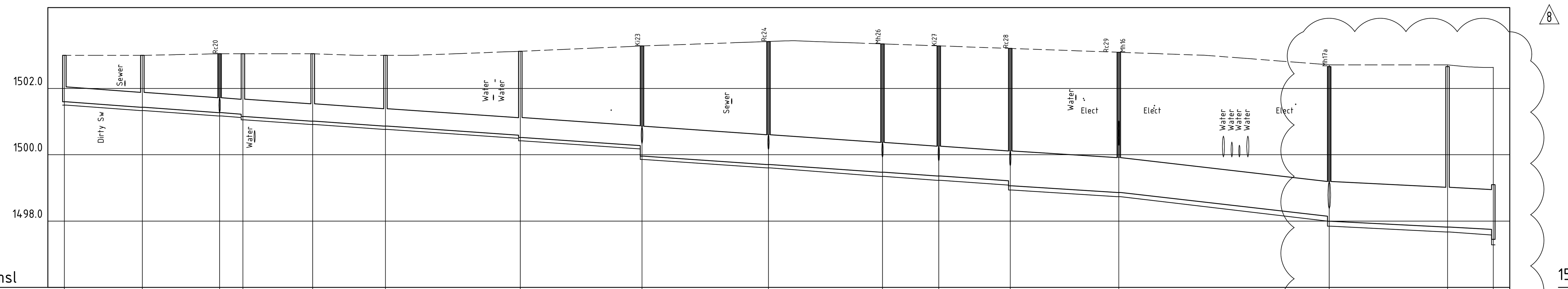
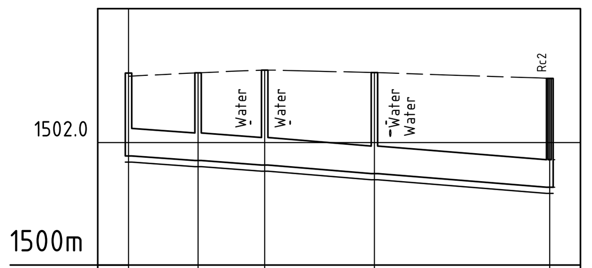
DATUM : 1496.00 msl



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Ki1	1.402	1501.598	1503.000	0.000
Rc2	1.566	1501.434	1503.000	23.490
I2102	1.776	1501.271	1503.047	46.825
I2103	1.825 / 1.894	1501.222 / 1501.153	1503.047	53.826
Mh5	2.035	1501.012	1503.047	74.894
Ki6	2.135	1500.865	1503.000	96.817
Ki7	2.528 / 2.599	1500.593 / 1500.522	1503.121	137.478
Mh8	3.006 / 3.323	1500.276 / 1499.959	1503.282	174.202
Mh9	3.713	1499.703	1503.416	212.344
Mh10	3.871	1499.473	1503.344	246.720
Mh11	3.925	1499.359	1503.284	263.701
Mh12	3.994 / 4.143	1499.214 / 1499.065	1503.208	285.271
Mh13	4.230	1498.862	1503.092	317.995
Mh14	4.566 / 4.716	1498.146 / 1497.996	1502.712	381.458
Mh15	4.894	1497.819	1502.713	417.128
Jb448	4.885 / 5.185	1497.750 / 1497.450	1502.635	430.930

Segment	CHAINAGE (m)	PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
Ki1 – Rc2	23.490	0.698	450mm/100D INTERLOCKING CLASS C	55	1.487	226.020	1.695
Rc2 – I2102	23.335	0.699	450mm/100D INTERLOCKING CLASS C	82	1.488	226.079	1.695
I2102 – I2103		0.70	450mm/100D INTERLOCKING CLASS C	189	1.49	226.301	1.70
I2103 – Mh5	21.068	0.670	525mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	256	1.604	325.203	1.828
Mh5 – Ki6	21.923	0.670	525mm dia./Class100D - STORMWATER INTERLOCKING CLASS C		1.604	325.148	1.827
Ki6 – Ki7	40.661	0.670	525mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	271	1.604	325.199	1.828
Ki7 – Mh8	36.724	0.669	600mm/100D CLASS C	374	1.747	458.743	1.990
Mh8 – Mh9	38.142	0.671	900mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	642.730	2.278	1320.320	2.596
Mh9 – Mh10	34.376	0.669	900mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	704.730	2.275	1318.249	2.592
Mh10 – Mh11	16.980	0.671	900mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	842.730	2.279	1320.502	2.596
Mh11 – Mh12	21.570	0.672	900mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	930.730	2.280	1321.348	2.598
Mh12 – Mh13	32.724	0.620	1050mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	999.730	2.383	1777.724	2.715
Mh13 – Mh14	63.463	1.128	1050mm dia./Class100D - STORMWATER INTERLOCKING CLASS C	1130.730	3.213	2397.409	3.661
Mh14 – Mh15	35.670	0.497	1200mm/100D INTERLOCKING CLASS C	1943.730	2.332	2273.133	2.657
Mh15 – Jb448	13.802	0.497	1200mm/100D INTERLOCKING CLASS C		2.332	2273.133	2.657

