

# PROPOSED SENIORS LIVING DEVELOPMENT

18-22 Mundamatta Street, VILLAWOOD NSW 2163

Job No. N0211373

No	DATE	DESCRIPTION	BY
1	18.08.22	ISSUED FOR DA	LTR
2	29.08.22	ISSUED FOR DA	LTR
3	15.09.22	ISSUED FOR DA	LTR
4	14.11.22	ISSUED FOR DA	LTR

## STORMWATER SERVICES

	STORMWATER PIPE
	STORMWATER RISING MAIN PIPE
	EXISTING STORMWATER PIPE
	RAINWATER PIPE
	SUB-SOIL DRAINAGE LINE
	CAST IN SLAB PIPE

## STORMWATER LEGEND

	PROPOSED SEALED JUNCTION PIT
	PROPOSED GRATED SURFACE INLET PIT. PIT DIMENSIONS ARE GOVERNED BY DEPTH REFER TO DETAIL.
	EXISTING PIT
	PIT TO BE REMOVED
	PROPOSED KERB INLET PIT
	PROPOSED GRATED DRAIN
	PROPOSED RAINWATER TANK
	DOWNPIPE, RISER OR VERTICAL DROP
	RWO - RAINWATER OUTLET FOR BALCONIES, ROOF, CARPARK ETC
	GS1 - DOWNPIPE WITH RAIN HEAD OVERFLOW
	GS2 - DOWNPIPE WITH SUMP SIDE OVERFLOW
	GS3 - DOWNPIPE WITH SUMP HIGH CAPACITY OVERFLOW
	SWALE DRAIN
	OVERLAND FLOW PATH
	ROOF FALL DIRECTION
	PROPOSED PAVEMENT SURFACE LEVEL
	PROPOSED PIT SURFACE LEVEL
	PROPOSED PIT INVERT LEVEL
	PROPOSED FINISHED FLOOR LEVEL
	EXISTING SURFACE LEVEL
	EXISTING SURVEY CONTOUR

## GENERAL PIPEWORK LEGEND

	FLOW DIRECTION
	PIPE FROM ABOVE
	PIPE TO BELOW
	FALL DIRECTION
	PIPE TYPE, SIZE AND GRADE
	CONNECTION
	CONTINUATION
	END CAP
	KEYNOTE TAG

## PROJECT INFORMATION TABLE

THE TABLES BELOW ARE TO BE READ IN CONJUNCTION WITH THE ADJACENT NOTES

## GEOTECHNICAL INFORMATION

COMPANY	REPORT No.	DATED
GEOTECHNICS PTY LTD	21/3539	01/12/2021

## SURVEY INFORMATION

THE SURVEY INFORMATION ON THESE DRAWINGS HAS BEEN PROVIDED BY

COMPANY	DATED
NORTON SURVEY PARTNERS	04/12/2021

## SAFETY IN DESIGN

THERE ARE INHERENT RISKS WITH CONSTRUCTING, MAINTAINING, OPERATING, DEMOLISHING, DISMANTLING AND DISPOSING THIS DESIGN THAT ARE TYPICAL OF SIMILAR DESIGNS. AS FAR AS IS REASONABLY PRACTICABLE RISKS HAVE BEEN ELIMINATED OR MINIMISED THROUGH THE DESIGN PROCESS. HAZARD CONTROLS MUST STILL BE IMPLEMENTED BY THE CONTRACTOR, OWNER OR OPERATOR TO ENSURE THE SAFETY OF WORKERS.

\* JN DO NOT CONSIDER THAT THERE ARE ANY UNIQUE RISKS ASSOCIATED WITH THE DESIGN OF THIS PROJECT.

## GENERAL

- ALL EXISTING LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS
- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE NOMINATED OR APPLICABLE COUNCIL SPECIFICATION, WHERE A SPECIFICATION HAS NOT BEEN NOMINATED THEN THE CURRENT NSW DEPARTMENT OF HOUSING CONSTRUCTION SPECIFICATION IS TO BE USED. THE NOMINATED SPECIFICATION SHALL TAKE PRECEDENCE TO THESE NOTES.
- THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE CONTRACTOR ON SITE. ENGINEERS DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
- ALL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS & DRAWINGS FROM OTHER CONSULTANTS.
- THE CONTRACTOR SHOULD REPORT ANY DISCREPANCIES ON THE DRAWINGS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN.
- THE CONTRACTOR SHOULD LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND PROTECT AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE AND/OR ADJUST IF NECESSARY. INFORMATION GIVEN ON THE DRAWINGS IN RESPECT TO SERVICES IS FOR GUIDANCE ONLY AND IS NOT GUARANTEED COMPLETE NOR CORRECT.
- CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE PERMISSION OF THE OWNER.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED OR REMOVED FROM SITE.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING.
- ALL DRAINAGE LINES THROUGH ADJACENT LOTS SHALL BE CONTAINED WITHIN EASEMENTS CONFORMING TO COUNCIL'S STANDARDS.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES AND DEBRIS ETC. TO THE EXTENT SPECIFIED.
- PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL PROVIDE A TRAFFIC MANAGEMENT PLAN PREPARED BY AN ACCREDITED PERSON IN ACCORDANCE WITH RMS REQUIREMENTS. FOR ANY WORK ON OR ADJACENT TO PUBLIC ROADS, PLAN TO BE SUBMITTED TO COUNCIL & RMS.

## SURVEY

- JONES NICHOLSON IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY 3RD PARTY INFORMATION PROVIDED ON THIS DRAWING.
- ALL LEVELS ARE TO A.H.D.
- ALL CHAINAGES AND LEVELS ARE IN METRES, AND DIMENSIONS IN MILLIMETRES.
- SET OUT COORDINATES ARE BASED ON SURVEY DRAWINGS PROVIDED FOR THE PURPOSE OF CARRYING OUT THE ENGINEERING DESIGN.
- CONTRACTOR SHALL VERIFY ALL SET OUT COORDINATES SHOWN ON THE PLANS BY A REGISTERED SURVEYOR
- CONTRACTORS SHALL ARRANGE FOR THE WORKS TO BE SET OUT BY A REGISTERED SURVEYOR.
- ANY DISCREPANCIES SHOULD BE CLARIFIED IN WRITING WITH THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK FOR CONFIRMATION OF THE SURVEY.

## EARTHWORKS

- PROVIDE PROTECTION BARRIERS TO PROTECTED/SENSITIVE AREAS PRIOR TO ANY BULK EXCAVATION.
- OVER FULL AREA OF EARTHWORKS, CLEAR VEGETATION, RUBBISH, SLABS ETC. AND STRIP TOP SOIL, AVERAGE 200mm THICK, REMOVE FROM SITE, EXCEPT TOP SOIL FOR RE-USE.
- CUT AND FILL OVER THE SITE TO LEVELS REQUIRED.
- PRIOR TO ANY FILLING IN AREAS OF CUT OR IN EXISTING GROUND, PROOF ROLL THE EXPOSED SURFACE. REFER TO PROJECT INFORMATION TABLES FOR MINIMUM ROLLER WEIGHT AND THE MINIMUM NUMBER OF PASSES.
- EXCAVATE AND REMOVE ANY SOFT SPOTS ENCOUNTERED DURING PROOF ROLLING AND REPLACE WITH APPROVED FILL COMPACTED IN LAYERS. THE WHOLE OF THE EXPOSED SUBGRADE AND FILL SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$ .
- FOR ON SITE FILLING AREAS, THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- WHERE HARD ROCK IS EXPOSED IN THE EXCAVATED SUB-GRADE, THIS WILL BE INSPECTED AND A DECISION MADE ON THE LEVEL TO WHICH EXCAVATION IS TAKEN.
- FILL IN 200mm MAXIMUM (LOOSE THICKNESS) LAYERS TO UNDERSIDE OF BASECOURSE USING THE EXCAVATED MATERIAL AND COMPACTED TO 98% STANDARD (AS 1289 5.1.1). MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  SHOULD THERE BE INSUFFICIENT MATERIAL FROM SITE EXCAVATIONS, IMPORT AS NECESSARY CLEAN GRANULAR FILL TO THE DESIGN ENGINEERS APPROVAL.
- COMPACTION TESTING TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT INFORMATION TABLE. THE COSTS OF TESTING AND RE-TESTING ARE TO BE ALLOWED FOR BY THE BUILDER.
- BATTERS TO BE AS SHOWN. OR MAXIMUM 1 VERT : 4 HORIZ. ALL CONDUITS AND MAINS SHALL BE LAID PRIOR TO LAYING FINAL PAVEMENT.
- ALL BATTERS AND FOOTPATHS ADJACENT TO ROADS SHALL BE TOP SOILED WITH 150mm APPROVED LOAM AND SEEDED UNLESS OTHERWISE SPECIFIED.

