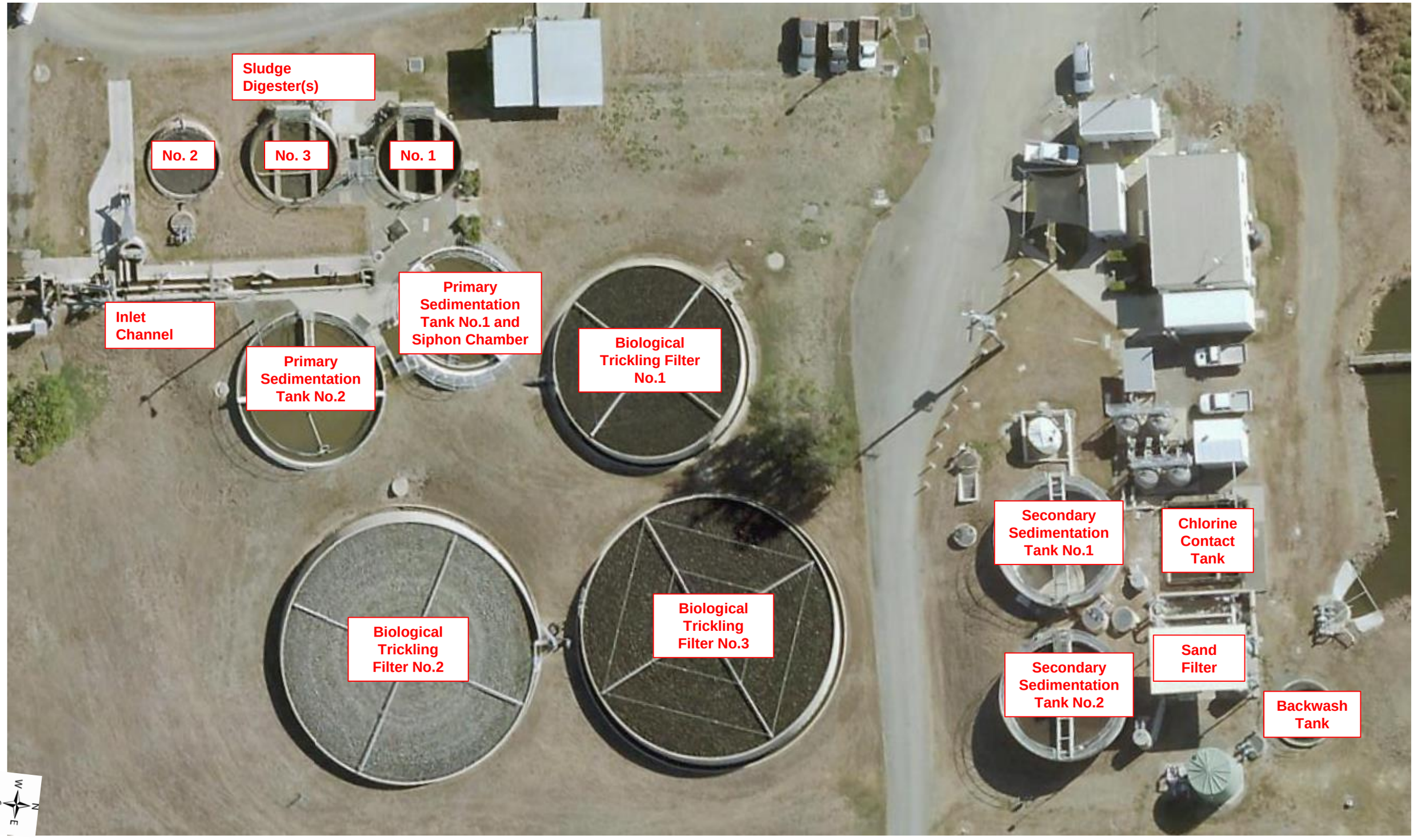
APPENDIX A – REPAIR DEFECT MAP AND REGISTER



BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-1

INFORMATION DOCUMENT
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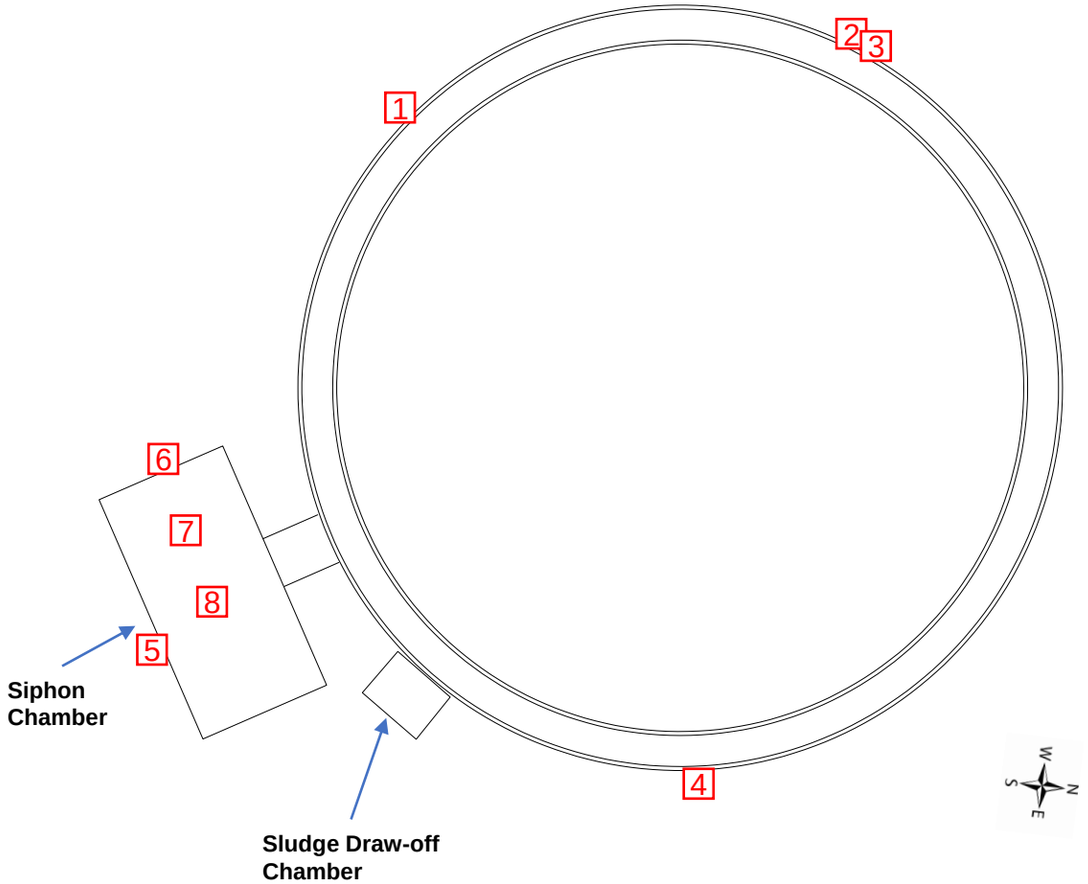
BILOELA STP REPAIR PROJECT – PST 1 AND SIPHON CHAMBER



REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Launder channel wall - Top	Delamination and cracking	Concrete repair	2400	250	100	0.60
2	Launder channel wall - External	Cracking	Crack injection	850	-	1.5	-
3	Launder channel wall - External	Delamination and cracking	Concrete repair	350	200	-	0.07
4	Launder channel wall and soffit - External	Delamination and cracking	Concrete repair	1400	140	-	0.20
5	Siphon chamber wall - External	Vertical cracking	Crack injection	350	-	0.5	-
6	Siphon chamber wall - Top	Cracking	Crack injection	750	-	0.8	-
7	Siphon chamber internal dividing wall - Internal surfaces above waterline	Delamination, cracking, and spalling	Concrete repair	500	500	-	0.25
8	Siphon chamber perimeter wall - Internal surfaces above waterline	Heavy etching and exposed aggregate	Apply epoxy protective coating to siphon chamber walls above waterline	10000	1000	-	10.00

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-2

PST 1

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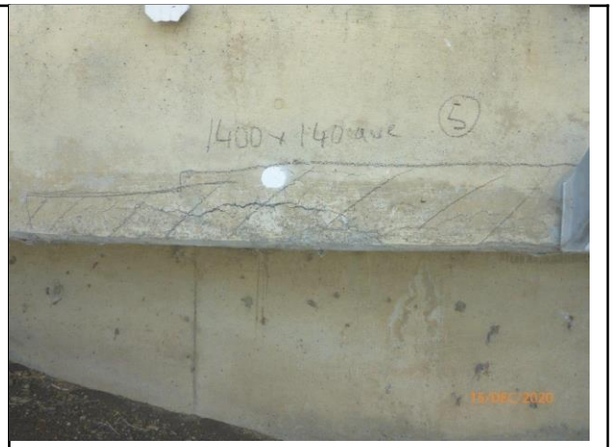
BILOELA STP REPAIR PROJECT – PST 1 AND SIPHON CHAMBER

PST 1 - Repair No. 1

PST 1 - Repair No. 2

PST 1 - Repair No. 3



PST 1 - Repair No. 4

PST 1 - Repair No. 5

PST 1 - Repair No. 6

PST 1 - Repair No. 7

PST 1 - Repair No. 8

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-3

PST 1

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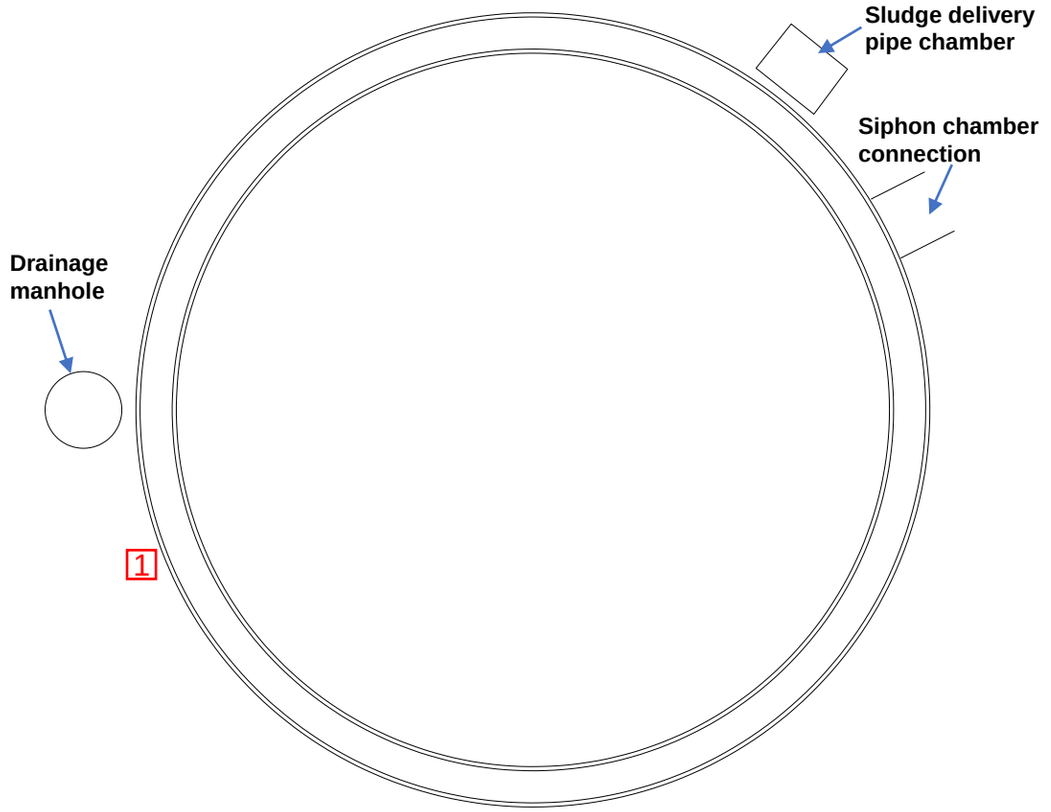
BILOELA STP REPAIR PROJECT – PST 2

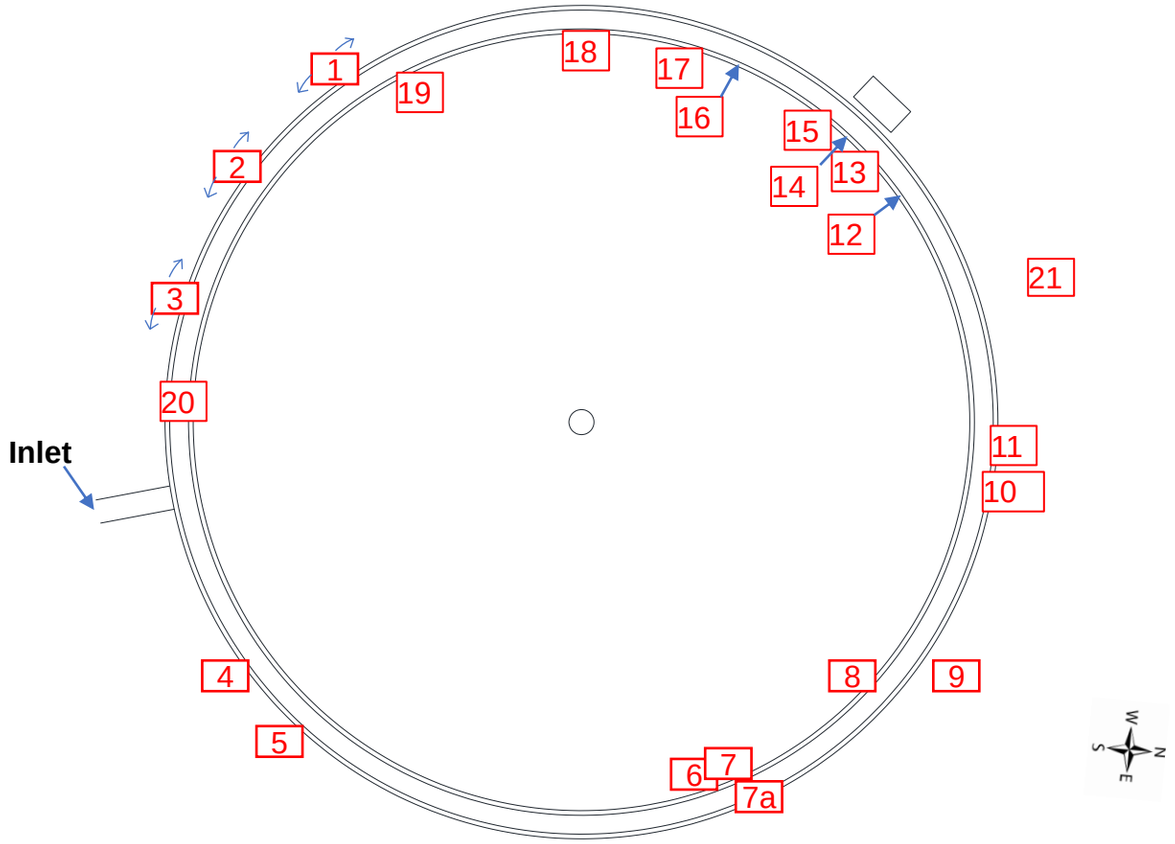


REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Launder channel wall - External	Delamination, cracking, and spalling	Concrete repair	400	150	100	0.06

BILOELA STP REPAIR PROJECT – PST 2

 PST 2 - Repair No. 1			

BILOELA STP REPAIR PROJECT – BTF 1



REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Tank wall - External	Horizontal cracking	Crack injection	60000	-	0.2 - 5	-
2	Tank wall - External	Widespread cracking 0.2 - 0.6mm wide, all directions	Crack injection	11000	-	0.2-0.6	-
3	Tank wall - External	Minor spalls, no exposed reinforcement	Concrete repair	100	100	-	0.01
4	Tank wall - External	Delamination	Concrete repair	1000	300	-	0.30
5	Tank wall - External	Delamination	Concrete repair	1400	1150	-	1.61
6	Tank wall - External	Delamination	Concrete repair	700	850	-	0.60
7	Tank wall - External	Delamination	Concrete repair	500	500	-	0.25
7a	Tank wall - External	Delamination	Concrete repair	1100	125	-	0.14
8	Tank wall - External	Delamination and spalling	Concrete repair	1650	950	-	1.57
9	Tank wall - External	Delamination and spalling	Concrete repair	3100	1600	-	4.96

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-6

BTF 1

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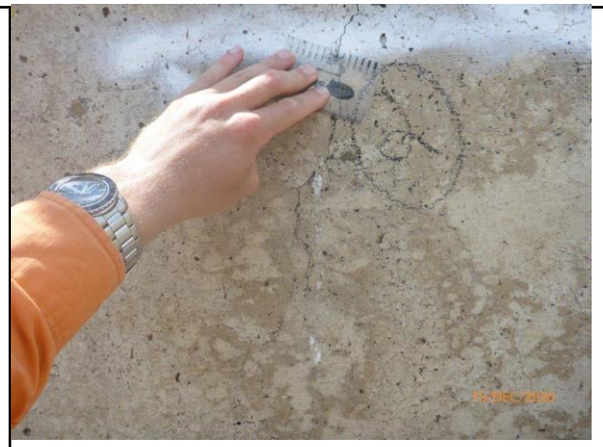
BILOELA STP REPAIR PROJECT – BTF 1

REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
10	Tank wall - External	Delamination	Concrete repair	400	350	-	0.14
11	Tank wall - External	Delamination and spalling	Concrete repair	3800	950	-	3.61
12	Tank wall - External	Delamination and spalling	Concrete repair	1750	700	-	1.23
13	Tank wall - External	Delamination and spalling	Concrete repair	1300	400	-	0.52
14	Tank wall - External	Delamination	Concrete repair	750	350	-	0.26
15	Tank wall - External	Delamination and spalling	Concrete repair	1550	550	-	0.85
16	Tank wall - External	Delamination	Concrete repair	300	500	-	0.15
17	Tank wall - External	Delamination and spalling, exposed corroded reinforcement	Concrete repair	1800	700	-	1.26
18	Tank wall - External	Delamination	Concrete repair	400	350	-	0.14
19	Tank wall - External	Delamination	Concrete repair	2000	600	-	1.20
20	Tank wall - External	Delamination	Concrete repair	700	700	-	0.49
21	Tank wall - External	Carbonation to external surface	Apply anti-carbonation coating to full external surface of perimeter wall including top of perimeter wall	-	-	-	96.00

