

**Appendix D1
Breakdown of dust and
greenhouse gas
emission sources
(GreenBase)**

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 1

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust 4.23 Tonnes

Vehicles 4.23 Tonnes

HV Dozers	1.168
HV Dump Trucks	0.530
HV Excavators	1.833
HV Graders	0.053
HV IT Loaders	0.026
HV Light Vehicles	0.009
HV Loaders	0.265
HV Road Trains	0.010
HV Scrapers	0.325
HV Water Carts	0.014

PM₁₀ from Dust 208.06 Tonnes

Open Areas 25.89 Tonnes

HV Overburden	11.036
HV Infrastructure	14.849

Vehicles 182.18 Tonnes

HV Dozers	21.104
HV Dump Trucks	4.664
HV Excavators	1.984
HV Graders	6.800
HV IT Loaders	0.652
HV Light Vehicles	4.345
HV Loaders	1.018
HV Road Trains	0.430
HV Scrapers	141.178
HV Water Carts	-

Total CO₂-e 30,807 Tonnes

Scope 1 from Clearing 9,844 Tonnes

Clearing 9,844 Tonnes

HV Forest Clearing	9,831
HV Farmland Clearing	12
HV Rehabilitation	-

Scope 1 from Fuel 10,523 Tonnes

Vehicles 10,523 Tonnes

HV Dozers	3,233
HV Dump Trucks	1,347
HV Excavators	2,964
HV Graders	108
HV IT Loaders	40
HV Light Vehicles	54
HV Loaders	1,212
HV Road Trains	56
HV Scrapers	1,347
HV Water Carts	162

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles 1,176 Tonnes

HV Dozers	361
HV Dump Trucks	151
HV Excavators	331
HV Graders	12
HV IT Loaders	5
HV Light Vehicles	6
HV Loaders	135
HV Road Trains	6
HV Scrapers	151
HV Water Carts	18

Scope 3 from Purchased Electricity 1,152 Tonnes

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 2

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust 4.23 Tonnes

Vehicles 4.23 Tonnes

HV Dozers	1.168
HV Dump Trucks	0.530
HV Excavators	1.833
HV Graders	0.053
HV IT Loaders	0.026
HV Light Vehicles	0.009
HV Loaders	0.265
HV Road Trains	0.010
HV Scrapers	0.325
HV Water Carts	0.014

PM₁₀ from Dust 208.06 Tonnes

Open Areas 25.89 Tonnes

HV Overburden	11.036
HV Infrastructure	14.849

Vehicles 182.18 Tonnes

HV Dozers	21.104
HV Dump Trucks	4.664
HV Excavators	1.984
HV Graders	6.800
HV IT Loaders	0.652
HV Light Vehicles	4.345
HV Loaders	1.018
HV Road Trains	0.430
HV Scrapers	141.178
HV Water Carts	-

Total CO₂-e 23,029 Tonnes

Scope 1 from Clearing 2,067 Tonnes

Clearing 2,067 Tonnes

HV Forest Clearing	2,066
HV Farmland Clearing	0
HV Rehabilitation	0

Scope 1 from Fuel 10,523 Tonnes

Vehicles 10,523 Tonnes

HV Dozers	3,233
HV Dump Trucks	1,347
HV Excavators	2,964
HV Graders	108
HV IT Loaders	40
HV Light Vehicles	54
HV Loaders	1,212
HV Road Trains	56
HV Scrapers	1,347
HV Water Carts	162

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles 1,176 Tonnes

HV Dozers	361
HV Dump Trucks	151
HV Excavators	331
HV Graders	12
HV IT Loaders	5
HV Light Vehicles	6
HV Loaders	135
HV Road Trains	6
HV Scrapers	151
HV Water Carts	18

