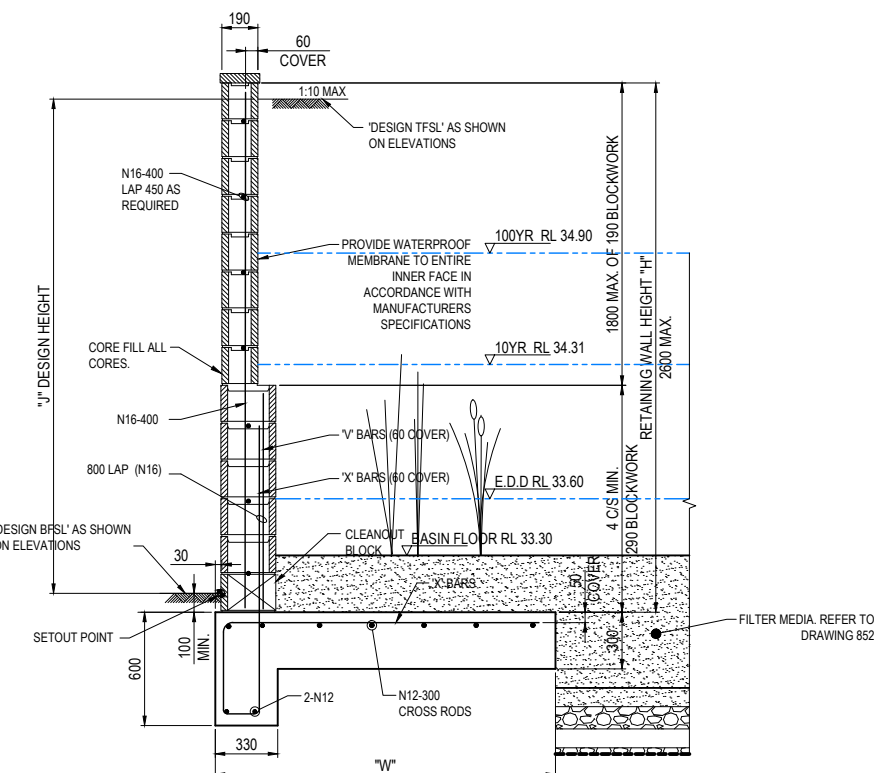
DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

PROJECT No. 23-000096
DRAWING No. 904
STAGE
REVISION 7

DA 589/2016/ZE

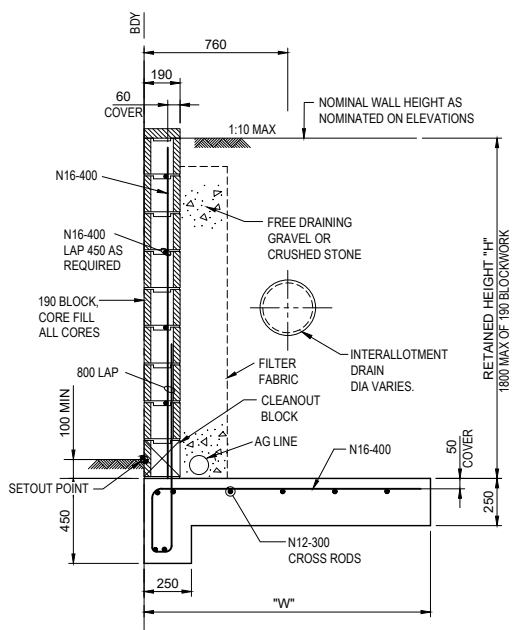
CC 47/2018/EC/A

CC APPROVED ON
16/04/2024



RETAINING WALL (RW01) 3400 MAX HEIGHT
SCALE 1:20

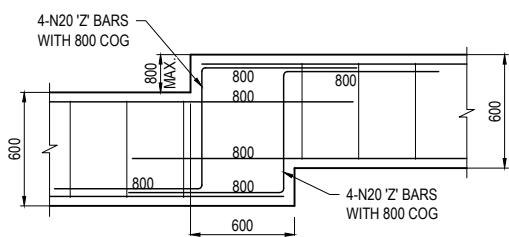
(5.0 KPa SURCHARGE)				
MAX. HEIGHT "H"mm	WIDTH "W"mm	WALL TYPE	WALL SCHEDULE	
2200	2200	190	V-BARS	X-BARS
2600	2600	290	N16-400	N16-400
			N16-200	N16-200



