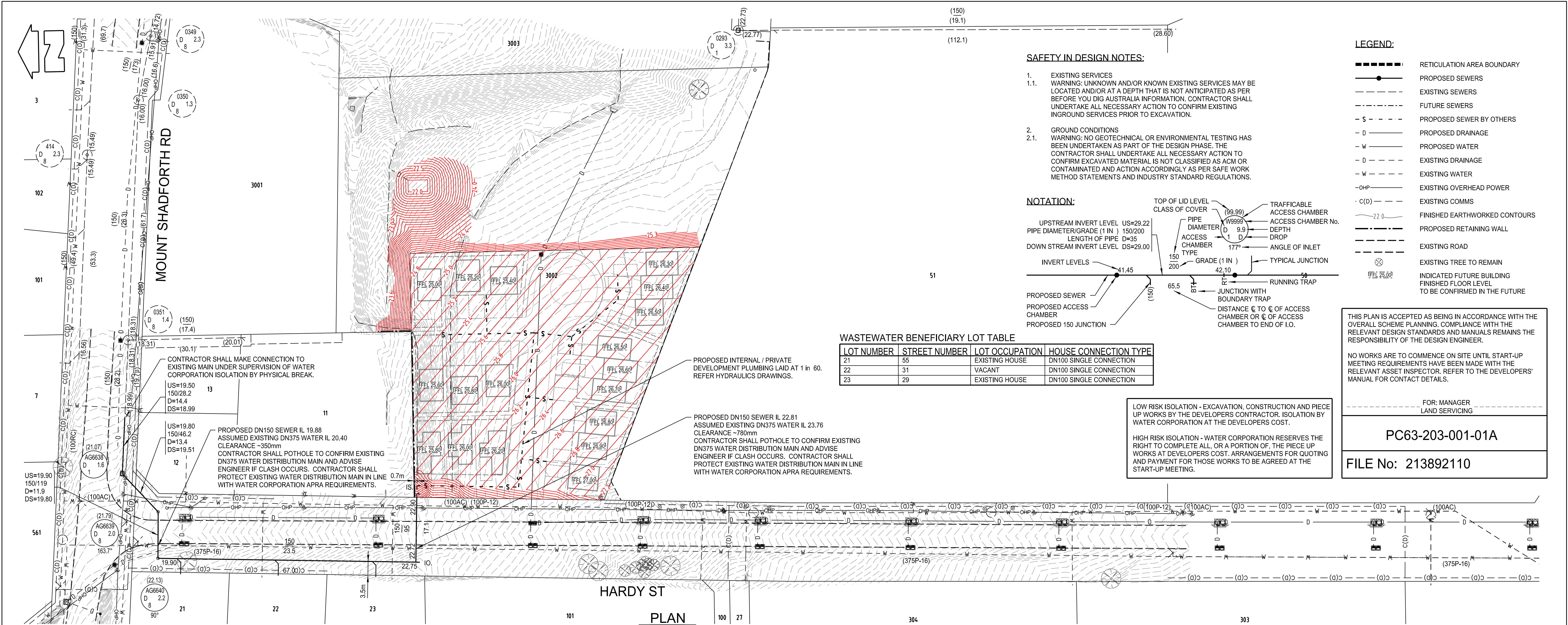
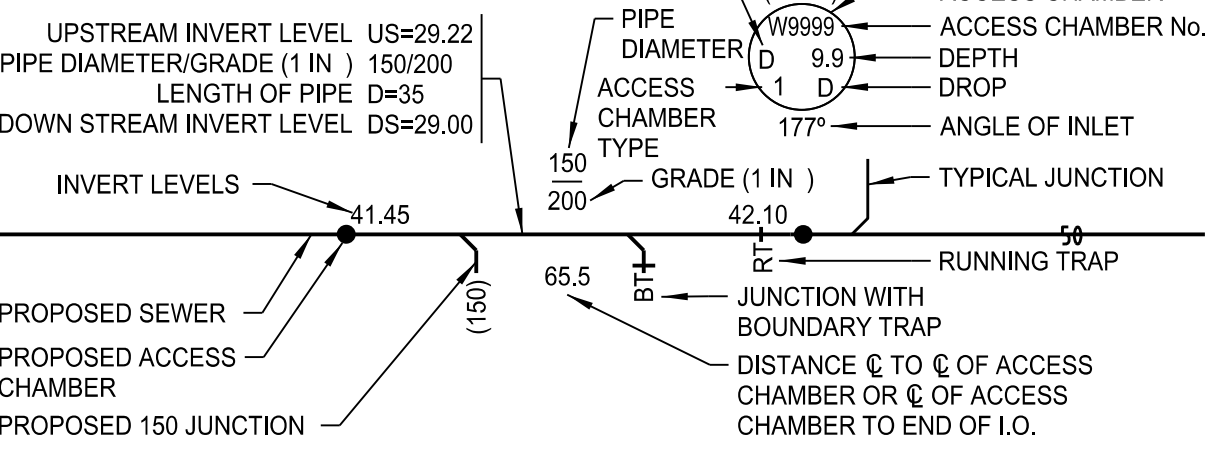