BILOELA STP REPAIR PROJECT – BTF 1

BTF 1 - Repair No. 1



BTF 1 - Repair No. 2

BTF 1 - Repair No. 3

BTF 1 - Repair No. 4

BTF 1 - Repair No. 5

BTF 1 - Repair No. 6

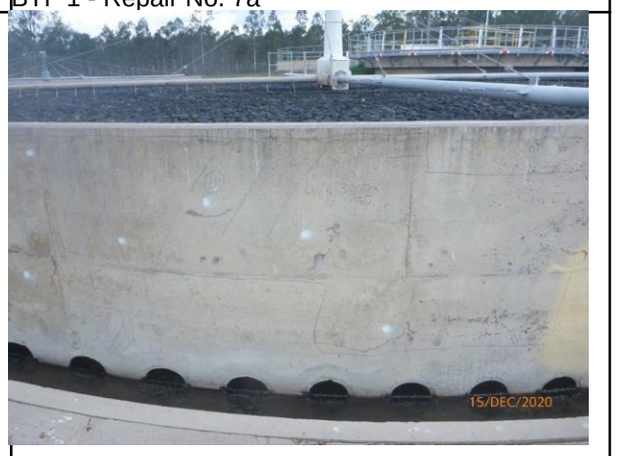
BTF 1 - Repair No. 7

BTF 1 - Repair No. 7a

BTF 1 - Repair No. 8

BTF 1 - Repair No. 9

BTF 1 - Repair No. 10



BTF 1 - Repair No. 11

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-8

BTF 1

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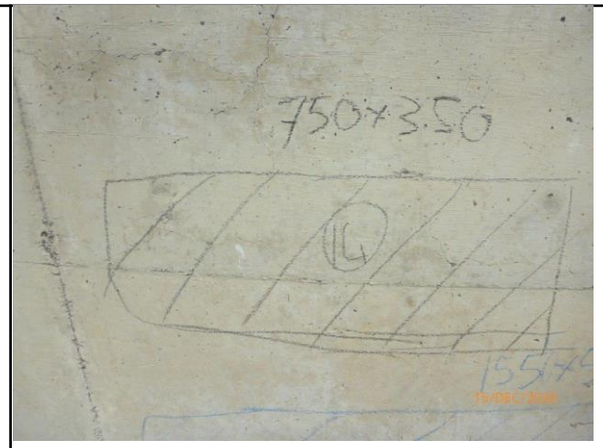
BILOELA STP REPAIR PROJECT – BTF 1

BTF 1 - Repair No. 12

BTF 1 - Repair No. 13

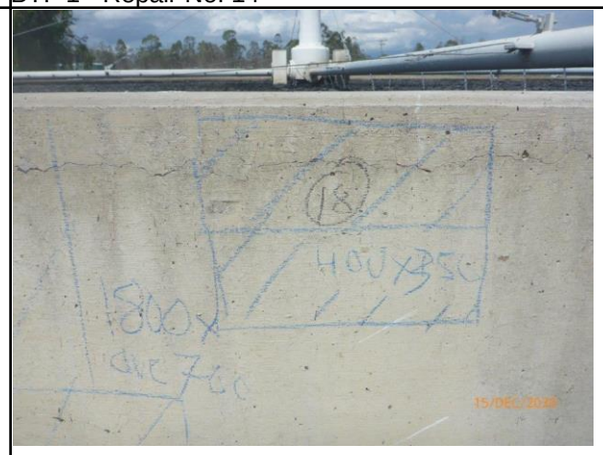


BTF 1 - Repair No. 14

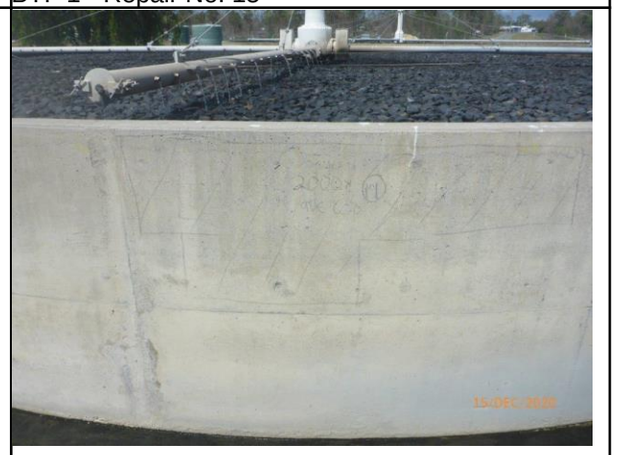
BTF 1 - Repair No. 15

BTF 1 - Repair No. 16

BTF 1 - Repair No. 17



BTF 1 - Repair No. 18

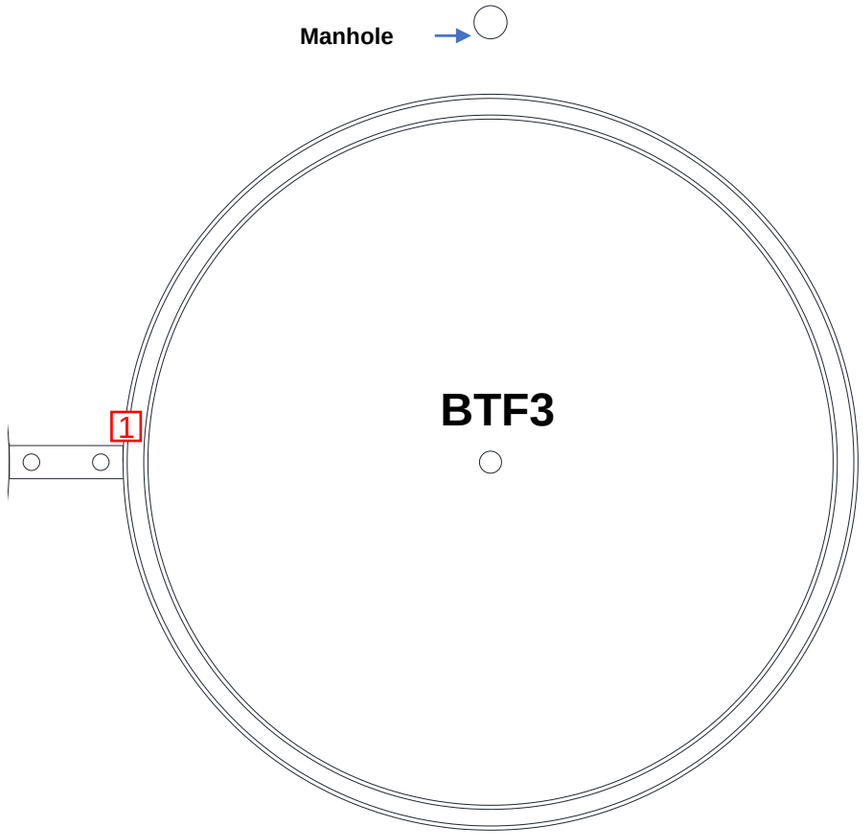


BTF 1 - Repair No. 19

BTF 1 - Repair No. 20

BTF 1 - Repair No. 21

BILOELA STP REPAIR PROJECT – BTF 3

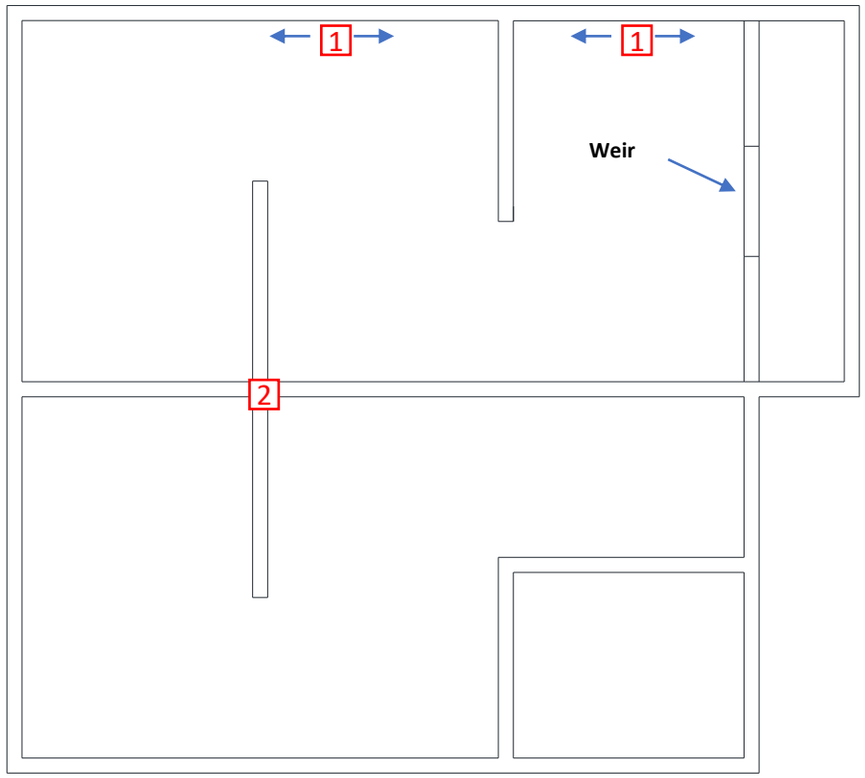


REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Tank wall – External	Vertical cracking	Crack injection	1000	-	0.3 to 0.5	-

BILOELA STP REPAIR PROJECT – BTF 3

 BTF 3 - Repair No. 1			

BILOELA STP REPAIR PROJECT – CHLORINE CONTACT TANK (CCT)



REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Tank wall - Internal	Crazing, etching and loss of fines below high water level, 10mm loss	Apply epoxy protective coating to 500mm band of perimeter and baffle walls inside tank covering etched zone at water line and above	77250	500	-	38.63
2	Tank baffle walls - Top	Cracking, minor spall at top of wall	Concrete repair	250	150	HL to 0.8*	0.04

BILOELA STP REPAIR PROJECT – CHLORINE CONTACT TANK

 CCT - Repair No. 1	 CCT - Repair No. 2		

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-13

CCT

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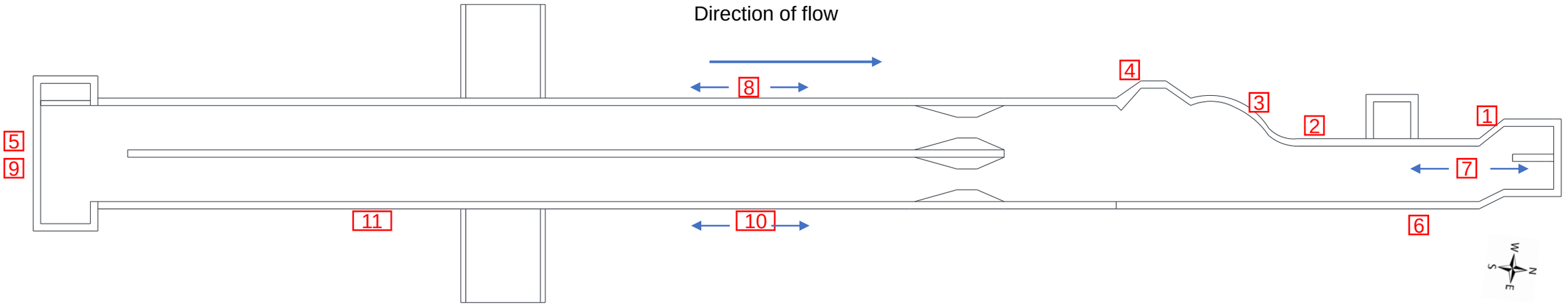
BILOELA STP REPAIR PROJECT – INLET CHANNEL



REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
1	Channel wall - External	Delamination	Concrete repair	1100	125	25	0.14
2	Channel wall - External	Delamination	Concrete repair	3000	125	25	0.38
3	Channel wall - External	Delamination and cracking	Concrete repair	400	125	-	0.05
4	Channel wall - External	Delamination and cracking	Concrete repair	1500	150	-	0.23
5	Channel wall - External	Delamination	Concrete repair	800	100	-	0.08
6	Channel wall - External	Delamination and cracking	Concrete repair	900	125	150	0.11
7	Channel wall - Internal	Etching to internal surface, approximately $3m^2$ of concrete section loss around waterline and outlet	Apply epoxy protective coating to full internal surface of walls (excl. floor)	-	-	-	93.00
8	Channel wall - External	Vertical cracking	Crack injection	500 x 16 cracks	-	HL to 0.8	-
9	Channel wall - External	Radial cracking	Crack injection	500 x 2 cracks	-	0.35 to 0.8	-

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-14

INLET CHANNEL

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BILOELA STP REPAIR PROJECT – INLET CHANNEL

REPAIR NO.	ELEMENT	DEFECT	ACTION	REPAIR AREA LENGTH (mm)	REPAIR AREA WIDTH (mm)	DEPTH/MAX CRACK WIDTH (mm)	REPAIR AREA (m^2)
10	Channel wall - External	Vertical cracking	Crack injection	500 x 25 cracks	-	HL to 0.5	-
11	Channel Wall - External	Carbonation to external surface	Apply anti-carbonation coating to full external surface of perimeter walls including top of perimeter wall	-	-	-	53.00

BILOELA STP REPAIR PROJECT – INLET CHANNEL

Inlet Channel - Repair No. 1

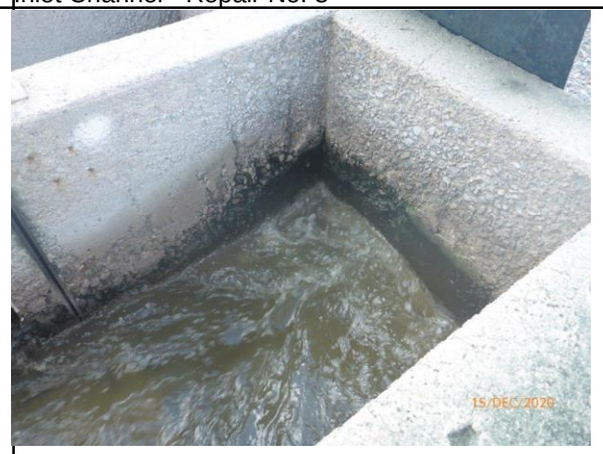

Inlet Channel - Repair No. 2

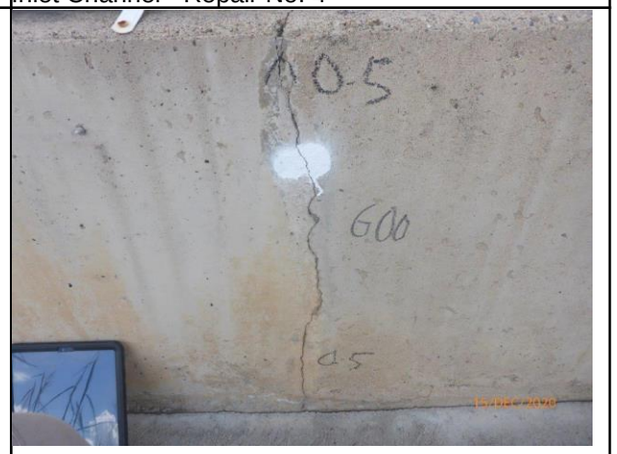
Inlet Channel - Repair No. 3


Inlet Channel - Repair No. 4

Inlet Channel - Repair No. 5


Inlet Channel - Repair No. 6

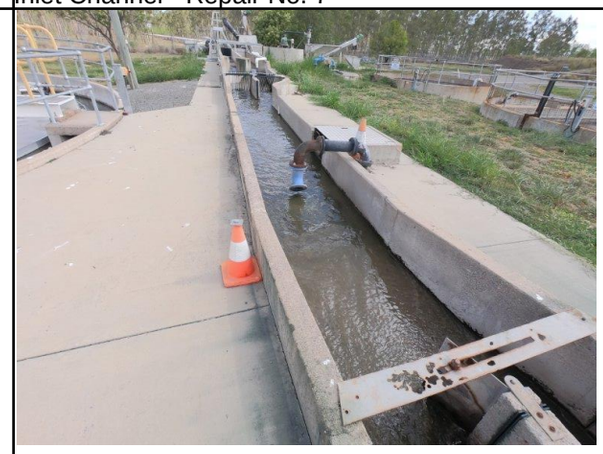

Inlet Channel - Repair No. 7



Inlet Channel - Repair No. 8

Inlet Channel - Repair No. 9

Inlet Channel - Repair No. 10


Inlet Channel - Repair No. 11

BILOELA STP REPAIR PROJECT
REPAIR MAP

DRAWING 30032680-16

INLET CHANNEL

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APPENDIX B – BTF2 REPLACEMENT WALL AND BTF 3 RESTRAINT BRACKET CONCEPT DESIGNS

GENERAL

1. ALL DESIGNS ARE CONCEPT AND NOT FOR CONSTRUCTION,
2. DO NOT SCALE THE DRAWINGS,
3. UNLESS NOTED OTHERWISE:
   a. ALL DIMENSIONS ARE IN MILLIMETERS,
   b. ALL RLS ARE SHOWN IN METERS (AHD),
4. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH THE ORIGINAL AS-CONSTRUCTED DRAWINGS FOR BILOELA STP.
5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND THE REQUIREMENTS OF THE RELEVANT LOCAL STATUTORY AUTHORITIES' REGULATIONS INCLUDING ALL AMENDMENTS, EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION,
6. NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES THE REQUIRED PROPERTIES OF THE ITEM.
7. SIMILAR ALTERNATIVES WITH THE REQUIRED PROPERTIES MAY BE OFFERED FOR WRITTEN APPROVAL.
8. TRADE NAMES HAVE BEEN USED ONLY TO ESTABLISH A BASIC REQUIREMENT AND ANY SATISFACTORY EQUIVALENT MAY BE SUBMITTED FOR REVIEW.
9. ALL PRODUCTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. ALL STANDARD DRAWINGS SHALL BE CONSIDERED GENERIC IN NATURE AND MAY NOT BE DEPICTED IN CLOSE RESEMBLANCE TO THE APPLICABLE STRUCTURE. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR READING THE STANDARD DRAWINGS IN CONJUNCTION WITH OTHER DESIGN DRAWINGS.
11. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL DIMENSIONS (AND LEVELS) OF EXISTING STRUCTURES PRIOR TO FABRICATION AND INSTALLATION.
12. DESIGN LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH AS1170 PART 1.

