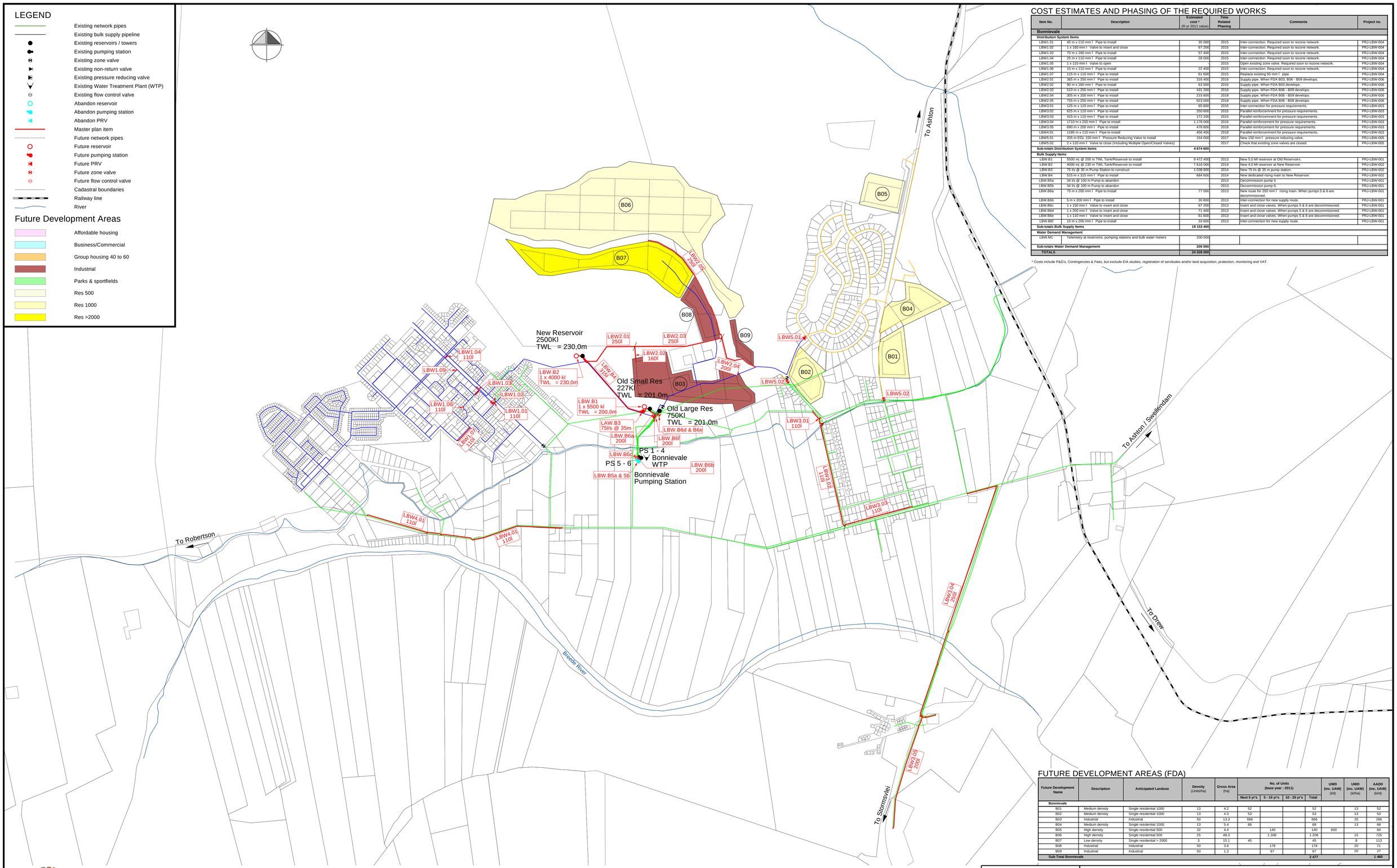
LEGEND

- Existing network pipes
- Existing bulk supply pipeline
- Existing reservoirs / towers
- Existing pumping station
- Existing zone valve
- Existing non-return valve
- Existing pressure reducing valve
- Existing Water Treatment Plant (WTP)
- Existing flow control valve
- Abandon reservoir
- Abandon pumping station
- Abandon PRV
- Master plan item
- Future network pipes
- Future reservoir
- Future pumping station
- Future PRV
- Future zone valve
- Future flow control valve
- Cadastral boundaries
- Railway line
- River