SAFETY IN DESIGN NOTES:

1. EXISTING SERVICES
1.1. WARNING: UNKNOWN AND/OR KNOWN EXISTING SERVICES MAY BE LOCATED AND/OR AT A DEPTH THAT IS NOT ANTICIPATED AS PER BEFORE YOU DIG AUSTRALIA INFORMATION. CONTRACTOR SHALL UNDERTAKE ALL NECESSARY ACTION TO CONFIRM EXISTING INGROUND SERVICES PRIOR TO EXCAVATION.
2. GROUND CONDITIONS
2.1. WARNING: NO GEOTECHNICAL OR ENVIRONMENTAL TESTING HAS BEEN UNDERTAKEN AS PART OF THE DESIGN PHASE. THE CONTRACTOR SHALL UNDERTAKE ALL NECESSARY ACTION TO CONFIRM EXCAVATED MATERIAL IS NOT CLASSIFIED AS ACM OR CONTAMINATED AND ACTION ACCORDINGLY AS PER SAFE WORK METHOD STATEMENTS AND INDUSTRY STANDARD REGULATIONS.

NOTATION:



WASTEWATER BENEFICIARY LOT TABLE

LOT NUMBER	STREET NUMBER	LOT OCCUPATION	HOUSE CONNECTION TYPE
21	55	EXISTING HOUSE	DN100 SINGLE CONNECTION
22	31	VACANT	DN100 SINGLE CONNECTION
23	29	EXISTING HOUSE	DN100 SINGLE CONNECTION

LOW RISK ISOLATION - EXCAVATION, CONSTRUCTION AND PIECE UP WORKS BY THE DEVELOPERS CONTRACTOR. ISOLATION BY WATER CORPORATION AT THE DEVELOPERS COST.

HIGH RISK ISOLATION - WATER CORPORATION RESERVES THE RIGHT TO COMPLETE ALL OR A PORTION OF THE PIECE UP WORKS AT DEVELOPERS COST. ARRANGEMENTS FOR QUOTING AND PAYMENT FOR THOSE WORKS TO BE AGREED AT THE START-UP MEETING.

LEGEND:

- RETICULATION AREA BOUNDARY
- PROPOSED SEWERS
- EXISTING SEWERS
- FUTURE SEWERS
- PROPOSED SEWER BY OTHERS
- PROPOSED DRAINAGE
- PROPOSED WATER
- EXISTING DRAINAGE
- EXISTING WATER
- EXISTING OVERHEAD POWER
- EXISTING COMMS
- FINISHED EARTHWORKED CONTOURS
- PROPOSED RETAINING WALL
- EXISTING ROAD
- EXISTING TREE TO REMAIN
- INDICATED FUTURE BUILDING
- FINISHED FLOOR LEVEL TO BE CONFIRMED IN THE FUTURE

THIS PLAN IS ACCEPTED AS BEING IN ACCORDANCE WITH THE OVERALL SCHEME PLANNING. COMPLIANCE WITH THE RELEVANT DESIGN STANDARDS AND MANUALS REMAINS THE RESPONSIBILITY OF THE DESIGN ENGINEER.