REINFORCEMENT

1. REINFORCEMENT SHOWN ON THE DRAWINGS IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.
2. REINFORCEMENT SYMBOLS INDICATE THE FOLLOWING: N - DENOTES GRADE 500N HOT ROLLED DEFORMED REINFORCEMENT BARS TO AS 4671.
3. REINFORCEMENT NOTATION:
   EXAMPLE N16-300
   N - DEFORMED CLASS N BAR
   16 - BAR SIZE IN MILLIMETERS
   300 - SPACING OF BARS
4. ALL REINFORCING STEEL SHALL BE ACRS (AUSTRALIAN CERTIFICATION AUTHORITY FOR REINFORCING AND STRUCTURAL STEEL) CERTIFIED.
5. SITE REBENDING OF REINFORCEMENT BY MECHANICAL OR ANY OTHER MEANS IS NOT PERMITTED WITHOUT THE APPROVAL OF THE DESIGNER.
6. REINFORCEMENT SHALL BE LAPPED ONLY IN THE LOCATIONS SHOWN ON THE IFC DRAWINGS OR AS OTHERWISE APPROVED BY THE DESIGNER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. BAR LAP LENGTHS SHALL BE AS SHOWN IN THE TABLE BELOW (U.N.O):

BAR DIAMETER	HORIZONTAL BARS WITH >300 CONCRETE BELOW BAR	ALL OTHER BARS
12	550	400
16	700	550
20	1000	800
24	1350	1050
28	1750	1350
32	2150	1650

7. REINFORCEMENT SHALL NOT BE WELDED UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE DESIGNER.
8. ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED ON CONCRETE SPACERS (MADE FROM SOUND CONCRETE OF SAME STRENGTH OR GREATER AS THE CONCRETE ELEMENT BEING USED IN) OR PLASTIVE TIPPED WIRE CHAIRS CONFORMING TO AS/NZS 2425 AT NOT GREATER THAN 1 METER CENTRES EACH WAY. ALL REINFORCEMENT SHALL BE SECURELY TIED WITH WIRE TIES. TIE ENDS SHALL NOT EXTEND INTO THE COVER ZONE.
9. THE SUPERINTENDENT SHALL BE GIVEN A MINIMUM OF 48 HOURS NOTICE FOR REINFORCEMENT INSPECTIONS AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL IS OBTAINED.

CONCRETE

1. CONCRETE, CONCRETE WORK, AND STEEL REINFORCEMENT SHALL CONFORM TO AS3600, AS1379.
2. CONCRETE STRENGTH GRADE (MINIMUM N40), CONCRETE MIX DESIGN AND COVER REQUIREMENTS (EXPOSURE CLASSIFICATIONS) SHALL BE DETERMINED DURING DETAILED DESIGN AND PRIOR TO CONSTRUCTION.
3. ALL FORMED EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE CHAMFERED OR FILLETED 20mm U.N.O.
4. NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES OTHER THAN THOSE SHOWN ON THE DRAWINGS ARE PERMITTED IN THE CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
5. ALL FORMWORK MATERIALS, WORKMANSHIP AND STRIPPING OF FORMWORK SHALL BE IN ACCORDANCE WITH AS3600 AND AS3610 INCLUDING ALL AMENDMENTS AND SUPPLEMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF ALL FORMWORK AND FALSEWORK.
7. CONCRETE SURFACES SHALL BE FREE FROM ALL CURING COMPOUNDS, FORM OIL, DUST, DIRT AND FOREIGN MATTER.
8. CONSTRUCTION JOINTS SHALL BE WET DOWN OR SOAKED THOROUGHLY IMMEADIATELY PRIOR TO POURING CONCRETE AGAINST THE SURFACE.
9. ALL CONCRETE INTERFACES SHALL BE ROUGHENED TO ENSURE SATISFACTORY BOND BETWEEN DIFFERENT POURS OF INSITU CONCRETE U.N.O. AT ALL CONSTRUCTION JOINTS(C.J) ALL LAITANCE WILL BE COMPLETELY REMOVED FROM THE CONTACT FACE AND COARSE AGGREGATE EXPOSED, BUT LEAVING IT FIRMLY EMBEDDED IN THE MORTAR MIX, TO A DEPTH OF 6mm BEFORE THE ADJACENT SECTION IS POURED. WHERE AN ADJACENT FACE OF THE CONCRETE IS TO BE EXPOSED IN THE FINISHED WORKS, TREATMENT OF THE JOINT WILL BE TERMINATED 12mm AWAY FROM THE EXPOSED FACE.
10. CONCRETE SHALL BE SUPPLIED ON A PERFORMANCE BASIS TO THE CONCRETE GRADES NOTED ON THE DESIGN DRAWINGS. CONCRETE MIX DESIGN, INCLUDING PROPORTIONS OF ADDITIVES AND CEMENTITIOUS REPLACEMENT MATERIALS, SHALL BE SUBMITTED TO THE DESIGNER FOR APPROVAL PRIOR TO THE PLACEMENT.
11. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF ANY STONE POCKETS OR VOIDS. CONCRETE SHALL BE VIBRATED BY MECHANICAL VIBRATORS DURING PLACEMENT.
12. COMPLIANCE TESTING AND SAMPLING OF CONCRETE SHALL BE IN ACCORDANCE WITH AS3600, AS1379. AS1012, AND THE PROJECT SPECIFICATION.

STAINLESS STEEL

1. STAINLESS STEEL (S/S) GRADE (304, 304L, 316, 316L) SHALL BE DETERMINED DURING DETAILED DESIGN.
2. ALL WELDS SHALL BE MINIMUM 6 CFW U.N.O.
3. STAINLESS STEEL BOLTS SHALL BE GRADE A4-70 U.N.O.
4. ANY CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE SEPARATED BY USING NEOPRENE OR NYLON SEPARATORS.
5. MINIMUM CONNECTIONS SHALL BE 2/M16(S/S) BOLTS U.N.O.
6. SHOP DRAWINGS SHALL BE SUBMITTED TO THE DESIGNER BEFORE COMMENCEMENT OF FABRICATION.
7. ALL STAINLESS STEEL MATERIALS SHALL NOT BE STORED OR BROUGHT INTO CONTACT WITH ANY CARBON STEEL OR OTHER FERROUS METALS INCLUDING TOOLS;
8. STAINLESS STEEL SHEET AND PLATE TO ASTM A240.
9. STAINLESS STEEL FLAT BAR AND ROUND BAR TO ASTM A276.
10. ALL STAINLESS STEEL BOLTS TO CLASS 2 B8M TO ASTM A193.
11. STAINLESS STEEL SET SCREWS TO AS/NZS ISO 3506.3.
12. WELDING ELECTRODES SHALL BE THE SAME S/S GRADE AS THE MATERIAL.
13. WELDS SHALL BE CATEGORY 2B IN ACCORDANCE WITH AS1554.6 TABLE 6.1. THE EXTENT OF NON-DESTRUCTIVE EXAMINATION OF WELDS WILL BE IN ACCORDANCE WITH AS1554.6 TABLE 7.4.
14. AFTER FABRICATION, PICKLING AND PASSIVATION WILL BE IN ACCORDANCE WITH ASTM A380.
15. WELDER SHALL BE QUALIFIED AND PERFORMED IN ACCORDANCE WITH AS/NZS 1554.6;
16. EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm U.N.O.
17. TO PROVIDE RESISTANCE TO PITTING CORROSION AND TEA STAINING, THE SURFACE ROUGHNESS (RA) SHALL BE <0.5 MICRONS. DEPENDING ON THE PRODUCT, THE FOLLOWING SURFACE FINISHES ARE ACCEPTABLE:
    "2B (COLD ROLLED)" - FLAT SHEET OR COIL <5mm THICK
    "NO. 4 (POLISHED)" - ALL OTHER PRODUCTS

CHEMICAL ANCHORS

1. ALL ANCHORS MUST COMPLY WITH THE REQUIREMENTS OF SA TS 01:2015/ AS5216:2018 STANDARD.
2. ALL FASTENERS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS USING THE TOOLS WHICH ARE INDICATED IN THE PRODUCT'S TEST REPORT.
3. INSTALLATION SHALL BE PERFORMED BY AN 'AEFAC' CERTIFIED INSTALLER OR BY A PERSON TRAINED BY THE MANUFACTURER/ SUPPLIER OF THE SPECIFIED PRODUCT.
4. ALL ANCHOR HOLES MUST BE HAMMER DRILLED.
5. THE DESIGN ENGINEER MUST BE CONSULTED FOR THE APPROVAL OF AN ALTERNATE PRODUCT OR DRILLING METHOD.
6. EPOXIES USED TO FIX CHEMICAL ANCHORS INTO SOLID CONCRETE SHALL BE HILTI RE-500V3 U.N.O.
7. ALL ANCHOR STUDS SHALL BE FULLY THREADED STAINLESS STEEL A4-70 STUDS U.N.O.

TEMPORARY WORKS

1. ALL COMPONENTS TO BE RETAINED (INCLUDING BUT NOT LIMITED TO CONCRETE STRUCTURE, INTERCONNECTING PIPE WORK, MECHANICAL EQUIPMENT ETC) SHALL BE ADEQUATELY SUPPORTED AND PROTECTED DURING DEMOLITION OF NOMINATED PARTS AND CONSTRUCTION TO PREVENT DAMAGE, OVERSTRESSING, MOVEMENT AND/OR COLLAPSE.
2. ALL TEMPORARY WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. IF IN DOUBT, THE CONTRACTOR SHALL RAISE CONCERNS REGARDING THE INTEGRITY OF EXISTING INFRASTRUCTURE TO THE CLIENT SUPERINTENDENT AND RECEIVE CLARIFICATION PRIOR TO PROCEEDING. CONCERNS REGARDING STABILITY OF THE EXISTING INFRASTRUCTURE DOES NOT FORM GROUNDS FOR A VARIATION WITH THE CLIENT.
4. ALL TEMPORARY WORKS SHALL BE CERTIFIED BY THE CONTRACTOR'S APPROPRIATELY QUALIFIED ENGINEER PRIOR TO PROCEEDING.

LEGEND TO NOTATION ON DRAWINGS

EF - EACH FACE
NF - NEAR FACE
FF - FAR FACE
EW - EACH WAY
T OR TOP - TOP
B OR BTM- BOTTOM
CPBW - QUALIFIED COMPLETE PENETRATION BUTT WELD
C.J - CONSTRUCTION JOINT
U.N.O - UNLESS NOTED OTHERWISE
FW - FILLET WELD
S/S - STAINLESS STEEL
U.S - UNDERSIDE
CFW - CONTINUOUS FILLET WELD

CONCEPT
NOT FOR CONSTRUCTION
14 December 2021

DRAWING FILE LOCATION / NAME: V:_Vault\Projects\3003\30032680\110_CADD\CAD\DWG\30032680-GA-1121.dwg
PLOT DATE: 14 Dec 2021 TIME: 11:20:04
EXTERNAL REFERENCE FILES:

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
01	14/12/2021	ISSUED FOR CONCEPT		BK

TITLE	NAME
DRAFTER	D LOOKER
DRAFTING CHECK	C HAYWOOD
DESIGNER	C HAYWOOD
DESIGN CHECK	A MOORE
PROJECT MANAGER	P LARKIN
PROJECT DIRECTOR	M DUNCANSON

SCALES AT A1 SIZE DRAWING

DESIGNER: SMEC
Member of the Surbana Jurong Group
© ABN 47 065 475 149
SMEC PROJECT No 30032680

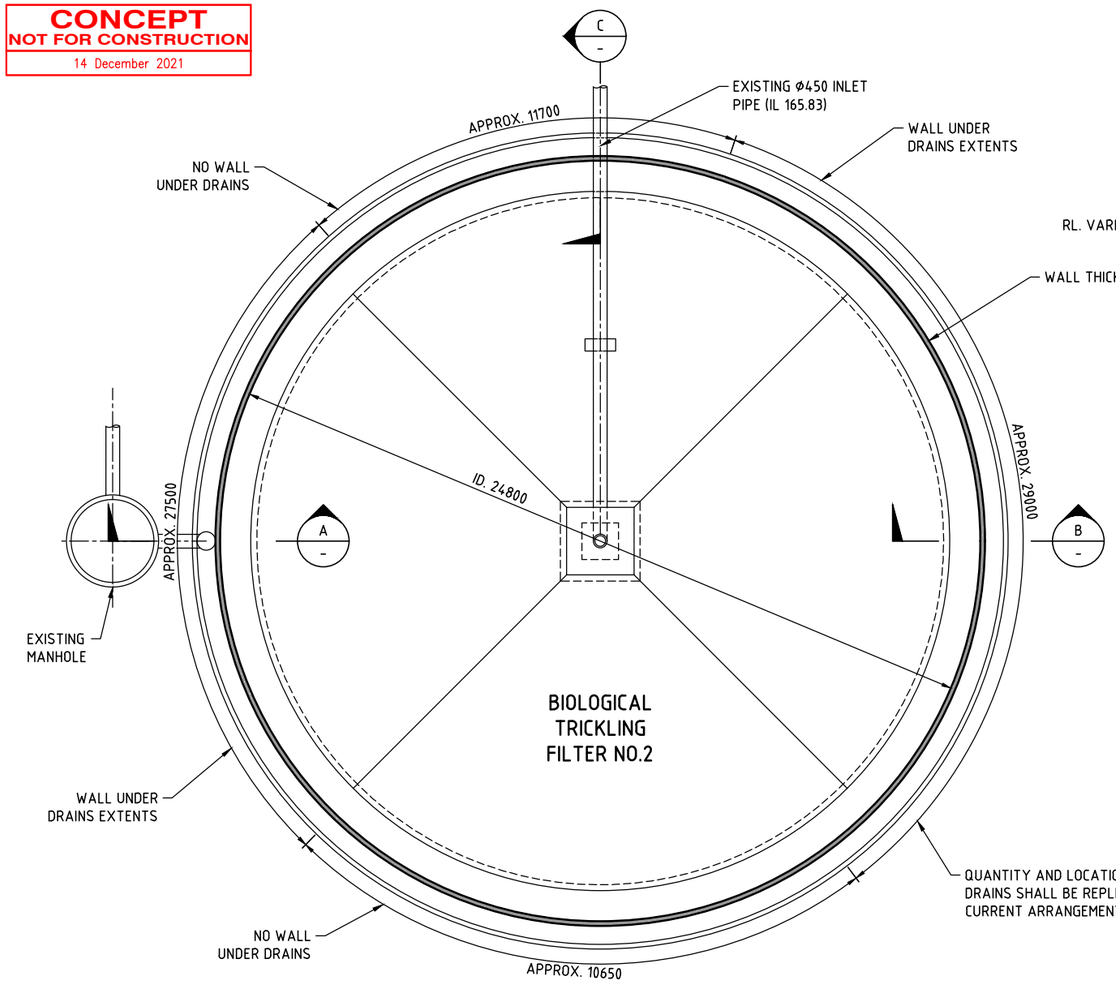
CLIENT: Banana SHIRE

PROJECT TITLE: BILOELA STP
STRUCTURAL
GENERAL NOTES

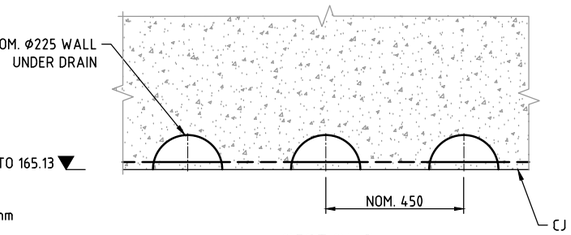
SCALE	PHASE	PROJECT / DRAWING No.	REVISION
AS NOTED	CONCEPT	30032680-GA-1121	-

X_SMEC_A1

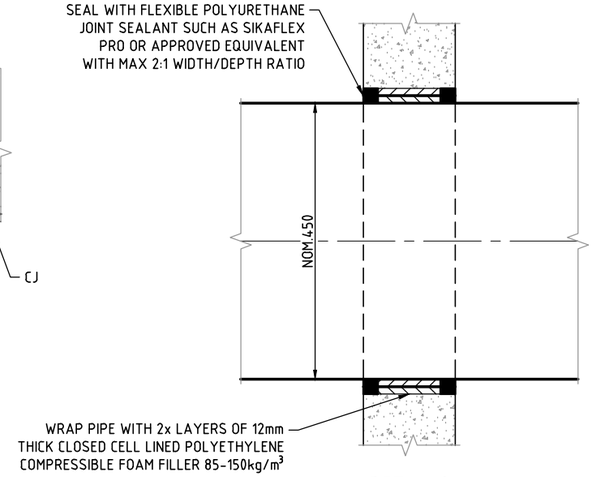
CONCEPT
NOT FOR CONSTRUCTION
14 December 2021



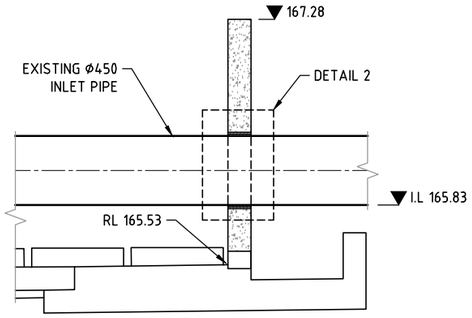
WALL PLAN COPING LEVEL (RL 167.28)
SCALE 1:100



