CITY OF
COFFS HARBOUR

STANDARD DRAWINGS FOR DRAINAGE

DISCLAIMER Council shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, or consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

NOTE: THESE STANDARD DRAWINGS REPLACE ALL PREVIOUS ISSUES

DWG No.	DRAINAGE	REVISION
SW -300 - 00	DRAWING INDEX - DRAINAGE	Rev 1 12/2024
SW -300 - 01	STANDARD NOTES - DRAINAGE	Rev 1 12/2024
SW -300 - 02	PRECAST GRATED KERB INLET LINTEL PIT (ON-GRADE & SAG PIT)	Rev 1 12/2024
SW -300 - 03	TYPICAL KERB INLET PIT, REAR OF KERB	Rev 1 12/2024
SW -300 - 04	TYPICAL PIT - KERB IN LINE SETOUT	Rev 1 12/2024
SW -300 - 05	PRECAST STORMWATER PIT INSTALLATION	Rev 1 12/2024
SW -300 - 06	TYPICAL JUNCTION PITS - TYPE JP1, JP2, GIP1 & GIP2	Rev 1 12/2024
SW -300 - 07	TYPICAL JUNCTION PITS - TYPE JP3	Rev 1 12/2024
SW -300 - 08	TYPICAL JUNCTION PITS - TYPE JP4	Rev 1 12/2024
SW -300 - 09	JUNCTION PIT ROOF SLAB REINFORCEMENT DETAILS	Rev 1 12/2024
SW -300 - 10	RAISED GRATED SURFACE INLET PITS	Rev 1 12/2024
SW -300 - 11	DISH DRAIN GRATED SURFACE INLET PIT	Rev 1 12/2024
SW -300 - 12	INTERALLOTMENT PIT	Rev 1 12/2024
SW -300 - 13	IN LINE INTERALLOTMENT CONNECTIONS	Rev 1 12/2024
SW -300 - 14	STEP IRONS DETAILS	Rev 1 12/2024
SW -300 - 15	KERB & GUTTER PROPERTY DRAINAGE CONNECTION	Rev 1 12/2024
SW -300 - 16	TYPICAL SUB-SOIL DRAINS	Rev 1 12/2024
SW -300 - 17	TYPICAL MEDIAN SUBSOIL LOCATIONS	Rev 1 12/2024
SW -300 - 18	DIRECT PROPERTY CONNECTION TO R.C.P., SHEET 1 OF 2	Rev 1 12/2024
SW -300 - 19	DIRECT PROPERTY CONNECTION TO R.C.P., SHEET 2 OF 2	Rev 1 12/2024
SW -300 - 20	DIRECT CONNECTION OF SUBSOIL STRIP DRAIN TO TO uPVC PIPE	Rev 1 12/2024
SW -300 - 21	TYPICAL TRENCHING DETAILS - RIGID PIPE	Rev 1 12/2024
SW -300 - 22	TYPICAL TRENCHING DETAILS - FLEXIBLE PIPE	Rev 1 12/2024
SW -300 - 23	SINGLE CELL BOX CULVERT WITH PRECAST BASE SLAB	Rev 1 12/2024
SW -300 - 24	MULTI- CELL BOX CULVERT WITH CAST IN-SITU BASE SLAB	Rev 1 12/2024
SW -300 - 25	STORMWATER PIPE CONCRETE BULKHEADS	Rev 1 12/2024
SW -300 - 26	STORMWATER PIPE CONCRETE CRADLES	Rev 1 12/2024
SW -300 - 27	TYPICAL OPEN CHANNEL DETAILS	Rev 1 12/2024
SW - 300 - 28	TYPICAL CHECK DAMS (VEGETATED WSUD SWALE)	Rev 1 12/2024
SW -300 - 29	CAST IN-SITU HEADWALL DN375 - DN900	Rev 1 12/2024
SW -300 - 30	CAST IN-SITU HEADWALL DN1050 - DN1350	Rev 1 12/2024

STORMWATER DRAINAGE NOTES

1. THE STORMWATER DESIGN SHOULD BE IN ACCORDANCE WITH THE CITY'S TECHNICAL SPECIFICATION AND 2019 AUSTRALIAN RAINFALL AND RUNOFF (AR&R) GUIDELINES.
2. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ON PLANS ARE NOT TO BE REDUCED WITHOUT PRIOR WRITTEN APPROVAL FROM THE DESIGN ENGINEER.
3. EXISTING STORMWATER PIPE LOCATIONS AND INVERT LEVELS TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. IF INLET PIPES ARE SMALLER DIAMETER THAN OUTLET PIPES THEN OBVERTS SHOULD BE MATCHED.

PIPES

5. ALL PIPE WORK SHALL BE LAID IN ACCORDANCE WITH AS3725 FOR CONCRETE PIPES, AS2032 FOR uPVC IN ACCORDANCE WITH THE MANUFACTURE'S REQUIREMENTS TO THE CITY'S SATISFACTION.
6. PROTECTION OF PIPES EXPOSED TO LOADS EXCEEDING THE W80 WHEEL LOAD OF 80kN SHALL BE THE CONTRACTOR'S RESPONSIBILITY. DAMAGE TO PIPES DUE TO CONSTRUCTION LOADING IS THE CONTRACTORS RESPONSIBILITY.
7. NO CONSTRUCTION LOADS SHALL BE APPLIED TO uPVC PIPES.
8. PIPES OF DIAMETER 300mm OR LARGER SHALL BE REINFORCED CONCRETE PIPES (RCP) CLASS '2' (MINIMUM) APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O. ON DESIGN DRAWINGS.
9. PIPES UP TO 225 DIA. SHALL BE SEWER GRADE uPVC WITH RUBBER RING JOINTS U.N.O. OR APPROVED SN10 EQUIVALENT.
10. EQUIVALENT STRENGTH FRC (FIBRE REINFORCED CONCRETE) PIPES MAY BE USED IN CERTAIN SITUATIONS WITH APPROVAL FROM THE CITY AND WITH INSTALLATION TO SUPERINTENDENT'S SATISFACTION. FRC PIPES ARE NOT APPROVED FOR ROAD CROSSINGS.
11. EQUIVALENT STRENGTH "BLACK MAX" PIPES (POLYPROPYLENE) MAY BE USED WITH INSTALLATION TO TfNSW SPECIFICATION R23 AND TO THE SUPERINTENDENT'S SATISFACTION. "BLACK MAX" PIPE IS NOT APPROVED FOR ROAD CROSSING. BLACK MAX PIPE IS PARTICULARLY SUITABLE FOR CORROSIVE AND AGGRESSIVE GROUND CONDITIONS SUCH AS ACID SULPHATE SOILS.
12. ALL DRAINAGE TRENCH EXCAVATION TO BE EXCAVATED IN STABLE MATERIAL.
13. PIPE TRENCHING AND BACKFILL TO BE IN ACCORDANCE WITH THE CITY'S STANDARD TRENCHING DETAILS. ALL BACKFILL TO BE COMPACTED TO 98% STANDARD COMPACTION AND 100% STANDARD COMPACTION UNDER ROADWAYS, IN LAYERS NO THICKER THAN 150 COMPACTED THICKNESS AND TO COMPLY WITH AS3725.
14. WHERE TRENCHES ARE IN ROCK THE PIPE SHALL BE BEDDED ON A MINIMUM OF 50mm CONCRETE BED (OR 75mm BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE.
15. PIPE SHALL HAVE A MINIMUM OF 600mm COVER UNDER ROADS AND 450mm COVER UNDER PRIVATE PROPERTY & PARKS SUBJECT TO OCCASIONAL TRAFFIC. THE DESIGN ENGINEER SHOULD BE NOTIFIED IF MINIMUM COVERS CAN'T BE ACHIEVED.
16. PROVIDE OUTLET SCOUR PROTECTION AT ALL DRAINAGE SYSTEM OUTLETS. PROVIDE ENERGY DISSIPATION MEASURES WHERE REQUIRED. THESE PROTECTION MEASURES SHALL BE DETERMINED BY THE DESIGNER AND INCLUDED ON THE DESIGN PLANS.

PITS

17. CLASS OF LID/COVER GRATE TO BE IN ACCORDANCE WITH AS3996, TYPICALLY CLASS "D" ARE REQUIRED UNLESS SPECIFIED OTHERWISE ON DESIGN DRAWINGS. CLASS "A" COVERS ARE NOT ALLOWED.
18. CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
19. ALL PIPE INLETS, INCLUDING SUBSOIL PIPES SHALL BE FINISHED FLUSH WITH PIT WALL AND GROUTED.
20. PITS SHALL BE RENDERED & BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PONDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
21. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3.0m LENGTH OF l00mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PIT. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPLE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.
22. ALL WELDLOK HINGE SUMP GRATES AND FRAMES TO BE HOT DIP GALVANISED. THOSE BEING WELDED TOGETHER SHALL BE HOT DIP GALVANISED AFTER WELDING IS COMPLETED.
23. ALL EXPOSED STEEL (INCLUDING STEEL BEAMS) SHALL BE HOT DIP GALVANISED.
24. ALL KERB INLET PITS TO BE IN ACCORDANCE WITH STD DRG SW-300-02.
25. ALL STORMWATER MANHOLES TO BE IN ACCORDANCE WITH THE CITY'S JUNCTION PIT STANDARD DRAWINGS.
26. SUBSOIL DRAINS SHALL BE PLACED UNDER ALL KERB AND CHANNEL WITH CLEANOUT POINTS AT HIGH POINTS AND AT 50m CENTRES. REFER STD DRG SW-300-16 FOR TYPICAL DETAILS

PITS - INTERALLOTMENT

27. PROVIDE ROOFWATER CONNECTIONS TO KERB AS SHOWN ON STD DWG SW-300-15.
28. MINIMUM INTERALLOTMENT DRAINAGE PIPE SIZE TO BE 225Ø IN ACCORDANCE WITH THE CITY TECHNICAL SPECIFICATION.
29. ALL STUB INTERALLOTMENT DRAINAGE PITS TO BE 150Ø CLASS SH UNLESS NOTED OTHERWISE.
30. ROOFWATER CONNECTIONS TO GULLIES TO BE 100Ø PVC WITH MINIIMUM 450mm COVER.
31. TOP OF PITS SHALL BE 50mm BELOW FINISHED SURFACE LEVELS.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

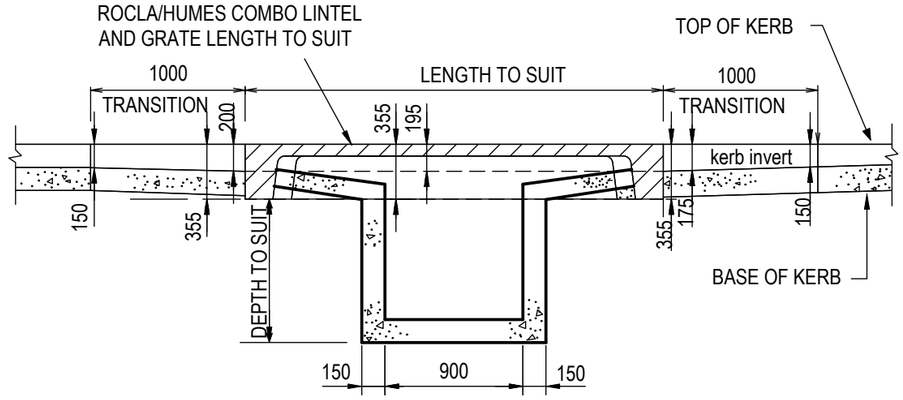
STANDARD DRAWINGS

STANDARD NOTES - DRAINAGE

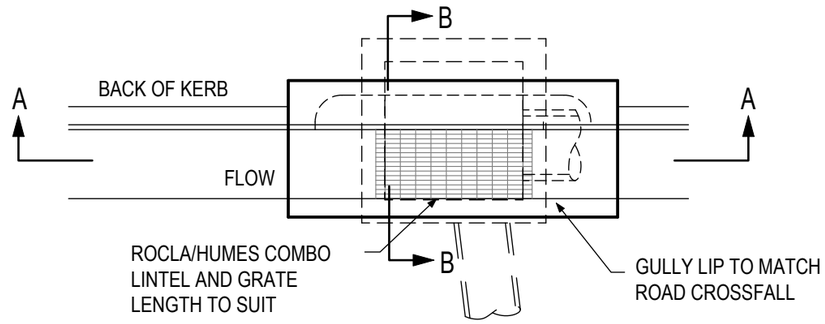
COUNCIL PLAN No. SW-300-01

Orig. Size A3

Revision 1

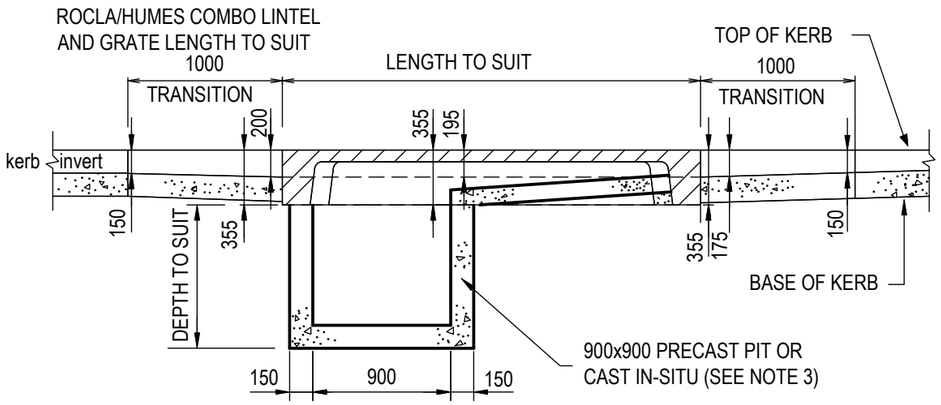


SECTION A-A

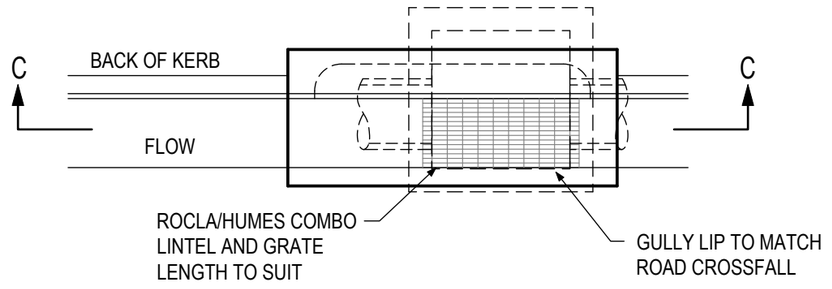


PLAN

GKIP - COMBO FOR PIPE AT SAG UNDER KERBLINE



SECTION C-C

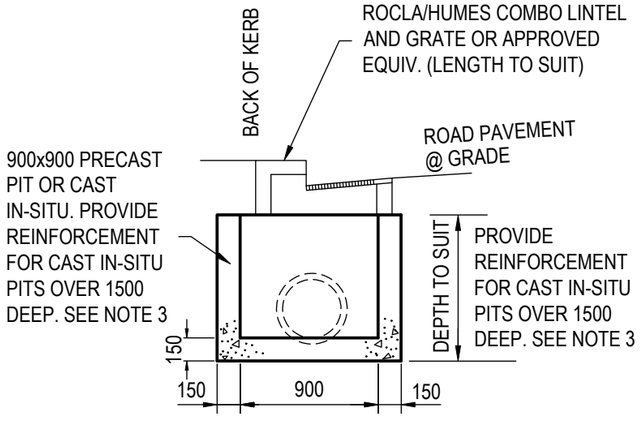


PLAN

GKIP - COMBO FOR PIPE ON GRADE UNDER KERBLINE

NOTES

1. STEP IRONS TO BE PROVIDED IN PITS OVER 1200 DEEP.
2. DRAINAGE PIT MAY BE PRECAST OR CAST IN-SITU
3. SL81 REINFORCEMENT TO BE PROVIDED CENTRALLY IN SIDE WALLS FOR CAST IN-SITU PITS OVER 1500 DEEP
4. CONCRETE TO BE N32 TO AS3600, CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
5. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PENDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
6. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.

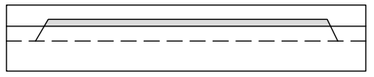


SECTION B-B

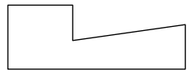
NOMINAL PRECAST LINTEL DIMENSIONS

DIMENSION	1800 OVERALL	2400 OVERALL	3000 OVERALL
A	1820	2430	3040
B	1420	2030	2640
C	890	890	890
D	355	355	355
E	240	240	240
F	195	195	195
G	160	160	160
H	330	330	330

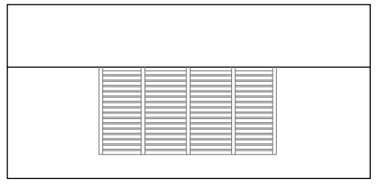
REFER TO INDIVIDUAL MANUFACTURES FOR SPECIFICATIONS



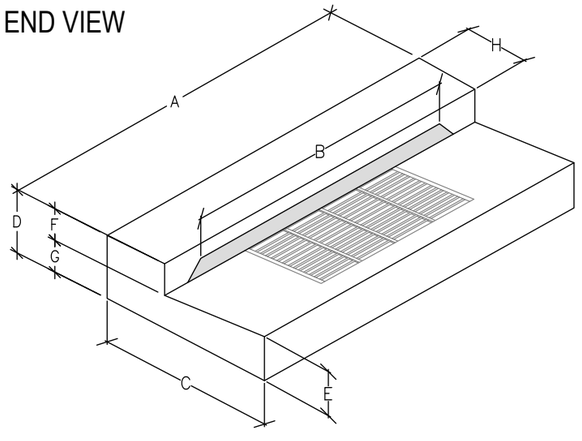
ELEVATION



END VIEW



PLAN



Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

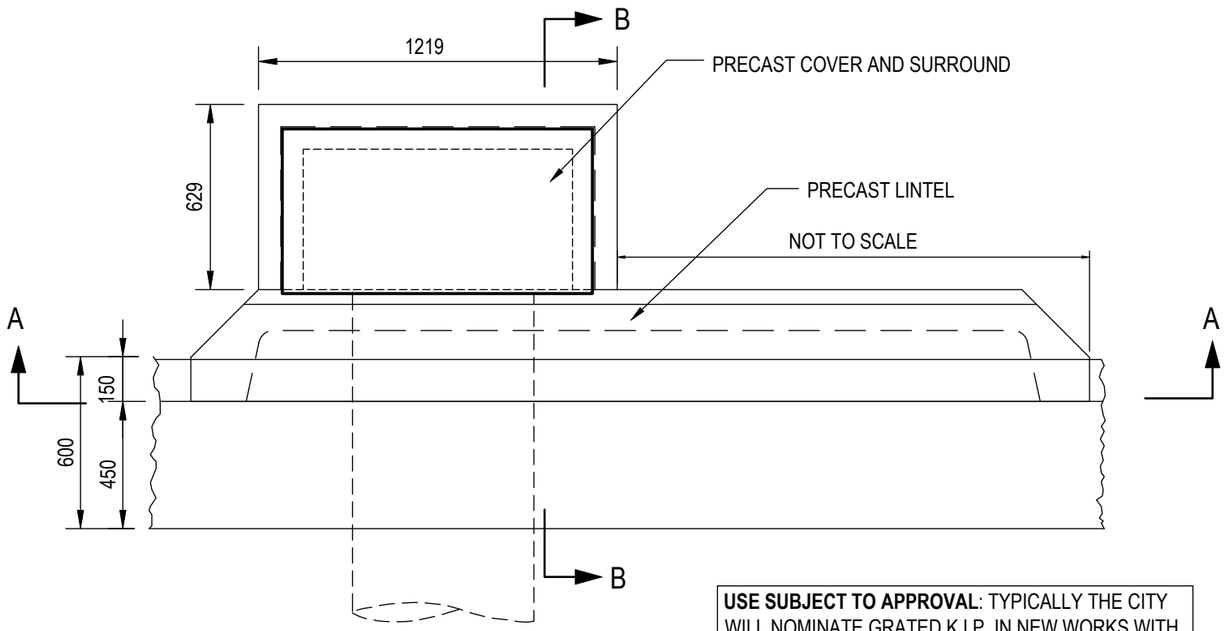
STANDARD DRAWINGS

PRECAST GRATED KERB INLET PIT
ON - GRADE AND SAG PIT

COUNCIL PLAN No.
SW-300-02

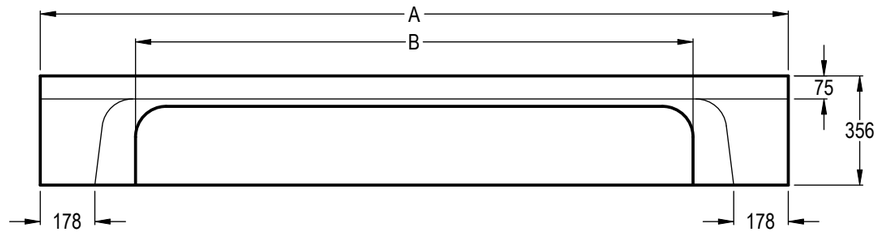
Orig. Size	Revision
A3	1

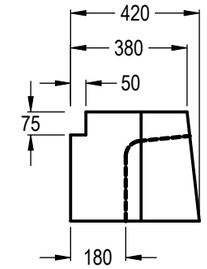
Nominal Opening Size	.9m	1.2m	1.8m	2.4m	3.0m	3.6m	4.2m	4.8m
A (mm)	1000	1830	2440	3050	3660	4230	4860	5470
B (mm)	885	1470	2010	2660	3270	3810	4440	5050

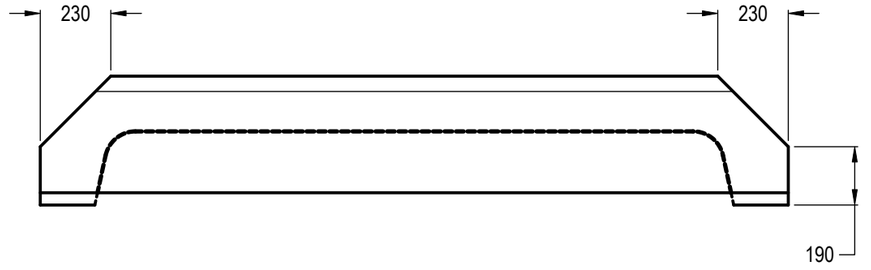


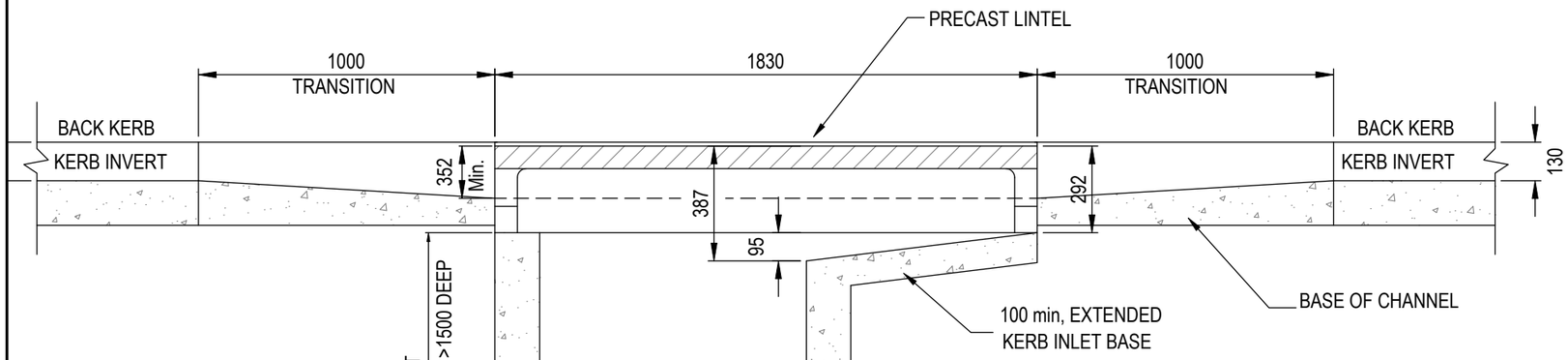
PLAN

USE SUBJECT TO APPROVAL: TYPICALLY THE CITY WILL NOMINATE GRATED K.I.P. IN NEW WORKS WITH DRAINAGE PIPE CENTRELINE UNDER FACE OF KERB. THIS PIT TYPE IS INCLUDED FOR EXISTING SITES WHERE DETAIL USED PREVIOUSLY.









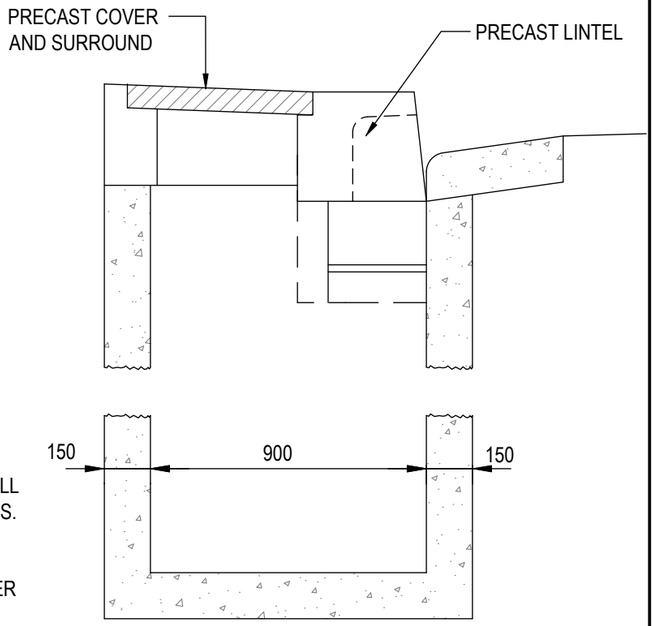
SECTION A-A

NOTE: BACKFILLING

WHEN THE PITS AND PIPES HAVE BEEN LAID AND SEALED, BACKFILLING CAN OCCUR. THE MATERIAL USED FOR BACKFILLING THE STORMWATER PIT MUST BE THE SAME AS MATERIAL USED FOR BACKFILLING THE PIPELINE. EVENLY PLACE AND UNIFORMLY COMPACT THE MATERIAL ENSURING THAT THE COMPONENTS AND JOINTS ARE NOT DISPLACED. BACKFILL WITH THE AIM OF MINIMAL OR NO SUBSIDENCE AFTER COMPLETION OF WORKS.

NOTES

1. STEP IRONS TO BE PROVIDED IN PITS OVER 1200 DEEP TO AS1657.
2. DRAINAGE PIT MAY BE PRECAST OR CAST IN-SITU
3. SL81 REINFORCEMENT TO BE PROVIDED CENTRALLY IN SIDE WALLS FOR CAST IN-SITU PITS OVER 1500 DEEP
4. CONCRETE TO BE N32 TO AS3600, CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
5. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PENDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
6. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.



SECTION B-B

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

KERB INLET PIT REAR OF KERB

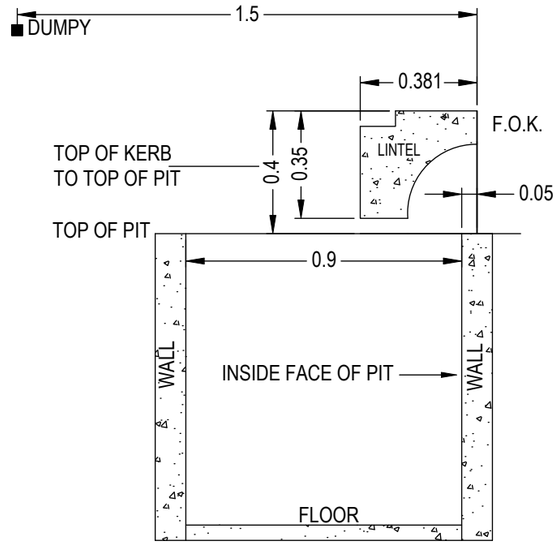
COUNCIL PLAN No. SW-300-03

Orig. Size A3

Revision 1

PRE-CAST PITS & LINTEL CROSS SECTION

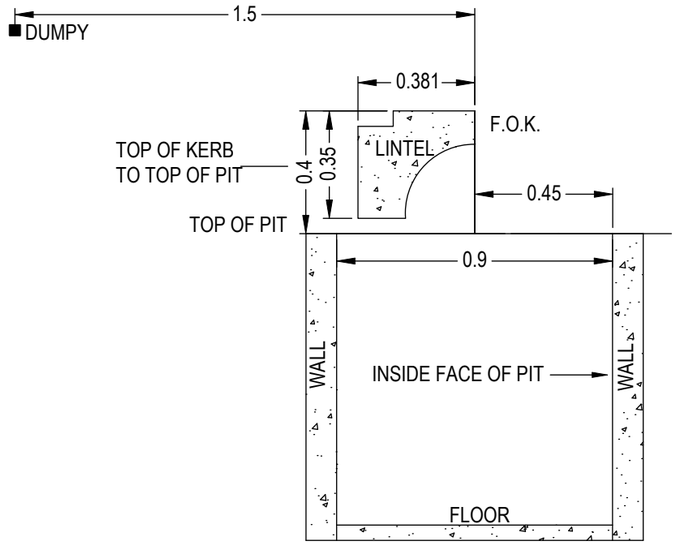
- INSIDE WALL OF PIT 0.050m BEHIND FACE OF KERB
- TOP OF PIT DOWN 0.400m (MIN) FROM TOP OF KERB
- BOARD IN 0.150m FROM B.O.K & 0.210m DOWN FROM T.K.