## STORMWATER DRAINAGE INSTALLATION

- SUPPLY & INSTALLATION OF DRAINAGE WORKS TO BE IN ACCORDANCE WITH THESE DRAWINGS, THE COUNCIL SPECIFICATION AND THE CURRENT APPLICABLE AUSTRALIAN STANDARDS.
- BEDDING OF THE PIPELINES IS TO BE TYPE 'HS2' IN ACCORDANCE WITH THE STANDARDS AND AS FOLLOWS:
  - COMPACTED GRANULAR MATERIAL IS TO COMPLY WITH THE FOLLOWING GRADINGS:

SIEVE SIZE (mm)	19	2.36	0.60	0.30	0.15	0.075
% MASS PASSING	100	50-100	20-90	10-60	0-25	0-10

- AND THE MATERIAL PASSING THE 0.075 SIEVE HAVING LOW PLASTICITY AS DESCRIBED IN APPENDIX D OF AS1726.
  - BEDDING DEPTH UNDER THE PIPE TO BE 100mm.
  - BEDDING MATERIAL TO BE EXTENDED FROM THE TOP OF THE BEDDING ZONE UP TO 0.3 TIMES PIPE OUTSIDE DIAMETER. THIS REPRESENTS THE 'HAUNCH ZONE'.
  - THE BEDDING & HAUNCH ZONE MATERIAL IS TO BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 98% WITHIN ROAD RESERVES AND TRAFFICABLE AREAS AND 95% ELSEWHERE FOR COHESIVE MATERIAL OR A MINIMUM DENSITY INDEX OF 70% IN ACCORDANCE WITH THE STANDARDS FOR COHESIONLESS MATERIAL.
  - COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED ORGANISATION WITH A NATA CERTIFIED LABORATORY FOR ALL DRAINAGE LINES LAID WHOLLY OR IN PART UNDER THE KERB & GUTTER OR PAVEMENT.
- BACKFILL SHALL BE PLACED & COMPACTED IN ACCORDANCE WITH THE SPECIFICATION. A GRANULAR GRAVEL AGGREGATE MATERIAL (<10mm) BACKFILL IS RECOMMENDED FOR THE BEDDING, HAUNCH SUPPORT AND SIDE ZONE DUE TO ITS SELF COMPACTING ABILITY.
  - A MINIMUM OF 150mm CLEARANCE IS TO BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARREL AND THE TRENCH WALL FOR PIPES < 400 DIA. 200mm CLEARANCE FOR PIPES 400 TO 1200 DIA AND D/6 CLEARANCE FOR PIPES > 1200 DIA.

## STORMWATER DRAINAGE

- STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS AND COUNCIL'S SPECIFICATION.
- PIPES OF 225mm DIA. AND UNDER SHALL BE UPVC.
- PIPES OF 300mm DIA. AND LARGER SHALL BE FRC OR CONCRETE CLASS 2 RUBBER RING JOINTED UNO.
- ALL FRC OR RCP STORMWATER PIPES WITHIN ROAD RESERVE AREAS TO BE CLASS 3 U.N.O.
- MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 600mm IN CARPARK & ROADWAY AREAS UNO.
- PIPES SHALL GENERALLY BE LAID AT THE GRADES INDICATED ON THE DRAWINGS.
- PIPES UP TO 150mm DIA SHALL BE LAID AT 1.0% MIN. GRADE U.N.O.
- PIPES 225mm DIA AND OVER SHALL BE LAID AT 0.5% MIN. GRADE U.N.O.
- BACKFILL TRENCHES WITH APPROVED FILL COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY.
- ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS.
- PITS SHALL BE AS DETAILED WITH METAL GRATES AT LEVELS INDICATED. ALL PITS DEEPER THAN 1200mm TO HAVE CLIMB IRONS.
- BUILD INTO UPSTREAM FACE OF ALL PITS A 3.0m SUBSOIL LINE FALLING TO PITS TO MATCH PIT INVERTS.
- ALL COURTYARD & LANDSCAPED PITS TO BE 450 SQUARE LOAD CLASS A UNLESS NOTED OTHERWISE.
- ALL DRIVEWAY & OSD PITS TO BE 600 SQUARE LOAD CLASS D UNLESS NOTED OTHERWISE.
- INSTALL TEMPORARY SEDIMENT BARRIERS TO INLET PITS, TO COUNCIL'S STANDARDS UNTIL SURROUNDING AREAS ARE PAVED OR GRASSED.
- PITS & DOWNPIPE LOCATIONS AND LEVELS MAY BE VARIED TO SUIT SITE CONDITIONS AFTER CONSULTING THE ENGINEER.
- DOWNPIPES SHOWN ARE INDICATIVE ONLY. ALL ROOF GUTTERING AND DOWNPIPES TO THE CURRENT AUSTRALIAN STANDARDS.
- ALL PLANTER BOXES AND BALCONIES TO BE CONNECTED TO THE PROPOSED STORMWATER DRAINAGE LINE.
- HAND EXCAVATE STORMWATER PIPES IN VICINITY OF TREE ROOTS.
- FOOTPATH CROSSING LEVELS SHOWN ARE TO BE ADJUSTED TO FINAL COUNCIL'S ISSUED LEVELS.
- GEOTEXTILE FABRIC TO BE PLACED UNDER RIP RAP SCOUR PROTECTION.
- ALL BASES OF PITS TO BE BENCH TO HALF PIPE DEPTH AND PROVIDE GALVANISED ANGLE SURROUNDINGS TO GRATE.
- SUBSOIL LINE PITS AND FITTINGS SHALL BE PERFORATED PLASTIC TO CURRENT AUSTRALIAN STANDARDS. LAY PIPES ON FLOOR OF TRENCH GRADED AT 1% MIN. AND OVERLAY WITH FILTER MATERIAL EXTENDING TO WITHIN 200mm OF SURFACE. PROVIDE FILTER FABRIC OF PERMEABLE POLYPROPYLENE BETWEEN FILTER MATERIAL AND TOPSOIL.
- SHOULD THE CONTRACTOR ELECT TO INSTALL PRECAST STORMWATER PITS AND THEY ARE PERMITTED BY COUNCIL AND THE CLIENT, THE PRECAST PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH RMS STANDARDS INCLUDING:
  - SEAL THE SEGMENTS TOGETHER USING A SITE-APPROVED NON-SHRINK GROUT OR MASTIC-TYPE PRODUCT. APPLY THE SEALANT IN ACCORDANCE WITH THE PRODUCT MANUFACTURER'S REQUIREMENTS.
  - ENSURE THAT NO GAPS REMAIN AND THAT A SMOOTH FACE EXISTS BETWEEN MULTIPLE UNITS.
  - LEAVE THE SEGMENTS UNDISTURBED UNTIL THE PERIOD OF CURING IS COMPLETED IN ACCORDANCE WITH THE GROUT OR SEALANT PRODUCT MANUFACTURER'S REQUIREMENTS.

## PAVEMENT LEGEND

	EXTENT OF CONCRETE PAVEMENT
	DOWELLED JOINT
	KEYED JOINT
	SAW CUT JOINT
	BUTT JOINT
	2H12 TRIMMERS x 1200 LONG (TIED UNDER TOP MESH)
	150 K&G
	150 KO
	150mm HIGH KERB & GUTTER
	150mm HIGH KERB ONLY
	EXTENT OF BITUMEN PAVEMENT
	PAVEMENT TYPE 1 - CONCRETE
	PAVEMENT TYPE 2 - BITUMEN
	PAVEMENT TYPE 3 - CONCRETE FOOTPATH
	PAVEMENT TYPE 4 - GRAVEL
	PAVEMENT TYPE 5 - PAVERS
	LANDSCAPE PLANTING AREA
	LANDSCAPE TILED AREA
	LANDSCAPE WATER AREA
	FALL DIRECTION

## PAVEMENT - RIGID

- THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
- PREPARATION FOR PAVEMENT: CLEAR SITE, STRIP TOPSOIL, CUT AND FILL AND PREPARATION OF SUBGRADE SHALL BE AS DESCRIBED IN 'EARTHWORKS' NOTES.
- SUBGRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  IN ACCORDANCE WITH AS 1289 5.1.1.
- BASE COURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK DG820 COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  IN ACCORDANCE WITH AS 1289 5.1.1.
- CONCRETE PAVEMENT SLABS SHALL BE AS DETAILED ON THE DRAWINGS.
- ALL WORKMANSHIP AND MATERIALS FOR CONCRETE WORK SHALL BE IN ACCORDANCE WITH AS 3600 AND AS 3610 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- CONCRETE QUALITY ALL CEMENT SHALL BE TYPE SL SHRINKAGE LIMITED CEMENT IN ACCORDANCE WITH AS3972

ELEMENT	STRENGTH GRADE (MPa)	SLUMP	MAXIMUM AGGREG. SIZE (mm)
PAVEMENT	32	80	20

- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600.
- NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm.
- CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- THE FINISHED CONCRETE SHALL BE MECHANICALLY VIBRATED TO ACHIEVE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. CONCRETE SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
- CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF THREE DAYS. AND THE PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT.
- REPAIRS TO CONCRETE SHALL NOT BE ATTEMPTED WITHOUT THE PERMISSION OF THE ENGINEER.

