

Extension of Warkworth Coal Mine

e n v i r o n m e n t a l i m p a c t s t a t e m e n t



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Extension of Warkworth Coal Mine

Environmental Impact Statement and Species Impact Statement Figures

for

Coal & Allied on behalf of Warkworth Mining Limited

August 2002



Environmental Impact Statement Figures

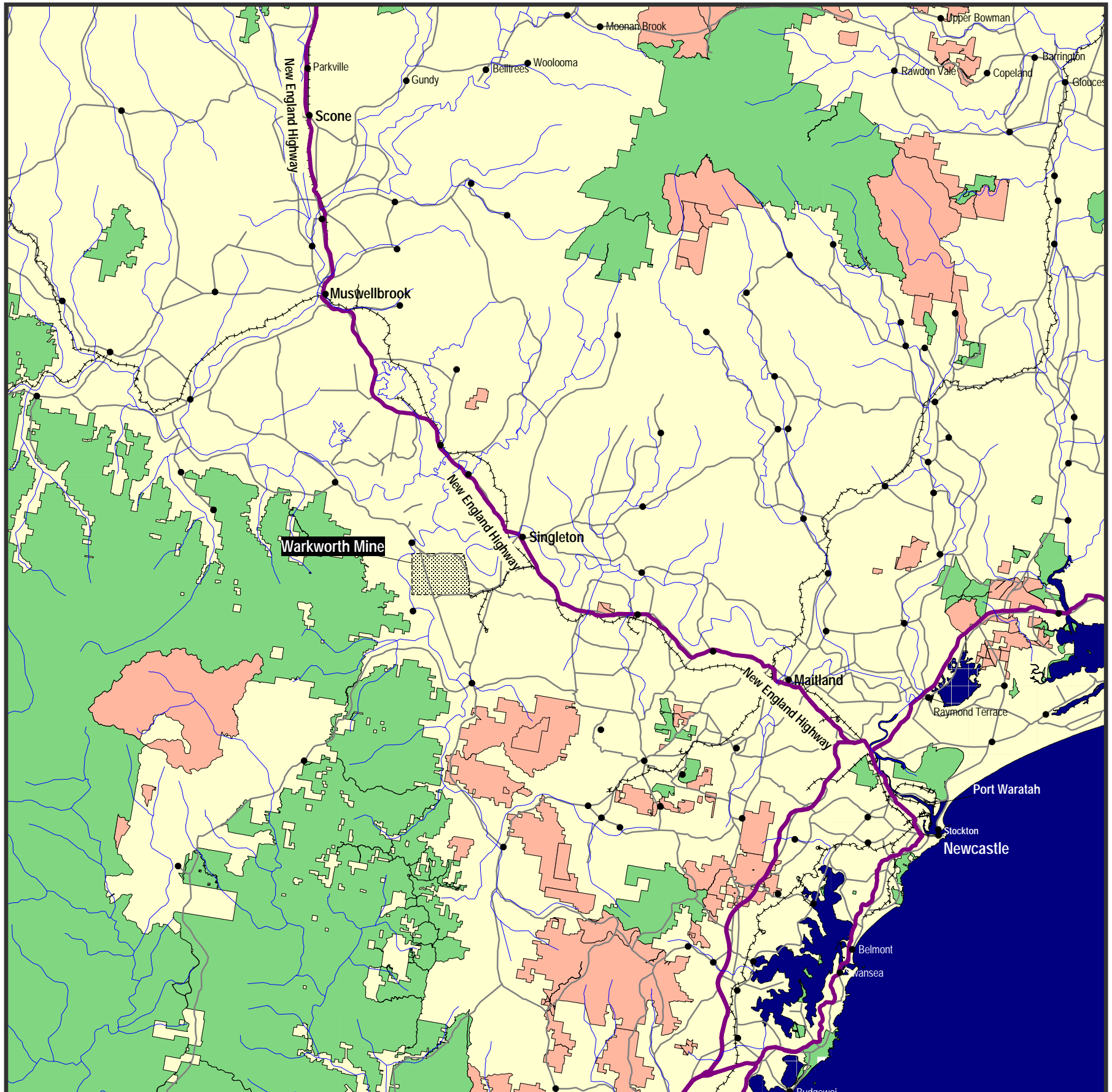
EIS-1	Location of Warkworth Mine in its Regional Setting
EIS-2	Location of Warkworth Mine in its Local Setting
EIS-3	1963 Aerial Photograph
EIS-4	1979 Aerial Photograph
EIS-5	1998 Aerial Photograph
EIS-6	General Mining Sequence
EIS-7	Flowchart of Existing Operations
EIS-8	Existing Mine Water Management System
EIS-9	Existing Mine Water Elements
EIS-10	Overview of the Proposed Extension
EIS-11	Development Application Area
EIS-12	Year 2 Mine Plan
EIS-13	Year 5 Mine Plan
EIS-14	Year 10 Mine Plan
EIS-15	Year 15 Mine Plan
EIS-16	Year 18 Mine Plan
EIS-17	Conceptual Design of Bridges Across The Putty Road
EIS-18	Conceptual Design of By-pass Road Adjacent The Putty Road
EIS-19	Proposed Upgrade of Office and Maintenance Facilities at Warkworth Mine
EIS-20	Year 10 Water Management System
EIS-21	Number of Full time Employee Equivalents Starting at Warkworth Mine
EIS-22	Approvals Process
EIS-23	Bulga and Warkworth Community Information Days
EIS-24	Employment by Industry Group in the Hunter Valley and NSW (1999-2000 Average) Weekly Individual Income of Hunter Valley and NSW (1996)
