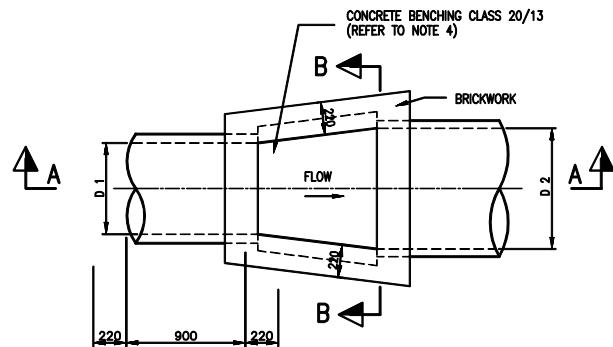
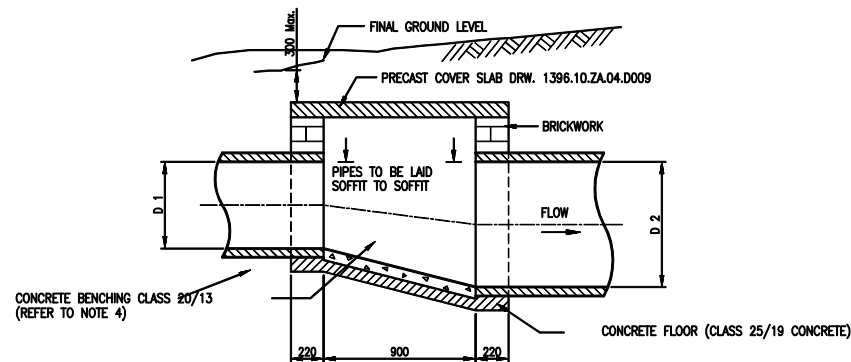
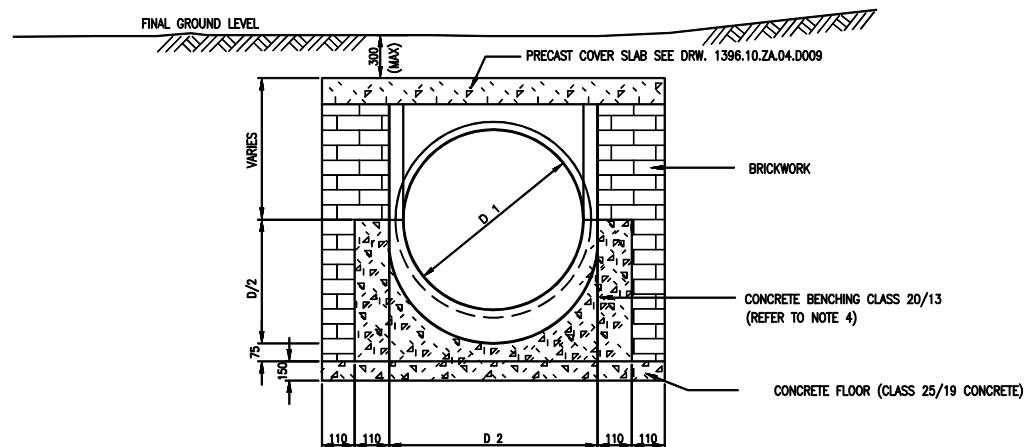




PLAN OF TYPE D JUNCTION BOX
(WITHOUT COVER SLAB) $D_1 < D_2$



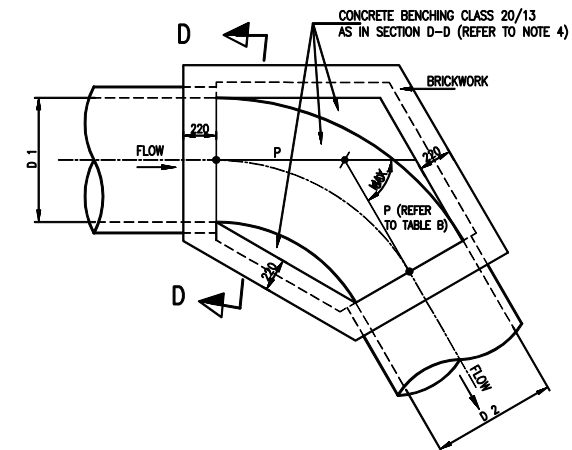
SECTION A-A



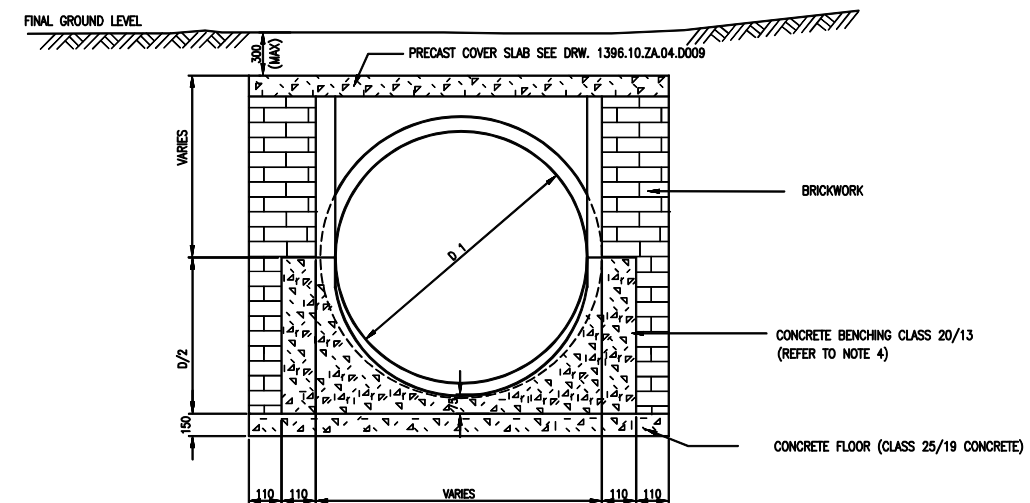
SECTION B-B

TABEL B

"D 2" DIAMETER OF DOWN STREAM PIPE	DISTANCE P
450	700
525	700
600	750
675	780
750	800
825	825
900	850
1050	870
1200	925
1350	1000
1500	1100



PLAN OF TYPE D JUNCTION BOX (WITHOUT COVER SLAB)
 $D_1 = D_2$ OR $D_1 < D_2$



SECTION D-D

NOTES:

1. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
2. MINIMUM PIPE DIAMETER OF ALL PIPES IS 450mm.
3. MAXIMUM ANGLE BETWEEN ADJOINING PIPES IS 60°.
4. WHERE A PIPE WALL IS AT LEAST 75mm FROM THE NEAREST JUNCTION BOX WALL, THE CONCRETE BENCHING CAN BE STARTED ADJACENT TO THE DOUBLE BRICK WALL.
5. WHERE THE TOTAL DEPTH OF THE JUNCTION BOX (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
6. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD).

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
1555-30-04	CERTIFIED AS BUILT	F/V	09-2015
2334-10-00	CERTIFIED AS BUILT	F/V	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	09-2015	CERTIFIED AS BUILT PHASE 1	F/V
3.0	09-2015	CERTIFIED AS BUILT BULK	F/V
4.0	10-2015	CERTIFIED AS BUILT PHASE 2	F/V



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PROJECT TITLE:
**LERATO PARK
INTERNAL CIVIL ENGINEERING SERVICES**

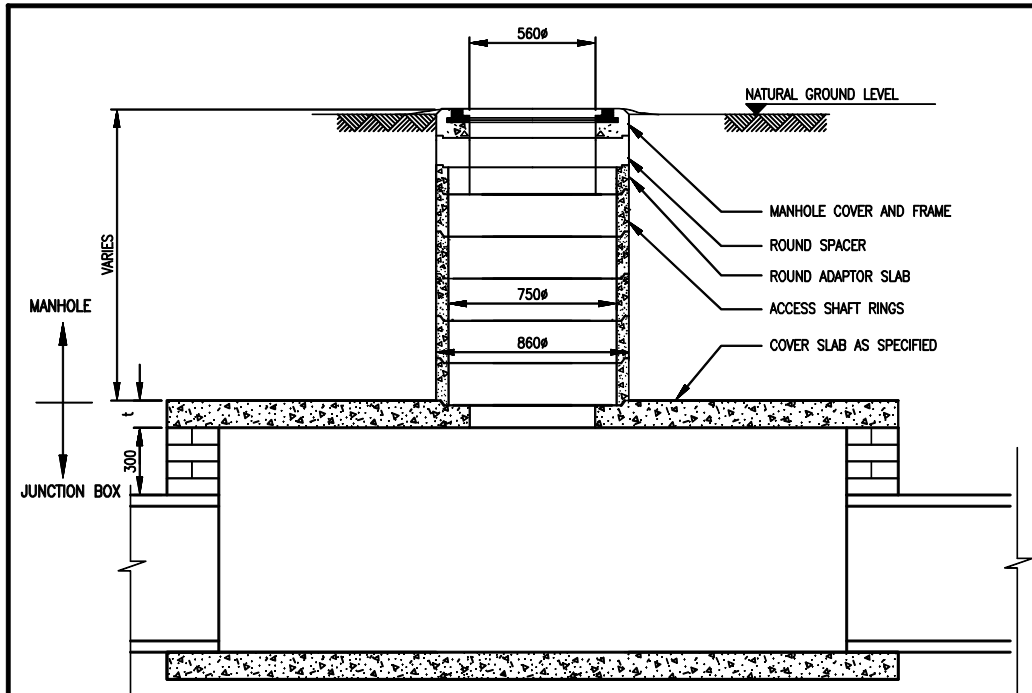
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**JUNCTION BOX AND MANHOLE DETAILS:
TYPE D JUNCTION BOX**



