ACS Engineers CIVIL ENVIRONMENTAL PROJECT MANAGEMENT

ROAD & SERVICES DESIGN, NORTH STREET JIMBOOMBA QLD 4280
NORTH STREET JIMBOOMBA 4280 QLD



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				SURVEY DATA	KLINGE DEVELOPMENTS			PO Box 554 Beaudesert QLD 4285	ACC	Email.	
				DATUM GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217		COVER SHEET	(07) 55 (4.2500		U	neers
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	UPDATES AS PER LCC RFI	NJF	3/06/22	HEIGHT ORIGIN -	ROAD & SERVICES DESIGN, NORTH STREET	# FIELD	ENGINEERING CERTIFICATION (RPEQ) NAME SIGNATURE DATE	JOB NUMBER 200114			0.1
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<i>[</i>	FOR APPROVAL	DJS	01/2022	DJS 01/2022	NODTH STREET HMROOMRA / 200 OLD			DRAWING NUMBER ACS-200114-	CENI 01		00
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GENERAL CONSTRUCTION NOTES

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ENGINEERS AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- 2. NO RESPONSIBILTY WILL BE TAKEN FOR DIMENSIONS OBTAINED BY SCALING THESE DRAWINGS.
- ALL DIMENSIONS SHALL BE VERIFIED ON SITE BY THE CONTRACTOR WHO SHALL BE RESPONSIBLE FOR THEIR CORRECTNESS.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE AND NEIGHBOURING STRUCTURES IN A SAFE AND STABLE CONDITION DURING CONSTRUCTION. NO PART SHALL BE OVER STRESSED.
- 5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT LCC
 CONSTRUCTION SPECIFICATIONS AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT GOVERNMENT AUTHORITY

 THE CONTRACTOR SHALL PROVIDE TRAFFIC MANAGEMENT FOR THE PURPLE OF CONSTRUCTION IN ACCORDANCE.
- THE CONTRACTOR SHALL PROVIDE TRAFFIC MANAGEMENT FOR THE DURATION OF CONSTRUCTION IN ACCORDANCE WITH MUTCD.
- 7. THE CONTRACTOR IS TO LOCATE, IDENTIFY AND ESTABLISH THE CONNECTIVITY OF ALL EXISTING SERVICES WITHIN THE LIMITS OF THE WORKS AND CONFIRM THIS INFORMATION WITH THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- 8. PROPERTY BOUNDARIES ARE SUBJECT TO CONFIRMATION BY FIELD SURVEY CARRIED OUT BY A REGISTERED SURVEYOR.
- 9. ALL WORK SHALL BE JOINED NEATLY TO EXISTING FEATURES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MEASURING DEVICES, SAFETY EQUIPMENT AND MACHINERY REQUIRED TO CARRY OUT INSPECTIONS AS SPECIFIED OR REQUESTED.
- 11. THE CONTRACTOR SHALL RESTORE ALL EXTERNAL AREAS TO THE SITE, TO THEIR ORIGINAL CONDITION UPON COMPLETION OF THE WORKS
- 12. THE CONTRACTOR IS TO VERIFY ALL SURFACE LEVELS AND EXISTING SERVICES TO CONFIRM THAT MINIMUM PIPE COVER IS OBTAINABLE BEFORE STARTING PIPE LAYING. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- 13. ALL WORK UNDER THIS CONTRACT SHALL BE CARRIED OUT IN ACCORDANCE WITH REQUIREMENTS OF THE WORPLACE HEALTH AND SAFETY ACT 2011.

EARTHWORKS NOTES:

- 1. ALL EARTHWORKS TO BE CONSTRUCTED TO RELEVANT LOCAL AUTHORITY STANDARDS AND SPECIFICATIONS.
- 2. ALL LEVELS ON THIS DRAWING ARE SET TO AHD AND ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
- CONSIDERATION SHALL BE GIVEN TO ADJACENT LANDOWNERS DURING THE CONSTRUCTION WORKS, NOTIFICATIONS
 ARE TO BE IN ACCORDANCE WITH THE CONTRACT PROVISIONS AND LOCAL COUNCIL REQUIREMENTS.
- DESIGN CONTOURS SHOWN ON THE DRAWINGS ARE FINISHED SURFACE LEVELS AND INCLUDE A 100mm ALLOWANCE FOR TOPSOIL (UNLESS NOTED OTHERWISE).
- 5. THE CONTRACTOR SHALL ALLOW FOR THE REMOVAL OF 100mm OF TOPSOIL FROM THE SPECIFIED WORKS AREAS AND THEN BE STOCKPILED ON SITE. THIS IS AN AVERAGE DEPTH OVER THE WORKS AREA BASED ON GEOTECHNICAL INFORMATION PROVIDED.
- 6. THE CONTRACTOR SHALL PROVIDE DETAILS OF ALL TESTING TO THE ENGINEER PROGRESSIVELY THROUGH THE WORKS AND NOTIFY THE ENGINEER OF ANY NON-CONFORMANCES. ALL NON CONFORMING WORK IS TO BE RECTIFIED. PRIOR TO WORKS PROCEDURES, PROOF ROLL THE FILL AREA SUBGRADE.
- 7. PROOF ROLLING NOMINATED SHALL BE CARRIED OUT USING A SINGLE AXLE HIGHWAY TRUCK WITH A REAR AXLE LOAD NOT LESS THAN 10 TONNES TYRES INFLATED TO 550kPa OR APPROVED EQUIVALENT. EQUIPMENT LABOUR AND LOADING REQUIRED FOR PROOF ROLLING IS TO BE PROVIDED BY THE CONTRACTOR.
- 8. ALL EARTHWORKS CONSTRUCTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER (RPEQ) FOR LEVEL 1 TESTING AND COMPACTION (AS 3798). THE PRINCIPAL CONTRACTOR SHALL PROVIDE TO THE SUPERINTENDENT A LEVEL 1 REPORT WITH ALL TEST RESULTS AND CERTIFICATIONS REQUIRED BY THE SPECIFICATIONS.
- 9. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION. SIMILARLY, FINISHED SURFACE CONTOURS FOR ALLOTMENTS MAY BE ADJUSTED BY A WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION.
- 10. STABILITY OF ALL BATTERS ARE TO BE CERTIFIED BY A GEOTECHNICAL ENGINEER WITH A FACTOR OF SAFETY OF 1.5
- 11. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE CONTRACTORS EROSION AND SEDIMENT CONTROL PLAN.
- 12. REFER TO EROSION AND SEDIMENT CONTROL NOTES WITHIN THESE DRAWINGS.
- IMPORTED FILL MATERIAL (IF ORDERED) SHALL BE LOW PLASTICITY GRANULAR FILL OF MINIMUM CBR 15. ALL FILL MATERIAL PLACED ON THE SITE COMPRISING ONLY NATURAL.
- 14. A MATERIALS QUALITY REPORT IS REQUIRED TO BE SUBMITTED TO THE SUPERINTENDENT FOR THEIR REVIEW AND WRITTEN ACCEPTANCE OF THE PROPOSED MATERIAL PRIOR TO IMPORT TO SITE.
- 15. THE PRINCIPAL CONTRACTOR IS TO ENSURE NO PONDING OCCURS DURING CONSTRUCTION AND WITHIN THE FINAL PROFILE.
- 16. ALL BATTERS BETWEEN 1:4 AND 1:6 ARE TO BE FULLY TURFED. BATTERS BETWEEN 1:2 AND 1:4 ARE TO BE LANDSCAPED OR STABILISED BY OTHER METHODS APPROVED BY THE SUPERINTENDENT.
- 17. ALL UNSUITABLE, WASTE OR EXCESS MATERIAL MUST BE DISPOSED OFF SITE IN ACCORDANCE WITH LOCAL COUNCIL AND OTHER AUTHORITY REQUIREMENTS.
- 18. REFER TO THE LCC CONSTRUCTION SPECIFICATIONS FOR ALLOWABLE CONSTRUCTION TOLERANCES.

SURVEY

- THE DATUM FOR ALL LEVELS IS THE AUSTRALIAN HEIGHT DATUM IN METRES AND THE DATUM FOR ALL LEVELS IS
 THE AUSTRALIAN HEIGHT DATUM IN METRES AND PROJECTIONS ARE BASED ON GDA94 MGA ZONE 56 COORDINATE
 SYSTEM
- 2. DETAILED SURVEY WAS CARRIED OUT BY TJ KELLYS SURVEYS DRAWING NUMBER 4277-01-A.
- PROPERTY BOUNDARIES OUTSIDE SURVEYED AREA ARE COMPILED FROM THE DCDB. THE ACCURACY OF PROPERTY BOUNDARIES IS NOT TO BE RELIED UPON.
- 4. SOME SERVICES HAVE BEEN EXPOSED AND LOCATED BUT OTHER SERVICE POSITIONS ARE DERIVED FROM SURFACE FEATURES ONLY. PRIOR TO EXCAVATION THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR DETAILED LOCATION OF ALL SERVICES.

ROADWORKS NOTES

- THE CONTRACTOR SHALL PROVIDE THE SUPERINTENDENT WITH SUFFICIENT INFORMATION TO ENABLE A PROPER PAVEMENT DESIGN.
- . ALL PAVEMENT LAYERS ARE TO BE INSPECTED AND APPROVED BY THE SUPERVISING ENGINEER PRIOR TO PLACEMENT OF SUBSEQUENT LAYERS.
- 3. ALL SUBGRADE IS TO BE COMPACTED TO 95% STANDARD AND PROOF ROLLED IN THE PRESENCE OF THE ENGINEER.
- 4. ALL GRANULAR PAVEMENTS ARE TO BE COMPACTED TO 95% MODIFIED (SUB-BASE) & 98% MODIFIED (BASE) AND TESTED FOR CONFORMANCE IN ACCORDANCE WITH THE LCC STANDARD SPECIFICATIONS.
- 5. ALL COMPACTION TESTS ARE TO BE UNDERTAKEN BY A NATA APPROVED AGENCY WITH COMPACTION REPORTS PROVIDED FOR APPROVAL BY THE ENGINEER PRIOR TO COVERING A LAYER.
- 6. REFER TO THE LCC STANDARD SPECIFICATIONS FOR ALLOWABLE CONSTRUCTION TOLERANCES.
- 7. SIGNAGE & DELINEATION TO BE INSTALLED IN ACCORDANCE WITH THE MUTCD.
- 8. COMPACTED LAYER THICKNESS SHALL NOT BE GREATER THAN 200mm OR LESS THAN 100mm.
- 9. ROAD SURFACE TO BE CLEAN AND DRY PRIOR TO PLACING ASPHALT.
- 10. TYPE A SUBSURFACE DRAINAGE SHALL BE LOCATED BELOW ALL KERB AND CHANNEL AND IN ANY OTHER LOCATION AS DIRECTED BY THE SUPERINTENDENT IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING RS-140.
- 11. SUBSOIL DRAIN ACCESS POINTS ARE TO BE PROVIDED IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING R-142.
- 12. PROVIDE SIDE DRAINS AND FLUSHING POINTS TO ALL CENTRE ISLAND KERB AND OUTLET TO A LAWFUL POINT OF DISCHARGE.
- 13. THE CONTRACTOR IS TO ENSURE THAT ALL KERB AND CHANNEL IS FREE DRAINING AND ADVISE THE SUPERINTENDENT WHERE GRADES FALL BELOW 0.2% AT ANY LOCATION.
- 14. THE CONTRACTOR SHALL OBTAIN ELECTRICAL, TELECOMMUNICATIONS AND OTHER SERVICE PROVIDERS DRAWINGS IN ORDER TO INSTALL CONDUITS UNDER THE ROADS PRIOR TO PAVEMENT CONSTRUCTION.
- 15. THE CONTRACTOR SHALL INSTALL FOOTPATHS AND PRAM RAMPS TO COMPLY WITH THE LOCAL AUTHORITY REQUIREMENTS, STANDARDS AND SPECIFICATIONS. PRAM RAMPS ARE TO BE LOCATED CLEAR OF GULLIES AND FUTURE DRIVEWAY POSITIONS INDICATED ON LAYOUT PLANS.
- 16. KERB PROFILES ARE TO BE M3 MOUNTABLE KERB IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING RS-080.
- 17. REFER TO IPWEAQ STANDARD DRAWING RS-065 & LCC STANDARD DRAWING 8-00398 FOR CONCRETE FOOTPATH

DRAINAGE NOTES

- WHERE A STORMWATER DRAINAGE CONNECTION IS REQUIRED TO BE MADE TO AN EXISTING PIT, STRUCTURE OR
 OUTLET, THE CONTRACTOR SHALL CONFIRM THE LEVEL PRIOR TO CONSTRUCTION AND ADVISE THE
 SUPERINTENDENT WHERE THE CONSTRUCTED LEVEL IS OUTSIDE TOLERANCE SO THAT THE DESIGN CAN BE CHECKED
 TO CONFIRM IT IS STILL ACCEPTABLE.
- STORMWATER PIPE CLASSES HAVE BEEN DESIGNED FOR SERVICE LOADING ONLY. THE CONTRACTOR SHALL
 ASSESS THE SUITABILITY OF CONSTRUCTION EQUIPMENT USED ON SITE AND ANTICIPATED CONSTRUCTION LOADS.
 IF NECESSARY, THE PIPE CLASSES SHALL BE INCREASED TO COMPLY WITH AS3725-2007.
- 3. ALL STORMWATER DRAINAGE PIPES ARE TO BE RCP CLASS '2' UNLESS NOTED OTHERWISE.
- 4. PIPE SUPPORT AND TRENCHING IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING DS-030.
- MINIMUM COVER FOR CONSTRUCTION LOADS TO BE IN ACCORDANCE WITH CPAA REQUIREMENTS.
- STORMWATER ACCESS CHAMBER 1050mm 2100mm DIAMETER TO BE CONSTRUCTED IN ACCORDANCE WITH IPWEAQ STANDARD DRAWING DS-010.
- 7. ALL NON-STANDARD STRUCTURES TO BE DESIGNED AND CERTIFIED BY STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
- THE LOCATION OF STORMWATER OUTLETS ARE INDICATIVE ONLY AND MUST BE VERIFIED ON SITE AND CONFIRMED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION OF DISCHARGE LINE AND OUTLET STRUCTURE
- THE LEVELS SHOWN ON MANHOLES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL ENSURE MANHOLE COVERS AND SURROUNDS ARE INSTALLED IN ACCORDANCE WITH THE RELEVANT AUTHORITY REQUIREMENTS AND SUIT THE SLOPE AND LEVEL OF THE FINISHED SURFACE LEVEL AT THAT LOCATION UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT
- 10. WHERE INTER-ALLOTMENT DRAINAGE HAS NOT BEEN PROVIDED TO AN ALLOTMENT, A ROOFWATER CONNECTION TO EACH ALLOTMENT SHALL BE PROVIDED VIA:

A. APPROVED ROOFWATER KERB ADAPTORS 500mm FROM THE DOWNSTREAM PROPERTY BOUNDARY & 500mm (UNLESS SHOWN OTHERWISE WITHIN THE CONTRACT DRAWINGS).

B. WHERE THERE IS A CONCRETE FOOTPATH, A $125 \times 75 \times 3$ HOT DIPPED GALVANISED RHS SHALL BE INSTALLED FROM THE PROPERTY BOUNDARY TO THE ROOFWATER ADAPTOR AT 0.5% MINIMUM GRADE. REFER IPWEAQ STANDARD DRAWING RS-081

C. ONE Ø150 DIA ROOFWATER PIPE CONNECTED TO AN ADJACENT STORMWATER GULLY, FIELD INLET OR MANHOLE WITH A MINIMUM GRADE OF 1.0%

11. ALL STORMWATER DRAINAGE MATERIALS AND BEDDING, JOINTING AND STEP IRONS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY STANDARD DRAWINGS, METHODS AND SPECIFICATIONS.

UNCRETE NOTES

- CONCRETE TESTING SHALL BE CARRIED OUT BY A REGISTERED NATA TESTING LABORATORY, IN ACCORDANCE WITH AS3600 PROJECT ASSESSMENT.
- 2. WHERE A CONCRETE TEST IS FOUND TO BE BELOW THE REQUIRED STRENGTH AT 28 DAYS, THE ENTIRE STRUCTURE, SLAB ETC RELATING TO THAT TEST SHALL BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE
- 3. WHERE CONCRETE WILL BE VISIBLE ON COMPLETION OF THE WORKS, THE CONTRACTOR IS TO CONFIRM THE FINISH AND TEXTURE WITH THE SUPERINTENDENT FIVE (5) DAYS PRIOR TO PLACING ANY CONCRETE FOR THAT ITEM.

ON MAINTENANCE REQUIREMENTS

- NO MORE THAN 2 WEEKS BEFORE "ON MAINTENANCE" INSPECTION, THE CONTRACTOR SHALL UNDERTAKE A CCTV
 DEFECT / CONDITION INSPECTION WITH REPORT (TO BE SUBMITTED TO LOCAL COUNCIL) TO DEMONSTRATE THAT
 THE STORMWATER SYSTEM IS ACCEPTABLE TO LOCAL COUNCIL.
- 2. UNACCEPTABLE DEFECTS ARE TO BE RECTIFIED BY THE CONTRACTOR AT THEIR EXPENSE PRIOR TO ACCEPTANCE OF WORKS AT OFF-MAINTENANCE.

FIRE ANTS

- BIOSECURITY QUEENSLAND SHOULD BE NOTIFIED ON 13 25 23 OF PROPOSED DEVELOPMENT(S) OCCURRING IN THE FIRE ANT RESTRICTED AREA BEFORE EARTHWORKS COMMENCE. IT SHOULD BE NOTED THAT WORKS INVOLVING MOVEMENTS OF SOIL ASSOCIATED WITH EARTHWORKS MAY BE SUBJECT TO MOVEMENT CONTROLS AND FAILURE TO OBTAIN NECESSARY APPROVALS FROM BIOSECURITY QUEENSLAND IS AN OFFENCE.
- 2. IT IS A LEGAL OBLIGATION TO REPORT ANY SIGHTING OR SUSPICION OF FIREANTS WITHIN 24 HOURS TO BIOSECURITY QUEENSLAND ON 13 25 23.
- THE FIRE ANT RESTRICTED AREA AS WELL AS GENERAL INFORMATION CAN BE VIEWED ON THE DAF WEBSITE www.daf.gld.gov.au/fireants.

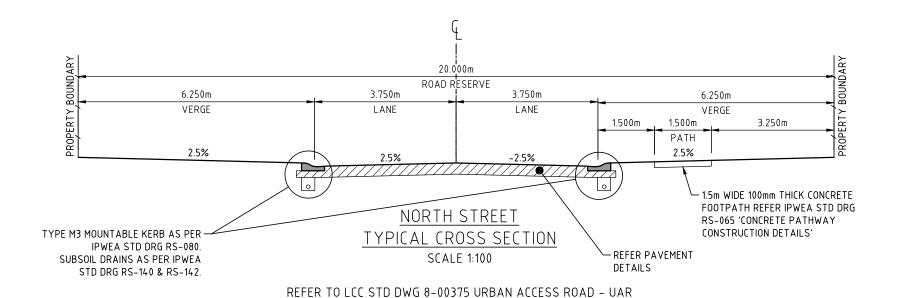


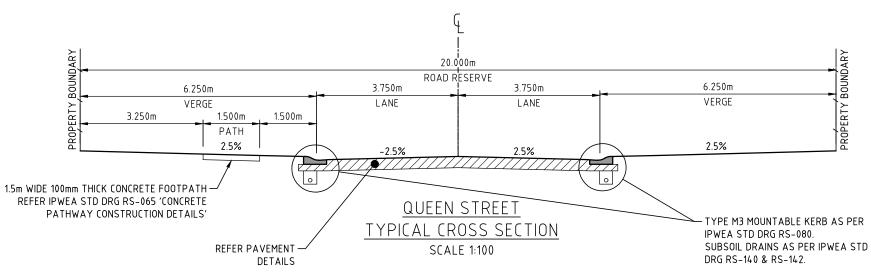
APPROVED PLAN OF DEVELOPMENT

This is the approved plan of development for Development Application

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			SURVEY DATA	KLINGE DEVELOPMENTS				PO Box 554 Beaudesert QLD 4285	ACC	Engi	00040
			DATUM GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217		CONSTRUCTIO	N NOTES	(07) 5541 3500		U	neers
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REFER TO LCC STD DWG 8-00375 URBAN ACCESS ROAD - UAR

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KLINGE DEVELOPMENTS SURVEY DATA U1901/25 BREAKER STREET, MAIN BEACH 4217 MAP GRID UPDATES AS PER LCC RFI NJF 15/08/22 QLD MGA-56 HEIGHT ORIGIN UPDATES AS PER LCC RFI NJF 3/06/22 ROAD & SERVICES DESIGN, NORTH STREET FOR APPROVAL 01/2022 JIMB00MBA FOR APPROVAL DJS 01/2022 DJS 01/2022 NORTH STREET JIMBOOMBA 4280 QLD

DWN DATE
PLOT TIME: 16/8/2022 - 2:02PM BY USER: NICKFA

TYPICAL ROAD CROSS SECTIONS

S. SHAY

13697 CIVIL

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JOB NUMBER

ACS Engineers
CIVIL ENVIRONMENTAL PROJECT MANAGEMENT

03

OF

36

QUALITY OF MATERIAL

FOR SUB-BASE COURSE

PAVEMENT

CBR 45

QUALITY OF MATERIAL

FOR BASE COURSE

PAVEMENT

CBR 80

RPEQ)
SIGNATURE
DATE

16/08/22

JOB NUMBER
20

200114 DRAWING NUMBER ACS-200114-GEN-03

PAVEMENT DESIGN INPUT VALUES

PLANNING SCHEME POLICY 5 - INFRASTRUCTURE 2019 AMENDMENT:

TABLE 3.4.8.2.1 - PAVEMENT DESIGN STANDARDS FOR A ROAD

MIN. AC

THICKNESS

35mm OF

MIN. PAVEMENT

250mm

AADT: 240
%HEAVY 4
DP 20 YEARS
DF 0.5
LDF 1
HVGR 1%
CGF 22
NHVAG 2.1

PAVEMENT SURFACE

TYPE

AC

ROAD TYPE

URBAN ACCESS ROAD

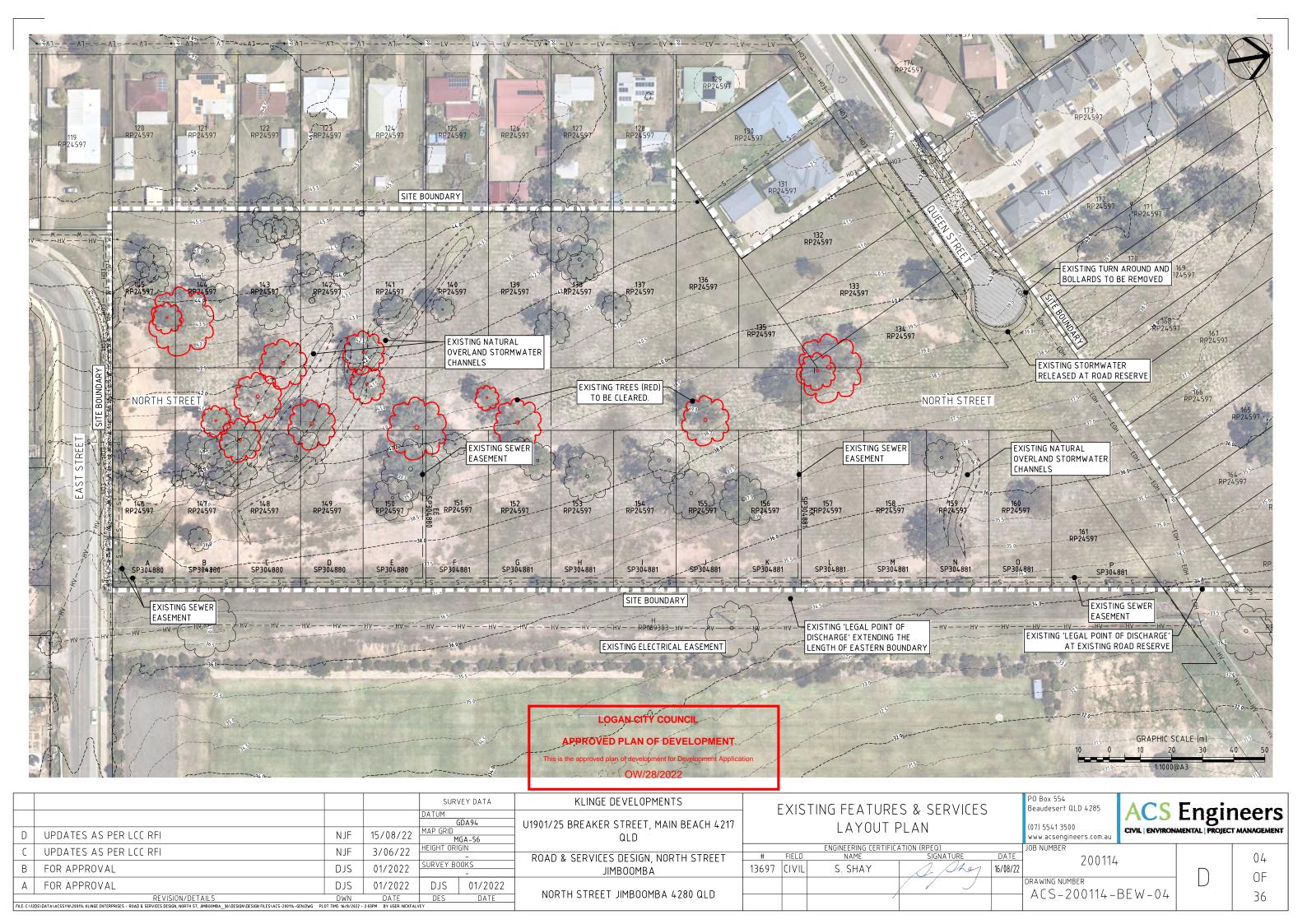
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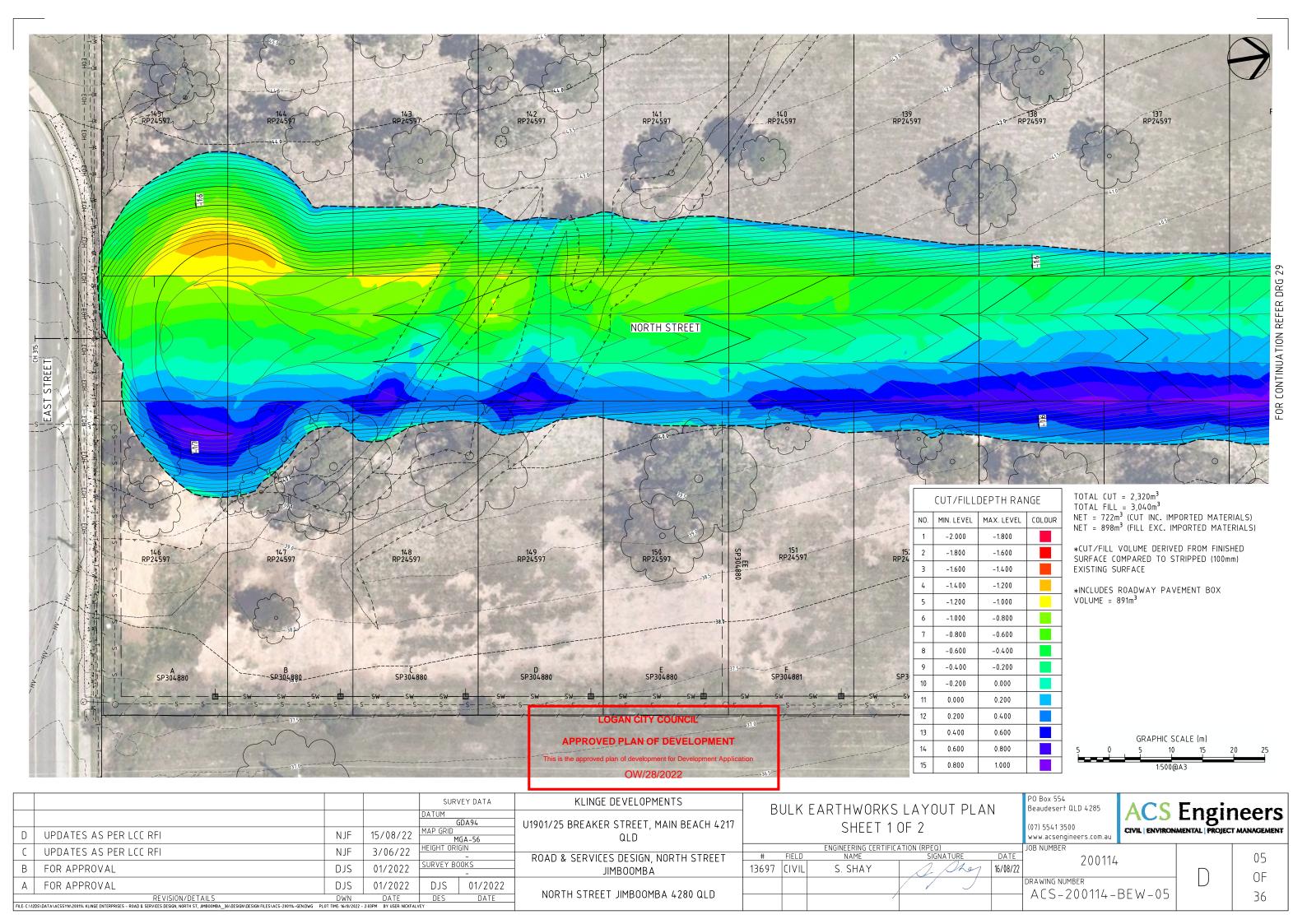
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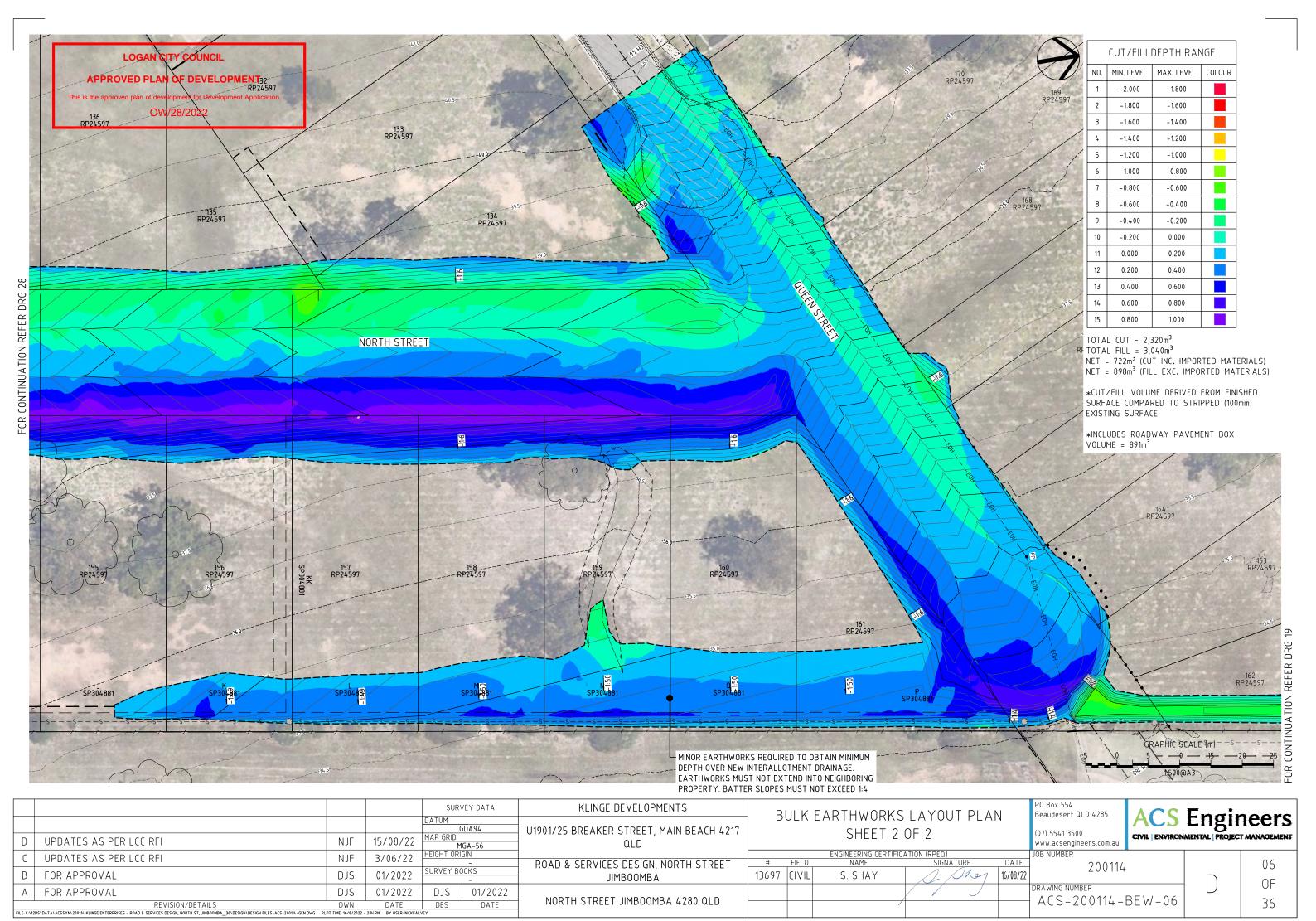
PRIME 5.9 x 10⁵

DESIGN CBR: 3 (ASSUMED)

PAVEMENT (SEALED)	
35mm AC DG10 WITH PRIMER WEARING CO	URSE OVER
150mm BASE COURSE TYPE 2.1 (MIN. CBR8	0) OVER
125mm SUB-BASE COURSE TYPE 2.3 (MIN.	CBR45) OVER
125mm SUB-BASE COURSE TYPE 2.5 (MIN.	CBR15) OVER
IN-SITU SUB-GRADE (ASSUMED CBR 3 0)	





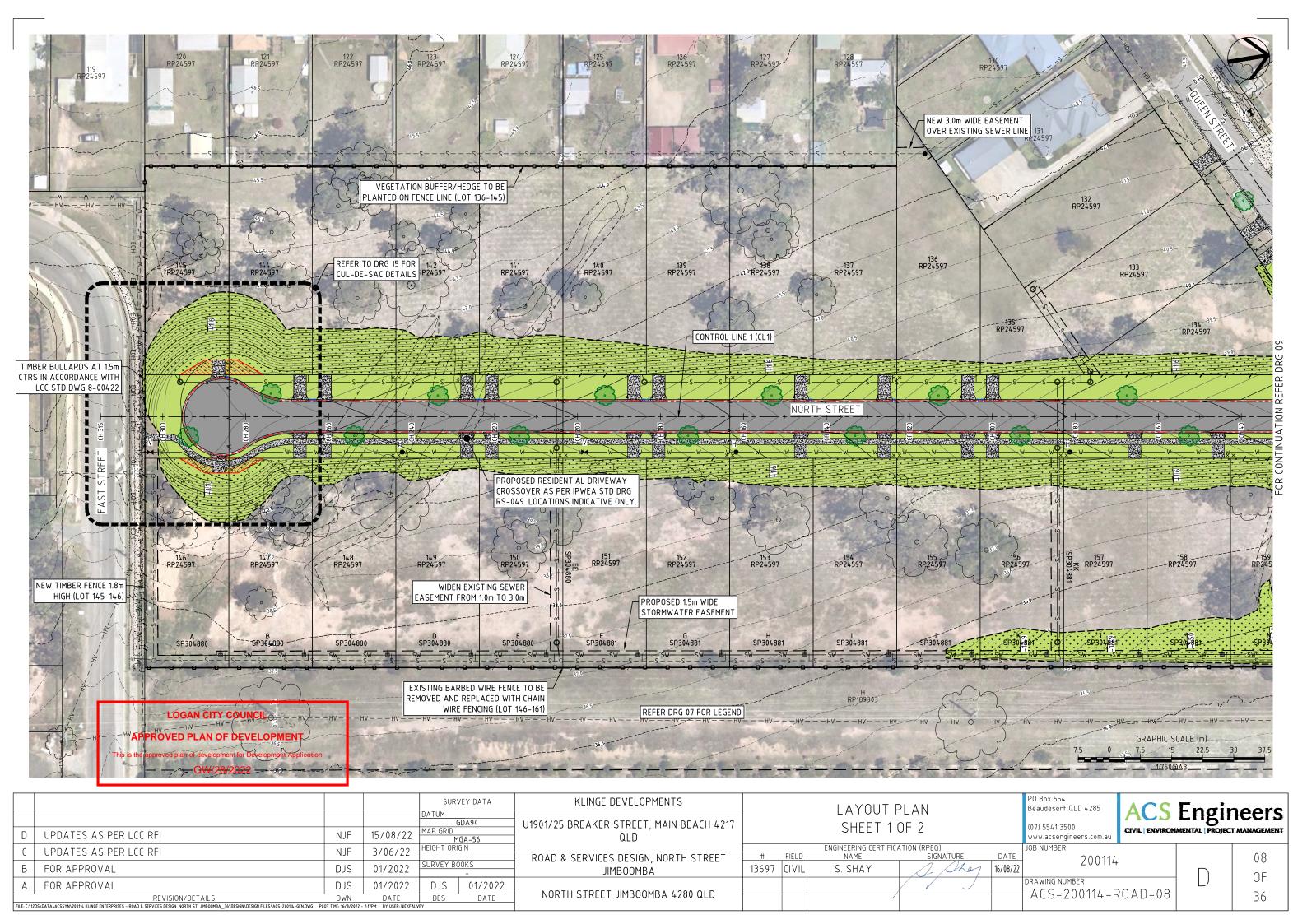


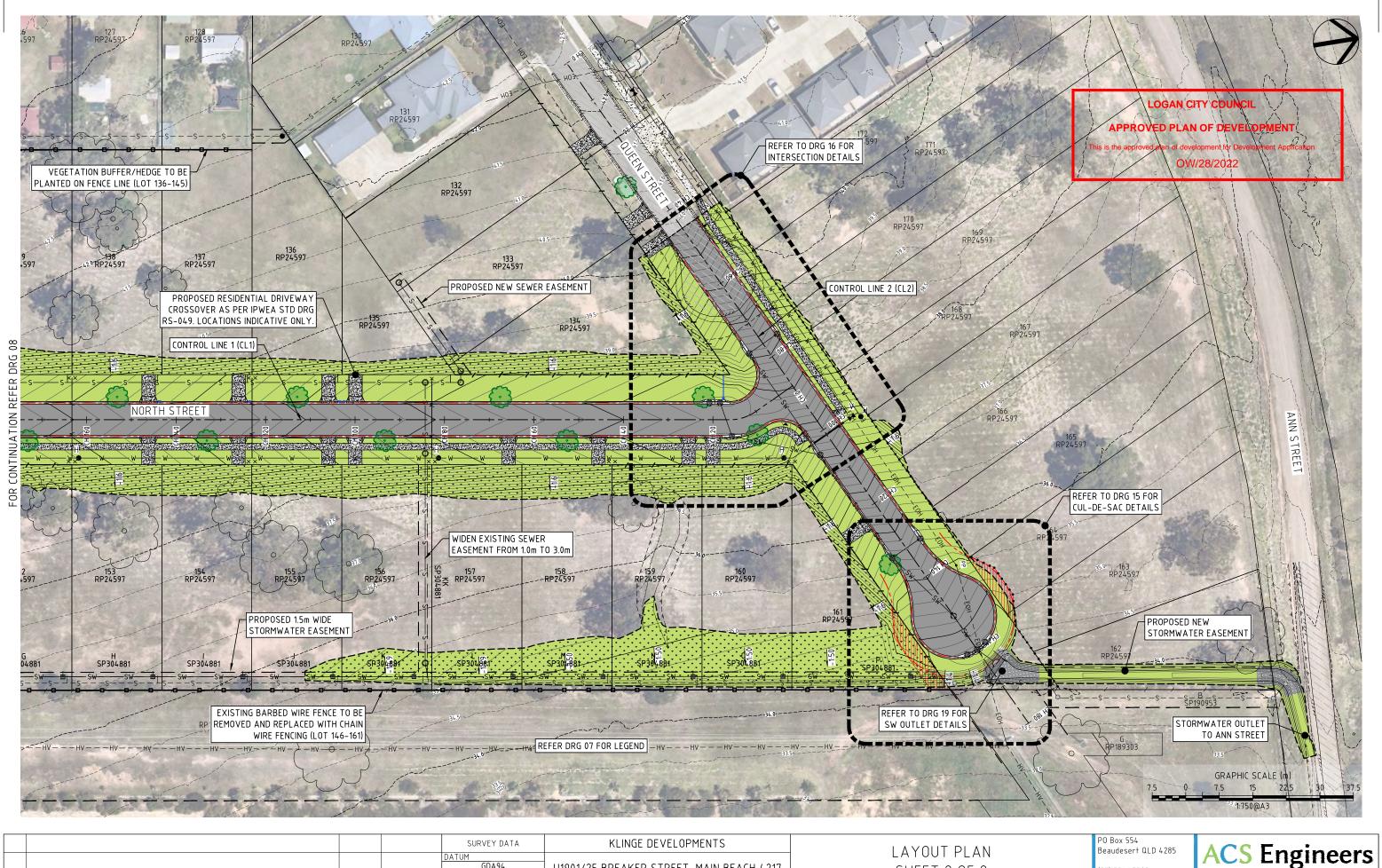


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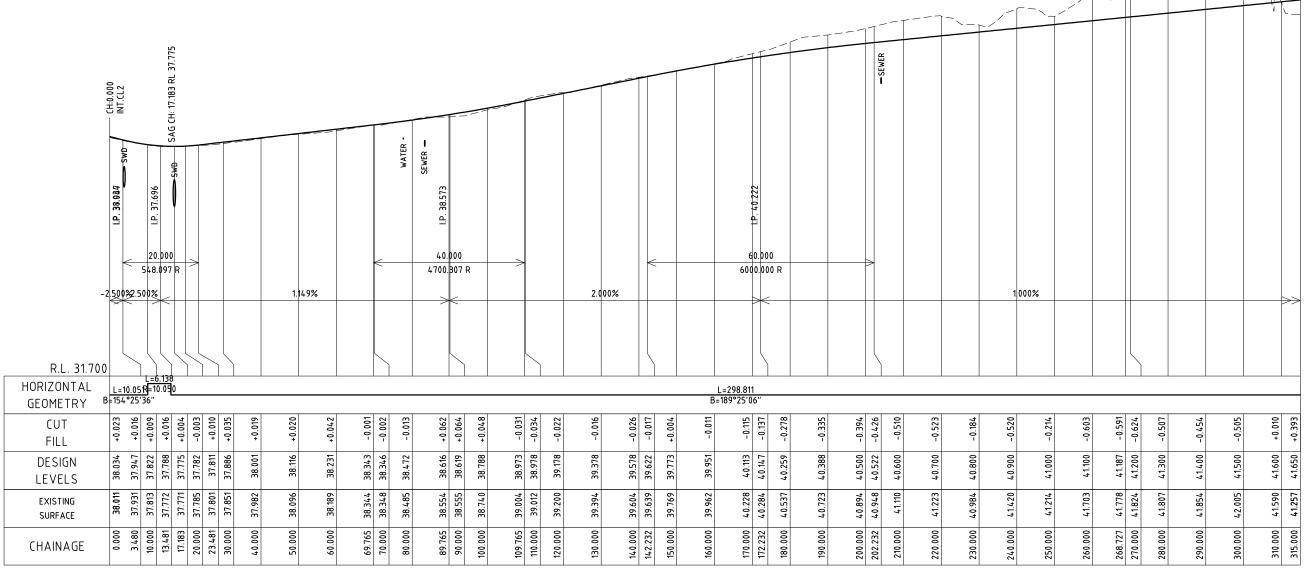
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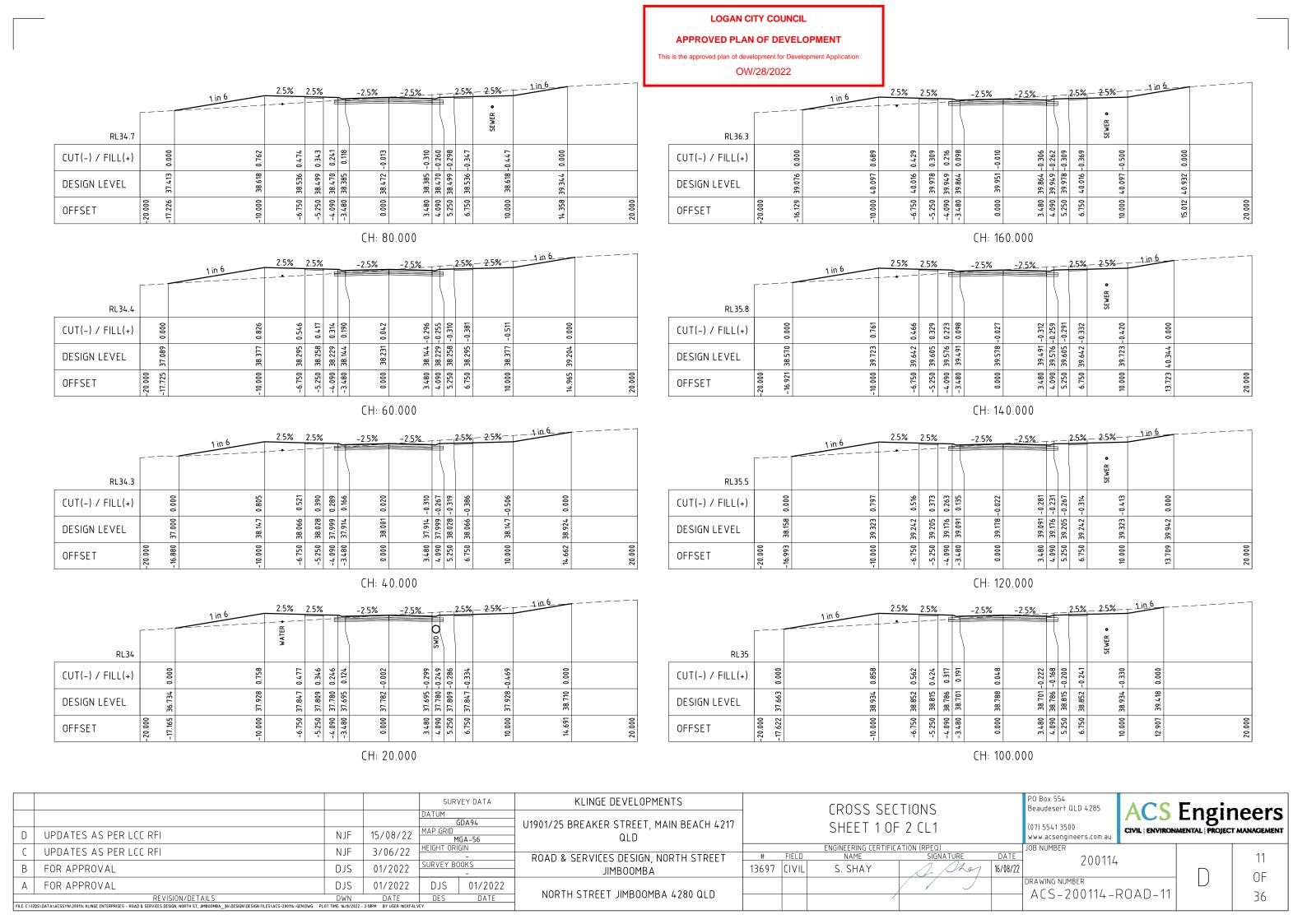
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			SURVEY DATA	KLINGE DEVELOPMENTS		LONGITUDINAL	CECTION	PO Box 554 Beaudesert QLD 4285	ACC	E.a.	
			DATUM GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217		CI 1	_ SECTION	(07) 5541 3500		U	neers
D	UPDATES AS PER LCC RFI NJF	15/08/22	MAP GRID MGA-56	QLD		CLI		www.acsengineers.com.au	CIVIL ENVIRON	MENTAL PROJEC	T MANAGEMENT
C	UPDATES AS PER LCC RFI NJF	3/06/22	HEIGHT ORIGIN	ROAD & SERVICES DESIGN, NORTH STREET	# FIELD	ENGINEERING CERTIFIC NAME	TATION (RPEQ) SIGNATURE DATE	JOB NUMBER			10
В	FOR APPROVAL DJS	01/2022	SURVEY BOOKS	JIMBOOMBA	13697 CIVIL	S. SHAY	16/08/22	200114	<u>-</u>		OF
А	FOR APPROVAL DJS	01/2022	DJS 01/2022	NODTH CIRCL HAROOMPA / 200 OLD			DRAWING NUMBER)			
	REVISION/DETAILS DWN	DATE	DES DATE	NORTH STREET JIMBOOMBA 4280 QLD		/		ACS-200114-F		36	