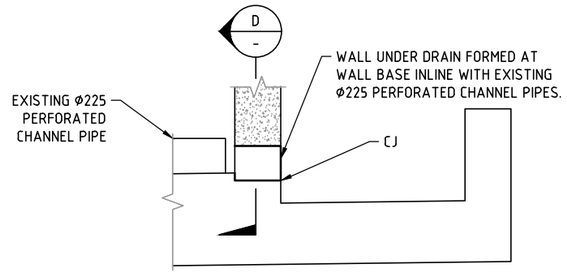
SECTION D
SCALE 1:10



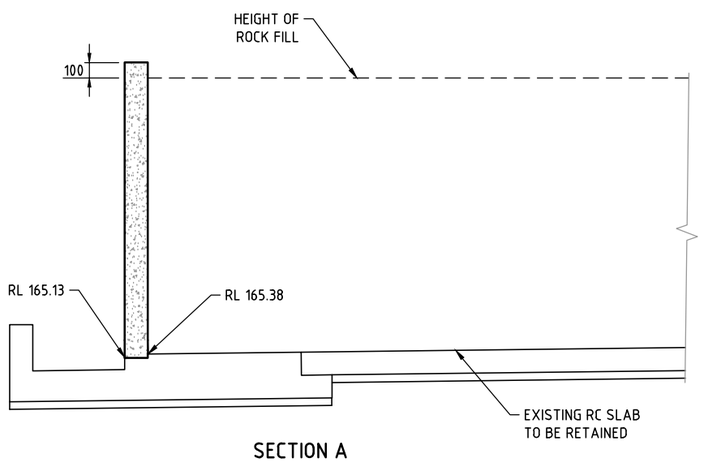
DETAIL 2
INLET PIPE PENETRATION
SCALE 1:5



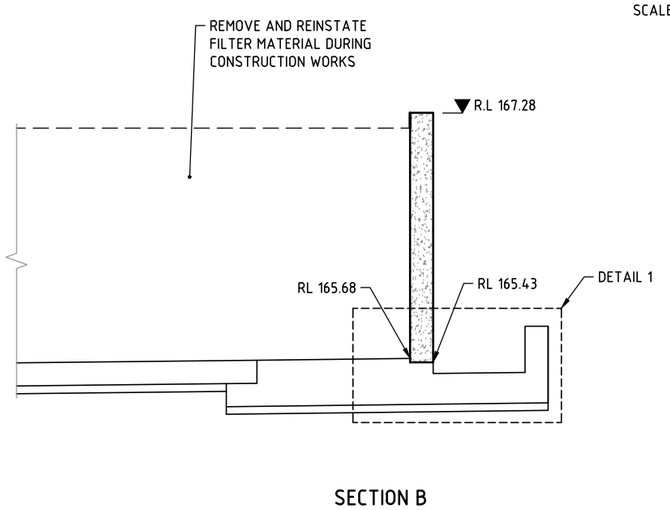
SECTION C
SCALE 1:20



DETAIL 1
WALL UNDER DRAIN
SCALE 1:10



SECTION A
SCALE 1:20



SECTION B
SCALE 1:20

NOTES
1. FOR GENERAL NOTES REFER TO DRG No. 30032680-GA-1121.
2. FOR REINFORCEMENT DETAILS REFER TO DRG No. 30032680-GA-1123.
3. ALL STRUCTURAL DETAILS REFER TO DRG No. 30032680-GA-1122
4. CONTRACTOR/DESIGNER MAY CONSIDER AN ALTERNATIVE MEANS OF CONSTRUCTION/RESTRAINT IN THE REINSTATEMENT OF THE BTF WALL.

DRAWING FILE LOCATION / NAME: V:_Vault\Projects\3003\30032680\110_CADD\CAD\DWG\30032680-GA-1122.dwg
PLOT DATE: 14 Dec 2021 TIME: 11:20:31

EXTERNAL REFERENCE FILES: X_SMEC_A1_30032680_BASE

REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
01	14/12/2021	ISSUED FOR CONCEPT		BK

TITLE	NAME
DRAFTER	D LOOKER
DRAFTING CHECK	C HAYWOOD
DESIGNER	C HAYWOOD
DESIGN CHECK	A MOORE
PROJECT MANAGER	P LARKIN
PROJECT DIRECTOR	M DUNCANSON

SCALES AT A1 SIZE DRAWING
SCALE 1:5 — 0.05 0 0.10 0.20
SCALE 1:10 — 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:20 — 0.2 0 0.2 0.4 0.6 0.8 1.0
SCALE 1:100 — 1 0 1 2 3 4 5

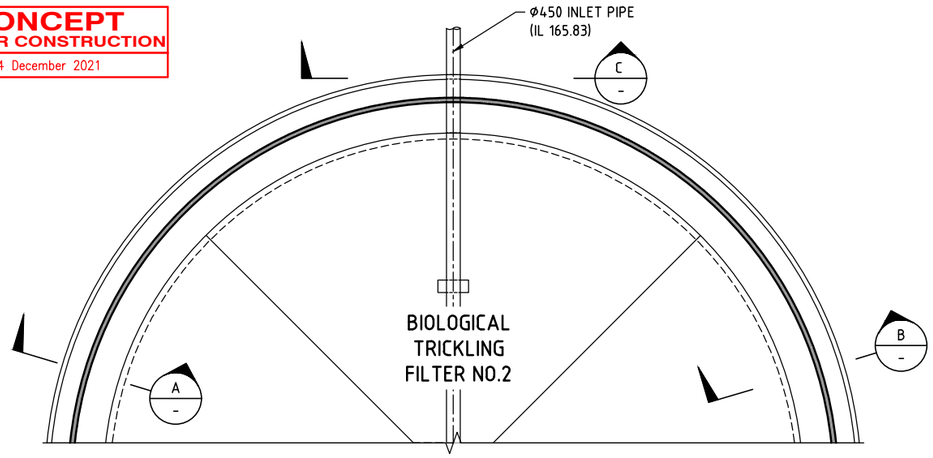
DESIGNER: SMEC — Member of the Surbana Jurong Group — © ABN 47 065 475 149
SMEC PROJECT No 30032680

CLIENT: Banana SHIRE

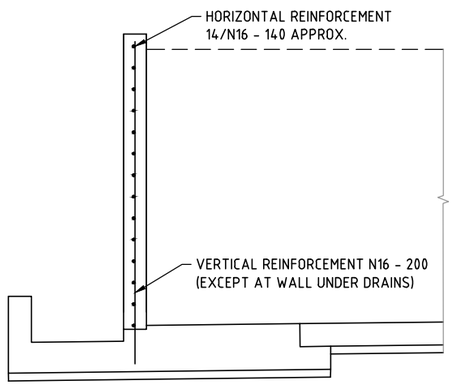
PROJECT TITLE
BILOELA STP
BIOLOGICAL TRICKLING FILTER 2 - WALL REPLACEMENT
REINFORCED CONCRETE
GENERAL ARRANGEMENT
AND DETAILS

SCALE	PHASE	PROJECT / DRAWING No.	REVISION
AS NOTED	CONCEPT	30032680-GA-1122	-

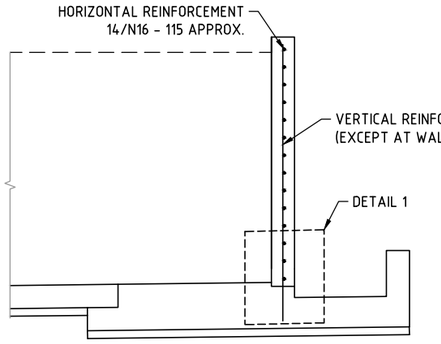
CONCEPT
NOT FOR CONSTRUCTION
14 December 2021



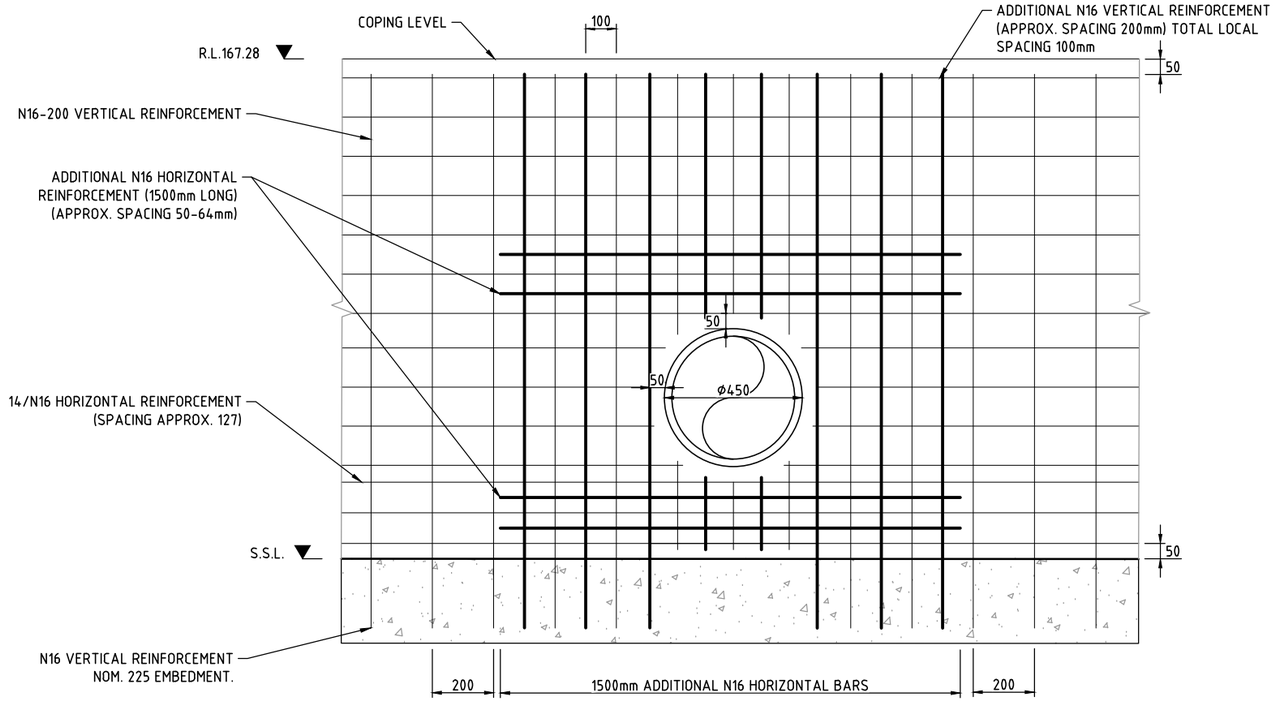
WALL PLAN COPING LEVEL (RL 167.28)
SCALE 1:100



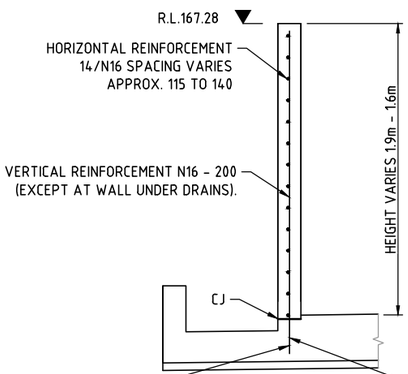
SECTION A
SCALE 1:20



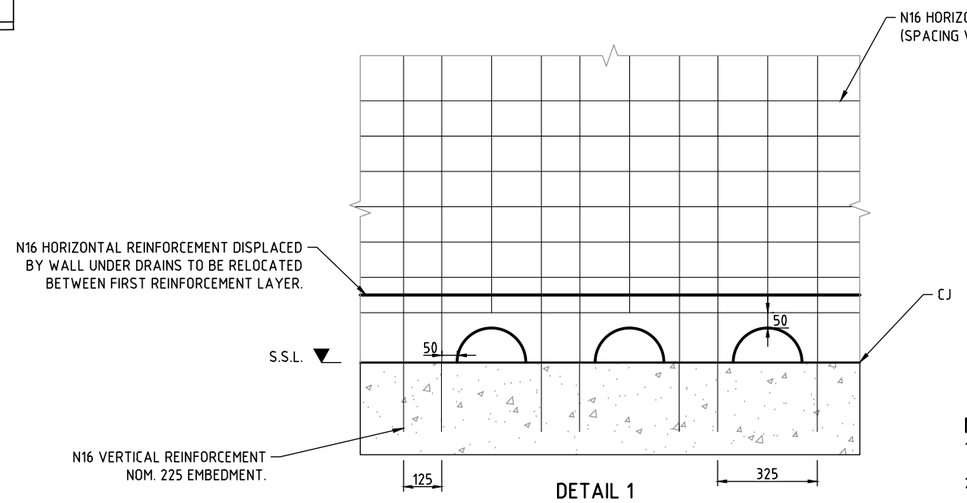
SECTION B
SCALE 1:20



SECTION C
SCALE 1:10



TYPICAL WALL SECTION
SCALE 1:20



DETAIL 1
WALL UNDER DRAIN REINFORCEMENT
SCALE 1:10

NOTES
1. FOR GENERAL NOTES REFER TO DRG No. 30032680-GA-1121.
2. FOR REINFORCEMENT DETAILS REFER TO DRG No. 30032680-GA-1123.
3. ALL STRUCTURAL DETAILS REFER TO DRG No. 30032680-GA-1122
4. CONTRACTOR/DESIGNER MAY CONSIDER AN ALTERNATIVE MEANS OF CONSTRUCTION/RESTRAINT IN THE REINSTATEMENT OF THE BTF WALL.

DRAWING FILE LOCATION / NAME: V:_Vault\Projects\3003\30032680\110_CADD\CAD\DWG\30032680-GA-1123.dwg
PLOT DATE: 14 Dec 2021 TIME: 11:20:55

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
X_SMEC_A1_30032680_BASE	01	14/12/2021	ISSUED FOR CONCEPT		BK

TITLE	NAME
DRAFTER	D LOOKER
DRAFTING CHECK	C HAYWOOD
DESIGNER	C HAYWOOD
DESIGN CHECK	A MOORE
PROJECT MANAGER	P LARKIN
PROJECT DIRECTOR	M DUNCANSON

SCALES AT A1 SIZE DRAWING
SCALE 1:10 — 0.1 0 0.1 0.2 0.3 0.4 0.5
SCALE 1:20 — 0.2 0 0.2 0.4 0.6 0.8 1.0
SCALE 1:100 — 1 0 1 2 3 4 5

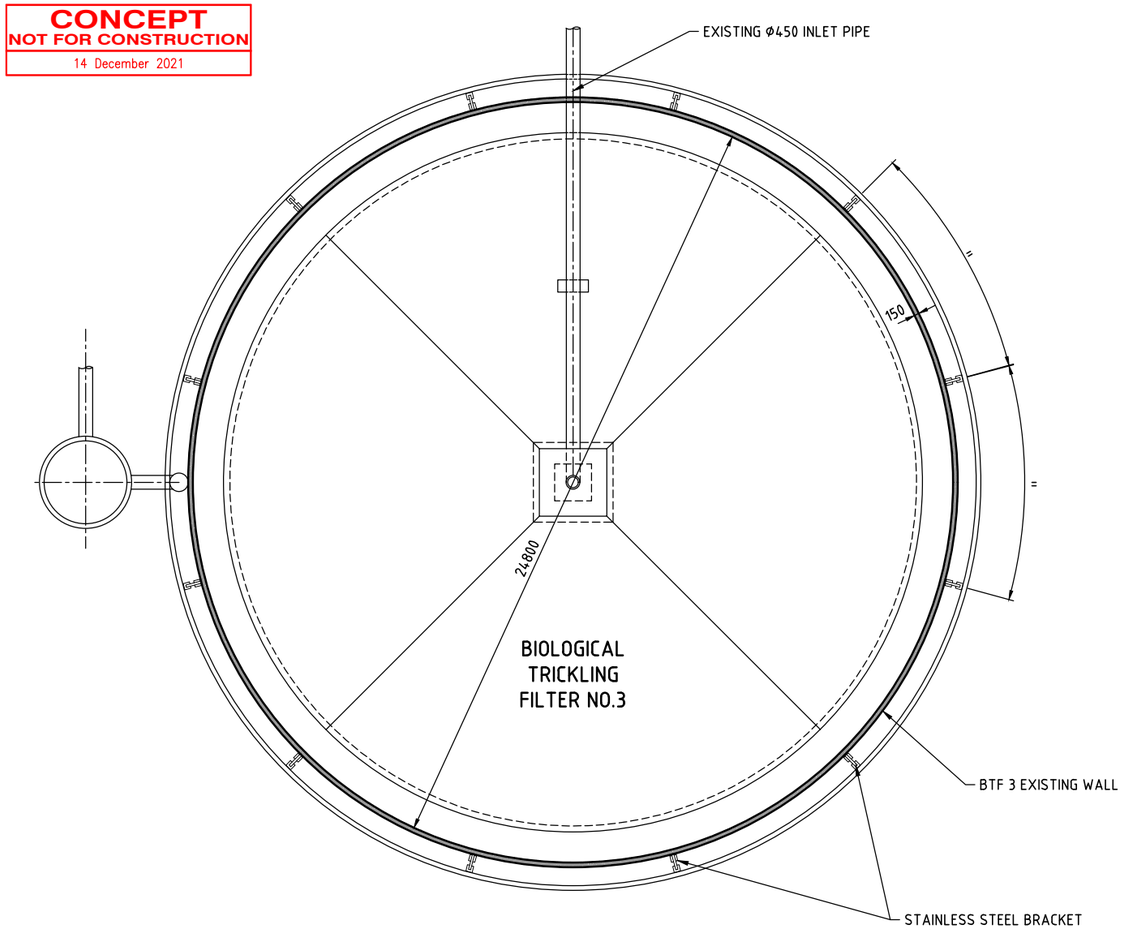
DESIGNER: SMEC — Member of the Surbana Jurong Group © ABN 47 065 475 149
SMEC PROJECT No 30032680