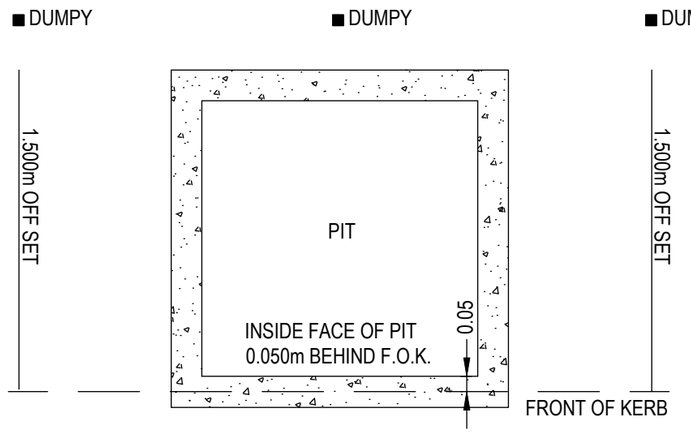
SIDE ELEVATION

PRE-CAST PITS/LINTEL COMBO CROSS SECTION

- INSIDE WALL OF PIT 0.450m IN FRONT OF FACE OF KERB
- TOP OF PIT DOWN 0.400m (MIN) FROM TOP OF KERB

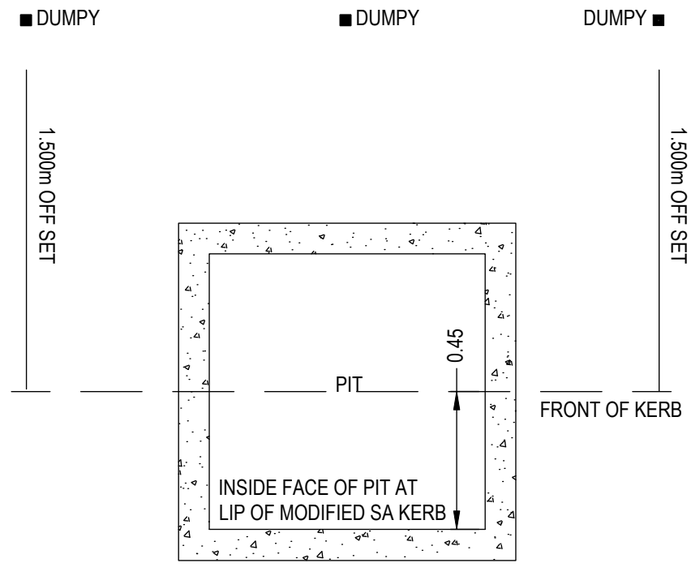


SIDE ELEVATION



** FOR PITS BEHIND KERBS

PLAN



** FOR COMBO IN KERB PITS

PLAN

TYPICAL KERB INLET PIT - KERB IN LINE SETOUT

(LIP IN LINE SETOUT TYPICALLY NOT USED)

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR

Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

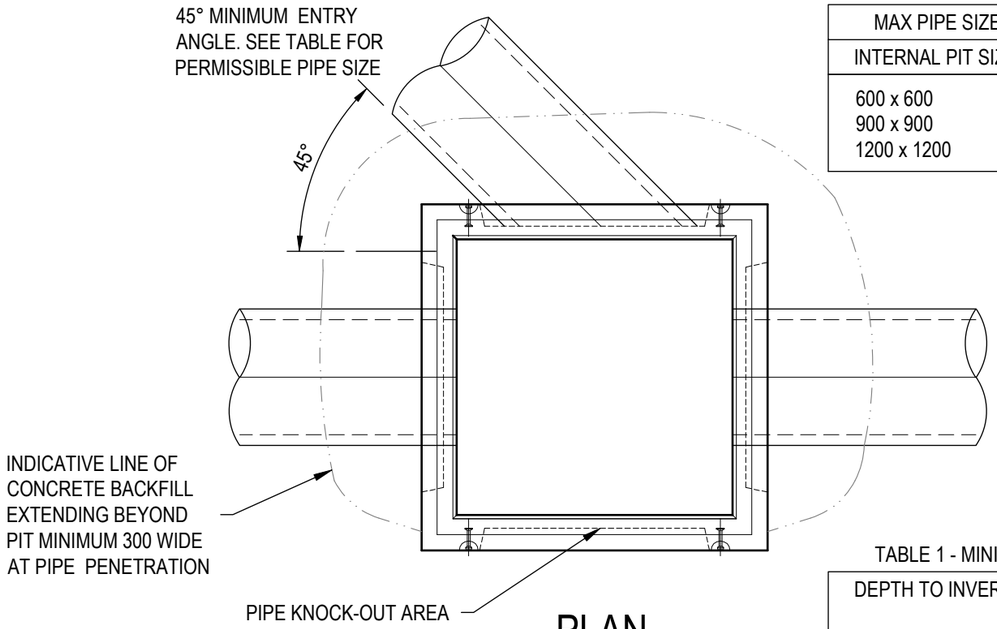
STANDARD DRAWINGS

TYPICAL PIT - KERB IN LINE SETOUT

COUNCIL PLAN No. SW-300-04

Orig. Size A3

Revision 1



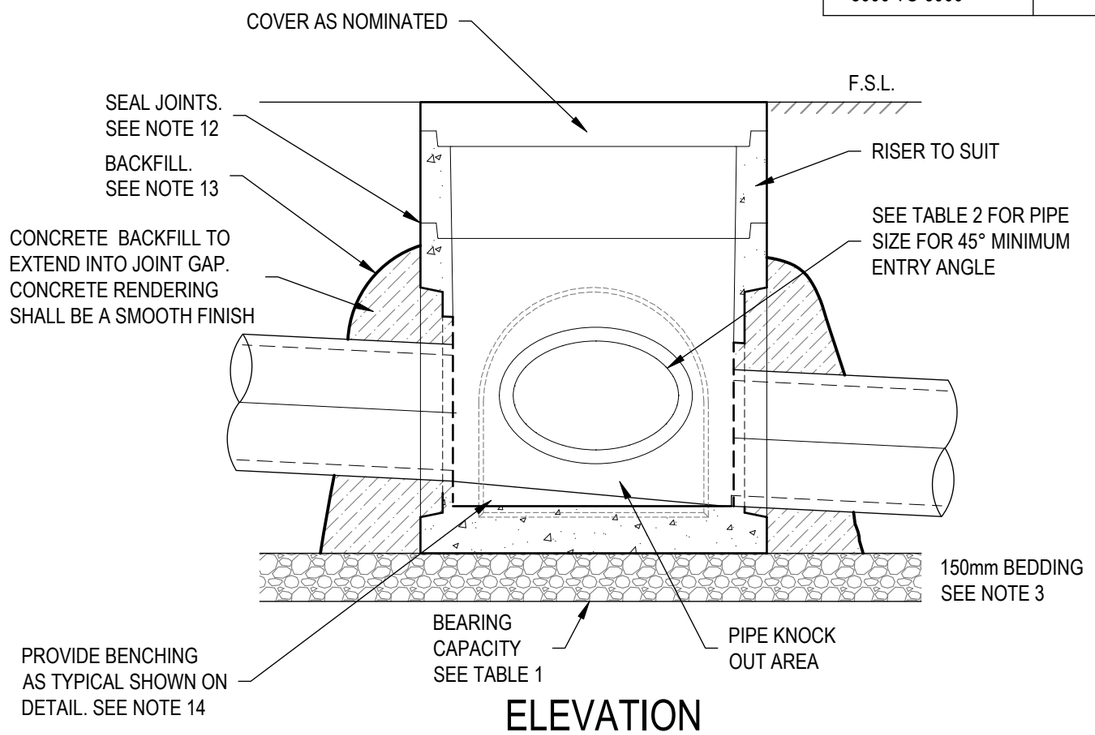
PLAN

TABLE 2

MAX PIPE SIZE FOR 45°ENTRY ANGLE	
INTERNAL PIT SIZE	NOMINAL PIPE DIA.
600 x 600	225
900 x 900	375
1200 x 1200	525

TABLE 1 - MINIMUM BEARING CAPACITY

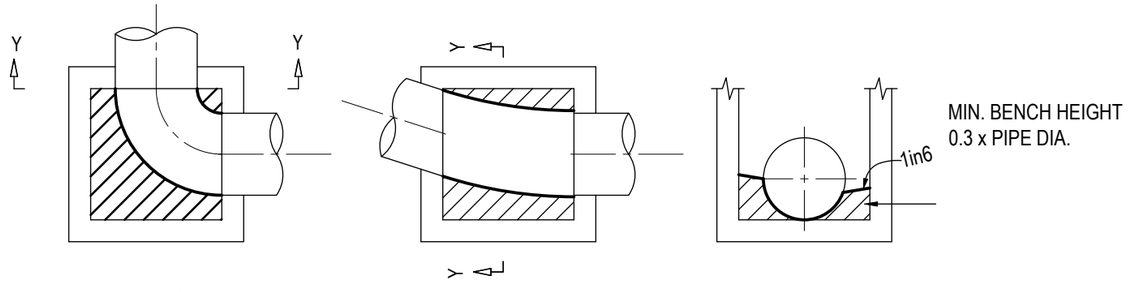
DEPTH TO INVERT	MINIMUM ALLOWABLE BEARING CAPACITY OF SOIL
UP TO 3000 DEEP	100 kPa
3000 TO 6000	150 kPa



ELEVATION

NOTES

1. PRECAST CONCRETE STORMWATER PITS THAT ARE DAMAGED WITH UNACCEPTABLE DEFECTS SHALL BE DISCARDED. WHERE PRECAST PITS AND RISERS AND UTILISED, THE SUPPLIER SHALL PROVIDE DESIGN CERTIFICATION TO THE CITY FOR THAT USE.
2. ALL EXCAVATION MUST BE 150mm CLEAR OF THE PRECAST UNIT.
3. STORMWATER PITS MUST BE INSTALLATED ON A LEVEL, STABLE WELL COMPACTED FOUNDATION. A 150mm LAYER OF COMPACTED GRANULAR BEDDING MATERIAL SHALL BE PROVIDED UNDER THE UNIT UNLESS OTHERWISE NOTED ON PROJECT SPECIFIC PLANS. THE MINIMUM ALLOWABLE BEARING CAPACITIES OF THE SOIL ARE SHOWN ON TABLE 1
4. DO NOT OVERSIZE THE KNOCKOUT HOLE. ONLY THE REQUIRED SIZE HOLE TO ACCOMMODATE THE OUTSIDE PIPE DIAMETER SHOULD BE REMOVED. USE A SMALL SLEDGE HAMMER TO MAKE THE INITIAL BREAK AND A SMALL BALL-BEEN HAMMER TO SLOWLY AND GENTLY BREAK THE PIT WALL TO SUIT PIPE SIZE.
5. NOTHING OUTSIDE THE PRESCRIBED KNOCKOUT SECTION IS TO BE REMOVED.
6. SEAL JOINS IN PIT SEGMENTS USING A SITE APPROVED NON-SHRINK GROUT OR MASTIC TYPE PRODUCT IN ACCORDANCES WITH MANUFACTURE'S SPECIFICATIONS
7. PIPES SHALL NOT ENTER THE PIT, CUT PIPE TO BE FLUSH WITH INSIDE FACE.
8. PIPES SHALL SIT FLUSH WITH THE KNOCKOUT LEDGE. WHERE THE BASE OF THE PIT IS LOWER THAN PIPE INVERT A FALSE FLOOR SHALL BE PORED. THE FLOOR SHALL BE BENCHED AND GRADED BETWEEN UPSTREAM AND DOWNSTREAM PIPE INVERTS WITH A SMOOTH FINISH.
9. ALL SUBSOIL DRAINAGE CONNECTIONS SHALL ONLY BE THROUGH THE KNOCKOUT SECTION OF PRECAST PIT
10. THE KNOCKOUT SECTIONS ARE DESIGNED FOR PIPES ENTERING AT 90°. PIPES ENTERING AT SKEWED ANGLES SHALL BE CONTAINED WITHIN THE KNOCKOUT AREA. THE KNOCKOUT AREA WIDTH SHALL BE THE PIPE HORIZONTAL SKEW DIMENSIONS.
11. THE ANGLE OF ENTRY SHALL BE NO LESS THAN 45°. SEE TABLE 2 FOR MAXIMUM PIPE DIAMETER.
12. THE JOINTING SURFACE MUST BE CLEAN. PIPE ENTRY JOINTS ARE TO BE RENDERED WITH AN EPOXY MORTAR TO BE SMOOTH AND FREE FROM INTRUSIONS AND TO ENSURE A WATERTIGHT JOINT.
13. CONCRETE BACKFILL (3:1 SAND/ CEMENT MORTAR) SHALL SURROUND THE PIPE INLET AND OUTLET TO FORM A BELL-HOUSING EFFECT WITH A SMOOTH FINISH.
14. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PONDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS. SEE TYPICAL BENCHING DETAILS BELOW.
15. STEP IRONS ARE REQUIRED IN PITS GREATER THAN 1200mm DEEP. UNUSED STEP IRON HOLES TO BE FILLED AND RENDERED.
16. WHEN THE PITS AND PIPES HAVE BEEN LAID AND SEALED, BACKFILLING CAN OCCUR. THE MATERIAL USED FOR BACKFILLING THE STORMWATER PIT MUST BE THE SAME AS MATERIAL USED FOR BACKFILLING THE PIPELINE. EVENLY PLACE AND UNIFORMLY COMPACT THE MATERIAL, ADDED IN 150mm LAYERS AND COMPACTED SIMULTANEOUSLY AROUND THE STRUCTURE TO AVOID DIFFERENTIAL LOADING ENSURING THAT THE COMPONENTS AND JOINTS ARE NOT DISPLACED. BACKFILL WITH THE AIM OF MINIMAL OR NO SUBSIDENCE AFTER COMPLETION OF WORKS. ,
17. ALLOW ALL CONCRETE BACKFILL TO CURE BEFORE BACKFILLING.



TYPICAL BENCHING DETAILS

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

PRECAST STORMWATER PIT INSTALLATION

COUNCIL PLAN No. SW-300-05

Orig. Size A3

Revision 1

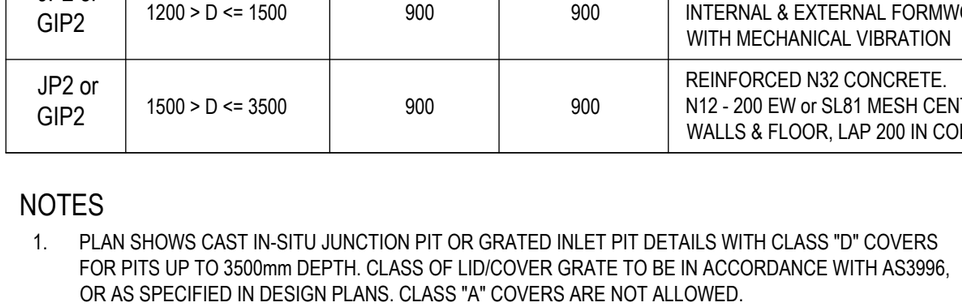
TABLE 1 MINIMUM PIT DIMENSIONS

(MINIMUM DIMENSIONS SHOWN FOR DEPTHS, DIMENSION SUBJECT TO DETAIL DESIGN)

PIT TYPE	DEPTH TO INVERT (mm)	MINIMUM INTERNAL SIZE (mm)		CONCRETE, FORMWORK & REINFORCEMENT DETAILS
		WIDTH (mm)	LENGTH (mm)	
JP1 or GIP1	D <= 600	450	450	UN-REINFORCED N32 CONCRETE. INTERNAL FORMWORK ONLY WITH HAND VIBRATION
	600 < D <= 900	600	600	
JP2 or GIP2	900 < D <= 1200	600	900	
	1200 > D <= 1500	900	900	UN-REINFORCED N32 CONCRETE. INTERNAL & EXTERNAL FORMWORK WITH MECHANICAL VIBRATION
JP2 or GIP2	1500 > D <= 3500	900	900	REINFORCED N32 CONCRETE. N12 - 200 EW or SL81 MESH CENTRAL WALLS & FLOOR, LAP 200 IN CORNERS

NOTES

1. PLAN SHOWS CAST IN-SITU JUNCTION PIT OR GRATED INLET PIT DETAILS WITH CLASS "D" COVERS FOR PITS UP TO 3500mm DEPTH. CLASS OF LID/COVER GRATE TO BE IN ACCORDANCE WITH AS3996, OR AS SPECIFIED IN DESIGN PLANS. CLASS "A" COVERS ARE NOT ALLOWED.
2. STEP IRONS TO BE PROVIDED IN PITS OVER 1200 DEEP TO AS1657
3. REINFORCEMENT TO BE PROVIDED IN SIDE WALLS FOR PITS OVER 1500 DEEP. REFER TO TABLE 1 FOR REINFORCED DETAILS.
4. CONCRETE TO BE N32 TO AS3600 UNLESS NOTED OTHERWISE ON SITE SPECIFIC PLANS.
5. CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
6. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PONDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
7. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.
8. ALL WEBFORGE HINGE SUMP GRATES AND FRAMES SHALL BE HOT DIP GALVANISED. THOSE BEING WELDED TOGETHER SHALL BE HOT DIP GALVANISED AFTER WELDING.
9. TYPICAL MIN. 30mm FALL IN PIT BETWEEN INLET & OUTLET PIPES INVERTS WITH SAME DIAMETER AND NO CHANGE OF DIRECTION. FOR PIPES WITH DIFFERING DIAMETERS, MATCH THE OBVERTS OF INLET & OUTLET PIPES TO OPTIMISE DRAINAGE LINE HYRAULICS. FOR PIPES OF THE SAME DIAMETER BUT A CHANGE IN DIRECTION, PROVIDE 50mm FALL.

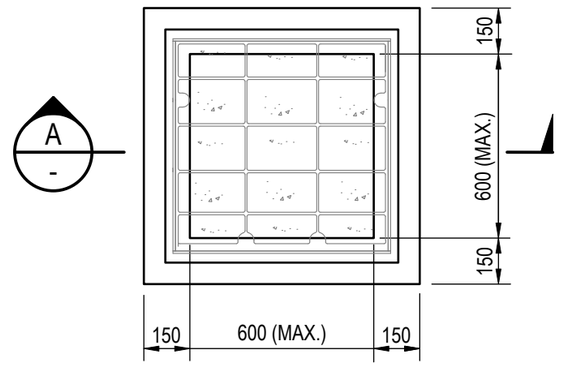


PLAN 90° BEND | PIPE DEFLECTION | SECTION Y-Y

MIN. BENCH HEIGHT
0.3 x PIPE DIA.

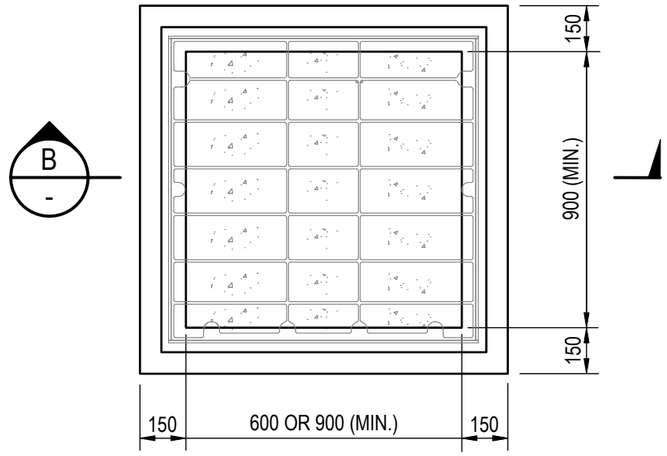
TYPICAL BENCHING DETAILS

SOILD COVER SHOWN, PROVIDE GRATED INLET FOR GRATED INLET PIT (GIP)



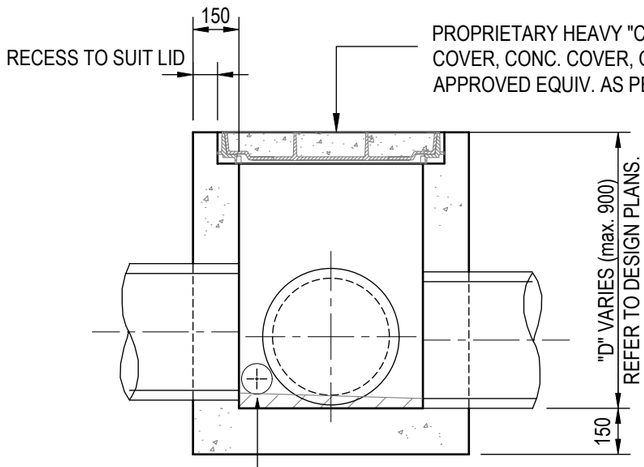
PLAN - PIT TYPE JP1 or GIP1

FOR PIPES UP TO 450Ø (538mm O.D.)
(PIPES OMITTED FOR CLARITY)

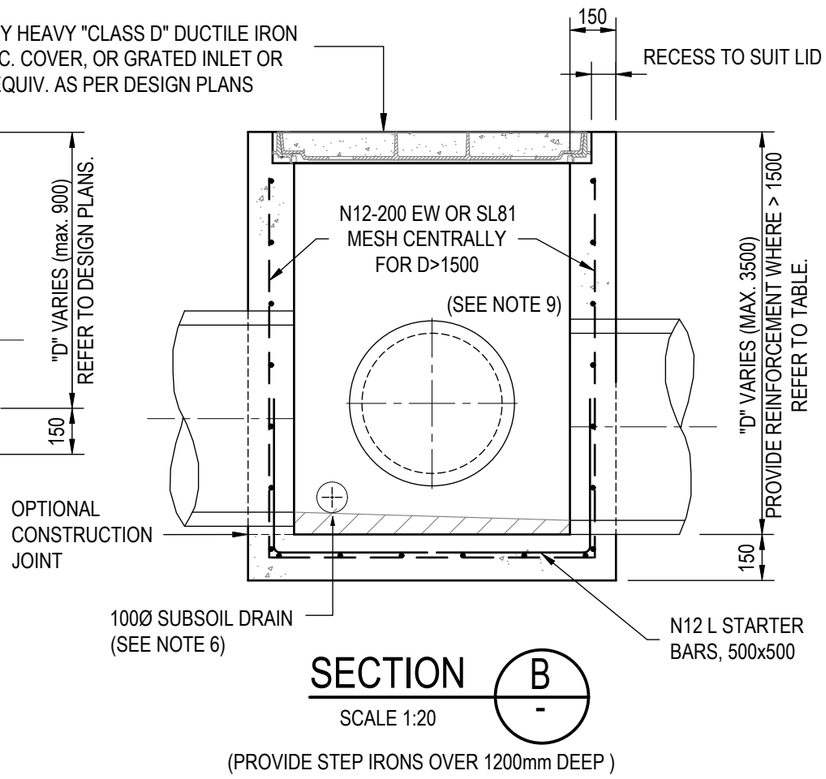


PLAN - PIT TYPE JP2 or GIP2

FOR PIPES UP TO 750Ø (870mm O.D.)
(PIPES OMITTED FOR CLARITY)



SECTION A - SCALE 1:20



SECTION B - SCALE 1:20

(PROVIDE STEP IRONS OVER 1200mm DEEP)

TYPICAL CAST IN-SITU JUNCTION PIT (JP) / GRATED INLET PIT (GIP)

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

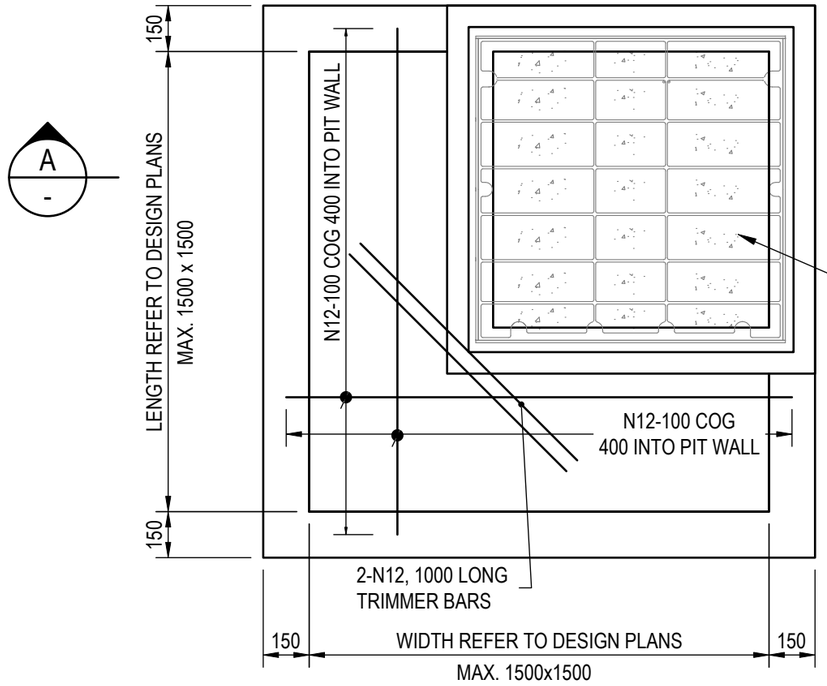
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

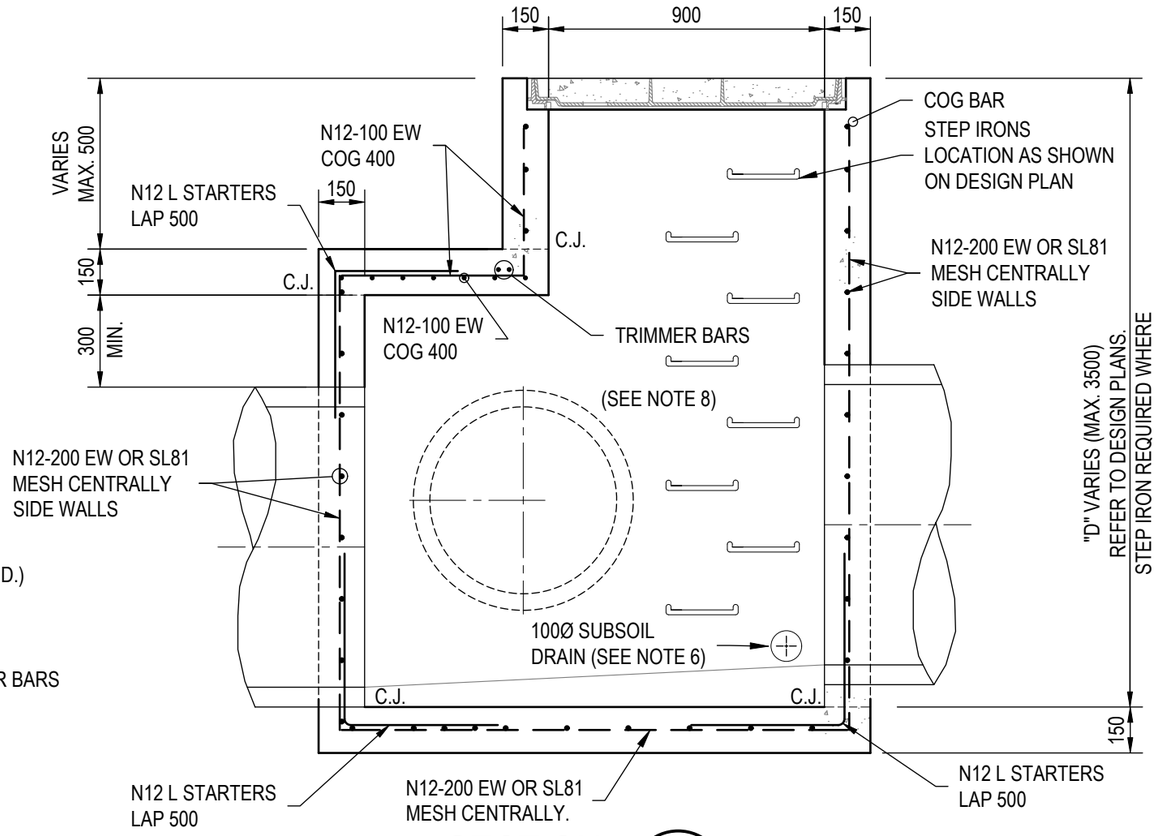
TYPICAL JUNCTION PITS
TYPE JP1, JP2, GIP1, & GIP2

COUNCIL PLAN No. SW-300-06

Orig. Size A3 | Revision 1



PLAN - PIT TYPE JP3

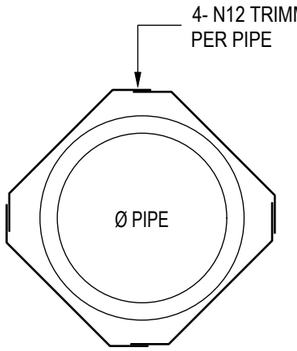


SECTION A - A

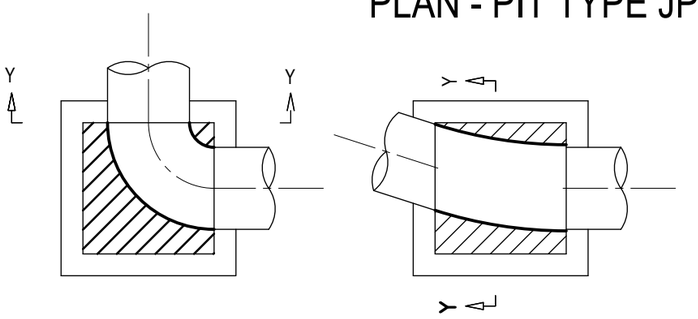
SCALE 1:20

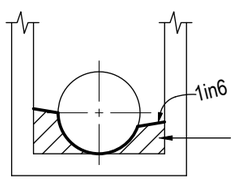
(C.J. - DENOTES CONSTRUCTION JOINT)

FOR PIPES UP TO 1200Ø (1365mm O.D.)
(PIPES OMITTED FOR CLARITY)



TYPICAL PIPE PENETRATION DETAIL





MIN. BENCH HEIGHT
0.3 x PIPE DIA.