EIS-25	Stratigraphic Nomenclature of the Coal Seams in the Warkworth Area
EIS-26	Land Ownership
EIS-27	Land Ownership
EIS-28	All Years Envelope Annual Average PM ₁₀ 30 µg/m ³ Warkworth Mine and Other Mines
EIS-29	All Years Envelope Annual Average TSP 90 µg/m ³ Warkworth Mine and Other Mines
EIS-30	All Years Envelope Annual Average Dust Deposition 2 g/m ² /month Warkworth Mine Alone
EIS-31	Surrounding Receptors and Noise Monitoring Locations
EIS-32	All Years Daytime L _{eq} , 15 minute Operational Noise Levels - SI Weather, dB (A)
EIS-33	All Years Night Time L _{eq} , 15 Minute Operational Noise Levels - INP Weather, dB (A)
EIS-34	All Years Mitigated Daytime L _{eq} , 15 Minute Operational Noise Levels - SI Weather, dB (A)
EIS-35	All Years Mitigated Night Time L _{eq} , 15 Minute Operational Noise Levels - INP Weather, dB (A)
EIS-36	Aboriginal Archaeological Sites
EIS-37	Viewer Locations
EIS-38	Viewshed of Location 1
EIS-39	Viewshed of Location 2
EIS-40	Viewshed of Location 3
EIS-41	Perspective Views from Viewer Location 2
EIS-42	Viewshed of Location 4
EIS-43	Viewshed of Location 5
EIS-44	Perspective Views from Viewer Location 5
EIS-45	Viewshed of Location 6
EIS-46	Viewshed of Location 7
EIS-47	Viewshed of Location 8
EIS-48	Viewshed of Location 9
EIS-49	Viewshed of Location 10
EIS-50	Public Road Network
EIS-51	Outline of Environmental Management Plan for the Construction Phase
EIS-52	Outline of Environmental Management Plan for the Operational Phase
EIS-53	Overview of Project Alternatives