CLIENT: Banana SHIRE

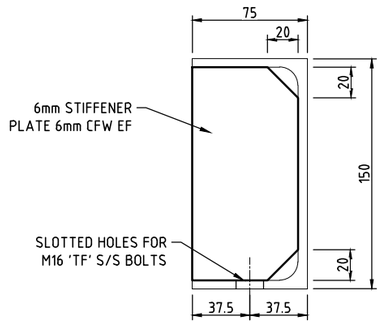
PROJECT TITLE
BILOELA STP
BIOLOGICAL TRICKLING FILTER 2 - WALL REPLACEMENT
REINFORCEMENT DETAILS

SCALE	PHASE	PROJECT / DRAWING No.	REVISION
AS NOTED	CONCEPT	30032680-GA-1123	-

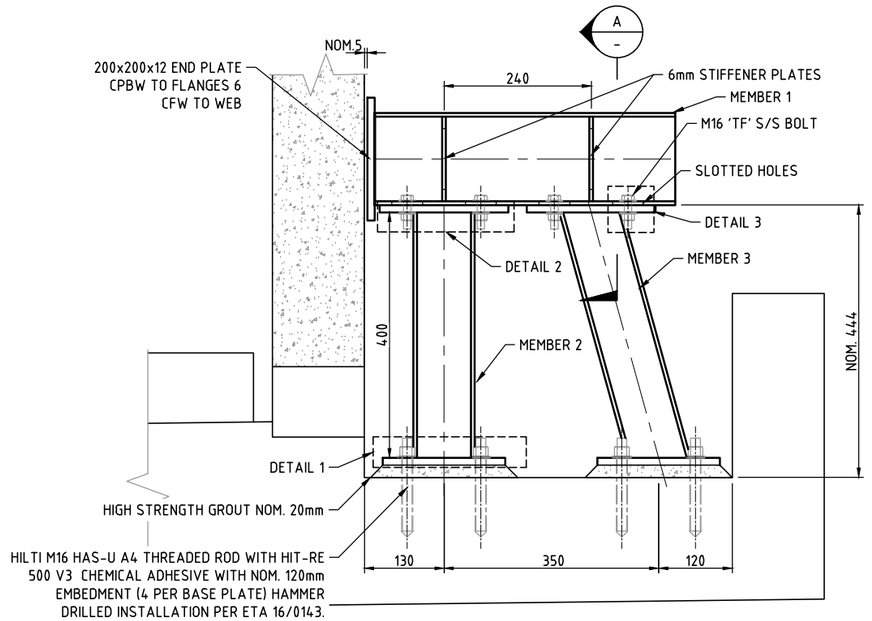
CONCEPT
NOT FOR CONSTRUCTION
14 December 2021



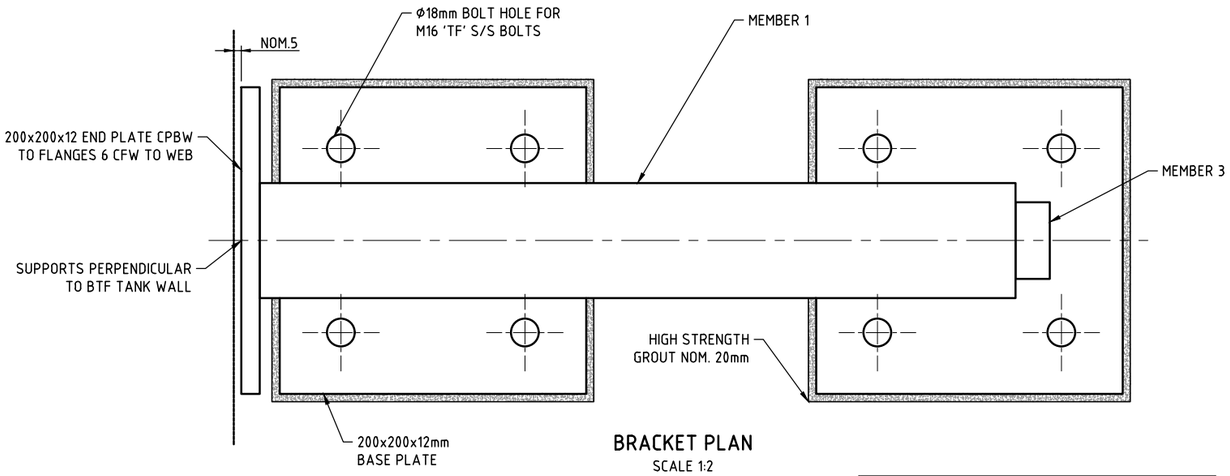
WALL BRACKET PLACEMENT PLAN
SCALE 1:100



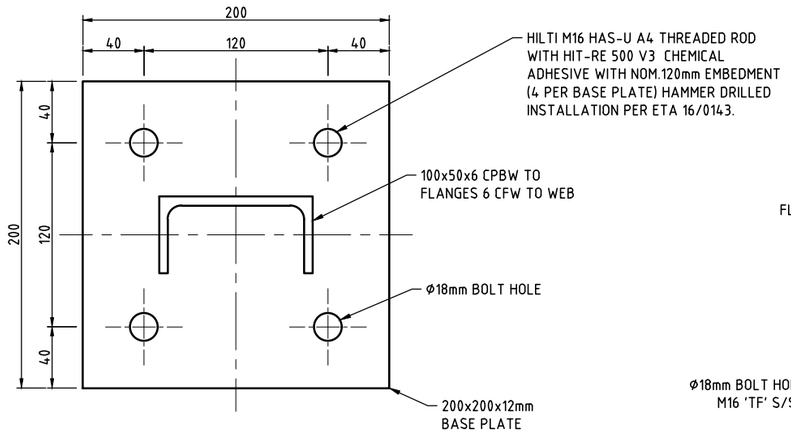
SECTION A
STIFFENER PLATE
SCALE 1:2



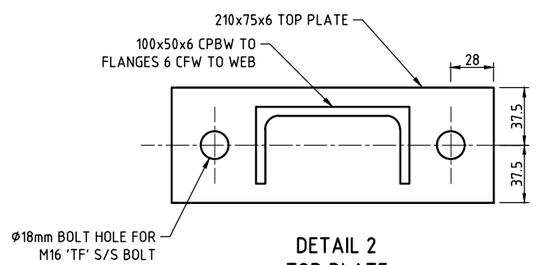
BRACKET ELEVATION
SCALE 1:5



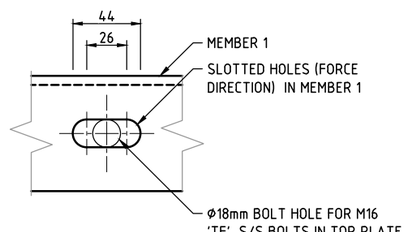
BRACKET PLAN
SCALE 1:2



DETAIL 1
BASE PLATE
SCALE 1:2



DETAIL 2
TOP PLATE
SCALE 1:2



DETAIL 3
SLOTTED HOLE
SCALE 1:2

MEMBER SCHEDULE		
MEMBER	SECTION	LENGTH (APPROX)
1	150x75x6 PFC	490mm
2	100x50x6 PFC	400mm
3	100x50x6 PFC	420mm

NOTES
1. FOR GENERAL NOTES REFER TO DRG No. 30032680-GA-1121.
2. FOR REINFORCEMENT DETAILS REFER TO DRG No. 30032680-GA-1123.
3. ALL STRUCTURAL DETAILS REFER TO DRG No. 30032680-GA-1122
4. ALL STRUCTURAL MEMBERS AND COMPONENTS SHALL BE STAINLESS STEEL.
5. CONTRACTOR/DESIGNER MAY CONSIDER AN ALTERNATIVE MEANS OF CONSTRUCTION/RESTRAINT IN THE REINSTATEMENT OF THE BTF WALL.

DRAWING FILE LOCATION / NAME: V:_Vault\Projects\3003\30032680\110_CADD\CAD\DWG\30032680-GA-1124.dwg
PLOT DATE: 14 Dec 2021 TIME: 11:21:17

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL
X_SMEC_A1_30032680_BASE	01	14/12/2021	ISSUED FOR CONCEPT		BK

TITLE	NAME
DRAFTER	D LOOKER
DRAFTING CHECK	C HAYWOOD
DESIGNER	C HAYWOOD
DESIGN CHECK	A MOORE
PROJECT MANAGER	P LARKIN
PROJECT DIRECTOR	M DUNCANSON

SCALES AT A1 SIZE DRAWING
SCALE 1:2 — 0.2 0 .02 .04 .06 .08 0.1
SCALE 1:5 — 0.05 0 0.10 0.20
SCALE 1:100 — 1 0 1 2 3 4 5

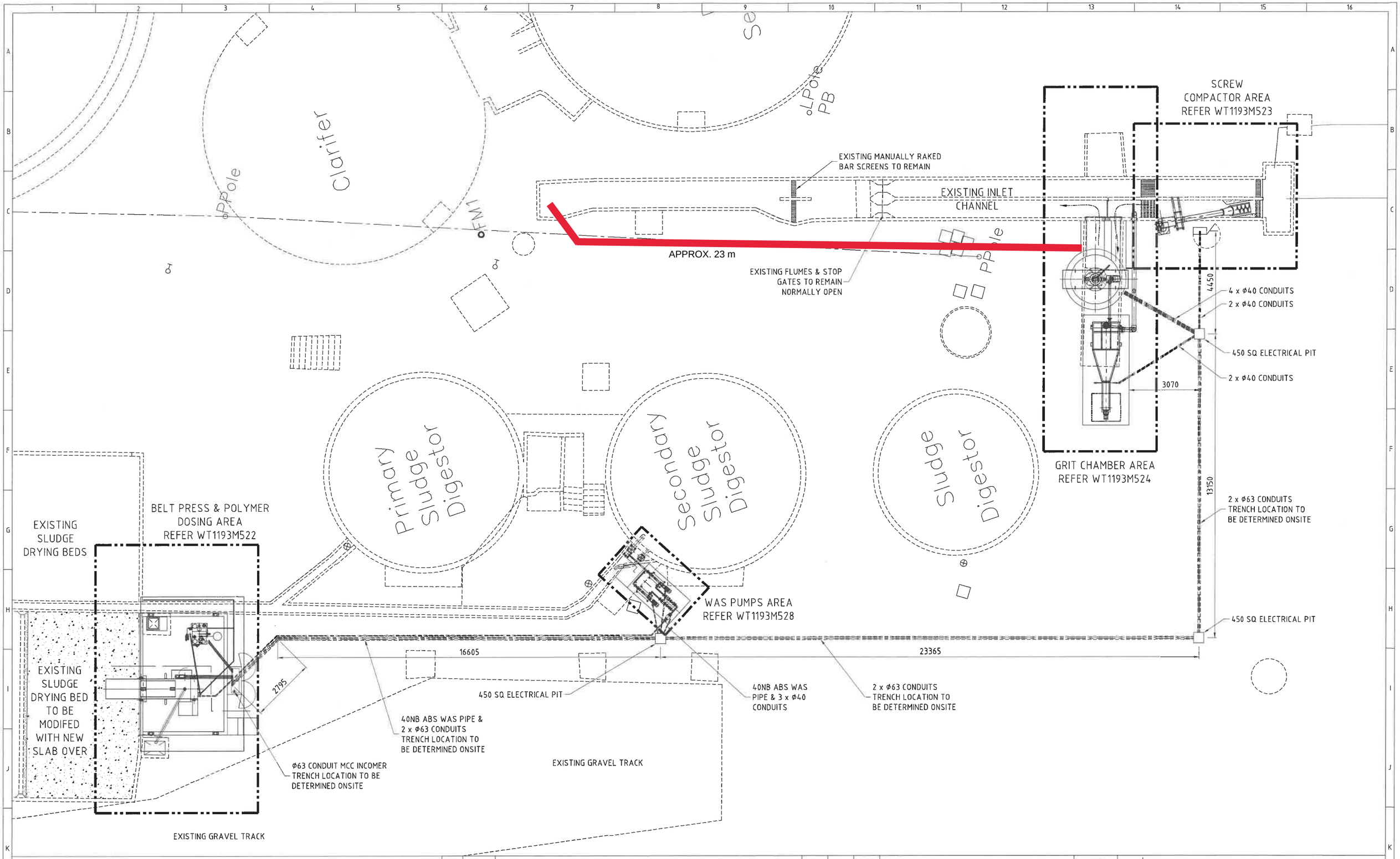
DESIGNER: SMEC — Member of the Surbana Jurong Group — © ABN 47 065 475 149
SMEC PROJECT No 30032680

CLIENT: Banana SHIRE

PROJECT TITLE
BILOELA STP
BIOLOGICAL TRICKLING FILTER 3 - WALL BRACKETS
STAINLESS STEEL
BRACKET GENERAL ARRANGEMENT
AND DETAILS

SCALE	PHASE	PROJECT / DRAWING No.	REVISION
AS NOTED	CONCEPT	30032680-GA-1124	-

APPENDIX C – PROVISIONAL INLET CHANNEL REPLACEMENT CONCEPT



NOTES
REFER PROJECT SPECIFICATION BEFORE COMMENCING ANY WORKS.

1. REFERENCE DRAWINGS
WT1180M520 SITE PLAN
WT1180M522 BELT PRESS & POLYMER DOSING GENERAL ARRANGEMENT
WT1180M523 INLET WORKS SCREW COMPACTOR GENERAL ARRANGEMENT
WT1180M524 INLET WORKS GRIT CHAMBER GENERAL ARRANGEMENT
WT1180M528 WAS PUMPS GENERAL ARRANGEMENT

REV	DATE	AMENDMENT	DRAWN	CHECKED	APPROVED
1	09/07/10	AS-BUILT	LCM		IB
0	14/08/08	ISSUED FOR CONSTRUCTION	MTB	DB	IB
A	09/04/08	ISSUED FOR COMMENT	MTB	DB	IB

REVISIONS

CLIENT: BANANA SHIRE COUNCIL

DESIGNED: IB 09/04/08 | CAD FILE:
DRAWN: BNC 09/04/08 | JOB NUMBER: WT1193
DRAWING CHECK: DB 09/04/08 | MANAGER: IB | DATE: 09/04/08
DESIGN VERIFICATION:

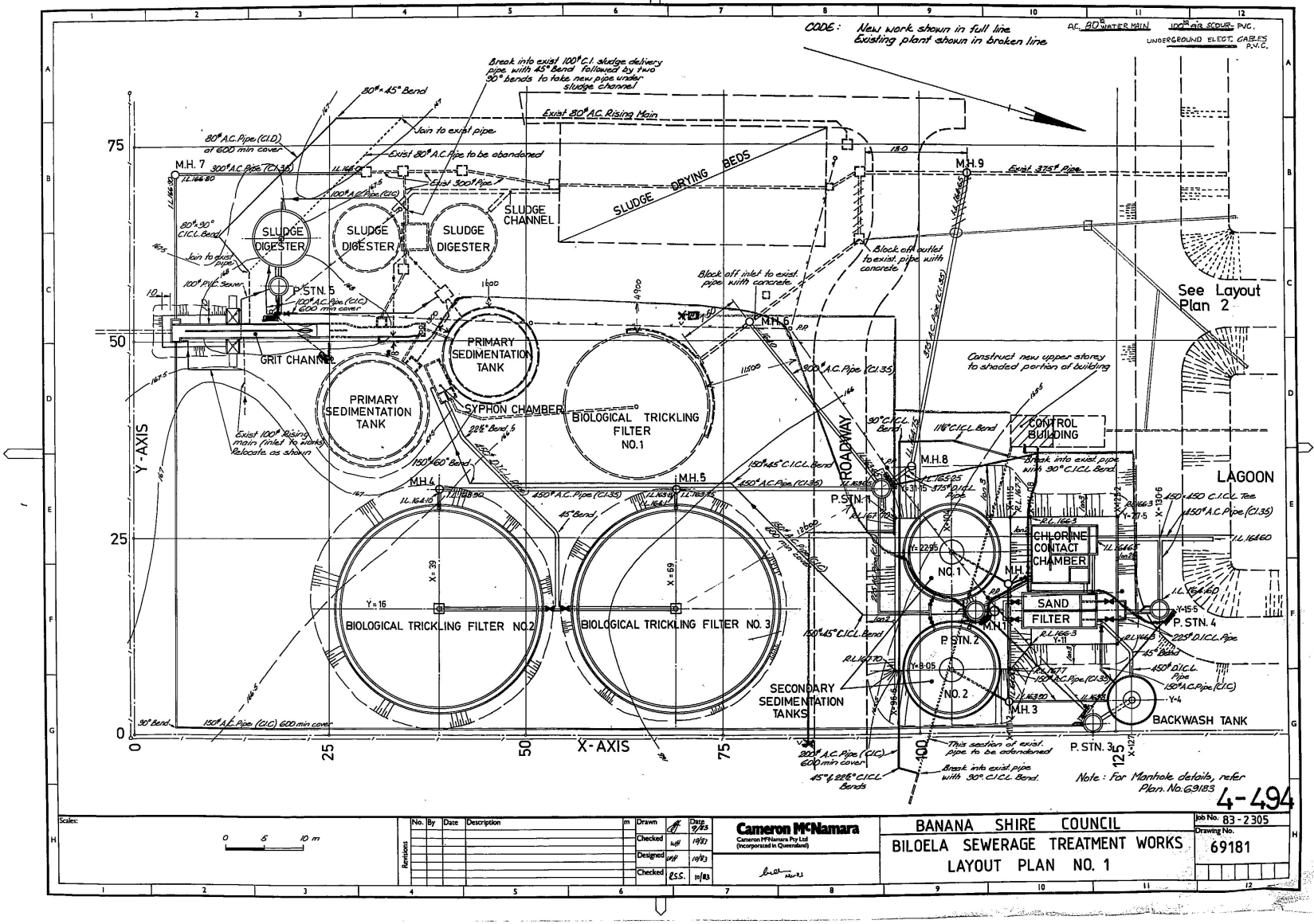
Water Technology Australia
Tyco Australia Pty Ltd ABN 80 008 399 004
A tyco COMPANY
55 Lavinia Street
Athol Park, SA 5012
Phone:(08) 8347 2970
Fax: (08) 8347 1811