TYPICAL BENCHING DETAILS

COVER TO COMPLY WITH TABLE 4.14.3.2,
AS5100.5 FOR 100 YEAR DESIGN LIFE

AS3600 (EXP. CLASS)	REQUIRED COVER (mm) CHARACTERISTIC STRENGTH		
	32Mpa	40Mpa	
B1	50	45	
B2		60	

EXPOSURE CLASSIFICATION & CONCRETE STRENGTH TABLE 4.4.1(A), AS5100.5

EXPOSURE CLASSIFICATION	CONCRETE STRENGTH GRADE	LOCATION
B1	N32	1 TO 50km FROM COASTLINE
B2	N40	WITHIN 1km OF COASTLINE

NOTES

1. PLANS SHOWS CAST IN-SITU OVERSIZED JUNCTION PIT OR GRATED INLET PIT DETAILS WITH CLASS "D" COVERS FOR CAST IN-SITU PITS UP TO 3500mm DEPTH FOR PIPES UP TO 1350Ø RCP AT 90° ENTRY ANGLE.
2. CLASS OF LID/COVER GRATE TO BE IN ACCORDANCE WITH AS3996, AS SPECIFIED IN DESIGN PLANS. CLASS "A" COVERS ARE NOT ALLOWED.
3. STEP IRONS TO BE PROVIDED AT 300mm CENTRES IN ACCORDANCE WITH AS1379 FOR PITS OVER 1200 DEEP.
4. PIT ROOF REINFORCEMENT ALLOWS FOR W80 WHEEL LOAD WITH DLA=0.4 AND MAX 500mm FILL ABOVE THE ROOF. THE REINFORCEMENT IN THE SHORT DIRECTION SHALL LAP WITH THE WALL REINFORCEMENT TO ALLOW MOMENT TRANSFER
5. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 32MPa IN ACCORDANCE WITH AS1379 AND AS3600. CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
6. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PONDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
7. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN A14 GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.
8. ALL WEBFORGE HINGE SUMP GRATES AND FRAMES SHALL BE HOT DIP GALVANISED. THOSE BEING WELDED TOGETHER SHALL BE HOT DIP GALVANISED AFTER WELDING.
9. TYPICAL MIN. 30mm FALL IN PIT BETWEEN INLET & OUTLET PIPES INVERTS WITH SAME DIAMETER AND WITH NO CHANGE OF DIRECTION. FOR PIPES WITH DIFFERING DIAMETERS, MATCH THE OBVERTS OF INLET & OUTLET PIPES WHERE SITE CONSTRAINTS PERMIT TO IMPROVE HYDRAULICS. FOR PIPES OF THE SAME DIAMETER BUT A CHANGE IN DIRECTION, PROVIDE 50mm FALL.
10. PROVIDE TRIMMER BARS FOR PIPE PENETRATION AS SHOWN ON DETAIL.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

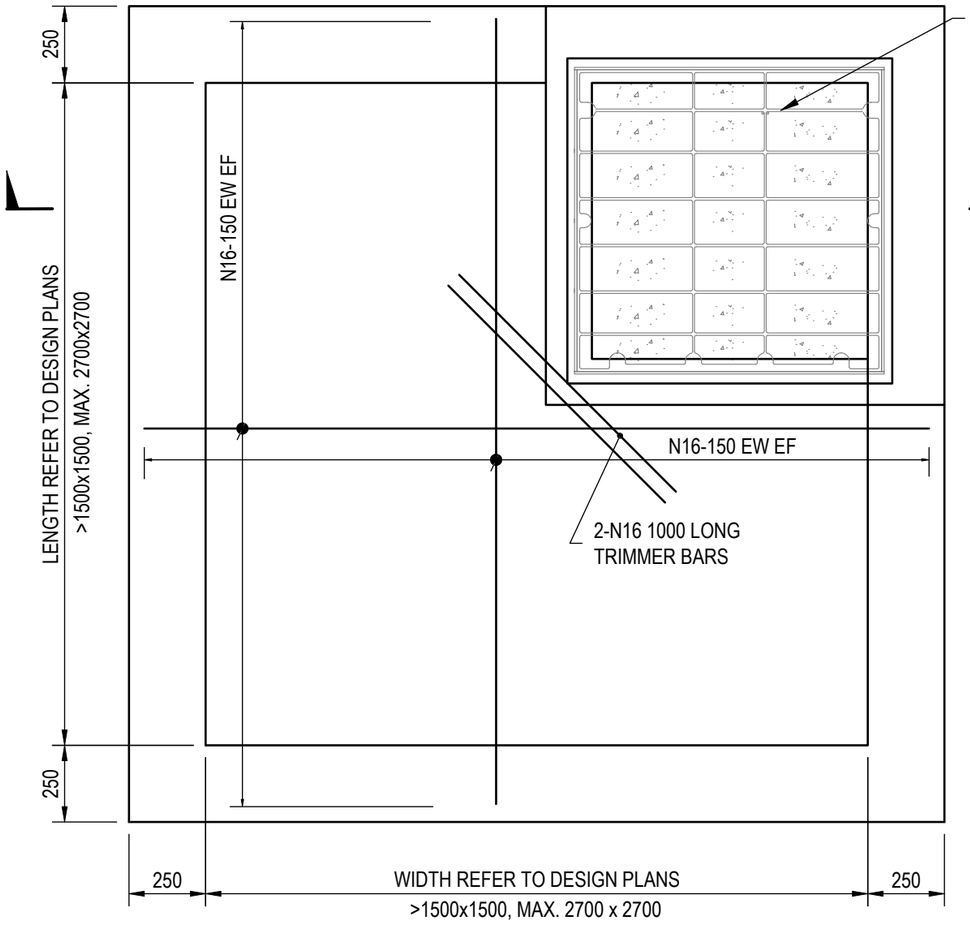
STANDARD DRAWINGS

TYPICAL JUNCTION PITS
TYPE JP3

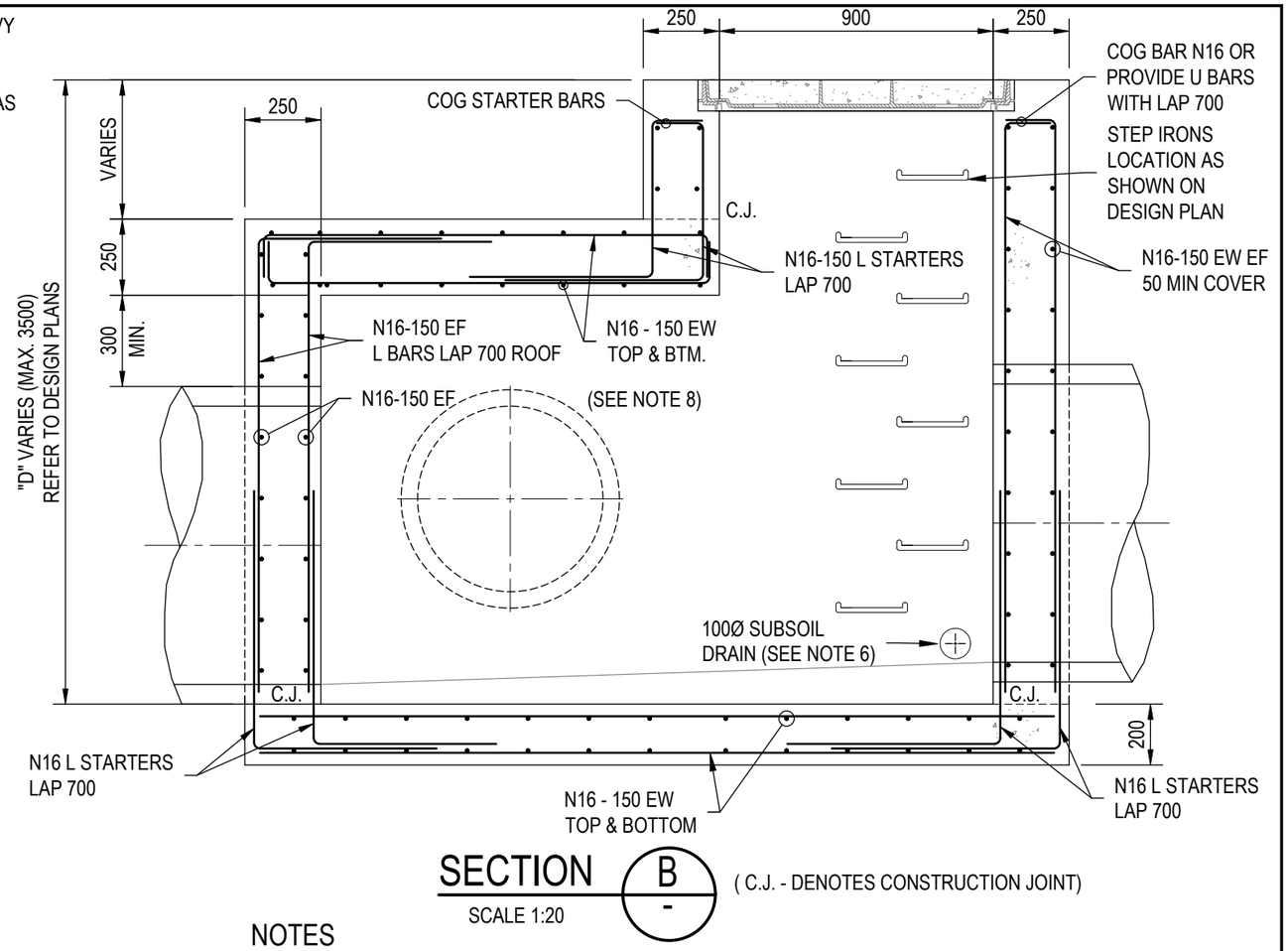
COUNCIL PLAN No.
SW-300-07

Orig. Size A3

Revision 1



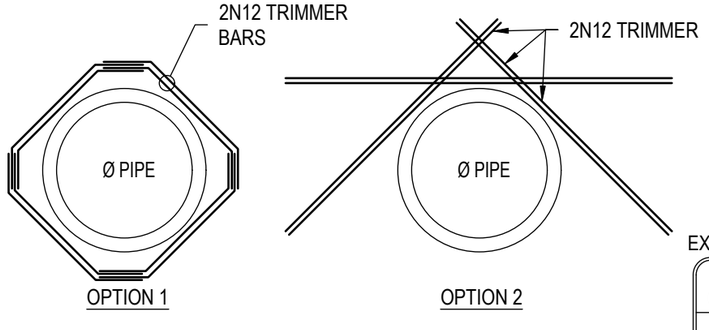
PLAN - PIT TYPE JP4



SECTION B - (SCALE 1:20)

(C.J. - DENOTES CONSTRUCTION JOINT)

MULTIPLE PIPES OR PIPE UP TO DN1800 RCP
(PIPES OMITTED FOR CLARITY)



TYPICAL PIPE PENETRATION TRIMMERS DETAIL

COVER TO COMPLY WITH TABLE 4.14.3.2,
AS5100.5 FOR 100 YEAR DESIGN LIFE

AS3600 (EXP. CLASS)	REQUIRED COVER (mm) CHARACTERISTIC STRENGTH		
	32Mpa	40Mpa	
B1	50	45	
B2		60	

EXPOSURE CLASSIFICATION & CONCRETE STRENGTH TABLE 4.4.1(A), AS5100.5

EXPOSURE CLASSIFICATION	CONCRETE STRENGTH GRADE	LOCATION
B1	N32	1 TO 50km FROM COASTLINE
B2	N40	WITHIN 1km OF COASTLINE

NOTES

1. PLANS SHOWS CAST IN-SITU JUNCTION PIT OR GRATED INLET PIT DETAILS WITH CLASS "D" COVERS FOR CAST IN-SITU PITS UP TO 3500mm DEPTH FOR DUAL DRAINAGE LINE UP TO 2 X DN900 RCP OR SINGLE DRAINAGE LINE UP TO DN1800 RCP.
2. CLASS OF LID/COVER GRATE TO BE IN ACCORDANCE WITH AS3996, AS SPECIFIED IN DESIGN PLANS. CLASS "A" COVERS ARE NOT ALLOWED.
3. STEP IRONS TO BE PROVIDED AT 300mm CENTRES IN ACCORDANCE WITH AS1379 FOR PITS OVER 1200 DEEP.
4. CONCRETE TO BE N32 TO AS3600, CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
5. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PONDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
6. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PIT WALL AND SHALL BE WRAPPED IN A14 GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.
7. ALL WEBFORGE HINGE SUMP GRATES AND FRAMES TO BE HOT DIP GALVANISED. THOSE BEING WELDED TOGETHER SHALL BE HOT DIP GALVANISED AFTER WELDING.
8. TYPICAL MIN. 30mm FALL IN PIT BETWEEN INLET & OUTLET PIPES INVERTS WITH SAME DIAMETER AND WITH NO CHANGE OF DIRECTION. FOR PIPES WITH DIFFERING DIAMETERS, MATCH THE OBVERTS OF INLET & OUTLET PIPES WHERE SITE CONSTRAINTS PERMIT TO IMPROVE HYDRAULICS. FOR PIPES OF THE SAME DIAMETER BUT A CHANGE IN DIRECTION, PROVIDE 50mm FALL.
9. PROVIDE TRIMMER BARS FOR PIPE PENETRATION AS SHOWN ON DETAIL.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

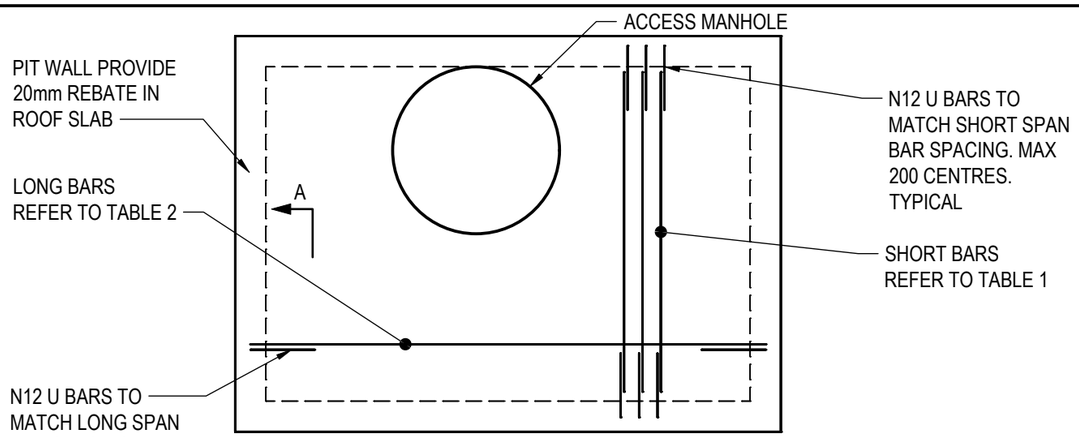
STANDARD DRAWINGS

TYPICAL JUNCTION PIT
TYPE JP4

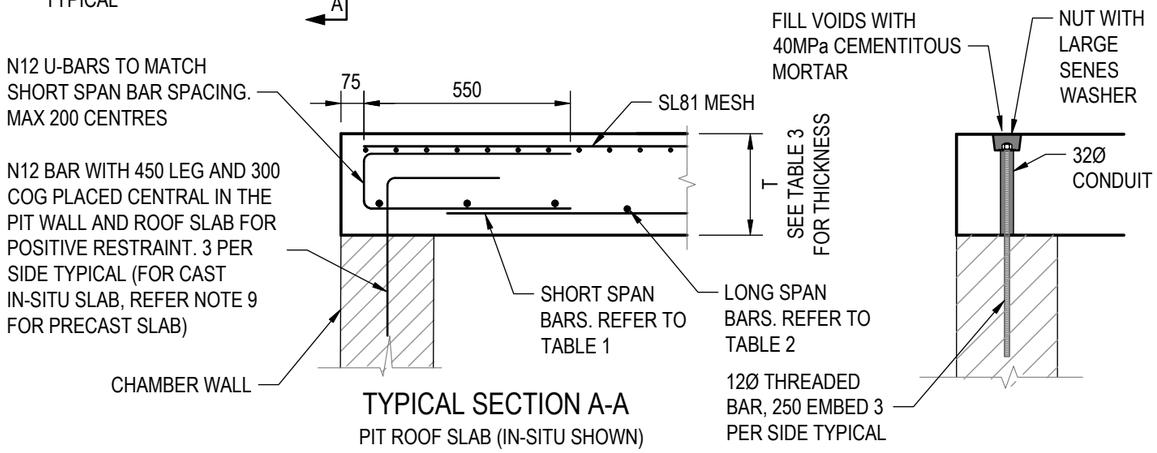
COUNCIL PLAN No.
SW-300-08

Orig. Size A3

Revision 1



TYPICAL SLAB REINFORCEMENT

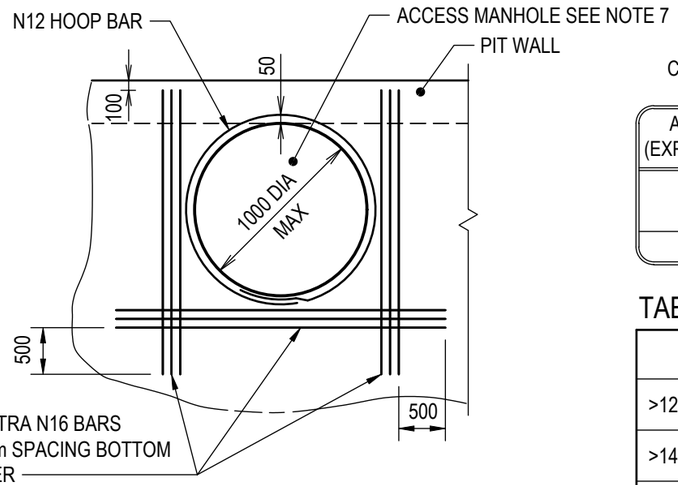


TYPICAL SECTION A-A

PIT ROOF SLAB (IN-SITU SHOWN)

PRECAST PIT ROOF SLAB

(TYPICAL, SEE NOTE 9)



SLAB REINFORCEMENT AROUND ACCESS MANHOLE

COVER TO COMPLY WITH TABLE 4.14.3.2, AS5100.5 FOR 100 YEAR DESIGN LIFE

AS3600 (EXP. CLASS)	REQUIRED COVER (mm) CHARACTERISTIC STRENGTH		
	32Mpa	40Mpa	
B1	50	45	
B2		60	

TABLE 1 - REINFORCEMENT FOR SHORTER SPAN DIRECTION

SHORT SPAN DIMENSIONS	LONG SPAN DIMENSION										SLAB DEPTH
	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	
1200	N12-150	N16-200	N16-200	N16-200	N16-150	N16-150	N16-150	N16-125	N16-125	N16-125	225
1400		N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	N16-125	N16-125	225
1600			N16-200	N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	250
1800				N16-200	N16-200	N16-150	N16-150	N16-150	N16-150	N16-125	250
2000					N12-150	N16-150	N16-150	N16-150	N16-150	N16-125	250
2200						N16-150	N16-150	N16-150	N16-125	N16-125	250
2400							N16-150	N16-150	N16-125	N16-125	250
2600								N16-200	N16-150	N16-150	300
2800									N16-150	N16-150	300
3000										N16-150	300

TABLE 2 - REINFORCEMENT FOR LONGER SPAN DIRECTION

SHORT SPAN DIMENSIONS	LONG SPAN DIMENSION										SLAB DEPTH
	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	
1200	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	N12-150	225
1400		N16-200	N16-200	N16-200	N16-200	N12-150	N12-150	N12-150	N12-150	N12-150	225
1600			N16-200	N16-200	N16-200	N12-150	N12-150	N12-150	N12-150	N12-150	250
1800				N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	250
2000					N16-200	N16-200	N16-200	N16-200	N16-200	N16-200	250
2200						N16-150	N16-150	N16-150	N16-150	N16-150	250
2400							N16-150	N16-150	N16-150	N16-150	250
2600								N16-200	N16-200	N16-200	300
2800									N16-150	N16-150	300
3000										N16-150	300

TABLE 3 - CONCRETE ROOF SLAB THICKNESS

SHORT SPAN	SLAB THICKNESS 'T'
>1200 SHORT SPAN <=1400	225
>1400 SHORT SPAN <=2400	250
>2400 SHORT SPAN <=3000	300

NOTES:

1. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE N32 FOR B1 EXPOSURE CLASSIFICATION IN ACCORDANCE WITH AS1379 AND AS3600. PROVIDE N40 FOR B2 EXPOSURE CLASSIFICATION.
2. NOMINAL COVER TO REINFORCEMENT SHALL BE IN ACCORDANCE WITH TABLE 4.14.3.2, AS5100.5 AS SHOWN.
3. REINFORCEMENT - MESH TO AS1304, REINFORCEMENT BARS GRADE 500 TO AS1302
4. ALL LAPS IN REINFORCEMENT SHALL BE: N12 - 500, N16 - 700 & MESH - 300
5. FORMWORK IN ACCORDANCE WITH AS3610
6. THE PIT ROOF SLAB REINFORCEMENT HAS BEEN DESIGNED FOR A W80 WHEEL LOAD WITH DYNAMIC LOAD ALLOWANCE OF 0.4 AND CONCRETE SELF WEIGHT IN ACCORDANCE WITH AS5100.2. TOP OF ROOF SLAB MAY BE FLUSH WITH GROUND LEVEL OR SUITABLE FOR A MAXIMUM 300mm DEPTH WITH A RISER AND MH COVER TO FINISH SURFACE LEVEL.
7. ACCESS MANHOLE TO BE MIN 600 DIAMETER AND SHALL BE SIZED BASED ON THE HEIGHT OF THE PIT TO ALLOW SAFE ACCESS IF STEP IRONS ARE PRESENT.
8. REFER TO THE APPROVED PROJECT DRAWINGS FOR DETAILS OF CHAMBER WALLS AND FLOORS.
9. PRECAST ROOF SLAB FIXING DETAIL SHOWN INDICATIVE ONLY, DETAIL DESIGN REQUIRED. VOIDS, LIFT LUG CAPACITY AND LOCATIONS OF PRECAST ROOF SLAB BY CONTRACTOR.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

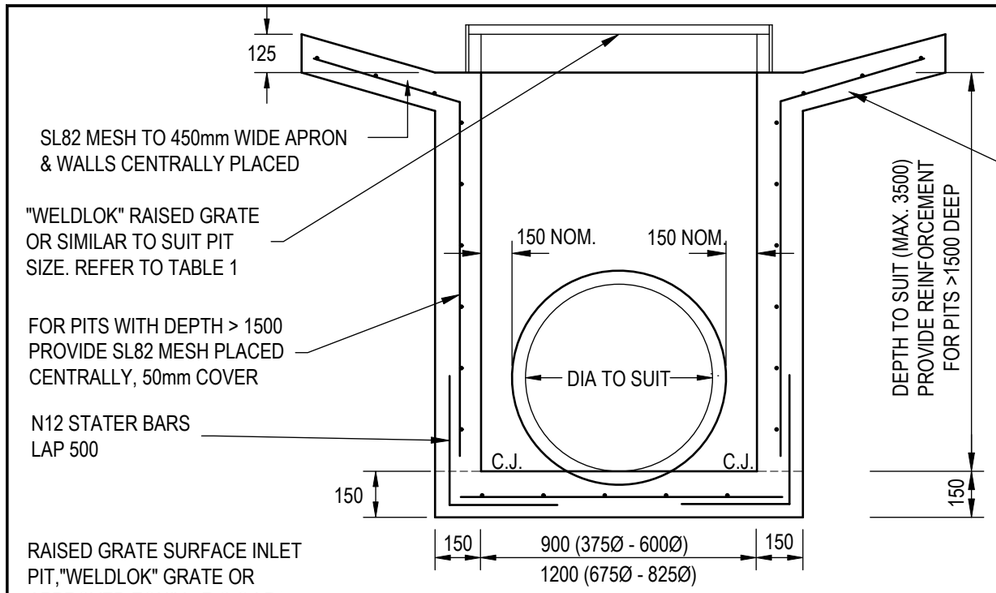
STANDARD DRAWINGS

JUNCTION PIT ROOF SLAB REINFORCEMENT DETAILS

COUNCIL PLAN No. SW-300-09

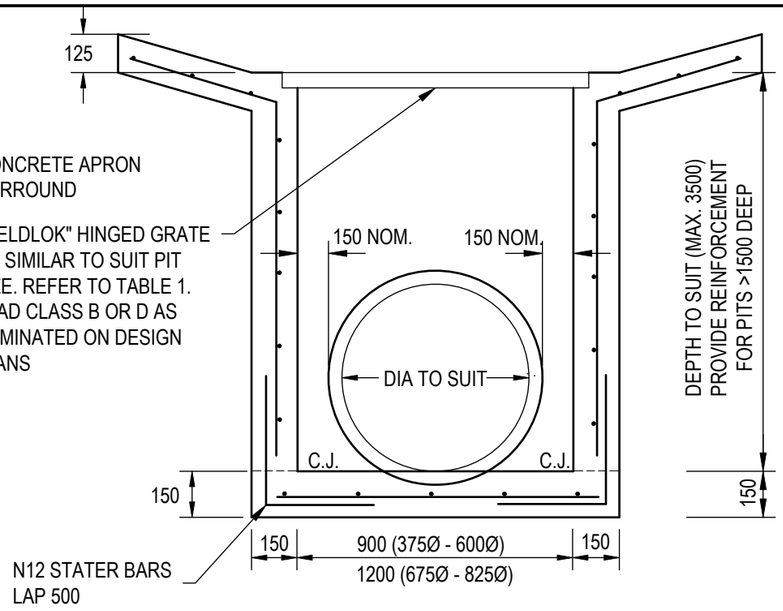
Orig. Size A3 | Revision 1

PLOT DATE: 19-Dec-24

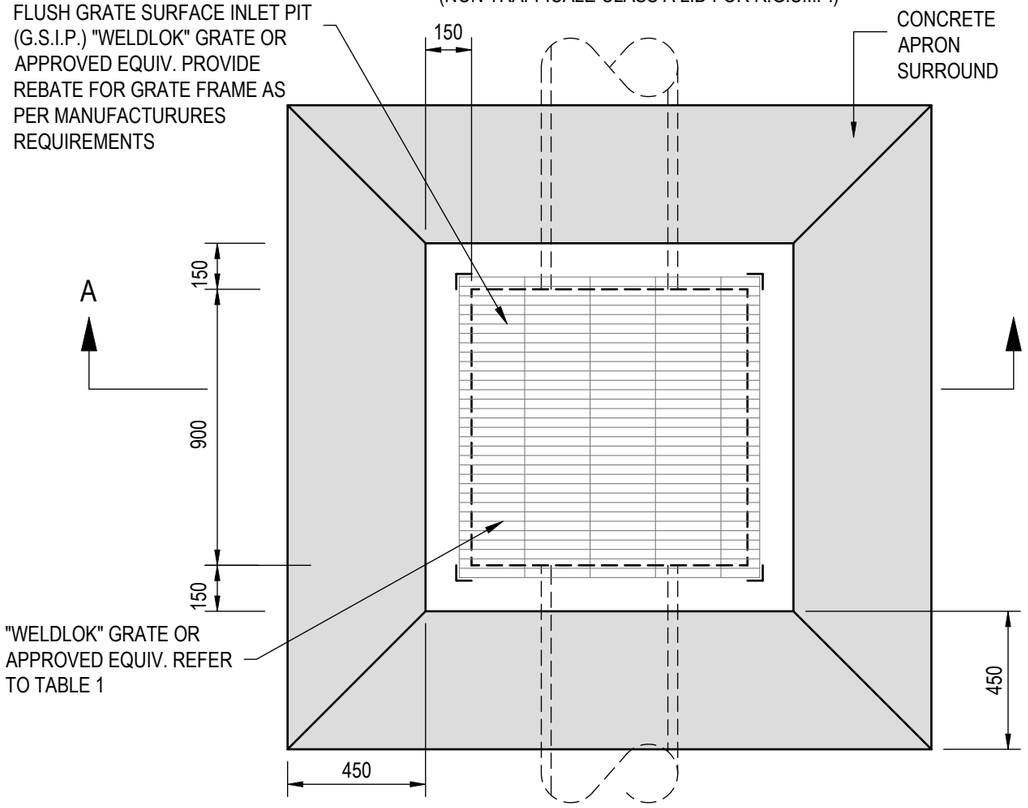


SECTION A-A

(NON TRAFFICALE CLASS A LID FOR R.G.S.I.P.)



