LEGEND

- Existing <= 110mm diameter pipes
- Existing > 110 <= 160mm diameter pipes
- Existing > 160 <= 225mm diameter pipes
- Existng > 225 <= 315mm diameter pipes
- Existing > 315 <= 400mm diameter pipes
- Existing > 400mm diameter pipes
- Existing rising mains
- Schematic network pipes
- Existing manholes
- Existing pumping station
- Existing Wastewater Treatment Plant (WWTP)
- Existing diversion structure
- Master plan item
- New sewer system
- Future rising mains
- Future pumping station
- Future Wastewater Treatment Plant (WWTP)
- Future diversion structure
- Future network pipes (schematic)
- Abandoned pumping station
- 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

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			
Ashton											
A01	High density	Single residential 500	25	14.9			373	373		15	224
A02	Parks and sportsfields	Recreation	1	2.5			2	2		15	37
A03	High density	Single residential 500	25	12.2		304		304		15	182
A04	High density	Single residential 1000	38	0.7	27			27	1 000		27
A05	Industrial	Industrial	50	6.8			342	342		20	137
A06	Industrial	Industrial	50	20.4			1 021	1 021		20	408
A07	High density	Single residential 500	25	24.2			605	605		15	363
A08	High density	Single residential 500	36	4.4		161		161	600		97
A09	High density	Single residential 500	30	1.8	53			53	600		32
A10	High density	Single residential 500	17	1.1	19			19	600		11
A11	High density	Affordable housing	27	6.5	173			173	450		78
A12	High density	Single residential 500	30	0.7	22			22	600		13
A13	High density	Single residential 500	36	0.2	8			8	600		5
A14	High density	Single residential 500	33	0.2	6			6	600		4
A15	High density	Single residential 500	34	0.3	11			11	600		7
A16	High density	Single residential 500	33	0.6		21		21	600		13
A17	High density	Single residential 500	39	0.4		15		15	600		9
Sub-Total Ashton								3 163			1 646