CH: 240.000

		1 in 6	-	2.5 <u>%</u>		¥	-2.5% -	2.5%	 	2.5%	2.5%	1#6	
RL37.3			WATER								SEWER •		
CUT(-) / FILL(+)		0.348	0.029	-0.124	-0.242	-0.374	-0.523	-0.816	-0.763	-0.839	-0.871		0.000
DESIGN LEVEL	780 07	40.846	40.765	40.727	40.698	40.613	40.700	40.613	40.698	40.765	00		42.403
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000	3.480	4.090	6.750	0		19.346

CH: 220.000

RL37		1 in 6	WATER •	2.5%		#	_=2.5% —	— -2.5 %		- 2	2.5%	2.5%	_		
CUT(-) / FILL(+)	0.000	0.413	0.113	-0.025	-0.128	-0.250	-0.395	-0.719	-0.675	-0.725	-0.790	-0.920		0.000	
DESIGN LEVEL	39.955	40.645	795.07	40.527	40.498	40.413	40.500	40.413	40.498	40.527	40.564	40.645		42.128	
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000	3.480	4.090	5.250	6.750	10.000		18.895	20.000

CH: 200.000

RL36.7		1 in 6	WATER •	2.5%			2.5%	— -2.5 %			2.5%	SEWER •	1-in-6	
CUT(-) / FILL(+)	0.000	0.503	0.196	0.048	-0.066	-0.196	-0.278		-0.563	-0.559	-0.614	-0.721	0.000	
DESIGN LEVEL	39.577	40.405	40.323	40.286	40.257	40.172	40.259		40.172	40.286	40.323	40.405	41.525	
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000		3.480	5.250	6.750	10.000	16.720	20.000

CH: 180.000

LOGAN CITY COUNCIL

APPROVED PLAN OF DEVELOPMENT

This is the approved plan of development for Development Application $\label{eq:own_28} OW/28/2022$

		1 in 6	2.5%	2.5%			2.5% —		ТΤ	· -	2.5%	 2.5%	
RL37.7		WATER			E							SEWER •	
CUT(-) / FILL(+)	0.000	0.481	0.131	-0.035	-0.163	-0.300	-0.507	-0.886	-0.840	-0.885	-0.943	-1.069	-0.071
DESIGN LEVEL	865.07	41.446	41.365	41.327	41.298	41.213	41.300	41.213	41.298	41.327	41.365	41.446	43.112
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000	3.480	4.090	5.250	6.750	10.000	20.000

CH: 280.000

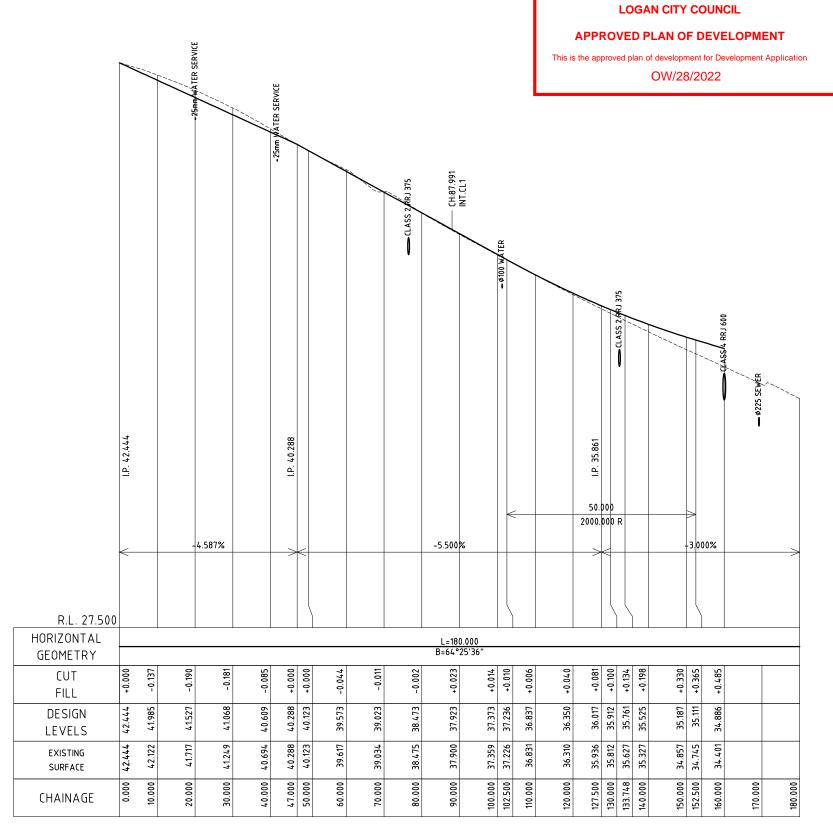
		1 in 6	2.5%	2.5%			2.5%		ΤT	-	 2.5%	 2.5%	
			 		E							ER. •	
RL37.7			^									SEWER	
CUT(-) / FILL(+)	0.000	0.430	0.078	-0.085	-0.211	-0.351	-0.590	-0.977	-0.938	-0.995	-1.037	-1.128	-0.131
DESIGN LEVEL	40.622	41.333	41.252	41.214	41.185	41.100	41.187	41.100	41.185	41.214	41.252	41.333	43.000
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000	3.480	4.090	5.250	6.750	10.000	20.000

CH: 268.727

RL37.5		1 in 6	WATER •	2.5%	E	1	-2.5%	-2.5%			2.5%	SEWER •	——————————————————————————————————————
CUT(-) / FILL(+)	0.000	0.540	9.074	-0.131	-0.258	-0.395	-0.603	-0.961	-0.922	-0.960	-1.005	-1.103	-0.110
DESIGN LEVEL	40.161	41.246	41.165	41.127	41.098	41.013	41.100	41.013	41.098	41.127	41.165	41.246	42.912
OFFSET	-20.000	-10.000	-6.750	-5.250	-4.090	-3.480	0.000	3.480	4.090	5.250	6.750	10.000	20.000

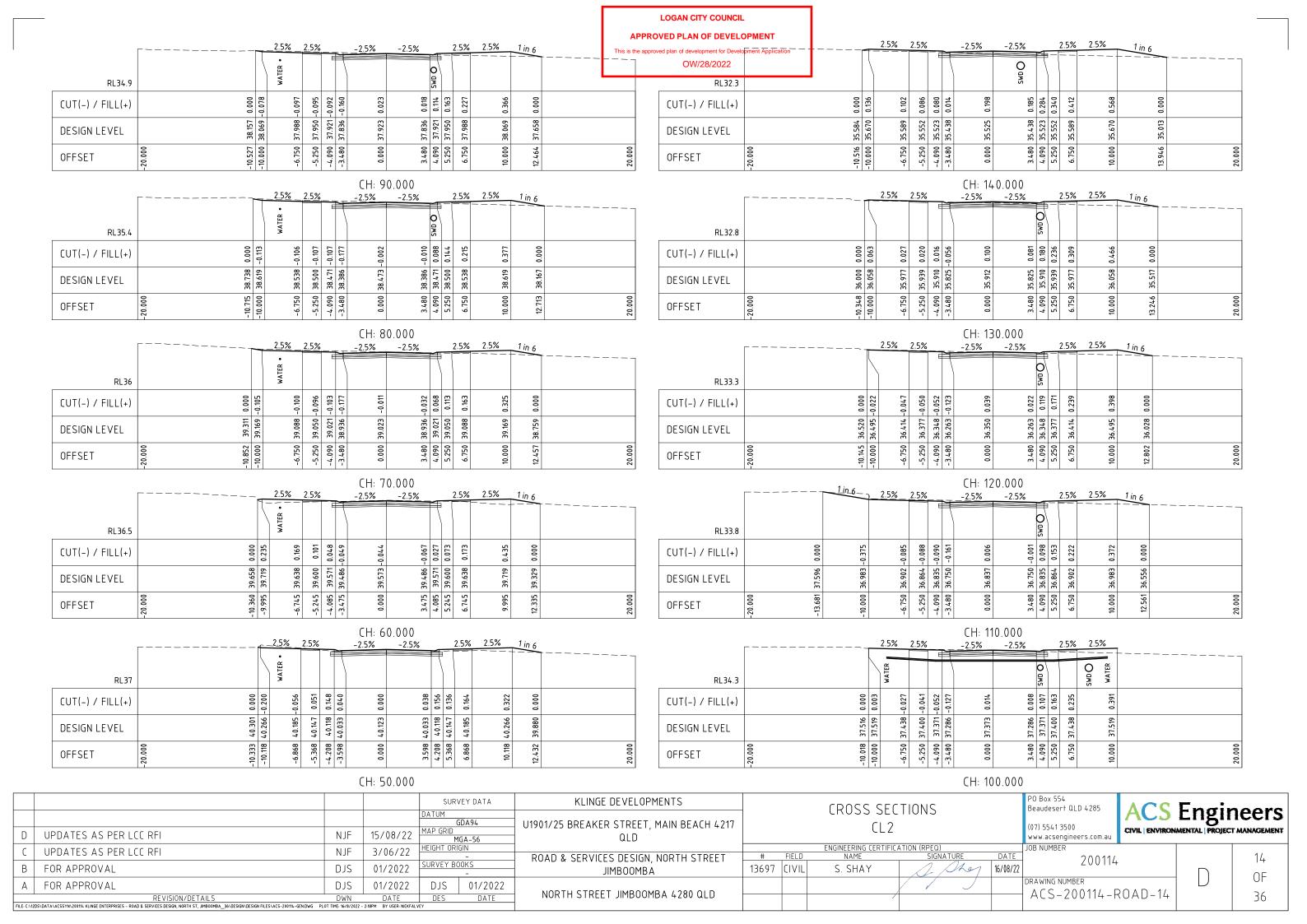
CH: 260.000

			SURVEY	/ DATA	KLINGE DEVELOPMENTS			CROSS SEC	TIONS		PO Box 554 Beaudesert QLD 4285	ACC.	Enai	10 0 MG
			DATUM GDA	١94	U1901/25 BREAKER STREET, MAIN BEACH 4217			SHEET 2 OF			(07) 55 (4.2500		U	neers
D UPDATES AS PER LCC RFI	NJF	15/08/22	MAP GRID MGA		QLD			SHELL Z OF	Z CLI		www.acsengineers.com.au	CIVIL ENVIRON	MENTAL PROJEC	T MANAGEMENT
C UPDATES AS PER LCC RFI	NJF	3/06/22	HEIGHT ORIGIN		ROAD & SERVICES DESIGN, NORTH STREET	# 6	FIELD	ENGINEERING CERTIFICA NAME	ATION (RPEQ) SIGNATURE	DATE	JOB NUMBER			12
B FOR APPROVAL	DJS	01/2022	SURVEY BOOK	(S	JIMBOOMBA	13697		S. SHAY		16/08/22	200114		\Box	OF
A FOR APPROVAL	DJS	01/2022	DJS	01/2022	NORTH CIRCL HAROOMRA (200 OLD						DRAWING NUMBER	O A D 12	U	UF
REVISION/DETAILS	DWN	DATE	DES	DATE	NORTH STREET JIMBOOMBA 4280 QLD			/			ACS-200114-R	UAD-12		36
FILE: C:\12D\$\DATA\AC\$\$YN\200114 KLINGE ENTERPRISES - ROAD & SERVICES DESIGN, NORTH \$T, JIMBOOMBA_36\DESIGN\DESIGN\FILE\$\AC\$-2	00114-GEN.DWG PLOT TIME: 16/8/2022	2:18PM BY USER: NICKFALV	EY											

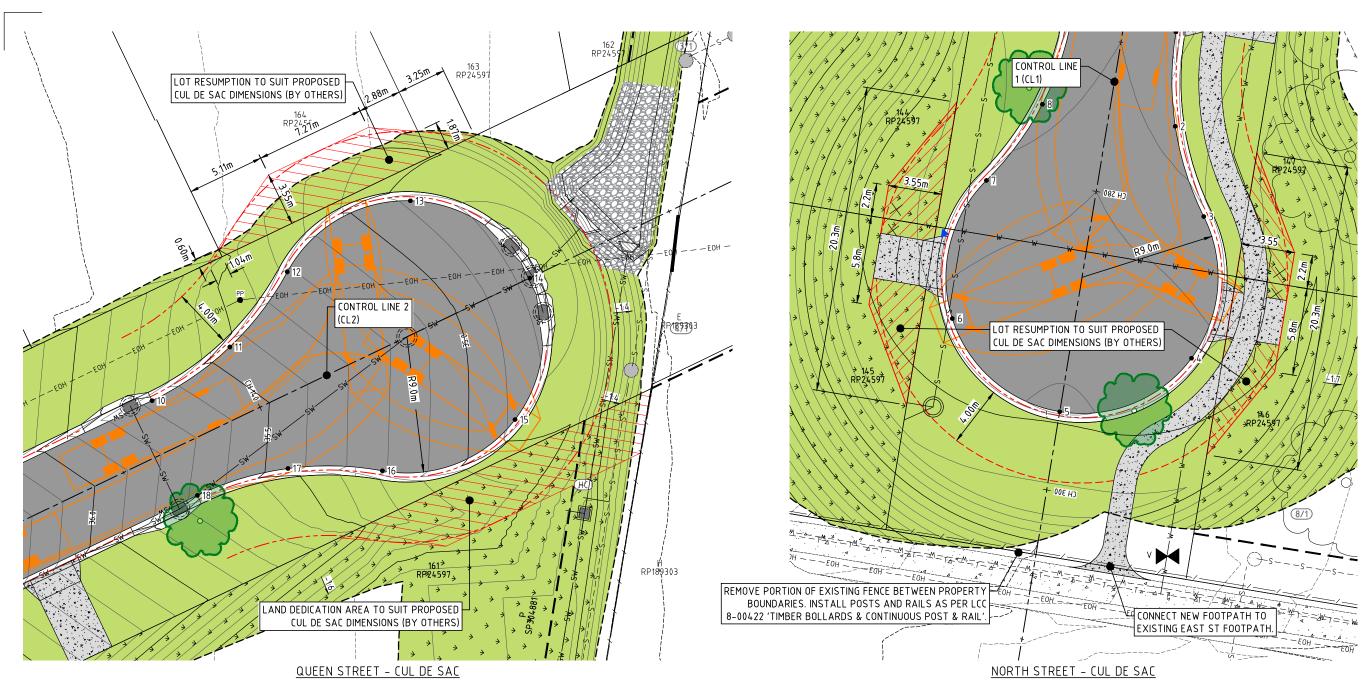


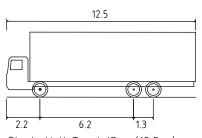
CL2 CH:0.000 TO CH:180.000 SCALES: HORIZONTAL 1:1000 VERTICAL 1:100

			SURVEY DATA	KLINGE DEVELOPMENTS	LONGITI		PO Box 554 Beaudesert QLD 4285	ACC I		
			DATUM GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217		CL 2	(07) 55 (4.2500		Engin	
D	UPDATES AS PER LCC RFI N	IF 15/08/2	2 MGA-56	QLD		CLZ	www.acsengineers.com.au	IVIL ENVIRONA	MENTAL PROJECT	MANAGEMENT
С	UPDATES AS PER LCC RFI N	IF 3/06/22	-	ROAD & SERVICES DESIGN, NORTH STREET	# FIELD NAN		JOB NUMBER			13
В	FOR APPROVAL D	S 01/2022	2 SURVEY BOOKS	JIMBOOMBA	13697 CIVIL S. SH	HAY 16/08/22	200114			05
А	FOR APPROVAL D	S 01/2022		NORTH STREET JIMBOOMBA 4280 QLD			DRAWING NUMBER ACS-200114-RO	1 A D 12		76
FILE: C:X	REVISION/DETAILS D'OS/DATA/ACSSYN/200114, KLINGE ENTERPRISES - ROAD & SERVICES DESIGN, NORTH ST, JIMBOOMBA_36/DESIGN/DESIGN/BEIGN/CESIGN FILES/ACS-200114-GEN.DWG PLOT TIME: 1	/N DATE /8/2022 - 2:18PM BY USER: NIC	DES DATE KFALVEY	NORTH STREET JIHDUUMBA 4200 QLD			ACS-200114-RU	1AD-13		36









Single Unit Truck/Bus (12.5 m)

Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock-to-lock time
Curb to Curb Turning Radius

(12.50 m)
(12.50 m)

	SETO	UT POINTS	
POINT	EASTING	NORTHING	ELEVATION
1	503237.018	6921235.307	41.100
2	503236.971	6921229.057	41.163
3	503238.855	6921223.099	41.226
4	503238.044	6921213.732	41.325
5	503229.331	6921210.199	41.411
6	503222.225	6921216.356	41.324
7	503224.481	6921225.483	41.226
8	503228.188	6921230.514	41.163
9	503230.162	6921236.444	41.100
10	503309.502	6921522.945	35.674

	SETO	JT POINTS	
POINT	EASTING	NORTHING	ELEVATION
11	503314.649	6921526.490	35.443
12	503318.450	6921531.451	35.213
13	503326.589	6921536.157	34.881
14	503334.480	6921531.045	34.761
15	503333.511	6921521.693	34.881
16	503324.740	6921518.308	35.213
17	503318.492	6921518.459	35.443
18	503312.502	6921516.676	35.674
19	503280.293	6921501.262	37.394
20	503276.931	6921497.518	37.672

	SETO	UT POINTS	
POINT	EASTING	NORTHING	ELEVATION
21	503277.201	6921492.493	37.735
22	503278.391	6921488.555	37.703
23	503278.343	6921484.441	37.689
24	503271.487	6921485.579	37.689
25	503268.950	6921491.911	37.999
26	503262.162	6921492.586	38.499
27	503232.529	6921478.199	40.288
28	503229.369	6921484.802	40.288