Species Impact Statement Figures

SIS-1	The Locality
SIS-2	The Proposal
SIS-3	January and February Survey Locations
SIS-4	April Survey Locations
SIS-5	Vegetation of the Subject Site
SIS-6	Threatened Fauna Recorded in the Study Area
SIS-7	Green Offset Strategy

Figure List

Digital topographic data used in this volume was sourced from Land and Property Information, 2002.



- Highway
- + + + + Railway
- NPWS Estate
- NSW State Forest

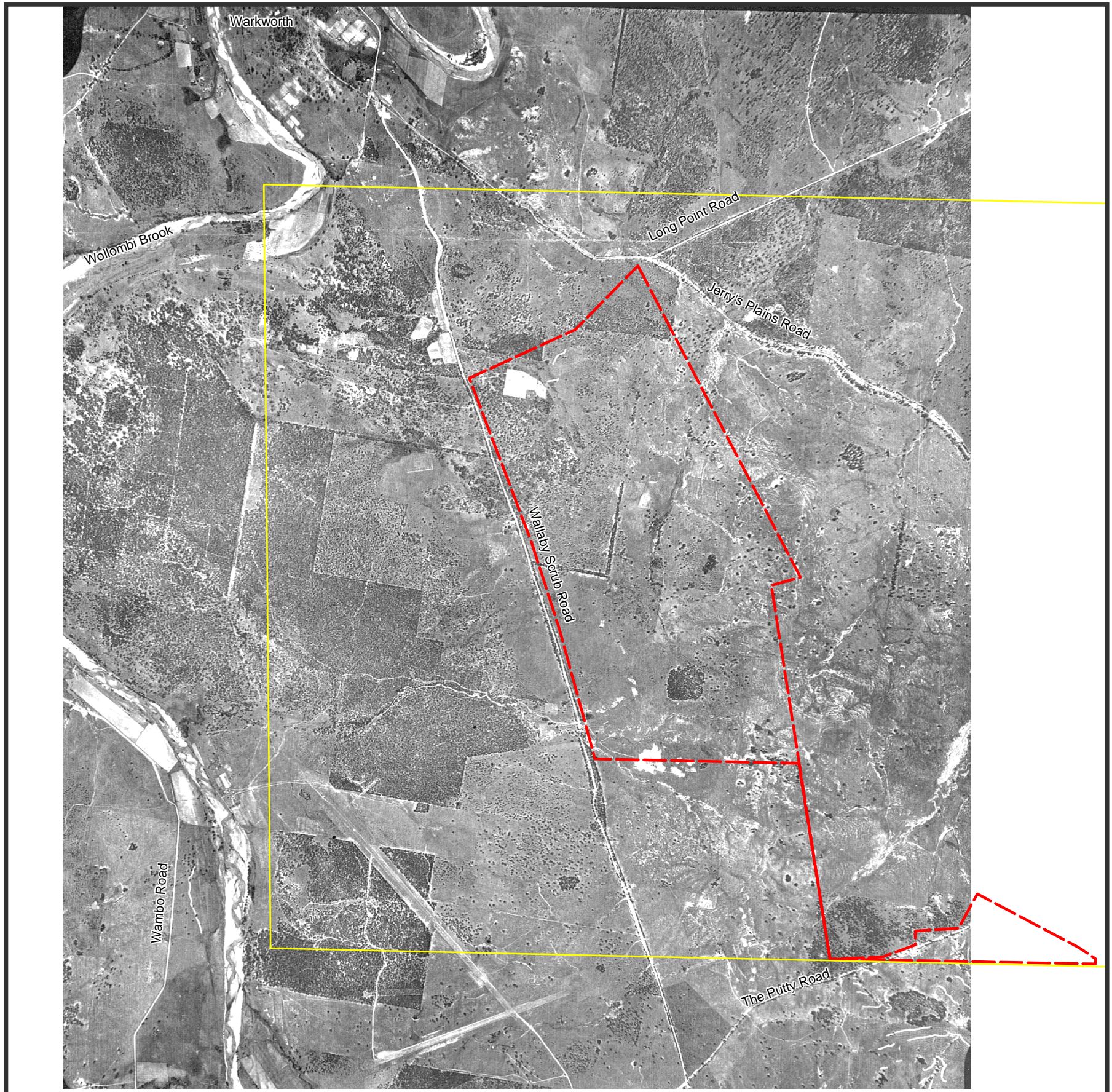
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Location of Warkworth Mine in its Regional Setting