BILOELA WASTEWATER TREATMENT PLANT

SITE PLAN

SCALE: 1:75 | SIZE: A1 | DRAWING No.: WT1193 M520 | REVISION: 1

APPENDIX D – EXISTING ASSET DRAWINGS



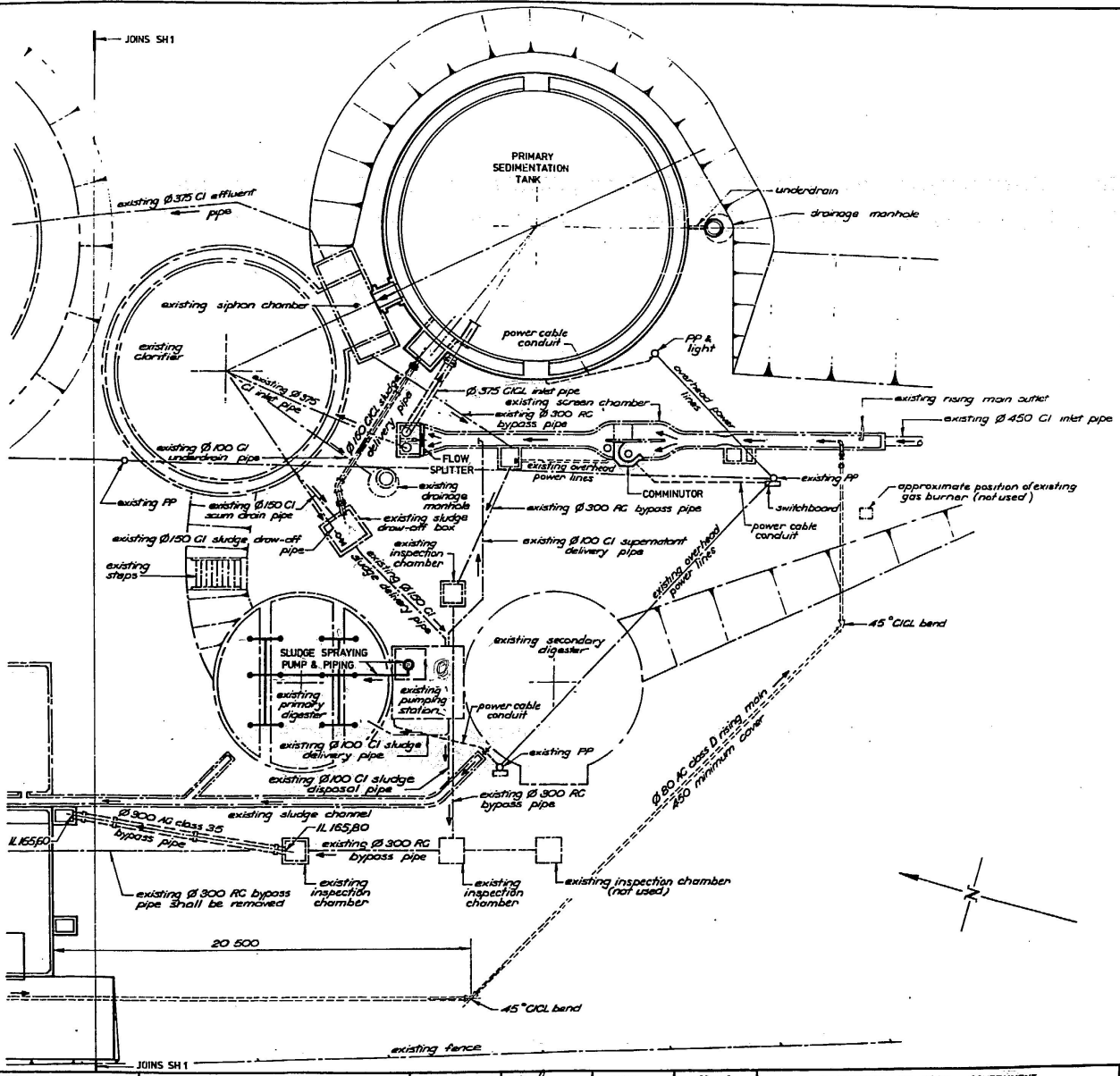
4-494

Scales: 0 5 10 m	Cameron McNamara Cameron McNamara Pty Ltd (incorporated in Queensland)	BANANA SHIRE COUNCIL BILOELA SEWERAGE TREATMENT WORKS LAYOUT PLAN NO. 1	Job No. 83-2305 Drawing No. 69181

Revisions

No.	By	Date	Description

Drawn		9/83
Checked		10/83
Designed		10/83
Checked		11/83



REFERENCE TO DRAWINGS	NOTES	SCALE
78062 Layout Plan SH 1	Existing structures shown thus: ———	0 2 4 6 8 m
	LEVEL DATUM State BM NO 45 RL 180,664 at Biloela Court House	2

DESIGN	DRAWING
Chief Engineer	
Date 11.8.77	Prep
	Passed
Chief Designing Engineer	Project Engineer
	Checked
	Passed
	Draftsman in Charge

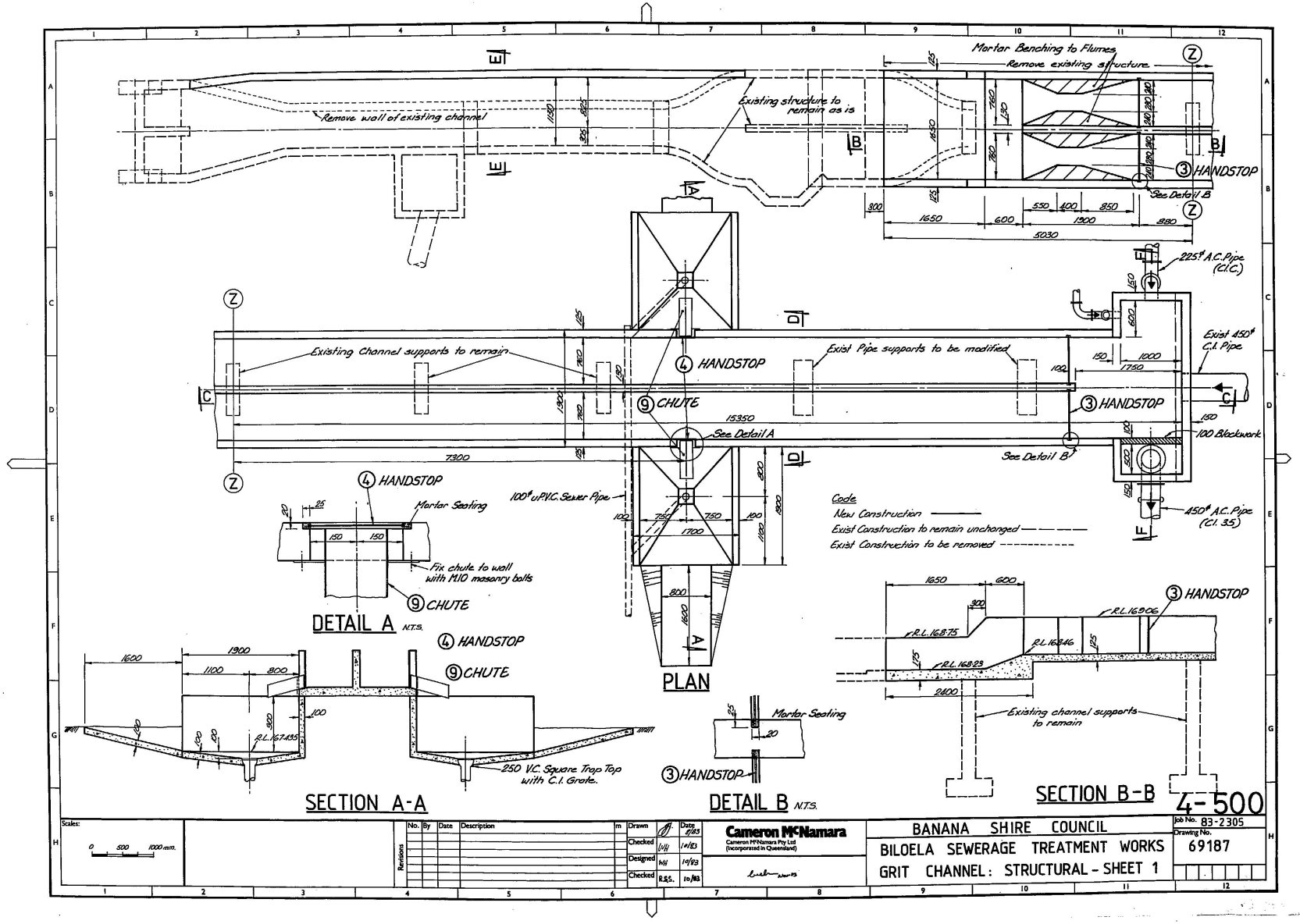
DEPARTMENT OF LOCAL GOVERNMENT
TOWN WATER SUPPLY AND SEWERAGE BRANCH

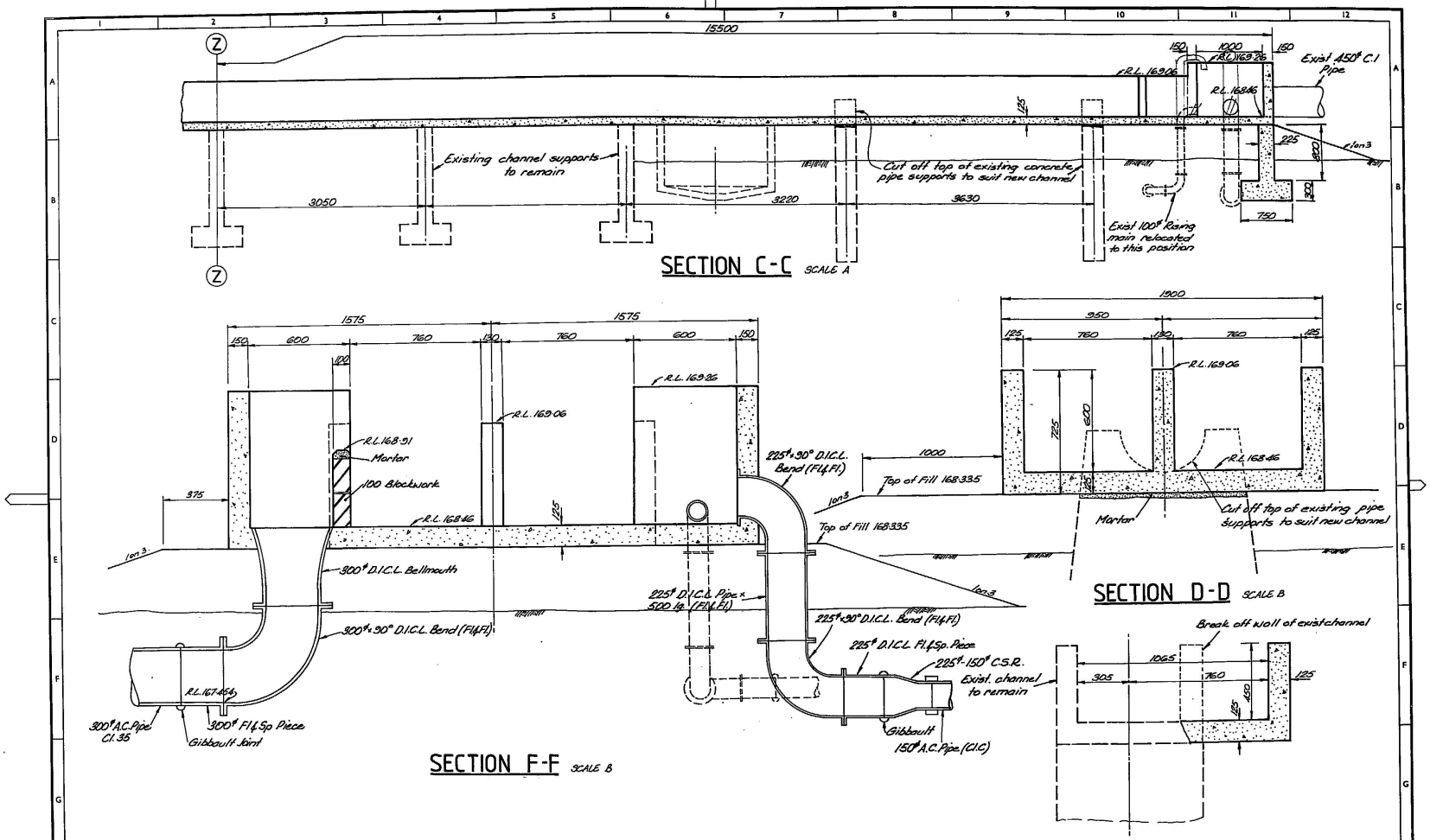
BANANA SHIRE COUNCIL — BILOELA SEWERAGE

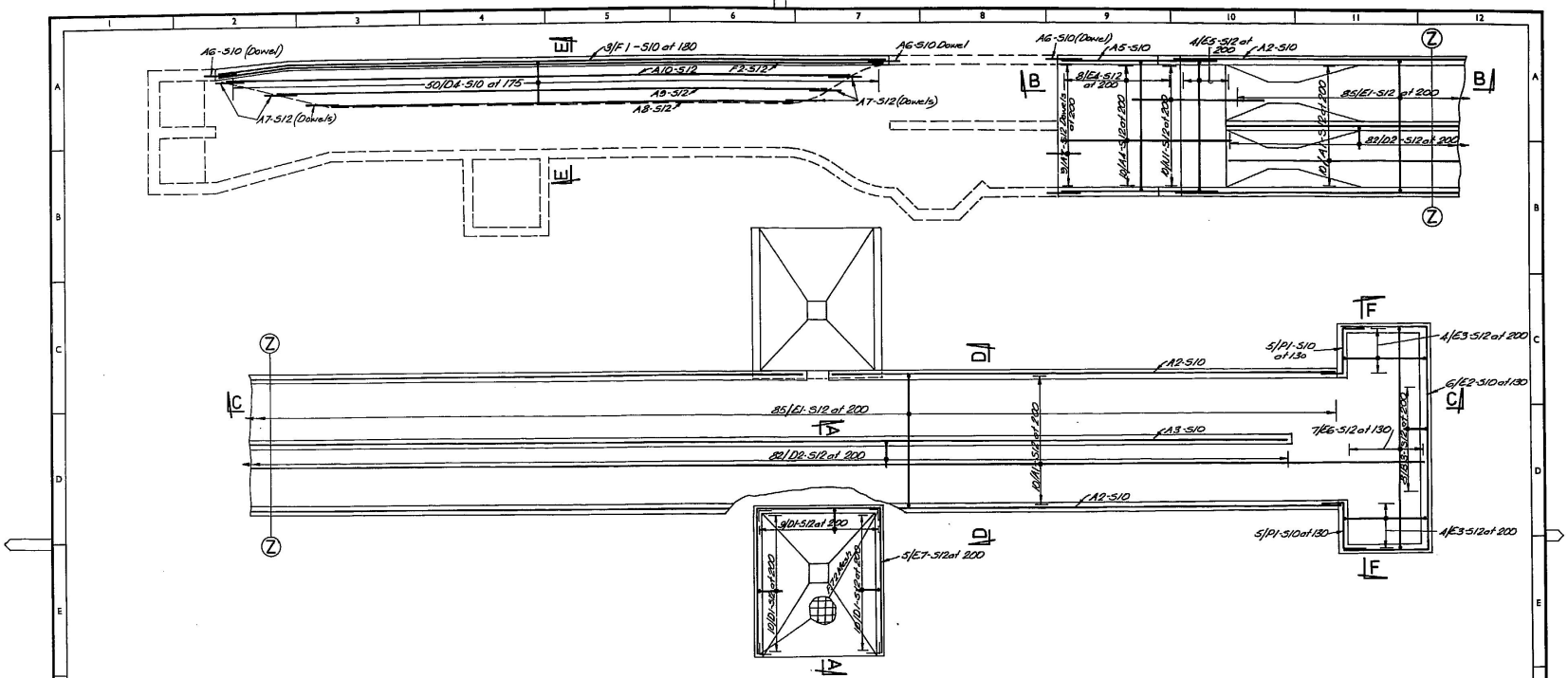
TREATMENT PLANT AUGMENTATION
LAYOUT PLAN SH 2

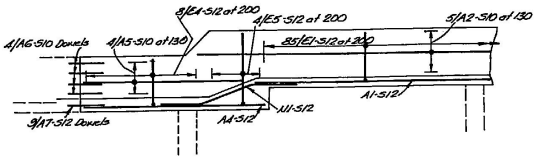
JOB NO 5150

4-380

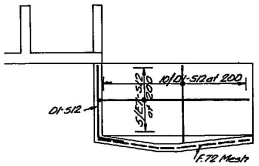

Remove wall of existing channel
Existing structure to remain as is
Mortar Benching to Flumes
Remove existing structure
③ HANDSTOP
See Detail B
225ϕ A.C. Pipe (Cl.C.)
Existing Channel supports to remain
④ HANDSTOP
Exist Pipe supports to be modified
⑨ CHUTE
See Detail A
Exist 450ϕ C.I. Pipe
100 Blockwork
450ϕ A.C. Pipe (Cl. 35)
100ϕ uPVC. Sewer Pipe
Mortar Seating
Fix chute to wall with M10 masonry bolts
DETAIL A N.T.S.
PLAN
Code
New Construction
Exist Construction to remain unchanged
Exist Construction to be removed
SECTION A-A
250 V.C. Square Trap Top with C.I. Grate.
DETAIL B N.T.S.
SECTION B-B
Existing channel supports to remain
Scales: 0 500 1000 mm.
Revisions
Cameron McNamara
Cameron McNamara Pty Ltd (Incorporated in Queensland)
BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
GRIT CHANNEL: STRUCTURAL - SHEET 1
Job No. 83-2305
Drawing No. 69187
4-500


15500
Existing channel supports to remain
Cut off top of existing concrete pipe supports to suit new channel
Exist 100ø Rising main relocated to this position
Exist 450ø C.I Pipe
R.L. 169.06
R.L. 168.46
3050
3220
9630
750
SECTION C-C SCALE A
1575
1575
R.L. 169.86
R.L. 169.06
R.L. 168.91
Mortar
100 Blockwork
R.L. 168.46
225ø x 90° D.I.C.L. Bend (Fl&Fl)
Top of Fill 168.335
300ø D.I.C.L. Bellmouth
225ø D.I.C.L. Pipe x 500 lg. (Fl&Fl)
300ø x 90° D.I.C.L. Bend (Fl&Fl)
225ø D.I.C.L. Fl&Sp. Piece
225ø-150ø C.S.R.
Exist. channel to remain
R.L. 167.456
300ø A.C. Pipe Cl. 35
300ø Fl&Sp Piece
Gibbault Joint
Gibbault
150ø A.C. Pipe (Cl.C)
SECTION F-F SCALE B
1900
950
R.L. 169.06
R.L. 168.46
Mortar
Cut off top of existing pipe supports to suit new channel
SECTION D-D SCALE B
Break off wall of exist channel
SECTION E-E SCALE B
4-501
Cameron McNamara
Cameron McNamara Pty Ltd (Incorporated in Queensland)
BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
GRIT CHANNEL: STRUCTURAL - SHEET 2
Job No. 83-2305
Drawing No. 69188
Drawn
Checked
Designed
Checked
R.S.S.
10/83





SECTION B-B



SECTION A-A

4-502

Scales: 0 500 1000 mm.