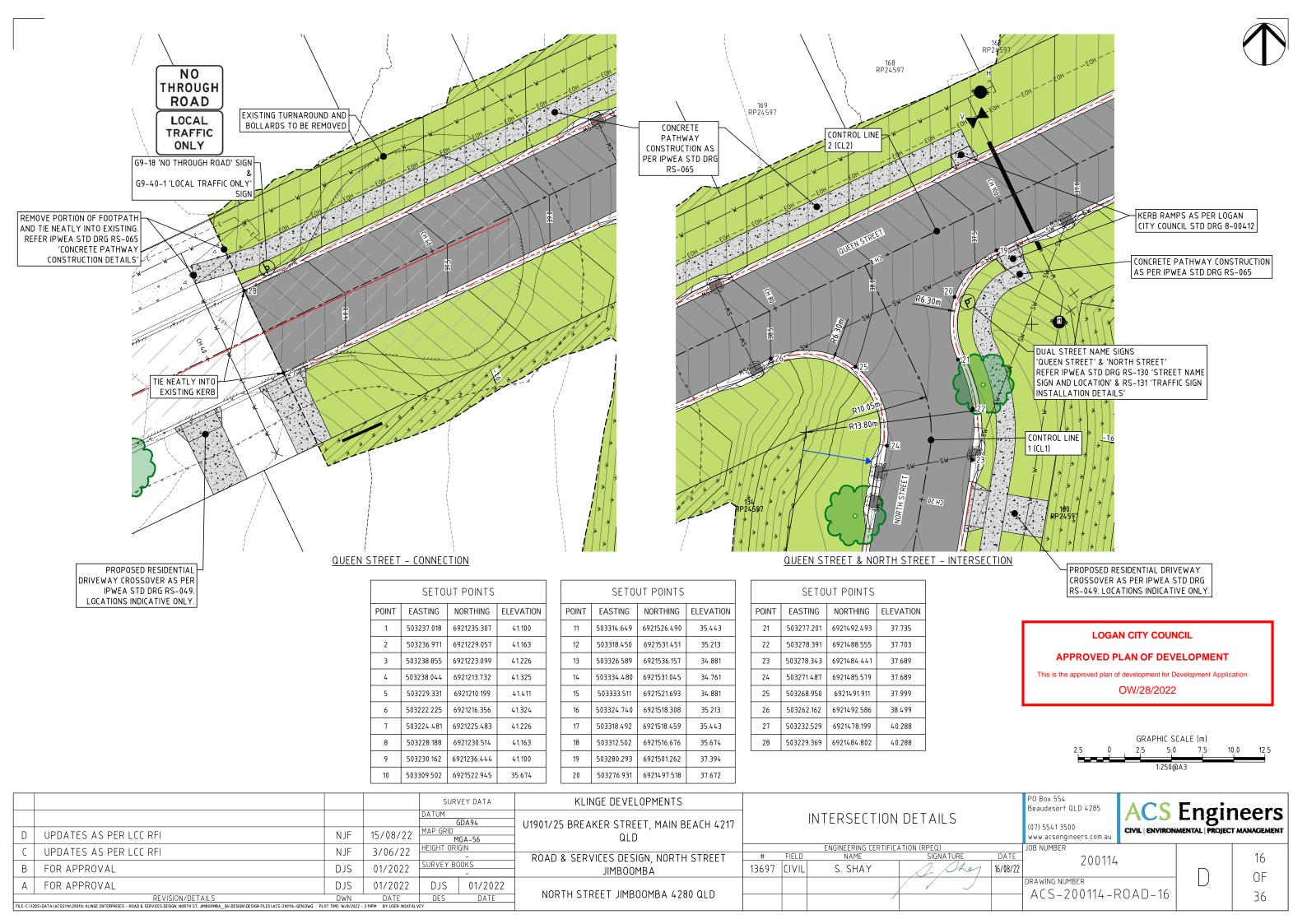
LOGAN CITY COUNCIL

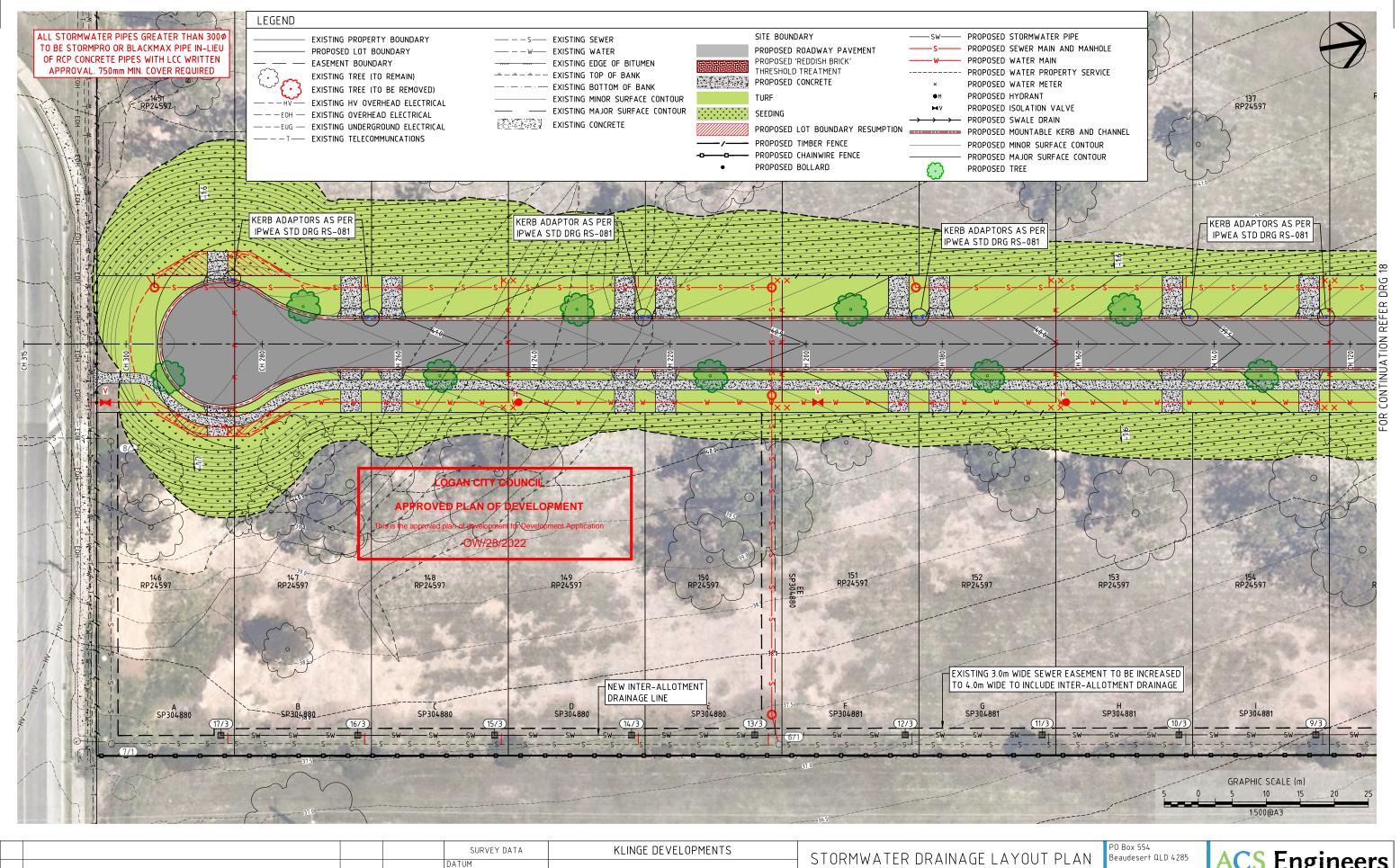
APPROVED PLAN OF DEVELOPMENT

This is the approved plan of development for Development Application OW/28/2022

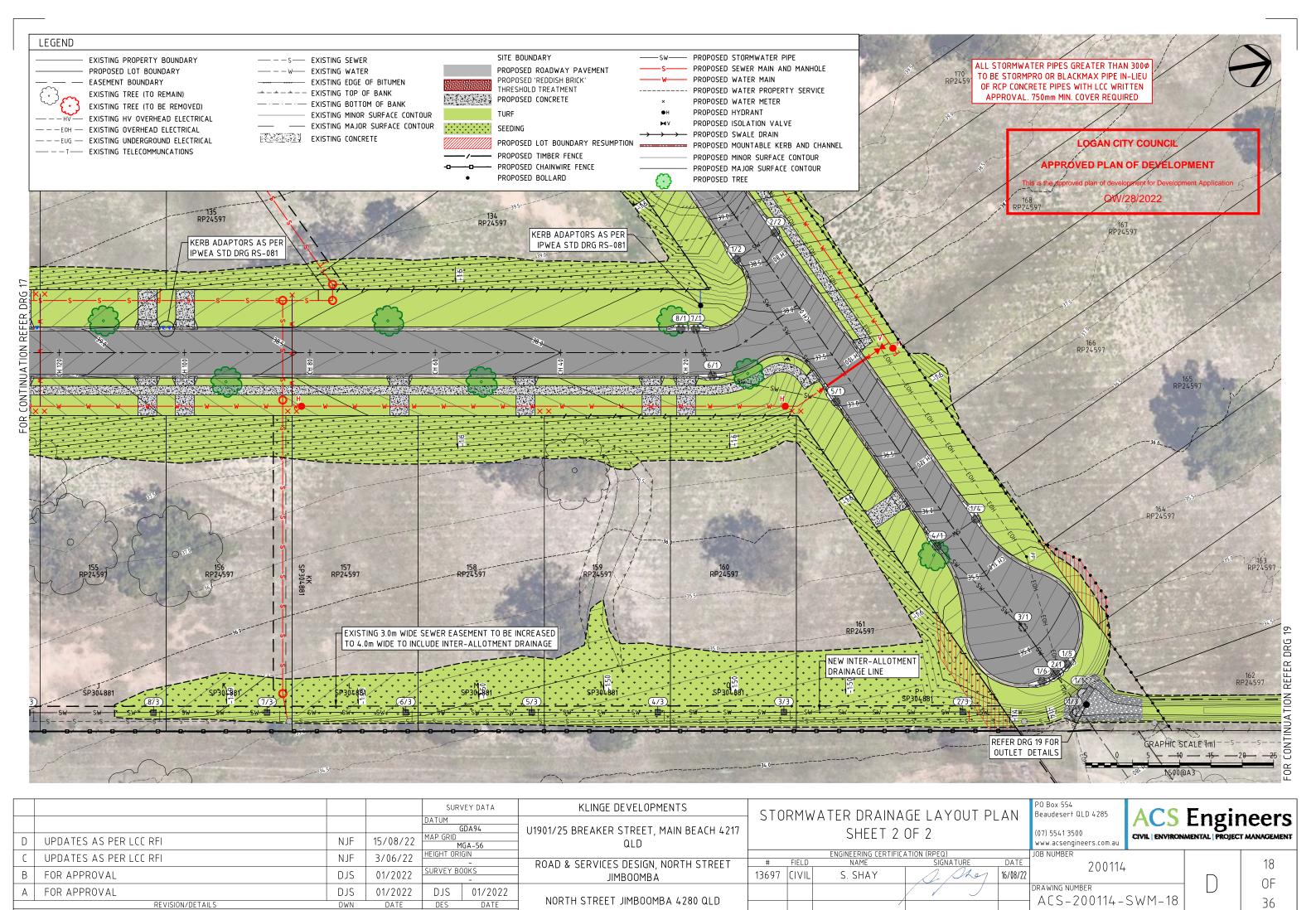
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2,5	0	2,5	5.0	7,5	10.0	12.5
			1:250@A3			

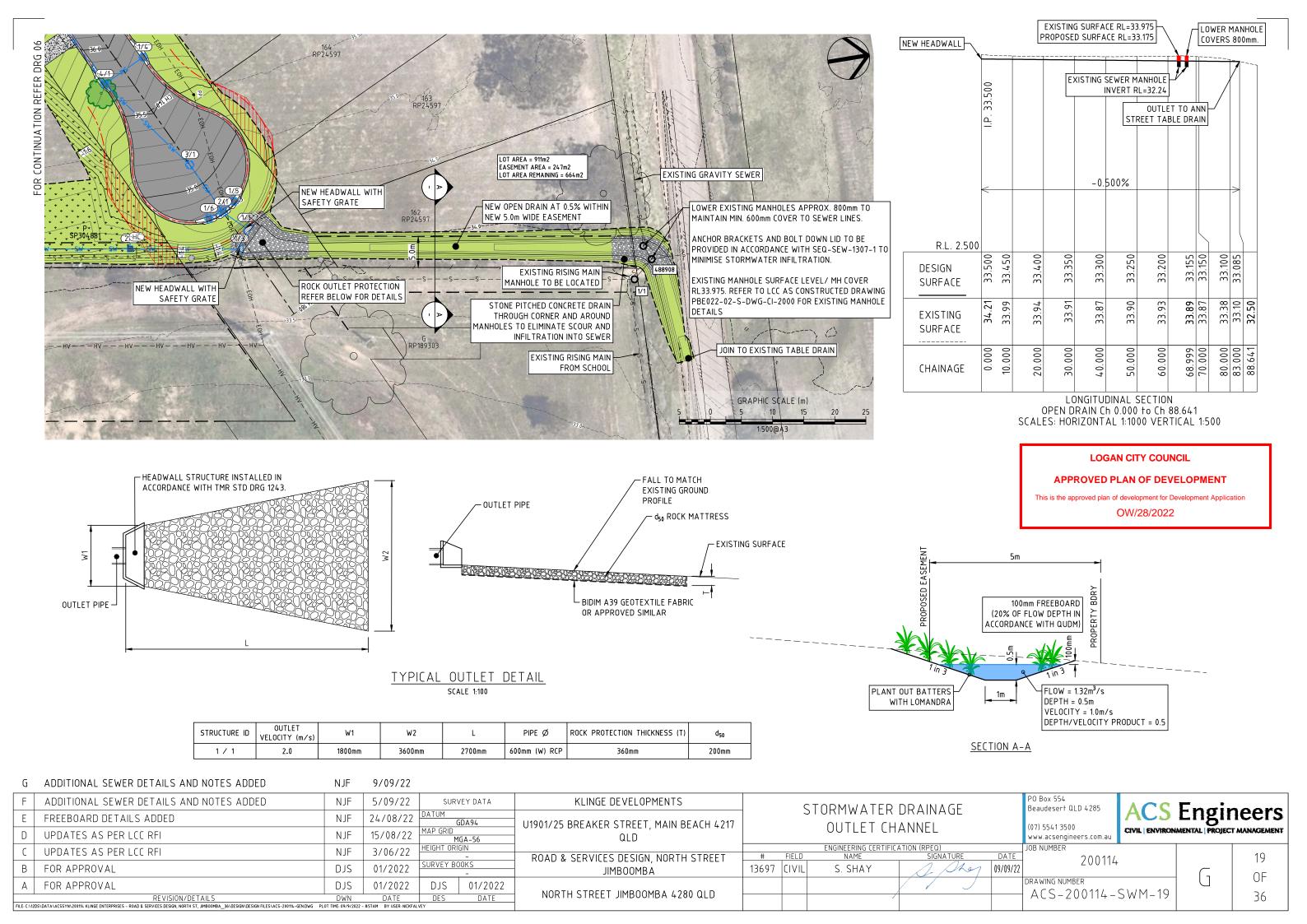
				SURVEY DATA	KLINGE DEVELOPMENTS					PO Box 554 Beaudesert QLD 4285	ACC	E.,	
				GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217			CULDESAC DETAILS		/03) FE / 4 DE 00		Engir	
D	UPDATES AS PER LCC RFI	NJF	15/08/22	MAP GRID MGA-56	QLD					www.acsengineers.com.au	CIVIL ENVIRONA	IENTAL PROJECT	T MANAGEMENT
C	UPDATES AS PER LCC RFI	NJF	3/06/22	HEIGHT ORIGIN	ROAD & SERVICES DESIGN, NORTH STREET	#	FIELD	ENGINEERING CERTIFICATION (RPEQ.) NAME SIGNATURE	DATE	JOB NUMBER			15
В	FOR APPROVAL	DJS	01/2022	SURVEY BOOKS	JIMBOOMBA	13697	CIVIL	S. SHAY	16/08/22	200114			0L ای
А	FOR APPROVAL	DJS	01/2022	DJS 01/2022	NODTH CIDEET HMPOOMPA / 200 OLD					DRAWING NUMBER ACS-200114-F)		01
FILE: 0	REVISION/DETAILS 205\DATA\ACSSYN\20014 KLINGE ENTERPRISES - ROAD & SERVICES DESIGN, NORTH ST, JIMBOOMBA_36\DESIGN\DESIGN FILES\ACS-20014-GENDWG PLC	DWN DT TIME: 16/8/2022 -	DATE 2:18PM BY USER: NICKFALV	DES DATE	NORTH STREET JIMBOOMBA 4280 QLD					1 ACS-200114-F	CI - UAU		36

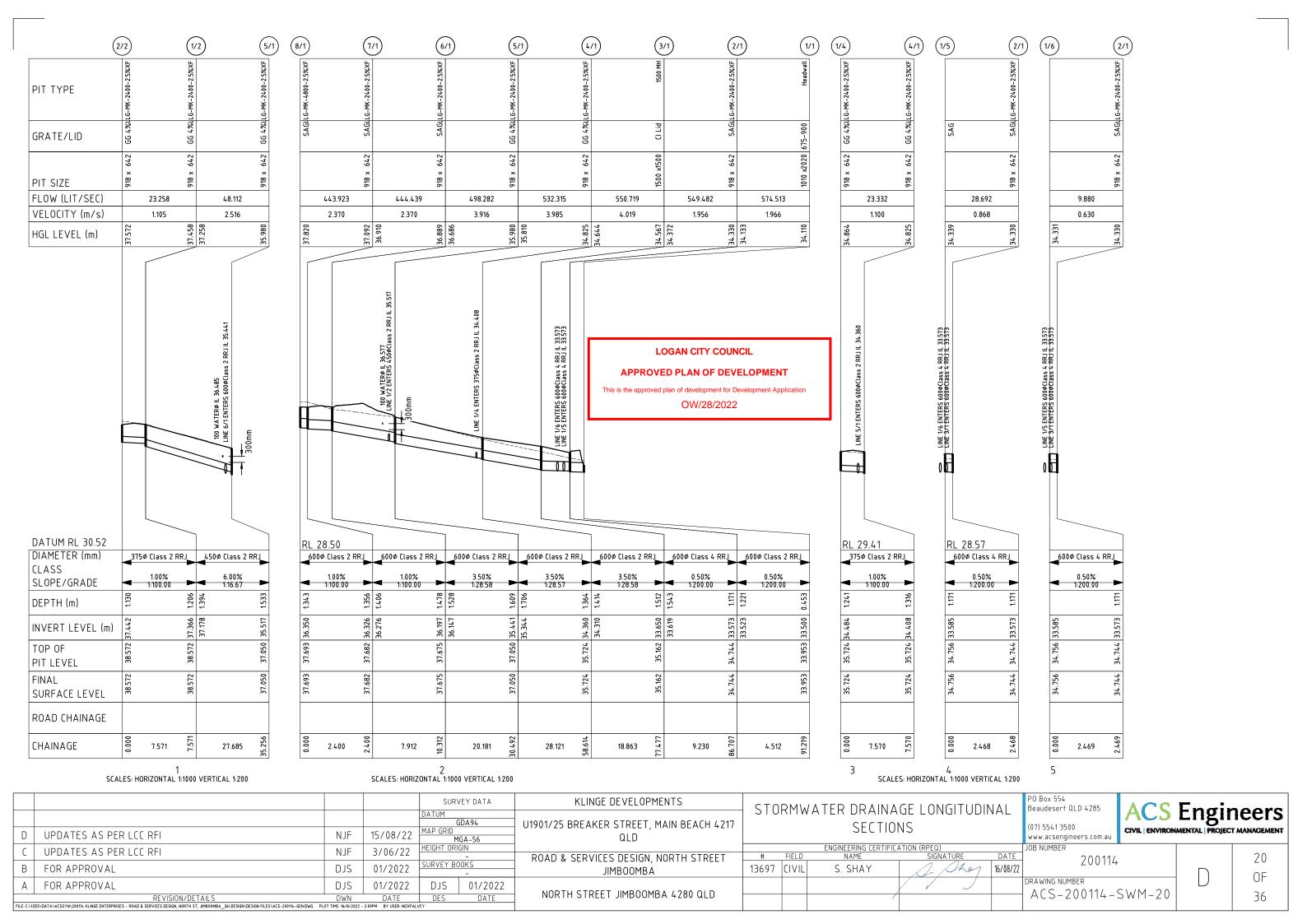


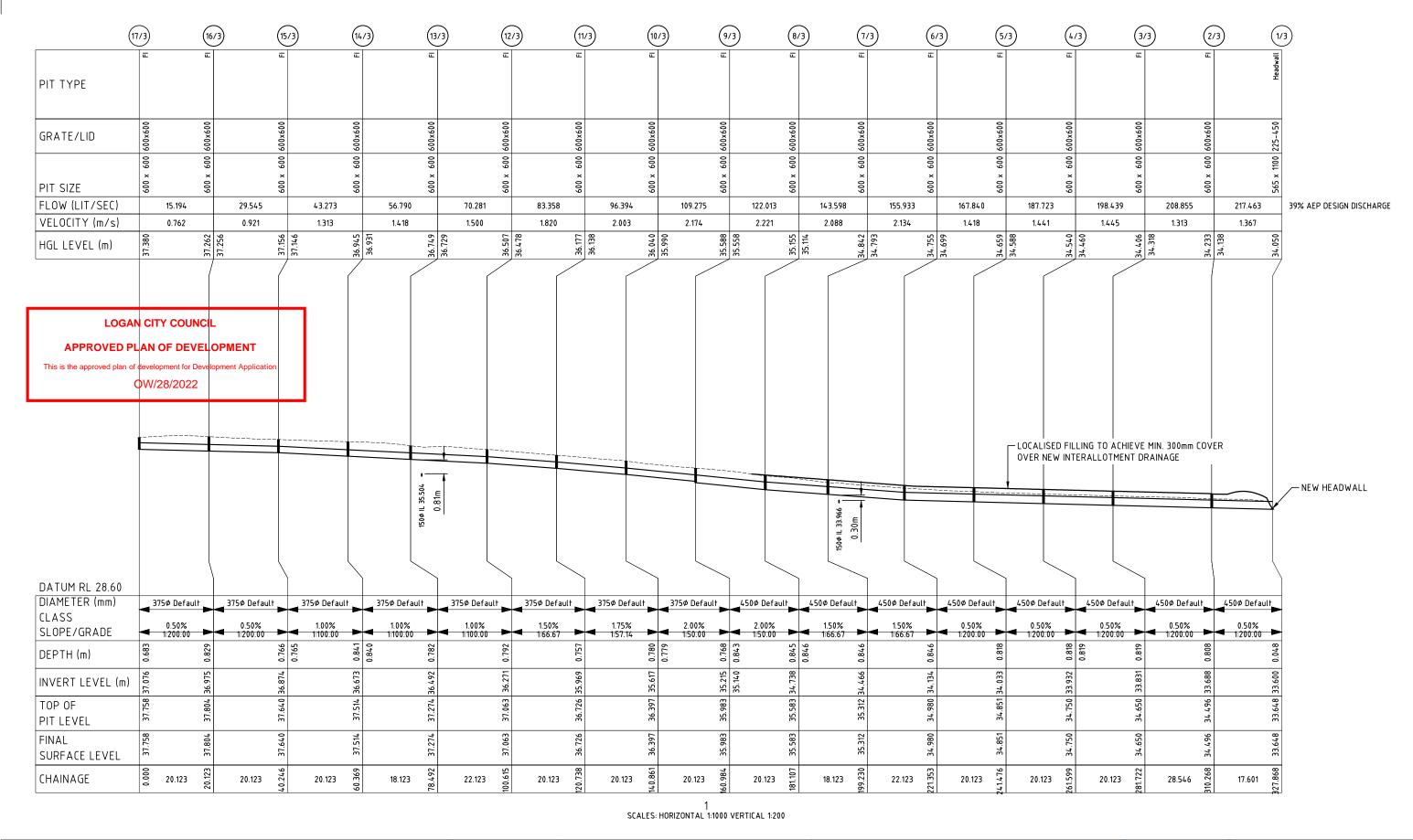


					Kenide Beveesi Henris	L STORMW	ATER DRAINA	AGE LAYOUT PLAI	Beaudesert QLD 4285	ACC Engi	MAAKC
				GDA94	U1901/25 BREAKER STREET, MAIN BEACH 4217		SHEET 1		(07) 5541 3500	J	neers
D	UPDATES AS PER LCC RFI	NJF	15/08/22	MAP GRID MGA-56	QLD		SHEELI	UF Z	www.acsengineers.com.au	CIVIL ENVIRONMENTAL PROJE	CT MANAGEMENT
С	UPDATES AS PER LCC RFI	NJF	3/06/22	HEIGHT ORIGIN -	ROAD & SERVICES DESIGN, NORTH STREET	# FIELD	ENGINEERING CERTIFIC NAME	TATION (RPEQ) SIGNATURE DA	JOB NUMBER TE 20011/		17
В	FOR APPROVAL	DJS	01/2022	SURVEY BOOKS	JIMBOOMBA	13697 CIVIL	S. SHAY	16/0	200114	+ _	OF
А	FOR APPROVAL	DJS	01/2022	DJS 01/2022	NODTH CTREET HMDOOMDA / 200 OLD				DRAWING NUMBER	C)./M 17	
	REVISION/DETAILS	DWN	DATE	DES DATE	NORTH STREET JIMBOOMBA 4280 QLD		/		─ ACS-200114-	5 W I*I - I /	36
FILE: C:\1	DS\DATA\ACSSYN\200114 KLINGE ENTERPRISES - ROAD & SERVICES DESIGN, NORTH ST, JIMBOOMBA_36\DESIGN\DESIGN FILES\ACS-200114-GEN.DWG PL	OT TIME: 16/8/2022 -	2:09PM BY USER: NICKFAL	VEY							



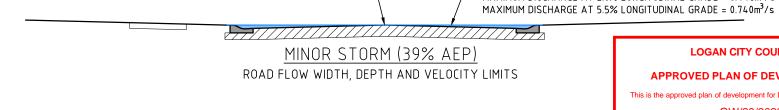






				DATUM MAP GRID	SDA94	KLINGE DEVELOPMENTS U1901/25 BREAKER STREET, MAIN BEACH 4217 QLD			R-ALLOTMEN DNGITUDINAL	T DRAINAGE SECTION	PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au	ACS Eng	ineers DJECT MANAGEMENT
В	UPDATES AS PER LCC RFI	NJF	15/08/22	HEIGHT OR SURVEY B	-	ROAD & SERVICES DESIGN, NORTH STREET JIMBOOMBA	# 13697	FIELD	ENGINEERING CERTIFICA NAME S. SHAY	TION (RPEQ.) SIGNATURE DA 16/0		+ D	20.1
A FILE: C:\120	UPDATES AS PER LCC RFI REVISION/DETAILS S\Datahakessynv280114 kilinge enterprises - road & services design, north \$t\$, jihboohba_36\design\de	NJF DWN LOT TIME: 16/8/2022	DATE - 2:10PM BY USER: NICKFALV	DJS DES	01/2022 DATE	NORTH STREET JIMBOOMBA 4280 QLD			/		DRAWING NUMBER ACS-200114-S	5WM-20.1	0F 36