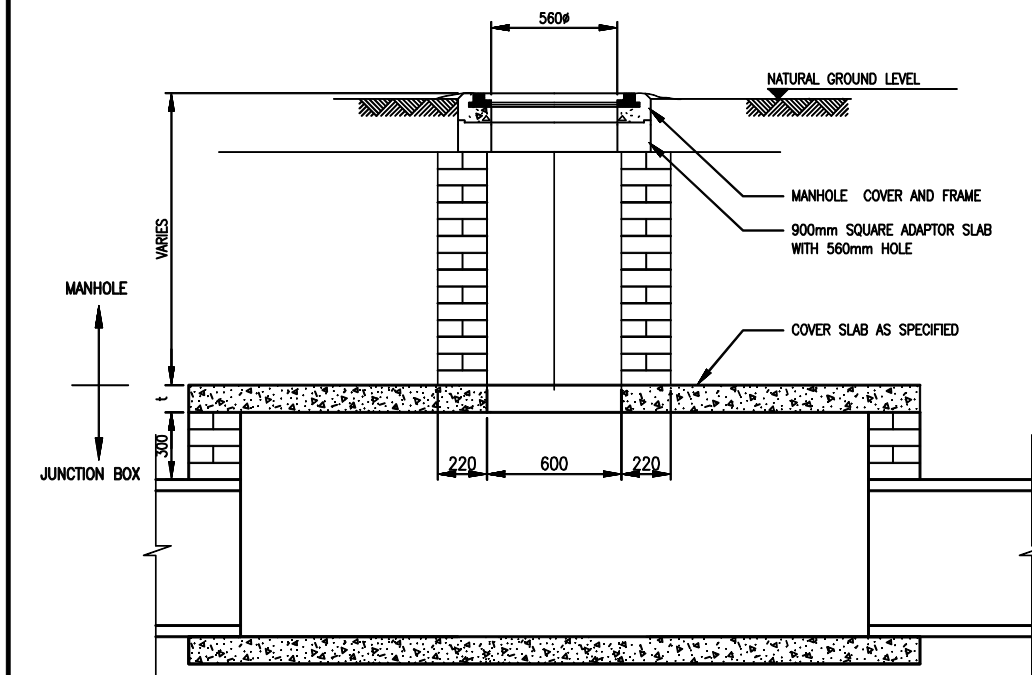
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ORIGINAL DRAWING SCALE: N.T.S.	ORIGINAL DRAWING SHEET SIZE: A1
APPROVED:	
CLIENT OR ASSIGNEE: _____	DATE: _____
CLIENT DRAWING No.: _____	CLIENT REF No.: _____

SURVEYED	DESIGNED	G Thoma
DRAWN	CHECKED	L. Gertenbach
CO-ORDINATE SYSTEM: WG25	DATE: October 2019	
APPROVED ON BEHALF OF BIGEN:		
ENGINEER: _____	DATE: _____	
DRAWING No.: 1396.10.ZA.04.D008	VERSION: 4.0	

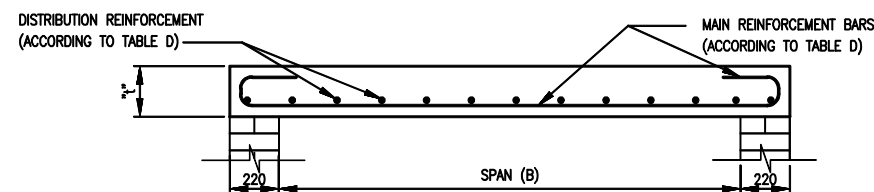
1396.10.ZA.04.D008



MANHOLE WITH PRECAST SHAFT

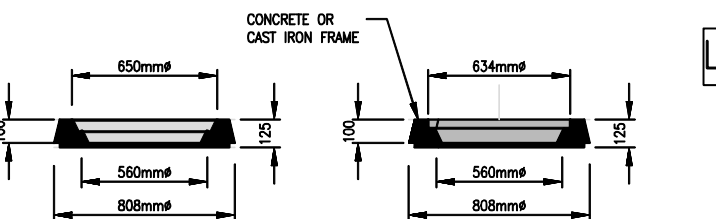
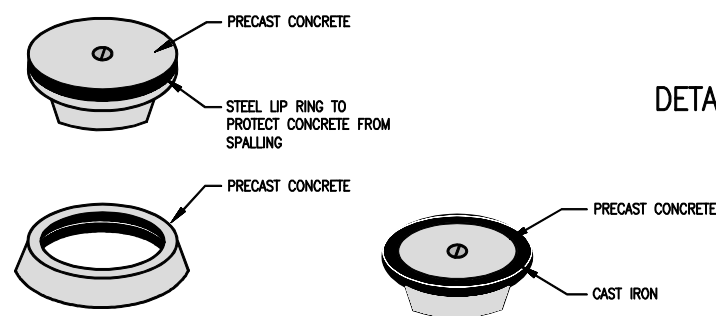


MANHOLE WITH MASONRY SHAFT



SECTION A-A

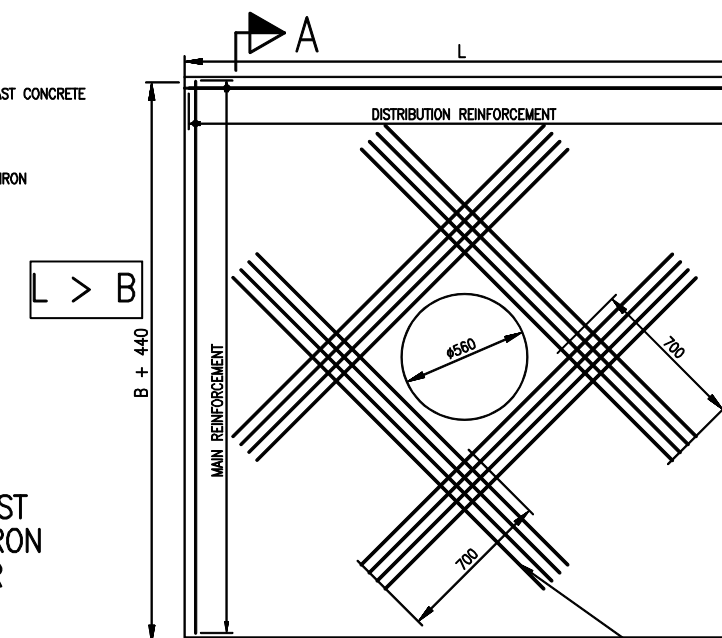
MANHOLE FRAME AND COVER



PRECAST CONCRETE
FRAME AND COVER

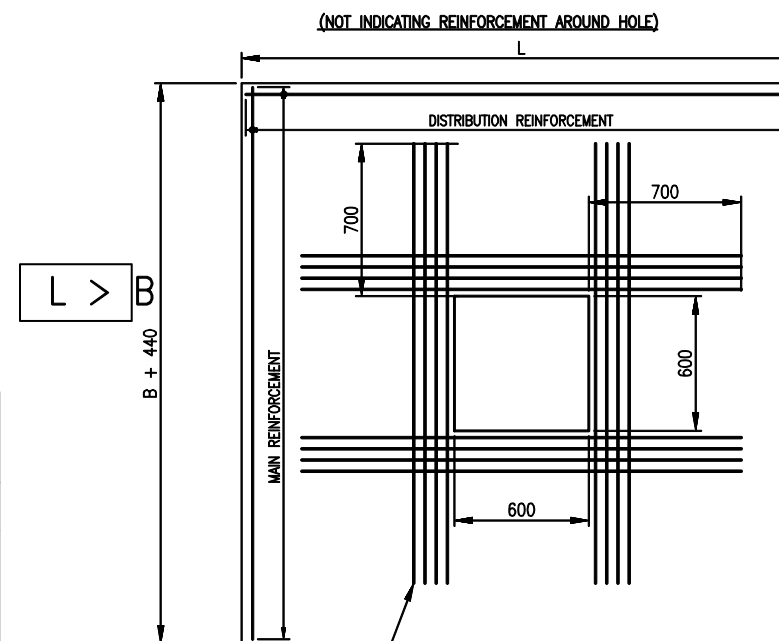
COMBINATION PRECAST
CONCRETE / CAST IRON
FRAME AND COVER
(SEE NOTE 6)

DETAIL OF CAST INSITU COVER SLAB AT MANHOLE



4 MAIN REINFORCEMENT BARS
(ACCORDING TO TABLE D) @ 50mm c/c (BOTTOM)

PLAN OF SLAB FOR PRECAST MANHOLE
SHAFT SECTIONS



4 MAIN REINFORCEMENT BARS
(ACCORDING TO TABLE D) @ 50mm c/c (BOTTOM)

PLAN OF SLAB FOR SQUARE MASONRY
MANHOLE SHAFT

TABLE C: USE OF MANHOLES AT JUNCTION BOXES

APPLICATION	TYPE OF COVER AND FRAME
AT JUNCTION BOXES INDICATED ON THE DRAWINGS OR SPECIFIED BY THE ENGINEER.	SABS TYPE 4 AS SPECIFIED

TABLE D: REINFORCEMENT DETAILS FOR
CAST IN-SITU COVER SLABS
(NOTE: B < L)

SPAN (B) (MM)	THICKNESS (T) (MM)	MAIN REINFORCEMENT
UP TO 1500	175	Y12 @ 120 c/c
UP TO 2500	200	Y16 @ 120 c/c
UP TO 3000	225	Y16 @ 100 c/c
> 3000	DESIGN TO BE OBTAINED	
DISTRIBUTION REINFORCEMENT: Y12 BARS @ 200 C/C		
REFER TO NOTES FOR BENDING DETAILS.		

NOTES:

- MANHOLE
 - ALL PRECAST MANHOLE SECTIONS SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF SABS 1294.
 - NO STEP IRONS SHALL BE REQUIRED UNLESS OTHERWISE INDICATED ON THE DRAWING.
 - DIMENSIONS OF PRECAST MANHOLE SECTIONS ARE APPROXIMATE AND MAY VARY SLIGHTLY ACCORDING TO DIFFERENT MANUFACTURER'S SPECIFICATIONS.
 - POSITION OF MANHOLES SHALL BE DIRECTLY ABOVE PI OF ADJOINING STORMWATER PIPES.
 - THE FUNCTION OF THE COMBINATION PRECAST CONCRETE/CAST IRON MANHOLE COVER IS TO REPLACE LOST CAST IRON COVERS, UNLESS OTHERWISE SPECIFIED.
- CAST IN-SITU COVER SLABS
 - MEASUREMENT B IS ALWAYS SMALLER THAN L.
 - CONCRETE TO BE CLASS 25/19.
 - CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
 - MINIMUM COVER TO REINFORCEMENT IS 20MM.
 - TYPE, BAR AND SPACING OF REINFORCEMENT AS SPECIFIED IN TABLE D.
 - MAIN REINFORCEMENT TO BE SHAPE CODE 38, WITH HOOK LENGTH (A- DIMENSION) NOT LESS THAN T MINUS 60, EXCEPT FOR SLABS WITH A SPAN NOT EXCEEDING 1000, WHERE NO HOOKS ARE REQUIRED AND SHAPE CODE 20 IS USED.