## PAVEMENT - FLEXIBLE

- THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
- ASSUMED DESIGN CBR TO BE CONFIRMED ONSITE DURING CONSTRUCTION PRIOR TO PLACEMENT OF PAVEMENT MATERIALS. THE CONTRACTOR IS TO UNDERTAKE SUFFICIENT CBR TESTING TO CONFIRM THE ASSUMED VALUE. WHERE A LESSER VALUE HAS BEEN DETERMINED, THE SUPERVISING ENGINEER IS TO BE NOTIFIED TO DETERMINE A REVISED PAVEMENT DESIGN.
- PAVEMENT TO BE CONSTRUCTED AS FOLLOWS:

SURFACE COURSE	DENSE GRADED ASPHALT
PRIMERSEAL	- EMULSION BASED HOT BITUMEN
BASE COURSE	- DG8 20
SUB BASE	- DG3 40
- SUBGRADE SHALL BE COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY RATIO AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS.
- SUBBASE COURSE SHALL BE COMPACTED TO 95% MODIFIED MAXIMUM DRY DENSITY.
- BASECOURSE SHALL BE COMPACTED TO 98% MODIFIED MAXIMUM DRY DENSITY.
- PRIOR TO THE PLACEMENT OF THE PRIMERSEAL AND AFTER THE REQUIRED DENSITY IS ACHIEVED, THE PAVEMENT IS TO BE ALLOWED TO DRY BACK TO APPROXIMATELY 60% TO 70% OPTIMUM MOISTURE CONTENT.
- ALL SUBGRADES TO BE ROOF ROLLED & APPROVED BY SUPERVISING ENGINEER.
- COMPACTION TESTS ARE TO BE UNDERTAKEN FOR ALL PAVEMENT LAYERS INCLUDING SUBGRADE AT A RATE TO BE DETERMINED BY THE SUPERVISING ENGINEER & THE RESULTS TO BE SUPPLIED TO THE ENGINEER PRIOR TO PLACEMENT OF THE NEXT PAVEMENT LAYER.

## PAVEMENT - SEGMENTAL

- THE PAVEMENT DESIGN AS DETAILED ASSUMES A PROPERLY PREPARED UNIFORM AND STABLE SUBGRADE. CONFIRMATION OF DESIGN CBR RATIO IS REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO WORKS COMMENCING.
- PREPARATION FOR PAVEMENT: CLEAR SITE, STRIP TOPSOIL, CUT AND FILL AND PREPARATION OF SUBGRADE SHALL BE AS DESCRIBED IN 'EARTHWORKS'.
- SUBGRADE SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  IN ACCORDANCE WITH AS 1289 5.1.1.
- BASECOURSE SHALL BE CONSTRUCTED FROM FINE CRUSHED ROCK DG820 COMPACTED TO 100% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT  $\pm 2\%$  IN ACCORDANCE WITH AS 1289 5.1.1.
- PROVIDE CONCRETE WORKING SLAB 20MPa MIN 100mm THICK AS DETAILED ON DRAWING.
- SEGMENTAL PAVING SHALL BE AS DETAILED ON THE DRAWINGS, AND ARE TO BE SUPPLIED WITH UNITS OF MAXIMUM GROSS PLAN AREA <0.1m<sup>2</sup>. WHERE THIS AREA IS EXCEEDED REFER CONCRETE FLAG PAVEMENT SPECIFICATION.
- ALL WORKMANSHIP AND MATERIALS FOR PAVEMENT SHALL BE IN ACCORDANCE WITH ALL AS 4455, AS4456, AS4459, T44, T45, T46, CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENT.
- PAVER QUALITY:

APPLICATION	CHARACTERISTIC BREAKING LOAD (KN)	CHARACTERISTIC FLEXURAL STRENGTH (MPa)
RESIDENTIAL PEDESTRIAN	2	2
RESIDENTIAL DRIVEWAYS	5	3
PUBLIC FOOTPATHS	5	3
ROADS	5	3
INDUSTRIAL PAVEMENTS	10	4

- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 4456.4 AND AS 4456.5.
- PAVERS TO BE BEDDED AND SOUND EDGE RESTRAINTS ARE TO BE PROVIDED. JOINTS TO BE FULLY GROUTED.

CIVIL DRAWING LIST		
No.	SHEET NAME	
C001	NOTES & LEGEND	
C010	SITE PLAN	
C050	TYPICAL DETAILS	
C200	GROUND STORMWATER PLAN	
C210	LEVEL 1 STORMWATER PLAN	
C300	ROOF STORMWATER PLAN	



CLIENT

Custance

STATUS

PRELIMINARY

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DISCIPLINE

CIVIL DESIGN

DRAWING TITLE

NOTES & LEGEND

PROJECT

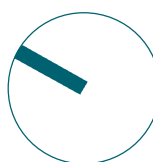
PROPOSED SENIORS LIVING DEVELOPMENT

ADDRESS

18-22 Mundamatta Street, VILLAWOOD NSW 2163

PROJECT DETAILS

DESIGN	DA	N0211373
DRAWN	LTR	
DATE		
DRG SIZE	A1	
SCALE	As indicated	
PROJECT MGR	GC	
WWW.JN.COM.AU		C001 4

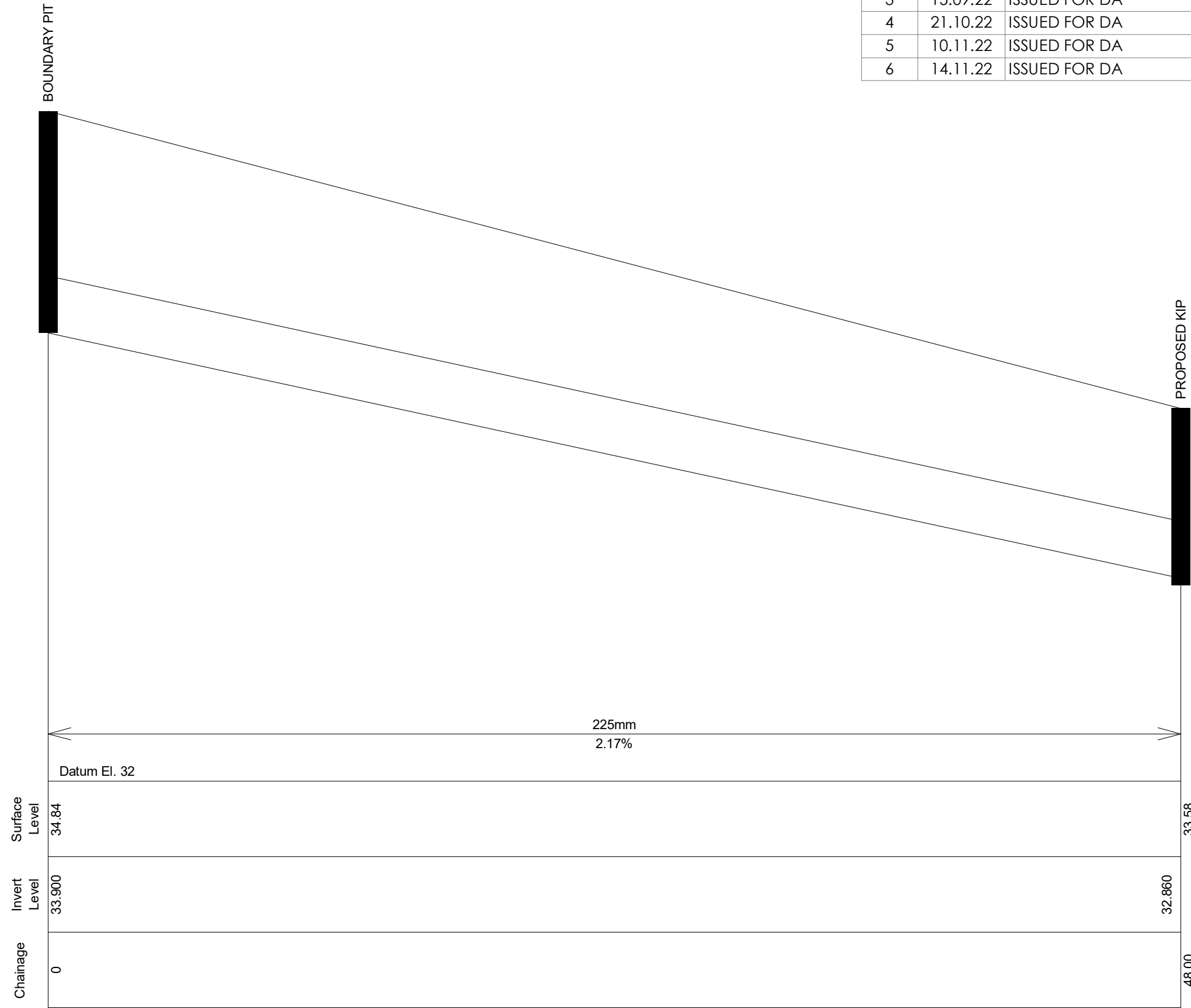




No	DATE	DESCRIPTION	BY
2	29.08.22	ISSUED FOR DA	LTR
3	15.09.22	ISSUED FOR DA	LTR
4	21.10.22	ISSUED FOR DA	LTR
5	10.11.22	ISSUED FOR DA	LTR
6	14.11.22	ISSUED FOR DA	LTR