														_		DI	RAINAC	GE CA	LCUL	1OITA	NS - F	Return P	eriod:	39% AEP -	Location	on: Ji	imboon	nba		_															
Note	LOCATION STRUCTURE No.	DRAIN SECTION	TIME SUB-CATCHMENT TIME OF CONCENTRATION	RAINFALL INTENSITY SUBCATCHMENT	RUNOFF CO-EFFICIENT	SUB-CATCHMENT AREA	IVALANT	SUM OF EQUIVALENT AREA SUB-CATCHMENT DISCHARGE	INLET DESIGN FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	HALF ROAD CAPACITY	INLET TYPE	INLET CURVE	FLOW TO INLET	BYPASS FLOW	BYPASS STRUCTURE No.	FLOW WIDTH	DRAIN DESIGN	CONCENTRATION CONCENTRATION RAINFALL INTENSITY	TOTAL (CxA)	PIPE FLOW	REACH LENGTH PIPE GRADE	PIPE SIZE	OF PIPES (1 IF	FLOW VELOCITY	OF FI	CAPACITY FLOW (MANNINGS)	CAPACITY FLOW (HGL)	HEADLOSSES STRUCTURE CHART No. VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCTURE HEADLOSS	CO-EFFICIENT	LAI. PIPE STRUCTURE HEADLOSSES W.S.E. CO-EFFICIENT	CHANGE IN W.S.E.	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L*Sf)	PART FULL	PART FULL DEPTH		-51		DRAIN SECTION HGL	UPSTREAM H.G.L.	DOWNSI KEAM H.G.L.	W.S.E. SURFACE OR K&C INVERT LEVEL STRUCTURE No.
			tc min m	I nm/hr	С	A (CxA C ha	cxA Q ha L/s	L/s	s %	L/s			Qg L/s	Qb L/s		m m			Sum CxA ha	Qp L/s		mm				n L/s	L/s	V ² /2g m	Ku	hu m			v hw	Sf %	hf m		m		m	n	m i	m m	n I	m m
No to be t	2/2	2/21/2	5 1	143	0.66	0.092 0	.061 0.	.061 24	24	1		LLG-MK-2400-2.5%XF	GG 4%	23	1	1/4		5.	.00 143	3 0.061	23	8 1	375	Class 2 R	RRJ 0.21	1 0.11	14 175	244	0.002	16.686	0.038				0.01	0.00		0.09	1.10	37.8	817 3	7.572 37.	572 37.4	458 38.	.572 38.572 2/2
No column No c	1/2	1/25/1	5 1	143	0.61	0.108 0	.066 0.	127 26	26	6		LLG-MK-2400-2.5%XF	GG 4%	25	1	7/1		5.	5.11 143	3 0.127	48	28 6	450	Class 2 R	RRJ 0.30	0 0.18	33 698	982	0.005	2.200	0.010				0.02	0.01		0.08	2.52	37.6	628 3	7.258 37.	268 35.9	980 38.	.572 38.572 1/2
No.	2/1	2/11/1	1	143			2.	123				LLG-MK-2400-2.5%XF	SAG	0			0.000	14	4.12 143	3 2.123	575	5 0	600	Class 2 R	RRJ 1.97	7 0.03	38 454	609	0.197	1.000	0.197				0.45	0.02		0.61	1.97	34.1	133 3	4.133 34.	330 34.1	110 34.	.744 34.744 2/1
Part	7/1	7/16/1	1	143			1.	620	1			LLG-MK-2400-2.5%XF	SAG	1			0.001	13	3.71 143	3 1.620	444	8 1	600	Class 2 R	RRJ 1.52	2 0.05	66 642	871	0.118	1.536	0.181				0.27	0.02		0.37	2.37	36.8	886 36	6.910 37.	092 36.8	889 37.	.682 37.682 7/1
No column No c	3/1	3/12/1	1	143			2.	029				1500 MH	CI Lid	0		6/1	0.000	14	1.05 143	3 2.029	549	9 0	600	Class 4 R	RRJ 1.96	6 0.07	79 430	578	0.195	1.000	0.195				0.45	0.04		0.60	1.96	34.2	217 3	4.372 34.	567 34.3	330 35.	.162 35.162 3/1
Note	5/1	5/14/1	5 1	143	0.69	0.011 0	.008 1.	955 3	3			LLG-MK-2400-2.5%XF	GG 4%	3	0	4/1		13	3.85 143	3 1.955	532	28 4	600	Class 2 R	RRJ 1.82	2 0.11	18 1200	1652	0.169	1.005	0.170				0.39	0.11		0.28	3.98	35.9	954 3	5.810 35.	980 34.8	825 37.	.050 37.050 5/1
Note 1	6/1	6/15/1	8 1	123	0.64	0.313 0	.200 1.	820 68	68	3		LLG-MK-2400-2.5%XF	SAG	68			0.050	13	3.76 123	3 1.820	498	20 3	600	Class 2 R	RRJ 1.71	1 0.08	36 1200	1652	0.148	1.372	0.203				0.34	0.07		0.27	3.92	36.7	757 36	6.686 36.	889 35.9	980 37.	.675 37.675 6/1
Part	8/1	8/17/1	14	99	0.64	2.542 1.	.620 1.	620 444	444	4		LLG-MK-4800-2.5%XF	SAG	444		3/1	0.241	13	3.69 99	1.620	444	2 1	600	Class 2 R	RRJ 1.52	2 0.01	17 642	871	0.118	6.135	0.722				0.27	0.01		0.37	2.37	36.9	960 3	7.820 37.	820 37.0	092 37.	.693 37.693 8/1
1	4/1	4/13/1	5 1	143	0.61	0.026 0	.016 2.	029 6	6			LLG-MK-2400-2.5%XF	GG 4%	6	0	1/6		13	3.97 143	3 2.029	551	19 3	600	Class 2 R	RRJ 1.88	8 0.07	78 1200	1652	0.181	1.000	0.181				0.41	0.08		0.29	4.02	34.9	920 34	4.644 34.	825 34.5	567 35.	.724 35.724 4/1
1	1/4	1/44/1	5 1	143	0.61	0.096 0	.059 0.	059 23	24	1		LLG-MK-2400-2.5%XF	GG 4%	23	1	1/5		5.	.00 143	3 0.059	23	8 1	375	Class 2 R	RRJ 0.21	1 0.11	15 175	244	0.002	16.676	0.038				0.01	0.00		0.09	1.10	34.8	859 34	4.864 34.	864 34.8	825 35.	.724 35.724 1/4
	1/5	1/52/1	5 1	143	0.59	0.119 0	.070 0.	070 28	29	•		LLG-MK-2400-2.5%XF	SAG	29		2/1	0.022	5.	.00 143	3 0.070	29	2 0	600	Class 4 R	RRJ 0.10	0.04	430	578	0.001	18.000	0.010				0.00	0.00		0.10	0.87	34.1	183 34	4.339 34.	339 34.3	330 34.	.756 34.756 1/5
NOLIVOUS PROPERTY OF THE PROPE	1/6	1/62/1	5 1	143	0.64	0.038 0	.024 0.	024 10	10			LLG-MK-2400-2.5%XF	SAG	10		2/1	0.008	5.	.00 143	3 0.024	10	2 1	600	Class 4 R	RRJ 0.04	4 0.06	65 430	578	0.000	18.000	0.001				0.00	0.00		0.06	0.63	34.1	183 3	4.331 34	.331 34.3	330 34.	.756 34.756 1/6
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2 2 2 12 2 5 5 2 8 5 0.9 0.9 0.9 0.9 0.9 0.9 0.0 0.0 0.0 0.0																D	RAINA	GE CA	ALCUI	LATIO	NS -	Return F	eriod:	1% AEP - L	_ocatio	n: Jir	mboom	ıba																	
1/2 1/25/1 5 295 0.88 0.08 0.09 0.07 76 76 1 LLG-MK-2400-25/K/F GG 4% 63 1.4 71 0.5 5.09 295 0.179 122 28 6 450 Class 2 RRJ 0.77 0.140 698 982 0.030 2.200 0.066 0.01 0.03 0.13 3.30 37.628 37.305 37.371 37.050 38.572 38.5 38.5 38.5 38.5 38.5 38.5 38.5 38.5	LOCATION STRUCTURE No.	DRAIN SECTION	TIME SUB-CATCHMENT TIME OF CONCENTRATION	RAINFALL INTENSITY SUBCATCHMENT	RUNOFF CO-EFFICIENT	SUB-CATCHMENT AREA	EQUIVALA	SUM OF EQUIV. SUB-CATC	INLET DESIGN FLOW IN K&C (INC. BYPASS)	ROAD GRADE AT INLET	HALF ROAD CAPACITY	INLET TYPE	INLET CURVE	FLOW TO INLET		TURE No.	МІВТН DEPTH		ONCENTRATION NFALL INTENSITY	TOTAL (CxA)			eriod:	OF PIPES (1 IF BLANK) PIPE CLASS	VELOCITY	OF FLOW IN REACH	T ~ T		HEADLOSSES STRUCTURE CHART NO. VELOCITY HEAD	U/S HEADLOSS COEFFICIENT	U/S PIPE STRUCTURE HEADLOSS	CO-EFFICIENT	M.S.E. CO-EFFICIENT	CHANGE IN W.S.E.	PIPE FRICTION SLOPE	PIPE FRICTION HEADLOSS (L'Sf)	PART FULL	PART FULL DEPTH	VELOCITY	LEVEL		SECTI	DOWNSTREAM H.G.L.	DOWNSI KEAM H.G.L.	W.S.E. SURFACE OR K&C INVERT LEVEL STRUCTURE No.
2/1 2/1/1	LOCATION STRUCTURE No.	DRAIN SECTION	TIME SUB-CATCHMENT CONCENTRAL	1		Α (EQUIVALA	SUM OF EQUIV. SUB-CATC				INLET TYPE	INLET CURVE		Qb AVP	BYPASS STRUCTURE No.	FLOW WIDTH	DRAIN DESIGN	CONCENTRATION RAINFALL INTENSITY	TOTAL (CxA)	PPE FLOW	REACH LENGTH O PIPE GRADE	PIPE SIZE	OF PIPES (1 IF BLANK) PIPE CLASS	< FLOW VELOCITY	TIME OF FLOW IN REACH	CAPACITY FLOW (MANNINGS)	CAPACITY FLOW (HGL)	V ² /2g				hL Ku		, Sf	hf			PART FULL VELOCITY	DESIGN LEVELS OBVERT LEVELS		DRAIN SECTI			
7/1 7/16/1			TIME SUB-CATCHMENT	I nm/hr	С	A C	EQUIVALAN ha	B SUM OF EQUIV.	L/s	s %		INLET		Qg L/s	Qb L/s	BYPASS STRUCTURE No.	FLOW WIDTH	DRAIN DESIGN	uiu o CONCENTRATION (W - RAINFALL INTENSITY	Uhr CxA ha	s/z &	3 r REACH LENGTH % 0 PIPE GRADE	B PIPE SIZE	No. OF PIPES (1 IF BLANK) PIPE CLASS	s/w < FLOW VELOCITY	☐ TIME OF FLOW IN REACH	CAPACITY FLOW (MANNINGS)	CAPACITY FLOW (HGL)	V ² /2g m	Ku	hu m		hL Ku		Sf %	hf m		m	® d A PART FULL VELOCITY	DESIGN LEVELS a obvertlevels	n n	a DRAIN SECTI	m m	n ı	
31 3121	2/2	2/21/2	TIME SUB-CATCHIMENT SUB-CATCHIMENT CONCENTRA!	I nm/hr 295	C 0.94	A ha 0.092 0	CXA Sha I	SUB-CATC SUB-CATC SUB-CATC O18CHA	L/s	s %		LLG-MK-2400-2.5%XF	GG 4%	Qg L/s	Qb L/s	P/I BYPASS STRUCTURE No.	FLOW WIDTH	DRAIN DESIGN	CONTEGUE AND THE NEW YORK OF THE NAME OF T	Sum CxA ha 5 0.086	MOTH ELECTION OF THE ELECTION	REACH LENGTH % % O PIPE GRADE	Mm 375	No. OF PIPES (1 IF BLANK) No. OF PIPES (1 IF BLANK) Class 5 2 8	V m/s	TIME OF FLOW IN REACH	CAPACITY FLOW (MANNINGS)	s/7 CAPACITY FLOW (HGL)	V ² /2g m	Ku 16.686	hu m		hL Ku		Sf %	hf m 0.01		m 0.15	Ab Was 1.43	DESIGN LEVELS B 37.8	n 817 3	m DRAIN SECTION OF THE SECTION OF TH	m m	m 1	m m
5/1 5/14/1 5 295 0.97 0.011 0.011 2.759 9 9 9 9 LLG-MK-2400-2.5%XF GG 4% 8 0 4/1 0.013 1.050 295 2.759 1.711 28 4 600 Class 2 RRJ 5.86 0.080 1200 1652 1.749 1.005 1.758 1.05 0.61 5.86 35.954 36.779 38.536 35.724 37.050 37. 6/1 6/15/1 8 254 0.90 0.313 0.282 2.569 199 199 LLG-MK-2400-2.5%XF SAG 199 199 LLG-MK-2400-2.5%XF SAG 199 199 LLG-MK-2400-2.5%XF SAG 199 199 LLG-MK-2400-2.5%XF GG 4% 18 1 1/6 1.055 295 0.88 0.096 0.022 2.885 18 199 LLG-MK-2400-2.5%XF GG 4% 18 1 1/6 1.055 295 0.88 0.096 0.083 0.83 88 79 LLG-MK-2400-2.5%XF GG 4% 64 15 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5	2/2	2/21/2	TIME SUB-CATCHMENT CONCENTRAI	I nm/hr 295 295	C 0.94	A ha 0.092 0	CxA S C I	OLSCHA DISCHA	L/s	s %	L/s	LLG-MK-2400-2.5%XF	GG 4% GG 4%	Qg L/s 60 63	Qb L/s	P/I BYPASS STRUCTURE No.	3 FLOW WIDTH	DRAIN DESIGN	NO CONTROL INTERNSITY RAINFALL INTERNSITY 1.00 2.00	(XX) Sum CXA ha 5 0.086 5 0.179	MO H H H H H H H H H H H H H H H H H H H	REACH LENGTH REACH LENGTH PIPE GRADE	mm 375 450	(A PIPE CLASS 5 E Crass 5	V m/s RRJ 0.54	T mir 4 0.08	(88) L/s CAPACITY FLOW (MANNINGS)	CAPACITY FLOW (HGL)	V ² /2g m 0.015	Ku 16.686	hu m 3 0.247 0.066		hL Ku		Sf % 0.07 0.11	hf m 0.01 0.03		m 0.15 0.13	VP M/s 1.43 3.30	DESIGN LEVELS m 37.8 37.6	n 817 3:	m 17.839 37.	m m 839 37.5	m 1517 38.	m m .572 38.572 2/2
6/1 6/15/1 8 254 0.90 0.313 0.282 2.569 199 199 199 LLG-MK-2400-2.5%XF SAG 199 D.113 10.50 254 2.569 1605 20 3 600 Class 2 RRJ 5.49 0.061 1200 1652 D.1.539 1.372 2.111 D.3.30 0.67 0.61 5.49 36.757 37.717 39.828 37.050 37.675 37.717 39.828 37.050 37.050 3	2/2 1/2 2/1	2/21/2 1/25/1 2/11/1	TIME SUB-CATCHMENT CONCENTRAI	1 nm/hr 295 295 295	C 0.94	A ha 0.092 0	CXA SC A A C A A A A A A A A A A A A A A A	ORG 71 179 76 997	L/s 71 76	s %	L/s	LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF	GG 4% GG 4% SAG	Qg L/s 60 63	Qb L/s	P/I BYPASS STRUCTURE No.	E LLOW WIDTH	DRAIN DESIGN	NOI CONTRIBUTION OF THE PROPERTY OF THE PROPER	Sum CXA ha 5 0.086 5 0.179 5 2.997	Qp L/s 60 122 1855	HEACH LENGTH REACH LENGTH REACH LENGTH REACH LENGTH REACH LENGTH REACH LENGTH	mm 375 450	Class 2 R Class 2 R Class 2 R	V m/s RRJ 0.54 RRJ 0.77 RRJ 6.35	T mirr 4 0.08 4 0.01 5 0.01	CAPACITY FLOW (MANNINGS) 1. CAPACITY FLOW (MANNINGS)	CAPACITY FLOW (HGL) 78 79 79 79 79 79 79 79 79 79	V²/2g m 0.015 0.030 2.056	Ku Ku 16.686 2.200 1.000	hu m 6 0.247 0.066 2.056		hL Ku		0.07 0.11 4.40	hf m 0.01 0.03 0.20		m 0.15 0.13 0.61	VP m/s 1.43 3.30 6.35	DESIGN LEVELS 080/68/16/16/16 37.8 37.8 37.8 34.1	n 817 3 628 3 133 3	m	m m 839 37.5 371 37.0 365 34.1	m 1517 38.050 38.110 34.	m m s.572 38.572 2/2 .572 38.572 1/2 .744 34.744 2/1
8/1 8/17/1 10 224 0.90 2.54 2.288 1425 1425 1425 1425 1425 1425 1425 1425	2/2 1/2 2/1 7/1	2/21/2 1/25/1 2/11/1 7/16/1	TIME TIME SUB-CATCHMENT CONCENTRAL	1 nm/hr 295 295 295 295	C 0.94	A ha 0.092 0	ТАТА В СхА В С 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NO N	L/s 71 76	s %	L/s	LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF	GG 4% GG 4% SAG SAG	Qg L/s 60 63 0	Qb L/s	1/1 BYPASS STRUCTURE No.	M MOLDEN MIDLE MID	DRAIN DESIGN	tc I I I I I I I I I	Sum CXA ha 5 0.086 5 0.179 5 2.288	AD L/s 60 122 1855 1431	REVOH LENGTH REACH LENGTH RE	mm 375 450 600 600	Class 2 R Class 2 R Class 2 R Class 2 R	V m/s RRJ 0.54 RRJ 0.77 RRJ 6.35 RRJ 4.90	T mirr 4 0.08 7 0.144 5 0.010 0 0.02	CAPACITY FLOW (MANNINGS) 1. CAPACITY FLOW (M	CAPACITY FLOW (HGL) 7 PACITY FLOW (HGL) 844 982 609	V ² /2g m 0.015 0.030 2.056	Ku 16.686 2.200 1.000 1.536	hu m 6 0.247 0.066 2.056 1.878		hL Ku		Sf % 0.07 0.11 4.40 2.64	hf m 0.01 0.03 0.20 0.21		m 0.15 0.13 0.61 0.61	VP m/s 1.43 3.30 6.35 4.90	DESIGN FEVER 37.8 37.8 37.6 34.1 36.8	n 817 3: 628 3: 133 3-886 3:	m 17.839 37.7.305 37.4.308 36.7.883 39.	m m 839 37.5 371 37.0 365 34.1 762 37.6	n 1517 38.050 38.110 34.675 37.	m m s.572 38.572 2/2 .572 38.572 1/2 .744 34.744 2/1 .682 37.682 7/1
4/1 4/13/1 5 295 0.86 0.02 2.865 18 19 LLG-MK-2400-2.5%XF GG 4% 18 1 1/6 1.065 295 2.865 1772 19 3 600 Class 2 RRJ 6.06 0.052 1200 1652 1.876 1.000 1.876 4.02 0.76 0.61 6.06 34.920 35.920 37.796 35.162 35.724 35. 1/4 1/44/1 5 295 0.86 0.96 0.83 0.119 0.99 0.099 81 95 LLG-MK-2400-2.5%XF GG 4% 64 15 1/5 5 0.001 0.071 5.00 295 0.083 64 8 1 375 Class 2 RRJ 0.34 0.033 430 578 0.006 18.000 0.106 1.000 0.106 1.23 34.183 34.851 34.851 34.851 34.851 34.744 34.756 34.	2/2 1/2 2/1 7/1 3/1	2/21/2 1/25/1 2/11/1 7/16/1 3/12/1	TIME TIME TO SERVICE THE STATE OF THE STAT	1 nm/hr 295 295 295 295 295	C 0.94 0.86	A (0.092 0 0.108 0	CXA SC 1 .086 0093 0	21 A COMPONIAN CONTROL OF CONT	14	s %	L/s	LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF 1500 MH	GG 4% GG 4% SAG SAG CI Lid	Qg L/s 60 63 0 14 0	Qb L/s 11	PYPASS STRUCTURE No.	M MOLDEN MIDLE MID	DRAIN DESIGN	The state of the s	(VX) TVD	MO L/L L/S 60 122 1855 1431 1770	HL EVELOH LENGTH REACH LENGTH B 1 B 8 C 0 C 0 C 0 C 0 C 0 C 0 C 0 C	375 450 600 600	Class 2 R Class 2 R Class 2 R Class 2 R Class 4 R	V m/s RRJ 0.54 RRJ 0.77 RRJ 6.35 RRJ 4.90 RRJ 6.30 RRJ 6.30	T mirr 4 0.086 7 0.144 5 0.010 0 0.02 0 0.020 0 0.02	(NANNING) L/s 38 175 40 698 12 454 27 642 24 430	CAPACITY FLOW (HGL) 7. CAPACITY FLOW (HGL) 8. CAPACITY FLOW (HGL) 8. CAPACITY FLOW (HGL)	V ² /2g m 0.015 0.030 2.056 1.223	Ku Ku 16.686 1.000 1.536 1.000	hu m 6 0.247 0.066 2.056 1.878 2.026		hL Ku		0.07 0.11 4.40 2.64	hf m 0.01 0.03 0.20 0.21 0.41		m 0.15 0.13 0.61 0.61 0.60	Vp m/s 1.43 3.30 6.35 4.90 6.30	37.8 37.6 34.1 36.8 34.2 34.2 34.2 34.2	n 817 3: 628 3: 133 3-886 3: 217 3:	m 17.839 37.7.305 37.4.308 36.7.883 39.5.153 37.	m m m 839 37.5 37.1 37.0 365 34.1 762 37.6 179 34.7	m 1517 38. 050 38. 110 34. 675 37. 744 35.	m m s.572 38.572 2/2 .572 38.572 1/2 .744 34.744 2/1 .682 37.682 7/1
1/4 1/44/1 5 295 0.86 0.096 0.083 0.083 68 79 LLG-MK-2400-2.5%XF GG 4% 64 15 1/5 0.091 0.0	2/2 1/2 2/1 7/1 3/1 5/1	2/21/2 1/25/1 2/11/1 7/16/1 3/12/1 5/14/1	TIME TIME TIME TIME TO STATE OF THE STAT	1 nm/hr 295 295 295 295 295 295 295	C 0.94 0.86 0.97	A ha 0.092 0 0 0.108 0 0 0.011 0	ФТКЛПОО SCXA SC 1	DLY-OWIO Blum Q L/s 086 71 179 76 997 288 865 759 9	71 76 14	% % % % % % % % % % % % % % % % % % %	L/s	LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF LLG-MK-2400-2.5%XF 1500 MH LLG-MK-2400-2.5%XF	GG 4% GG 4% SAG SAG CI Lid GG 4%	Qg L/s 60 63 0 14 0 8	Qb L/s 11	PYPASS STRUCTURE No.	m m m 0.000 0.011 0.0000	DRAIN DESIGN	tc I I I I I I I I I I I I I I I I I I I	Sum CXA ha 5 0.086 5 0.179 5 2.288 5 2.865 5 2.759	Op L/s 60 122 1855 1431 1770 1711	L S % 1 28 6 6 5 0 9 1 9 0 0 9 8 4 4	mm 375 450 600 600 600	Class 2 F	V m/s RRJ 0.54 RRJ 0.77 RRJ 6.36 RRJ 4.90 RRJ 6.30 RRJ 5.86	HOW IN REACT OF THE PROPERTY O	(Nanning) L/s 1 L/s 38 175 40 698 42 454 42 642 44 430 30 1200	CAPACITY FILOW (HGL) L/s 244 982 609 871 578 1652	V ² /2g m 0.015 0.030 2.056 1.223 2.026	Ku Ku 16.686 2.200 1.000 1.536 1.000 1.005	hu m 6 0.247 0.066 2.056 1.878 2.026 1.758		hL Ku		0.07 0.11 4.40 2.64 4.44 3.75	hf m 0.01 0.03 0.20 0.21 0.41 1.05		m 0.15 0.13 0.61 0.61 0.60 0.61	VP m/s 1.43 3.30 6.35 4.90 6.30 5.86	M	n 317 33 34 3886 33 34 3954 34	m 1.7.839 37.7.305 37.4.308 36.7.883 39.5.153 37.6.779 38.	m m m 839 37.5 371 37.0 365 34.1 762 37.6 179 34.7 536 35.7	n 1517 38. 050 38. 110 34. 675 37. 744 35.	m m .572 38.572 2/2 .572 38.572 1/2 .774 34.744 2/1 .682 37.682 7/1 .162 35.162 3/1
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LOGAN CITY COUNCIL

-DEPTH VELOCITY PRODUCT = 0.6m2/s

MAXIMUM DISCHARGE AT 2.0% LONGITUDINAL GRADE = 0.446m³/s

DEPTH = 250mm AT INVERT

APPROVED PLAN OF DEVELOPMENT

This is the approved plan of development for Development Application OW/28/2022

50mm ABOVE TOP OF KERB — IN ACCORDANCE WITH QUDM

- DEPTH VELOCITY PRODUCT = 0.6m2/s DEPTH = 250mm AT INVERT

MAXIMUM DISCHARGE AT 2.0% LONGITUDINAL GRADE = 1.375m³/s MAXIMUM DISCHARGE AT 5.5% LONGITUDINAL GRADE = 2.280m³/s

MAJOR STORM (1% AEP) ROAD FLOW WIDTH, DEPTH AND VELOCITY LIMITS

				SUR	VEY DATA	
				DATUM	GDA94	U19
D	UPDATES AS PER LCC RFI	NJF	15/08/22	MAP GRID	1GA-56	. 017
C	UPDATES AS PER LCC RFI	NJF	3/06/22	HEIGHT ORI	GIN -	R
В	FOR APPROVAL	DJS	01/2022	SURVEY BO	OOKS -	- '`
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ZERO DEPTH AT CROWN IN —