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
1555-30-04	CERTIFIED AS BUILT	FJV	09-2015
2334-10-00	CERTIFIED AS BUILT	FJV	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	09-2015	CERTIFIED AS BUILT PHASE 1	FJV
3.0	09-2015	CERTIFIED AS BUILT BULK	FJV
4.0	10-2015	CERTIFIED AS BUILT PHASE 2	FJV


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 www.bigengroup.com

PROJECT TITLE:
**LERATO PARK
INTERNAL CIVIL ENGINEERING SERVICES**

DRAWING TITLE:
**JUNCTION BOX AND MANHOLE DETAILS:
MANHOLE**


 Sol Plaatje Municipality
 We Serve

0 50 100
 100mm ON ORIGINAL DRAWING

ORIGINAL DRAWING SCALE: N.T.S. ORIGINAL DRAWING SHEET SIZE: A1

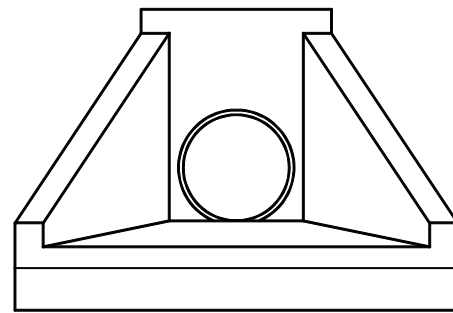
APPROVED:
 CLIENT OR ASSIGNEE: DATE: CLIENT DRAWING No.: CLIENT REF No.:

SURVEYED: DESIGNED: G Thoka
 DRAWN: N Bester CHECKED: L Gertenbach

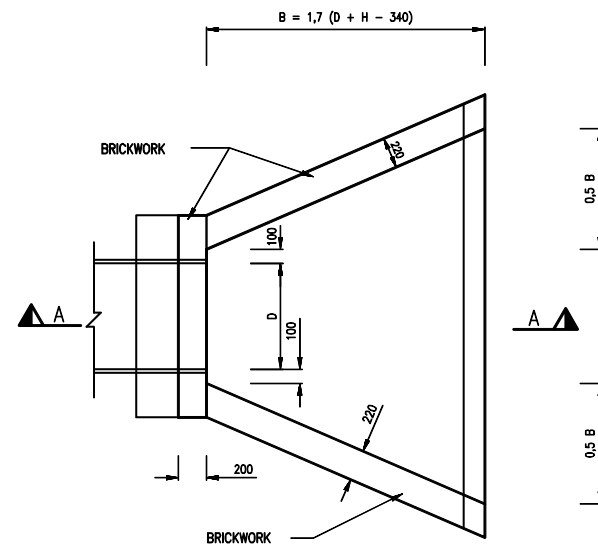
CO-ORDINATE SYSTEM: WG25 DATE: October 2019

APPROVED ON BEHALF OF BIDEN:
 ENGINEER: DATE: DRAWING No.: 1396.10.ZA.04.D009 VERSION: 4.0

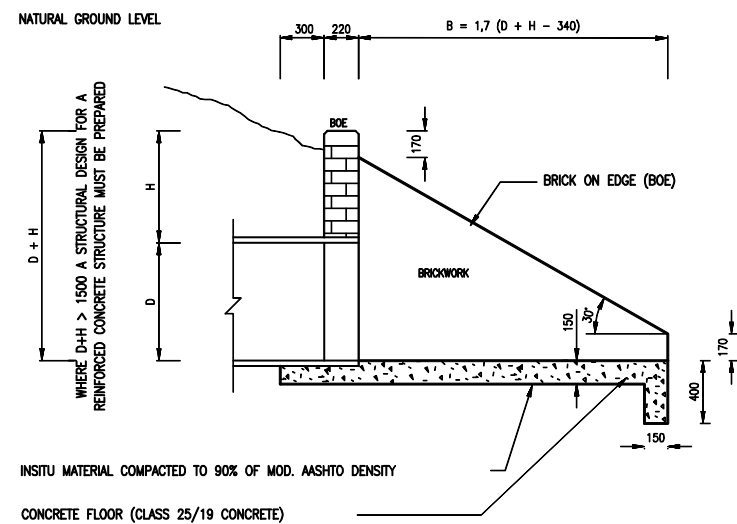
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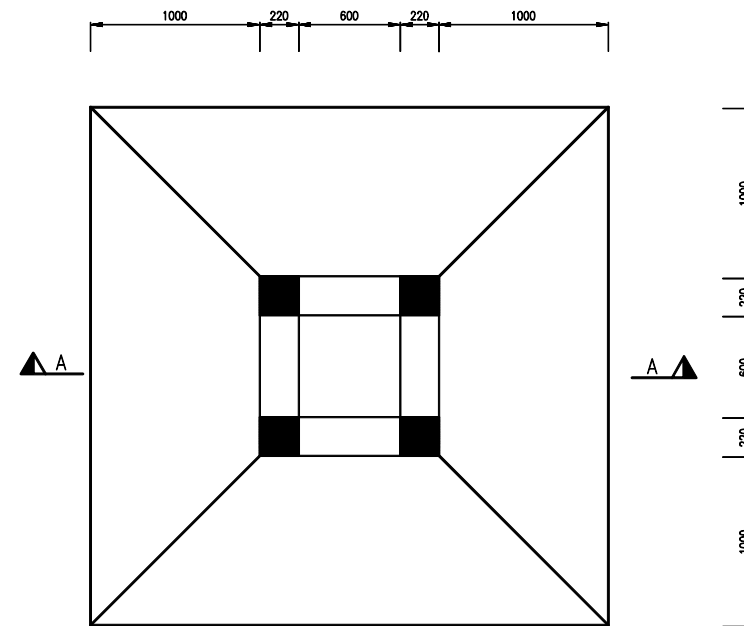
STORMWATER OUTLET STRUCTURE



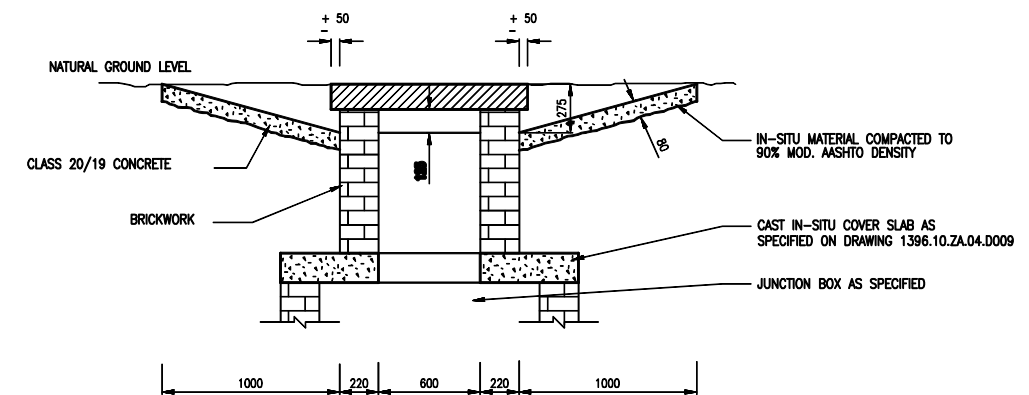
PLAN OF STORMWATER OUTLET STRUCTURE



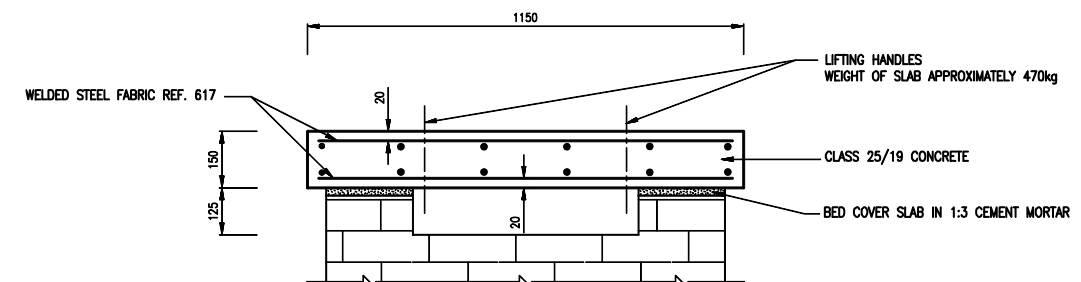
SECTION A-A



PLAN OF FIELD INLET (WITHOUT COVER SLAB)



SECTION B-B



DETAIL OF PRECAST COVER SLAB

NOTES:

1. MASONRY WALLS OF OUTLET STRUCTURE
 - 1.1 MASONRY WALLING SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF SABS 0164: PART 1 - 1980.
 - 1.2 MORTAR SHALL BE CLASS II (COMPRESSIVE STRENGTH OF 7 MPa AT 28 DAYS).
 - 1.3 THE REQUIREMENTS SET OUT IN APPENDIX B OF SABS 0164: PART 1 SHALL BE ADHERED TO UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER.
2. APPLICATION OF OUTLET STRUCTURE
 - 2.1 THIS TYPE OF STORMWATER OUTLET STRUCTURE MAY ONLY BE USED WHERE PERMITTED BY THE FLOW VELOCITY AT THE OUTLET AND IF SPECIFIED BY THE ENGINEER.
FOR HIGHER FLOW VELOCITIES THE STRUCTURE MUST BE ALTERED OR REPLACED BY ANOTHER TYPE OF STRUCTURE ACCORDING TO THE SPECIFICATIONS OF THE ENGINEER.
3. CONCRETE
 - 3.1 ALL CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
1555-30-04	CERTIFIED AS BUILT	FJV	09-2015
2334-10-00	CERTIFIED AS BUILT	FJV	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS				
No.	DATE	DESCRIPTION	AUTHORISED BY	
2.0	09-2015	CERTIFIED AS BUILT PHASE 1	FJV	
3.0	09-2015	CERTIFIED AS BUILT BULK	FJV	
4.0	10-2015	CERTIFIED AS BUILT PHASE 2	FJV	