SITE PLAN STORMWATER PLAN  
SCALE 1 : 200



EASEMENT LONG SECTION

NOTE: SURFACE LEVELS BETWEEN THE BOUNDARY PIT AND PROPOSED KERB INLET PIT ARE NOT MODELLED IN THE LONG SECTION



CLIENT  
Custance

STATUS  
PRELIMINARY

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DISCIPLINE  
CIVIL DESIGN

DRAWING TITLE  
SITE PLAN

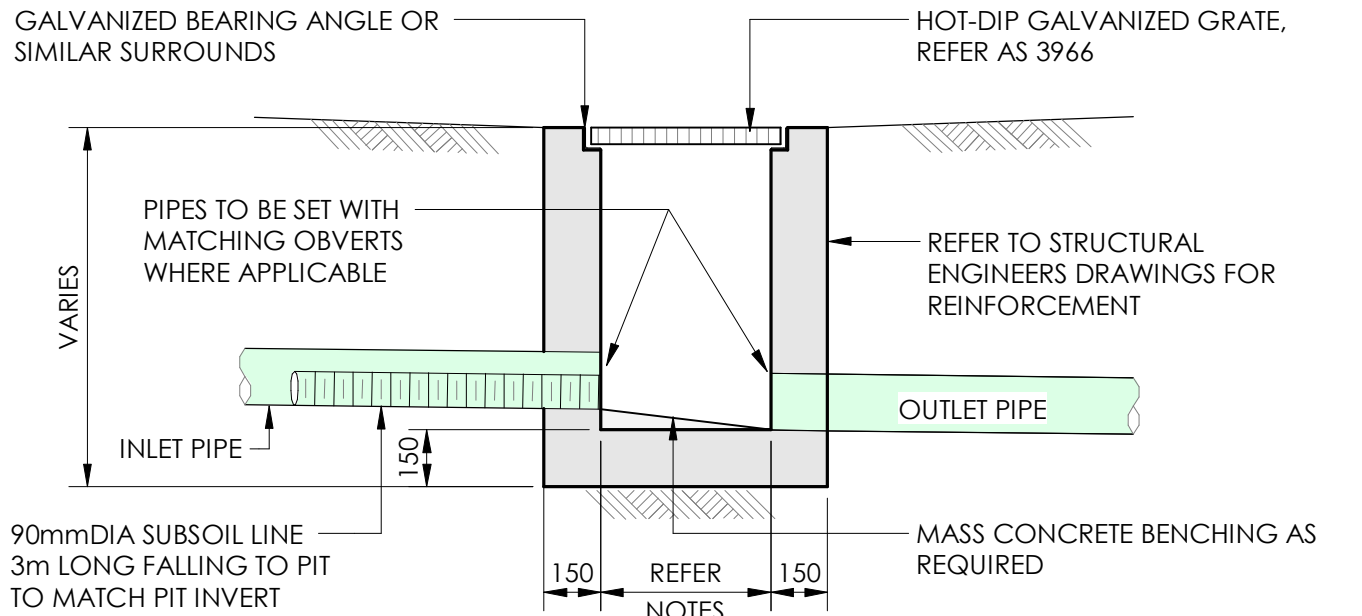
PROJECT  
PROPOSED SENIORS LIVING DEVELOPMENT

ADDRESS  
18-22 Mundamatta Street, VILLAWOOD NSW 2163

PROJECT DETAILS  
DESIGN DA  
DRAWN LTR  
DATE  
DRG SIZE A1  
SCALE As indicated  
PROJECT GC  
MGR  
WWW.JN.COM.AU  
N0211373  
C010 6



No	DATE	DESCRIPTION	BY
3	15.09.22	ISSUED FOR DA	LTR
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6	14.11.22	ISSUED FOR DA	LTR
7	31.01.23	ISSUED FOR DA	LTR



MINIMUM INTERNAL DIMENSIONS FOR STORMWATER PITS			
DEPTH OF INVERT OF OUTLET		DEPTH OF INVERT OF OUTLET	
		WIDTH	LENGTH
	< 600	450	450
> 600		600	600
> 900		600	900
> 1200		900	900

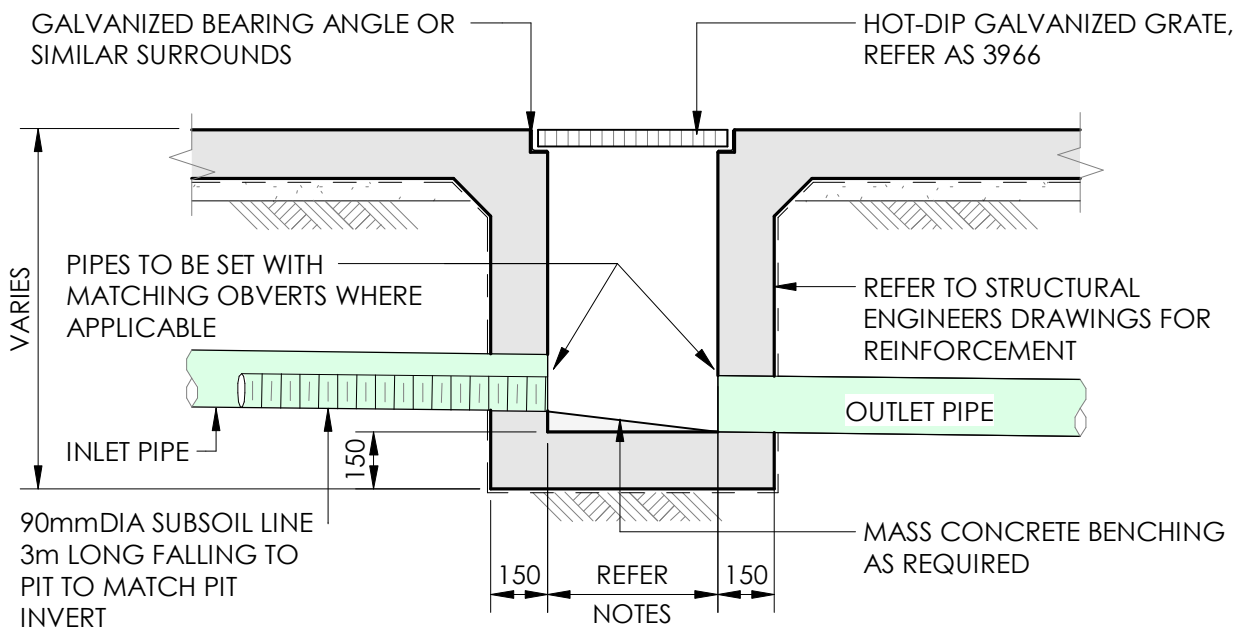
\*STEP IRONS SHALL BE PROVIDED FOR PITS WITH DEPTHS EXCEEDING 1000mm

#### NOTE:

- CLIMB IRONS SHALL BE PROVIDED UNDER LID AT 300 CTS TO COUNCIL STANDARDS WHERE PIT DEPTH IS DEEPER THAN 1000.
- PROVIDE 90Dia x 3000 LONG SUBSOIL DRAINAGE STUB PIPE SURROUNDED WITH 100mm THICKNESS OF NOMINAL 20mm COARSE FILTER MATERIAL WRAPPED IN GEOTEXTILE FILTER FABRIC. (BIDUM A24 OR APPROVED SIMILAR). TO BE PARALLEL TO UPSTREAM SIDE OF EACH INLET PIPE.
- ALTERNATIVE PIT CONSTRUCTION MAY BE USED SUBJECT TO THE ENGINEERS APPROVAL.
- CONCRETE STRENGTH  $f'c = 32 \text{ MPa}$

### TYPICAL CONCRETE INLET PIT - NATURAL SURFACE

SCALE 1 : 20



MINIMUM INTERNAL DIMENSIONS FOR STORMWATER PITS			
DEPTH OF INVERT OF OUTLET		DEPTH OF INVERT OF OUTLET	
		WIDTH	LENGTH
	< 600	450	450
> 600		600	600
> 900		600	900
> 1200		900	900