Location of Warkworth Mine in its Local Setting

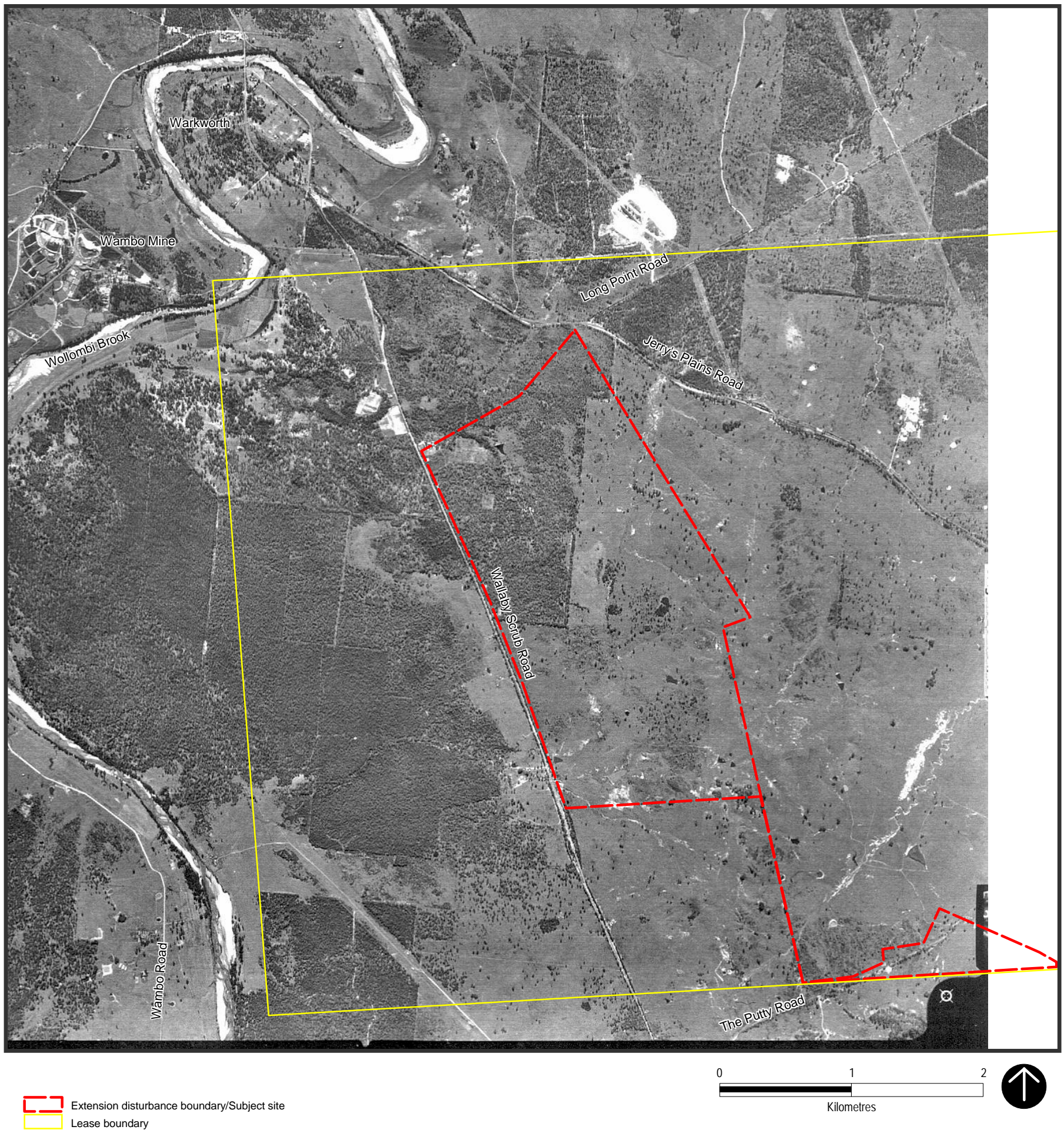


 Extension disturbance boundary/Subject site
 Lease boundary

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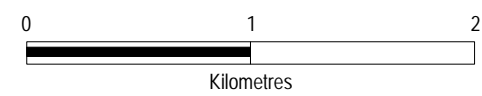
1963 Aerial Photograph