SECTION A-A



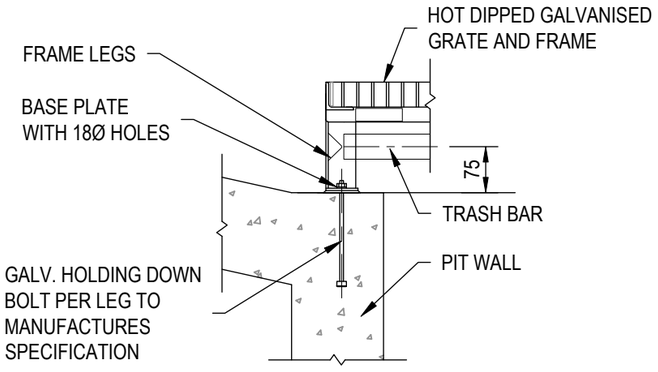
GRATED SURFACE INLET PIT WITH CONCRETE APRON SURROUND (R.G.S.I.P. & G.S.I.P)

PLAN

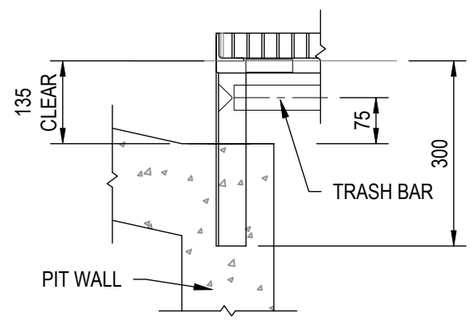
TABLE 1 - SURCHARGE PITS SIZES		
PIT OPENING SIZE	WELDLOK RAISED GRATE OR APPROVED EQUIV.*	WELDLOK DROP IN GRATE OR APPROVED EQUIV.**
600 x 600	SPG0600X0600BL-C	DIG0600X0600B-C
600 x 900	SPG0600X0600BL-C	DIG0600X0600B-C
900 x 900	SPG0900X0900BL-C	DIG0900X0900B-C
900 x 1200	SPG0900X1200BL-C	DIG0900X1200B-C
1200 x 1200	SPG1200X1200BL-C	DIG1200X1200B-C

* BL DENOTES BOLTED LEG TYPE, CAST IN LEG TYPE SUITABLE FOR CAST IN SITU PITS ONLY

** CLASS B GRATE SHOWN IN TABLE, PROVIDE CLASS D AS NOMINATED ON DESIGN PLANS



DETAIL - R.G.S.I.P BOLTED LEG



DETAIL - R.G.S.I.P. CAST IN LEG
(CAST IN-SITU PIT CONSTRUCTION)

NOTES

1. STEP IRONS TO BE PROVIDED IN PITS OVER 1200 DEEP TO AS1657.
2. REINFORCEMENT TO BE PROVIDED IN SIDE WALLS FOR PITS OVER 1500 DEEP.
3. PROVIDE SL82 MESH PLACED CENTRALLY IN WALLS AND BASE OF PITS >1500 DEPTH WITH N12 STARTER BARS
4. CONCRETE TO BE N32 TO AS3600, CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 5mm RADIUS.
5. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PENDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
6. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE SHALL BE PROVIDED FOR EACH INLET PIPE.
7. ALL GRATES AND FRAMES TO BE HOT DIP GALVANISED. THOSE BEING WELDED TOGETHER SHALL BE HOT DIP GALVANISED AFTER WELDING.
8. REFER TO DESIGN SPECIFIC PLANS FOR NOMINATED RAISED GRATE FIXING TYPE., IE BOLTED LEG OR CAST IN LEG.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

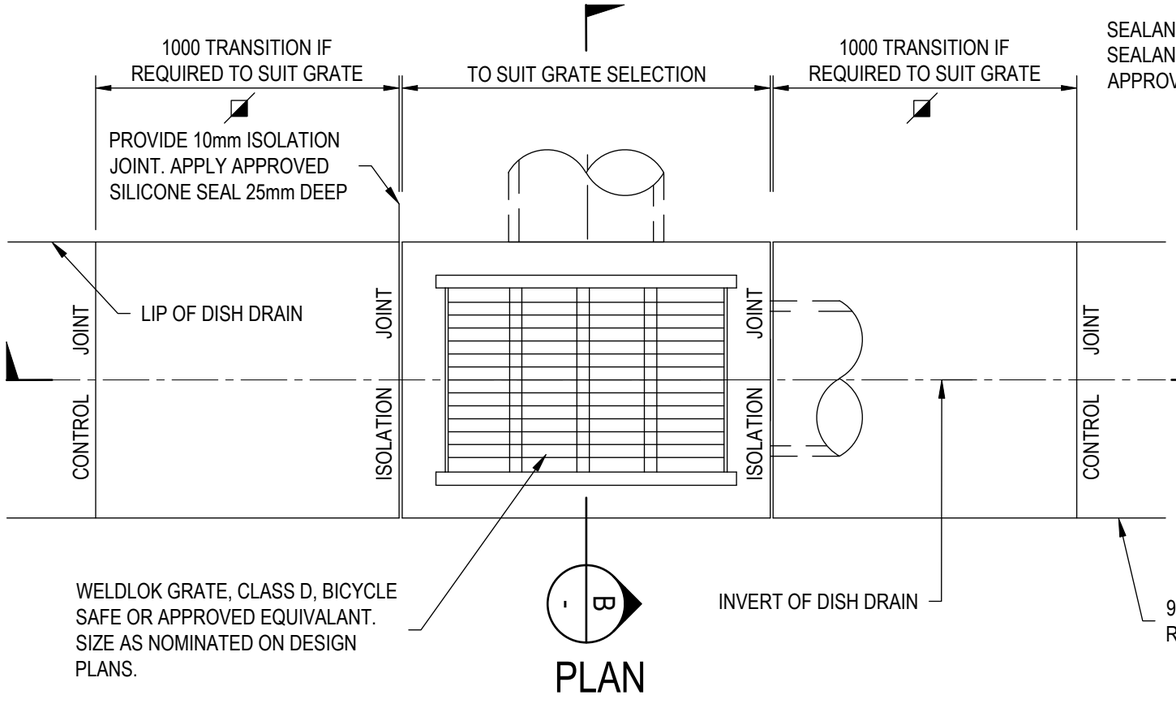
STANDARD DRAWINGS

RAISED GRATED SURFACE INLET PIT

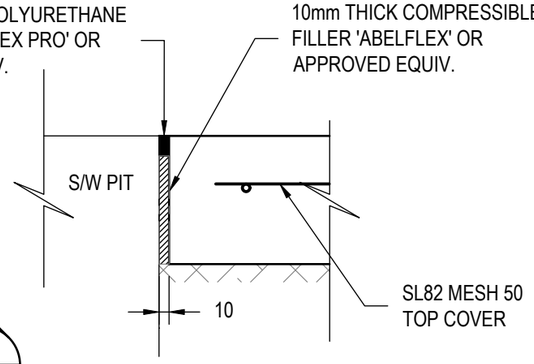
COUNCIL PLAN No. SW-300-10

Orig. Size A3

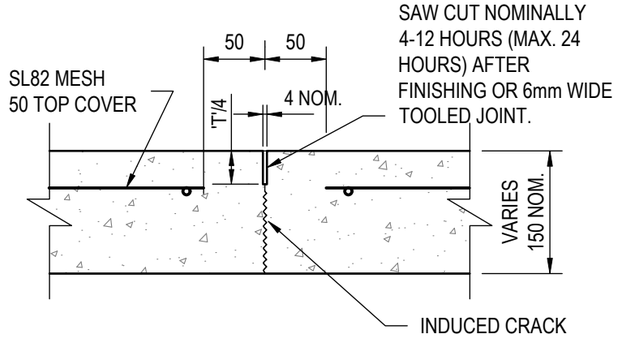
Revision 1



PLAN



ISOLATION JOINT ADJOINING PIT

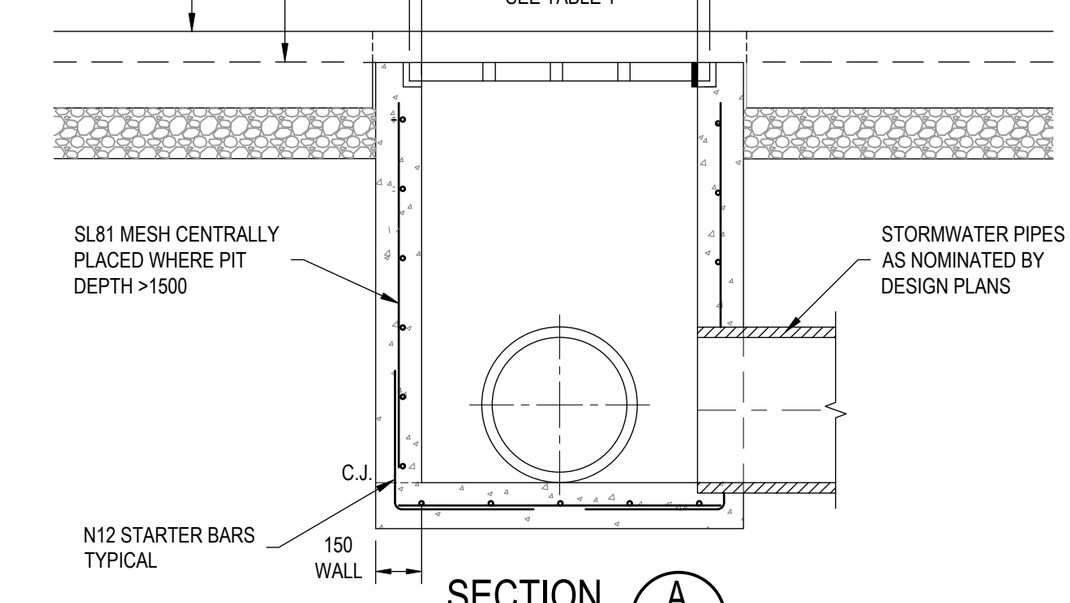


CONTROL JOINT

(TYPICALLY 3000 SPACINGS)

NOTES

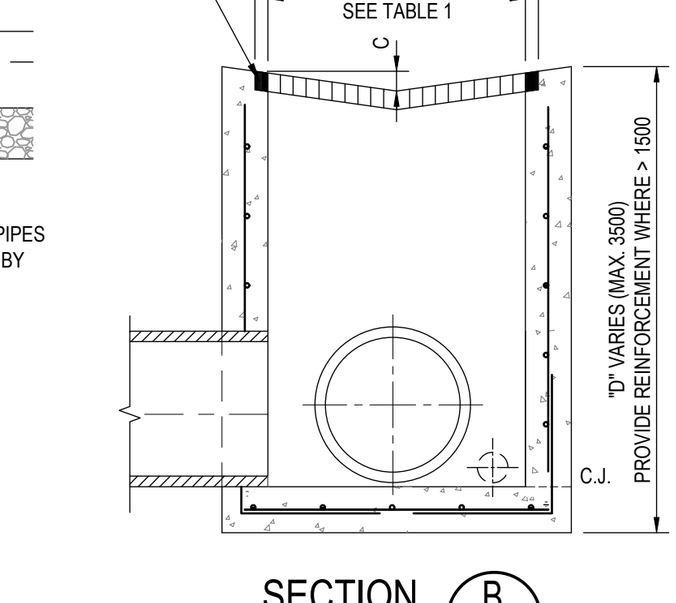
1. STEP IRONS TO BE PROVIDED IN PITS OVER 1200 DEEP TO AS1657.
2. REINFORCEMENT TO BE PROVIDED IN SIDE WALLS FOR PITS OVER 1500 DEEP.
3. PROVIDE SL81 MESH PLACED CENTRALLY IN WALLS AND BASE OF PITS >1500 DEPTH WITH N12 STARTER BARS.
4. CONCRETE TO BE N32 TO AS3600, CONCRETE FINISH TO THE TOP OF PITS AND COVERS SHALL BE BY STEEL TROWEL AND ALL EXPOSED CORNERS SHALL BE CHAMFERED TO A 20mm RADIUS.
5. BENCHING SHALL BE PROVIDED AT THE BOTTOM OF THE PIT TO PREVENT PENDING OF WATER, ALLOW REDIRECTION OF WATER AND ASSIST IN THE REMOVAL OF DEBRIS.
6. AT ALL PIPE INLETS TO PITS AND HEADWALLS CONSTRUCT 3000 LENGTH OF 100mm DIAMETER SUBSOIL DRAIN IN TRENCH INVERT IMMEDIATELY UPSTREAM FROM PITS. SEAL THE UPSTREAM END OF THE SUBSOIL DRAIN WITH CEMENT MORTAR. THE SUBSOIL DRAIN SHALL OUTLET THROUGH THE PITWALL AND SHALL BE WRAPPED IN GEOFABRIC. FOR MULTIPE PIPE INLETS A SUBSOIL PIPE AS DESCRIBED ABOVE WILL BE PROVIDED FOR EACH INLET PIPE.
7. ALL GRATES AND FRAMES TO BE LOAD CLASS D, HOT DIP GALVANISED & SHALL BE BICYCLE SAFE IN ACCORDANCE WITH AS3996 UNLESS NOTED OTHERWISE.
8. REFER TO PROJECT SPECIFIC PLANS FOR NOMINATED GRATE SIZES. ADJUST PIT OPENING SIZING AS SHOWN IN TABLE TO SUITABLE APPROVED EQUIVALENT GRATES TO MANUFACTURES SPECIFICATIONS



SECTION A

SCALE 1:20

(PROVIDE STEP IRONS OVER 1200mm DEEP)



SECTION B

SCALE 1:20

(PROVIDE STEP IRONS OVER 1200mm DEEP)

TABLE 1 - DISH DRAIN PITS SIZES *

PIT OPENING SIZE (L x W)	WELDLOK DISHED CHANNEL GRATES OR APPROVED EQUIV.	GRATE FRAME DIM. A	B	C
631 x 610	DCG0600X0600D-C **	729	710	47
910 x 626	DCG0900X0600D-C **	1010	725	49
760 x 745	DCG0750X0750D-C ◪	860	844	45
900 x 905	DCG0900X1200D-C ◪	1000	1005	50

* SIZES BASED ON WELDLOK GRATES, ADJUSTED PIT SIZE FOR OTHER APPROVED GRATES IN ACCORDANCE WITH MANUFACTURES INSTALLATION SPECIFICATIONS

** STANDARD GRATE FOR 900 WIDE DISH DRAIN

◪ TRANSITION 900 WIDE DISH DRAIN TO SUIT PIT

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR

Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

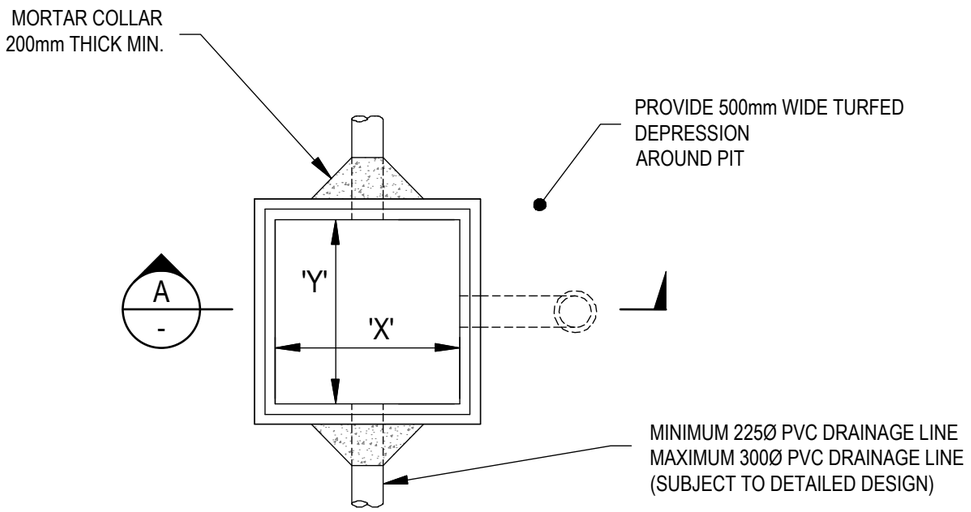
STANDARD DRAWINGS

DISH DRAIN GRATED SURFACE INLET PIT

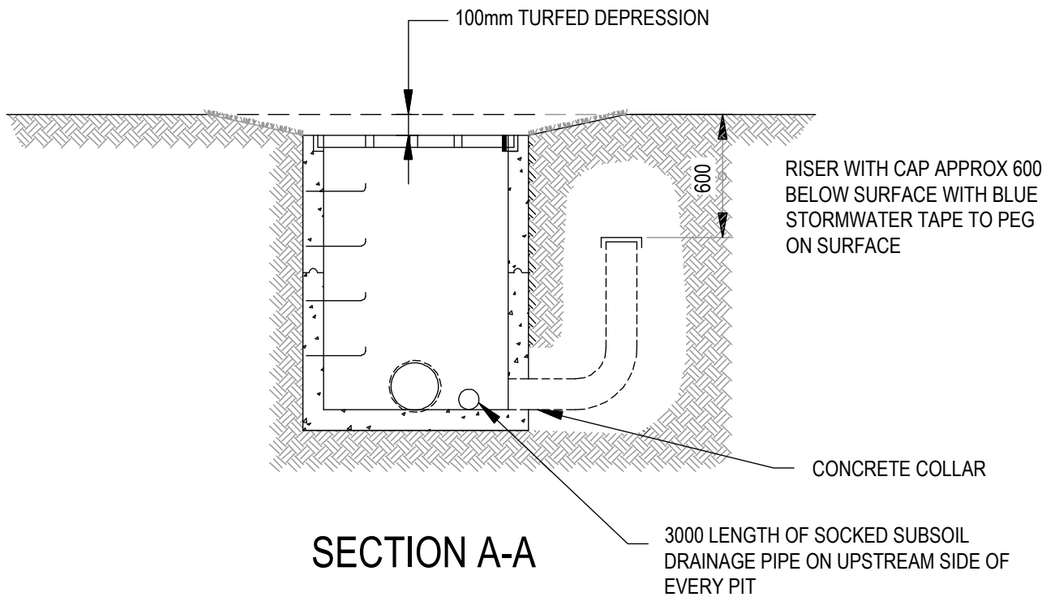
COUNCIL PLAN No. SW-300-11

Orig. Size A3

Revision 1



PLAN



SECTION A-A

INTER ALLOTMENT DRAINAGE PIT

MINIMUM PIT DIMENSIONS

PIT DEPTH	≤600	>600 ≤900	>900 ≤1200	>1200
`X'	450	600	600	900
`Y'	450	600	900	900

NOTES:

1. INTER-ALLOTMENT DRAINAGE PITS SHALL BE PROVIDED TO THE LOW CORNER OF EACH LOT UNLESS OTHERWISE PROVIDED.
2. PITS ARE TO BE PROVIDED AT CHANGES OF PIPE SIZE, CHANGES IN GRADE, CHANGED IN PIPE TYPE OR CLASS AND CHANGES IN DIRECTION. MAXIMUM DISTANCE BETWEEN PITS IS 60m. INTERALLOTMENT PITS MAY BE PRECAST OR CAST INSITU.
3. PITS SHALL BE COVERED BY AN APPROVED GRATE TO PROVIDE AN ADEQUATE SURFACE WATER INLET. ALL GRATES ARE TO BE PROVIDED WITH EITHER "J" BOLTS OR PINS TO PREVENT REMOVAL.
4. PITS SURROUNDS WILL BE TURFED AND PEGGED OR NETTED TO A MINIMUM WIDTH OF 500mm. PIT INLET GRATES SHALL BE DEPRESSED 100mm BELOW SURROUNDING GROUND LEVEL TO ASSIST SURFACE WATER COLLECTION.
5. PROVIDE STEP IRONS FOR PITS DEEPER THAN 1200. SUCH PITS ARE TO HAVE A MINIMUM INTERNAL SIZE OF 900 x 900mm.
6. CONNECTION FOR ROOF WATER FOR SINGLE RESIDENTIAL DWELLINGS SHALL BE PROVIDED VIA A 150mm DIA. STUB INTO THE SIDE OF THE PIT. PIPE CONNECTION TO PIT TO BE SEALED WITH MINIMUM 100mm MORTAR COLLAR FOR SEAL AND SUPPORT.
7. INTER-ALLOTMENT DRAINAGE IS MAINTAINED & OWNED BY THE PROPERTY OWNERS BENEFITING FROM THE SYSTEM.
8. INTERALLOTMENT DRAINAGE ALIGNMENT IS A MINIMUM 750mm FROM PROPERTY BOUNDARY AND CONTAINED IN AN EASEMENT MINIMUM 1.5m WIDE WITHIN PRIVATE PROPERTY. WIDER EASEMENT MAY BE REQUIRED FOR DEEPER OR LARGER DIAMETER PIPEWORK AND AREAS REQUIRING DEDICATED OVERLAND STORMWATER FLOW PATHS.
9. WHERE INTERALLOTMENT DRAINAGE IS ADJACENT A SEWER MAIN, A MINIMUM DISTANCE OF 1500 BETWEEN CENTRELINES IS REQUIRED. FOR DEEP SEWER MAINS THE SPACING MAY NEED TO BE INCREASE SUBJECT TO DETAIL DESIGN.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

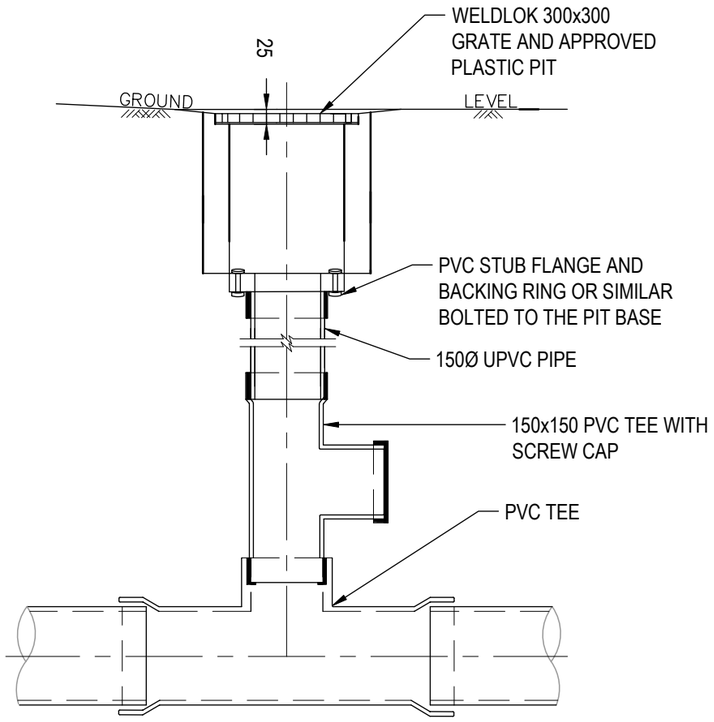
STANDARD DRAWINGS

INTER ALLOTMENT PIT

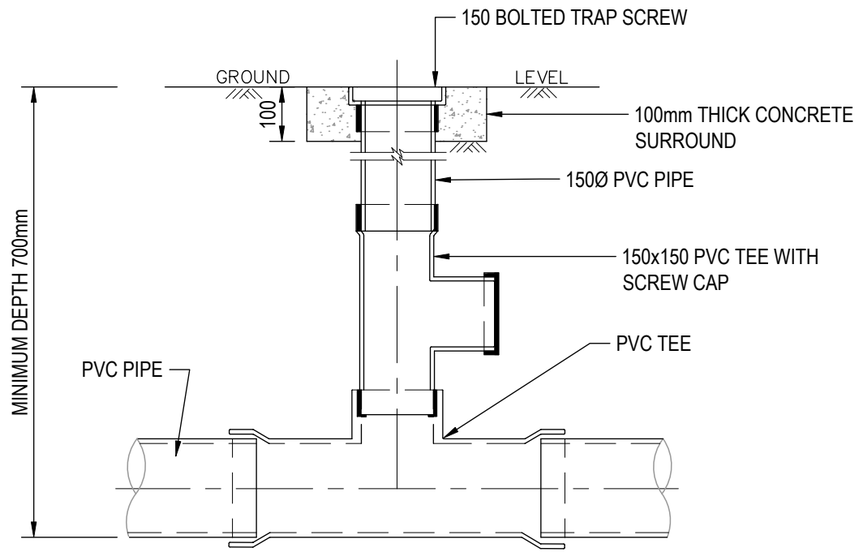
COUNCIL PLAN No. SW-300-12

Orig. Size A3

Revision 1



PVC PIPE AND GRATE DETAIL



PVC PIPE DETAIL

NOTES:

1. PLANS SHOWS TYPICAL DETAILS FOR IN-LINE INTERALLOTMENT CONNECTIONS TO PCV INTERALLOTMENT DRAINAGE PIPE WITHIN A LOT AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

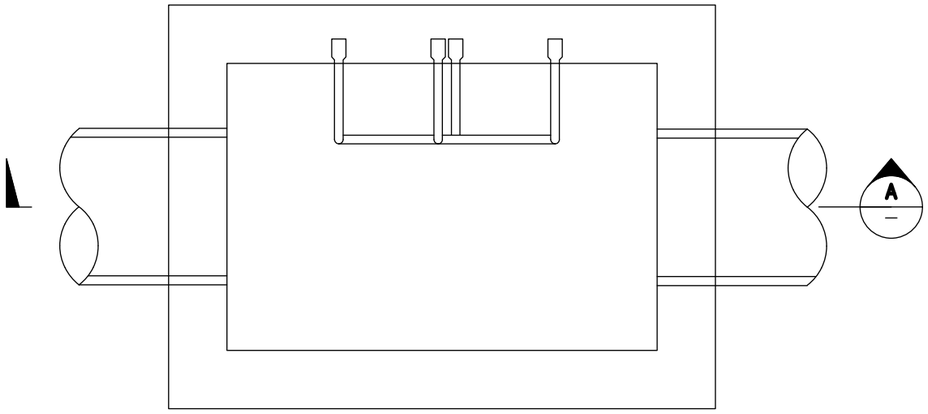
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

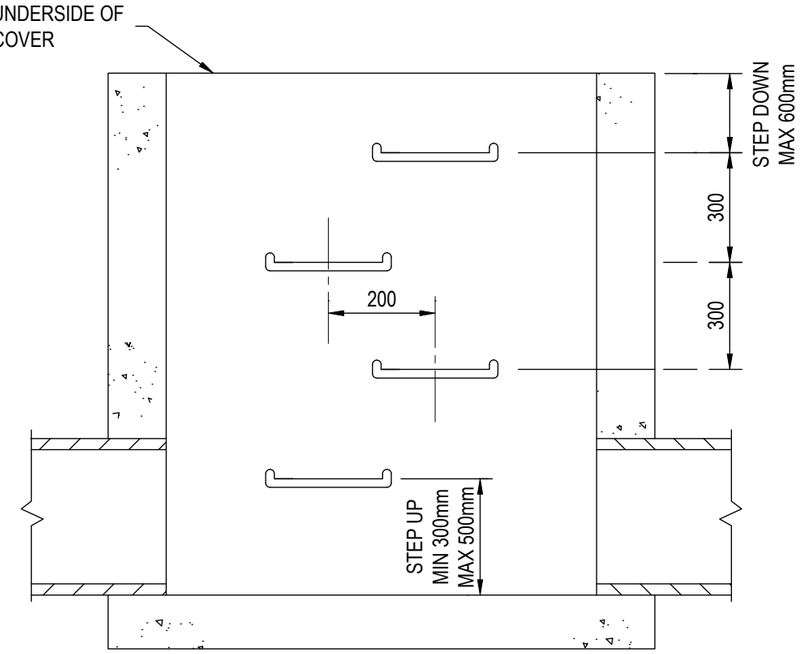
IN LINE INTERALLOTMENT CONNECTIONS

COUNCIL PLAN No.
SW-300-13

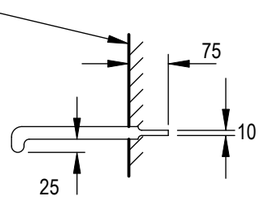
Orig. Size	Revision
A3	1

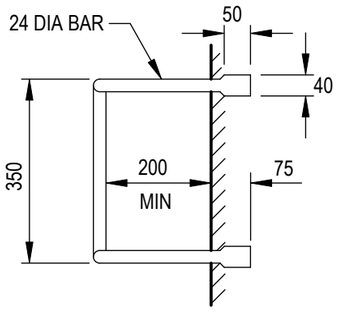


PLAN



SECTION A-A





STEP IRON DETAILS

NOTES:

1. PITS DEEPER THAN 1200 SHALL BE FITTED WITH STEP IRONS IN ACCORDANCE WITH AS1657.
2. STEP IRONS SHALL BE LOCATED:
(a) DIRECTLY BELOW THE OPENING IN THE COVER.
(b) DESIRABLY ON A WALL WITHOUT PIPE OPENINGS.
(c) DESIRABLY ON ONE OF THE LONG SIDES OF THE PIT. MATERIAL FOR STEP-IRONS SHALL BE STRUCTURAL GRADE 250 TO AS1204.
3. STEP IRONS SHALL HAVE SHARP EDGES ROUNDED AND HOT DIP GALVANIZED AFTER FABRICATION.
4. PROPRIETORY STEPS SUCH AS THE GATIC PS2-PF POLYPROPYLENE STEPS (OR APPROVED ALTERNATIVE) MAY BE USED. THESE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.
5. ALL DIMENSIONS ARE IN MILLIMETERES

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

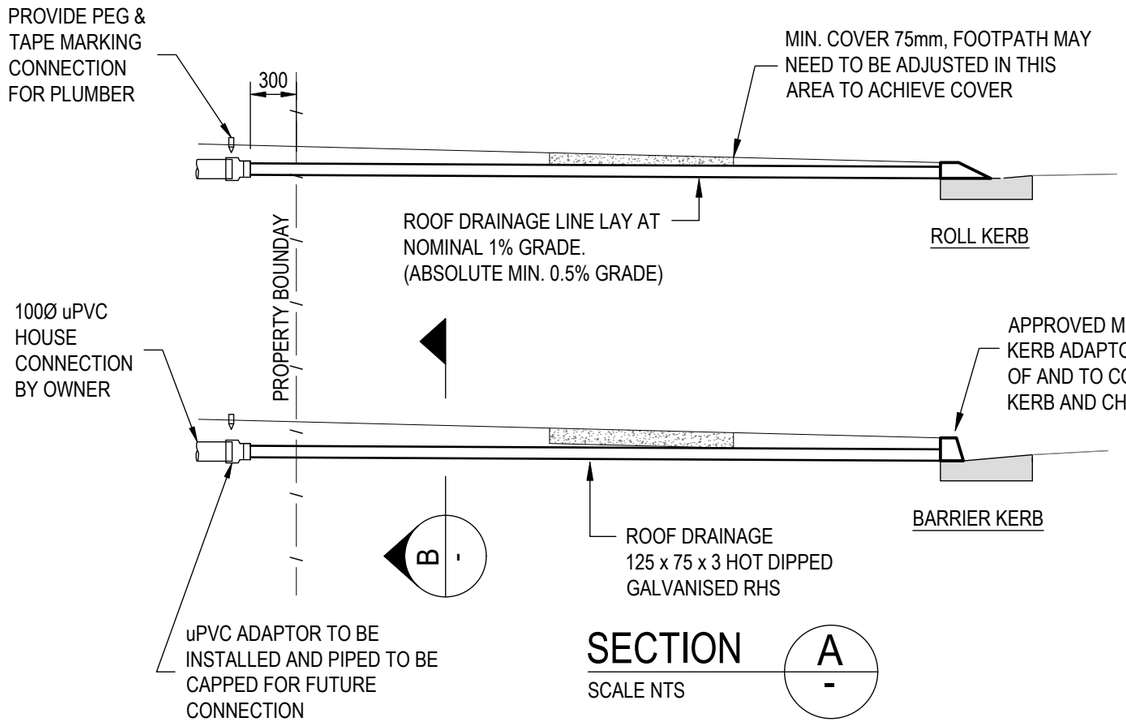
STANDARD DRAWINGS

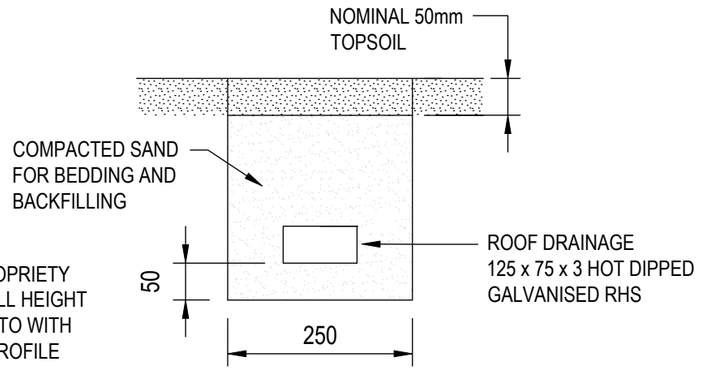
STEP IRONS DETAILS

COUNCIL PLAN No.
SW-300-14

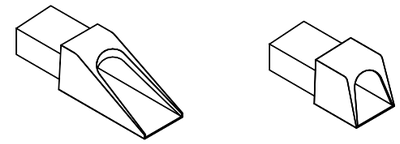
Orig. Size A3

Revision 1





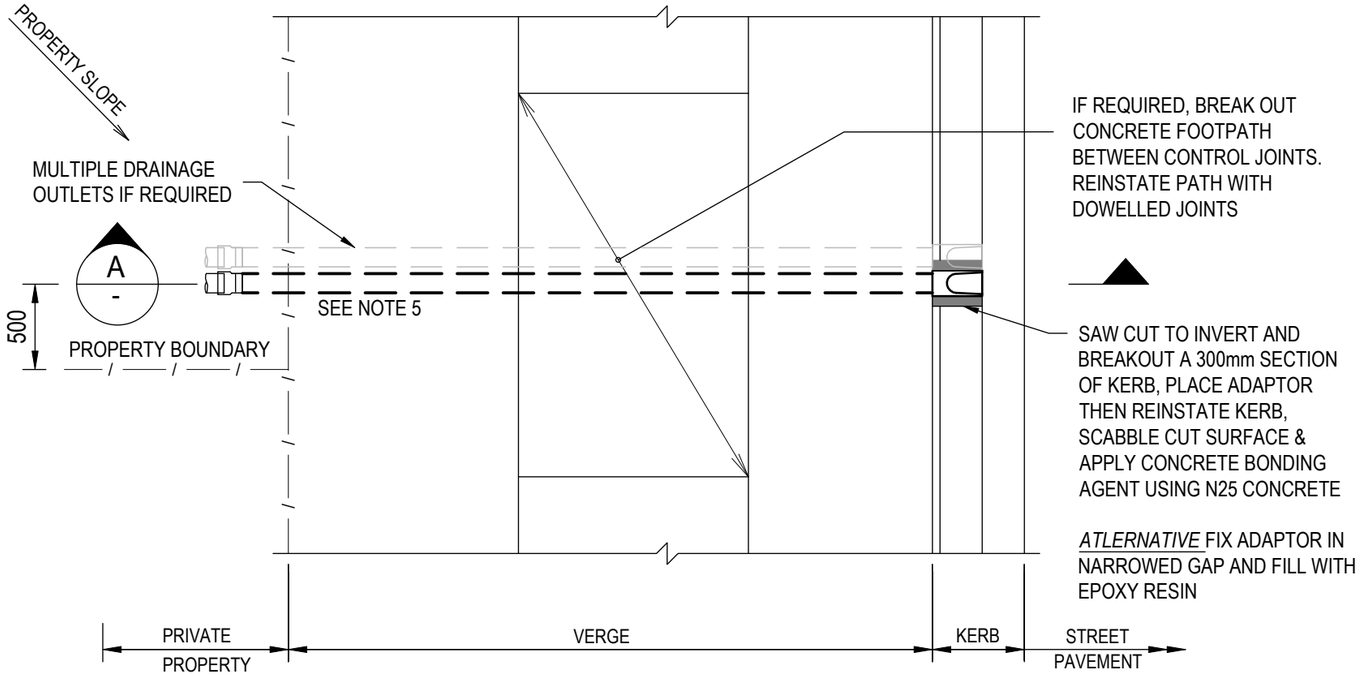
NOTE: FOR SPECIFICATIONS REFER TO MANUFACTURERS'S PRODUCT INFORMATION.