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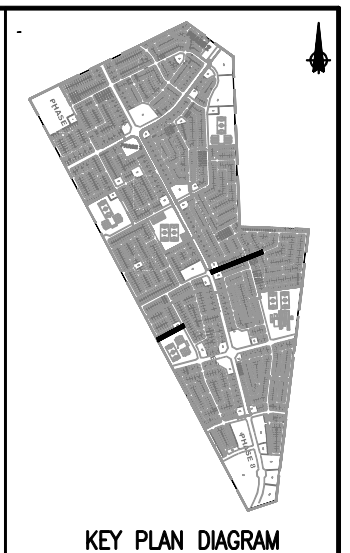
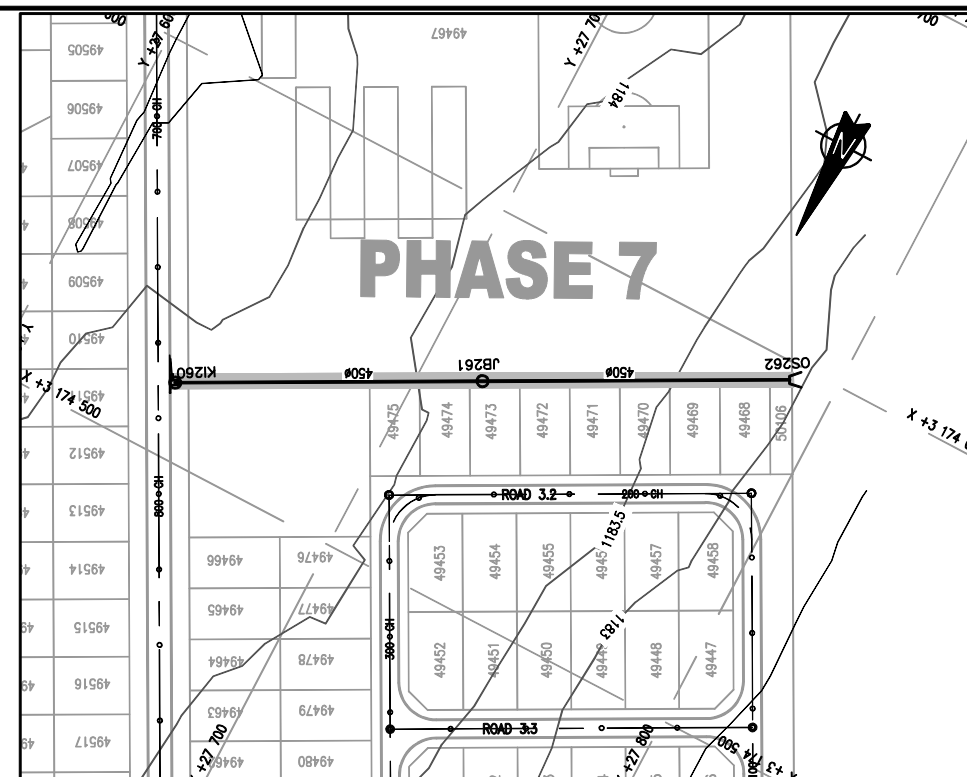
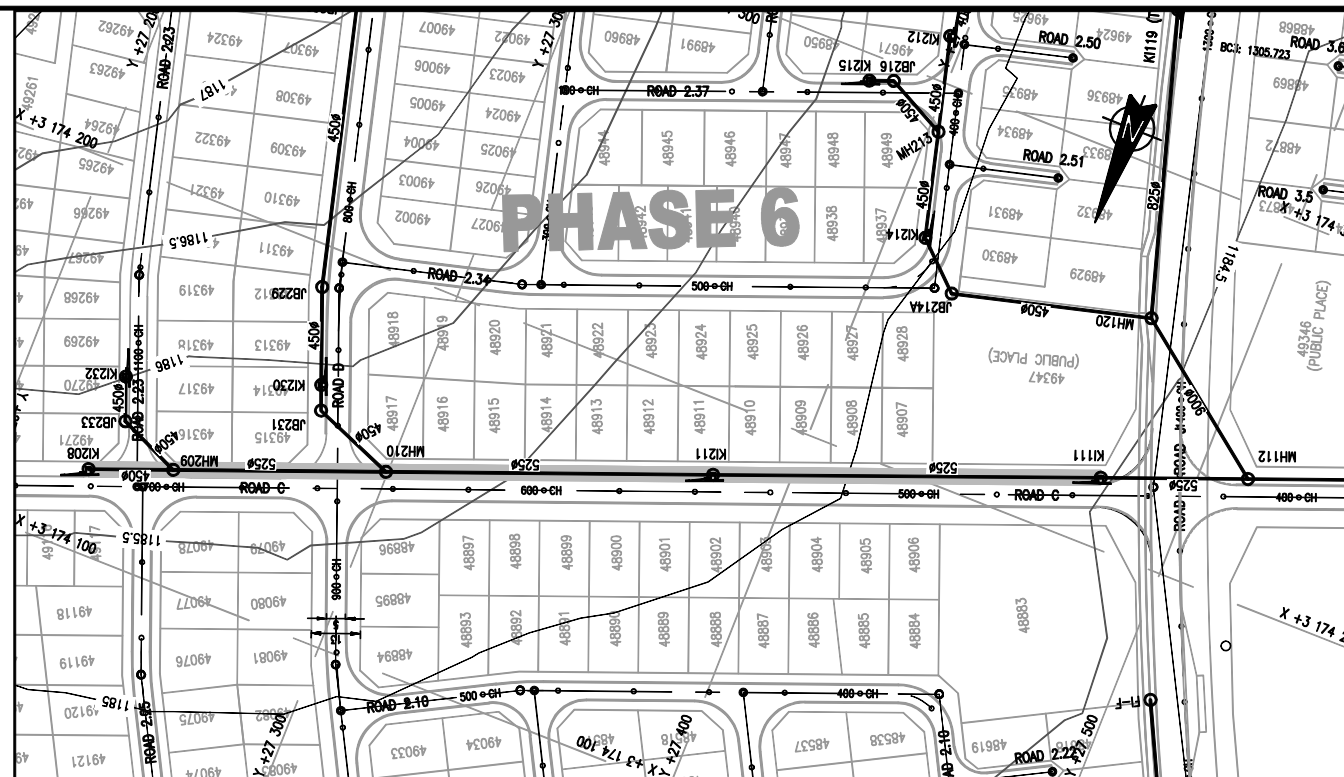
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DRAWING TITLE:	STORMWATER INLET & OUTLET STRUCTURES: FIELD INLET & STORMWATER OUTLET



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100mm ON ORIGINAL DRAWING		
ORIGINAL DRAWING SCALE:	N.T.S.	ORIGINAL DRAWING SHEET SIZE: A1
APPROVED:		
CLIENT OR ASSIGNEE:	DATE:	
CLIENT DRAWING No.:	CLIENT REF No.:	

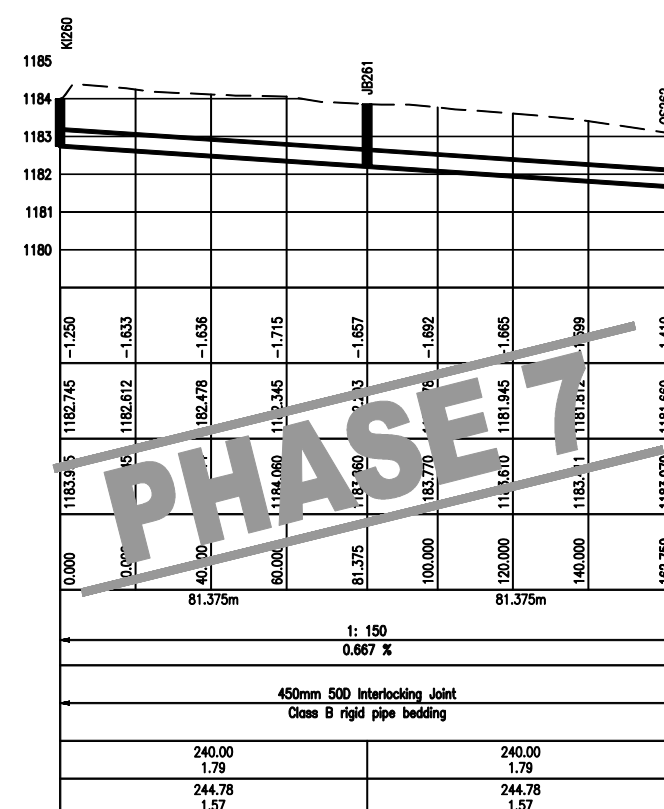
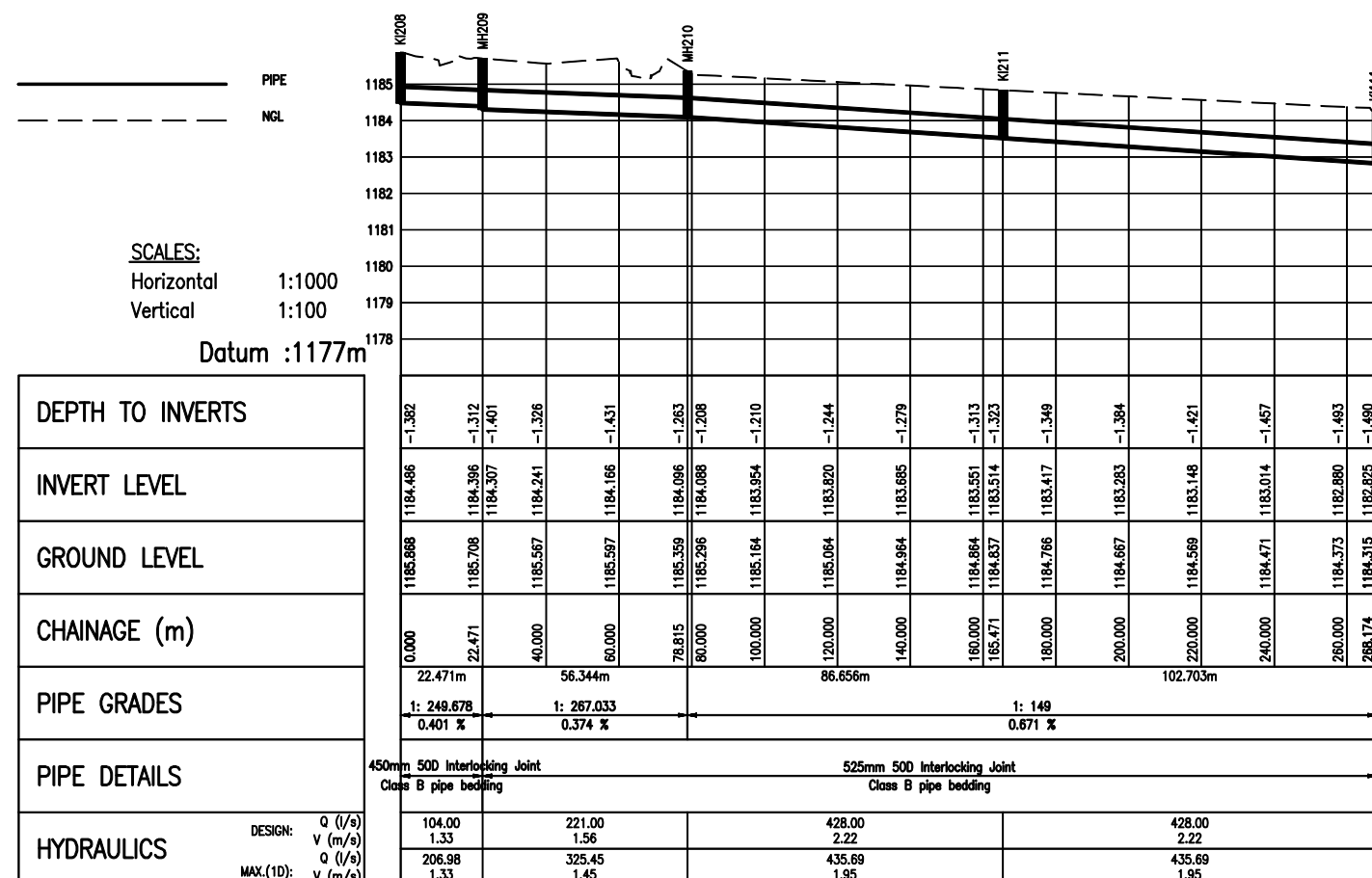
SURVEYED	DESIGNED	G Thoka
DRAWN	N Bester	CHECKED
CO-ORDINATE SYSTEM:	WG25	DATE:
APPROVED ON BEHALF OF BIGEN:		
ENGINEER:	DATE:	
DRAWING No.:	1396.10.ZA.04.D010	VERSION:
		3.0