RETAINING WALL (RW02) TYPE A - 1800 MAX HEIGHT

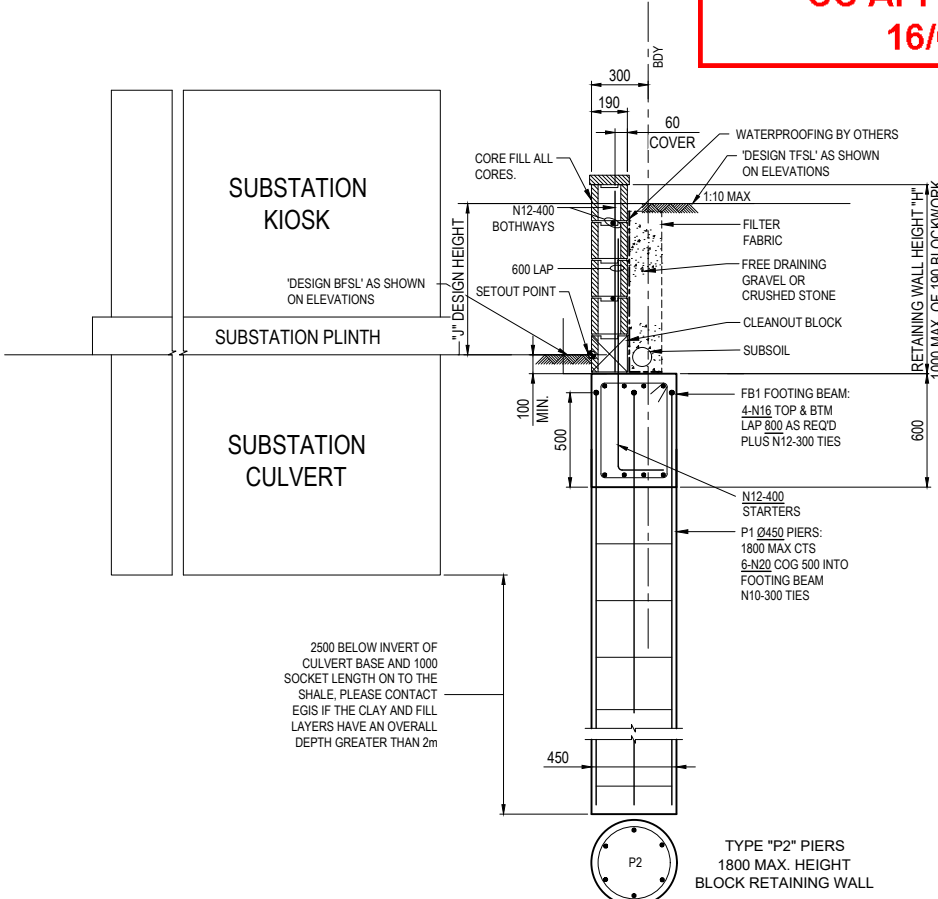
SCALE 1:20

(5.0 KPa SURCHARGE)		
HEIGHT "H"mm	WIDTH "W"mm	WALL TYPE
600	600	190
1000	900	
1400	1150	
1800	1400	



FOOTING BEAM STEP DETAIL

SCALE 1:20



RETAINING WALL (RW02) TYPE B - 1000 MAX HEIGHT

SCALE 1:20

(5.0 KPa SURCHARGE)

COVER - UNLESS NOTED OTHERWISE

ELEMENT	EXTERIOR
FOOTINGS	50mm
BEAM TOP	50mm
BEAM BOTTOM	50mm
BEAM SIDE	50mm
PILES	60mm

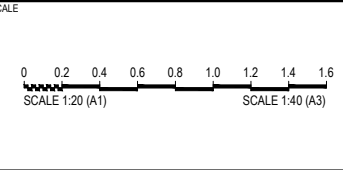
CONCRETE EXPOSURE CLASSIFICATION A2

ASSUMED IN-SITU MATERIAL - 150KPa ALLOWABLE BEARING PRESSURE, INTERNAL FRICTION ANGLE = 30°
ASSUMED RETAINED MATERIAL - INTERNAL FRICTION ANGLE = 30°
ASSUMED INFILL MATERIAL - CONTROLLED FILL CLASS 1 (BULK DENSITY = 18kN/m³)