MOUNTABLE KERB ADAPTOR

BARRIER KERB ADAPTOR

TYPICAL FULL HEIGHT KERB ADAPTORS



PLAN

NOTES

1. PROPRIETRY KERB ADAPTOR TO SUIT KERB & GUTTER PROFILE INSTALLED IN ACCORDANCE WITH MANUFACTURES SPECIFICATIONS KERB ADAPTORS CAST IN MARINE GRADE ALUMINUM ARE PREFERRED FOR COASTAL ZONE AREAS.
2. ROOFWATER/STORMWATER DRAINS ARE TO TRANSPORT CLEAN STORMWATER RUNOFF ONLY OR OTHERWISE UNCONTAMINATED WATER.
3. 125 x 75 x 3 HOT DIPPED GALVANISED RHS IS TO BE INSTALLED AT DESIRABLE 1% FALL (ABSOLUTE MINIMUM FALL OF 0.5%)
4. THE CITY'S POLICY IS THAT THE PROVISION OF MAINTENANCE OF PRIVATE ROOFWATER/STORMWATER DRAINS ARE TO BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE PROPERTY OWNER IS ALSO RESPONSIBLE FOR THE VERGE RESTORATION TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
5. KERB ADAPTOR TO BE PROVIDED ON DOWNHILL SIDE OF EACH LOT, GENERALLY 500mm FROM THE LOWEST SIDE ON BOUNDARY.
6. FOR NEW DEVOPMENTS CREATE GAP IN KERB AND ALLOW CONCRETE TO SET ON EACH SIDE OF THE ADAPTOR AND LOCKING TAPS. FOR EXISTING KERBS, SAW CUT TO RETROFIT THE KERB ADAPTOR AS NECESSARY AND REINSTATE WITH GROUT, JOINT FILLER, EXPOXY RESIN OR N25 CONCRETE
7. AT NEW DEVELOPMENTS SEAL INLET TO ADAPTOR.
8. REINSTATE ANY RECONSTRUCTED PATHS TO MATCH ORIGINAL PATH FINISH.
9. LARGER DIAMETER STORMWATER OUTLET PIPES SHALL BE CONNECTED TO A PIT IN THE CITY'S DRAINAGE SYSTEM
10. ALL DIMENSIONS IN MILLIMETERS.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

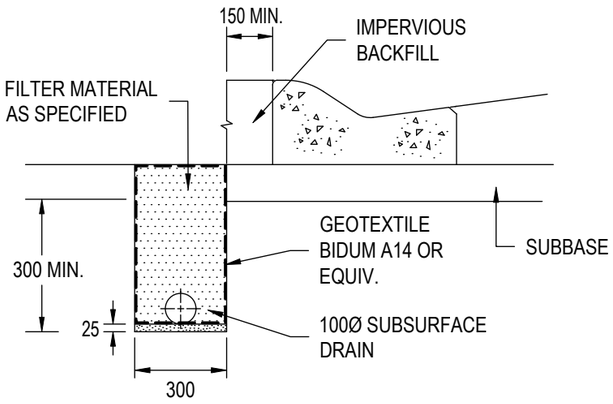
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

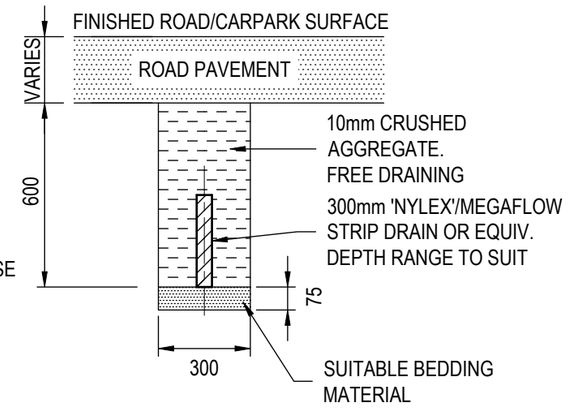
KERB AND GUTTER
PROPERTY DRAINAGE

Council Plan No.
SW-300-15

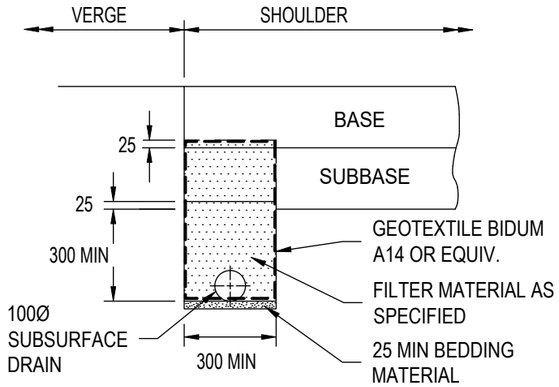
Orig. Size: A3
Revision: 1



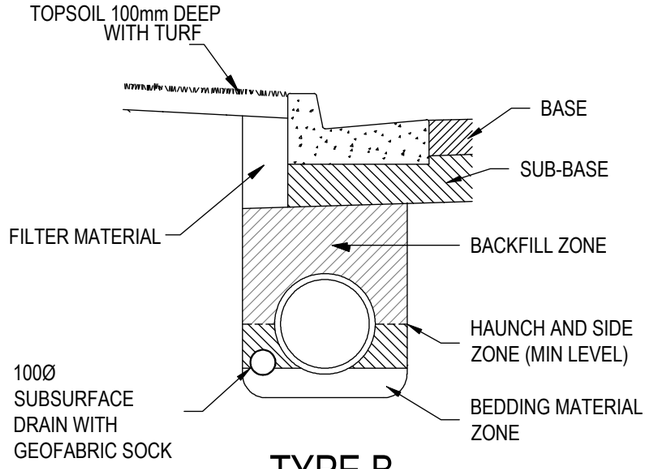
TYPE A
UNDER KERB & GUTTER



TYPE D
SUBSOIL STRIP DRAIN (MEGAFLOW)



TYPE C
UNDER FULL WIDTH FULL DEPTH PAVEMENT

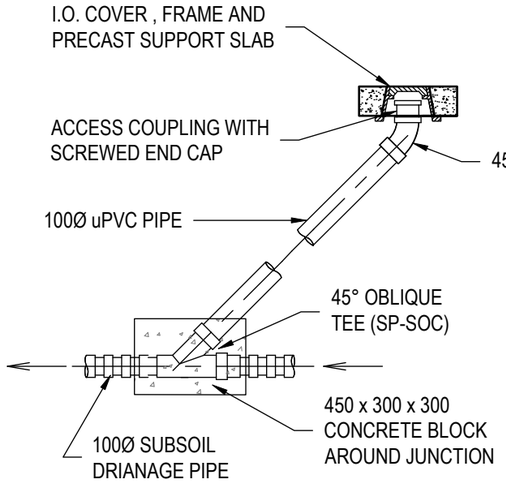


TYPE B
SUBSOIL & STORMWATER PIPES IN SAME TRENCH
(ONLY IF SPECIFIED BY DESIGN DRAWINGS)

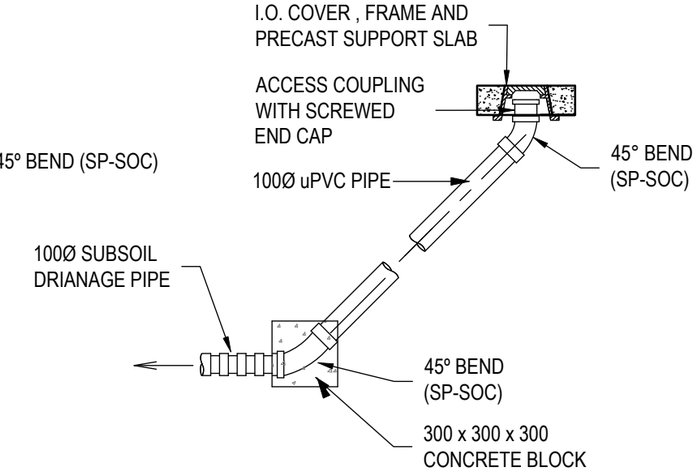
TYPICAL SUBSOIL DRAINS
NOT TO SCALE

NOTE:

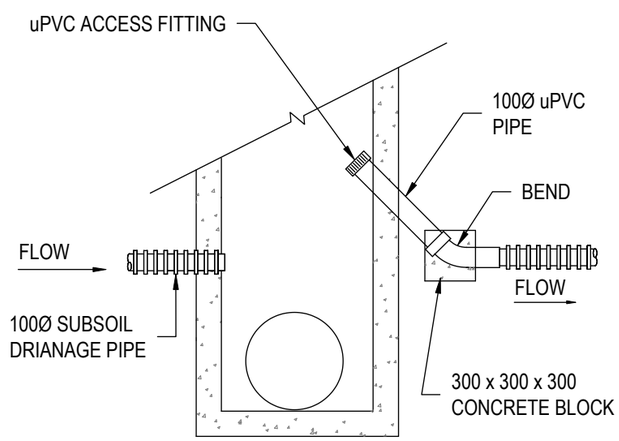
1. THE SIDE DRAIN DEPTH SHALL BE A MINIMUM 300mm BELOW THE UNDISTURBED SUB-GRADE. WHERE A HIGH WATER TABLE IS PRESENT DEEPER SIDE DRAINS POSSIBLY IN COMBINATION WITH MITRE DRAINS, MAY BE SPECIFIED.
2. UPVC 100 DIA. DRAIN PIPES AND FITTINGS AT INLETS AND OUTLETS TO BE SEWER CLASS 400 TO A.S. 1254.
3. UPVC 100 DIA. CORRUGATED SLOTTED PIPES AND FITTINGS TO BE SEWER CLASS 400 TO A.S.2439.
4. ALL CONNECTIONS INCLUDING THE JOINING OF LENGTHS OF CORRUGATED PIPE TO BE MADE USING STANDARD FITTINGS.
5. DRAIN PIPES TO BE LAID TO A MIN. GRADE 1 IN 200 WITH 100 FALL REQUIRED OVER A 500mm LENGTH AT INLETS AND OUTLETS TO ENSURE DRAINAGE TO FULL DEPTH OF SIDE DRAIN TRENCH.
6. IF FCR FILTER MATERIAL IS USED, THE GEOFABRIC IS NOT REQUIRED TO COVER THE UPPER SURFACE OF THE DRAIN.
7. ADOPT THE SAME TYPE 3 GEOFABRIC (i.e. BIDIM A49 OR EQUIVALENT) AND FILTER MEDIUM FOR DRAINS AND MITRE DRAINS.
8. ALL INLETS TO BE CAPPED AND ALL OUTLETS RENDERED VERMIN PROOF BY INSERTION OF A PLUG OF CRUSHED WIRE MESH (NOT REQUIRED WHEN THE OUTLET IS INSIDE A PIT WALL). REFER TO TfNSW STANDARD DRAWING MD.R33.A04 (SHEETS 1 & 2) FOR DETAILS OF VERMIN PROOF OUTLET STRUCTURES FOR SUBSURFACE DRAINS..
9. WHERE A GULLY, PIPE OR MANHOLE IS NOT PRESENT FOR SIDE DRAIN OUTLET. THE SIDE DRAIN IS TO BE GRADED VIA REAR OF KERB AND OUTLET TO KERB AND GUTTER WITH A FULL HEIGHT UPVC KERB ADAPTOR.
10. REFER TO SW-300-17 FOR TYPICAL LOCATIONS OF SUBSOIL DRAINS IN LANDSCAPED CENTRAL MEDIAN ISLAND.



FLUSHING POINT ON LINE



FLUSHING POINT HEAD OF LINE



FLUSHING POINT DETAIL AT GULLY PIT
NOT TO SCALE

SUBOIL DRAINAGE FLUSHING POINTS
NOT TO SCALE

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

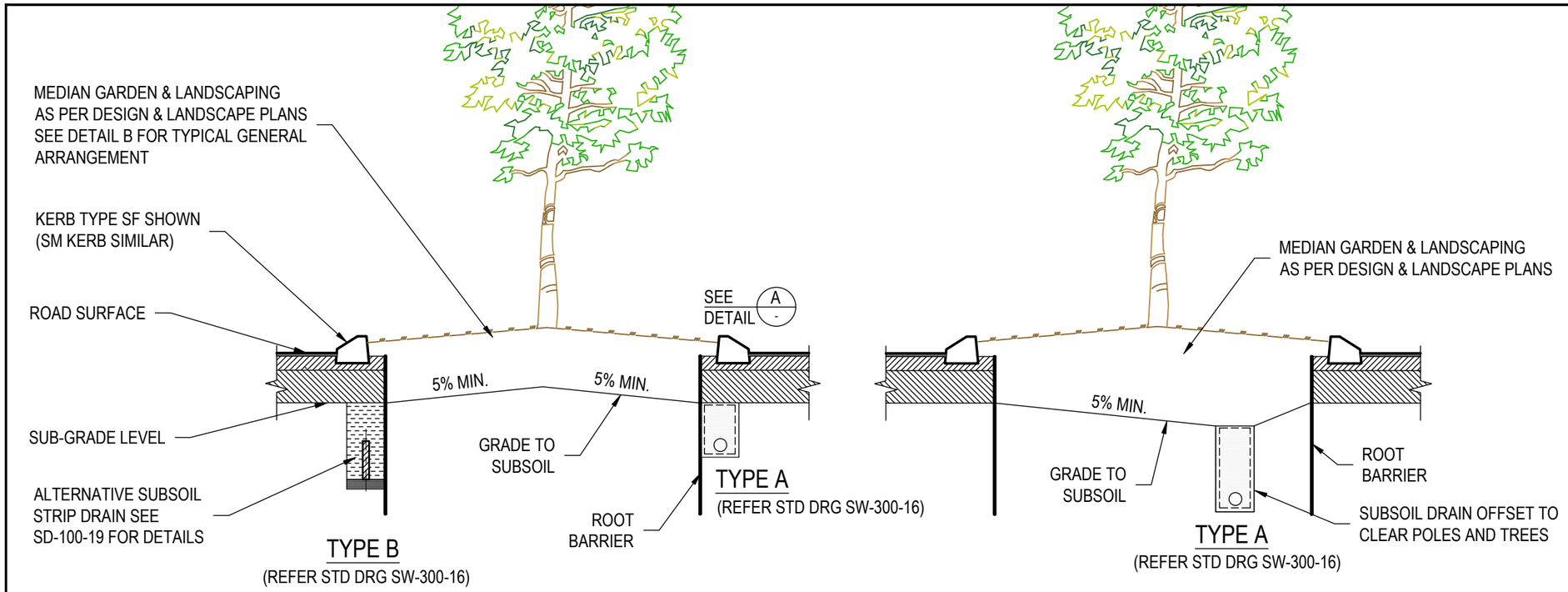
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

TYPICAL SUB-SOIL DRAINS

Council Plan No. SW-300-16

Orig. Size A3 | Revision 1

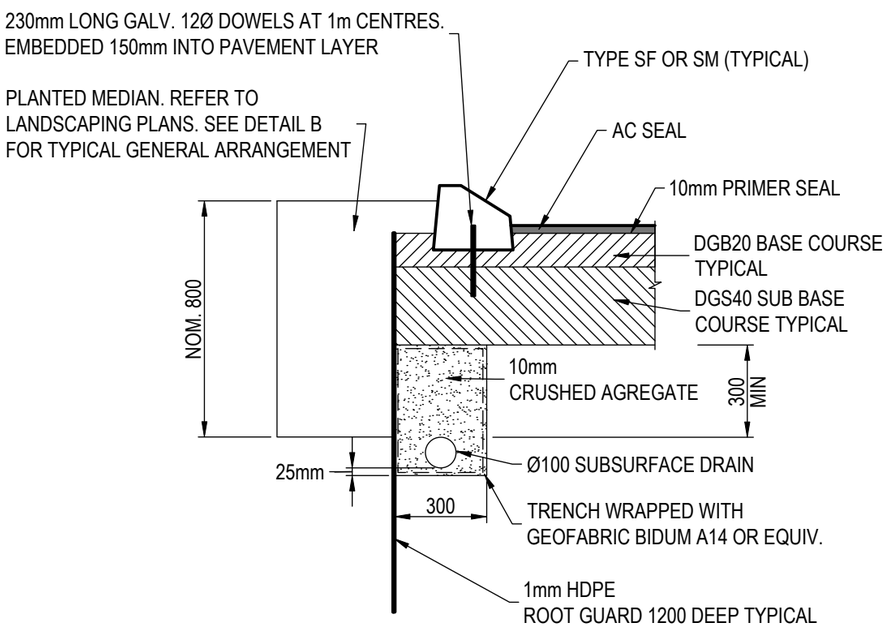


NOTES

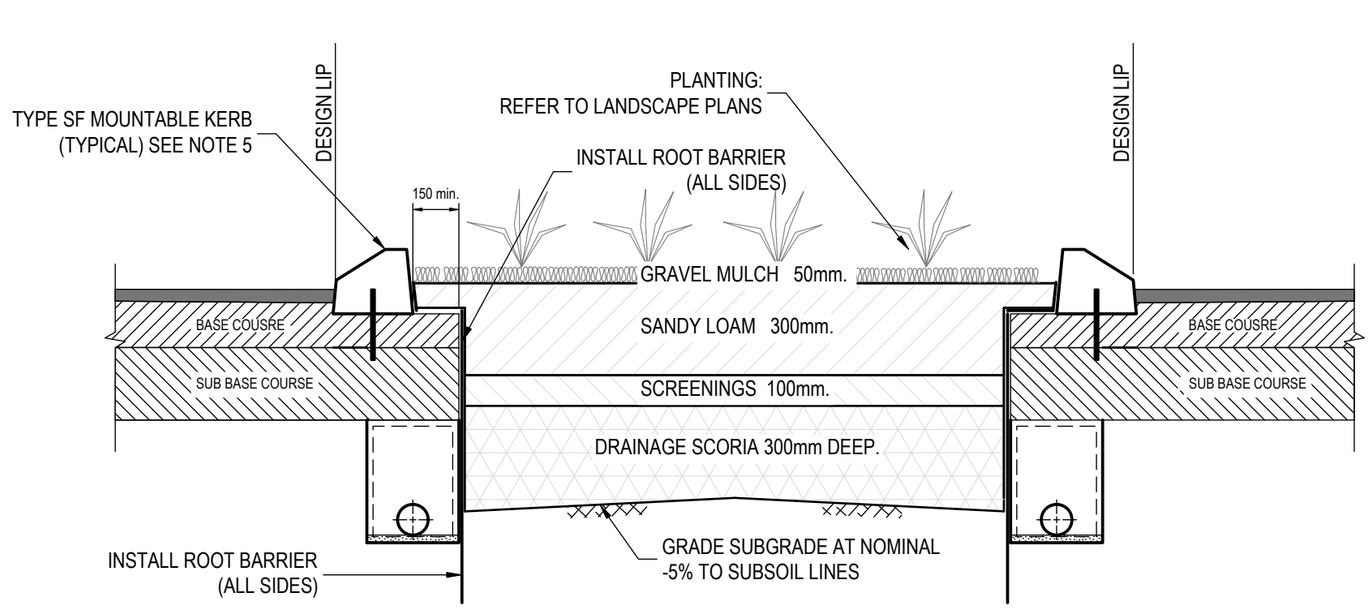
1. 100Ø SUBSOIL DRAINAGE PIPE - CORRUGATED SLOTTED POLYETHYLENE, CONNECT TO DRAINAGE SYSTEM. MINIMUM GRADE TO BE 0.5%
2. PROVIDE BIDUM A14 OR APPROVED EQUIVALENT PROPRIETY GEOFABRIC PRODUCT SURROUND.
3. FOR LOCATION OF SUBSOIL DRAINAGE CONSIDERATIONS SHOULD BE GIVEN TO LOCATION OF FUTURE AND EXISTING SERVICES AND THE INCORPATION OF WATER SENSITIVE URBAN DESIGN
4. FOR SUBSOIL DRAINAGE DETAILS & FLUSHING ACCESS POINTS REFER TO SW-300-16.

.

TYPICAL MEDIAN / ISLAND SUBSOIL LOCATIONS



DETAIL A
SCALE 1:20



TYPICAL ROADWAY PLANTING ISLAND GENERAL ARRANGEMENT

DETAIL B
SCALE 1:50

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

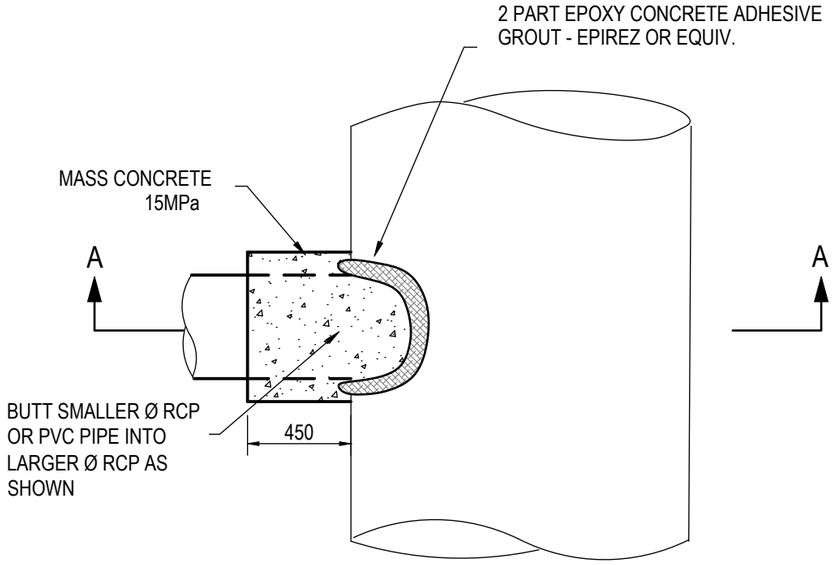
STANDARD DRAWINGS

TYPICAL MEDIAN SUBSOIL LOCATIONS

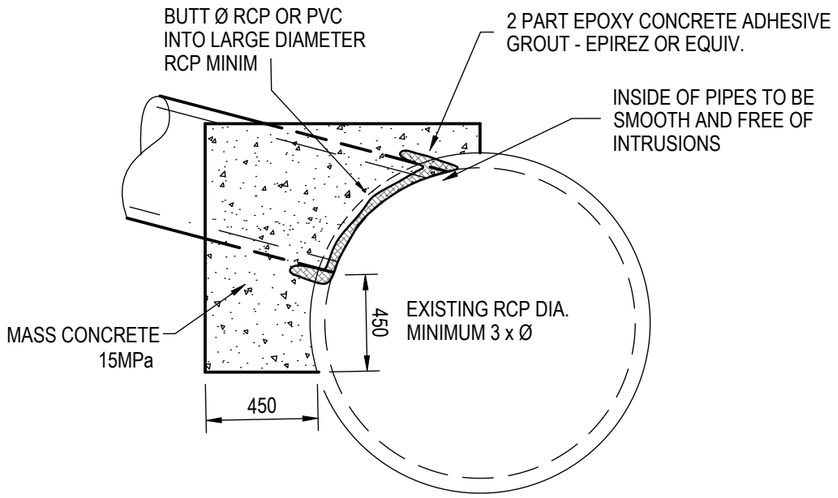
Council Plan No. SW-300-17

Orig. Size A3

Revision 1



PLAN



ELEVATION - A-A

NOTES:

1. THIS DRAWING SHOWS TYPICAL RETRO FITTED DIRECT CONNECTION TO EXISTING LARGE DIAMETER RCP DRAINAGE PIPES WHERE CONSTRUCTION OF A JUNCTION PIT OVER EXISTING DRAINAGE IS NOT PRACTICALE. CITY APPROVAL IS REQUIRED.
2. EXISTING PIPE DIAMETER MUST BE A MINIMUM 3 TIMES THE DIAMETER OF THE DRAINAGE LINE BREAKING INTO.
3. DETAIL NOT TO BE USED FOR NEW SUBDIVISION DRAINAGE & INTERALLOTMENT DRAINAGE LINES.
4. WHERE THE CONNECTION IS MADE ADJACENT A KERB, THE KERB IS TO ETCHED WITH THE LETTER "SW" TO INDICATE THE LOCATION OF THE CONNECTION.
5. FOR DN100 RESIDIENTIAL, DN150 INDUSTRIAL DRAINAGE PVC AND SUBSOIL AG LINE CONNECTIONS INSTALL "CONCONECT" FITTING AS SHOWN ON STD DRG SW-300-19
6. PVC PIPE DRAINAGE ARE TO BE RRJ SN10
7. PRIOR TO CONSTRUCTION ROAD OPENING PERMITS ARE TO MADE TO THE CITY.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

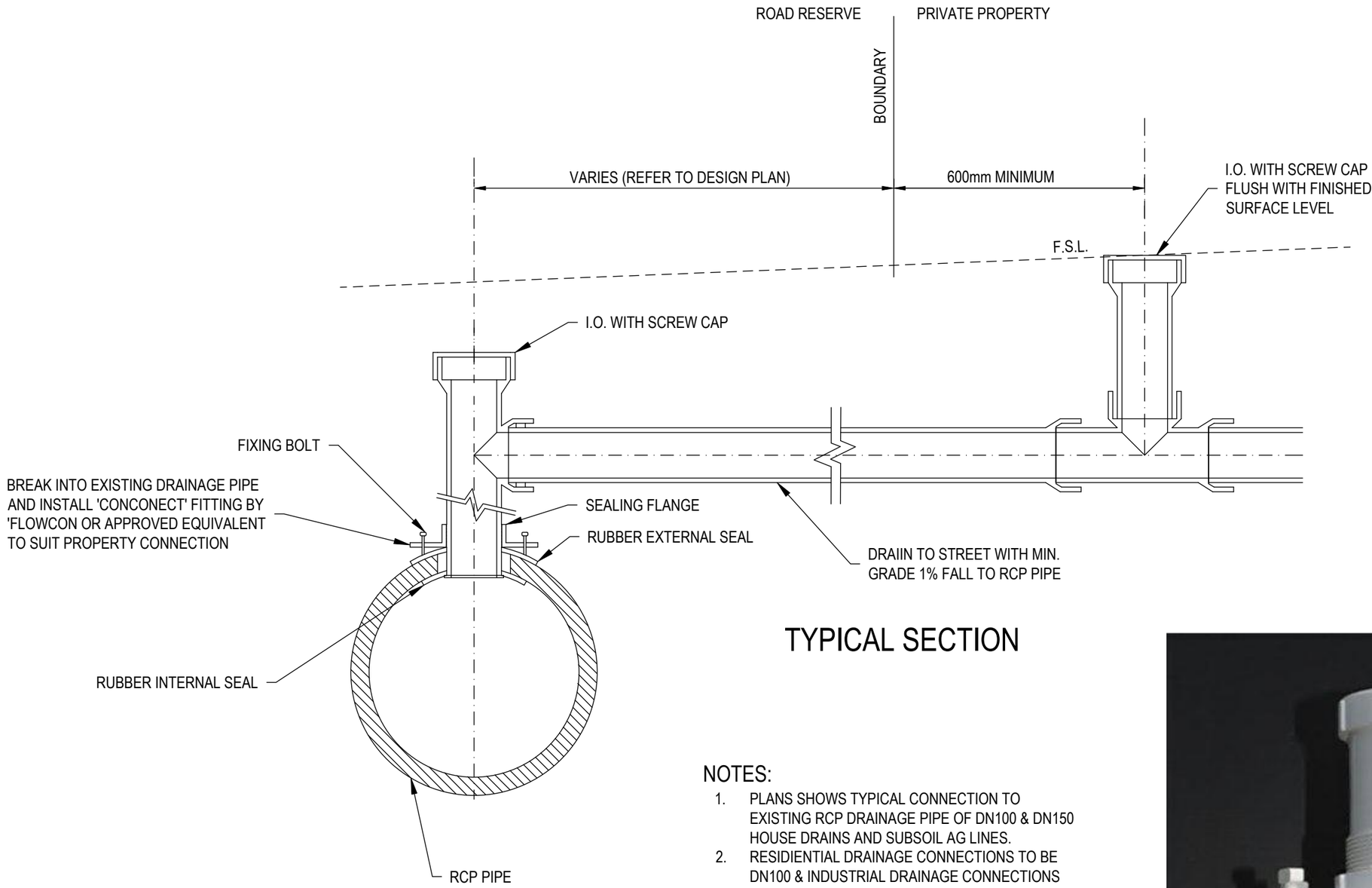
STANDARD DRAWINGS

DIRECT PROPERTY CONNECTION TO REINFORCED CONCRETE PIPE

SHEET 1 OF 2

COUNCIL PLAN No.
SW-300-18

Orig. Size	Revision
A3	1



TYPICAL SECTION

NOTES:

1. PLANS SHOWS TYPICAL CONNECTION TO EXISTING RCP DRAINAGE PIPE OF DN100 & DN150 HOUSE DRAINS AND SUBSOIL AG LINES.
2. RESIDIENTIAL DRAINAGE CONNECTIONS TO BE DN100 & INDUSTRIAL DRAINAGE CONNECTIONS TO BE DN150 PVC.
3. WHERE THE CONNECTION IS MADE ADJACENT A KERB, THE KERB IS TO ETCHED WITH THE LETTER "H" TO INDICATE THE LOCATION OF THE CONNECTION.
4. PIPES ARE TO BE DRAINAGE PVC SN10
5. PRIOR TO CONSTRUCTION PIPE TAPPING ROAD OPENING PERMITS ARE TO BE MADE TO THE CITY.