1396.10.ZA.04.D010



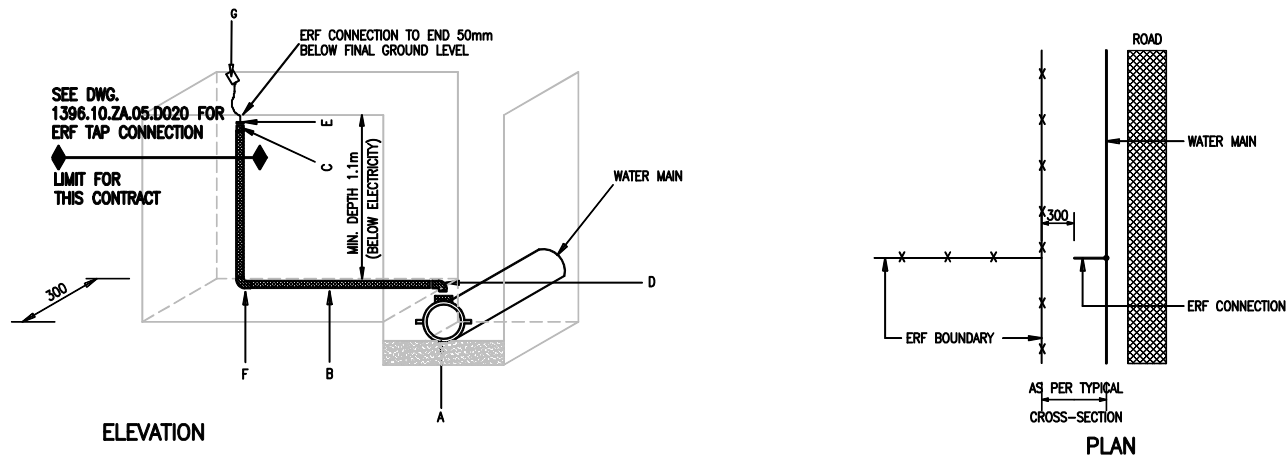
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KH208	27225.921	3174121.650
MH209	27246.899	3174129.703
MH210	27299.501	3174149.895
KI211	27380.401	3174180.949
KI260	27644.084	3174519.222
JB261	27715.960	3174557.376
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LAYOUT PLAN
SCALE 1:1000



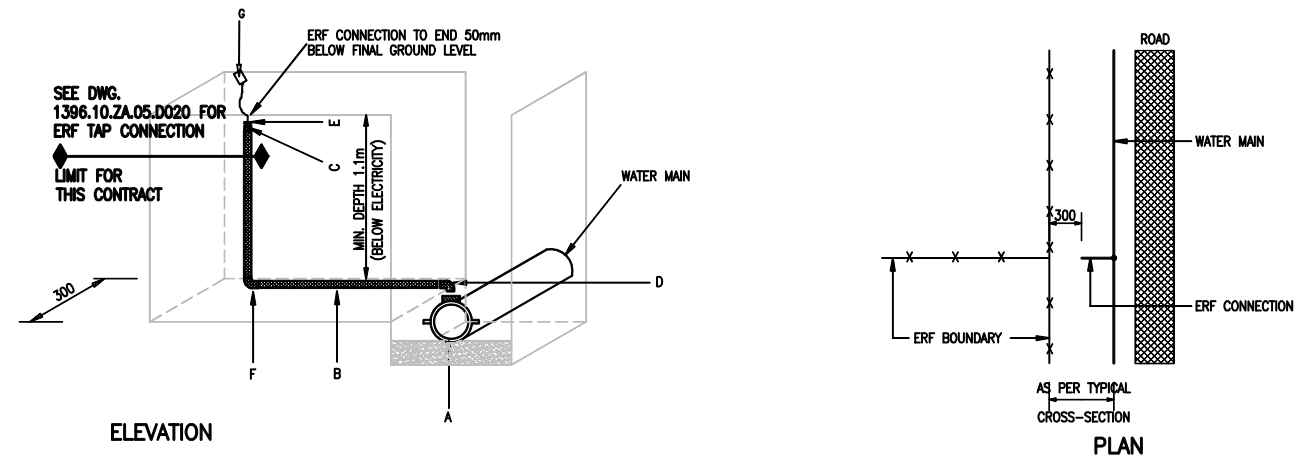
- ## GENERAL NOTES
- ### STORMWATER/CULVERTS
1. MINIMUM PIPE DIAMETER TO BE 450mm.
 2. MINIMUM FALL TO BE 1:300.
 3. PIPE FALLING TO BE CLASS B UNLESS OTHERWISE SPECIFIED.
 4. ALL EXCAVATIONS AND BEDDING MUST BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE LAYING OF ANY PIPES.
 5. ALL KERB INLETS TO BE TYPE 1 UNLESS SPECIFIED ON THE DRAWING.
 6. ALL PIPES TO BE CONCRETE WITH INTERLOCKING JOINTS-SANS 677.
 7. STORMWATER JUNCTION BOXES MUST BE BUILT UP TO 300mm BELOW THE FINAL GROUND LEVEL.
 8. KERB INLET TYPES:
TYPE 1 = 4:3:2
WHERE:
TYPE NR = X:Y:Z
X = UPSTREAM CATCHPIT TRANSITION LENGTH
Y = CATCHPIT LENGTH
Z = DOWNSTREAM CATCHPIT TRANSITION LENGTH

AS-BUILT RECORD				VERSION/AMENDMENTS				 bigen Doing good while doing business 4 Jacobus Smit Street Labaram Kimberley 8301 PO Box 110092 Kimberley 8300 Tel: + 27 (0) 53 831 2935 Fax: + 27 (0) 86 518 5094 E-mail: kimberley@bigengroup.com www.bigengroup.com		PROJECT TITLE: LERATO PARK INTERNAL CIVIL ENGINEERING SERVICES DRAWING TITLE: STORMWATER LONGITUDINAL SECTION KI208 – KI111 & KI260–OS262		 Sol Plaatje Municipality We Serve		 0 50 100 100mm ON ORIGINAL DRAWING		SURVEYED		DESIGNED		G Thoka					
CONTRACT No.		DESCRIPTION		CERTIFIED BY		DATE								No.		DATE		DESCRIPTION		AUTHORISED BY		DRAWN		N Bester	
CERTIFIED AS-BUILT FOR CONTRACT :								CO-ORDINATE SYSTEM:								WG 25		DATE:		October 2019					
ENGINEER _____ DATE _____								APPROVED:				APPROVED ON BEHALF OF BIGEN:													
								CLIENT OR ASSIGNEE: _____ DATE: _____				ENGINEER: _____ DATE: _____													
CLIENT DRAWING No.:				CLIENT REF No.:				DRAWING No.:				1396.10.ZA.04.L021				VERSION:				1.0					



SCHEDULE OF FITTINGS		
DESCRIPTION	SIZE (mm)	No.OFF
A. 65 - 300 mm ND BSP FC OR UPVC SADDLE. *	3/4 INCH (BSP)	1
B. HDPE TYPE IV CLASS 10 PIPE.	20	LENGTH (m)
C. FEMALE ADAPTOR. **	20x3/4 INCH (BSP)	1
D. 90° COMPRESSION MALE ELBOW.	20x3/4 INCH (BSP)	1
E. THREADED PLUG. **	3/4 INCH (BSP)	1
F. 20mm X 90 DEGREE PLASSON ELBOW	20	1
G. 100 x 50 x 2mm THICK UV-STABILISED,SCRIM REINFORCED COLOURED PLASTIC CONNECTION MARKER.		1