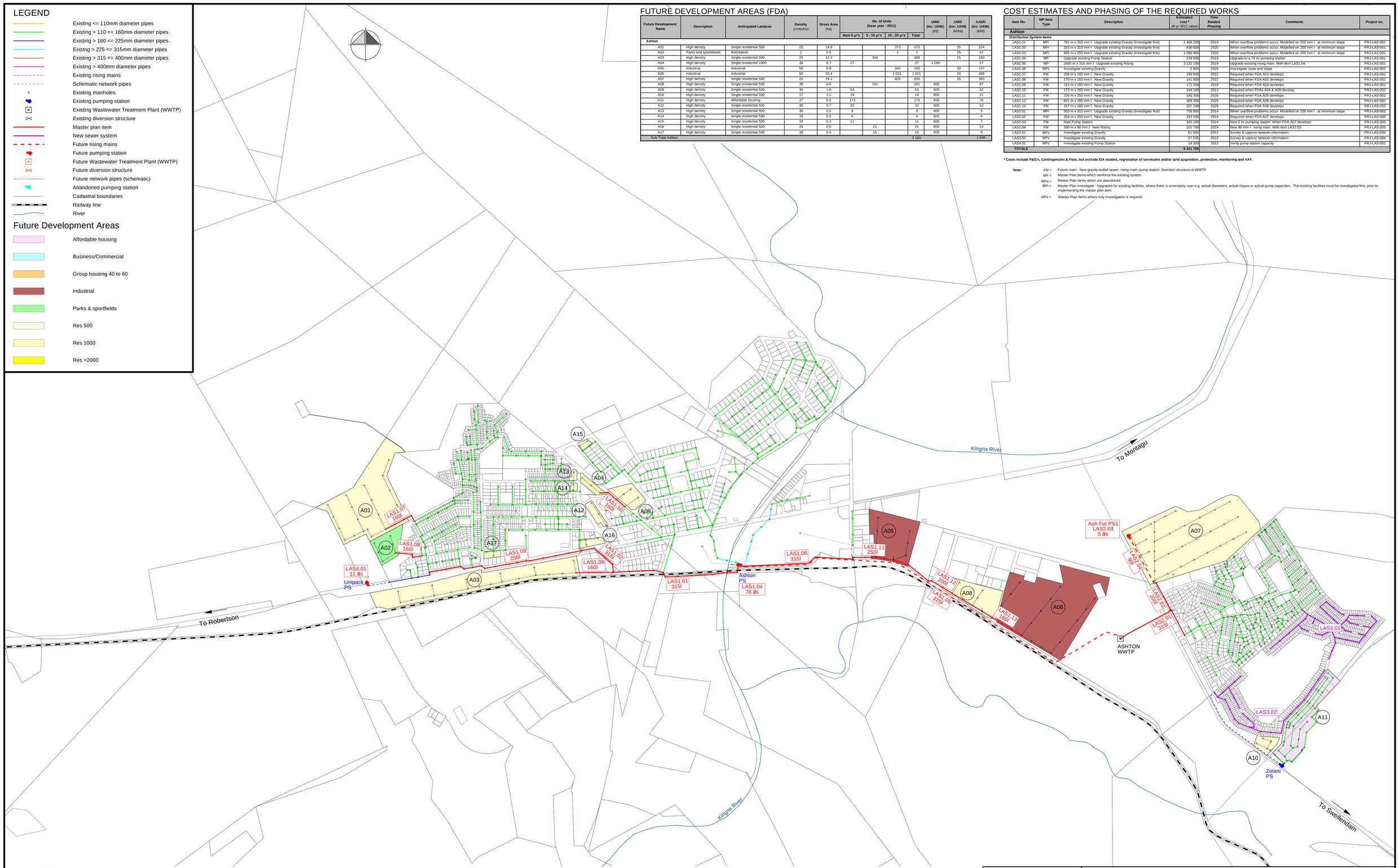
COST ESTIMATES AND PHASING OF THE REQUIRED WORKS

Item No.	MP item Type	Description	Estimated cost * (R-yr 2011 value)	Time Related Phasing	Comments	Project no.
Ashton						
Distribution System Items						
LAS1.01	MPi	781 m x 315 mm I Upgrade existing Gravity (Investigate first)	1 468 200	2018	When overflow problems occur. Modelled on 200 mm I at minimum slope	PRJ-LAS-001
LAS1.02	MPi	263 m x 315 mm I Upgrade existing Gravity (Investigate first)	430 800	2020	When overflow problems occur. Modelled on 200 mm I at minimum slope	PRJ-LAS-001
LAS1.03	MPi	905 m x 250 mm I Upgrade existing Gravity (Investigate first)	1 096 800	2020	When overflow problems occur. Modelled on 200 mm I at minimum slope	PRJ-LAS-001
LAS1.04	MP	Upgrade existing Pump Station	234 000	2019	Upgrade to a 78 l/s pumping station	PRJ-LAS-001
LAS1.05	MP	2465 m x 315 mm I Upgrade existing Rising	3 132 100	2019	Upgrade existing rising main. With item LAS1.04	PRJ-LAS-001
LAS1.06	MPs	Investigate existing Gravity	2 900	2026	Investigate route and slope	PRJ-LAS-002
LAS1.07	FM	206 m x 160 mm I New Gravity	166 000	2022	Required when FDA A01 develops	PRJ-LAS-002
LAS1.08	FM	170 m x 160 mm I New Gravity	141 600	2022	Required when FDA A02 develops	PRJ-LAS-002
LAS1.09	FM	215 m x 160 mm I New Gravity	172 300	2018	Required when FDA A03 develops	PRJ-LAS-002
LAS1.10	FM	173 m x 160 mm I New Gravity	144 100	2013	Required when FDAs A04 & A09 develop	PRJ-LAS-002
LAS1.11	FM	235 m x 250 mm I New Gravity	240 300	2026	Required when FDA A05 develops	PRJ-LAS-002
LAS1.12	FM	601 m x 200 mm I New Gravity	488 300	2026	Required when FDA A08 develops	PRJ-LAS-002
LAS1.13	FM	267 m x 160 mm I New Gravity	207 200	2026	Required when FDA A06 develops	PRJ-LAS-002
LAS2.01	MPi	503 m x 315 mm I Upgrade existing Gravity (Investigate first)	756 900	2014	When overflow problems occur. Modelled on 150 mm I at minimum slope	PRJ-LAS-003
LAS2.02	FM	204 m x 200 mm I New Gravity	183 500	2024	Required when FDA A07 develops	PRJ-LAS-005
LAS2.03	FM	New Pump Station	342 200	2024	New 5 l/s pumping station. When FDA A07 develops	PRJ-LAS-005
LAS2.04	FM	300 m x 90 mm I New Rising	101 700	2024	New 90 mm I rising main. With item LAS2.03	PRJ-LAS-005
LAS3.01	MPs	Investigate existing Gravity	61 500	2012	Survey & capture network information	PRJ-LAS-004
LAS3.02	MPs	Investigate existing Gravity	37 200	2012	Survey & capture network information	PRJ-LAS-004
LAS4.01	MPs	Investigate existing Pump Station	14 300	2012	Verify pump station capacity	PRJ-LAS-001
TOTALS:			**9 421 700**			

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

Note :

- FM = Future main - New gravity outfall sewer, rising main, pump station, diversion structure or WWTP
- MP = Master Plan Items which reinforce the existing system
- MPa = Master Plan Items which are abandoned
- MPi = Master Plan investigate - Upgrades for existing facilities, where there is uncertainty over e.g. actual diameters, actual slopes or actual pump capacities. The existing facilities must be investigated first, prior to implementing the master plan item
- MPs = Master Plan Items where only investigation is required



March 2012

Sewer Master Plan Langeberg Municipality

100 200 400 800 meters

Scale 1:10000

gls consulting

Figure LBS 6.4a

Future required works - Ashton