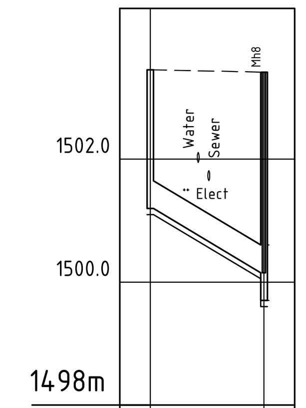
Ki1 - Jb448



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Gi18a	1.303	1501.780	1503.083	0.000
Mh18b	1.435	1501.704	1503.139	11.359
Gi19	1.552	1501.631	1503.183	22.220
Rc20	1.650	1501.493	1503.143	40.122
I2102	1.776	1501.271	1503.047	68.730

Segment	PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
Gi18a – Mh18b	0.669	450mm/100D INTERLOCKING CLASS C	34	1.115	239.70	1.797
Mh18b – Gi19	0.672	450mm/100D INTERLOCKING CLASS C		1.117	240.25	1.801
Gi19 – Rc20	0.771	450mm/100D INTERLOCKING CLASS C	49	1.300	257.29	1.929
Rc20 – I2102	0.776	450mm/100D INTERLOCKING CLASS C	76	1.475	258.15	1.936

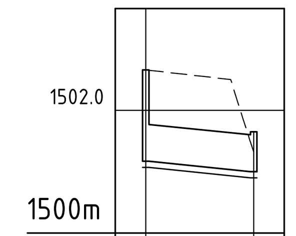
Gi18a - I2102



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Rc24	2.256	1501.200	1503.456	0.000
Mh9	3.263 / 3.713	1500.153 / 1499.703	1503.416	18.550

PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
5.644	450mm CLASS C	76	2.999	696.20	5.220

Rc24 - Mh9



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Gi133	1.489	1501.168	1502.657	0.000
Out134	0.320	1501.000	1501.320	17.561

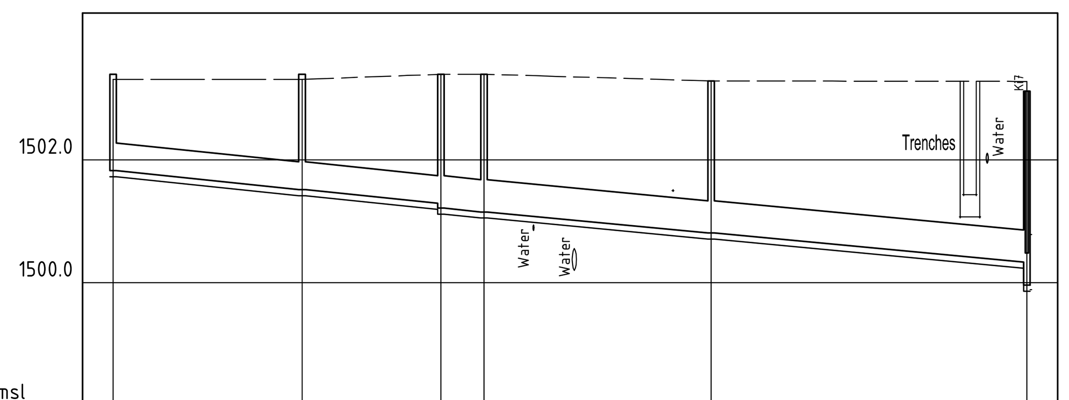
PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
0.957	600 mm dia CLASS C	422	2.444	594.43	2.579