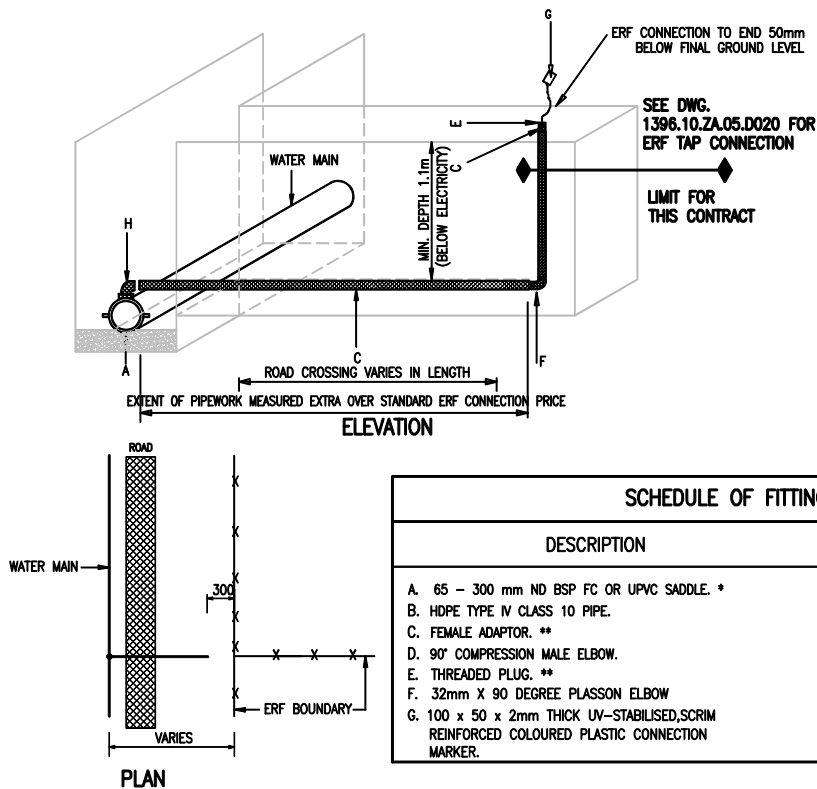
ERF CONNECTION – STREET WATER SUPPLY
SINGLE ERF CONNECTION TO NEAR SIDE ONLY:
TYPE I



SCHEDULE OF FITTINGS		
DESCRIPTION	SIZE (mm)	No.OFF
A. 65 - 300 mm ND BSP FC OR UPVC SADDLE. *	1 INCH (BSP)	1
B. HDPE TYPE IV CLASS 10 PIPE.	25	LENGTH (m)
C. FEMALE ADAPTOR. **	25x3/4 INCH (BSP)	1
D. 90° COMPRESSION MALE ELBOW.	25x3/4 INCH (BSP)	1
E. THREADED PLUG. **	1 INCH (BSP)	1
F. 25mm X 90 DEGREE PLASSON ELBOW	25	1
G. 100 x 50 x 2mm THICK UV-STABILISED,SCRIM REINFORCED COLOURED PLASTIC CONNECTION MARKER.		1

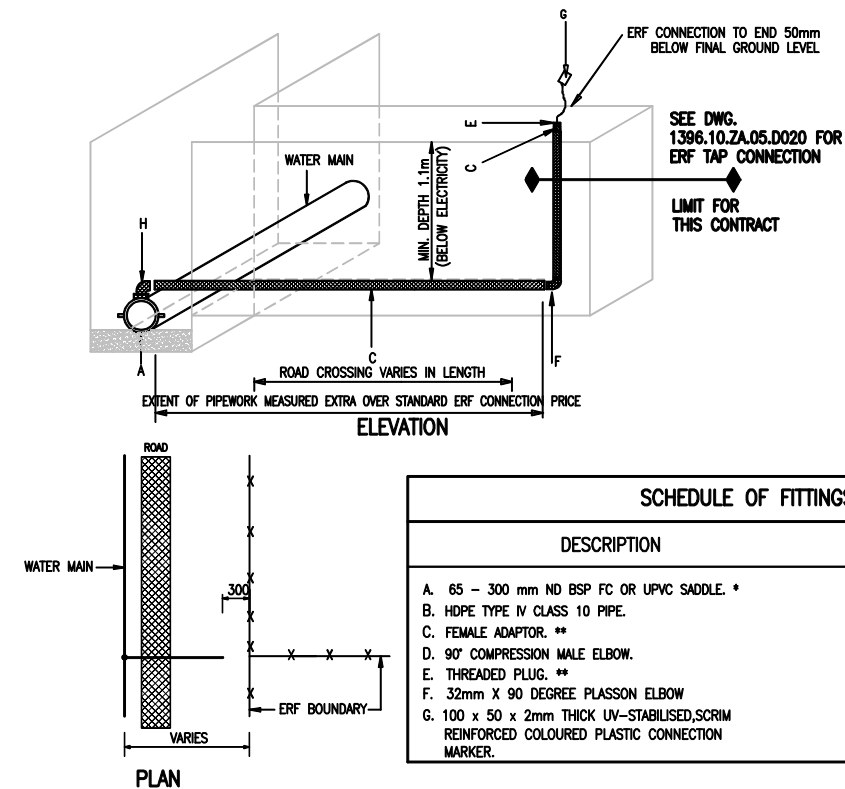
ERF CONNECTION – STREET WATER SUPPLY
DOUBLE ERF CONNECTION TO NEAR SIDE ONLY:
TYPE II

NOTES:
* - ALL ERF CONNECTIONS ARE MEASURED AS AN UNIT, EXCEPT FOR THE PIPE SADDLE, WHICH IS MEASURED SEPARATELY.
** - WHERE A WATER METER INSTALLATION IS SPECIFIED, THE FEMALE ADAPTOR AND THREADED PLUG IS NOT REQUIRED.



SCHEDULE OF FITTINGS		
DESCRIPTION	SIZE (mm)	No.OFF
A. 65 - 300 mm ND BSP FC OR UPVC SADDLE. *	1 INCH (BSP)	1
B. HDPE TYPE IV CLASS 10 PIPE.	25	LENGTH (m)
C. FEMALE ADAPTOR. **	25x1 INCH (BSP)	1
D. 90° COMPRESSION MALE ELBOW.	25x1 INCH (BSP)	1
E. THREADED PLUG. **	1 INCH (BSP)	1
F. 32mm X 90 DEGREE PLASSON ELBOW	25	1
G. 100 x 50 x 2mm THICK UV-STABILISED,SCRIM REINFORCED COLOURED PLASTIC CONNECTION MARKER.		1

ERF CONNECTION – STREET WATER SUPPLY
SINGLE ERF CONNECTION TO THE FAR SIDE :
TYPE III



SCHEDULE OF FITTINGS		
DESCRIPTION	SIZE (mm)	No.OFF
A. 65 - 300 mm ND BSP FC OR UPVC SADDLE. *	1 INCH (BSP)	1
B. HDPE TYPE IV CLASS 10 PIPE.	32	LENGTH (m)
C. FEMALE ADAPTOR. **	32x1 INCH (BSP)	1
D. 90° COMPRESSION MALE ELBOW.	32x1 INCH (BSP)	1
E. THREADED PLUG. **	1 INCH (BSP)	1
F. 32mm X 90 DEGREE PLASSON ELBOW	32	1
G. 100 x 50 x 2mm THICK UV-STABILISED,SCRIM REINFORCED COLOURED PLASTIC CONNECTION MARKER.		1

ERF CONNECTION – STREET WATER SUPPLY
DOUBLE ERF CONNECTION TO THE FAR SIDE :
TYPE IV

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
555-30-04	CERTIFIED AS BUILT	FJV	08-2015
2334-10-00	CERTIFIED AS BUILT	FJV	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	02-2014	REVISED DETAILS	LG
3.0	09-2015	CERTIFIED AS BUILT PHASE 1	FJV
4.0	10-2015	CERTIFIED AS BUILT PHASE 2	FJV
5.0	08-2021	LIMIT OF CONTRACT FOR PHASE 5 ADDED	FJV



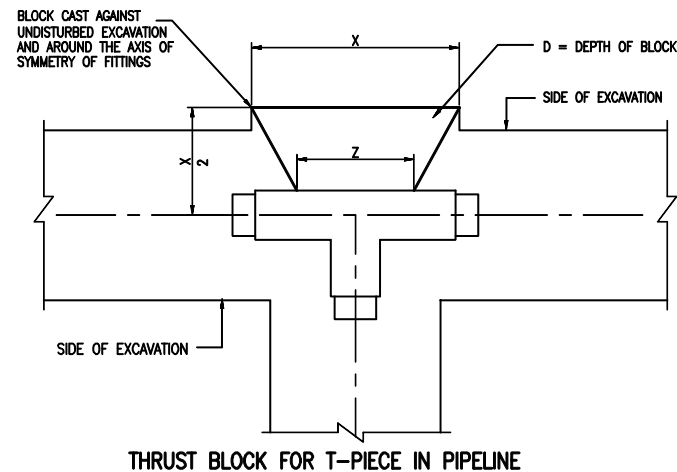
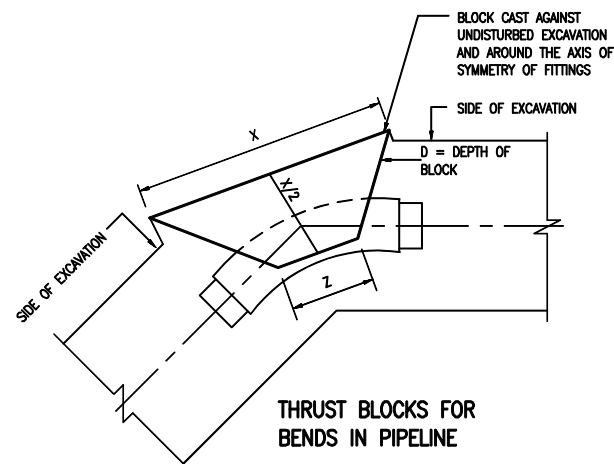
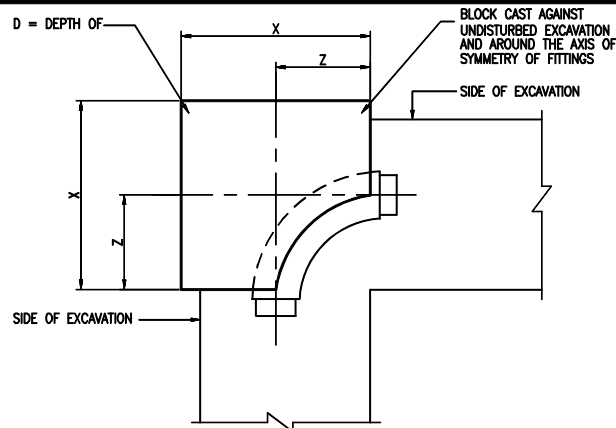
PROJECT TITLE:	LERATO PARK INTERNAL CIVIL ENGINEERING SERVICES
DRAWING TITLE:	TYPICAL WATER ERF CONNECTION DETAIL SHEET 1



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ORIGINAL DRAWING SCALE: As Shown	ORIGINAL DRAWING SHEET SIZE: A1
APPROVED:	
CLIENT OR ASSIGNEE: DATE:	
CLIENT DRAWING No.:	CLIENT REF No.:

SURVEYED	DESIGNED	L. Gertenboch
DRAWN	CHECKED	L. Gertenboch
CO-ORDINATE SYSTEM: WG25	DATE: October 2019	
APPROVED ON BEHALF OF BIGEN:	ENGINEER: DATE:	
DRAWING No.: 1396.10.ZA.05D001	VERSION: 5.0	