NO WORKS ARE TO COMMENCE ON SITE UNTIL START-UP MEETING REQUIREMENTS HAVE BEEN MADE WITH THE RELEVANT ASSET INSPECTOR. REFER TO THE DEVELOPERS' MANUAL FOR CONTACT DETAILS.

FOR: MANAGER
LAND SERVICING

PC63-203-001-01A

FILE No: 213892110

NOTES:

1. GENERAL
1.1. ALL WORKS SHALL BE INSTALLED AS PER WATER CORPORATION DESIGN STANDARD 50. THE CONTRACTOR SHALL MAINTAIN A COPY OF DS50 AT ALL TIMES.
1.2. THESE NOTES ARE STANDARD NOTES WHICH MAY INCLUDE INFORMATION NOT RELEVANT TO THE WORKS.
1.3. CONTOUR INTERVAL IS 0.1m.
1.4. LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
2. ALIGNMENTS
2.1. WASTEWATER MAINS SHALL BE LOCATED AS FOLLOWS UNLESS SHOWN OTHERWISE:
2.1.1. ON A 3.5m ALIGNMENT IN ROAD RESERVES.
2.1.2. 1.0m OFFSET FROM THE CENTRELINE OF RIGHT OF WAY'S (R.O.W'S).
2.1.3. ON A 0.7m ALIGNMENT WITHIN PRIVATE PROPERTY EXCEPT WHERE ACCESS CHAMBERS ARE INVOLVED WHERE A 1.0m ALIGNMENT SHALL BE USED.
3. ACCESS CHAMBER & MAINTENANCE SHAFT LOCATIONS
3.1. CENTRE POINTS OF ACCESS CHAMBERS AND MAINTENANCE SHAFTS IN ROAD RESERVES SHALL BE ON A 3.5m ALIGNMENT UNLESS SHOWN OTHERWISE.
3.2. CENTRE POINTS OF STRAIGHT THROUGH ACCESS CHAMBERS AND MAINTENANCE SHAFTS IN ROAD RESERVES OR R.O.W'S SHALL BE 1.0m FROM LOT BOUNDARY PROJECTIONS UNLESS SHOWN OTHERWISE.
4. MINIMUM COVER TO MAINS
4.1. SHALL BE 0.9m IN ROAD RESERVES AND TRAFFICABLE R.O.W'S. WHERE A MAIN IN A ROAD RESERVE IS PARALLEL TO THE ROAD, THE TOP OF THE MAIN SHALL BE AT LEAST 0.75m LOWER THAN THE CROWN OF THE ROAD OR THE GROUND LEVEL AT THE CENTRE OF THE ROAD RESERVE.
4.2. SHALL BE 0.75m ELSEWHERE.
5. EXISTING SERVICES
5.1. EXISTING SERVICES INFORMATION SHOWN ON DRAWINGS ARE INDICATIVE ONLY AND MAY NOT BE COMPLETE. BEFORE EXCAVATION COMMENCES THE CONTRACTOR SHALL UNDERTAKE THEIR OWN BEFORE YOU DIG AUSTRALIA (BYDA) APPLICATION. LOCATIONS AND DEPTHS OF ALL EXISTING SERVICES SHALL BE IDENTIFIED IN CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES VIA GPR AND POTHOLE EXCAVATION BY HAND.
5.2. THE CONTRACTOR SHALL PROTECT ALL EXISTING SERVICES WITHIN THE WORKS. ANY DAMAGE SHALL BE RECTIFIED BY THE CONTRACTOR AT THEIR EXPENSE.
5.3. A MINIMUM CLEARANCE OF 150mm SHOULD BE MAINTAINED BETWEEN PROPOSED WASTEWATER MAINS AND ALL OTHER SERVICES AT CROSSING POINTS.
6. EXISTING MAINS & CONNECTIONS
6.1. THE LOCATION AND LEVEL OF POINTS OF CONNECTION TO EXISTING WASTEWATER MAINS SHALL BE VERIFIED BY A SURVEYOR BEFORE COMMENCING CONSTRUCTION.
6.2. WORKS ON EXISTING LIVE WASTEWATER MAINS, INCLUDING CONNECTIONS, SHALL BE CARRIED OUT BY THE WATER CORPORATION AS NOMINATED SUBCONTRACTOR UNLESS OTHERWISE DIRECTED.
6.3. THE CONTRACTOR SHALL ALLOW TO COMPLY WITH WATER CORPORATION CLEARANCE TO WORKS AND WORKING IN CLOSE PROXIMITY TO EXISTING MAIN REQUIREMENTS AT ALL TIMES.
6.4. THE CONTRACTOR SHALL LIAISE WITH THE WATER CORPORATION FOR ALL PERMITS AND APPROVALS.
7. PIPE MATERIAL AND JOINTING