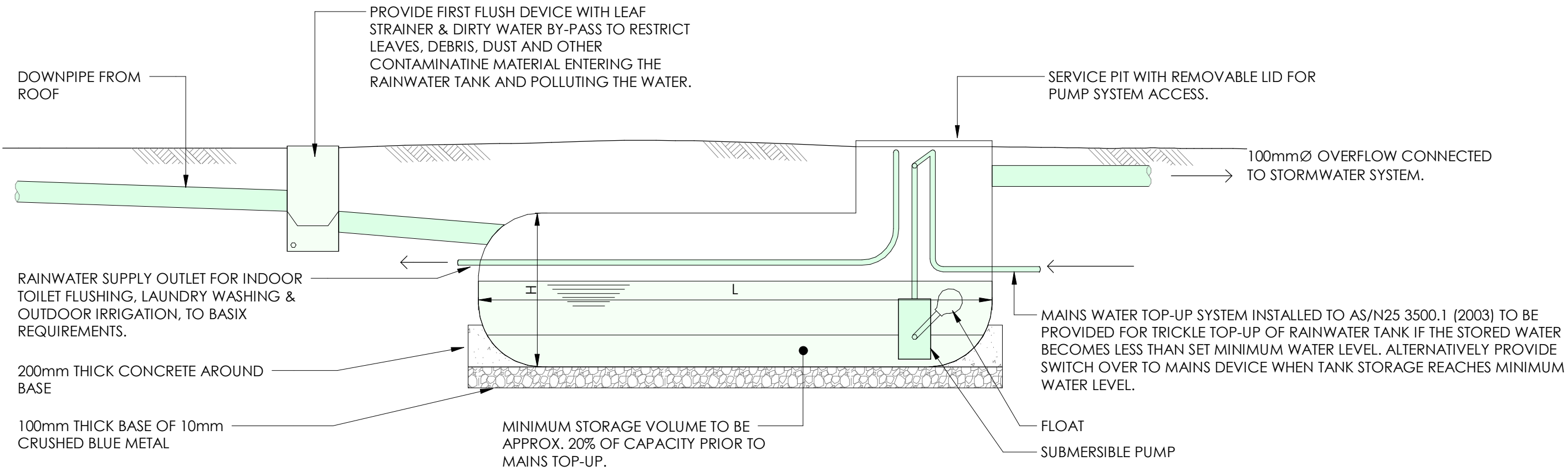
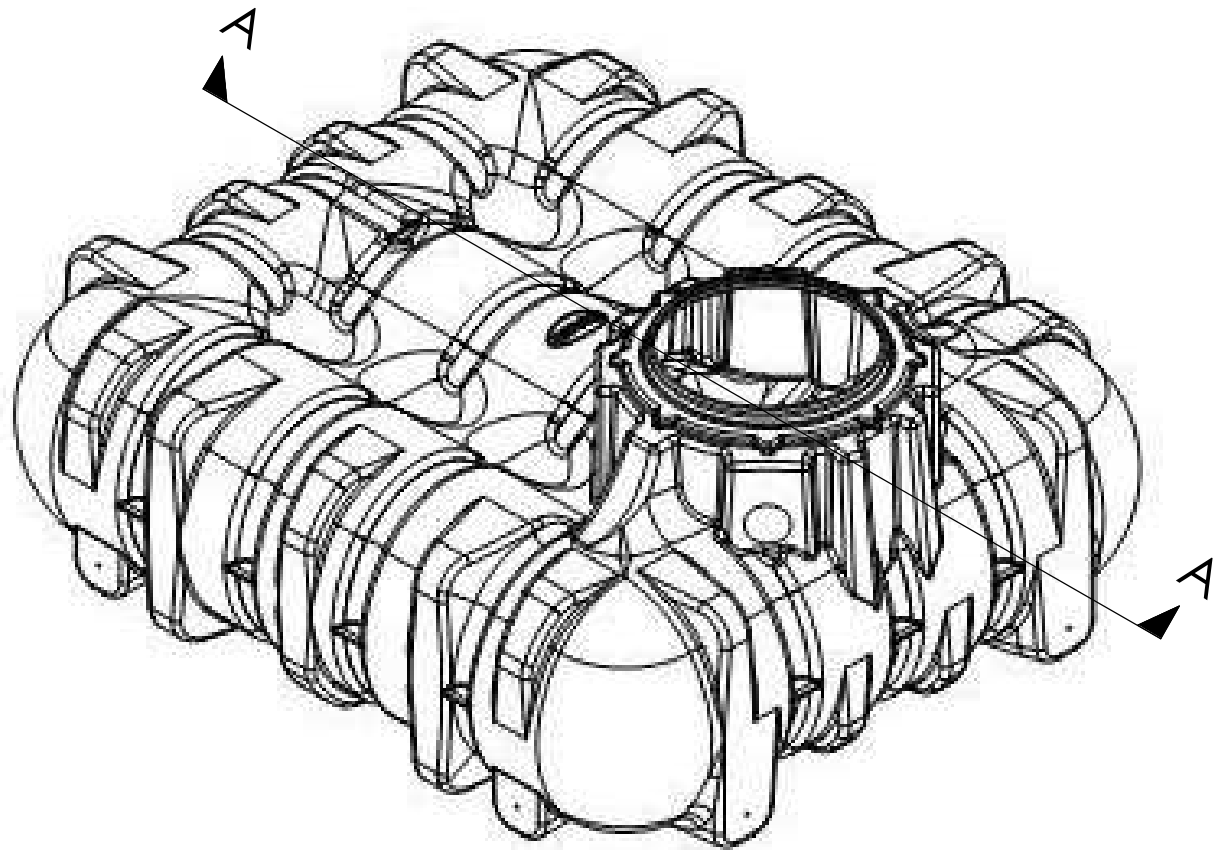
\*STEP IRONS SHALL BE PROVIDED FOR PITS WITH DEPTHS EXCEEDING 1000mm

#### NOTE:

- CLIMB IRONS SHALL BE PROVIDED UNDER LID AT 300 CTS TO COUNCIL STANDARDS WHERE PIT DEPTH IS DEEPER THAN 1000.
- PROVIDE 90Dia x 3000 LONG SUBSOIL DRAINAGE STUB PIPE SURROUNDED WITH 100mm THICKNESS OF NOMINAL 20mm COARSE FILTER MATERIAL WRAPPED IN GEOTEXTILE FILTER FABRIC. (BIDUM A24 OR APPROVED SIMILAR). TO BE PARALLEL TO UPSTREAM SIDE OF EACH INLET PIPE.
- ALTERNATIVE PIT CONSTRUCTION MAY BE USED SUBJECT TO THE ENGINEERS APPROVAL.
- CONCRETE STRENGTH  $f'c = 32 \text{ MPa}$

### TYPICAL CONCRETE INLET PIT - CONCRETE SURFACE

SCALE 1 : 20

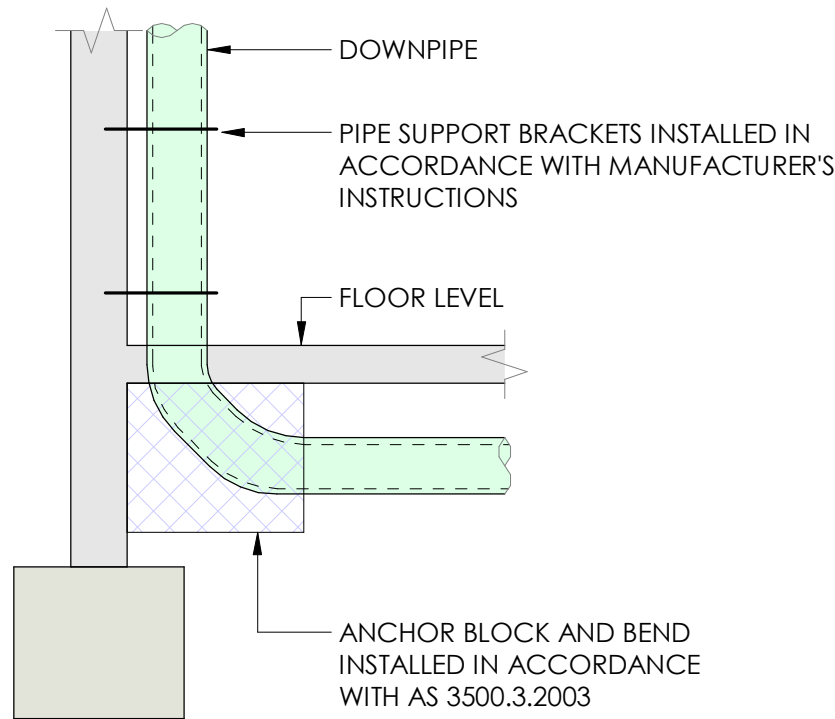


### SECTION A-A UNDERGROUND RAINWATER TANK DETAIL

UNDERGROUND RAINWATER TANK. REFER BASIX REPORT FOR SIZING.