1396.10.ZA.05D001



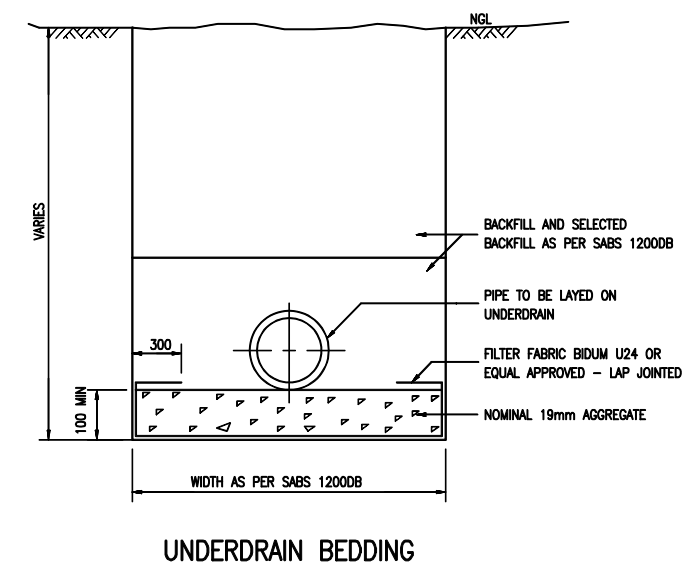
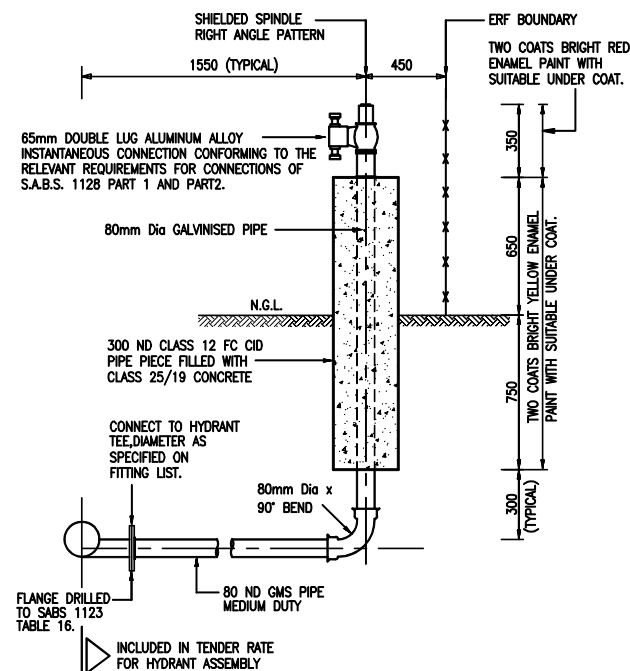
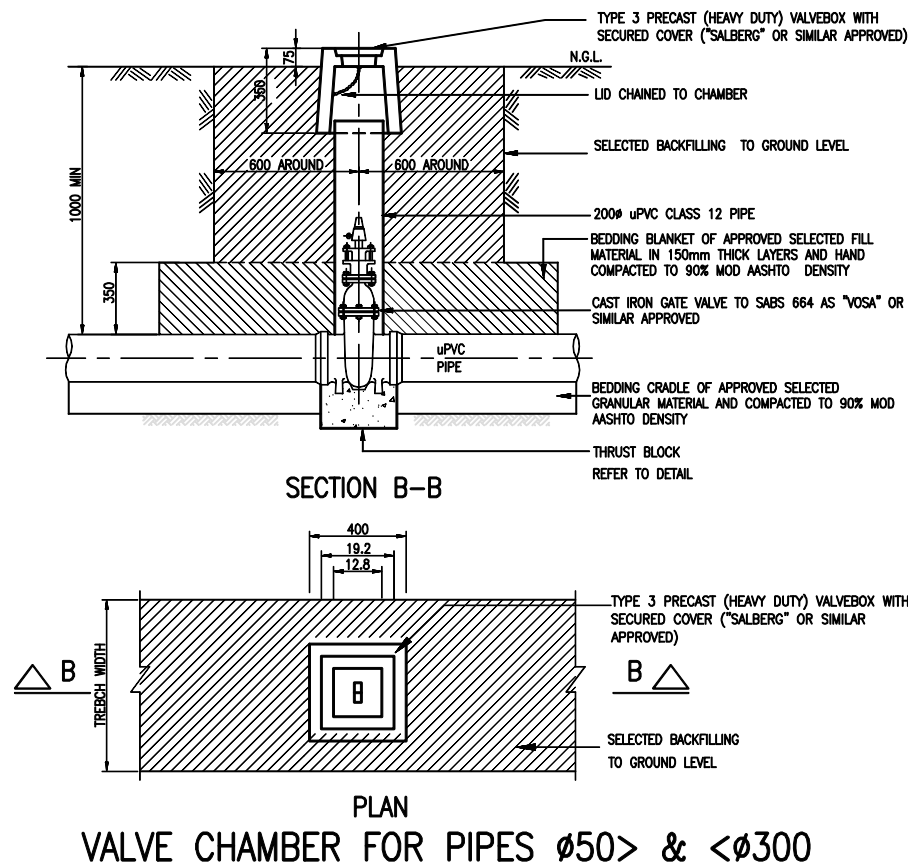
NOTE:
COUPLINGS AND FLANGES MUST BE
LEFT FREE OF CONCRETE

PIPE DIAM.	90 DEG BEND		
	Xmm	Dmm	Zmm
75	410	300	150
100	530	400	200
150	950	500	280
200	1250	650	350
250	1600	800	450
300	1850	1000	550
350	2150	1300	550
400	2500	1300	600

PIPE DIAM.	T-JUNCTION		
	Xmm	Dmm	Zmm
75	410	300	180
100	480	450	250
150	800	600	400
200	1100	750	480
250	1400	900	530
300	1700	1100	580
350	2080	1350	630
400	2500	1300	600

PIPE DIAM.	11.25 DEG BEND			22.5 DEG BEND			45 DEG BEND		
	Xmm	Dmm	Zmm	Xmm	Dmm	Zmm	Xmm	Dmm	Zmm
75	200	150	120	250	200	150	350	300	150
100	250	200	150	350	250	200	500	400	200
150	350	300	250	500	400	350	700	550	400
200	500	350	350	650	500	400	900	700	450
250	600	450	350	800	650	400	1100	900	500
300	700	550	400	950	750	450	1300	1100	550
350	850	700	400	1200	900	500	1700	1300	600
400	900	800	400	1300	900	500	2000	1300	600

THRUST BLOCK DETAIL SOIL BEARING CAPACITY 100 – 200kPa



FIRE HYDRANT ASSEMBLY

UNDERDRAIN BEDDING

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
1555-30-04	CERTIFIED AS BUILT	FJV	09-2015
2334-10-00	CERTIFIED AS BUILT	FJV	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	05-2015	PIPE DN 400 ADDED	FJV
3.0	09-2015	CERTIFIED AS BUILT PHASE 1	FJV
4.0	10-2015	CERTIFIED AS BUILT PHASE 2	FJV



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www.bigengroup.com

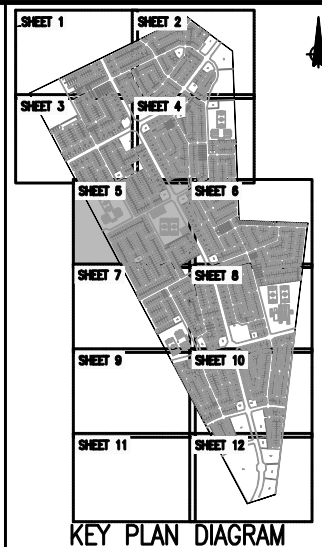
PROJECT TITLE:	LERATO PARK INTERNAL CIVIL ENGINEERING SERVICES
DRAWING TITLE:	TYPICAL WATER RETICULATION DETAIL



0	50	100
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ORIGINAL DRAWING SCALE:	As Shown	ORIGINAL DRAWING SHEET SIZE: A1
APPROVED:		
CLIENT OR ASSIGNEE:	DATE:	
CLIENT DRAWING No.:	CLIENT REF No.:	

0	SURVEYED	DESIGNED	L. Gerlach	
	DRAWN	N. Beeler	CHECKED	L. Gerlach
CO-ORDINATE SYSTEM:		WG25	DATE:	October 2019
APPROVED ON BEHALF OF BIGEN:				
ENGINEER:		DATE:		
DRAWING No.:			VERSION:	
1396.10.ZA.05D003				4.0

1396.10.ZA.05D003



- NOTES:
- UNLESS OTHERWISE INDICATED, ALL WATER RETICULATION MAINS TO BE UPVC CLASS 9 TO SABS 966.
 - REFER TO DRAWINGS 1396.10.ZA.05.D001, 05.D002 AND 05.D004 FOR DETAILS OF ERF CONNECTION AND WATER METER ASSEMBLIES.
 - STANDARD FIRE HYDRANTS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 - LINE VALVE CHAMBERS FOR UPVC MAINS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 - REFER TO DRAWING 1396.10.ZA.05.D003 FOR PIPE THRUST BLOCK DETAILS.
 - VALVES TO ERF CONNECTION'S (COBRA) SABS OR ISO APPROVED.
 - VALVE AND HYDRANTS TO BE PLACED OPPOSITE ERF BOUNDARY PEGS.

- LEGEND
- RETICULATION WATER MAINS
 - LINK WATER MAINS
 - FUTURE WATER
 - EXISTING WATER
 - END CAP
 - WATER ERF CONNECTIONS
 - B14 WATER FITTING
 - ISOLATING VALVE ON UPVC MAIN
 - BUTTERFLY VALVE ON STEEL MAIN COMPLETE
 - BULK METERING CHAMBER COMPLETE
 - FIRE HYDRANT
 - SCOUR VALVE
 - DOUBLE AIR VALVE
 - PRV CHAMBER
 - DEVELOPMENT BOUNDARY
 - BULK WATER METER ZONES

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
234-10-00	CERTIFIED AS BUILT	F.V.	10-2015
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	10-2015	CERTIFIED AS BUILT PHASE 2	F.V.
3.0	07-2021	LIMIT OF CONSTRUCTION FOR PHASE 6	L.G.