NOTES:-
1. Reinforcement to be centrally located unless shown otherwise.
2. Reinforcement bars to be cut or displaced about pipes & openings to give 50 min. cover.
3. Refer also 'Standard Notes for Reading Detailed Reinforced Concrete Drawings'

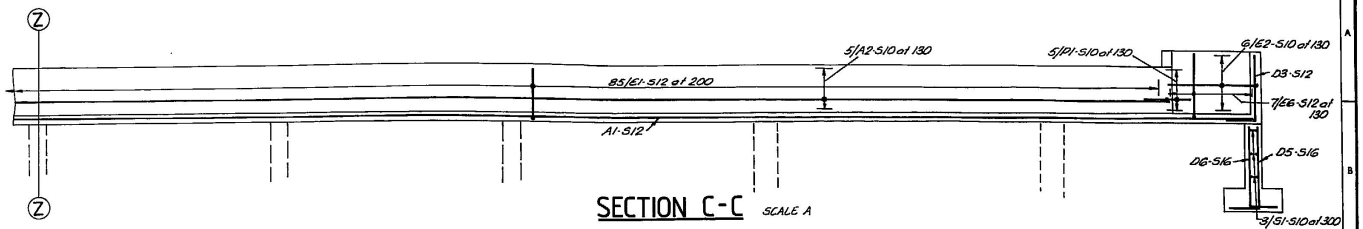
Revisions	No.	By	Date	Description	Im

		Date
Drawn		9/83
Checked	WH	10/83
Designed	WH	10/83
Checked	R.S.S.	10/83

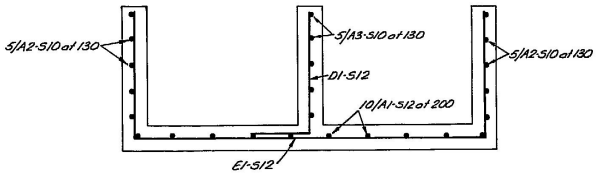
Cameron McNamara
Cameron McNamara Pty Ltd (Incorporated in Queensland)

BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
GRIT CHANNEL: REINFORCEMENT - SHEET 1

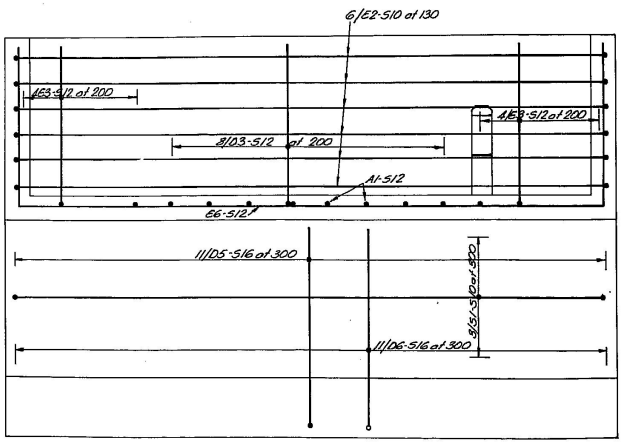
Job No. 83-2305
Drawing No. 69189



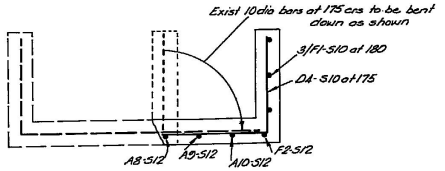
SECTION C-C SCALE A



SECTION D-D SCALE B



SECTION F-F SCALE B



SECTION E-E SCALE B

4-503

Scales:
A 0 500 1000 mm.
B 0 100 200 300 400 500 mm.

NOTES:-
1. Reinforcement to be located centrally unless shown otherwise.
2. Reinforcing bars to be cut or displaced about pipes & openings to give 50 min. cover.
3. Refer also 'Standard Notes for Reading Detailed Reinforced Concrete Drawings'

Revisions	No.	By	Date	Description

		Date
Drawn		7/83
Checked	MH	10/83
Designed	MH	10/83
Checked	R.S.S.	10/83

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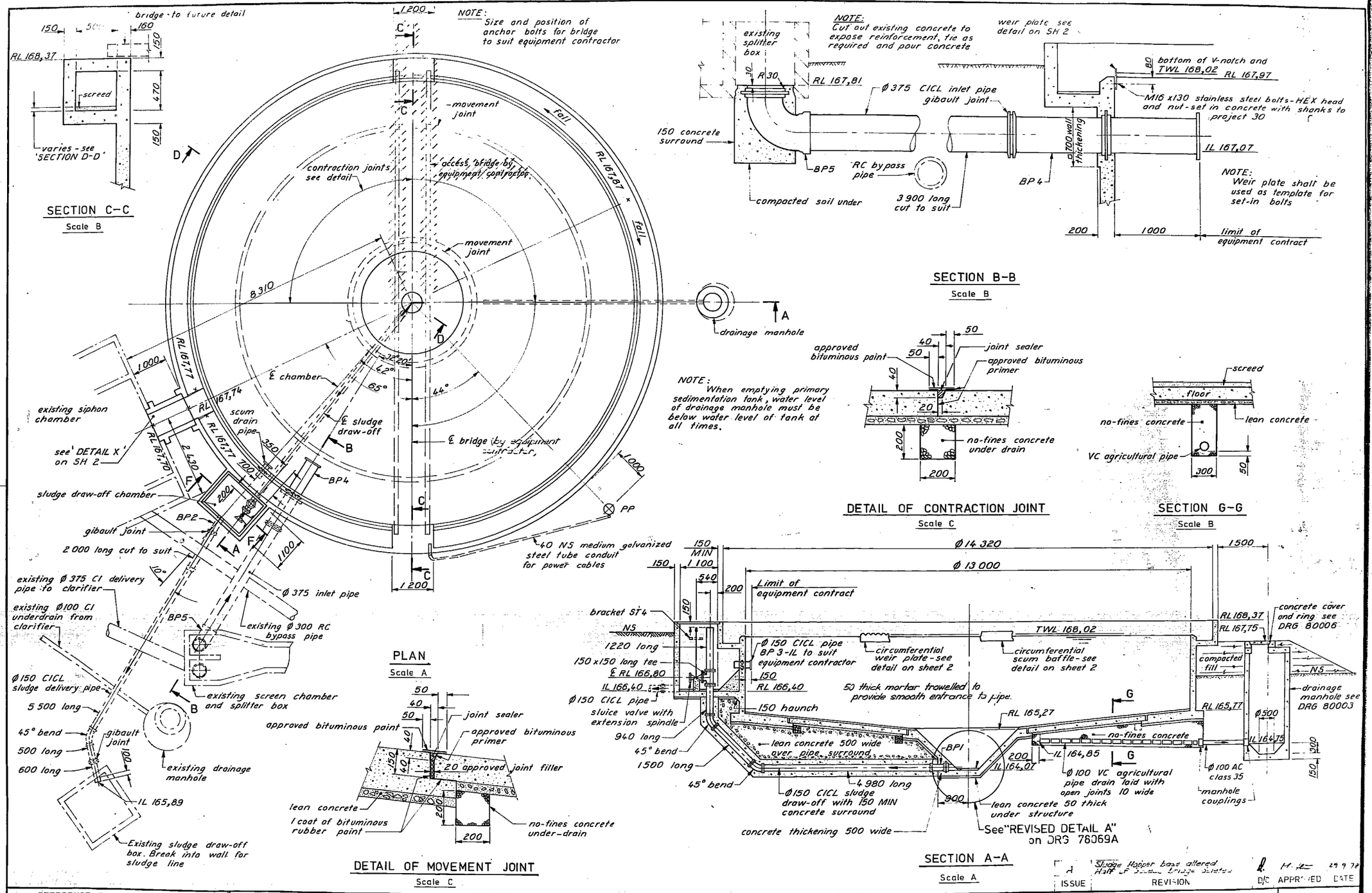
BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
GRIT CHANNEL: REINFORCEMENT - SHEET 2

Job No. 83-2305
Drawing No. 69190



REFERENCE TO DRAWINGS
78062-3 Layout Plan SH 1 & 2
78069 Structural SH 2
78070-1 Reinforcement SH 1 & 2
78077-8 Steelwork SH 1 & 2

NOTES

All CI pipes and fittings to AS 1488 and AS 1723 Class C short with heavy cement lining unless otherwise shown.

SCALES

A: 0 400 800 1200 1600 mm
B: 0 200 400 600 800 mm
C: 0 1 2 3 4 m

ISSUE	REVISION	D/C APPROVED	DATE
A	Sludge Hopper base altered. Half of ... Bridge deleted		29.9.78

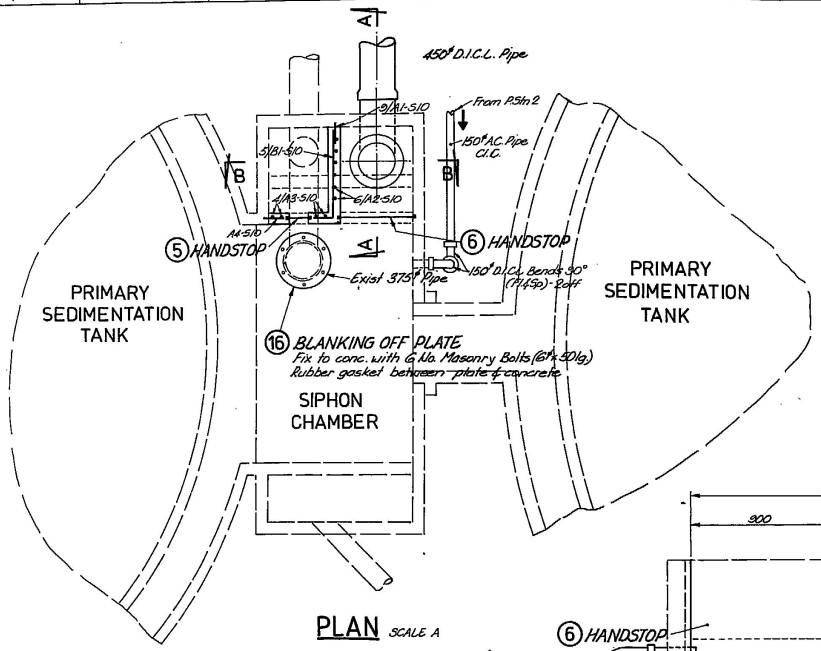
DESIGN	DRAWING
Prep	Dr./Tr. K.C.
Passed	Checked K.C.L.
	Passed
Project Engineer	Draftsman i/charge

Chief Designing Engineer — Date 11.8.77

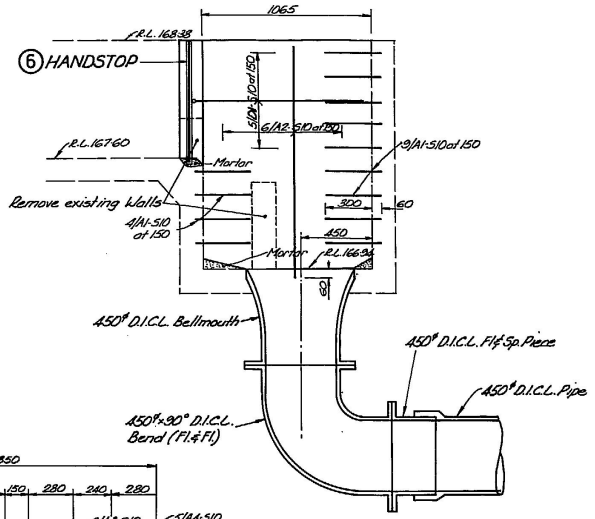
DEPARTMENT OF LOCAL GOVERNMENT
TOWN WATER SUPPLY AND SEWERAGE BRANCH
BANANA SHIRE COUNCIL — BILOELA SEWERAGE

TREATMENT PLANT AUGMENTATION
PRIMARY SEDIMENTATION TANK — STRUCTURAL — SH 1

JOB NO S 150
4-381
A

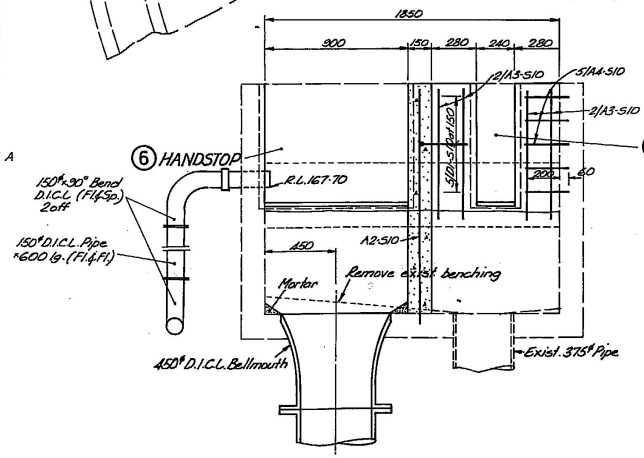


PLAN SCALE A



SECTION A-A SCALE B

CODE:
Existing construction to remain ——— ———
" " to be removed ---------
New Construction ———



SECTION B-B SCALE B

4-504

Scales:
A 0 500 1000mm.
B 0 250 500 mm.

No.	By	Date	Description

Revisions

		Date
Drawn		2/1/93
Checked	M.H.	14/1/93
Designed		8/1/93
Checked	WH	14/1/93

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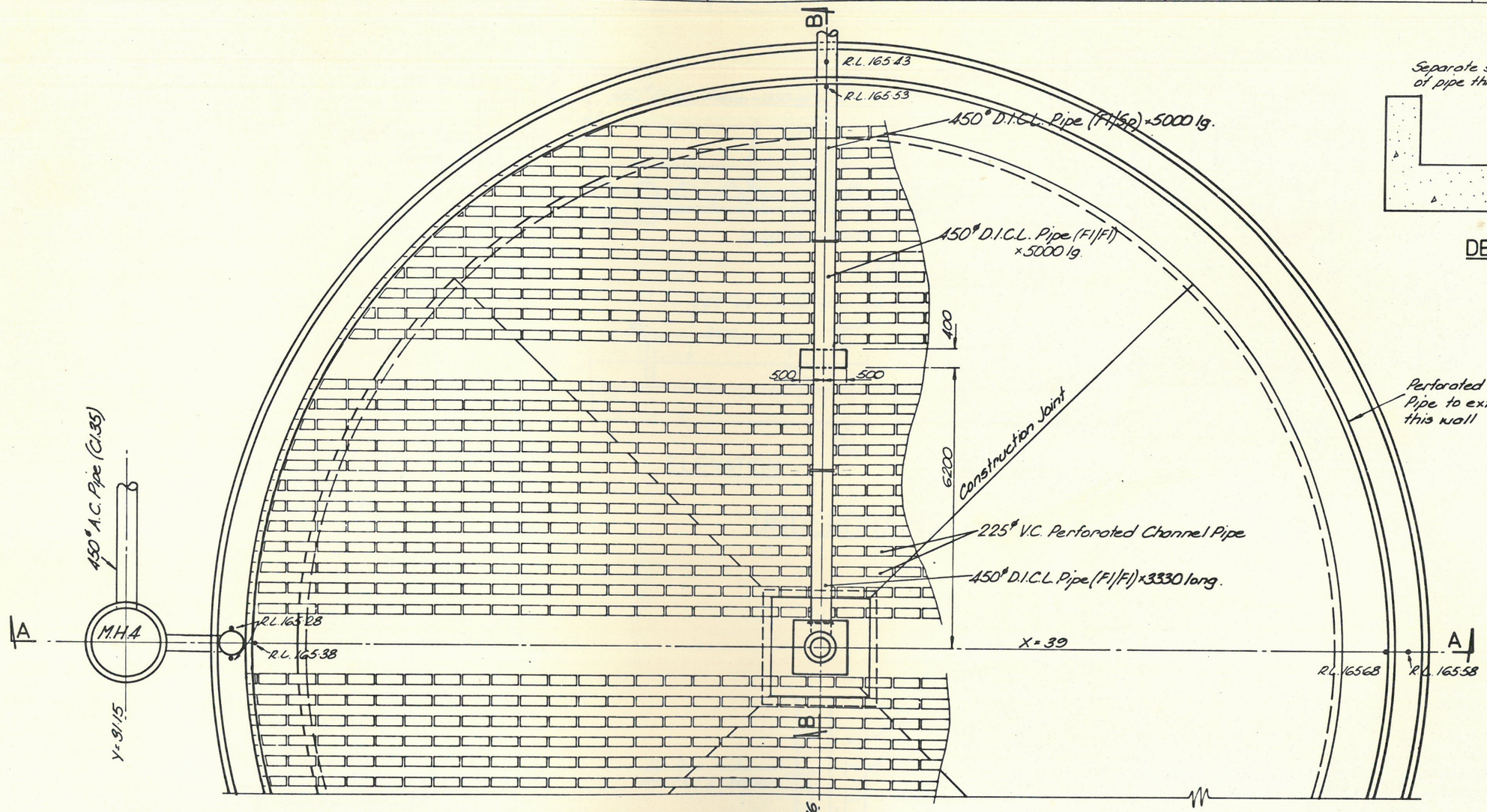
BANANA SHIRE COUNCIL

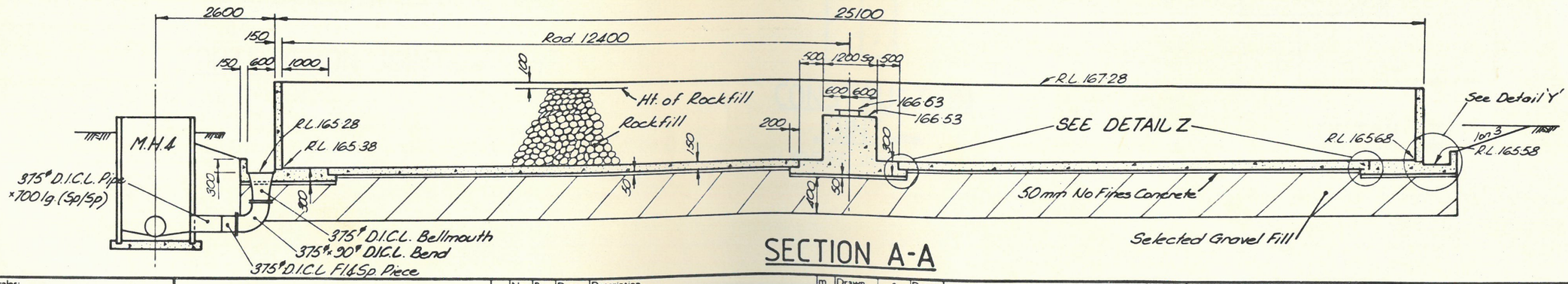
BILOELA SEWERAGE TREATMENT WORKS
ALTERATIONS TO SIPHON CHAMBER
STRUCTURAL & REINFORCEMENT

Job No. 83-2305
Drawing No. 69191



PLAN

DETAIL Y N.T.S.