Scope 3 from Purchased Electricity 1,152 Tonnes

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 3

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust 4.23 Tonnes

Vehicles 4.23 Tonnes

HV Dozers	1.168
HV Dump Trucks	0.530
HV Excavators	1.833
HV Graders	0.053
HV IT Loaders	0.026
HV Light Vehicles	0.009
HV Loaders	0.265
HV Road Trains	0.010
HV Scrapers	0.325
HV Water Carts	0.014

PM₁₀ from Dust 208.06 Tonnes

Open Areas 25.89 Tonnes

HV Overburden	11.036
HV Infrastructure	14.849

Vehicles 182.18 Tonnes

HV Dozers	21.104
HV Dump Trucks	4.664
HV Excavators	1.984
HV Graders	6.800
HV IT Loaders	0.652
HV Light Vehicles	4.345
HV Loaders	1.018
HV Road Trains	0.430
HV Scrapers	141.178
HV Water Carts	-

Total CO₂-e 25,417 Tonnes

Scope 1 from Clearing 4,454 Tonnes

Clearing 4,454 Tonnes

HV Forest Clearing	4,433
HV Farmland Clearing	22
HV Rehabilitation	(0)

Scope 1 from Fuel 10,523 Tonnes

Vehicles 10,523 Tonnes

HV Dozers	3,233
HV Dump Trucks	1,347
HV Excavators	2,964
HV Graders	108
HV IT Loaders	40
HV Light Vehicles	54
HV Loaders	1,212
HV Road Trains	56
HV Scrapers	1,347
HV Water Carts	162

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles 1,176 Tonnes

HV Dozers	361
HV Dump Trucks	151
HV Excavators	331
HV Graders	12
HV IT Loaders	5
HV Light Vehicles	6
HV Loaders	135
HV Road Trains	6
HV Scrapers	151
HV Water Carts	18

Scope 3 from Purchased Electricity 1,152 Tonnes

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 4

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust 4.23 Tonnes

Vehicles 4.23 Tonnes

HV Dozers	1.168
HV Dump Trucks	0.530
HV Excavators	1.833
HV Graders	0.053
HV IT Loaders	0.026
HV Light Vehicles	0.009
HV Loaders	0.265
HV Road Trains	0.010
HV Scrapers	0.325
HV Water Carts	0.014

PM₁₀ from Dust 208.06 Tonnes

Open Areas 25.89 Tonnes

HV Overburden	11.036
HV Infrastructure	14.849

Vehicles 182.18 Tonnes

HV Dozers	21.104
HV Dump Trucks	4.664
HV Excavators	1.984
HV Graders	6.800
HV IT Loaders	0.652
HV Light Vehicles	4.345
HV Loaders	1.018
HV Road Trains	0.430
HV Scrapers	141.178
HV Water Carts	-

Total CO₂-e 25,635 Tonnes

Scope 1 from Clearing 4,672 Tonnes

Clearing 4,672 Tonnes

HV Forest Clearing	4,673
HV Farmland Clearing	1
HV Rehabilitation	(2)

Scope 1 from Fuel 10,523 Tonnes

Vehicles 10,523 Tonnes

HV Dozers	3,233
HV Dump Trucks	1,347
HV Excavators	2,964
HV Graders	108
HV IT Loaders	40
HV Light Vehicles	54
HV Loaders	1,212
HV Road Trains	56
HV Scrapers	1,347
HV Water Carts	162

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles 1,176 Tonnes

HV Dozers	361
HV Dump Trucks	151
HV Excavators	331
HV Graders	12
HV IT Loaders	5
HV Light Vehicles	6
HV Loaders	135
HV Road Trains	6
HV Scrapers	151
HV Water Carts	18

Scope 3 from Purchased Electricity 1,152 Tonnes

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 5

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust 4.23 Tonnes

Vehicles 4.23 Tonnes

HV Dozers	1.168
HV Dump Trucks	0.530
HV Excavators	1.833
HV Graders	0.053
HV IT Loaders	0.026
HV Light Vehicles	0.009
HV Loaders	0.265
HV Road Trains	0.010
HV Scrapers	0.325
HV Water Carts	0.014