ACCORDANCE WITH QUDM

KLINGE DEVELOPMENTS 1901/25 BREAKER STREET, MAIN BEACH 4217 QLD ROAD & SERVICES DESIGN, NORTH STREET

JIMB00MBA

NORTH STREET JIMBOOMBA 4280 QLD

STORMWATER DRAINAGE CALCULATION TABLES

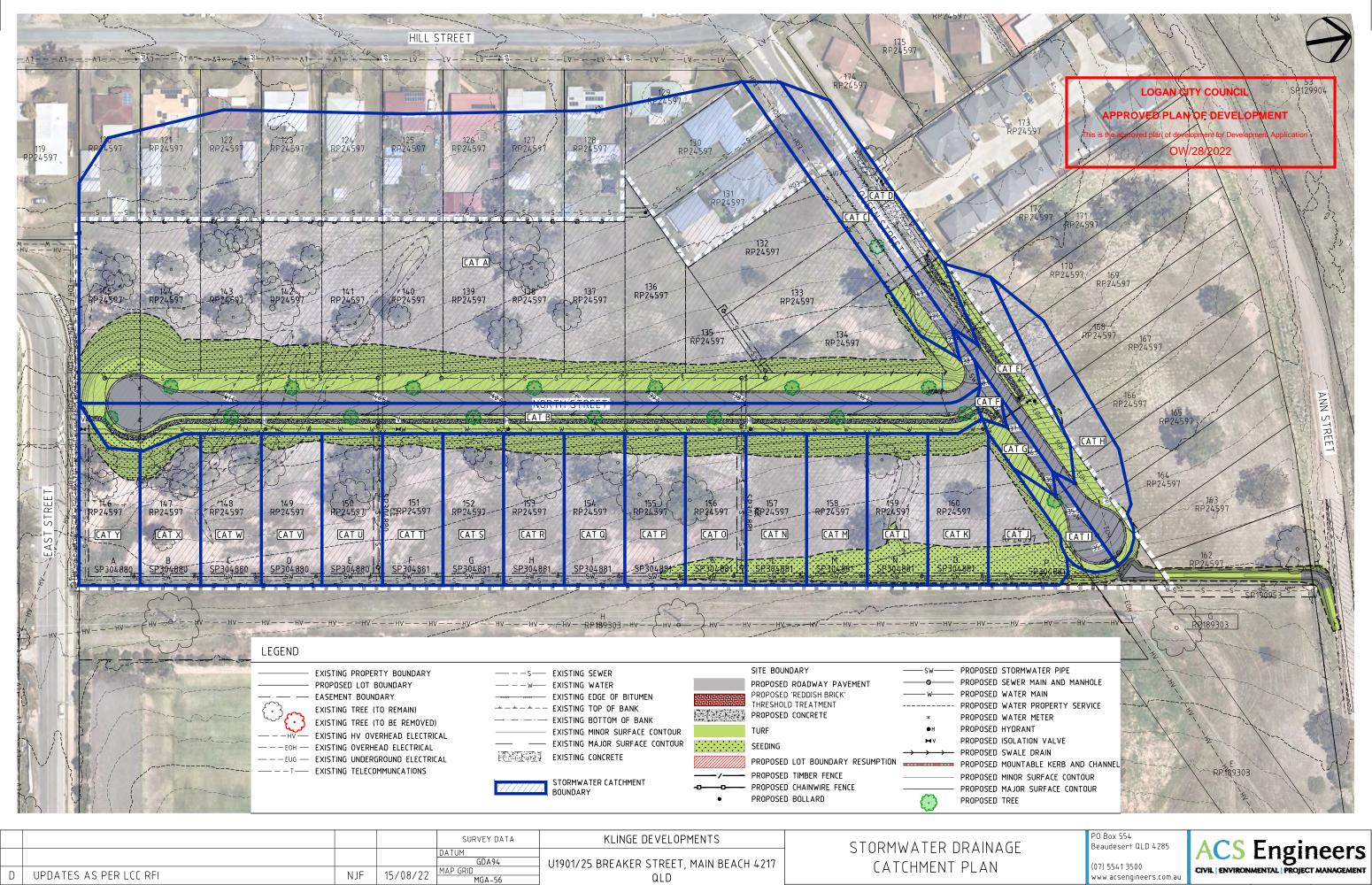
PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au JOB NUMBER

ACS Engineers
CIVIL | ENVIRONMENTAL | PROJECT MANAGEMENT

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GENERAL

- 1. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED AND A REVISED EROSION AND SEDIMENT CONTROL PLAN (ESCP) MUST BE SUBMITTED FOR APPROVAL IN THE EVENT THAT SITE CONDITIONS CHANGE SIGNIFICANTLY FROM THOSE CONSIDERED WITHIN THE ESCP.
- 2. WHERE THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE, APPROPRIATE ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED SUCH THAT ALL REASONABLE AND PRACTICABLE MEASURES ARE BEING TAKEN TO PREVENT OR MINIMISE SUCH HARM. ONLY THOSE WORKS NECESSARY TO MINIMISE OR PREVENT ENVIRONMENTAL HARM SHALL BE CONDUCTED ON-SITE PRIOR TO APPROVAL OF THE AMENDED EROSION AND SEDIMENT CONTROL PLAN (ESCP).
- 3. IN CIRCUMSTANCES WHERE IT IS CONSIDERED NECESSARY TO PREPARE AN AMENDED EROSION AND SEDIMENT CONTROL PLAN (ESCP), AND WHERE THE DELIVERY OF SUCH AN AMENDED ESCP IS NOT IMMINENT, THEN ALL NECESSARY NEW OR MODIFIED EROSION AND SEDIMENT CONTROL WORKS MUST BE IN ACCORDANCE TO WITH IECA (2008) BEST PRACTICE EROSION & SEDIMENT CONTROL. UPON APPROVAL OF THE AMENDED ESCP, ALL WORKS MUST BE IMPLEMENTED IN ACCORDANCE WITH THE AMENDED PLAN.
- 4. WORKS SHOULD BE UNDERTAKEN DURING THE DRIER MONTHS OF THE YEAR (APRIL-SEPTEMBER) TO LESSEN THE CHANCE OF HIGH INTENSITY RAINFALL EVENTS OCCURRING WHILE SURFACES ARE EXPOSED.

SOIL AND STOCKPILE MANAGEMENT

- 1. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO OBTAIN THE MAXIMUM BENEFIT FROM EXISTING TOPSOIL, INCLUDING:
- (i) WHERE THE PROPOSED AREA OF SOIL DISTURBANCE DOES NOT EXCEED 2500m2, AND THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 100mm OF SOIL LOCATED WITHIN AREAS OF PROPOSED SOIL DISTURBANCE (INCLUDING STOCKPILE AREAS) MUST BE STRIPPED AND STOCKPILED SEPARATELY FROM THE REMAINING SOIL.
- (ii) WHERE THE PROPOSED AREA OF SOIL DISTURBANCE EXCEEDS 2500m2, AND THE TOPSOIL DOES NOT CONTAIN UNDESIRABLE WEED SEED, THE TOP 50mm OF SOIL MUST BE STRIPPED AND STOCKPILED SEPARATELY FROM THE REMAINING TOPSOIL, AND SPREAD AS A FINAL SURFACE SOIL.
- (iii) IN AREAS WHERE THE TOPSOIL CONTAINS UNDESIRABLE WEED SEED, THE AFFECTED SOIL MUST BE SUITABLY BURIED OR REMOVED FROM THE SITE.
- 2. STOCKPILES OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, MUST BE IN ACCORDANCE WITH STOCKPILE MANAGEMENT GENERAL CONSTRUCTION (2010) AND THE FOLLOWING:
- (i) APPROPRIATELY PROTECTED FROM WIND, RAIN, CONCENTRATED SURFACE FLOW AND EXCESSIVE UP-SLOPE STORMWATER SURFACE FLOWS.
- (ii) LOCATED AT LEAST 2m FROM ANY HAZARDOUS AREA, RETAINED VEGETATION, OR CONCENTRATED DRAINAGE LINE.
- (iii) LOCATED UP-SLOPE OF AN APPROPRIATE SEDIMENT CONTROL SYSTEM.
- (iv) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 28 DAYS.
- (v) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS DURING THOSE MONTHS THAT HAVE A HIGH EROSION RISK.
- (vi) PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC, MULCH OR VEGETATIVE) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 5 DAYS DURING THOSE MONTHS THAT HAVE A EXTREME EROSION RISK.
- 3. A SUITABLE FLOW DIVERSION SYSTEM MUST BE ESTABLISHED IMMEDIATELY UP-SLOPE OF A STOCKPILE OF ERODIBLE MATERIAL THAT HAS THE POTENTIAL TO CAUSE ENVIRONMENTAL HARM IF DISPLACED, IF THE UP-SLOPE CATCHMENT AREA DRAINING TO THE STOCKPILE EXCEEDS 1500m2.

SITE MANAGEMEN

- 1. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES MUST BE LOCATED SUCH THAT ANY LIQUID EFFLUENT (E.G. PROCESS WATER, WASH-DOWN WATER, EFFLUENT FROM EQUIPMENT CLEANING, OR PLANT WATERING), CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE.
- 2. THE CONSTRUCTION SCHEDULE MUST AIM TO MINIMISE THE DURATION THAT ANY AND ALL AREAS OF SOIL ARE EXPOSED TO THE EROSIVE EFFECTS OF WIND, RAIN AND SURFACE WATER
- 3. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND ASSOCIATED DEVELOPMENT CONDITIONS.
- 4. LAND-DISTURBING ACTIVITIES MUST BE UNDERTAKEN IN SUCH A MANNER THAT ALLOWS ALL REASONABLE AND PRACTICABLE MEASURES TO BE UNDERTAKEN TO:
- (i) ALLOW STORMWATER TO PASS THROUGH THE SITE IN A CONTROLLED MANNER AND AT NON-EROSIVE FLOW VELOCITIES UP TO THE SPECIFIED DESIGN STORM DISCHARGE;
- (ii) MINIMISE SOIL EROSION RESULTING FROM RAIN, WATER FLOW AND/OR WIND;
- (iii) MINIMISE ADVERSE EFFECTS OF SEDIMENT RUNOFF, INCLUDING SAFETY ISSUES;
- (iv) PREVENT, OR AT LEAST MINIMISE, ENVIRONMENTAL HARM RESULTING FROM WORK-RELATED SOIL EROSION AND SEDIMENT RUNOFF;
- (v) ENSURE THAT THE VALUE AND USE OF LAND/PROPERTIES ADJACENT TO THE DEVELOPMENT (INCLUDING ROADS) ARE NOT DIMINISHED AS A RESULT OF THE ADOPTED ESC MEASURES.
- 5. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST CONFORM TO THE STANDARDS AND SPECIFICATIONS CONTAINED IN:
- (i) THE DEVELOPMENT APPROVAL CONDITION ISSUED BY LCC; AND
- (ii) THE APPROVED ESCP AND SUPPORTING DOCUMENTATION; OR
- (iii) THE LATEST VERSION OF IECA (2008) BEST PRACTICE EROSION & SEDIMENT CONTROL IF THE STANDARDS AND SPECIFICATIONS ARE NOT CONTAINED IN THE APPROVED ESCP.
- 6. ANY WORKS THAT MAY CAUSE SIGNIFICANT SOIL DISTURBANCE AND ARE ANCILLARY TO ANY ACTIVITY FOR WHICH REGULATORY BODY APPROVAL IS REQUIRED, MUST NOT COMMENCE BEFORE THE ISSUE OF THAT APPROVAL.
- 7. ADDITIONAL AND/OR ALTERNATIVE ESC MEASURES MUST BE IMPLEMENTED IN THE EVENT THAT LCC IDENTIFIES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF THE WORK ACTIVITIES.
- 8. LAND-DISTURBING ACTIVITIES MUST NOT CAUSE UNNECESSARY SOIL DISTURBANCE IF AN ALTERNATIVE CONSTRUCTION PROCESS IS AVAILABLE THAT ACHIEVES THE SAME OR EQUIVALENT OUTCOMES AT AN EQUIVALENT COST.
- 9. SEDIMENT (INCLUDING CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT AND CERAMIC WASTE) DEPOSITED OFF THE SITE AS A DIRECT RESULT OF AN ON-SITE ACTIVITY, MUST BE COLLECTED AND THE AREA APPROPRIATELY CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE, AND IN A MANNER THAT GIVES APPROPRIATE CONSIDERATION TO THE SAFETY AND ENVIRONMENTAL RISKS ASSOCIATED WITH THE SEDIMENT DEPOSITION.
- 10. ALL WASTE INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, MUST BE PREVENTED FROM ENTERING AN INTERNAL WATER BODY, OR AN EXTERNAL DRAIN, STORMWATER SYSTEM, OR WATER BODY.
- 11. ALL FLAMMABLE AND COMBUSTIBLE LIQUIDS, INCLUDING ALL LIQUID CHEMICALS IF SUCH CHEMICALS COULD POTENTIALLY BE WASHED OR DISCHARGED FROM THE SITE, ARE STORED AND HANDLED ON-SITE IN ACCORDANCE WITH RELEVANT STANDARDS SUCH AS AS1940 THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.
- 12. NO MORE THAN 150m OF A STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH MUST TO BE OPEN AT ANY ONE TIME.
- 13. SITE SPOIL MUST BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
- 14. ALL FILL MATERIAL PLACED ON SITE MUST COMPRISE ONLY NATURAL EARTH AND ROCK, AND IS TO BE FREE OF CONTAMINANTS, BE FREE DRAINING, AND BE COMPACTED IN LAYERS NOT EXCEEDING 300mm TO 90% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289.

DAINAGE CONTROL

- 1. ALL DRAINAGE CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.
- 2. WHEREVER REASONABLE AND PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, AND NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, MUST BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION AND THE CONTAMINATION OF THAT WATER FOR ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE.
- 3. DURING THE CONSTRUCTION PERIOD, ALL REASONABLE AND PRACTICABLE MEASURES MUST BE IMPLEMENTED TO CONTROL FLOW VELOCITIES IN SUCH A MANNER THAN PREVENTS SOIL EROSION ALONG DRAINAGE PATHS AND AT THE ENTRANCE AND EXIT OF ALL DRAINS AND DRAINAGE PIPES DURING ALL STORMS UP TO THE RELEVANT DESIGN STORM DISCHARGE.
- 4. TO THE MAXIMUM DEGREE REASONABLE AND PRACTICABLE, ALL WATERS DISCHARGED DURING THE CONSTRUCTION PHASE MUST DISCHARGE ONTO STABLE LAND, IN A NON-EROSIVE MANNER, AND AT A LEGAL POINT OF DISCHARGE.
- 5. WHEREVER REASONABLE AND PRACTICABLE, "CLEAN" SURFACE WATERS MUST BE DIVERTED AWAY FROM SEDIMENT CONTROL DEVICES AND ANY UNTREATED, SEDIMENT-LADEN WATERS.
- 6. DURING THE CONSTRUCTION PERIOD, ROOF WATER MUST BE MANAGED IN A MANNER THAT MINIMISES SOIL EROSION THROUGHOUT THE SITE, AND SITE WETNESS WITHIN ACTIVE WORK AREAS.

EROSION CONTROL

- 1. ALL EROSION CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH IECA (2008) BEST PRACTICE EROSION & SEDIMENT CONTROL AND STANDARD DRAWINGS 'HTTP://www.austieca.com.au/publications/book-6-standard-drawings'.
- 2. THE APPLICATION OF LIQUID-BASED DUST SUPPRESSION MEASURES MUST ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
- 3. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, AND EMBANKMENTS ASSOCIATED WITH CONSTRUCTED SEDIMENT BASINS MUST BE MACHINE-COMPACTED, SEEDED AND MULCHED FOR THE PURPOSE OF ESTABLISHING A TEMPORARY VEGETATIVE COVER WITHIN 10 DAYS AFTER GRADING.
- 4. UNPROTECTED SLOPE LENGTHS MUST NOT EXCEED 80m, OR AN EQUIVALENT VERTICAL FALL OF 3m DURING THE CONSTRUCTION PERIOD.
- 5. THE CONSTRUCTION AND STABILISATION OF EARTH BATTERS STEEPER THAN 6:1 (H:V) MUST BE STAGED SUCH THAT NO MORE THAN 3 VERTICAL-METRES OF ANY BATTER IS EXPOSED TO RAINFALL AT ANY INSTANT.
- 6. SYNTHETIC REINFORCED EROSION CONTROL MATS AND BLANKETS MUST NOT BE PLACED WITHIN, OR ADJACENT TO, RIPARIAN ZONES AND WATERCOURSES IF SUCH MATERIALS ARE LIKELY TO CAUSE ENVIRONMENTAL HARM TO WILDLIFE OR WILDLIFE HABITATS.
- 7. HYDROMULCH BATTERS, DRAINS AND EXPOSED AREAS IMMEDIATELY UPON THE COMPLETION OF EARTHWORKS. HYDROMULCH TO BE PREPARED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH MRTS16. HYDROMULCH SEED MIX TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO APPLICATION AND SHOULD INCLUDE A RUNNER FORMING GRASS SPECIES.
- 8. HYDROMULCH MIXTURE IS TO BE AS SPECIFIED IN MRTS16 CLAUSE 7.4.3 (2017)

SEDIMENT CONTROL

- 1. ALL SEDIMENT CONTROL MEASURES MUST BE APPLIED AND MAINTAINED IN ACCORDANCE WITH IECA (2008) BEST PRACTICE EROSION & SEDIMENT CONTROL AND STANDARD DRAWINGS 'HTTP://www.austieca.com.au/publications/book-6-standard-drawings'.
- 2. OPTIMUM BENEFIT MUST BE MADE OF EVERY OPPORTUNITY TO TRAP SEDIMENT WITHIN THE WORK SITE, AND AS CLOSE AS PRACTICABLE TO ITS SOURCE
- 3. SEDIMENT TRAPS MUST BE INSTALLED AND OPERATED TO BOTH COLLECT AND RETAIN SEDIMENT.
- 4. THE POTENTIAL SAFETY RISK OF A PROPOSED SEDIMENT TRAP TO SITE WORKERS AND THE PUBLIC MUST BE GIVEN APPROPRIATE CONSIDERATION, ESPECIALLY THOSE DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS.
- 5. ALL REASONABLE AND PRACTICABLE MEASURES MUST BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE.
- 6. SUITABLE ALL-WEATHER MAINTENANCE ACCESS MUST BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES.
- 7. SEDIMENT CONTROL DEVICES MUST BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WHETHER NATURAL OR ARTIFICIAL, IF THE DEVICE'S SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGN RETENTION CAPACITY.
- 8. MATERIALS, WHETHER LIQUID OR SOLID, REMOVED FROM SEDIMENT CONTROL DEVICES DURING MAINTENANCE OR DECOMMISSIONING, MUST BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.

SITE REHABILITATION

- 1. ALL DISTURBED AREAS IDENTIFIED AS VERY LOW, LOW, MEDIUM, HIGH, OR EXTREME EROSION RISK MUST BE SUITABLY STABILISED WITHIN 30, 30, 20, 10 OR 5 DAYS RESPECTIVELY, OR PRIOR TO ANTICIPATED RAINFALL, WHICHEVER IS THE GREATER, FROM THE DAY THAT SOIL DISTURBANCES ON THE AREA HAVE BEEN FINALISED.
- 2. A MINIMUM 60% GROUND COVER MUST BE ACHIEVED ON ALL COMPLETED EARTHWORKS EXPOSED TO ACCELERATED SOIL EROSION WITHIN 30 DAYS DURING THOSE MONTHS WHEN THE EXPECTED RAINFALL IS LESS THAN 30mm; MINIMUM 70% COVER WITHIN 30 DAYS IF BETWEEN 30 AND 45mm; MINIMUM 70% COVER WITHIN 20 DAYS IF BETWEEN 45 AND 100mm; MINIMUM 75% COVER WITHIN 10 DAYS IF BETWEEN 100 AND 225mm; AND MINIMUM 80% COVER WITHIN 5 DAYS IF GREATER THAN 225mm. (ALTERNATIVE TO ABOVE)
- 3. NO COMPLETED EARTHWORK SURFACE MUST REMAIN DENUDED FOR LONGER THAN 60 DAYS.
- 4. THE TYPE OF GROUND COVER APPLIED TO COMPLETED EARTHWORKS IS COMPATIBLE WITH THE ANTICIPATED LONG-TERM LAND USE, ENVIRONMENTAL RISK, AND SITE REHABILITATION MEASURES.
- 5. UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT OR WHERE DIRECTED BY THE APPROVED REVEGETATION PLAN, TOPSOIL MUST BE PLACED AT A MINIMUM DEPTH OF 75mm ON SLOPES 4:1 (H:V) OR FLATTER, AND 50mm ON SLOPES STEEPER THAN 4:1.
- 6. SOIL AMELIORANTS MUST BE ADDED TO THE SOIL IN ACCORDANCE WITH THE APPROVED LANDSCAPE/REVEGETATION PLANS AND/OR SOIL ANALYSIS.
- 7. TEMPORARY SITE STABILISATION PROCEDURES MUST COMMENCE AT LEAST 30 DAYS PRIOR TO THE NOMINATED SITE SHUTDOWN DATE. AT LEAST 70% STABLE COVER OF ALL UNSTABLE AND/OR DISTURBED SOIL SURFACES MUST BE ACHIEVED PRIOR TO ANY SHUTDOWN. THE STABILISATION WORKS MUST NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.
- 8. ALL UNSTABLE OR DISTURBED SOIL SURFACES MUST BE ADEQUATELY STABILISED AGAINST EROSION (MINIMUM 70%) PRIOR TO COMMENCEMENT OF USE, OR SURVEY PLAN ENDORSEMENT.

LOGAN CITY COUNCIL ENDORSED PLAN

This is the endorsed plan for Development Application

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SITE MAINTENANCE

- 1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATIONAL LIVES.
- 2. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE FULLY OPERATIONAL AND MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THE MAINTENANCE PERIOD AS SPECIFIED BY LCC.
- 3. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, MUST BE REMOVED AFTER ACHIEVING A SATISFACTORY "OFF-MAINTENANCE INSPECTION" BY LCC.
- 4. ALL DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED:
- (i) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE);
- (ii) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE);
- (iii) WITHIN 24 HOURS OF EXPECTED RAINFALL; AND
- (iv) WITHIN 18 HOURS OF A RAINFALL EVENT OF SUFFICIENT INTENSITY AND DURATION TO CAUSE RUNOFF ON-SITE).
- 5. WASHING/FLUSHING OF SEALED ROADWAYS MUST ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES MUST BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO RECEIVING WATERS. ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY AND PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
- 6. SEDIMENT REMOVED FROM SEDIMENT TRAPS AND PLACES OF SEDIMENT DEPOSITION MUST BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.
- 7. MAINTENANCE MOWING OF ALL ROAD SHOULDERS, TABLE DRAINS, BATTERS AND OTHER SURFACES LIKELY TO EXPERIENCE ACCELERATED SOIL EROSION MUST AIM TO LEAVE THE GRASS LENGTH NO SHORTER THAN 50mm WHERE REASONABLE AND PRACTICABLE.
- 8. MAINTENANCE MOWING MUST BE DONE IN A MANNER THAT WILL NOT DAMAGE THE PROFILE OF FORMED, SOFT EDGES, SUCH AS THE CREST OF EARTH EMBANKMENTS.