IMAGE: 'CONCONENT" FITTING JOINED TO R.C.P. DRAINAGE LINE

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

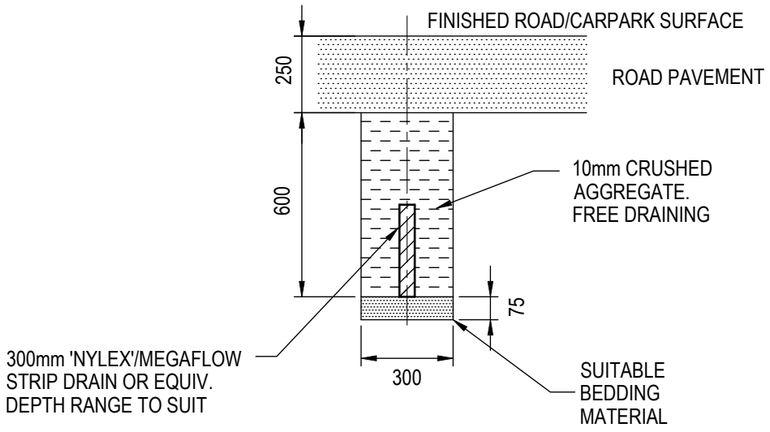
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

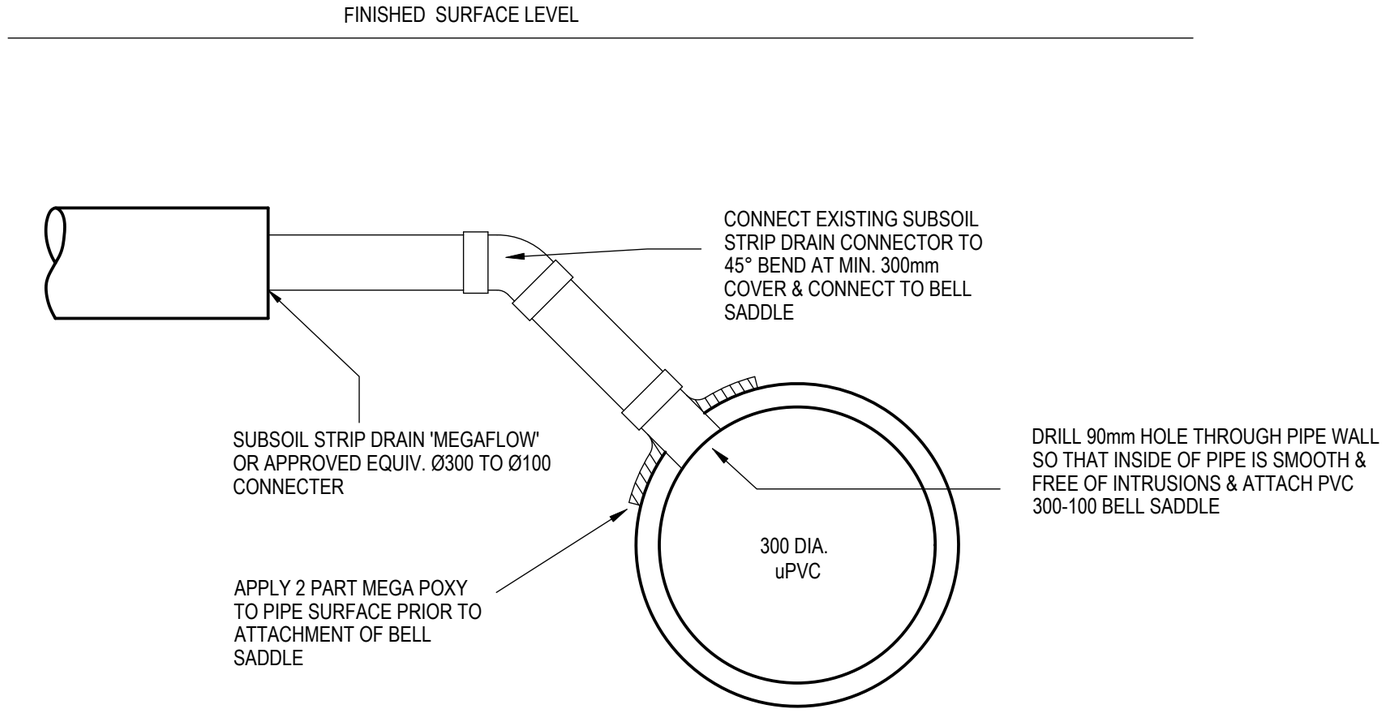
DIRECT PROPERTY CONNECTION
TO REINFORCED CONCRETE PIPE
SHEET 2 OF 2

COUNCIL PLAN No.
SW-300-19

Orig. Size	Revision
A3	1



SUBSOIL STRIP DRAIN



CONNECTION TO 300Ø UPVC DRAINAGE LINE

TYPICAL SUBSOIL STRIP DRAIN CONNECTION DETAIL

NOTES:

1. PLANS SHOWS TYPICAL CONNECTION OF SUBSOIL STRIP DRAIN TO UPVC PIPE.
2. WHERE THE CONNECTION IS MADE ADJACENT A KERB, THE KERB IS TO ETCHED WITH THE LETTER "H" TO INDICATE THE LOCATION OF THE CONNECTION.
3. PIPES ARE TO BE DRAINAGE PVC SN10
4. PRIOR TO CONSTRUCTION PIPE TAPPING/ROAD OPENING PERMITS ARE TO MADE TO THE CITY.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

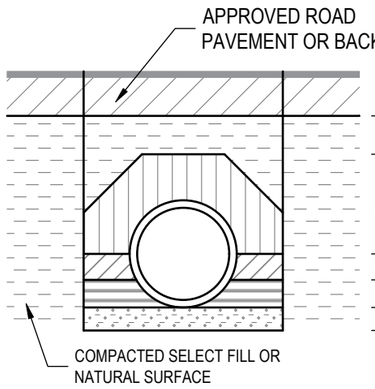
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

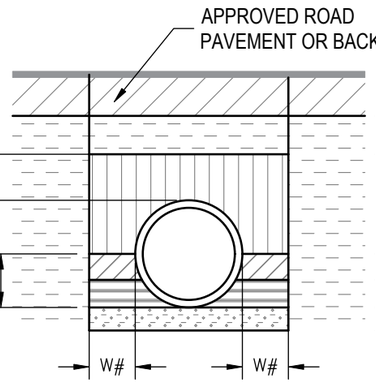
DIRECT CONNECTION OF
SUBSOIL STRIP DRAIN TO uPVC PIPE

COUNCIL PLAN No.
SW-300-20

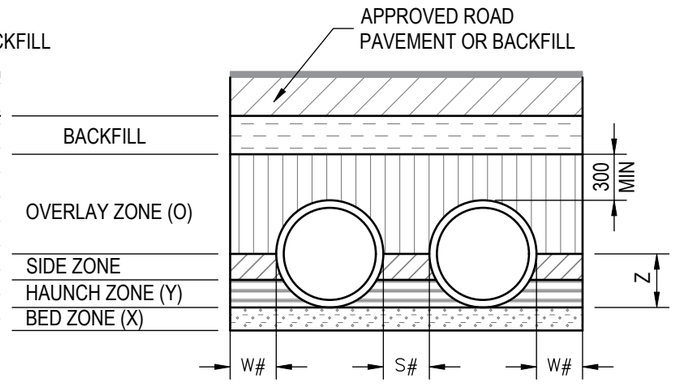
Orig. Size	Revision
A3	1



RIGID PIPE
EMBANKMENT



RIGID PIPE
SINGLE PIPE - TRENCH

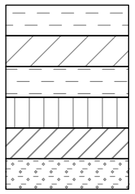


RIGID PIPE
MULTIPLE PIPES - TRENCH

TABLE 6 AS3725 - BEDDING AND HAUNCH ZONE GRADING						
SIEVE SIZE (mm)	19.0	2.36	0.60	0.30	0.15	0.075
% MASS PASSING	100	100-50	90-20	60-10	25-0	10-0

TABLE 7 AS3725 - SIDE ZONE GRADING					
SIEVE SIZE (mm)	75	9.5	2.36	0.60	0.075
% MASS PASSING	100	100-50	100-30	50-15	25-0

LEGEND



COMPACTED SELECT FILL OR EXISTING BACKFILL OR ROAD PAVEMENT BACKFILL
OVERLAY ZONE
SIDE ZONE
BED ZONE

TABLE 1 - PIPE INSTALLATION DIMENSIONS

RIGID PIPE					
INTERNAL DIAMETER	X	Y	Z	W#	S#
>300 ≤450	100	0.3D	0.5D	450	450
>450 ≤600	100	0.3D	0.5D	450	450
>600 ≤900	100	0.3D	0.5D	600	600
>900 ≤1200	100	0.3D	0.5D	600	600
>1200 ≤1500	100	0.3D	0.5D	600	600
>1500	100	0.3D	0.7D	900	900

S# W#- WHERE THE USE OF CONTROLLED LOW STRENGTH MATERIAL (CLSM) HAS BEEN APPROVED, THE SPACE BETWEEN MULTIPLE PIPES AND THE SIDES OF THE TRENCH CAN BE REDUCED IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUSTRALIAN STANDARDS

DESIGNER NOTES:

1. PIPE DESIGN IS TO BE IN ACCORDANCE WITH AS3725-2007.
2. MINIMUM DISTANCE BETWEEN PIPES AND EDGE OF TRENCH IS TO ALLOW SAFE CLEARANCE FOR TRENCH SUPPORT AND COMPACTION EQUIPMENT. MAXIMUM TRENCH WIDTH TO BE DETERMINED BY DESIGNER BASED ON CLASS OF PIPE.
3. DESIGNER TO DETERMINE THE CLASS OF THE PIPE BASED ON SOIL DESCRIPTION, SUPPORT TYPE, TRENCH WIDTH, PIPE DEPTH AND TRAFFIC LOADING.
4. WHERE THERE IS A POSSIBILITY OF MIGRATION OF FINES BETWEEN THE NATIVE SOIL AND THE EMBEDMENT ZONE, A GEOTEXTILE FILTER FABRIC SHALL BE PROVIDED TO ENSURE THAT THE INTEGRITY OF THE SIDE SUPPORT TO THE PIPE IS NOT COMPROMISED

NOTES:

1. BED ZONE MATERIAL SHALL EXTEND OVER THE FULL WIDTH OF THE TRENCH AND SHALL BE COMPACTED BY TAMPING, ROLLING AND/OR VIBRATION. COMPACTION ACHIEVED SHALL BE MONITORED BY FIELD TESTING IN ACCORDANCE WITH AS 1289.
2. THE BED LEVEL SHALL BE GRADED TO PROVIDE FOR A UNIFORM FALL TO THE DISCHARGING END OF THE PIPELINE,WITH LINE AND LEVEL AS SHOWN ON THE DRAWINGS. FOR SOCKETS PROTRUDING BEYOND THE BARREL OUTSIDE SURFACE, CHASES SHALL BE DUG INTO THE BED AND FOUNDATION IF NECESSARY, IN THE APPROPRIATE POSITIONS, SO THAT EACH PIPE IS SUPPORTED ALONG THE FULL LENGTH OF THE BARREL AND THE SOCKET IS NOT SUBJECTED TO POINT LOADING.
3. HAUNCH ZONE - SHALL USE MATERIAL THAT IS CONSISTENT WITH THE REQUIREMENTS OF TABLE 6, AS3725.
4. SIDE ZONE - SHALL CONSIST OF SELECT FILL MATERIAL THAT COMPLIES WITH THE GRADING DETAILED IN TABLE 7, AS3725.
5. PIPE SUPPORT TYPE - UNLESS SHOWN OTHERWISE ON THE APPROVED PROJECT DRAWINGS, THE PIPE SUPPORT SHALL BE HS3 WITHIN THE ROAD RESERVE AND H2 ELSEWHERE. COMPACTION SHALL BE IN ACCORDANCE WITH CITY OF COFFS SPECIFICATION C221 - PIPE DRAINAGE.
6. MINIMUM DEPTH OF OVERLAY ZONE ABOVE PIPES/CULVERTS AS SHOWN MAY INCLUDE PAVEMENT. PAVEMENT WITHIN THIS AREA TO BE COMPACTED BY HAND OR ALTERNATIVELY A LEAN MIX CONCRETE PAVEMENT LAYER MAY BE USED
7. BACKFILL MATERIAL SHALL BE SELECT BACKFILL COMPLYING WITH THE REQUIREMENTS OF CITY OF COFFS SPECIFICATION C221 - PIPE DRAINAGE
8. WORKING LOADS ARE THOSE DUE TO FILL MATERIAL AND STANDARD HIGHWAY VEHICLES AS PER AS3725. ALLOWANCE FOR CONSTRUCTION LOADS SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS
9. ROAD OPENING AND RESTORATION - APPROVED REPLACEMENT PAVEMENT MATERIAL SHALL EXTEND A MINIMUM OF 300mm (SUBJECT TO DEPTH OF PAVEMENT) BEYOND THE PERIMETER OF ANY TRENCH EXCAVATION. THE ROAD SURFACING SHALL EXTEND A MINIMUM OF 100mm BEYOND THE PERIMETER OF ANY PAVEMENT REPLACEMENT
10. WINGWALLS FILL/BACKFILL MATERIAL SHALL BE PLACED 300mm THICK BEHIND WINGWALLS FOR THE LENGTH AND HEIGHT OF THE WINGS
11. UNLESS DIRECTED OTHERWISE BY COUNCIL'S AUTHORISED REPRESENTATIVE, PROVIDE PIPE STUB TO DE-WATER DRAINAGE TRENCH. STUB TO BE 3000mm LONG x 100mm DIA. CORRUGATED POLYETHYLENE PIPE CLASS 400 TO AS2439 (WITH AN END CAP) INSTALLED ON UPSTREAM FACE OF MANHOLES AND PITS.

REFERENCED DOCUMENTS

AUSTRALIAN STANDARDS

- AS 3725 LOADS ON BURIED CONCRETE PIPES
- AS 4139 FIBRE REINFORCED CONCRETE PIPES AND FITTINGS

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

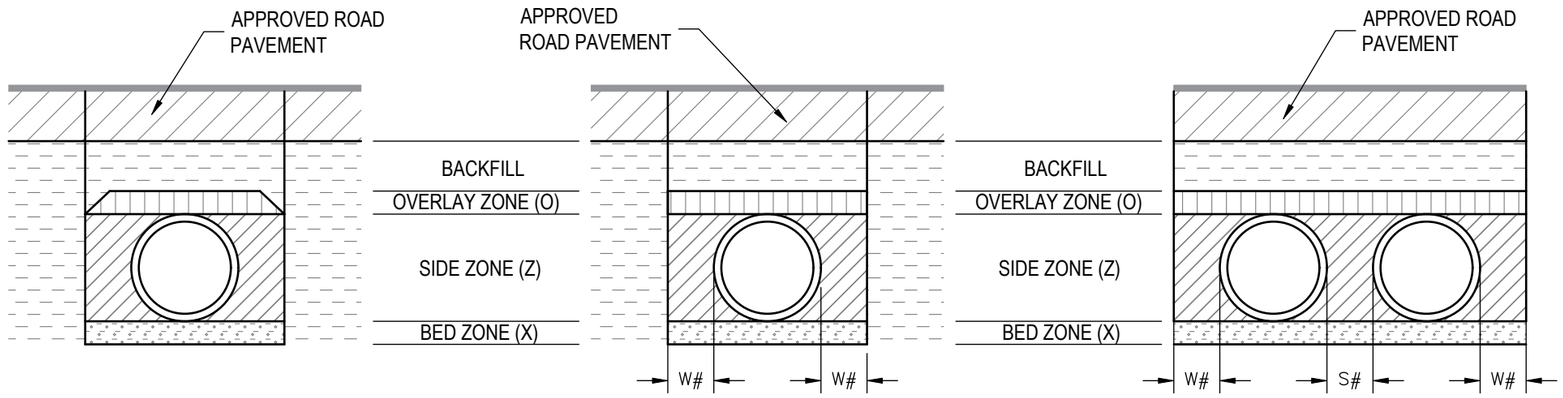
STANDARD DRAWINGS

TYPICAL TRENCHING DETAILS
RIGID PIPE

COUNCIL PLAN No.
SW-300-21

Orig. Size A3

Revision 1



FLEXIBLE PIPE
EMBANKMENT

FLEXIBLE PIPE
SINGLE PIPE - TRENCH

FLEXIBLE PIPE
MULTIPLE PIPES - TRENCH

TRENCH DETAIL FLEXIBLE PIPES

MINIMUM TRENCH AND BEDDING DIMENSIONS

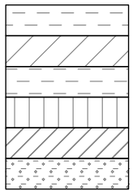
OUTSIDE DIAMETER (De)	X	Z	O	W#
≤ 150D	75	PIPE DIA (De)	100	100
> 150D ≤ 300D	100	PIPE DIA (De)	150	150
> 300D ≤ 450D	100	PIPE DIA (De)	150	200
> 450D ≤ 900D	150	PIPE DIA (De)	150	300
> 900D ≤ 1500D	150	PIPE DIA (De)	200	350
> 1500D	150	PIPE DIA (De)	300	0.25 De

S# WHERE MULTIPLE PIPES WITH THE SAME DIAMETER ARE LAID SIDE BY SIDE, THE MINIMUM DISTANCE BETWEEN THE PIPES SHALL BE DIMENSION W# PIPE.

S# WHERE MULTIPLE PIPES WITH DIFFERENT DIAMETER ARE LAID SIDE BY SIDE, THE MINIMUM DISTANCE BETWEEN THE PIPES SHALL BE THE SUM OF THE DIAMETERS DIVIDED BY TWO.

S# W#- WHERE THE USE OF CONTROLLED LOW STRENGTH MATERIAL (CLSM) HAS BEEN APPROVED, THE SPACE BETWEEN MULTIPLE PIPES AND THE SIDES OF THE TRENCH CAN BE REDUCED IN ACCORDANCE AS2566.2, TABLE 5.1.

LEGEND



COMPACTED SELECT FILL OR EXISTING BACKFILL OR ROAD PAVEMENT
BACKFILL
OVERLAY ZONE
SIDE ZONE
BED ZONE

REFERENCED DOCUMENTS
AUSTRALIAN STANDARDS
- PIPELINES - STRUCTURAL DESIGN
- AS/NZS 2566.2 BURIED FLEXIBLE PIPELINES - INSTALLATION

DESIGNER NOTES:

1. PIPE DESIGN IS TO BE IN ACCORDANCE WITH AS2566.1
2. PIPE INSTALLATION IS TO BE IN ACCORDANCE WITH AS2566.2
3. MINIMUM DISTANCE BETWEEN PIPES AND EDGE OF TRENCH IS TO ALLOW SAFE CLEARANCE FOR TRENCH SUPPORT AND COMPACTION EQUIPMENT. MAXIMUM TRENCH WIDTH TO BE DETERMINED BY DESIGNER BASED ON CLASS OF PIPE.
4. DESIGNER TO DETERMINE THE CLASS OF THE PIPE BASED ON SOIL DESCRIPTION, SUPPORT TYPE, TRENCH WIDTH, PIPE DEPTH AND TRAFFIC LOADING.
5. WHERE THERE IS A POSSIBILITY OF MIGRATION OF FINES BETWEEN THE NATIVE SOIL AND THE EMBEDMENT ZONE, A GEOTEXTILE FILTER FABRIC SHALL BE PROVIDED TO ENSURE THAT THE INTEGRITY OF THE SIDE SUPPORT TO THE PIPE IS NOT COMPROMISED

NOTES:.

1. BED ZONE MATERIAL SHALL EXTEND OVER THE FULL WIDTH OF THE TRENCH AND SHALL BE COMPACTED BY TAMPING, ROLLING AND/OR VIBRATION. COMPACTION ACHIEVED SHALL BE MONITORED BY FIELD TESTING IN ACCORDANCE WITH AS 1289.
2. THE BED LEVEL SHALL BE GRADED TO PROVIDE FOR A UNIFORM FALL TO THE DISCHARGING END OF THE PIPELINE,WITH LINE AND LEVEL AS SHOWN ON THE DRAWINGS. FOR SOCKETS PROTRUDING BEYOND THE BARREL OUTSIDE SURFACE, CHASES SHALL BE DUG INTO THE BED AND FOUNDATION IF NECESSARY, IN THE APPROPRIATE POSITIONS, SO THAT EACH PIPE IS SUPPORTED ALONG THE FULL LENGTH OF THE BARREL AND THE SOCKET IS NOT SUBJECTED TO POINT LOADING
3. BED ZONE MATERIAL UNLESS NOTED OTHERWISE IN DESIGN PLANS SHALL BE 5 - 10mm SCREENINGS, WASHED SCREENED BEDDING SAND OR CRUSHER DUST TO GRADING SPECIFIED BELOW:
4. EMBEDMENT ZONE MATERIAL SHALL BE IN ACCORDANCE WITH AS2566.2 (2002), APPENDIX G2 & G3.
5. ALTERNATIVE EMBEDDMENT MATERIALS INCLUDING CONTROLLED LOW STRENGTH MATERIAL (CLSM) ACCEPTED IN ACCORDANCE WITH AS2566.2, APPENDIX K.
6. PROVIDE COMPACTION FOR ALL EMBEDMENT MATERIALS WITH THE EXCEPTION OF COARSE AGGREGATES.
7. UNLESS NOTED OTHERWISE PROVIDE 100Ø SUB-SOIL DRAINAGE STUB 1.5m LONG, CAPPED, INSTALLED UPSTREAM OF STORMWATER PITS.

PROCESSED MATERIALS - ACCEPTABLE FOR EMBEDMENT MATERIALS
PART OF TABLE G2, APPENDIX G, AS2566.2

SIEVE SIZE (mm)	MASS OF SAMPLE PASSING, PERCENT				
	NOMINAL SIZE IF SINGLE-SIZED AGGREGATES (mm)				
	20	14	10	7	5
26.5	100		-	-	-
19	85 - 100	100	-	-	-
13.2	-	85 - 100	100	-	-
9.5	0 - 20	-	85 - 100	100	-
6.70	-	0 - 20	-	85 - 100	100
4.75	0 - 5	-	0 - 20	-	85 - 100
2.36	-	0 - 5	0 - 5	0 - 20	0 - 40
0.075	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2

OTHER MATERIALS - ACCEPTABLE FOR EMBEDMENT MATERIALS
PART OF TABLE G3, APPENDIX G, AS2566.2

SIEVE SIZE (mm)	MASS OF SAMPLE PASSING, PERCENT	
	CRUSHER ROCK DUST	SAND
9.5	100	-
6.70	85 - 100	-
4.75	-	
2.36	0 - 20	100
1.18	-	90 - 100
0.6	-	85 - 100
0.3	-	50 - 100
0.15	-	0 - 40
0.075	0 - 2	0 - 5

Drawn	B.P.S						
Checked	C.B.						
Approved	D.S.						
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024	
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date	

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

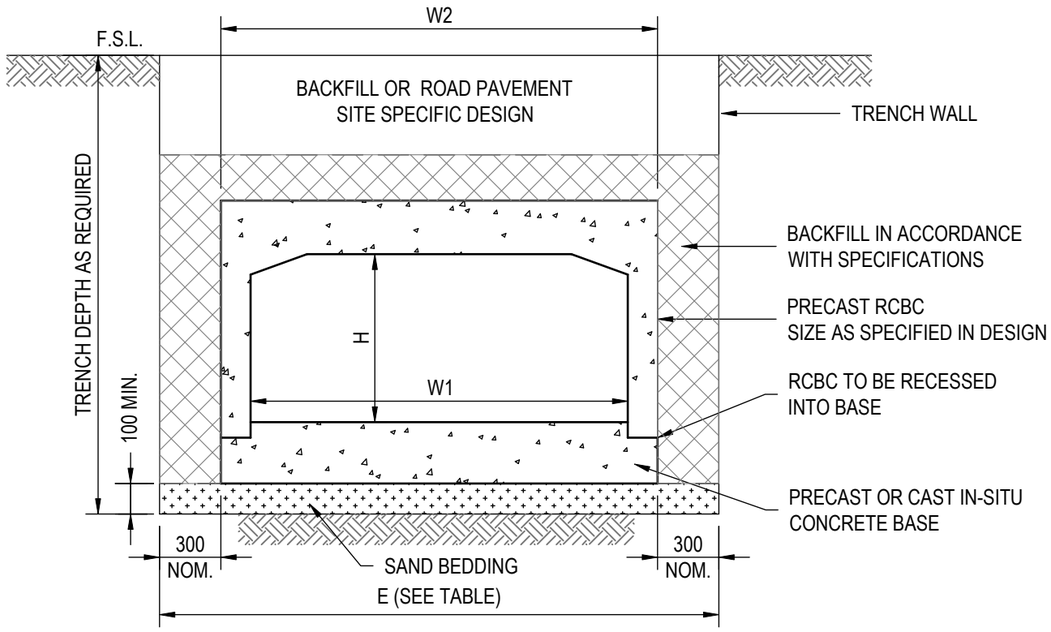
STANDARD DRAWINGS

TYPICAL TRENCHING DETAILS
FLEXIBLE PIPE

COUNCIL PLAN No.
SW-300-22

Orig. Size A3

Revision 1



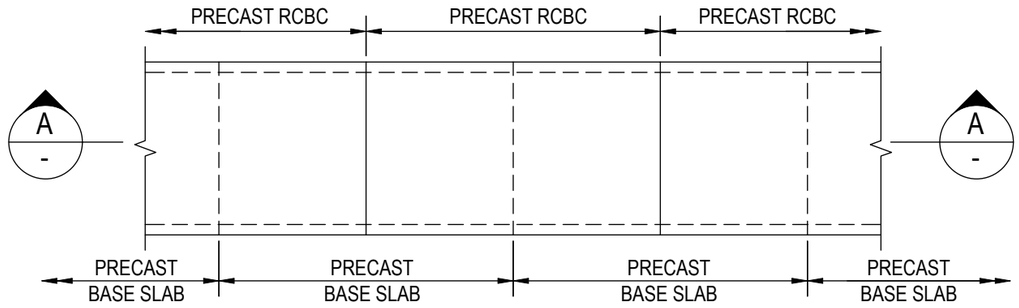
BOX CULVERT BACKFILL DETAILS

SCALE 1:20

(PRECAST BASE SHOWN)

CULVERT & EXCAVATION WIDTH

W1 (NOM.)	W2 (NOM.)	E (NOM.)
300	420	1000
375	500	1100
450	570	1200
600	730	1300
750	890	1500
900	1050	1700
1200	1360	2000
1520	1700	2300
1820	2010	2600
2130	2340	3000
2440	2670	3300



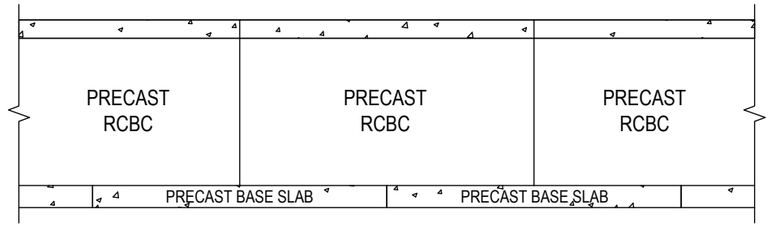
PRECAST BOX CULVERT PLACEMENT

PLAN

SCALE 1:50

PRECAST BOX CULVERT PLACEMENT NOTES:

1. FULL LENGTH CULVERTS AND BASE SLAB SHALL BE STAGGERED TO ENSURE BOX CULVERT JOINTS ARE LOCATED AT BASE SLAB MIDOPINTS AS SHOWN
2. SPLAY UNITS SHALL ALIGN WITH THEIR CORRESPONDING BASE SLAB



SECTION A - A

SCALE 1:50

NOTES:

1. PRECAST BOX CULVERT DESIGNED & MANUFACTURED TO AS1597.2.
2. AVAILABLE RCBC LENGTHS VARY, STANDARD FULL LENGTH UNITS 2400 OR 2440mm LONG OR HALF LENGTH UNITS 1200 OR 1220mm LONG. LENGTHS SUBJECT TO MANUFACTURERS SPECIFICATIONS.
3. FLUSH JOINT BETWEEN RCBC UNITS TO BE SEALED WITH REINFORCED BITUMINOUS SEALING TAPE, "BITUTHENE 5000" 250mm WIDE OR APPROVED EQUIV. TO TOP AND SIDE OF CULVERT.
4. WHERE MULTIPLE CELLS RCBC UNITS ARE USED THE JOIN BETWEEN THE CULVERT SHALL BE LAYED WITH NO OR MAX 10mm GAP. SEAL WITH REINFORCED BITUMINOUS SEALING TAPE, "BITUTHENE 5000" 250mm WIDE OR APPROVED EQUIV.
5. INSTALL PRECAST BOX CULVERTS AND PRECAST SLABS IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

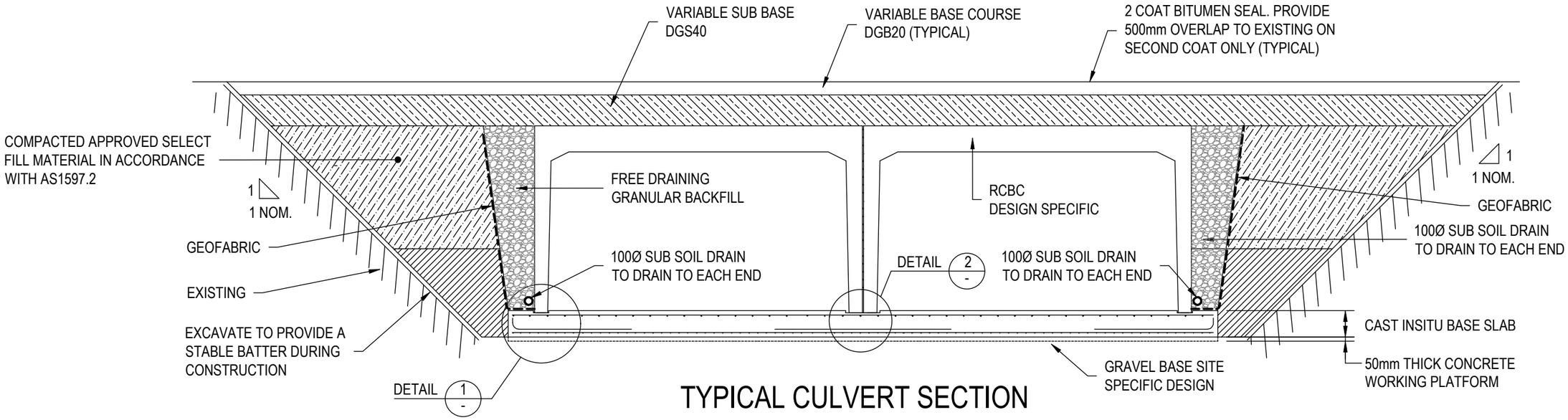
STANDARD DRAWINGS

SINGLE CELL BOX CULVERT WITH PRECAST BASE SLAB

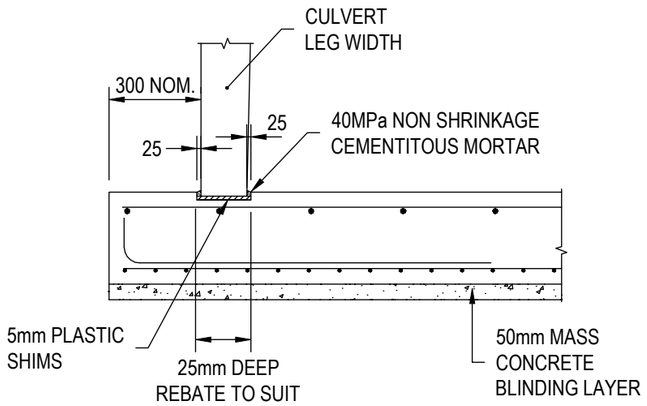
COUNCIL PLAN No.