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E-mail: kimberley@bigengroup.com
www.bigengroup.com

PROJECT TITLE:
**LERATO PARK
INTERNAL CIVIL ENGINEERING SERVICES**

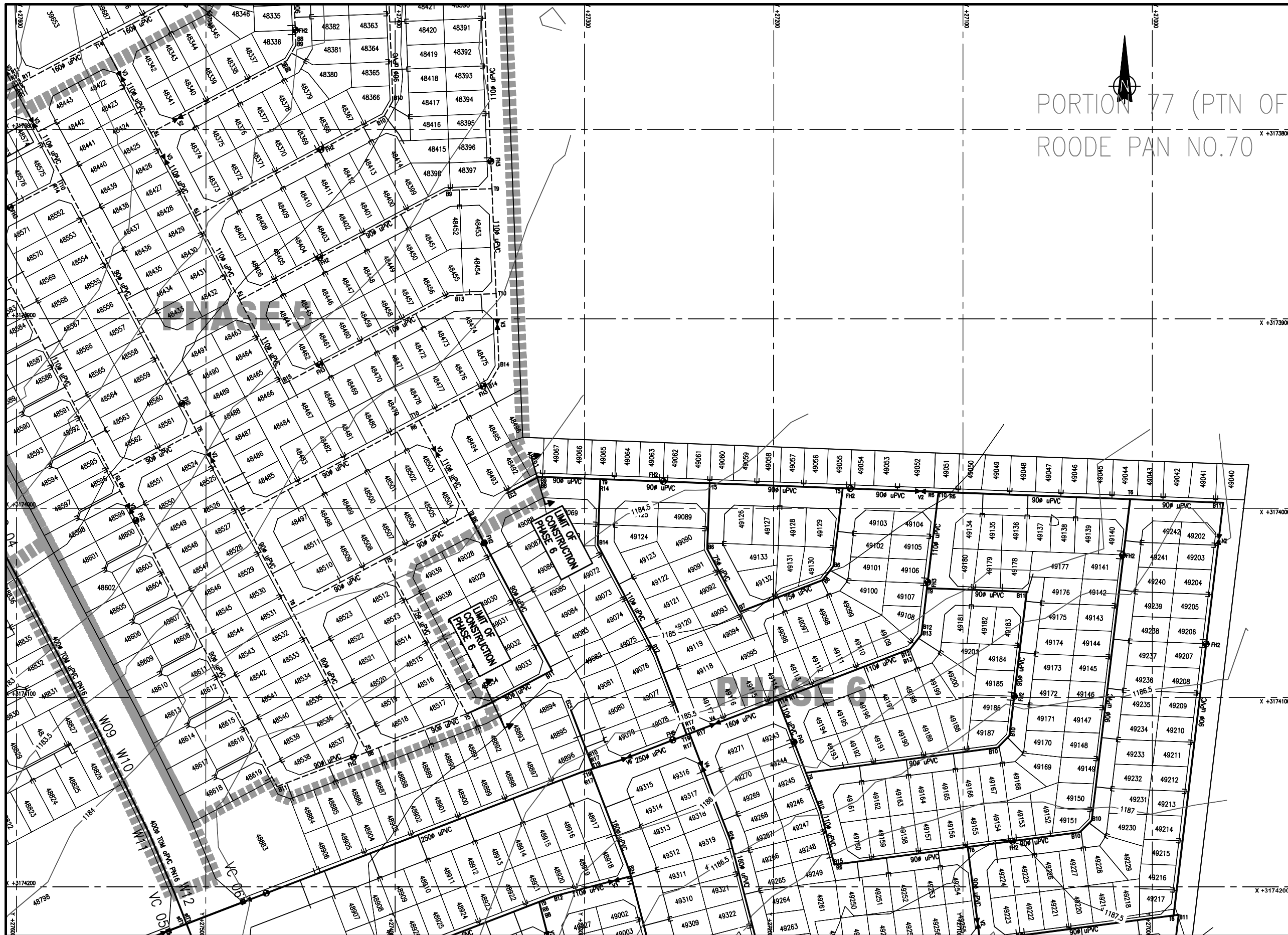
DRAWING TITLE:
**WATER LAYOUT PLAN
SHEET 5 OF 12**



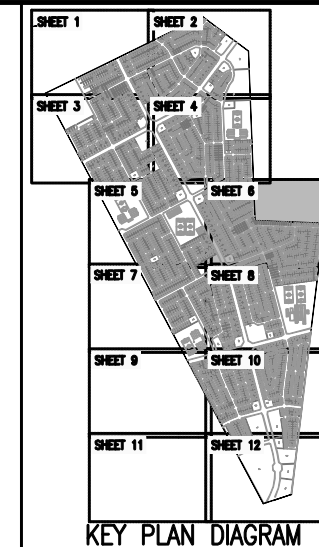
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APPROVED:		DATE:	
CLIENT OR ASSIGNEE:		CLIENT REF No.:	
CLIENT DRAWING No.:		DATE:	

0	SURVEYED	DESIGNED	S Moleleke
	DRAWN N Bester	CHECKED	L Gertsenbach
CO-ORDINATE SYSTEM: WGS25		DATE:	October 2019
APPROVED ON BEHALF OF BIGEN:			
ENGINEER: _____		DATE: _____	
DRAWING No.: 1396.10.ZA.05.U005			VERSION: 3.0

1396.10.ZA.05.U005



PORTION 77 (PTN OF
ROODE PAN NO.70



- NOTES:
- UNLESS OTHERWISE INDICATED, ALL WATER RETICULATION MAINS TO BE UPVC CLASS 9 TO SABS 966.
 - REFER TO DRAWINGS 1396.10.ZA.05.D001, 05.D002 AND 05.D004 FOR DETAILS OF ERF CONNECTION AND WATER METER ASSEMBLIES.
 - STANDARD FIRE HYDRANTS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 - LINE VALVE CHAMBERS FOR UPVC MAINS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 - REFER TO DRAWING 1396.10.ZA.05.D003 FOR PIPE THRUST BLOCK DETAILS.
 - VALVES TO ERF CONNECTION'S (COBRA) SABS OR ISO APPROVED.
 - VALVE AND HYDRANTS TO BE PLACED OPPOSITE ERF BOUNDARY PEGS.

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 - SCOUR VALVE
 - DOUBLE AIR VALVE
 - PRV CHAMBER
 - DEVELOPMENT BOUNDARY
 - BULK WATER METER ZONES

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
CERTIFIED AS-BUILT FOR CONTRACT :			
ENGINEER		DATE	

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	07-2021	LIMIT OF CONSTRUCTION FOR PHASE 6	LG



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PROJECT TITLE:

**LERATO PARK
INTERNAL CIVIL ENGINEERING SERVICES**

DRAWING TITLE:

**WATER LAYOUT PLAN
SHEET 6 OF 12**



Sei Plantje Municipality

We Serve

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100mm ON ORIGINAL DRAWING

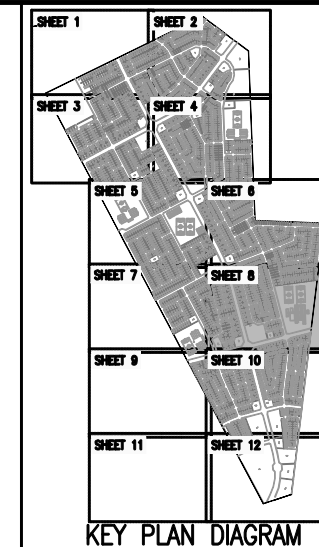
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APPROVED:

CLIENT OR ASSIGNEE: DATE: CLIENT DRAWING No.: CLIENT REF No.:

SURVEYED	DESIGNED	S. Moleke
DRAWN	CHECKED	L. Gertsenbach
CO-ORDINATE SYSTEM:	WG25	DATE: October 2019
APPROVED ON BEHALF OF BIGEN:		
ENGINEER:	DATE:	VERSION: 2.0
DRAWING No.: 1396.10.ZA.05.U006		

1396.10.ZA.05.U006



- NOTES:
1. UNLESS OTHERWISE INDICATED, ALL WATER RETICULATION MAINS TO BE uPVC CLASS 9 TO SABS 966.
 2. REFER TO DRAWINGS 1396.10.ZA.05.D001, 05.D002 AND 05.D004 FOR DETAILS OF ERF CONNECTION AND WATER METER ASSEMBLIES.
 3. STANDARD FIRE HYDRANTS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 4. LINE VALVE CHAMBERS FOR uPVC MAINS TO BE CONSTRUCTED AS SHOWN ON DRAWING 1396.10.ZA.05.D003.
 5. REFER TO DRAWING 1396.10.ZA.05.D003 FOR PIPE THRUST BLOCK DETAILS.
 6. VALVES TO ERF CONNECTION'S (COBRA) SABS OR ISO APPROVED.
 7. VALVE AND HYDRANTS TO BE PLACED OPPOSITE ERF BOUNDARY PEGS.

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 - SCOUR VALVE
 - DOUBLE AIR VALVE
 - PRV CHAMBER
 - DEVELOPMENT BOUNDARY
 - BULK WATER METER ZONES

AS-BUILT RECORD			
CONTRACT No.	DESCRIPTION	CERTIFIED BY	DATE
CERTIFIED AS-BUILT FOR CONTRACT : ECSA Reg. No. _____			
	ENGINEER		DATE

VERSION/AMENDMENTS			
No.	DATE	DESCRIPTION	AUTHORISED BY
2.0	07-2021	LIMIT OF CONSTRUCTION FOR PHASES	LG



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PROJECT TITLE:
**LERATO PARK
INTERNAL CIVIL ENGINEERING SERVICES**

DRAWING TITLE:
**WATER LAYOUT PLAN
SHEET 8 OF 12**



Sei Plantje Municipality



0 50 100
100mm ON ORIGINAL DRAWING

ORIGINAL DRAWING SCALE: 1 : 1 000 ORIGINAL DRAWING SHEET SIZE: A1

APPROVED: _____ DATE: _____
CLIENT OR ASSIGNEE: _____ CLIENT DRAWING No.: _____
CLIENT REF No.: _____

SURVEYED	DESIGNED	S. Mchaleke
DRAWN	CHECKED	L. Gertsenbach
CO-ORDINATE SYSTEM:	WG25	DATE: October 2019
APPROVED ON BEHALF OF BIGEN: ECSA Reg. No. _____		ENGINEER: _____ DATE: _____
DRAWING No.: 1396.10.ZA.05.U008		VERSION: 2.0

1396.10.ZA.05.U008