Future Development Areas

- Affordable housing
- Business/Commercial
- Group housing 40 to 60
- Industrial
- Parks & sportfields
- Res 500
- Res 1000
- Res >2000



COST ESTIMATES AND PHASING OF THE REQUIRED WORKS

Item No.	Description	Estimated cost * (R-yr 2011 value)	Time Related Phasing	Comments	Project no.
Bonnievale					
Distribution System Items					
LBW1.01	45 m x 110 mm ǁ Pipe to install	35 000	2015	Inter-connection. Required soon to rezone network.	PRJ-LBW-004
LBW1.02	1 x 160 mm ǁ Valve to insert and close	67 200	2015	Inter-connection. Required soon to rezone network.	PRJ-LBW-004
LBW1.03	70 m x 160 mm ǁ Pipe to install	57 400	2015	Inter-connection. Required soon to rezone network.	PRJ-LBW-004
LBW1.04	25 m x 110 mm ǁ Pipe to install	28 000	2015	Inter-connection. Required soon to rezone network.	PRJ-LBW-004
LBW1.05	1 x 110 mm ǁ Valve to open	-	2015	Open existing zone valve. Required soon to rezone network.	PRJ-LBW-004
LBW1.06	10 m x 110 mm ǁ Pipe to install	22 400	2015	Inter-connection. Required soon to rezone network.	PRJ-LBW-004
LBW1.07	115 m x 110 mm ǁ Pipe to install	61 600	2015	Replace existing 50 mm ǁ pipe.	PRJ-LBW-004
LBW2.01	365 m x 250 mm ǁ Pipe to install	316 400	2016	Supply pipe. When FDA B03, B06 - B09 develops.	PRJ-LBW-006
LBW2.02	90 m x 160 mm ǁ Pipe to install	63 000	2016	Supply pipe. When FDA B03 develops.	PRJ-LBW-006
LBW2.03	510 m x 250 mm ǁ Pipe to install	431 200	2016	Supply pipe. When FDA B06 - B09 develops.	PRJ-LBW-006
LBW2.04	305 m x 200 mm ǁ Pipe to install	215 600	2018	Supply pipe. When FDA B06 - B09 develops.	PRJ-LBW-006
LBW2.05	755 m x 250 mm ǁ Pipe to install	623 000	2018	Supply pipe. When FDA B06 - B08 develops.	PRJ-LBW-006
LBW3.01	125 m x 110 mm ǁ Pipe to install	65 800	2015	Inter-connection for pressure requirements.	PRJ-LBW-003
LBW3.02	625 m x 110 mm ǁ Pipe to install	250 600	2015	Parallel reinforcement for pressure requirements.	PRJ-LBW-003
LBW3.03	415 m x 110 mm ǁ Pipe to install	172 200	2015	Parallel reinforcement for pressure requirements.	PRJ-LBW-003
LBW3.04	1710 m x 250 mm ǁ Pipe to install	1 176 000	2016	Parallel reinforcement for pressure requirements.	PRJ-LBW-003
LBW3.05	690 m x 200 mm ǁ Pipe to install	478 800	2016	Parallel reinforcement for pressure requirements.	PRJ-LBW-003
LBW4.01	1185 m x 110 mm ǁ Pipe to install	456 400	2018	Parallel reinforcement for pressure requirements.	PRJ-LBW-003
LBW5.01	205 m EGL 150 mm ǁ Pressure Reducing Valve to install	154 000	2017	New 150 mm ǁ pressure reducing valve.	PRJ-LBW-005
LBW5.02	2 x 110 mm ǁ Valve to close (including Multipilt Open/Closed Valves)		2017	Check that existing zone valves are closed.	PRJ-LBW-005
Sub-totals Distribution System Items		**4 674 600**			
Bulk Supply Items					
LBW.B1	5500 m̧ @ 200 m TWL Tank/Reservoir to install	9 472 400	2013	New 5,5 Ml reservoir at Old Reservoirs.	PRJ-LBW-001
LBW.B2	4000 m̧ @ 230 m TWL Tank/Reservoir to install	7 618 000	2014	New 4,0 Ml reservoir at New Reservoir.	PRJ-LBW-002
LBW.B3	75 l/s @ 35 m Pump Station to construct	1 038 800	2014	New 75 l/s @ 35 m pump station.	PRJ-LBW-002
LBW.B4	515 m x 315 mm ǁ Pipe to install	684 600	2014	New dedicated rising main to New Reservoir.	PRJ-LBW-002
LBW.B5a	34 l/s @ 100 m Pump to abandon	-	2013	Decommission pump 5.	PRJ-LBW-001
LBW.B5b	34 l/s @ 100 m Pump to abandon	-	2013	Decommission pump 6.	PRJ-LBW-001
LBW.B6a	75 m x 200 mm ǁ Pipe to install	77 000	2013	New route for 200 mm ǁ rising main. When pumps 5 & 6 are decommissioned.	PRJ-LBW-001
LBW.B6b	5 m x 200 mm ǁ Pipe to install	30 800	2013	Inter-connection for new supply route.	PRJ-LBW-001
LBW.B6c	1 x 150 mm ǁ Valve to insert and close	67 200	2013	Insert and close valves. When pumps 5 & 6 are decommissioned.	PRJ-LBW-001
LBW.B6d	1 x 200 mm ǁ Valve to insert and close	71 400	2013	Insert and close valves. When pumps 5 & 6 are decommissioned.	PRJ-LBW-001
LBW.B6e	1 x 110 mm ǁ Valve to insert and close	61 600	2013	Insert and close valves. When pumps 5 & 6 are decommissioned.	PRJ-LBW-001
LBW.B6f	10 m x 200 mm ǁ Pipe to install	33 600	2013	Inter-connection for new supply route.	PRJ-LBW-001
Sub-totals Bulk Supply Items		**19 153 400**			
Water Demand Management					
LBW.M1	Telemetry at reservoirs, pumping stations and bulk water meters	200 000			
Sub-totals Water Demand Management		**200 000**			
TOTALS		**24 028 000**			

* Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition, protection, monitoring and VAT.

FUTURE DEVELOPMENT AREAS (FDA)

Future Development Name	Description	Anticipated Landuse	Density (Units/ha)	Gross Area (ha)	No. of Units (base year : 2011)				UWD (inc. UAW) (l/d)	UWD (inc. UAW) (kl/ha)	AADD (inc. UAW) (kl/d)
					Next 5 yr's	5 - 10 yr's	10 - 20 yr's	Total			
Bonnievale											
B01	Medium density	Single residential 1000	13	4.2	52			52		13	52
B02	Medium density	Single residential 1000	13	4.3	53			53		13	53
B03	Industrial	Industrial	50	13.3	666			666		20	266
B04	Medium density	Single residential 1000	13	5.4	68			68		13	68
B05	High density	Single residential 500	32	4.4		140		140	600		84
B06	High density	Single residential 500	25	48.3		1 208		1 208		15	725
B07	Low density	Single residential > 2000	3	15.1	45			45		8	113
B08	Industrial	Industrial	50	3.6		178		178		20	71
B09	Industrial	Industrial	50	1.3		67		67		20	27
Sub-Total Bonnievale								**2 477**			**1 460**

March 2012

Water Master Plan Langeberg Municipality

100 200 400 800 meters

Scale 1:10000

gls consulting

Figure LBW 6.5b

Future required works - Bonnievale