SW-300-23

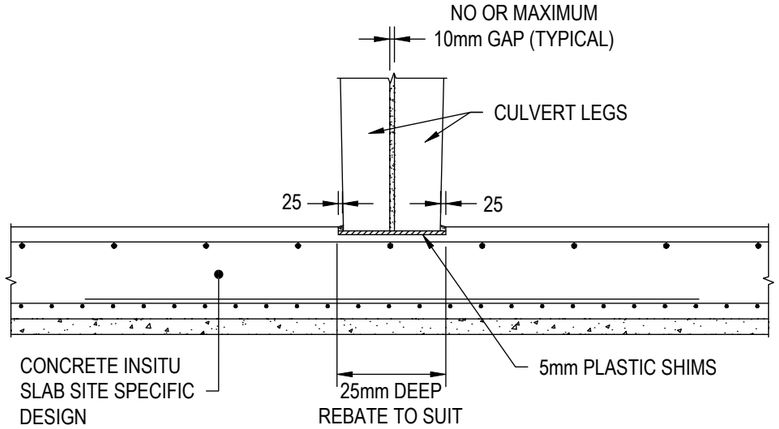
Orig. Size	Revision
A3	1



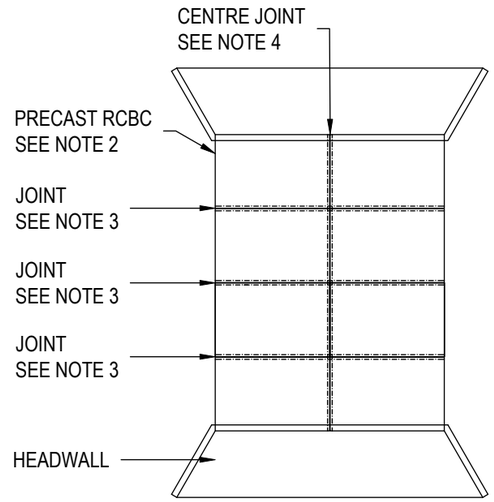
TYPICAL CULVERT SECTION



DETAIL 1 -
SCALE 1:20



DETAIL 2 -
SCALE 1:20



PLAN

NOTES:

1. PRECAST BOX CULVERT DESIGNED & MANUFACTURED TO AS1597.2.
2. AVAILABLE RCBC LENGTHS VARY, UNITS 2400 OR 2440mm LONG OR UNITS 1200 OR 1220mm LONG. LENGTHS SUBJECT TO MANUFACTURERS SPECIFICATIONS.
3. JOINT BETWEEN RCBC UNITS TO BE SEALED WITH SEAL WITH REINFORCED BITUMINOUS SEALING TAPE, "BITUTHENE 5000" 250mm WIDE OR APPROVED EQUIV. TO TOP AND SIDE OF CULVERT.
4. WHERE MULTIPLE CELLS RCBC UNITS ARE USED THE CENTRE JOINT BETWEEN THE CULVERT SHALL BE LAYED WITH NO OR MAX 10mm GAP. SEAL WITH REINFORCED BITUMINOUS SEALING TAPE, "BITUTHENE 5000" 250mm WIDE OR APPROVED EQUIV.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

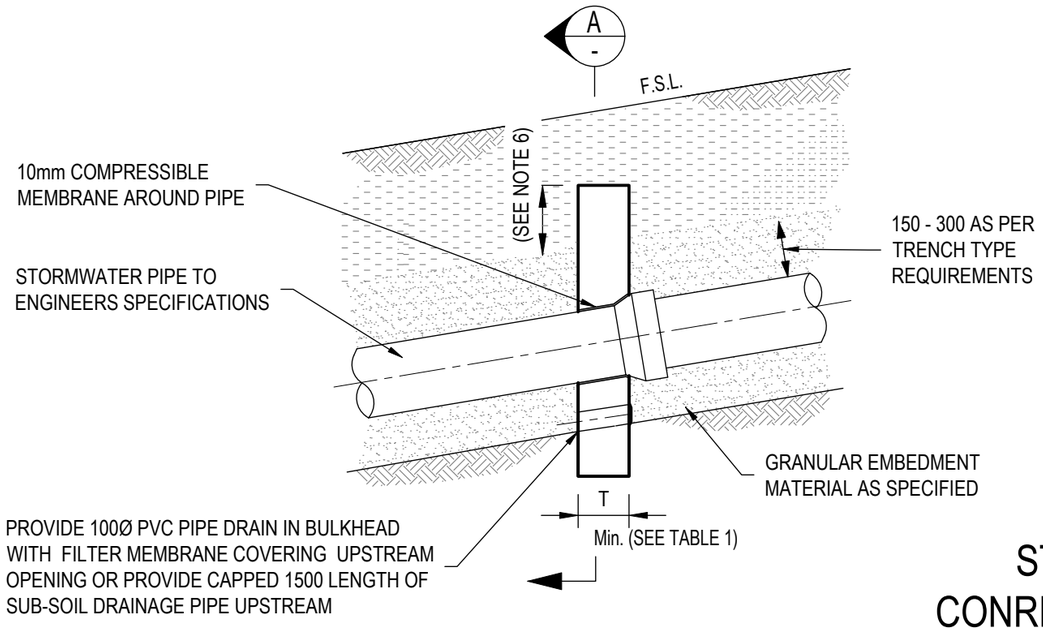
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

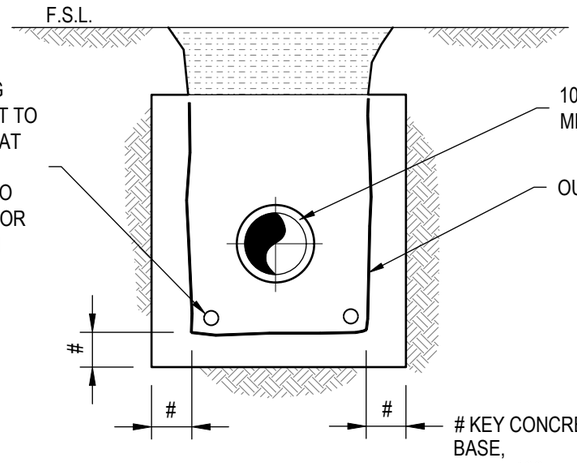
MULTICELL BOX CULVERT WITH CAST IN-SITU BASE SLAB

COUNCIL PLAN No.
SW-300-24

Orig. Size: A3
Revision: 1



100Ø PVC PIPE DRAIN WITH FILTER MEMBRANE COVERING UPSTREAM OPENING & DIRECT TO EXISTING DRAINAGE SYSTEM AT LOW POINTS.
NOTE: FOR TRENCHES 450 TO 600 WIDE, USE SINGLE PIPE. FOR TRENCHES > 600 PROVIDE ON BOTH SIDES



KEY CONCRETE INTO TRENCH WALL AND BASE,
- 100mm min. FOR ROCK
- SEE TABLE 1 FOR OTHER THAN ROCK (O.T.R.)

SECTION A -

STORMWATER PIPE CONRETE BULKHEAD DETAIL

TABLE 1
MINIMUM CONCRETE BULKHEAD DIMENSIONS (O.T.R.)

PIPE DIAMETER (mm)	THICKNESS (T) (mm) Min.	# KEY IN (mm) Min.
225Ø - 300Ø	150	150
375Ø - 750Ø	300	150
825Ø - 1050Ø	300	250
> 1200Ø	SPECIAL DESIGN	

STORMWATER LINES
REQUIREMENTS FOR BULKHEADS AND TRENCHSTOPS

GRADE %	REQUIREMENT	SPACING (m)
7.5 - 14	TRENCHSTOPS	S = 100/GRADE (%)
15 - 29	CONCRETE BULKHEAD	S = Lp/Grade (%), WHERE Lp = 80 x PIPE LENGTH*, m (450 m MAX) WHERE Lp >100 m - USE INTERMEDIATE TRENCHSTOPS AT SPACING < 100/GRADE (%)
30 - 50	CONTINUOUS CONCRETE ENCSEMENT OF PIPELINE AND CONCRETE BULKHEADS	S = 100/GRADE (%)
> 50	SPECIAL DESIGN	

* STANDARD RCP PIPE LENGTH 2.44m

NOTES
1. INSTALL TRENCH STOPS (SAND BAGS) ON DRAINAGE LINES WHERE GRADES BETWEEN 7.5% AND 15% AT SPACING = 100 / GRADE(%). REFER TO STD DRG T-550-04 FOR TRENCH STOP TYPICAL DETAILS.
2. INSTALL CONCRETE BULKHEADS & TRENCH STOPS ON DRAINAGE LINES WHERE GRADE EXCEEDS 15% AND PIPE LENGTH IS GREATER THAN 15m AT INTERVALS NOMINATED BELOW:
   R.C.P. PIPE
   - 9.76 m INTERVAL FOR GRADES 15% - 20% (EVERY 4th x 2.44m R.C.P PIPE LENGTHS)
   - 7.32 m INTERVAL FOR GRADES 20% - 29% (EVERY 3rd x 2.44m R.C.P PIPE LENGTHS)

   PVC PIPE
   - 30 m INTERVAL FOR GRADES AT 15% (EVERY 5th x 6m PVC PIPE LENGTHS)
   - 24 m INTERVAL FOR GRADES 16% - 18.7% (EVERY 4th x 6m PVC PIPE LENGTHS)
   - 18 m INTERVAL FOR GRADES 19% - 29% (EVERY 3rd x 6m PVC PIPE LENGTHS)
3. CONCRETE STRENGTH TO BE 25Mpa AT 28 DAYS & PLACED USING MECHCANICAL VIBRATION.
4. CONCRETE IS NOT TO COVER FLEXIBLE JOINT.
5. PROVIDE 10mm COMPRESSIBLE MEMBRANE AROUND PIPE.
6. KEY CONCRETE BULKHEADS INTO SIDES AND BOTTOM OF TRENCH AGAINST A BEARING SURFACE OF UNDISTURBED SOIL.
7. BULKHEADS SHALL EXTEND TO NO HIGHER THAN WITHIN 300mm OF FINISHED SURFACE LEVEL OR TO THE SUBGRADE LEVEL WHERE WITHIN ROAD PAVEMENT.
8. FOR 30-50% GRADES PIPEWORK IS TO BE CONCRETE ENCASED IN ACCORDANCE WITH WITH CLAUSE 5.8.3. OF AS2566.2:2002.
9. LANDSLIP AREAS - SITE SPECIFIC DESIGN REQUIRED TO ENSURE LAND STABILITY RISK IS NOT INCREASED

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

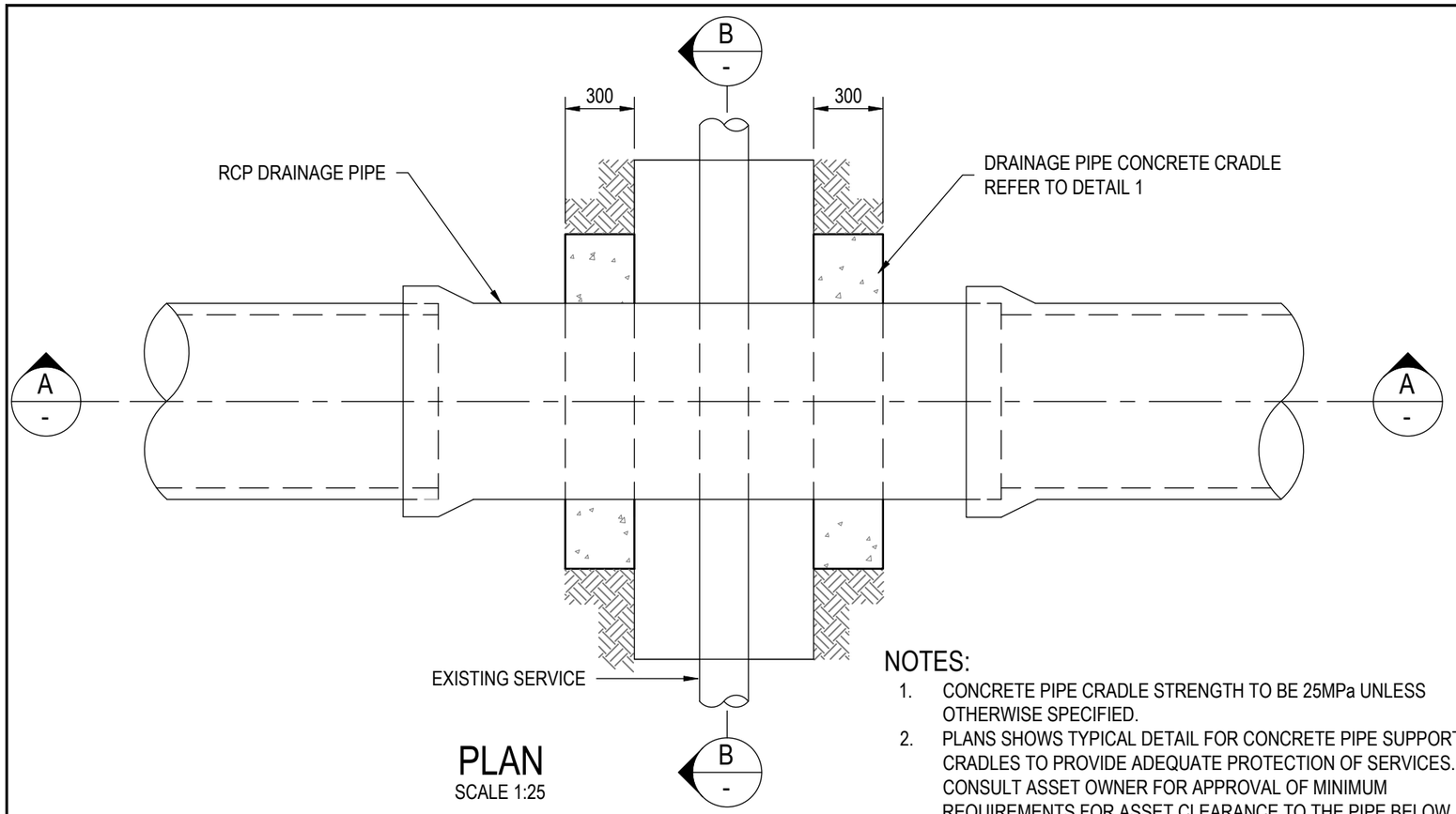
STANDARD DRAWINGS

STORMWATER PIPE
CONCRETE BULKHEADS

COUNCIL PLAN No.
SW-300-25

Orig. Size A3

Revision 1

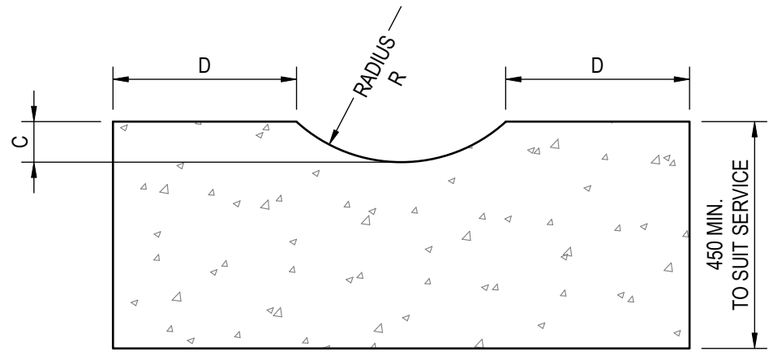


PLAN
SCALE 1:25

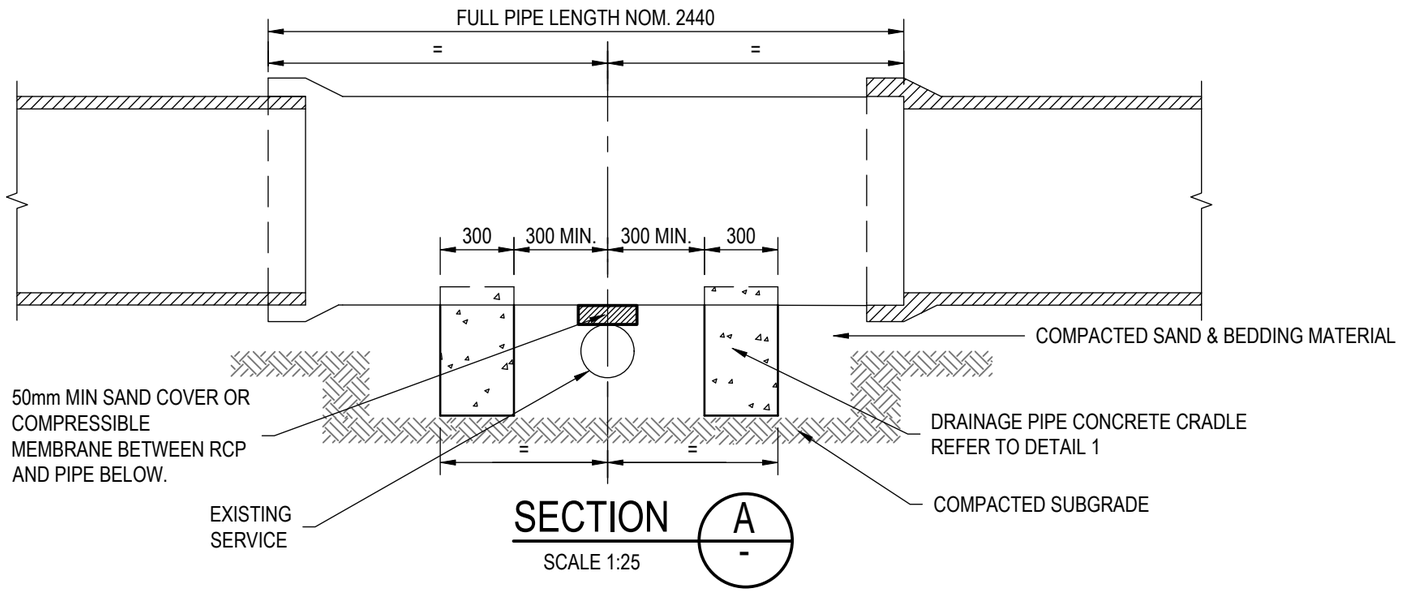
NOTES:

1. CONCRETE PIPE CRADLE STRENGTH TO BE 25MPa UNLESS OTHERWISE SPECIFIED.
2. PLANS SHOWS TYPICAL DETAIL FOR CONCRETE PIPE SUPPORT CRADLES TO PROVIDE ADEQUATE PROTECTION OF SERVICES. CONSULT ASSET OWNER FOR APPROVAL OF MINIMUM REQUIREMENTS FOR ASSET CLEARANCE TO THE PIPE BELOW.
3. ENSURE A FULL LENGTH OF DRAINAGE PIPE IS SUSPENDED ON THE CONCRETE SUPPORT CRADLES.

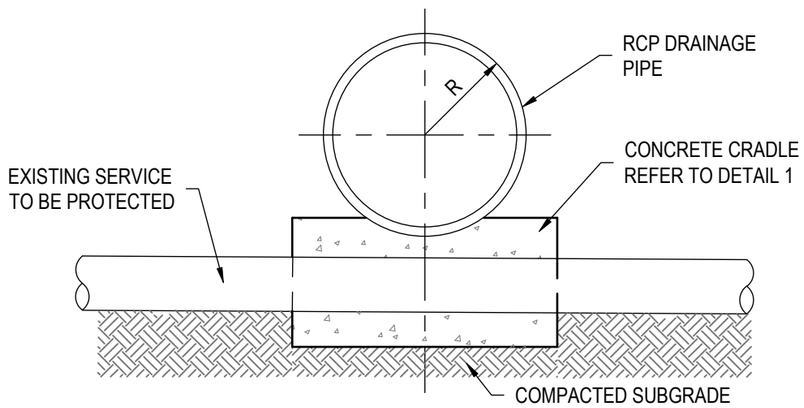
CONCRETE PIPE CRADLE DIMENSIONS					
DNØ	'A'	'B'	'C'	'D'	RADIUS 'R'
375	1045	450 MIN	75	300	223
450	1135	450 MIN	75	300	267
525	1215	450 MIN	75	300	308
600	1300	450 MIN	75	300	349
750	1465	450 MIN	75	300	432
825	1545	450 MIN	75	300	473
900	1630	450 MIN	75	300	515
1050	1795	450 MIN	75	300	597
1200	1960	450 MIN	75	300	680



DETAIL 1 (PIPE CRADLE)
N.T.S.



SECTION A
SCALE 1:25



SECTION B
SCALE 1:25

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

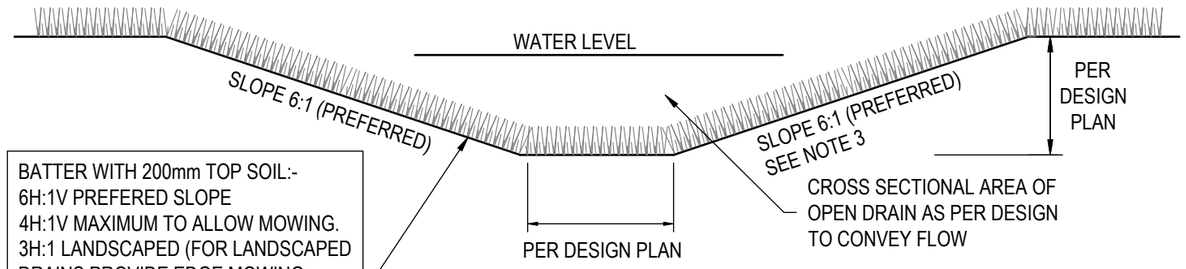
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

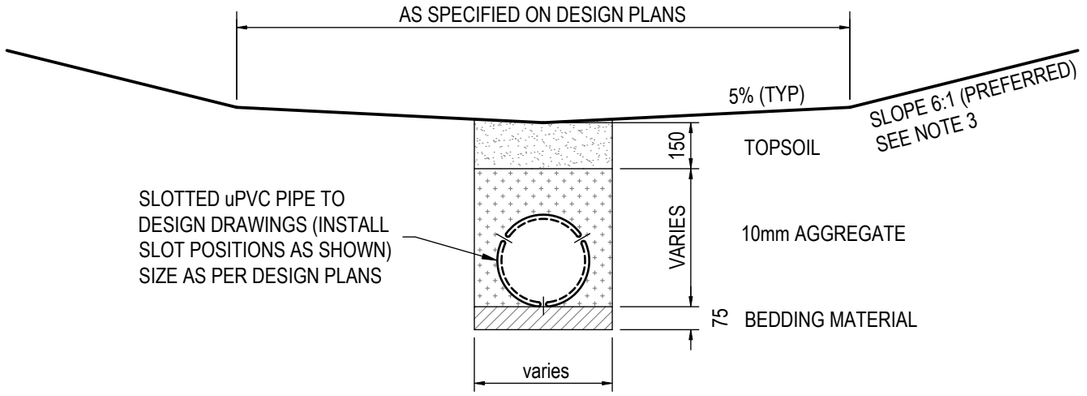
STORMWATER PIPE CONCRETE CRADLES

COUNCIL PLAN No.
SW-300-26

Orig. Size	Revision
A3	1

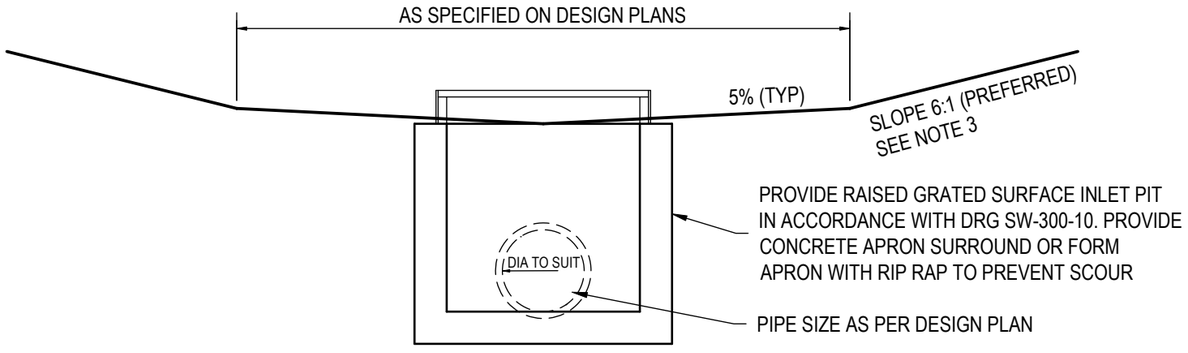


TYPICAL TURFED OPEN CHANNEL



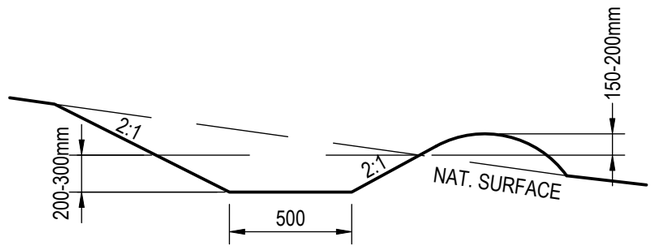
TYPICAL OPEN DRAIN WITH SUBSOIL PIPE

PROVIDE SUB-SOIL GENERALLY FOR LONGITUDINAL GRADES < 1%)



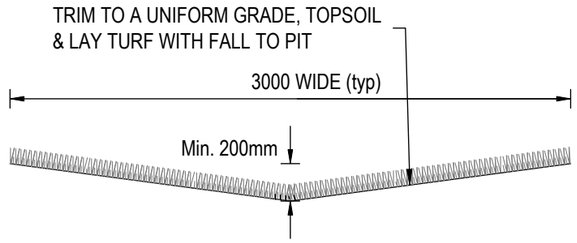
TYPICAL OPEN DRAIN WITH LOW FLOW OR SURCHARGE PIT

(SEE NOTE 5 - PROVIDE CONCRETE DISHED INVERT IF NECESSARY)



CATCH / DIVERSION DRAIN

(TYPICAL CONTOUR CATCH DRAIN)



SURCHARGE PATH

(FOR SAFETY OF CHILDREN : MAXIMUM DEPTH OF WATER: 0.2 m.)