SECTION A-A

4 - 505

Scales: 0 1000 2000 mm

Revisions	No.	By	Date	Description
	A	JG	3.84	Detail Y added

		Date
Drawn		9/83
Checked	W.H	10/83
Designed	W.H	10/83
Checked	R.S.S.	10/83

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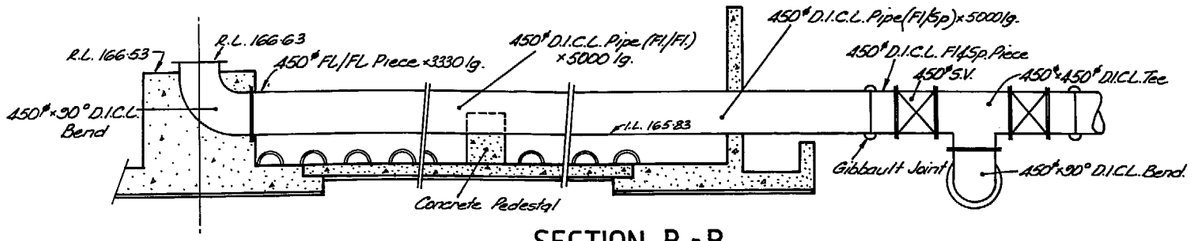
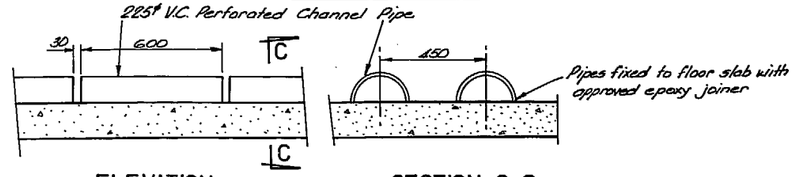
BANANA SHIRE COUNCIL

BILOELA SEWERAGE TREATMENT WORKS
BIOLOGICAL TRICKLING FILTER
STRUCTURAL - SHEET 1

Job No. 83-2305
Drawing No. 69192
A

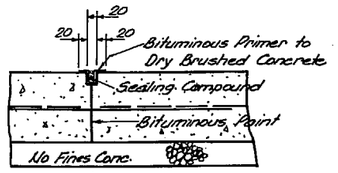


SECTION B - B SCALE A

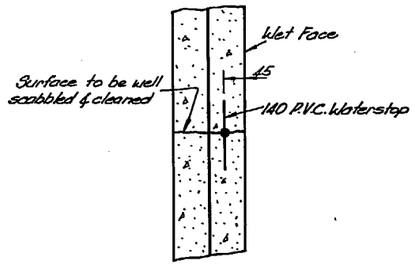


ELEVATION SECTION C-C

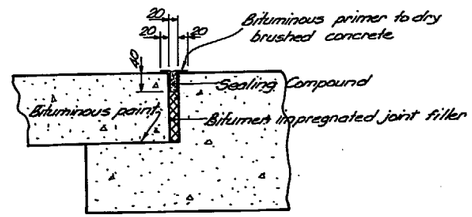
UNDERDRAINS SCALE B



CONTRACTION JOINT N.T.S.



CONSTRUCTION JOINT N.T.S.
(WHERE DIRECTED)



DETAIL Z N.T.S.

4-506

Scales: A 0 500 1000mm; B 0 100 200 300 400 500

No.	By	Date	Description

Revisions

			Date 7/83
Drawn			
Checked	W.H		10/83
Designed	P.V		10/83
Checked	W.H.		10/83

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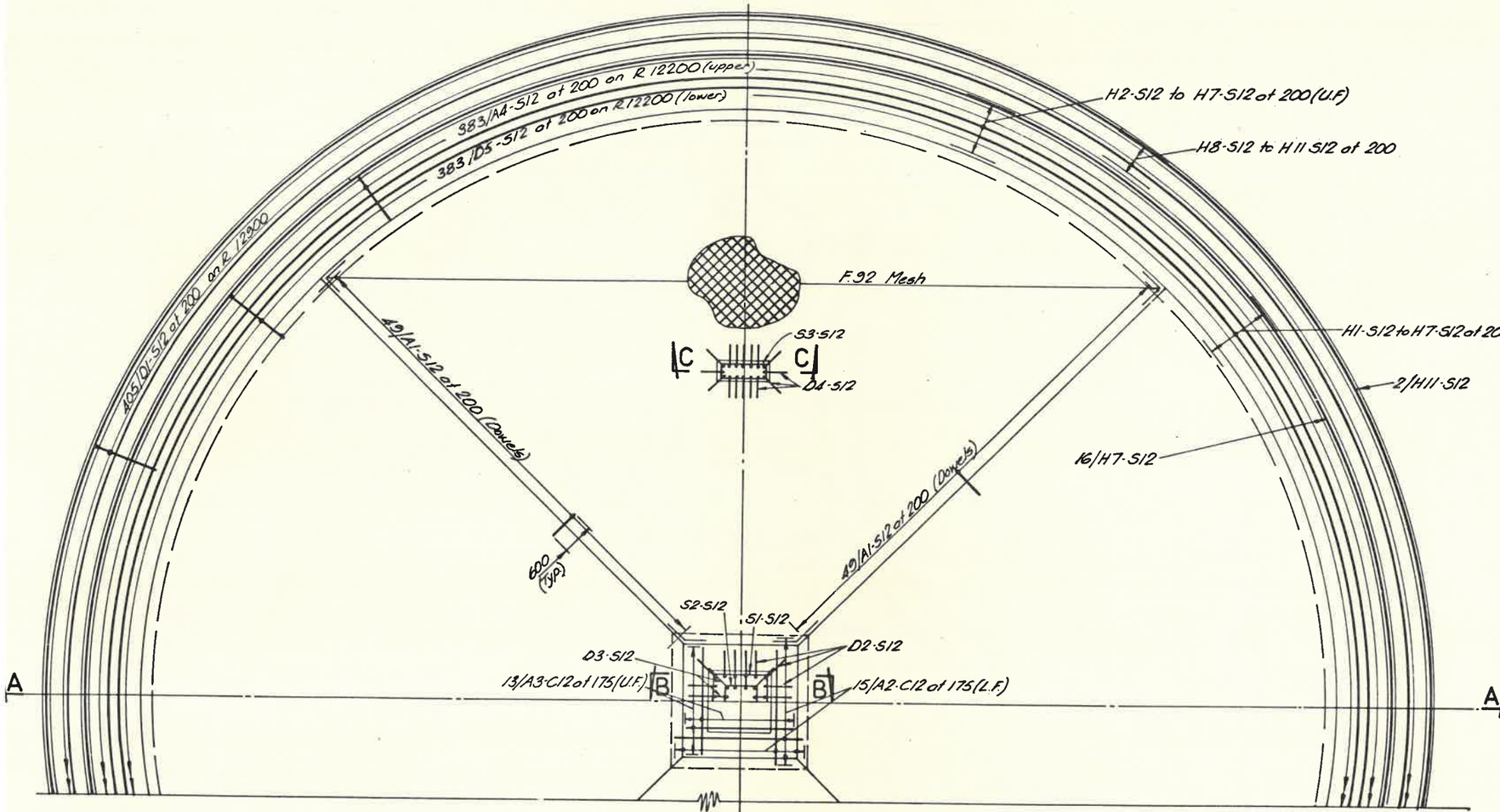
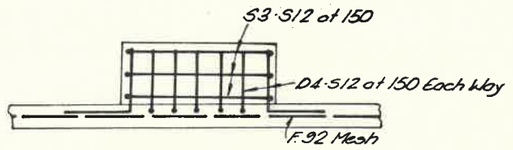
BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
BIOLOGICAL TRICKLING FILTER
STRUCTURAL - SHEET 2

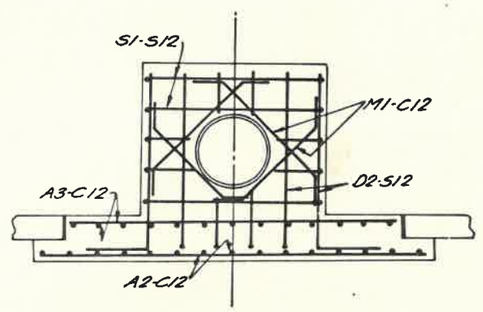
Job No. 83-2305
Drawing No. 69193



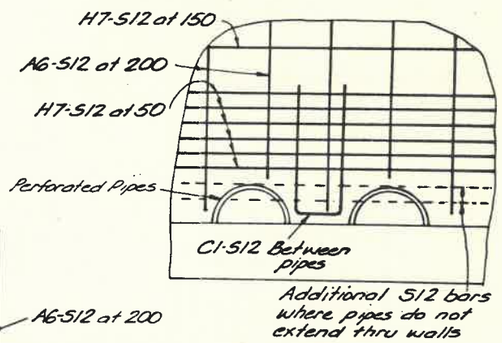
PLAN SCALE A



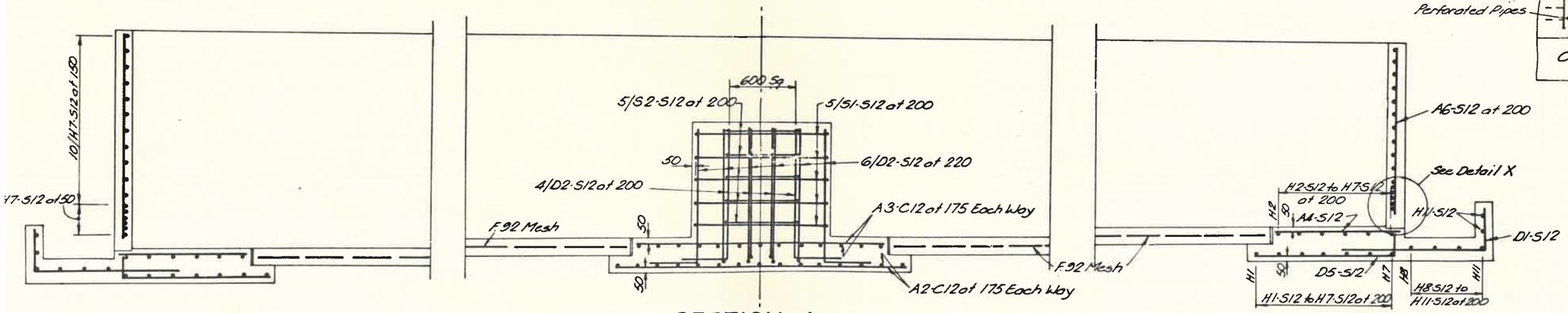
SECTION C-C SCALE B



SECTION B-B SCALE B



DETAIL X N.T.S.



SECTION A-A SCALE B

0 1000 2000 mm

0 200 400 600 800 1000 mm

NOTES:-
1. Reinforcement to be centrally located unless shown otherwise.
2. Reinforcement bars to be cut or displaced about pipes & openings to give 50 min. cover.
3. Refer also "Standard Notes for Reading Detailed Reinforced Concrete Drawings"

Revisions	No.	By	Date	Description	m
	A	J.G	20-3-84	Amended Reinforcement	

		Date
Drawn		7/83
Checked	W.H	10/83
Designed	P.J	10/83
Checked	R.S.S.	10/82

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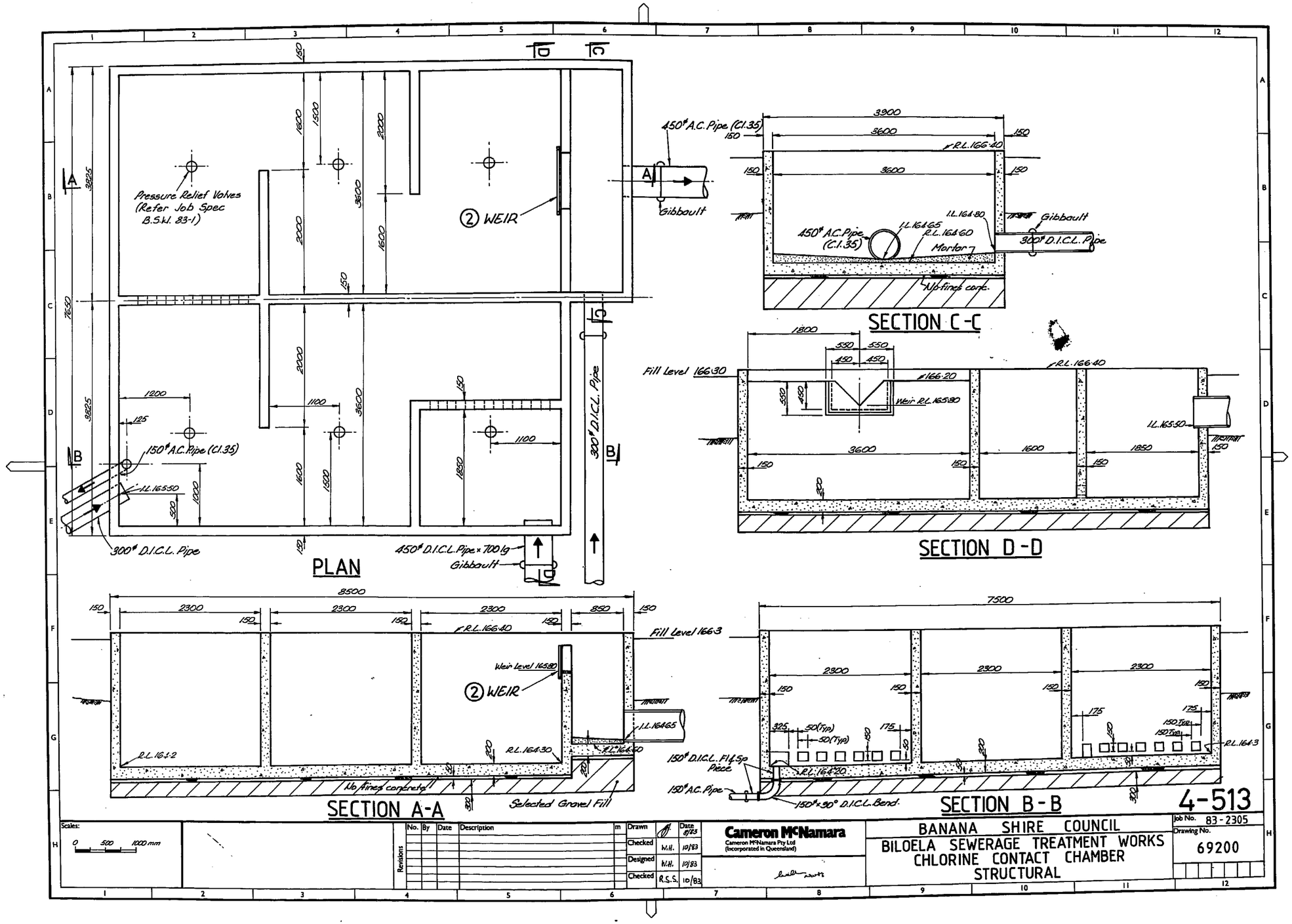
BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
BIOLOGICAL TRICKLING FILTER
REINFORCEMENT

4-507

Job No. 83-2305
Drawing No. 69194
A



Scales: 0 500 1000 mm

Revisions	No.	By	Date	Description	In

		Date
Drawn		6/83
Checked	M.H.	10/83
Designed	M.H.	10/83
Checked	R.S.S.	10/83

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BANANA SHIRE COUNCIL
BILOELA SEWERAGE TREATMENT WORKS
CHLORINE CONTACT CHAMBER
STRUCTURAL

Job No. 83-2305
Drawing No. 69200

4-513