### RAINWATER TANK - GRAF UNDER GROUND

SCALE 1 : 20



### TYPICAL VERTICAL DROP DETAIL

SCALE 1 : 20



CLIENT  
Custance

STATUS  
PRELIMINARY

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DISCIPLINE  
CIVIL DESIGN

DRAWING TITLE  
TYPICAL DETAILS

PROJECT  
PROPOSED SENIORS LIVING  
DEVELOPMENT

ADDRESS  
18-22 Mundamatta Street, VILLAWOOD NSW 2163

PROJECT DETAILS		DA	N0211373
DESIGN	LTR		
DRAWN			
DATE			
DRG SIZE	A1		
SCALE	1 : 20		
PROJECT	GC		
MGR			
WWW.JN.COM.AU			C050 7







No	DATE	DESCRIPTION	BY
1	18.08.22	ISSUED FOR DA	LTR
2	29.08.22	ISSUED FOR DA	LTR
3	15.09.22	ISSUED FOR DA	LTR
4	14.11.22	ISSUED FOR DA	LTR



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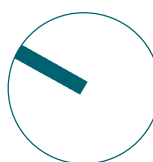
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CIVIL DESIGN

DRAWING TITLE  
LEVEL 1 STORMWATER PLAN

PROJECT  
PROPOSED SENIORS LIVING  
DEVELOPMENT

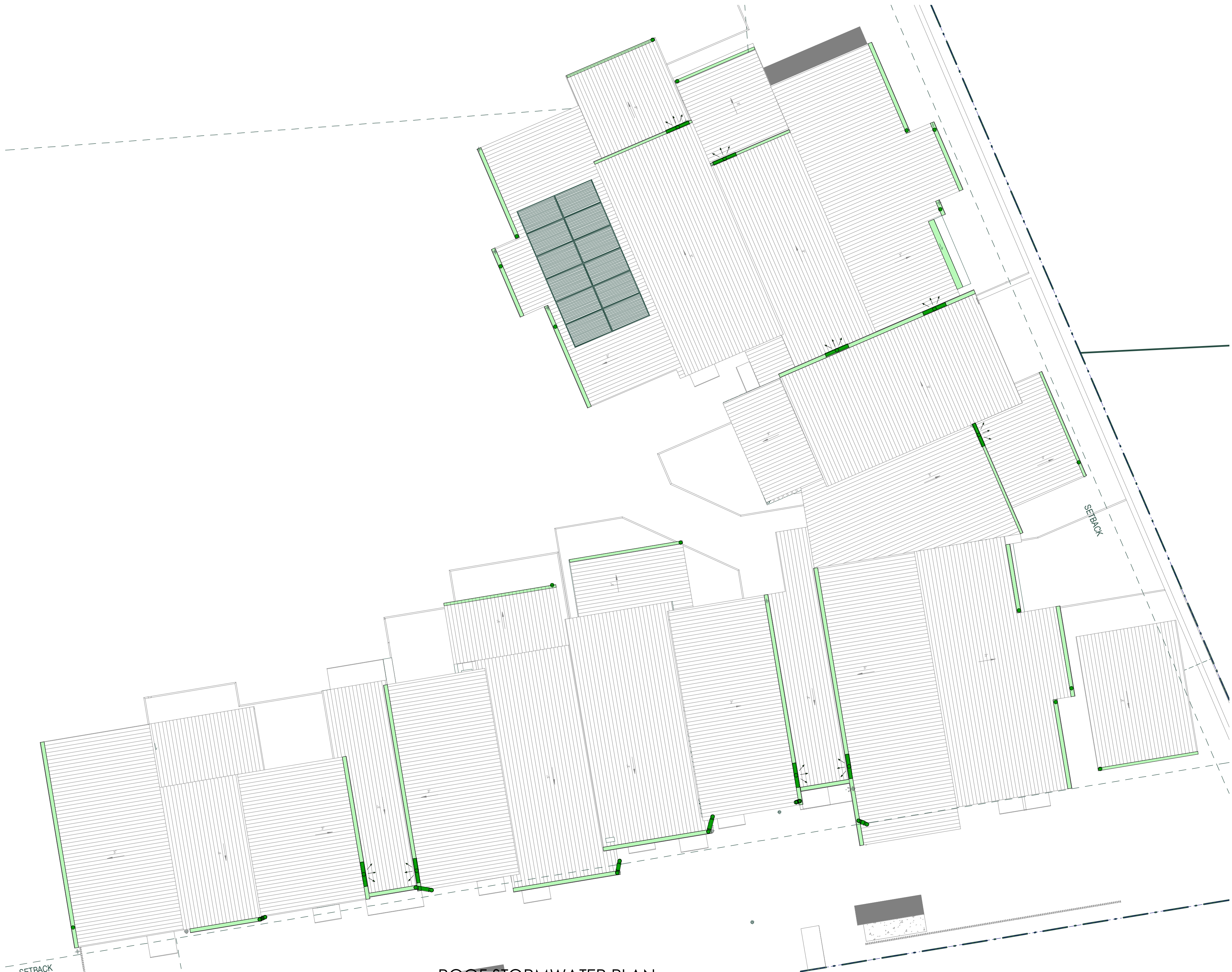
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PROJECT DETAILS  
DESIGN DA  
DRAWN LTR  
DATE  
DRG SIZE A1  
SCALE 1 : 100  
PROJECT GC  
MGR  
WWW.JN.COM.AU  
N0211373  
C210 4





No	DATE	DESCRIPTION	BY
1	18.08.22	ISSUED FOR DA	LTR
2	14.11.22	ISSUED FOR DA	LTR



ROOF STORMWATER PLAN  
SCALE 1 : 100

- NOTES:
- ALL GUTTERING TO BE EAVES GUTTERS
  - ALL DOWNPIPE & DOWNPIPE SPREADER LOCATIONS AND QUANTITIES ARE INDICATIVE AND SUBJECT TO CHANGE IN DETAILED DESIGN
  - DOWNPIPES EXPECTED TO RUN INTO RAINWATER TANK (OR MULTIPLE) FOR RE-USE VIA A CHARGED SYSTEM. PENDING JN COMPLETING BASIX REPORT REGARDING RWT REQUIREMENTS.



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Custance

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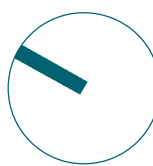
DISCIPLINE  
CIVIL DESIGN