PROPERTIES & COMPOSITION OF THE IN-SITU MATERIAL, RETAINED MATERIAL & INFILL MATERIAL IS TO BE INSPECTED/CONFIRMED BY A SUITABLE QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
1	VC	MS	MC		25/08/2017	
2	VC	VS	MC		25/09/2017	ISSUE FOR TENDER
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FOR SUBDIVISION WORKS CERTIFICATE	
AUTHORISED FOR ISSUE:	
BY: ENRIQUE FRANCO SIGN:	
BE(Hons) MIEAust. CPEng	
NER	
DATE:	



CLIENT
VISY CASTLE Pty Ltd

egis
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PROJECT
58 TERRY ROAD BOX HILL
ROAD AND DRAINAGE DESIGN

DISCLAIMER
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DRAWING TITLE RETAINING WALL DETAILS			
PROJECT No.	DRAWING No.	STAGE	REVISION
23-000096	905		7

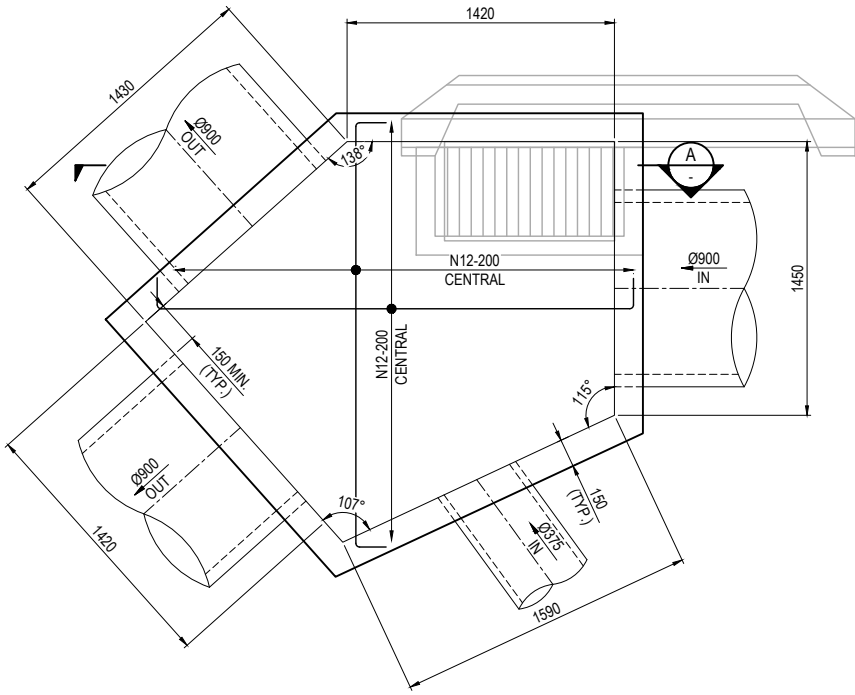
NOTES*:

1. GEOTECHNICAL ENGINEER SHALL BE ENGAGED FOR SITE INSPECTIONS TO CONFIRM SOIL UNIT WEIGHT OF 20kN/m³ AND FRICTION ANGLE OF 30 DEGREES
2. 5KPA SURCHARGE LOAD ASSUMED - MEDIUM RIDGE VEHICLES EXCEEDING 2,500kg AND NOT EXCEEDING 10,000kg