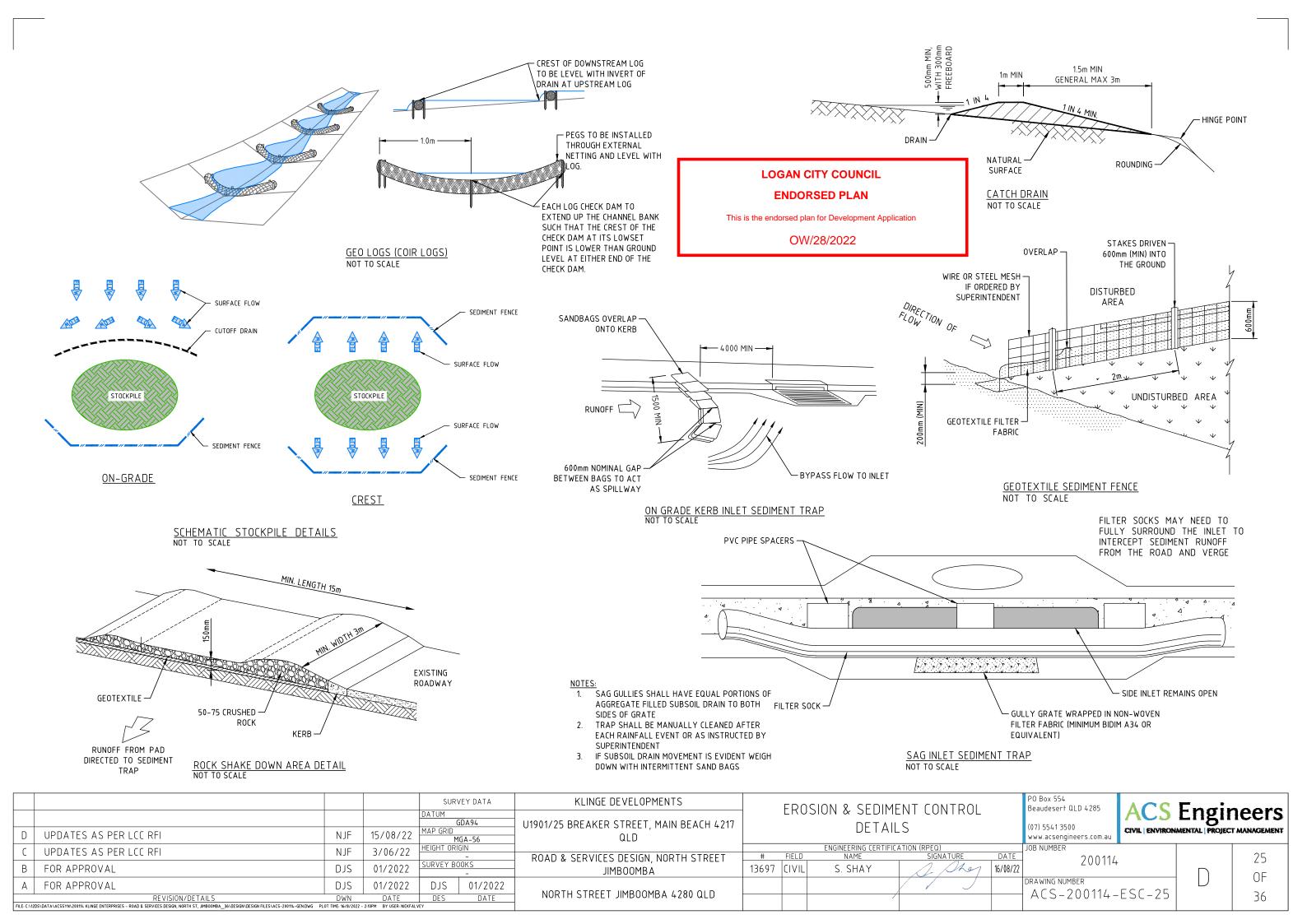
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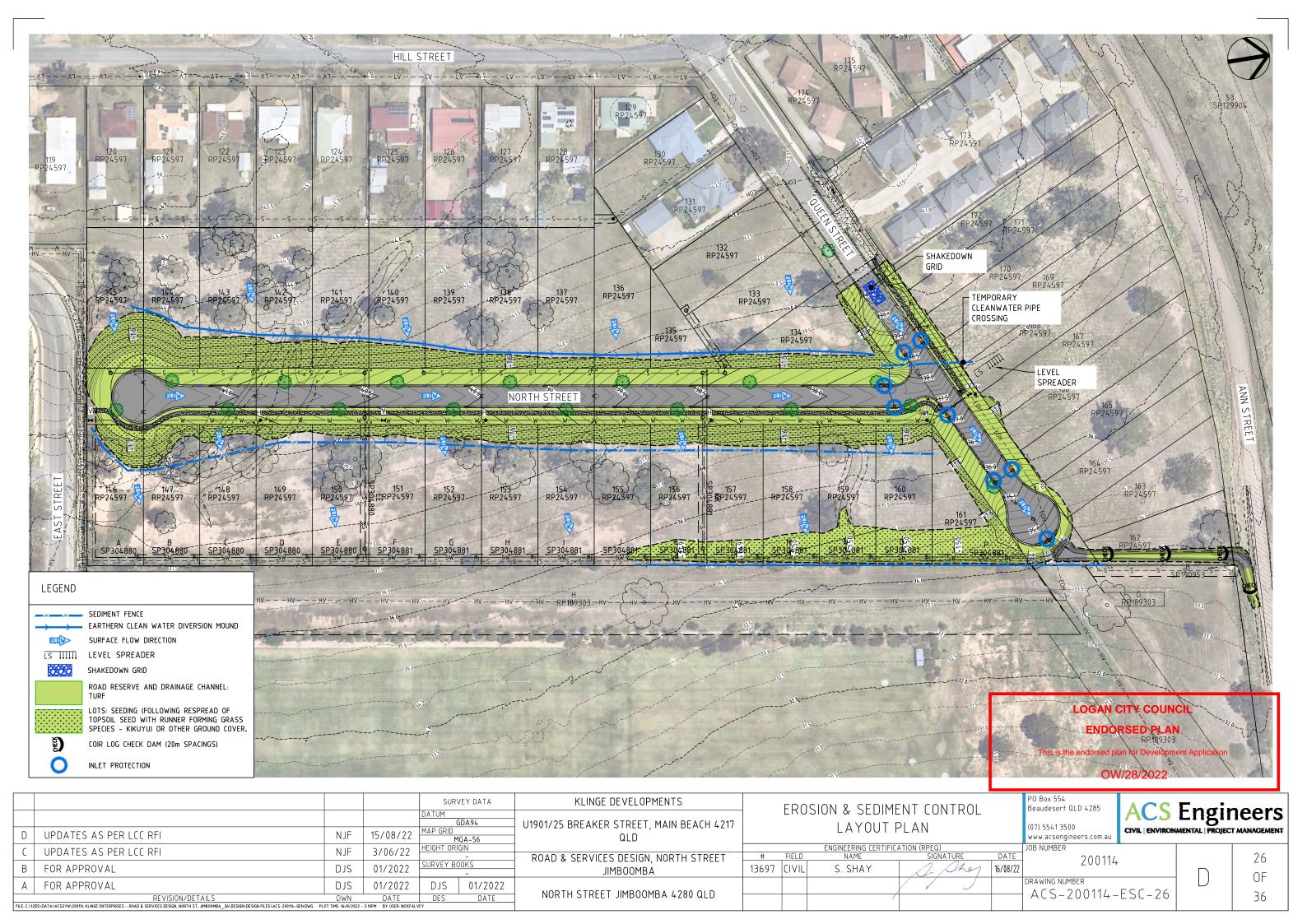
- 1. THE CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION INCLUDING THE MAINTENANCE PERIOD.
- 2. ALL SEDIMENT CONTROL DEVICES SHALL BE MONITORED, CLEANED AND/OR REPAIRED WHENEVER THE ACCUMULATED SEDIMENT REDUCES THE CAPACITY BY 25%.
- 3. THE EXTENT OF GRASSING SHALL BE DETERMINED BY THE SUPERINTENDENT AND SHALL BE SEEDED, AS SPECIFIED, WITHIN SEVEN DAYS OF FINAL TRIMMING.
- 4. EXTENT AND POSITION OF SILT FENCE CONTROL MEASURES TO BE DETERMINED ON SITE BY SUPERINTENDENT.
- 5. MEASURES SHOWN ON THIS DRAWING ARE MINIMUM REQUIREMENTS ONLY.
- 6. SCOUR PROTECTION AND SILT MANAGEMENT MEASURES TO BE PROVIDED AT STORMWATER OUTLET HEADWALLS.
- 7. PROVISION TO BE MADE FOR DIRT/SAND REMOVAL FROM CONSTRUCTION VEHICLES PRIOR TO TRAVEL ON PUBLIC ROADS. METHOD TO BE APPROVED BY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORK.
- 8. ANY SILT OR SEDIMENT CAUSED BY CONSTRUCTION TRAFFIC ON EXISTING ROADS IS TO BE REMOVED DAILY.
- 9. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL PROCEDURES DURING CONSTRUCTION AND MAINTENANCE STAGES OF THE DEVELOPMENT AND SHALL TAKE ALL NECESSARY ACTIONS TO COMPLY WITH 'LCC C211 CONTROL EROSION AND SEDIMENTATION'.
- 10. A SCHEDULE SHALL BE SUBMITTED FOR THE APPROVAL OF COUNCIL'S REPRESENTATIVE AT THE PRE-START MEETING FOR THE FIELD IMPLEMENTATION OF EROSION AND SEDIMENT CONTROL, DETAILING THE STAGES AT WHICH VARIOUS MANAGEMENT TECHNIQUES WOULD BE IN PLACE AND AUDITING PROCEDURES.
- 11. FINAL FORM OF SEDIMENT EROSION CONTROL TO BE DECIDED ON SITE BY THE SUPERINTENDENT.
- 12. THE CONTRACTOR IS TO ENSURE THAT NO SILT REACHES THE DOWNSTREAM WATER COURSE AND IS TO PROVIDE ADEQUATE PROTECTION TO PREVENT THIS OCCURRING.

LOGAN CITY COUNCIL ENDORSED PLAN

This is the endorsed plan for Development Application

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SEWER NOTES

- 1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE CODE SPECIFICATIONS AND STANDARDS
- 2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS
- 3. THE CONSTRUCTION OF THE SEWERAGE WORK SHOWN ON THIS DRAWING SHALL BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. SEWERAGE WORKS NO COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT INTO THE SEQ SERVICE PROVIDER SEWERAGE
- 4. ALL WORK ASSOCIATED WITH LIVE SEWERS OR MAINTENANCE HOLES SHALL BE CARRIED OUT BY THE SEQ SERVICE PROVIDER AT THE DEVELOPER'S COST.
- 5. ALL PIPES AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE "ACCEPTED PRODUCTS AND MATERIALS" LIST.
- 6. EACH ALLOTMENT SHALL BE SERVED BY A DN110 PE (OR DN100 PVC) PROPERTY CONNECTION. FOR ALLOTMENTS OTHER THAN SINGLE RESIDENTIAL, A DN160 PE (OR DN150 PVC) PROPERTY CONNECTION SHALL BE PROVIDED.
- 7. PROPERTY CONNECTIONS SHALL BE LOCATED WITHIN THE PROPERTY AS SHOWN IN THE DRAWINGS.
- 8. PROPERTY CONNECTION BRANCHES SHALL EXTEND INTO THE PROPERTY A MINIMUM OF 300mm AND A MAXIMUM OF 750mm.
- 9. WHERE PIPES ARE LAIN IN FILL, THE FILLING SHALL BE CARRIED OUT IN LAYERS NO EXCEEDING 300mm (LOOSE) IN DEPTH AND SHALL BE COMPACTED UNTIL THE COMPACTION IS NOT LESS THAN 95% ON THE MATERIALS MAXIMUM COMPACTION WHEN TESTED IN ACCORDANCE WITH A.S. 1289 (MODIFIED COMPACTION). TESTING SHALL BE CARRIED OUT AFTER EACH ALTERNATE LAYER. IN ALL SUCH CASES APPROVAL OF CONSTRUCTED SEWERS WILL NOT BE ISSUED BY THE SEW SERVICE PROVIDER UNLESS CERTIFICATES ARE PRODUCED CERTIFYING THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.
- 10. WHERE SEWERS HAVE A GRADE OF 1 IN 20 OR STEEPER, BULKHEADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SEWER CODE.
- 11. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORKS.
- 12. SEWERS SHALL BE DISUSED/ABANDONED IN ACCORDANCE WITH PROCEDURES SET OUT IN THE SEWER CODE.
- 13. BENCH MARK AND LEVELS TO AHD.
- 14. TRENCH TYPE 3 IN ACCORDANCE WITH SEQ-SEW-1201-1 TO BE UTILISED FOR ALL PIPE INSTALLATION.

ENVIRONMENTAL NOTES

VEGETATION PROTECTION

- 1. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- 2. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL
- 3. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED, IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
- 4. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

- 1. TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.
- 2. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORM WATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

REHABILITATION

- 1. PRE-DISTURBANCE SOIL PROFILES AND COMPACTION LEVELS SHALL BE REINSTATED.
- 2. PRE-DISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

1. THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

STANDARD DRAWINGS:

SEQ-SEW-1101-3: SEWERAGE RETICULATION - TYPICAL ESTATE DETAILS AND NOTES

SEQ-SEW-1103-1: RIGSS PIPELAYING - TYPICAL ARRANGEMENTS

SEQ-SEW-1103-3: SEWER ROAD CROSSINGS - KERB MARKING REQUIREMENTS

SEQ-SEW-1104-1: PROPERTY CONNECTION SEWER - TYPICAL CONSTRUCTION DETAILS - RIGSS - SHEET 1 SEQ-SEW-1105-1: PROPERTY CONNECTION SEWER - TYPICAL CONSTRUCTION DETAILS - RIGSS - SHEET 2

SEQ-SEW-1200-1: SOIL CLASSIFICATION GUIDELINES AND ALLOWABLE BEARING PRESSURES FOR ANCHORS AND THRUST BLOCKS

SEQ-SEW-1200-2: EMBEDMENT & TRENCHFILL - TYPICAL ARRANGEMENT

SEQ-SEW-1201-1: TYPICAL STANDARD EMBEDMENT - FLEXIBLE & RIGID PIPES (TRENCH TYPE 3)

SEQ-SEW-1300-1: MAINTENANCE HOLES <DN300 SEWER TYPES P1, P2 & P3 TYPICAL PRE-CAST (TYPE P2) SEQ-SEW-1302-1: MAINTENANCE HOLES - CAST IN-SITU AND PRECAST TYPICAL PIPE CONNECTION DETAILS

SEQ-SEW-1303-1: MAINTENANCE HOLES - SEWERS < DN300 - TYPICAL CHANGES IN LEVEL DETAILS

SEQ-SEW-1304-1: MAINTENANCE HOLES - SEWERS < DN300 - TYPICAL CHANNEL ARRANGEMENTS

SEQ-SEW-1305-1: MAINTENANCE HOLES - TYPICAL CHANNEL DETAILS

SEQ-SEW-1313-1: MAINTENANCE HOLE - SEWER CONNECTION DETAILS - ALL PIPE MATERIALS

	LIVE CONNECTION A: SERVICE PROVI	DER A	AND CONSTR	UCTOR	LIVE	SEWER WO	ORKS	- SCI	HEDULE		
NO.	DESCRIPTION	DIA	EXISTING ASSET ID AT CONNECTION	MH/MS TYPE	COVER TYPE	LOT & PLAN NO.	FSL	ESL	CONNECTION IL	CONNECTION DEPTH AT INVERT	ALTERATION TO EXISTING MH BENCHING REQUIRED (Y/N)
1 (A)	CONSTRUCTOR TO LAY NEW LINE 4. AFTER CLEANSING AND TESTING, NOTIFY AGENCY	150	5 / 1	P2	В	E SP304880	37.144	37.144	35.255	1.889	N
1 (B)	AGENCY TO REMOVE TEMPORARY END CAPS ON STUBS ON LINE 1 AND MAKE LIVE CONNECTIONS AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.	150	5 / 1	P2	В	E SP304880	37.144	37.144	35.255	1.889	N

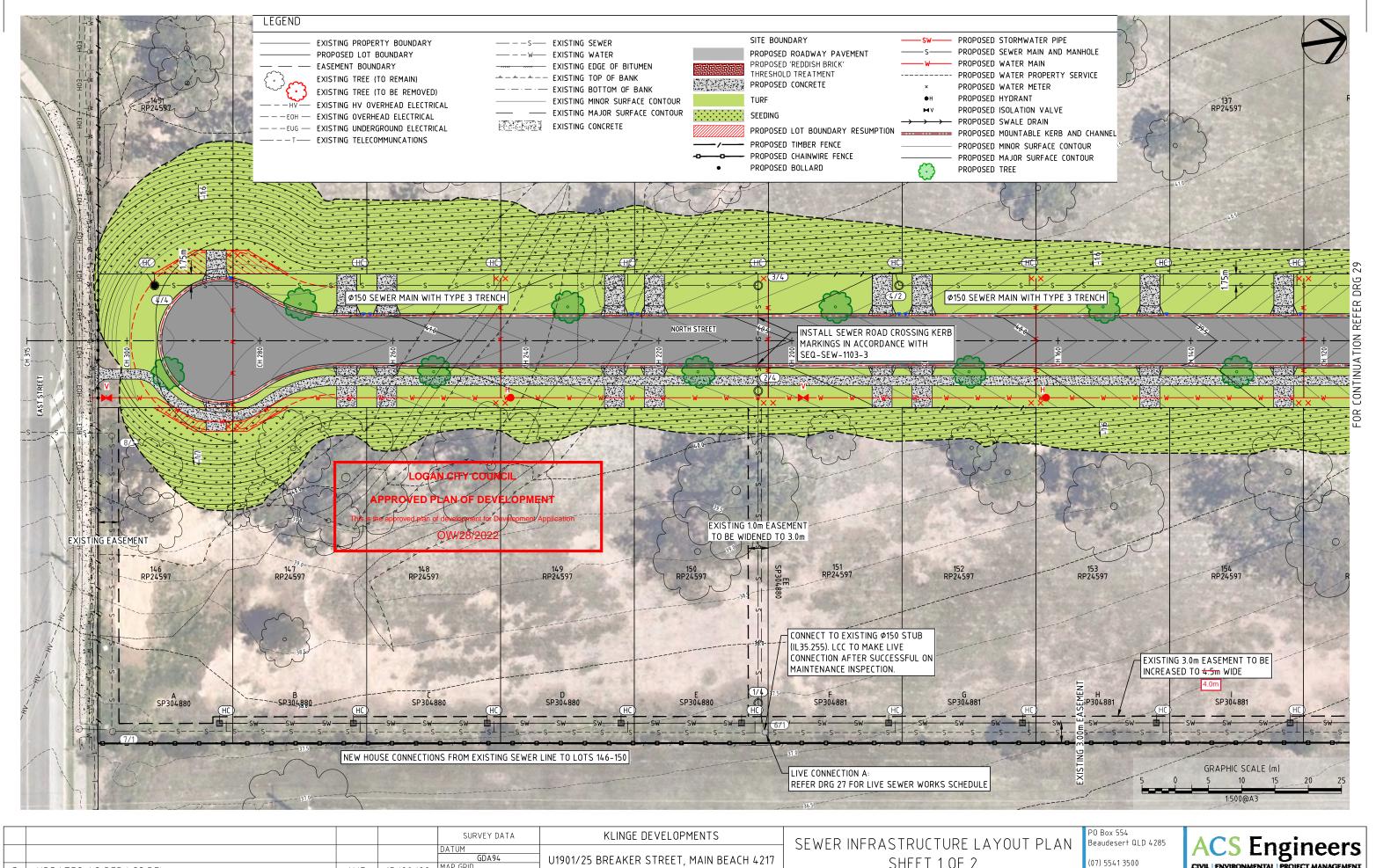
	LIVE CONNECTION B: SERVICE PROVIDER AND CONSTRUCTOR LIVE SEWER WORKS - SCHEDULE														
NO.	DESCRIPTION	DIA	EXISTING ASSET ID AT CONNECTION	MH/MS TYPE	COVER TYPE	LOT & PLAN NO.	FSL	ESL	CONNECTION IL	CONNECTION DEPTH AT INVERT	ALTERATION TO EXISTING MH BENCHING REQUIRED (Y/N)				
1 (A)	CONSTRUCTOR TO LAY NEW LINE 4. AFTER CLEANSING AND TESTING, NOTIFY AGENCY	150	4 / 1	P2	В	K SP304881	35.039	35.039	33.965	1.074	N				
1 (B)	AGENCY TO REMOVE TEMPORARY END CAPS ON STUBS ON LINE 1 AND MAKE LIVE CONNECTIONS AFTER SUCCESSFUL "ON MAINTENANCE" INSPECTION.	150	4 / 1	P2	В	K SP304881	35.039	35.039	33.965	1.074	N				