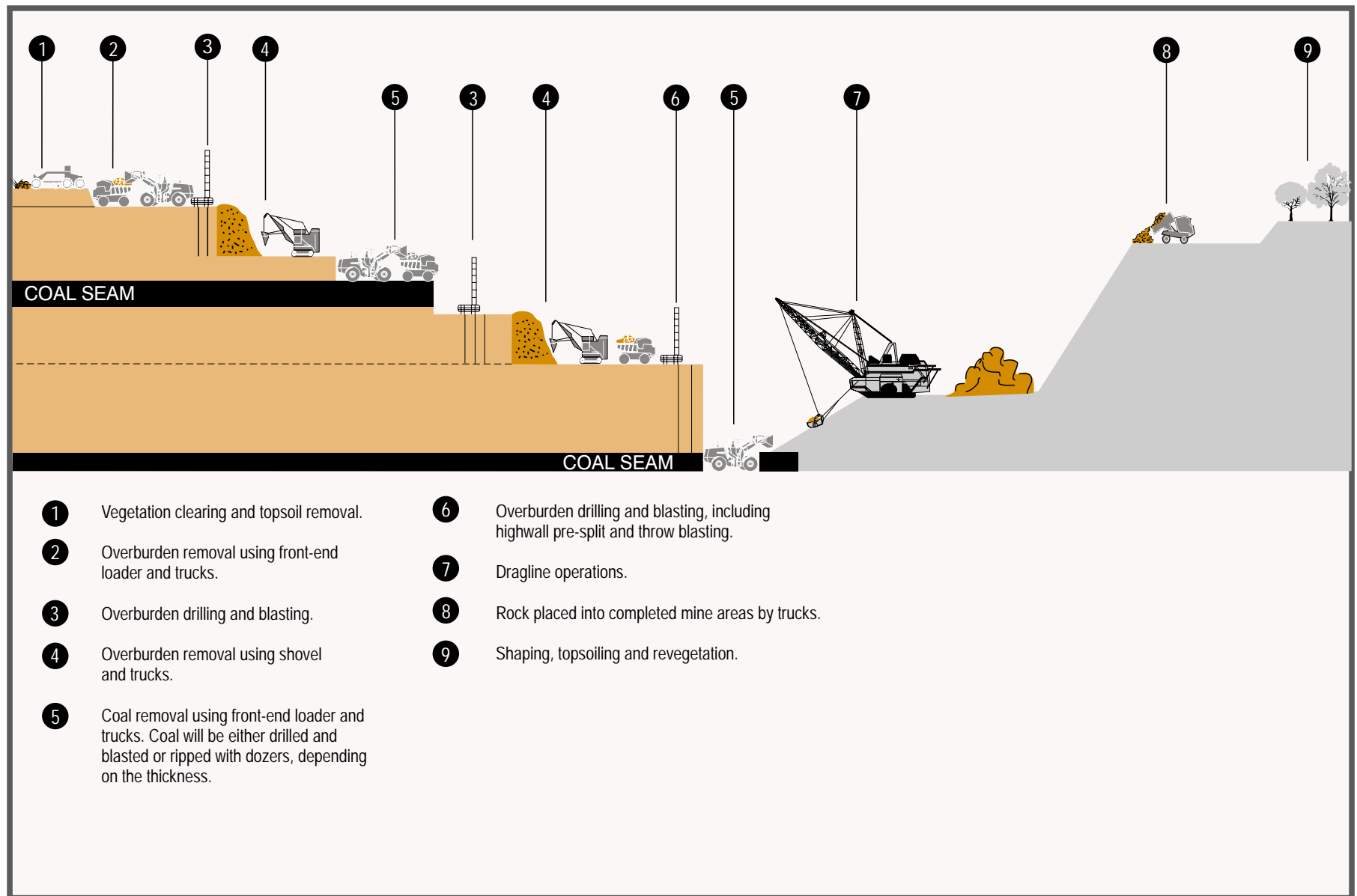
1979 Aerial Photograph