NOTES

1. FOR OPEN CHANNEL WITH LONGITUDINAL SLOPES GREATER THAN 4% PROVIDE CHECK DAMS IF REQUIRED IN ACCORDANCE WITH BLUE BOOK EROSION & SEDIMENT CONTROL, DRAWING SD 5-4.
2. FOR TYPICAL WATER SENSENSITIVE URBAN DESIGN (WSUD) VEGETATED SWALES, REFER TO SW-300-28 FOR TYPICAL CHECK DAMS IF REQUIRED.
3. OPEN CHANNEL SIDE SLOPES SIDE SHALL BE AS FOLLOWS UNLESS AGREED OTHERWISE:
   6H : 1V SIDE SLOPE PREFERRED.
   4H : 1V SIDE SLOPE TYPICAL MAXIMUM FOR MOWING MAINTENANCE
   3H : 1V LANDSCAPED, SUBJECT TO CITY APPROVAL.
4. DESIGN FOR A MAXIMUM VELOCITY TIMES DEPTH PRODUCT FLOW HIGH & LOW RISK LOCATIONS AS DEFINED BY QUDM.:
   - HIGH RISK LOCATION DEPTH x VELOCITY 0.4 m²/s
   - LOW RISK LOCATION DEPTH x VELOCITY< 0.6 m²/s
5. LOW FLOW PROVISIONS IN OPEN CHANNELS, PROVIDE AS FOLLOWS:
   - CONTAIN FLOWS WITHIN A PIPE SYSTEM OR CONCRETE LINED CHANNEL SECTION AT THE INVERT OF THE MAIN CHANNEL.
   - PROVIDE SUBSURFACE DRAINAGE IN GRASS LINED CHANNELS IN FLAT SITES LESS THAN 1% LONGITUDINAL GRADE TO PREVENT WATERLOGGING OF THE CHANNEL BED.
   - WIDTH OF CONCRETE LINED CHANNEL SECTION EQUAL TO THE WIDTH OF THE INVERT OR AT LEAST TO ACCOMMODATE THE FULL WIDTH OF A TRACTOR.
6. VELOCITY WITHIN SWALES SHALL BE KEPT LOW, PREFERABLY LESS THAN 0.5m/s FOR MINOR FLOOD FLOWS & NOT MORE THAN 2.0m/s FOR MAJOR FLOOD FLOWS. PROVIDE APPROPRIATE SCOUR PROTECTION TREATMENT OR LINED INVERT FOR OPEN CHANNELS BASED ON DESIGN VELOCITY.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

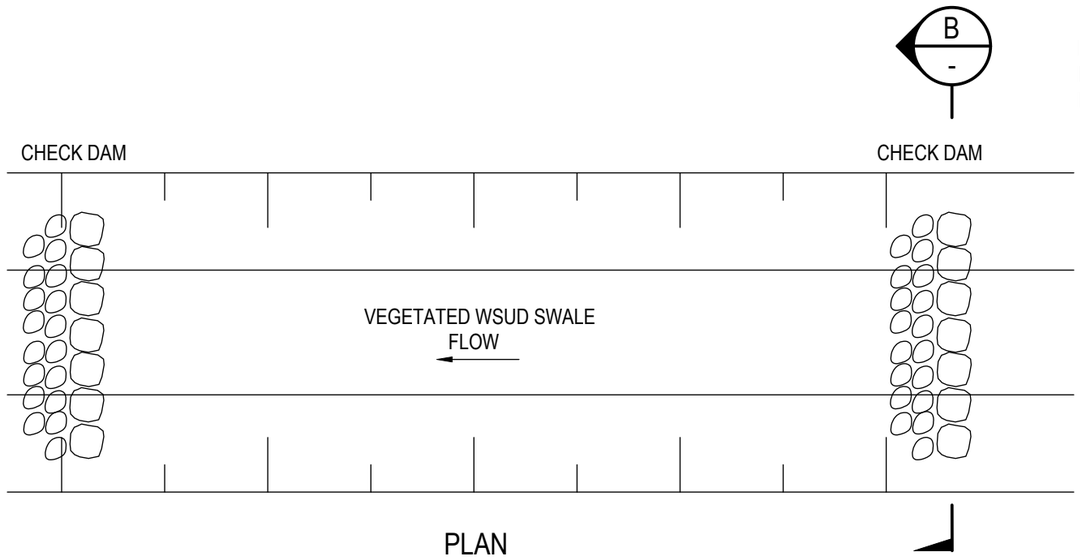
STANDARD DRAWINGS

TYPICAL OPEN CHANNEL DETAILS

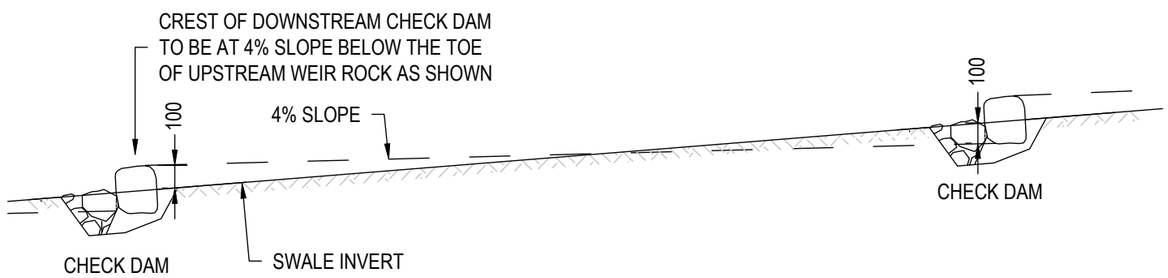
COUNCIL PLAN No. SW-300-27

Orig. Size A3

Revision 1

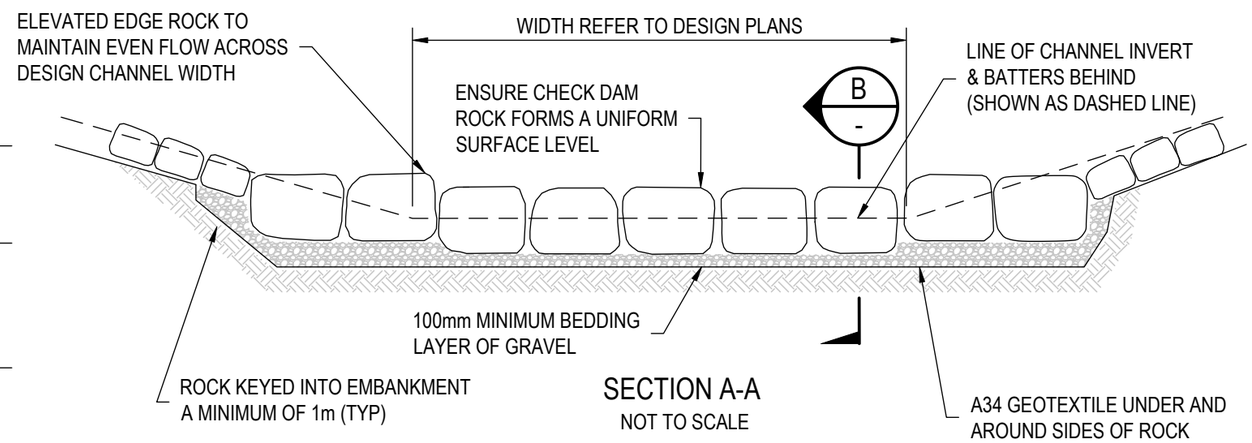


PLAN
NOT TO SCALE

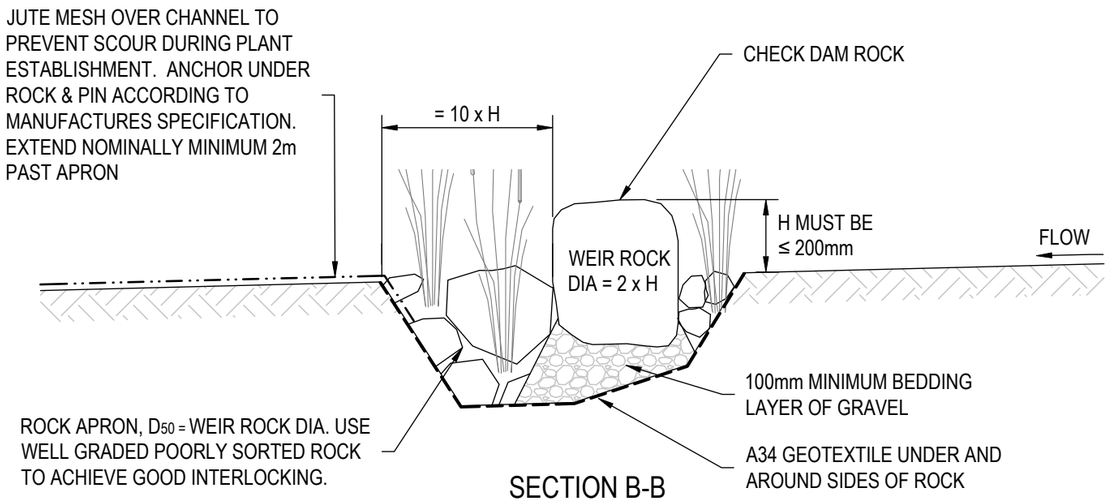


TYPICAL LONGITUDINAL SECTION OF CHECK DAMS

REFERENCE: WSUD TECHNICAL DESIGN GUIDELINES FOR S.E.Q, CHAPTER 2 SWALES



SECTION A-A
NOT TO SCALE



SECTION B-B

TYPICAL SECTION OF CHECK DAM
NOT TO SCALE

NOTES:

1. PLAN SHOWS WSUD CHECK DAMS IN VEGETATED SWALE & SHOULD NOT BE USED FOR ANY OTHER PURPOSE. CHECK DAMS ARE TO BE TYPICALLY PROVIDED, WHERE THE LONGITUDINAL GRADE IS GREATER THAN 4%.
2. CHECK DAMS CAN BE CONCTRUCTED FROM DIFFERENT MATERIALS/ EG. ROCK, CONCRETE OR TIMBER.
3. ALL CHECK DAMS REQUIRE CAREFUL INSTALLATION TO ENSURE THEY ARE BUILT TO THE CORRECT LEVELS AND WILL BE STABLE UNDER DESIGN FLOW CONDITIONS.
4. ROCK APRON DEPTHS IS TO BE EQUAL TO THE WEIR ROCK DIAMETER WITH A MINIMUM OF 400mm LENGTH = 10 x H
5. ROCK APRON LENGTHS TO EQUAL 1.5 x WEIR ROCK DIAMETER, MINIMUM LENGTH IS 600mm.
6. WEIR HEIGHT SHALL BE SUFFICENT TO CONVEY THE 1 IN 5 YEAR CRITICAL STORM EVENTS
7. PLACE REINFORCED TURF FOR A DISTANCE OF 10 x H UPSTREAM OF WEIR.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

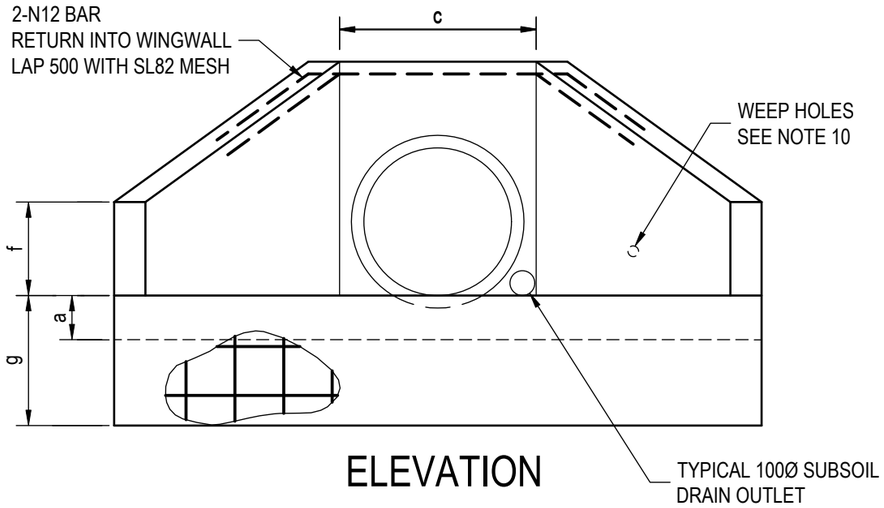
CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

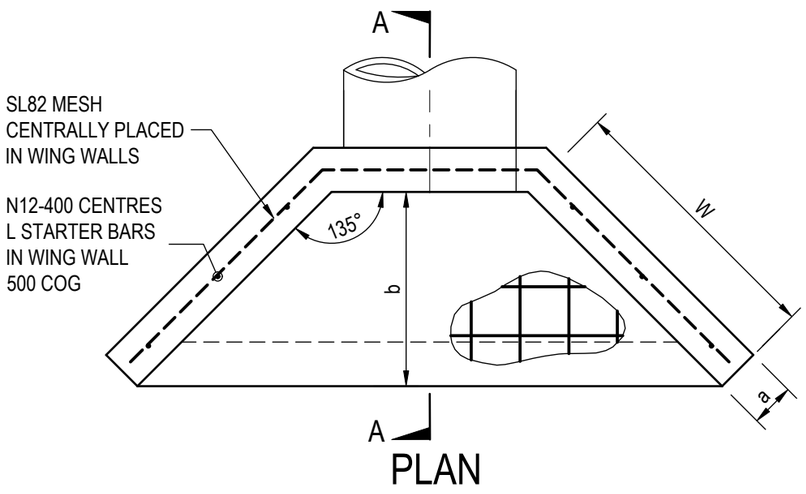
WATER URBAN SENSITIVE URBAN DESIGN (WSUD)
TYPICAL CHECK DAMS

COUNCIL PLAN No.
SW-300-28

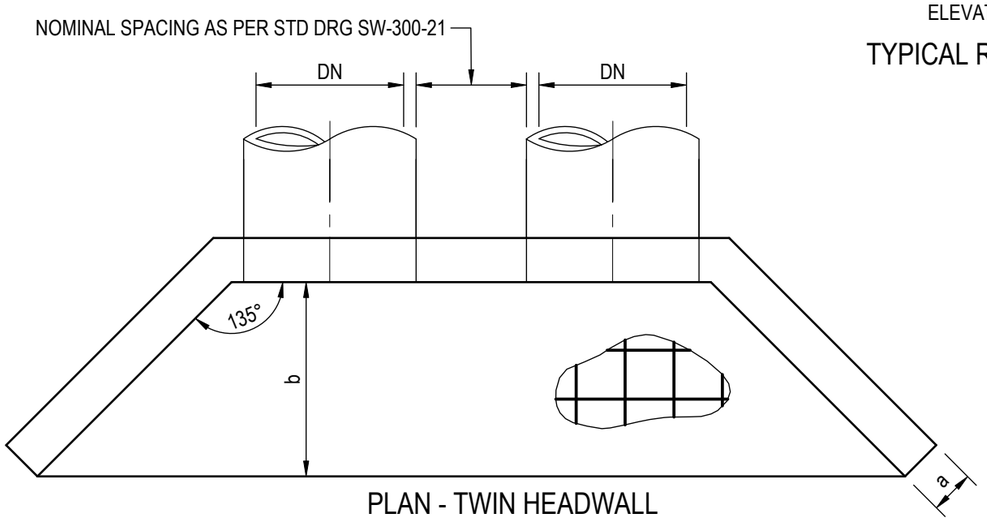
Orig. Size	Revision
A3	1



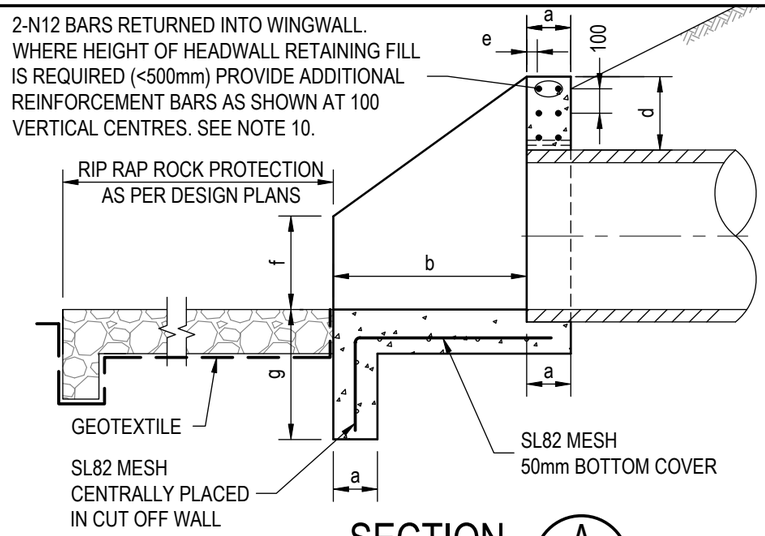
ELEVATION



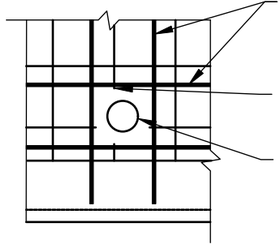
PLAN



PLAN - TWIN HEADWALL



SECTION A - SCALE 1:25



ELEVATION

TYPICAL REINFORCEMENT AT WEEPHOLE IN WINGWALL

NOTES

1. CITY OF COFFS HARBOUR PREFER THE USE PROPRIETARY PRE CAST HEADWALLS WHERE EVER POSSIBLE. PRE CAST HEADWALL ALTERNATIVES MAY BE ACCEPTED.
2. CONCRETE STRENGTH TO BE MINIMUM 32MPa @ 28 DAYS U.N.O. HIGHER STRENGTH CONCRETE MAY BE USED TO ACHIEVE DESIRED STRENGTH AFTER MINIMUM CURING PERIOD OF 7 DAYS PRIOR TO PLACEMENT OF BACKFILL.
3. REINFORCEMENT SHALL BE SUPPORTED ON SUFFICIENT PLASTIC CHAIRS TO ENSURE THAT THE SPECIFIED COVER IS ACHIEVED.
4. PROVIDE 10mm x 10mm TO CHAMFER ALL EXPOSED CORNERS.
5. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF SEVEN (7) DAYS USING AN APPROVED METHOD.
6. COMPACTION PRESSURE BEHIND WALL SHALL NOT EXCEEED 15kPA. (1.5 TONNE VIBRATORY ROLLER OR 300kg VIBRATING PLATE WITHIN 0.5m OF WALL.
7. PROVIDE RIP RAP OUTLET SCOUR PROTECTION IN ACCORDANCE WITH QUEENSLAND URBAN DESIGN MANAUL (QUDM).
8. WHERE NOMINATED ON DESIGN PLANS OR THE CITY'S RESPRESENTIVE, PROVIDE WEEP HOLES IN WING WALL WITH FABRIC FILTER AND APPROVED FILTER MATERIAL. PROVIDE ADDITIONAL N12 TRIMMER BARS ADJACENT TO THE PIPE PENTRATION AS SHOWN .
9. WHERE HEADWALL DIMENSION "d" IS INCREASED TO SUIT DESIGN, INCREASE WING WALL HEIGHT DIMENSION "f" TO ACCORDINALLY. MAXIMUM "d=500mm"
10. SAFTEY FENCING SHALL BE PROVIDED AROUND HEADWALL IF DEEMED A HAZARD BY THE CITY'S REPRESENTATIVE.

COVER TO COMPLY WITH TABLE 4.14.3.2, AS5100.5 FOR 100 YEAR DESIGN LIFE

AS3600 (EXP. CLASS)	REQUIRED COVER (mm) CHARACTERISTIC STRENGTH		
	32Mpa	40Mpa	
B1	50	45	
B2		60	

EXPOSURE CLASSIFICATION & CONCRETE STRENGTH TABLE 4.3, AS3600

EXPOSURE CLASSIFICATION	CONCRETE STRENGTH GRADE	LOCATION
B1	N32	1 TO 50km FROM COASTLINE
B2	N40	WITHIN 1km OF COASTLINE

DN	NOMINAL PIPE DIAMETER	375	450	525	600	675	750	900
HEADWALL DIMENSIONS (mm)								
a	HEADWALL, WING WALL, & APRON	150	150	150	150	180	180	200
b	APRON LENGTH	490	590	700	790	910	1025	1260
c	FACE OF HEADWALL	600	700	750	800	850	900	1050
d	HEADWALL HEIGHT	230	230	230	300	300	300	300
e	HEADWALL REINFORCEMENT	40	40	40	40	50	50	50
f	WING WALL HEIGHT	300	300	300	380	380	380	380
g	CUT OFF WALL DEPTH	450	450	450	530	530	600	600
W	WING WALL	690	840	990	1120	1290	1450	1780

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

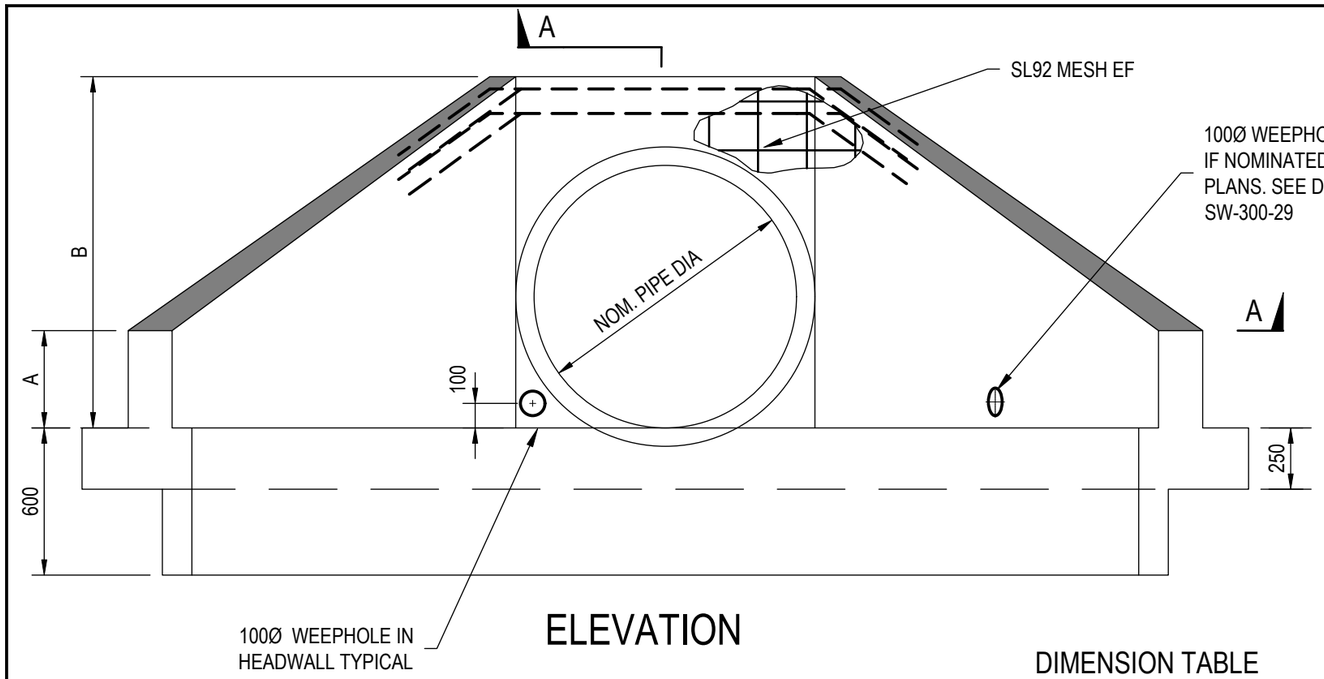
STANDARD DRAWINGS

CAST IN-SITU OUTLET HEADWALL DN375 - DN900

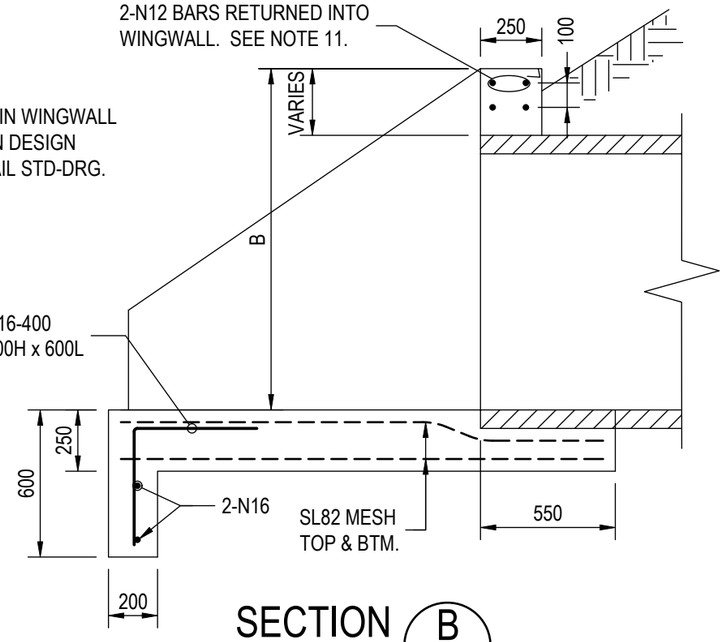
COUNCIL PLAN No. SW-300-29

Orig. Size A3

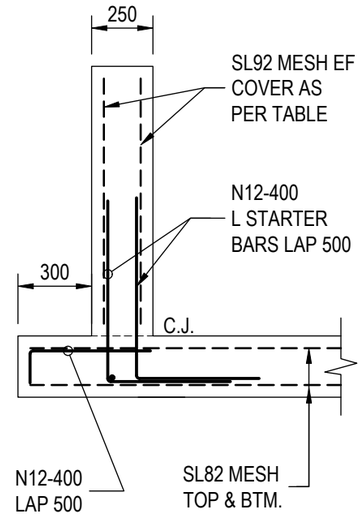
Revision 1



ELEVATION



SECTION B
SCALE 1:25



SECTION C
SCALE 1:25

DIMENSION TABLE

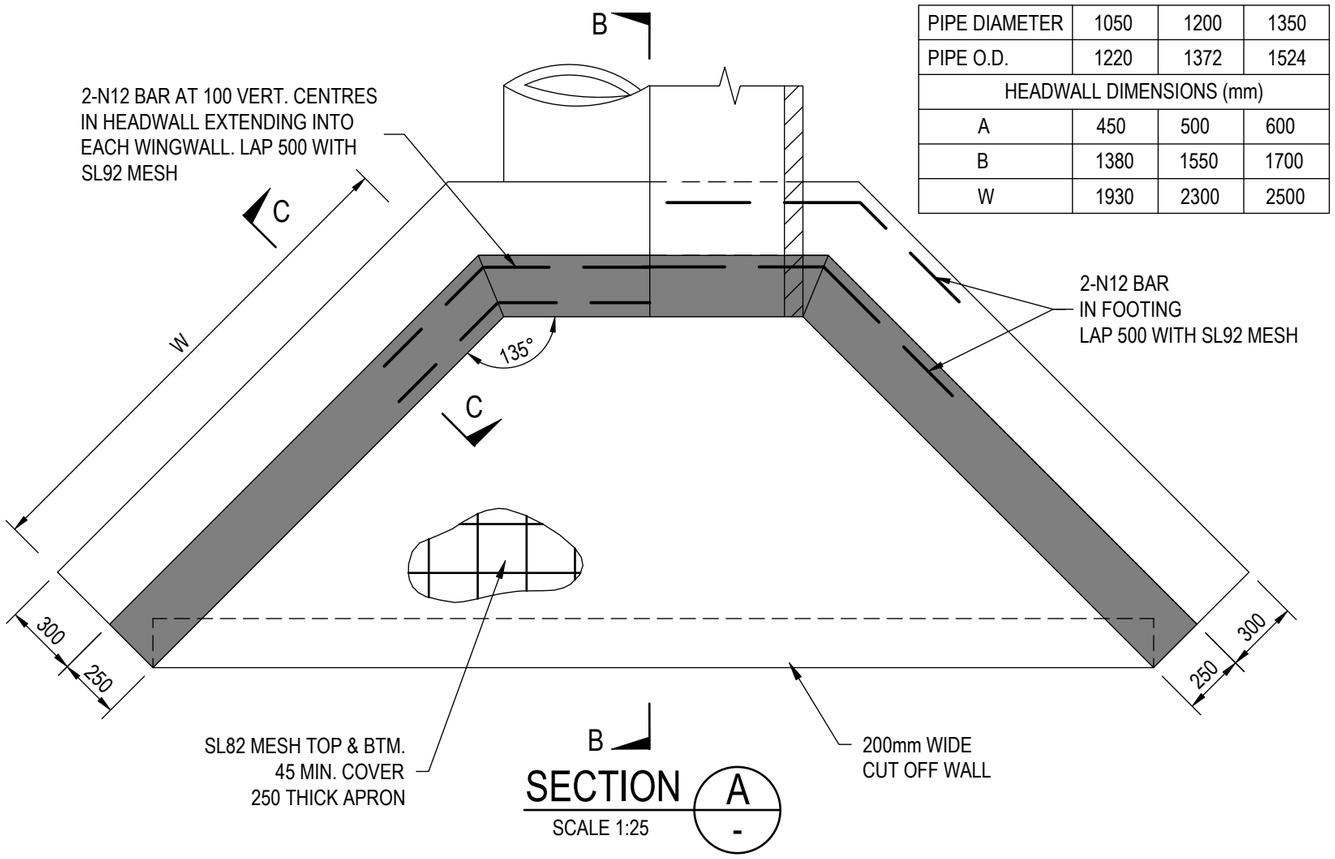
PIPE DIAMETER	1050	1200	1350
PIPE O.D.	1220	1372	1524
HEADWALL DIMENSIONS (mm)			
A	450	500	600
B	1380	1550	1700
W	1930	2300	2500

EXPOSURE CLASSIFICATION & CONCRETE STRENGTH TABLE 4.3, AS3600

EXPOSURE CLASSIFICATION	CONCRETE STRENGTH GRADE	LOCATION
B1	N32	1 TO 50km FROM COASTLINE
B2	N40	WITHIN 1km OF COASTLINE

COVER TO COMPLY WITH TABLE 4.14.3.2, AS5100.5 FOR 100 YEAR DESIGN LIFE

AS3600 (EXP. CLASS)	REQUIRED COVER (mm) CHARACTERISTIC STRENGTH		
	32Mpa	40Mpa	
B1	50	45	
B2		60	



SECTION A
SCALE 1:25

NOTES

1. CITY OF COFFS HARBOUR PREFER THE USE PROPRIETARY PRE-CAST HEADWALLS WHERE EVER POSSIBLE. PRE CAST HEADWALL ALTERNATIVES MAY BE ACCPETED.
2. CONCRETE TO BE N32 / N40 @ 28 DAYS U.N.O. SUBJECT TO B1 OR B2 EXPOSURE CLASSIFICATION. MINIMUM COVER 45. HIGHER STRENGTH CONCRETE MAY BE USED TO ACHIEVE DESIRED STRENGTH AFTER MINIMUM CURING PERIOD OF 7 DAYS PRIOR TO PLACEMENT OF BACKFILL.
3. HEADWALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH AS3600.
4. REINFORCEMENT SHALL BE SUPPORTED ON SUFFICIENT PLASTIC CHAIRS TO ENSURE THAT THE SPECIFIED COVER IS ACHIEVED.
5. PROVIDE 10mm x 10mm TO CHAMFER ALL EXPOSED CORNERS.
6. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF SEVEN (7) DAYS USING AN APPROVED METHOD FOR AT LEAST SEVEN DAYS FOLLOWING PLACEMENT.
7. COMPACTION PRESSURE BEHIND WALL SHALL NOT EXCEEED 15kPA. (1.5 TONNE VIBRATORY ROLLER OR 300kg VIBRATING PLATE WITHIN 0.5m OF WALL.
8. PROVIDE RIP RAP OUTLET SCOUR PROTECTION IN ACCORDANCE WITH QUEENSLAND URBAN DESIGN MANAUL (QUDM)..
9. WHERE NOMINATED ON DESIGN PLANS OR COUNCILS RESPRESENTIVE, PROVIDE WEEP HOLES IN WING WALL WITH FABRIC FILTER AND APPROVED FILTER MATERIAL. PROVIDE ADDITIONAL N12 TRIMMER BARS ADJACENT PIPE PENTRATION AS SHOWN ON DETAIL ON STD DRG SW-300-29.
10. WHERE HEIGHT OF HEADWALL RETAINING FILL IS REQUIRED TO BE INCREASE PROVIDE ADDITIONAL REINFORCEMENT BARS AS SHOWN AT 100 VERTICAL CENTRES. WING HEIGHT DIMENSION "A" SHALL INCREASED TO SUIT INCREASE HEADWALL HEIGHT ACCORDINGLY. (HEADWALL MAXIMUM HEIGHT < 500mm)
11. SAFTEY FENCING SHALL BE PROVIDED AROUND HEADWALL IF DEEMED A HAZARD BY COUNCIL'S REPRESENTATIVE.

Drawn	B.P.S					
Checked	C.B.					
Approved	D.S.					
Date	DEC 2024	1	ISSUED FOR USE	B.P.S	D.S.	12/2024
Issue	FIRST ISSUE	Rev.	Amendments	Drawn	Apprd.	Date

CITY OF COFFS HARBOUR
Locked Bag 155
Coffs Harbour. NSW. 2450
Ph. (02)66484000
www.coffsharbour.nsw.gov.au
coffs.council@chcc.nsw.gov.au

STANDARD DRAWINGS

CAST IN-SITU OUTLET HEADWALL DN1050 - DN1350 PIPES

COUNCIL PLAN No. SW-300-30

Orig. Size A3 | Revision 1

PLOT DATE: 19-Dec-24