LOGAN CITY COUNCIL

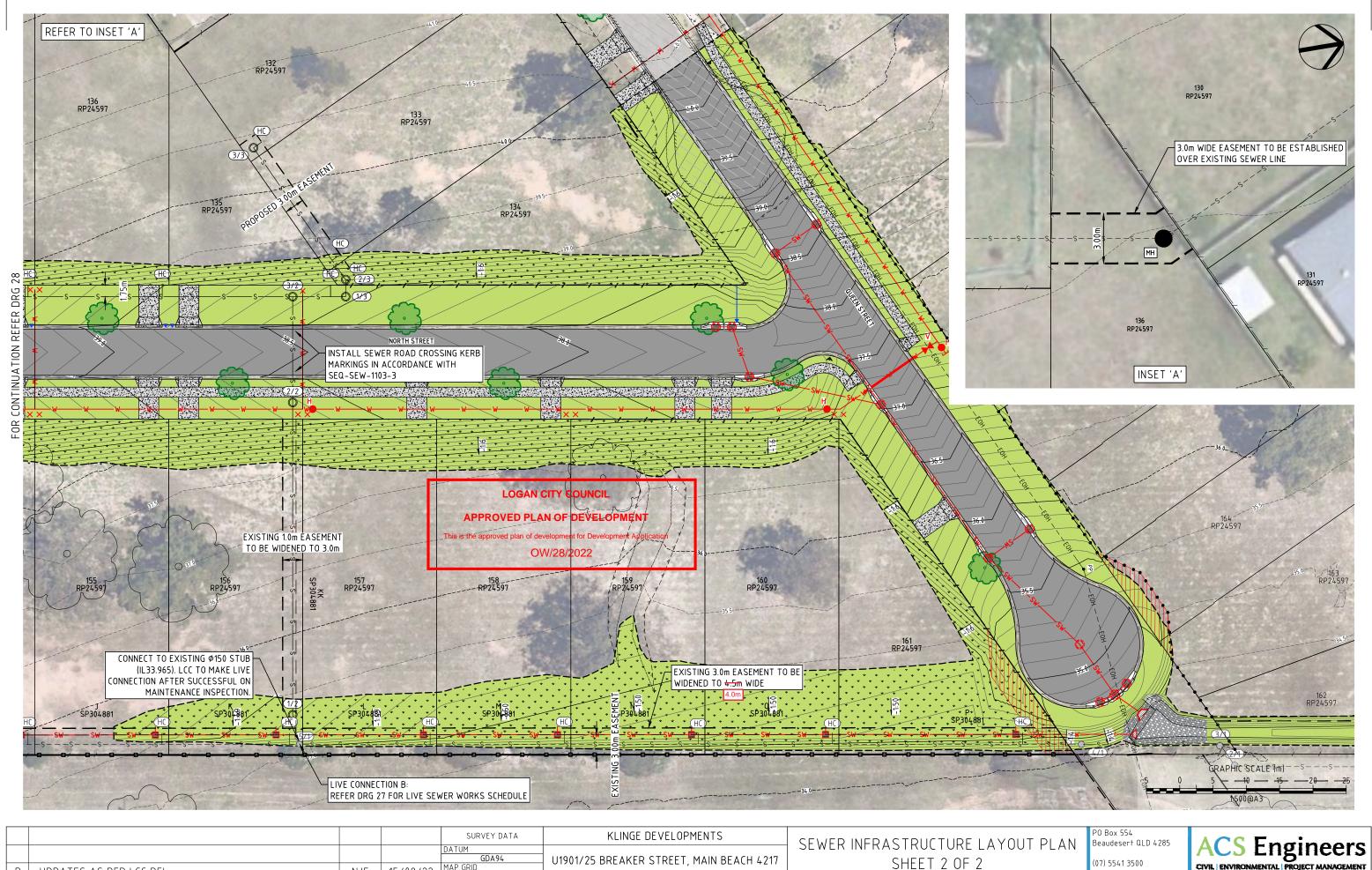
APPROVED PLAN OF DEVELOPMENT

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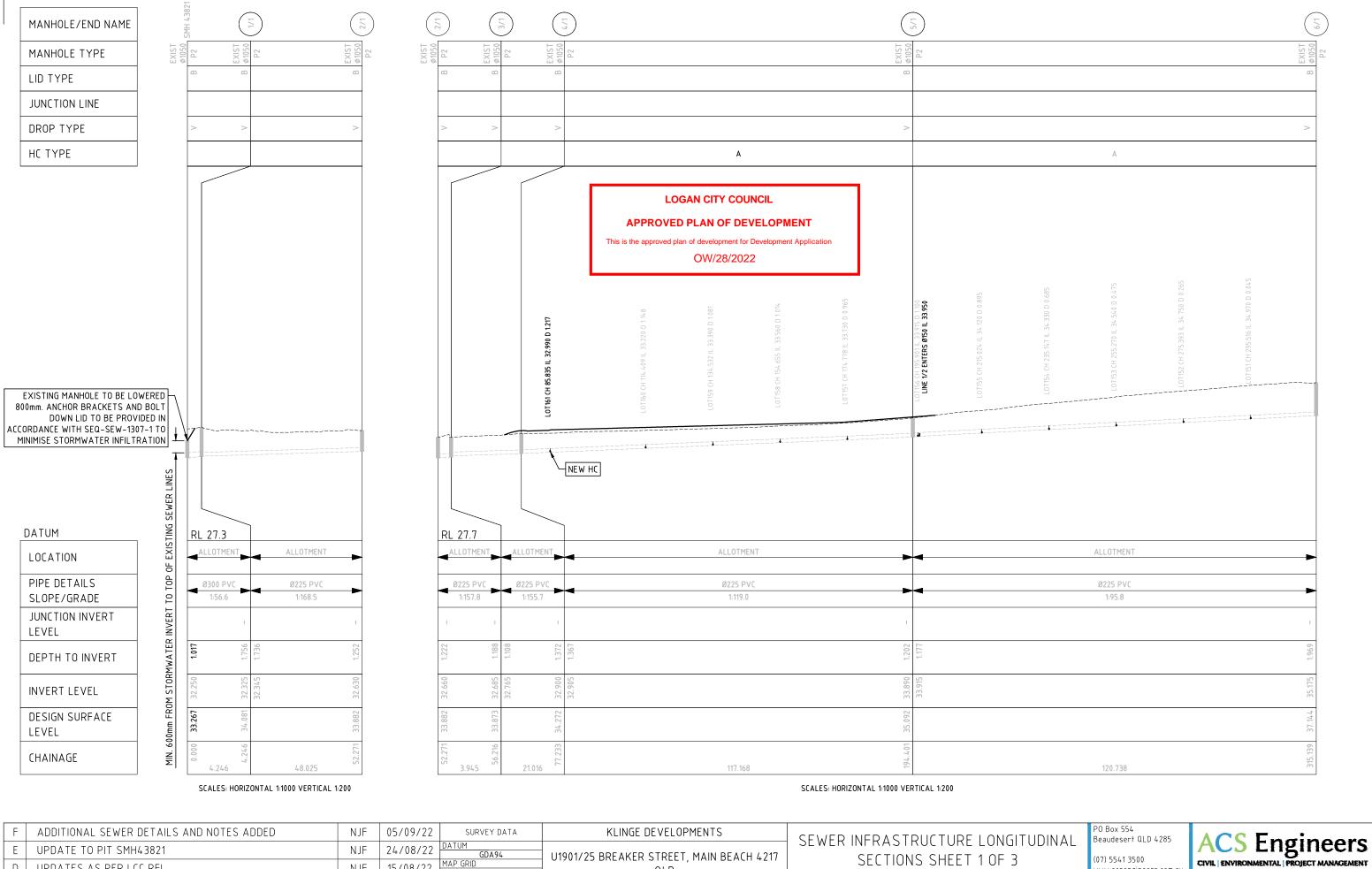
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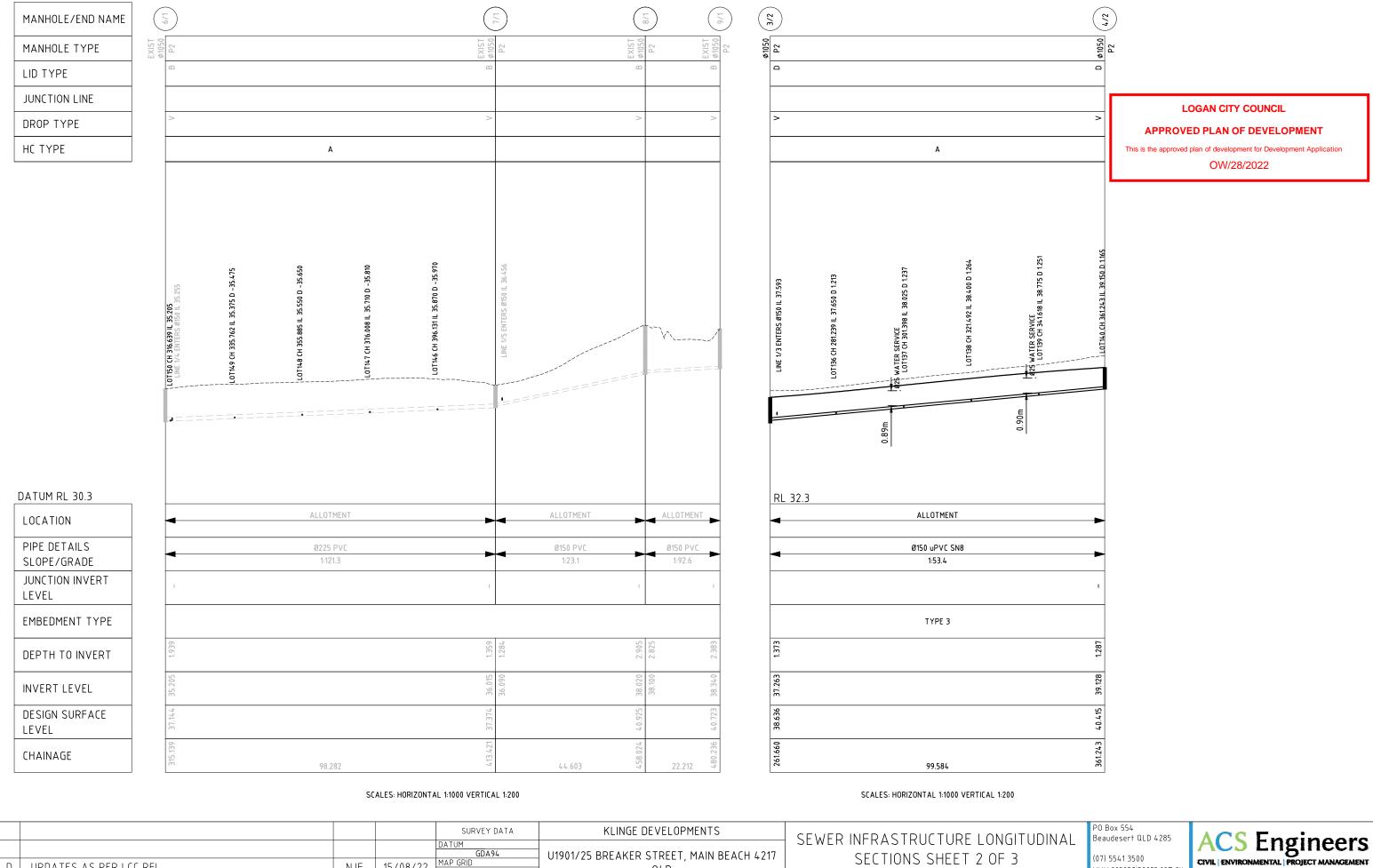
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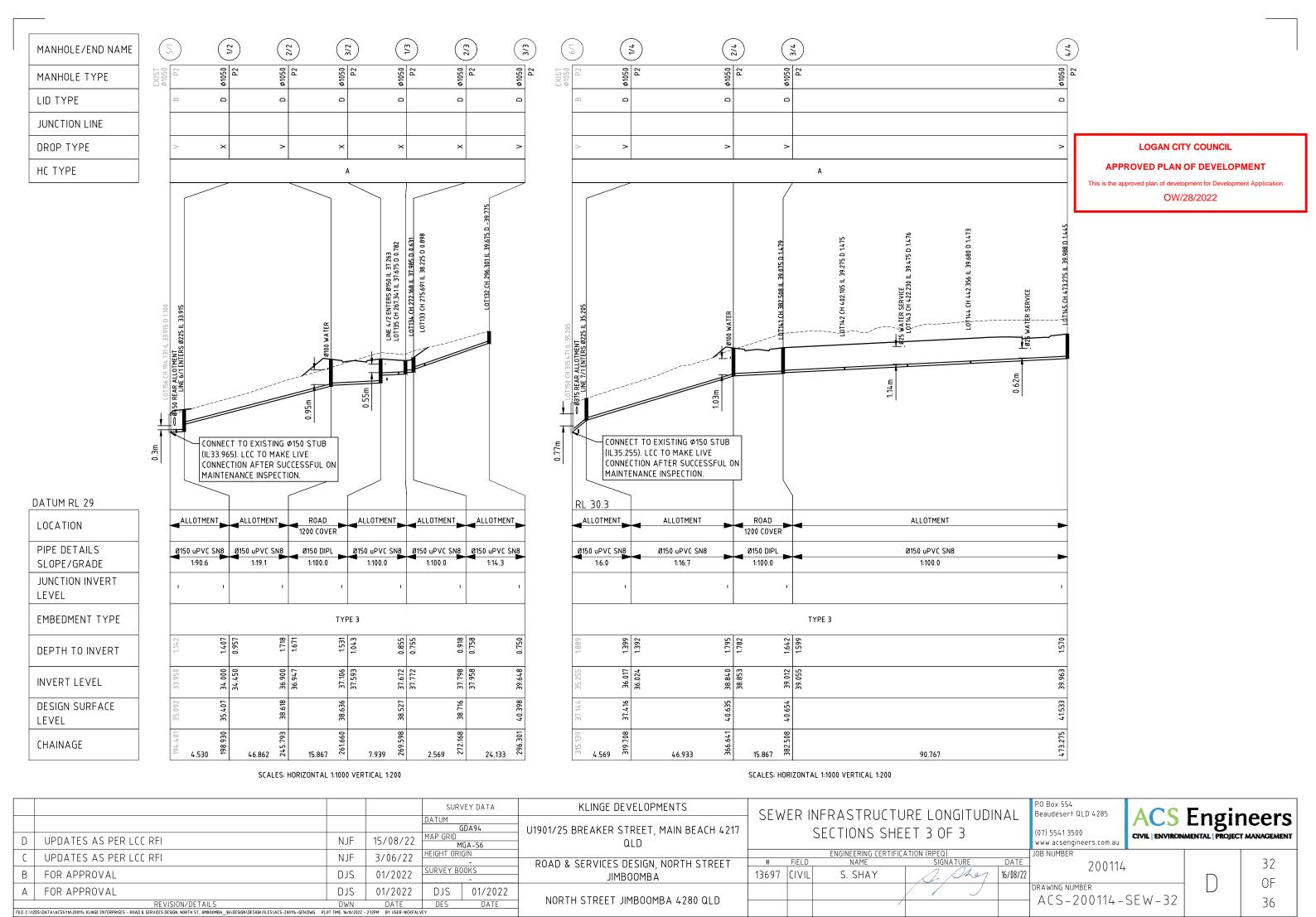
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WATER NOTES

- 1. ALL WORKS AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS AND STANDARDS.
- 2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
- 3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS PERMANENT LEVEL.
- 4. COVER ON MAINS FROM PERMANENT LEVEL TO BE SHOWN IN SEQ-WAT-1200-2.
- 5. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWINGS.
- 6. A WATER METER, SUPPLIED AT THE DEVELOPERS COST IS TO BE INSTALLED AT THE SERVICE POINT OF EACH LOT IN ACCORDANCE WITH STANDARD DRAWING FOR THIS SEQ-SP.
- 7. ALL MATERIAL USED IN THE WORKS SHALL COMPLY WITH SEQ-SP'S ACCEPTED PRODUCTS AND MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED AND DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED AND IF APPROPRIATE, APPROVED BY THE SEQ-SP.
- 8. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS.
- 9. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD NO. SEQ-WAT-1410-1.
- 10. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.

ENVIRONMENTAL NOTES

VEGETATION PROTECTION

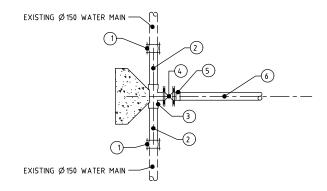
- 1. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- 2. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL
- 3. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
- 4. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

- 1. TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.
- 2. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORM WATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

REHABILITATION

- 1. PRE-DISTURBANCE SOIL PROFILES AND COMPACTION LEVELS SHALL BE REINSTATED.
- 2. PRE-DISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.

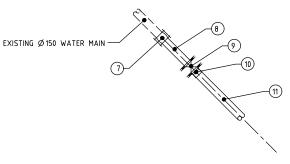
1. THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.



LIVE WORKS CONNECTION DETAIL A (CUT-IN CONNECTION METHOD)

LIVE CONNECTION A FITTINGS SCHEDULE

LIVE CONNECTION ATTITINGS SCHEDOLE											
No.	DESCRIPTION	QTY									
1	LONG TYPE GIBAULT TO SUIT 150mm DI	2									
2	Ø150mm DI PN16 (MIN. 600mm LONG)	2									
3	Ø150mm x Ø150mm TEE AND THRUST BLOCK	1									
4	Ø150mm ISOLATION VALVE	1									
(5)	FL/GRIPPER ADAPTOR	1									
6	Ø150mm PVC-M PN16 (MIN. 600mm LONG)	1									



LIVE WORKS CONNECTION DETAIL A (CUT-IN CONNECTION METHOD)

TIVE CONNECTION B FITTINGS SCHEDUL												
No.	DESCRIPTION	QTY										
7	LONG TYPE GIBAULT TO SUIT 150mm DI	1										
8	Ø150mm DI PN16 (MIN. 600mm LONG)	1										
9	Ø150mm ISOLATION VALVE	1										
10	FL/GRIPPER ADAPTOR	1										
11)	Ø150mm PVC-M PN16 (MIN. 600mm LONG)	1										

LIVE WORKS:

ALL LIVE WORKS MUST BE UNDERTAKEN BY THE DEVELOPER'S LICENSED CONTRACTOR IN ACCORDANCE WITH A VALID LCC PRIVATE WORKS APPROVAL, UNDER THE SUPERVISION OF LCC, AT THE DEVELOPER'S EXPENSE. PRE-CHLORINATED FITTINGS SHALL BE USED FOR WATER SUPPLY LIVE-WORKS CONNECTIONS. LIVE WORKS MAY NOT COMMENCE UNTIL ALL RELEVANT TEST CERTIFICATES HAVE BEEN PROVIDED TO AND ACCEPTED BY LCC, AND ALL ADJOINING WORKS HAVE BEEN ACCEPTED BY LCC.

STANDARD DRAWINGS:

SEQ-WAT-1101-3: TYPICAL WATER RETICULATION - DESIGN PLAN NOTES - SHEET 3

SEQ-WAT-1102-1: TYPICAL MAINS CONSTRUCTION - RETICULATION MAIN ARRANGEMENTS

SEQ-WAT-1105-1: TYPICAL CONNECTION TO EXISTING MAINS - SHEET 1 OF 2

SEQ-WAT-1110-1: PROPERTY SERVICES - GENERAL ARRANGEMENT AND CONDUIT DETAILS

SEQ-WAT-1110-2: PROPERTY SERVICES - WATER METER AND INSTALLATION ASSEMBLY DETAILS

SEQ-WAT-1200-1: TYPICAL SOIL CLASSIFICATION GUIDELINES AND ALLOWABLE BEARING PRESSURES FOR ANCHORS & THRUST BLOCKS SEQ-WAT-1200-2: EMBEDMENT & TRENCHFILL TYPICAL ARRANGEMENT

SEQ-WAT-1201-1: STANDARD EMBEDMENT TYPICAL FLEXIBLE & RIGID PIPES (TYPE C)

SEQ-WAT-1208-1: TYPICAL RESTRAINED JOINT SYSTEM - DN100 TO DN375 DI MAINS

SEQ-WAT-1300-1: TYPICAL VALVE, HYDRANT AND WATER MAIN ROAD CROSSING ROAD AND PAVEMENT MARKERS SEQ-WAT-1300-2: TYPICAL VALVE AND HYDRANT IDENTIFICATION MARKER POSTS

SEQ-WAT-1302-1: TYPICAL VALVE INSTALLATION GENERAL ARRANGEMENT

SEQ-WAT-1303-1: TYPICAL VALVE AND HYDRANT INSTALLATION FUTURE EXTENSION INSTALLATION

SEQ-WAT-1305-1: TYPICAL SURFACE FITTING INSTALLATION VALVE AND HYDRANT SURFACE BOXES TRAFFICABLE AND NON-TRAFFICABLE SEQ-WAT-1306-1: TYPICAL SURFACE FITTING INSTALLATION VALVE AND HYDRANT SURFACE BOXES SUPPORT AND SURROUND DETAILS.

LOGAN CITY COUNCIL

APPROVED PLAN OF DEVELOPMENT

This is the approved plan of development for Development Application

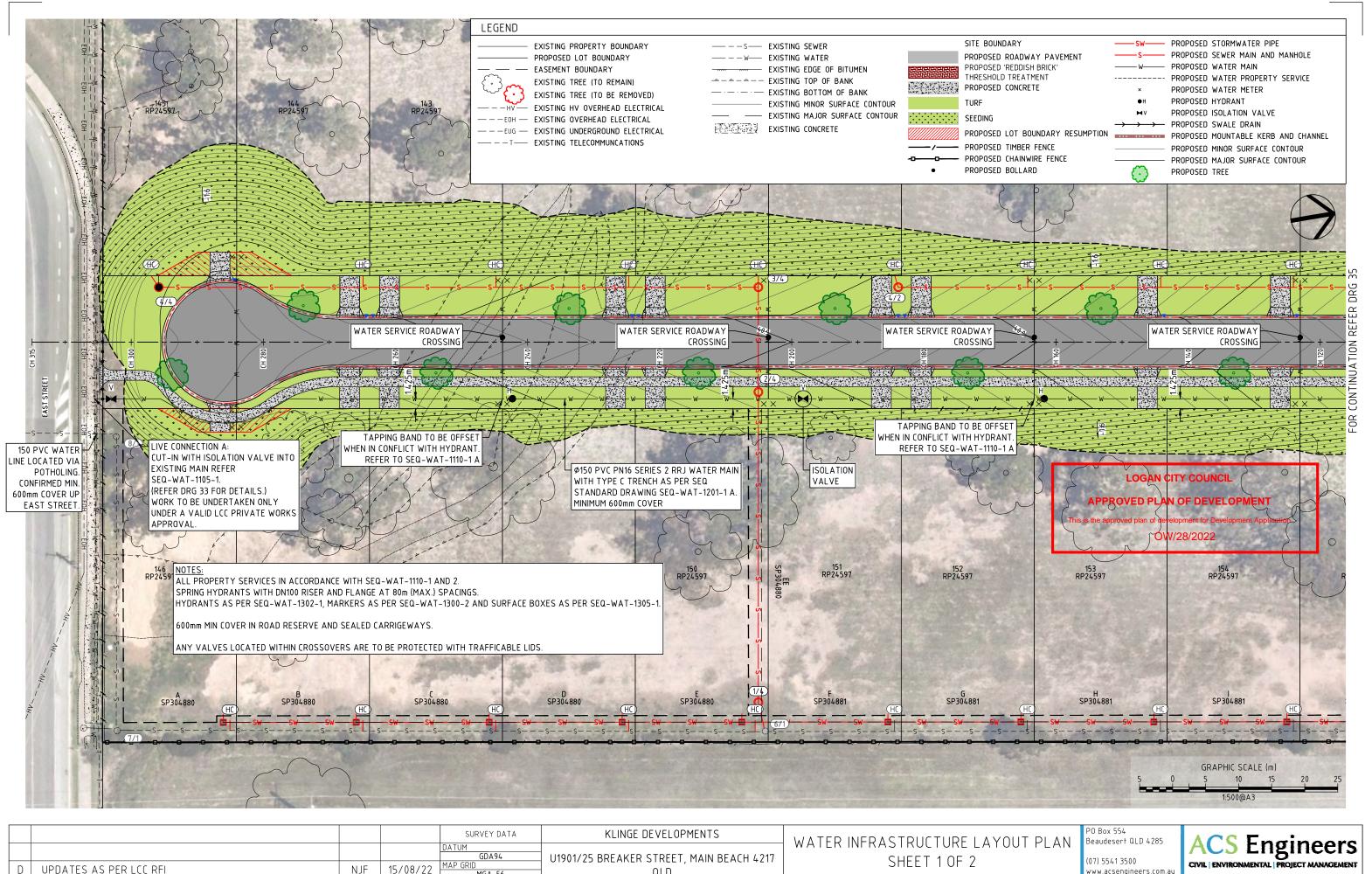
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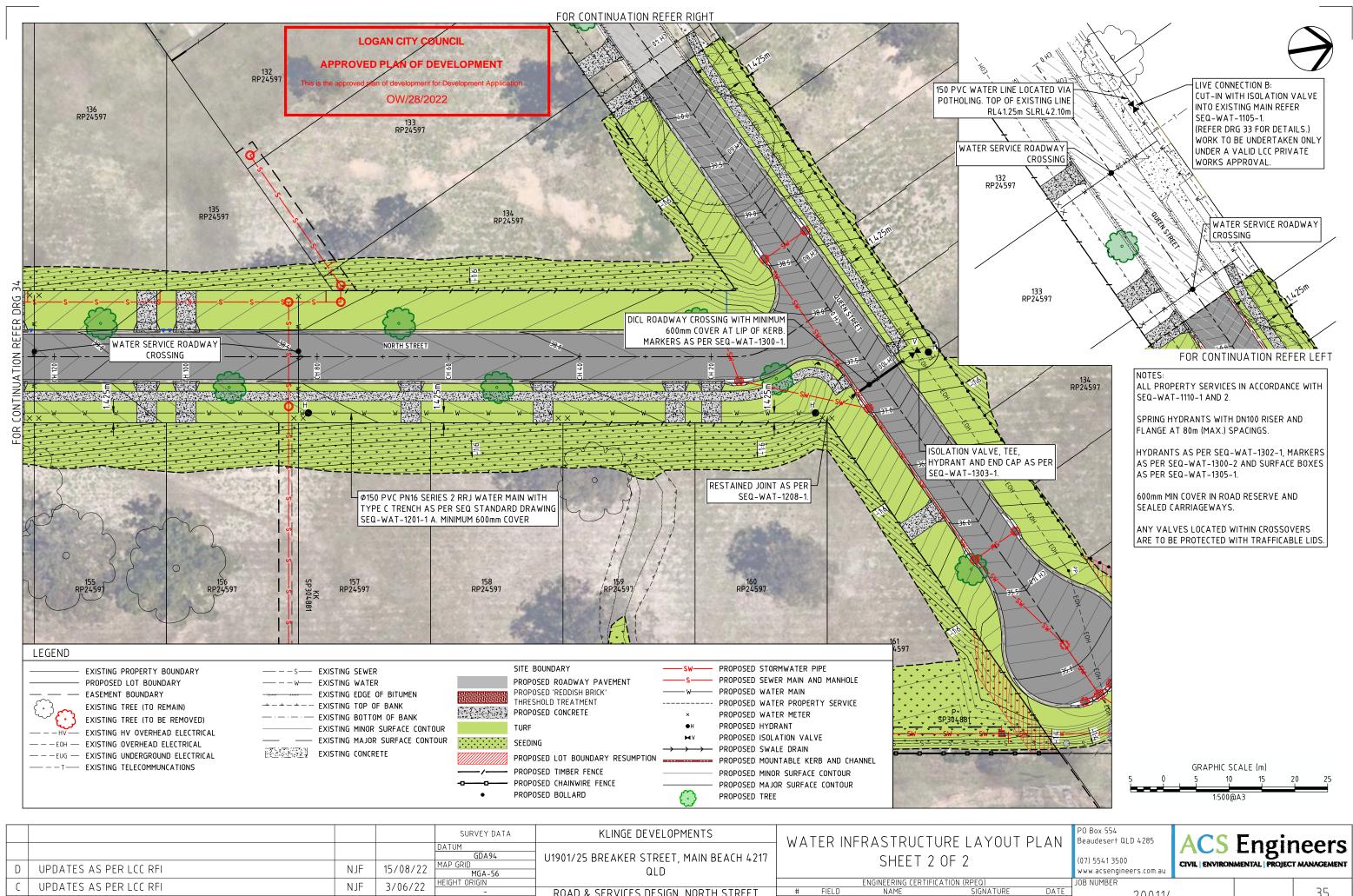
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