Gi133 - Out134

FOR CONSTRUCTION

SCALES:
Horizontal 1:1000
Vertical 1:100

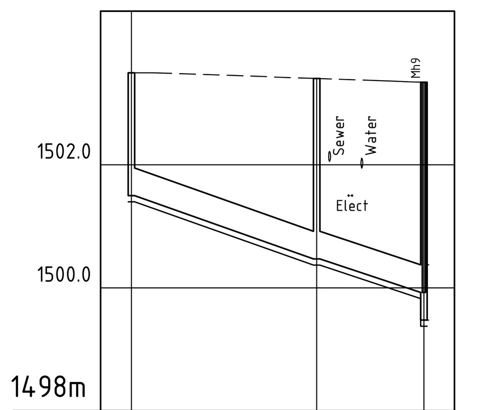
DATUM : 1498.00 msl



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Fi23a	1.488	1501.826	1503.314	0.000
Fi23b	1.795	1501.518	1503.314	30.775
I-2104	2.107	1501.292	1503.399	53.413
I2105	2.182 / 2.247	1501.217 / 1501.152	1503.399	60.413
Ki23	2.480	1500.810	1503.290	97.430
Mh8	2.948 / 3.323	1500.334 / 1499.959	1503.282	148.899

Segment	PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
Fi23a – Fi23b	1.000	450mm/100D SPIGOT AND SOCKET CLASS C	23.040	1.928	293.043	1.154
Fi23b – I-2104	1.000	450mm/100D SPIGOT AND SOCKET CLASS C	26.650	1.928	293.043	1.201
I-2104 – I2105	0.93	525mm dia./Class100D - STORMWATER SPIGOT AND SOCKET CLASS C	69.33	2.05	414.744	1.51
I2105 – Ki23	0.924	525mm dia./Class100D - STORMWATER SPIGOT AND SOCKET CLASS C	162.550	2.040	413.699	1.906
Ki23 – Mh8	0.925	525mm dia./Class100D - STORMWATER SPIGOT AND SOCKET CLASS C	273.730	2.041	413.907	2.170

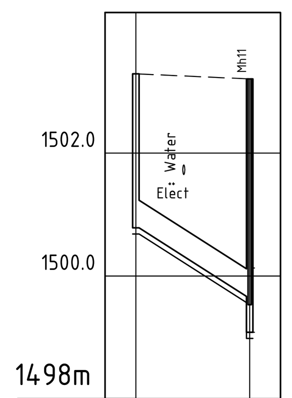
Fi23a - Mh8



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Mh25	2.000	1501.500	1503.500	0.000
Mh26	2.938	1500.468	1503.406	30.160
Mh10	3.421 / 3.871	1499.923 / 1499.473	1503.344	47.603

Segment	PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
Mh25 – Mh26	3.422	450mm/100D INTERLOCKING CLASS C	147	3.018	542.07	4.064
Mh26 – Mh10	3.124	450mm/100D INTERLOCKING CLASS C	208	3.212	517.99	3.884

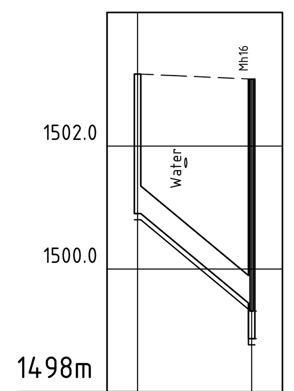
Mh25 - Mh10



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Rc28	2.507	1500.785	1503.292	0.000
Mh12	3.543 / 4.127	1499.665 / 1499.081	1503.208	18.573

PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
6.030	450mm dia CLASS C	88	3.208	719.61	5.395

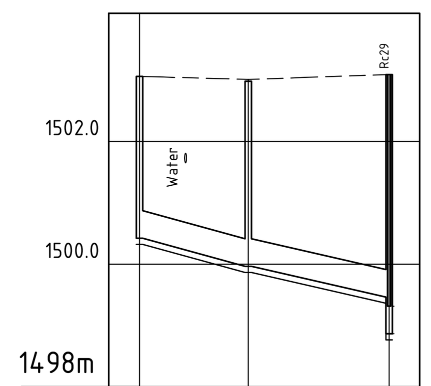
Rc28 - Mh12



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Rc29	2.277	1500.900	1503.177	0.000
Mh13	3.647 / 4.230	1499.445 / 1498.862	1503.092	18.583

PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
7.830	450mm dia CLASS C	89	3.532	819.98	6.148

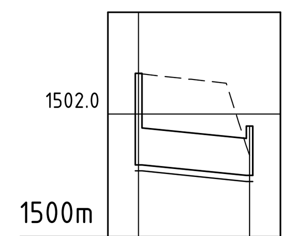
Rc29 - Mh13



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Rc30	2.639	1500.423	1503.062	0.000
Mh16	3.049	1499.962	1503.011	17.730
Mh13	3.630 / 4.230	1499.462 / 1498.862	1503.092	40.655

Segment	PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
Rc30 – Mh16	2.598	450mm/100D CLASS C	76	2.283	472.35	3.542
Mh16 – Mh13	2.183	450mm/100D CLASS C		2.131	432.92	3.246

Rc30 - Mh13



MANHOLE NAMES	DEPTH TO INVERT (m)	INVERT LEVEL (m)	GROUND LEVEL (m)	CHAINAGE (m)
Gi135	1.486	1501.171	1502.657	0.000
Out136	0.326	1501.000	1501.326	18.049

PIPE GRADE (%)	PIPE DETAILS	FLOW (l/s)	VELOCITY ACTUAL (m/s)	CAPACITY(80%D) (l/s)	VELOCITY CAPACITY (m/s)
0.947	600 mm dia CLASS C	217	2.069	591.54	2.566

Gi135 - Out136

GENERAL NOTES:
1. ALL MATERIALS AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SANS REQUIREMENTS.
2. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
3. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR MUNICIPAL CIVIL ENGINEERING WORKS.
4. EXPOSE ALL EXISTING SERVICES BY HAND EXCAVATION PRIOR TO MASS MACHINE EXCAVATIONS AND CONFIRM LEVELS.
5. ALL BACKFILL BELOW ROAD LAYERS TO BE 93% MOD AASHTO DENSITY.
6. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT UNLESS OTHERWISE SHOWN.
7. MINIMUM PIPE DIAMETERS OF ALL PIPES IS 450mm UNLESS OTHERWISE SHOWN.
8. STORMWATER BEDDING DETAILS SHALL BE AS PER SANS 1200LB FOR RIGID PIPES.
9. ALL STORMWATER PIPES TO BE INTERLOCKING JOINT PIPES - SANS 677 CLASS 100D UNLESS OTHERWISE REQUESTED BY SITE ENGINEER.

D.O.	REV	DATE	** REVISION **	REV BY	CHKD BY	AUTH BY	KKS APP	REFERENCE DRAWINGS	
	8	24/07/2017	PIPE REPOSITIONED (ECN NY-C-029)	DE	CM	FdL			
	7	15/10/2015	PIPE EXTENDED (ECN NY-C-014)	DE	CM	FdL			
	6	10/03/2015	INVERT LEVELS AMENDED (ECN NY-C-013)	DE	CM	FdL			
	5	10/11/2013	ISSUED FOR CONSTRUCTION	DE	CM	LJ			
	4	28/06/2013	GROUND LEVELS CHANGED	DE	CM	LJ			
	3	20/03/2013	ISSUED FOR REVIEW	DE	CM	LJ			
	2	23/01/2012	GENERAL REVISIONS	PN	LJ	LJ			
	1	17/10/2011	GENERAL REVISIONS	PN	LJ	LJ			
	0	30/06/2011	ISSUED FOR REVIEW	TPM	LJ	LJ		0.90/23540	CLEAN STORMWATER LAYOUT

INDEX REFERENCE:

			AUTHORISED FOR ESKOM BY	DATE
DRG REGISTER				
DESIGN APPROVED	23 01 2012	LJ	L JOHNSON	23/01/2012
KKS APP				
DO AUTH	23 01 2012	LJ		
CHKD BY	23 01 2012	LJ		
DRAWN BY	23 01 2012	PN		
SCALE	1 : 1000			

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Eskom

KUSILE POWER STATION
WORKSHOP & STORES
CLEAN STORMWATER
LONGITUDINAL SECTIONS: 2 OF 3

14372-CIV-262

0.90/23542

SHEET 1 | REV 8

SIZE GROOTTE A1L