PM₁₀ from Dust 208.06 Tonnes

Open Areas 25.89 Tonnes

HV Overburden	11.036
HV Infrastructure	14.849

Vehicles 182.18 Tonnes

HV Dozers	21.104
HV Dump Trucks	4.664
HV Excavators	1.984
HV Graders	6.800
HV IT Loaders	0.652
HV Light Vehicles	4.345
HV Loaders	1.018
HV Road Trains	0.430
HV Scrapers	141.178
HV Water Carts	-

Total CO₂-e 22,789 Tonnes

Scope 1 from Clearing 1,826 Tonnes

Clearing 1,826 Tonnes

HV Forest Clearing	1,836
HV Farmland Clearing	0
HV Rehabilitation	(10)

Scope 1 from Fuel 10,523 Tonnes

Vehicles 10,523 Tonnes

HV Dozers	3,233
HV Dump Trucks	1,347
HV Excavators	2,964
HV Graders	108
HV IT Loaders	40
HV Light Vehicles	54
HV Loaders	1,212
HV Road Trains	56
HV Scrapers	1,347
HV Water Carts	162

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles 1,176 Tonnes

HV Dozers	361
HV Dump Trucks	151
HV Excavators	331
HV Graders	12
HV IT Loaders	5
HV Light Vehicles	6
HV Loaders	135
HV Road Trains	6
HV Scrapers	151
HV Water Carts	18

Scope 3 from Purchased Electricity 1,152 Tonnes

BEMAX - Happy Valley

Estimated PM₁₀ & Greenhouse Emissions for Year 6

Total PM₁₀ 212.3 Tonnes

PM₁₀ from Exhaust		4.23 Tonnes
Vehicles		<u>4.23</u> Tonnes
HV Dozers	1.168	
HV Dump Trucks	0.530	
HV Excavators	1.833	
HV Graders	0.053	
HV IT Loaders	0.026	
HV Light Vehicles	0.009	
HV Loaders	0.265	
HV Road Trains	0.010	
HV Scrapers	0.325	
HV Water Carts	0.014	

PM₁₀ from Dust 208.06 Tonnes

Open Areas		25.89 Tonnes
HV Overburden	11.036	
HV Infrastructure	14.849	
Vehicles		<u>182.18</u> Tonnes
HV Dozers	21.104	
HV Dump Trucks	4.664	
HV Excavators	1.984	
HV Graders	6.800	
HV IT Loaders	0.652	
HV Light Vehicles	4.345	
HV Loaders	1.018	
HV Road Trains	0.430	
HV Scrapers	141.178	
HV Water Carts	-	

Total CO₂-e 22,286 Tonnes

Scope 1 from Clearing		1,323 Tonnes
Clearing		<u>1,323</u> Tonnes
HV Forest Clearing	1,355	
HV Farmland Clearing	0	
HV Rehabilitation	(32)	

Scope 1 from Fuel 10,523 Tonnes

Vehicles		<u>10,523</u> Tonnes
HV Dozers	3,233	
HV Dump Trucks	1,347	
HV Excavators	2,964	
HV Graders	108	
HV IT Loaders	40	
HV Light Vehicles	54	
HV Loaders	1,212	
HV Road Trains	56	
HV Scrapers	1,347	
HV Water Carts	162	

Scope 2 from Purchased Electricity 10,440 Tonnes

Scope 3 from Fuel 1,176 Tonnes

Vehicles		<u>1,176</u> Tonnes
HV Dozers	361	
HV Dump Trucks	151	
HV Excavators	331	
HV Graders	12	
HV IT Loaders	5	
HV Light Vehicles	6	
HV Loaders	135	
HV Road Trains	6	
HV Scrapers	151	
HV Water Carts	18	

Scope 3 from Purchased Electricity 1,152 Tonnes