DRAWING TITLE  
ROOF STORMWATER PLAN

PROJECT  
PROPOSED SENIORS LIVING DEVELOPMENT

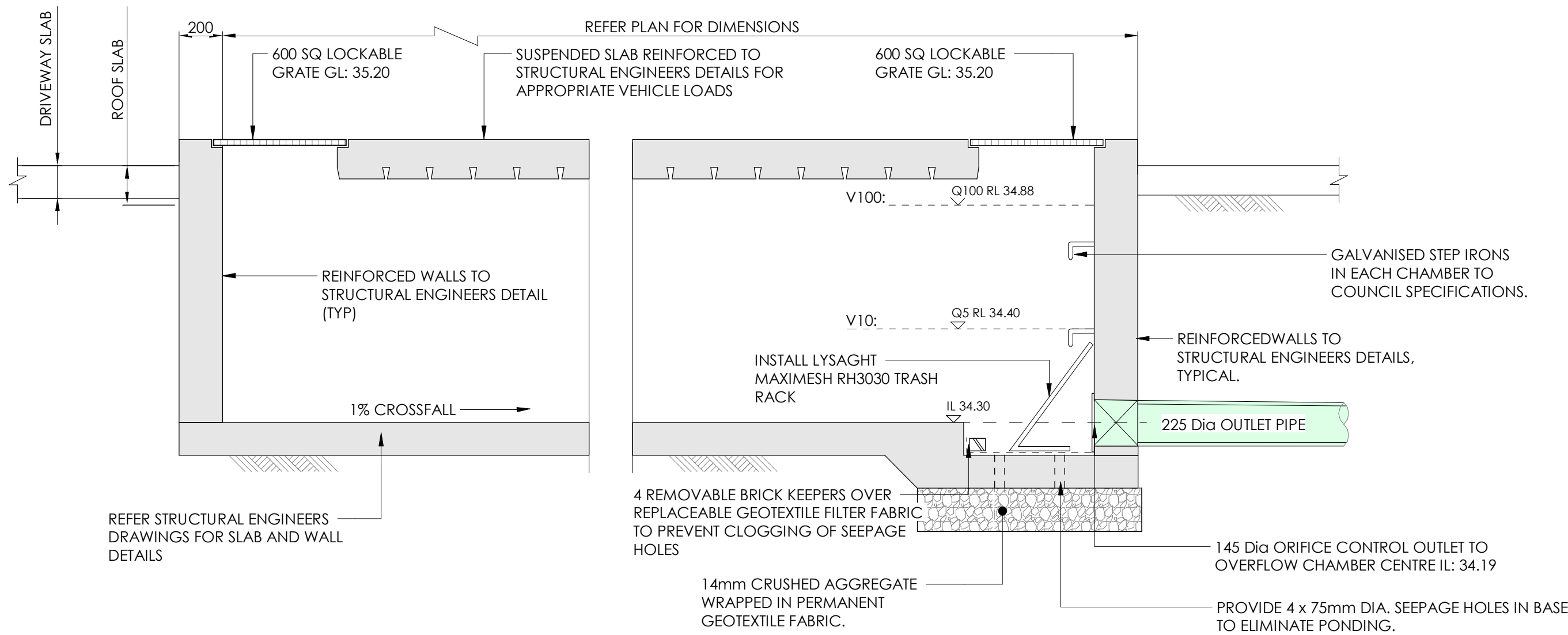
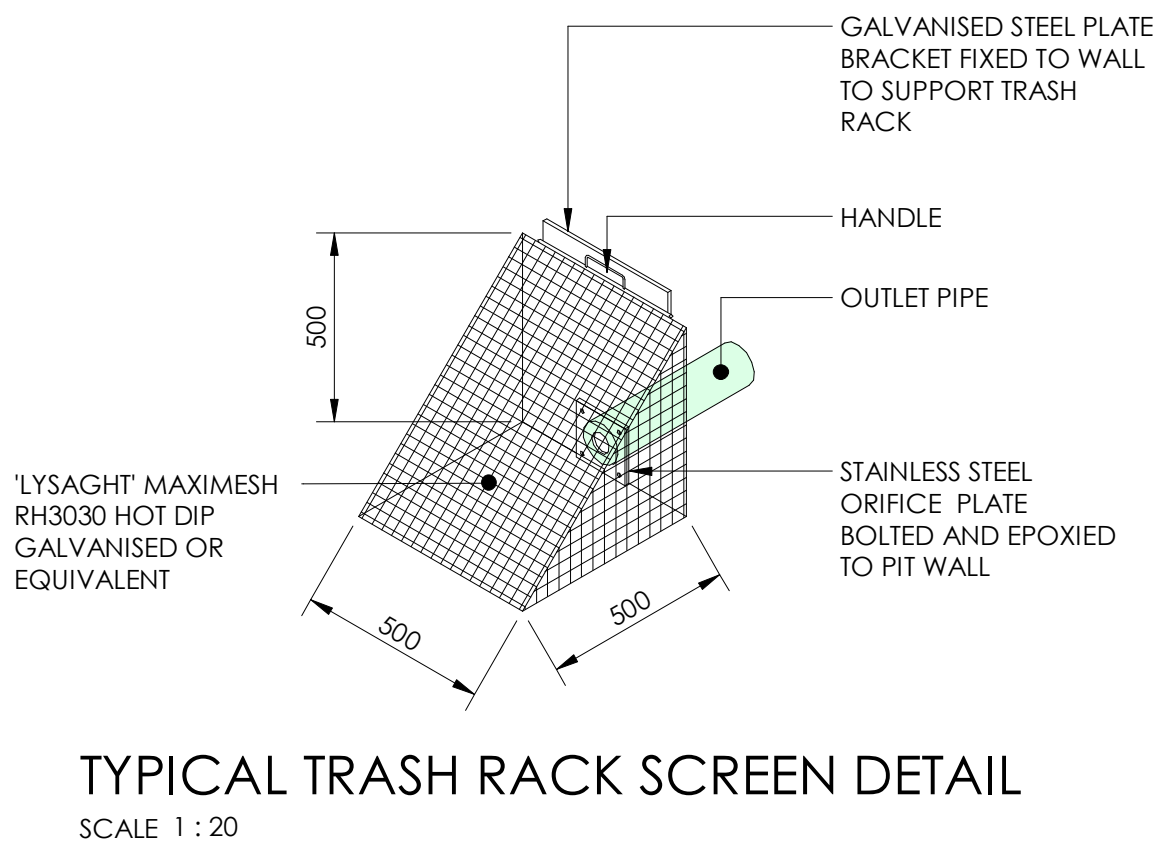
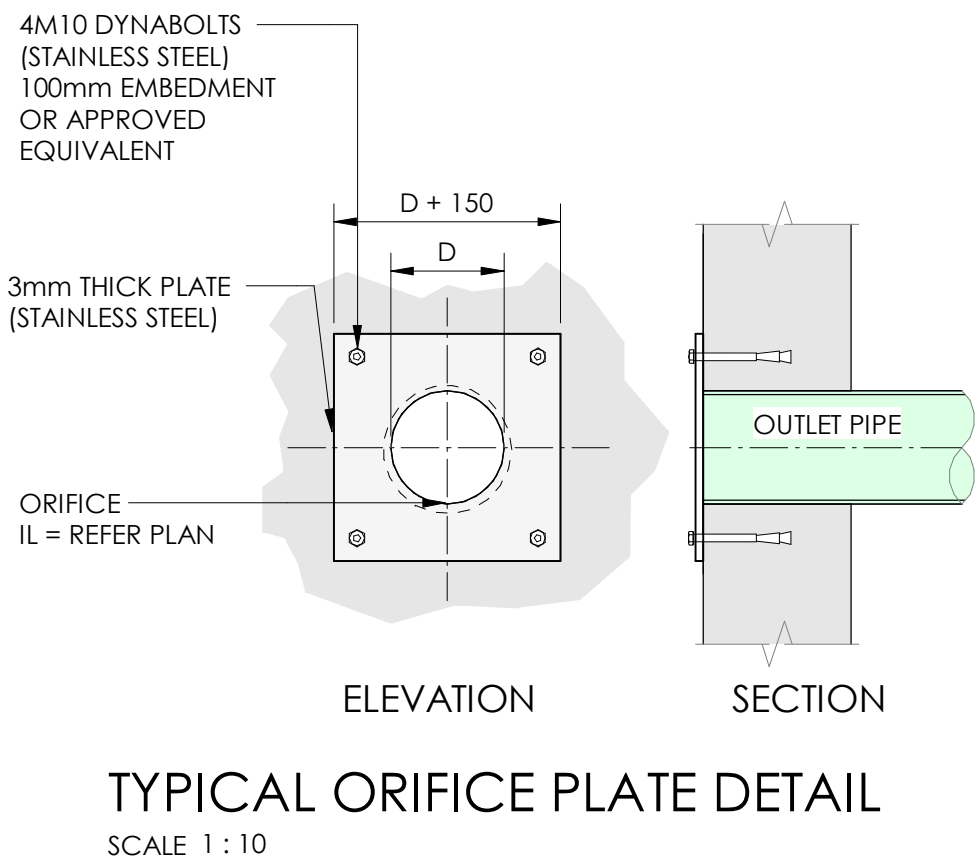
ADDRESS  
18-22 Mundamatta Street, VILLAWOOD NSW 2163

PROJECT DETAILS  
DESIGN DA  
DRAWN LTR  
DATE  
DRG SIZE A1  
SCALE 1 : 100  
PROJECT GC  
MGR  
WWW.JN.COM.AU  
N0211373  
C300 2