7.1. DN100 TO DN375 PIPE AND FITTINGS SHALL BE UNPLASTICISED POLYVINYL CHLORIDE (PVC) TO AS/NZS 1260
7.1.1. PVC PIPES AND FITTINGS:
DN100 PIPE SHALL BE SN6.
DN150 PIPE SHALL BE CLASS SN8
WHERE AVAILABLE CLASS SN6 MOULDED FITTINGS SHALL BE USED. WHERE MOULDED FITTINGS ARE NOT AVAILABLE FITTINGS SHALL BE FABRICATED FROM CLASS SN8 PIPE, WELDED AND FIBREGLASS WRAPPED.
7.1.2. PVC PIPE JOINT WORK:
PIPE JOINT WORK SHALL BE IN ACCORDANCE WITH AS2032-PART 3.
7.1.2.1. ALL JOINT FITTINGS SHALL BE SOLVENT CEMENT JOINTED. JOINTS SHALL BE MADE WITH SOLVENT CEMENT AFTER SPIGOT AND SOCKET HAVE BEEN CLEANED WITH CLEANING FLUID IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CLEANING FLUID SHALL BE COLOURED RED, SOLVENT CEMENT BLUE.
7.1.2.2. WHERE RUBBER RING JOINTS ARE SPECIFIED JOINT RINGS SHALL CONSIST OF POLYCHLOROPRENE RUBBER (NEOPRENE) OR STYRENE BUTADIENE RUBBER AND SHALL CONFORM TO AS1646.
8. JUNCTIONS AND PROPERTY CONNECTIONS
8.1. JUNCTIONS
8.1.1. JUNCTIONS SHALL BE A MINIMUM OF 2.0m APART MEASURED CENTRE TO CENTRE EXCEPT ON THE END OF AN I.O. OR I.S SEWER WHERE THEY SHALL BE POSITIONED AS SHOWN ON THE STANDARD DRAWINGS.
8.2. PROPERTY CONNECTIONS
8.2.1. PROPERTY CONNECTIONS SHALL BE PVC. ALL PROPERTY CONNECTIONS SHALL BE BROUGHT UP TO WITHIN 1.0m OF THE GROUND SURFACE LEVEL.
9. I.O. & I.S. MAINS
9.1. I.O. MAINS CROSSING ROAD RESERVES TO SERVICE PROPERTIES SHOULD BE TERMINATED WITHIN THE ROAD RESERVE 0.5m FROM THE PROPERTY BOUNDARIES.
9.2. I.O. MAINS MAY BE TERMINATED UP TO 1.5m WITHIN PROPERTIES IF PROBLEMS WILL BE ENCOUNTERED WITH OTHER SERVICES OR RETAINING WALL FOUNDATIONS, AS SHOWN IN WATER CORPORATION STANDARD DRAWING AA01-86-5.
9.3. I.S. MAINS CROSSING ROAD RESERVES TO SERVICE PROPERTIES SHOULD BE TERMINATED 0.5m WITHIN THE PROPERTY BOUNDARY. THESE MAINS MAY BE TERMINATED FURTHER WITHIN PROPERTIES IF PROBLEMS WILL BE ENCOUNTERED WITH OTHER SERVICES OR RETAINING WALL FOUNDATIONS. I.S. SHAFTS CAN THEN BE USED AS A PROPERTY CONNECTION (P9) AS SHOWN IN WATER CORPORATION STANDARD DRAWING AA01-86-1.
9.4. I.S. MAINS WITH A P9 CONNECTION SHALL HAVE A MINIMUM DEPTH TO INVERT OF THE PROPERTY CONNECTION LEVEL PLUS 800mm. IF THE GRADE OF THE SEWER REQUIRES AN ADDITIONAL BEND ON THE INSPECTION SHAFT TO BRING IT TO WITHIN 5 DEGREES OF VERTICAL. THE MINIMUM DEPTH TO INVERT IS THE PROPERTY CONNECTION LEVEL PLUS 1200mm, AS SHOWN IN WATER CORPORATION STANDARD DRAWING AA01-86-1.
10. MAINTENANCE SHAFTS
10.1. ONLY MAINTENANCE SHAFTS APPROVED BY THE WATER CORPORATION SHALL BE USED.
11. TYPES OF ACCESS CHAMBER AND MAINTENANCE SHAFT COVERS
11.1. ONLY COVERS AND FRAMES APPROVED BY THE WATER CORPORATION SHALL BE USED
11.2. ALL RECTANGULAR COVERS SHALL BE TWO PART COVERS
11.3. CAST IRON AND DUCTILE IRON COVERS SHALL BE TO AS3996
12. CAST IRON AND DUCTILE IRON ACCESS CHAMBER COVERS
12.1. CAST IRON AND DUCTILE IRON COVERS IN TRAFFICABLE AREAS SHALL OPEN AGAINST THE DIRECTION OF TRAFFIC.