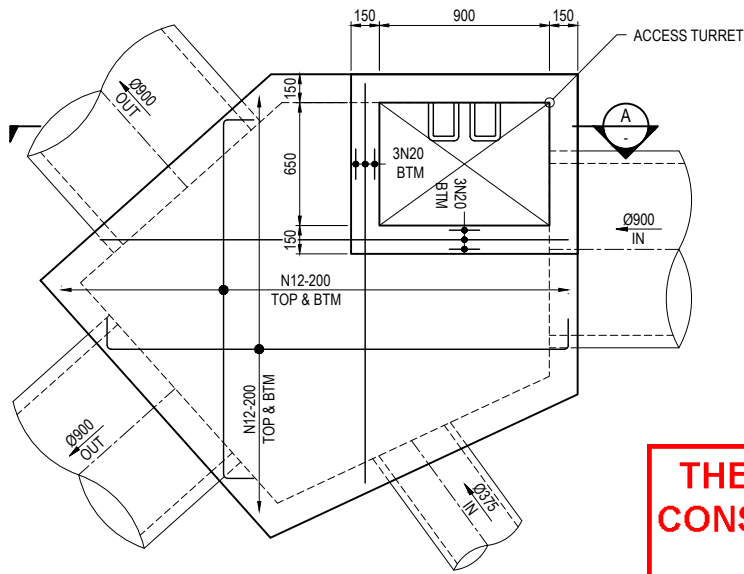
* TO BE READ IN CONJUNCTION WITH NOTES ON DWG 849

COVER - UNLESS NOTED OTHERWISE	
ELEMENT	EXTERIOR
BASE SLAB	BOTTOM COVER 60mm TOP COVER 40mm
ROOF	40mm
WALLS	40mm

CONCRETE EXPOSURE CLASSIFICATION B1



PIT No.14/11 - SLAB LAYOUT
SCALE 1:20



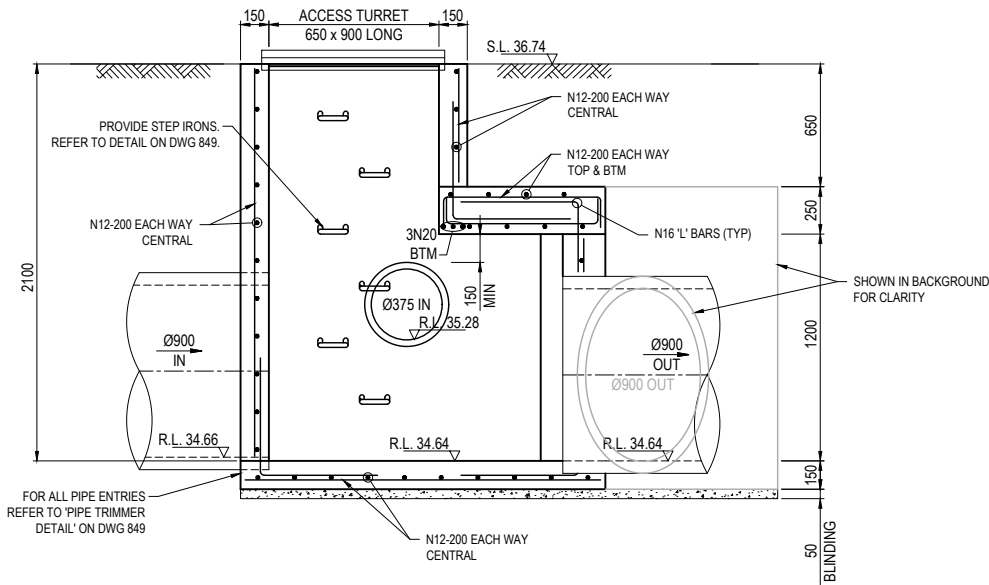
PIT No.14/11 - SLAB LAYOUT
SCALE 1:20

THE HILLS SHIRE COUNCIL
CONSTRUCTION CERTIFICATE

DA 589/2016/ZE

CC 47/2018/EC/A

CC APPROVED ON
16/04/2024



SECTION A
SCALE 1:20

NOTE:
THIS PLAN IS TO BE READ IN CONJUNCTION
WITH STRUCTURAL CERTIFICATE

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPRO.	DATE	AMENDMENT DETAILS	STATUS	SCALE	CLIENT	PROJECT	DRAWING TITLE	
	VC	MS	MC									
AMENDMENTS	1	VC	VS	MC		25/08/2017	FOR SUBDIVISION WORKS CERTIFICATE		VISY CASTLE Pty Ltd	58 TERRY ROAD BOX HILL ROAD AND DRAINAGE DESIGN	SPECIAL PIT No.14-11 DETAILS	
		VC	VS	MC		25/09/2017						ISSUE FOR TENDER
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AUTHORISED FOR ISSUE:							BY: ENRIQUE FRANCO SIGN: 					
							BE(Hons) MIEAust. CPEng NER	DATE:				
							www.egis-group.com		DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY			
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