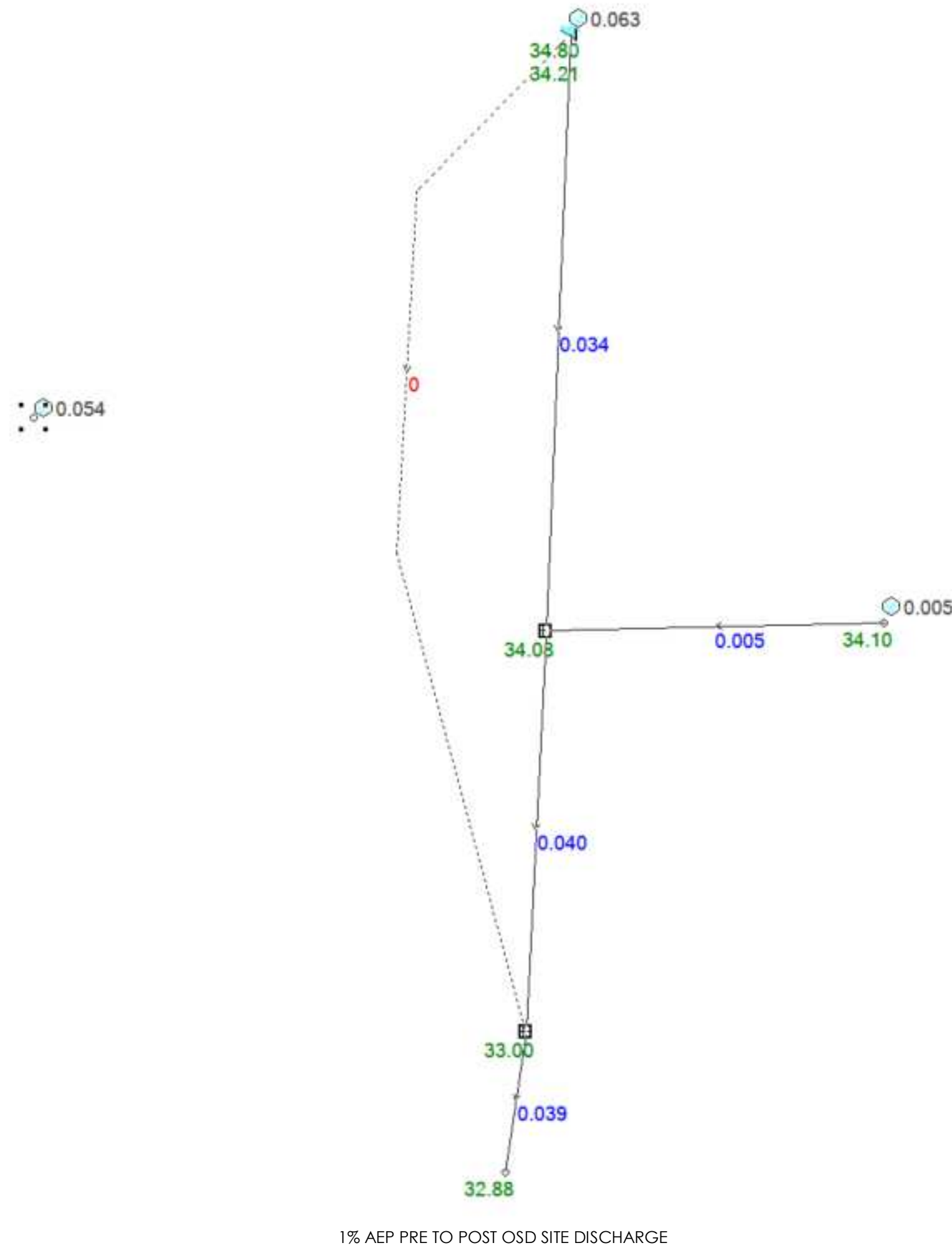




No	DATE	DESCRIPTION	BY
1	31.01.23	ISSUED FOR DA	LTR



Results for median storm in critical 1% AEP ensembles using Full Unsteady hydraulic model.



CLIENT  
Custance

STATUS  
PRELIMINARY

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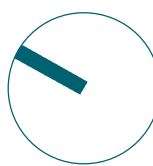
DISCIPLINE  
CIVIL DESIGN

DRAWING TITLE  
OSD DETAILS

PROJECT  
PROPOSED SENIORS LIVING DEVELOPMENT

ADDRESS  
18-22 Mundamatta Street, VILLAWOOD NSW 2163

PROJECT DETAILS  
DESIGN DA  
DRAWN LTR  
DATE  
DRG SIZE A1  
SCALE As indicated  
PROJECT GC  
MGR  
WWW.JN.COM.AU  
N0211373  
C051 1



17 November 2022

Craig Shelsher



Our Ref: N0211373-CRPT.02A

Dear Craig,

**Re: Cut & Fill DA Statement**

**Project:** LAHC development  
**Client:** Custance Associates Australia Pty Ltd  
**Address:** 18 Mundamatta Street  
VILLAWOOD NSW 2163  
Australia

JN has reviewed an overlay with the survey and proposed ground floor plan and the cut & fill across site can be noted as minor cut or fill, less than 500mm. As seen in Appendix A, there are areas around Unit 2 & 3 (Green Area) that have fill of about 930mm to the finished floor level due to drops in height around the existing tree and access being provided from the footpath to the units. The 930mm fill level is taken from the survey level around the tree in Unit 3 and the finished floor level of the unit (fill will be less to the bottom of the unit slab).

Yours sincerely,

A handwritten signature in black ink that reads 'D. Alexander'.

Dylan Alexander  
Civil Design Engineer

**jn.com.au**

JONES NICHOLSON PTY LTD  
ABN: 51 003 316 032

BRISBANE  
GOLD COAST  
SINGLETON  
SOUTHERN HIGHLANDS

SYDNEY-CBD  
SUTHERLAND  
WOLLONGONG  
GOULBURN



## Appendix A – Cut & Fill Overlay



## L.G.A. CANTERBURY-BANKSTOWN



BDY CNR	EASTING	NORTHING
A	314 026.895	6 247 802.412
B	314 052.697	6 247 835.353
C	314.032.562	6 247 871.936
D	313 990.851	6 247 849.505

LEGEND :

-  - DENOTES PHOTO LOCATION
-  - DENOTES BOUNDARY CORNER

NOTES:

- 1) TITLE BEARINGS AND DIMENSIONS ARE SHOWN. BOUNDARIES DETERMINED FROM PLANS AVAILABLE ON PUBLIC RECORD.
- 2) THIS SURVEY HAS BEEN MADE PURSUANT TO SECTION 9 OF THE SURVEYING & SPATIAL INFORMATION REGULATION 2017.
- 3) ORIGIN OF LEVELS: SSM 176664 RL33.72 (A.H.D.) SCIMS
- 4) SITE COMPRISES LOTS 814, 815 & 816 DP 36608
- 4) SITE AREA 2210.3m<sup>2</sup> BY TITLE DIMENSIONS.
- 5) UNDERGROUND SURVEY LINES HAVE NOT BEEN INVESTIGATED.
- 6) TREE SIZES ARE INDICATIVE  
0.3Ø10S, 8H DENOTES INDICATIVE TREE SIZE  
0.3 TRUNK DIAMETER 10 SPREAD, 8 HIGH.  
(G) - DENOTES TOP OF GUTTER.  
T/F - DENOTES TOP OF FENCE.
- 7) TREE NAMES SHOWN CONSTITUTE OUR OPINION ONLY IF TREE SPECIES IDENTIFICATION IS IMPORTANT THEY SHOULD BE DETERMINED BY A QUALIFIED ARBORIST.
- 8) UNDERGROUND (NON VISIBLE) SERVICE LINES HAVE BEEN SHOWN FROM 'OUR' INFORMATION. THIS IS BASED ON 'OUR' RECORDS & ARE DIAGRAMMATIC ONLY IN REGARD TO THEIR POSITION & WIDTH UNLESS STATED OTHERWISE.



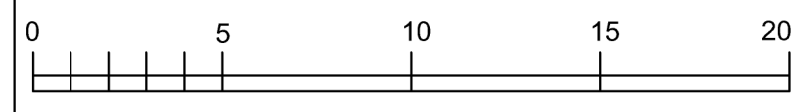
No.	DATE	NOTATION/AMENDMENT	No.	DATE	NOTATION/AMENDMENT		
			FILE		FILE SIZE (MB)	CHECKED BY	

CONTOUR INTERVAL:  
 DATUM: A.H.D.  
 ORIGIN OF DATUM: SSM 176664  
 RL 33.72  
 100 YEAR FLOOD RL: N/A  
 RECOMMENDED MINIMUM  
 FLOOR RL: N/A  
 SOURCE OF FLOOD INFO: N/A

### LEGEND OF COMMONLY USED SYMBOLS

The diagram illustrates the layout of various utility lines in a trench. The lines are arranged vertically from top to bottom: WATER (blue line with valves), SEWER (green line with manholes), ELECTRICITY O/H (black line with poles), ELECTRICITY U/G (black line with manholes), TELECOM (purple line with manholes), PIPE NETWORKS (red line with manholes), and STORMWATER (blue line with manholes). Each line is represented by a colored line with specific symbols indicating its function and components.

REDUCTION RATIO      1 : 250 (A1)



LAND TITLE INFORMATION
LOTS: 814, 815, 816 PART OF 805, 806 & 807
PLAN NOS : D.P 36608

OTHER:  
AREA:

DATE OF SURVEY: 04.12.21  
SURVEY CONSULTANT: AW

**Norton Survey Partners**  
SURVEYORS & LAND  
TITLE CONSULTANTS

PH +61 2 9555 2744  
office@nspartners.com.au  
SUITE 1 / 505 BALMAIN ROAD  
LILYFIELD N.S.W. 2040

REGISTERED SURVEYOR  
ANDREW WHITFIELD



**Community Services**  
Land & Housing Corporation

DRAWING TITLE

## DETAIL & LEVEL SURVEY

LOCATION

# VILLAWOOD

STREET ADDRESS

18-22 MUNDAMATTA STREET &  
PART OF 78-82 LOWANA STREET

JOB NUMBER  
52052

TYPE  
S

T. 1  
F. 11