13. CONCRETE ACCESS CHAMBERS
13.1.1. CONCRETE ACCESS CHAMBERS SHALL BE SELECTED BASED ON EXPOSURE CLASSIFICATIONS IN ACCORDANCE WITH AS 3735 AND THE FOLLOWING TABLE:
- | LOCATION | ROAD PAVEMENTS | VERGES, ROAD RESERVE, RESIDENTIAL & NON-RESIDENTIAL DRIVEWAYS, CARPARKS, TRAFFICABLE R.O.W'S, WITHIN PROPERTIES IN CLAY GROUND & GROUND SUBJECT TO FLOODING | ELSEWHERE INCLUDING PRIVATE PROPERTY, PARKS & RESERVES |
|---------------------------------|---|---|---|
| TYPE OF ACCESS CHAMBER COVER | RECTANGULAR CLASS D CAST IRON OR DUCTILE IRON CONCRETE INFILLED TWO PART COVERS | RECTANGULAR CLASS D CAST IRON OR DUCTILE IRON SOLID TOP TWO PART COVERS | RECTANGULAR CLASS B CAST IRON OR DUCTILE IRON SOLID TOP TWO PART COVERS |
| TYPE OF MAINTENANCE SHAFT COVER | CIRCULAR CLASS D CAST IRON OR DUCTILE IRON SOLID TOP | CIRCULAR CLASS D CAST IRON OR DUCTILE IRON SOLID TOP | CIRCULAR CLASS B CAST IRON OR DUCTILE IRON SOLID TOP |
- 13.1.2. MINIMUM CEMENT CONTENT SHALL BE 320kg/m³.
13.1.3. WATER/CEMENT RATIO SHALL NOT EXCEED 0.5.
13.1.4. ALL CONCRETE COMPONENTS OF ACCESS CHAMBERS WITH B2 EXPOSURE CLASSIFICATION SHALL HAVE A MINIMUM STRENGTH GRADE S40.
13.1.5. CONCRETE GRADE AND MINIMUM COVER REQUIREMENTS SHALL COMPLY WITH AS 3735 AND AS 3600.
13.1.6. INTERNAL CONCRETE SURFACES OF ACCESS CHAMBERS IDENTIFIED FOR PLASTIC LINING ARE TO BE ISOLATED FROM THE ATTACKING ENVIRONMENT.
13.2. MASS CONCRETE/CONCRETE ENCASEMENT AND OTHER CONCRETE NOT EXPOSED TO WASTEWATER ENVIRONMENTS
13.2.1. CONCRETE SHALL BE GRADE N25 TO AS 1379 AND PLACED IN ACCORDANCE WITH AS 3600.
13.2.2. CONCRETE IN AGGRESSIVE SOILS SHALL BE DESIGNED FOR DURABILITY IN ACCORDANCE WITH AS 3600.
14. WET GROUND
14.1. FOR PURPOSES OF THE CONTRACT, WET GROUND SHALL BE EITHER CLAY OR LOAMY SOIL, OR ANY GROUND LESS THAN 0.6m ABOVE THE ESTIMATED MAXIMUM GROUND WATER LEVEL.
15. REINSTATEMENT
15.1. THE CONTRACTOR SHALL PERFORM A DILAPIDATION STUDY PRIOR TO UNDERTAKING WORKS.
15.2. THE CONTRACTOR SHALL SUBMIT ALL NECESSARY APPLICATIONS TO THE LOCAL AUTHORITY TO CARRY OUT WORKS IN THE ROAD RESERVE.
15.3. THE CONTRACTOR SHALL REINSTATE ALL AFFECTED AREAS TO A STANDARD EQUAL OR BETTER THAN EXISTING CONDITIONS, INCLUSIVE OF, BUT NOT LIMITED TO, EXISTING DRIVEWAYS, CROSSEOVERS, FOOTPATHS, ROAD PAVEMENTS, LINEMARKING, TURF AND LANDSCAPING.
15.4. THE CONTRACTOR SHALL OBTAIN WRITTEN ADVICE FROM THE LOCAL AUTHORITY STATING ALL REINSTATEMENT OF PUBLIC ROADWAYS HAVE BEEN COMPLETED TO THE LOCAL AUTHORITY'S SATISFACTION.
16. TRAFFIC MANAGEMENT
16.1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN TRAFFIC MANAGEMENT IN ACCORDANCE WITH AN APPROVED TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF THE LOCAL AUTHORITY.
17. AS CONSTRUCTED
17.1. THE CONTRACTOR SHALL PROVIDE AS CONSTRUCTED SURVEY INFORMATION BY A LICENSED SURVEYOR TO THE REQUIREMENTS OF THE WATER CORPORATION.

