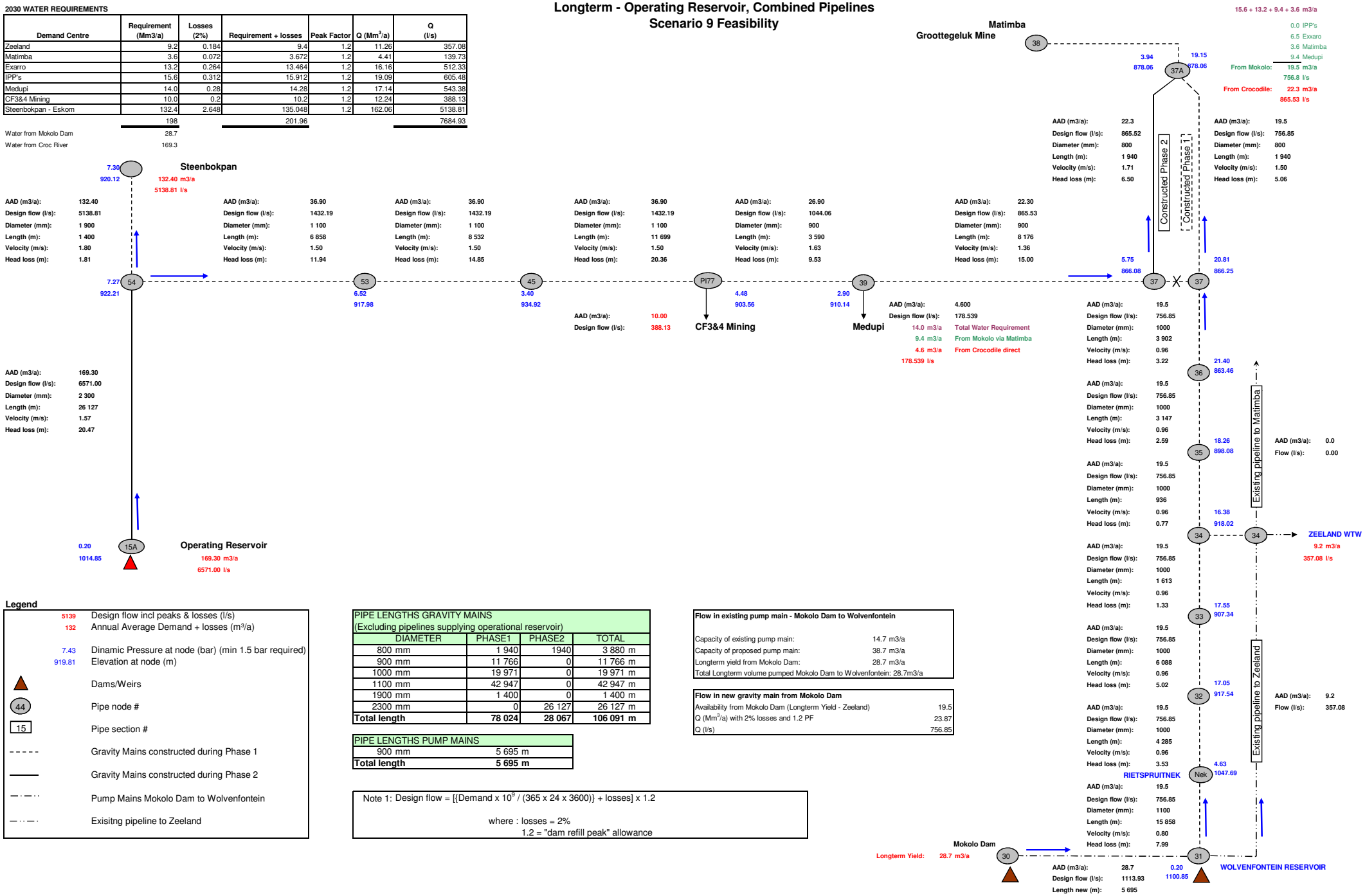
Lephalale/Steenbokpan delivery layout
Longterm - Operating Reservoir, Combined Pipelines
Scenario 9 Feasibility

2030 WATER REQUIREMENTS

Demand Centre	Requirement (Mm3/a)	Losses (2%)	Requirement + losses	Peak Factor	Q (Mm^3/a)	Q (l/s)
Zeeland	9.2	0.184	9.4	1.2	11.26	357.08
Matimba	3.6	0.072	3.672	1.2	4.41	139.73
Exarro	13.2	0.264	13.464	1.2	16.16	512.33
IPP's	15.6	0.312	15.912	1.2	19.09	605.48
Medupi	14.0	0.28	14.28	1.2	17.14	543.38
CF3&4 Mining	10.0	0.2	10.2	1.2	12.24	388.13
Steenbokpan - Eskom	132.4	2.648	135.048	1.2	162.06	5138.81
	198		201.96			7684.93
Water from Mokolo Dam	28.7					
Water from Croc River	169.3					



Legend

5139	Design flow incl peaks & losses (l/s)
132	Annual Average Demand + losses (m^3/a)
7.43	Dinamic Pressure at node (bar) (min 1.5 bar required)
919.81	Elevation at node (m)
▲	Dams/Weirs
44	Pipe node #
15	Pipe section #
- - - - -	Gravity Mains constructed during Phase 1
———	Gravity Mains constructed during Phase 2
—·—·—	Pump Mains Mokolo Dam to Wolvenfontein
—··—··—	Exisitng pipeline to Zeeland

PIPE LENGTHS GRAVITY MAINS (Excluding pipelines supplying operational reservoir)			
DIAMETER	PHASE1	PHASE2	TOTAL
800 mm	1 940	1940	3 880 m
900 mm	11 766	0	11 766 m
1000 mm	19 971	0	19 971 m
1100 mm	42 947	0	42 947 m
1900 mm	1 400	0	1 400 m
2300 mm	0	26 127	26 127 m
Total length	**78 024**	**28 067**	**106 091 m**

PIPE LENGTHS PUMP MAINS	
900 mm	5 695 m
Total length	**5 695 m**

Note 1: Design flow = [{Demand x 10^9 / (365 x 24 x 3600)} + losses] x 1.2

where : losses = 2%
1.2 = "dam refill peak" allowance

Flow in existing pump main - Mokolo Dam to Wolvenfontein

Capacity of existing pump main:	14.7 m3/a
Capacity of proposed pump main:	38.7 m3/a
Longterm yield from Mokolo Dam:	28.7 m3/a
Total Longterm volume pumped Mokolo Dam to Wolvenfontein:	28.7m3/a

Flow in new gravity main from Mokolo Dam

Availability from Mokolo Dam (Longterm Yield - Zeeland)	19.5
Q (Mm^3/a) with 2% losses and 1.2 PF	23.87
Q (l/s)	756.85