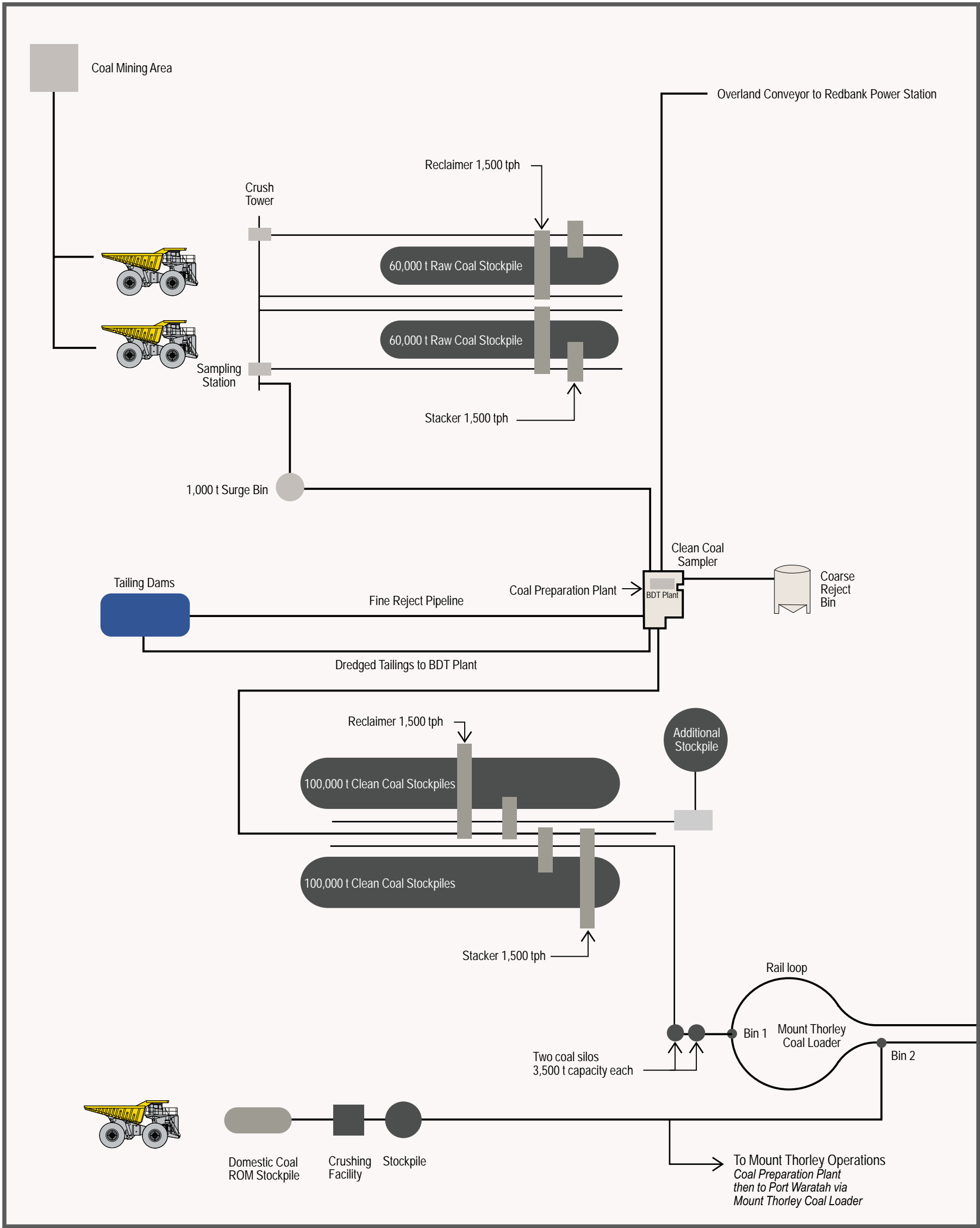
 Extension disturbance boundary/Subject site
 Lease boundary