Rev	Description	Date	Drawn	Auth
A	PRELIMINARY	20-JAN-2026	KLI	TJD
B	SEWER LAYOUT UPDATED	16-FEB-2026	KLI	TJD
C	ISSUED FOR APPROVAL	08-MAY-2026	KLI	TJD
D	SEWER LAYOUT UPDATED	02-JULY-2026	KLI	TJD
E	UPDATED AS PER WATER CORPORATION COMMENTS	21-JULY-2026	KLI	TJD
F	ISSUED FOR TENDER	24-AUG-2026	KLI	TJD

DEMEZA CIVIL CONSULTING
Demeza Civil Consulting Pty Ltd
BEC 31 - Registered Building Engineering Contractor (Civil)

Datum	MGA2020-50, mAHD		
Surveyor	JOHN KINNEAR		
Designer	K. LI	16-FEB-2026	
Design Check	T. DEMEZA	16-FEB-2026	
Drafter	K. LI	16-FEB-2026	
Drafting Check	T. DEMEZA	16-FEB-2026	
Engineering Certification			
T. Demeza			
MIEAust, CPeng (Civil), NER (Civil)			
BEP 169 (Civil - Professional)			

Project	DEM-25-017	Scale	ORIG SIZE	A1
LOT 3002 HARDY STREET, DENMARK WAPC: 164000 Client: SHIRE OF DENMARK				
Drawing Title WASTEWATER RETICULATION PLAN				
Drawing Status TENDER ISSUE				
Drawing Number DEM-25-017-C201				Rev F