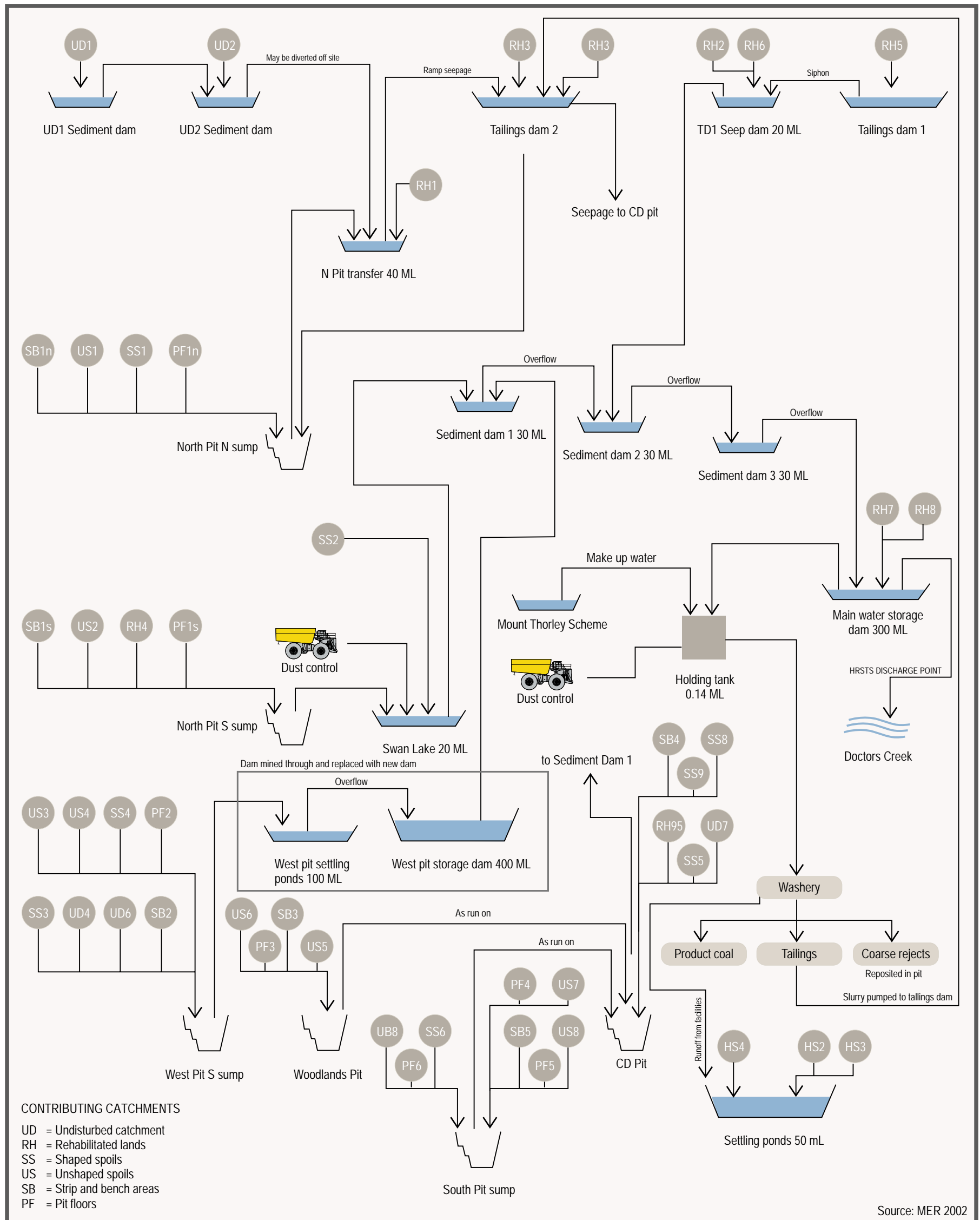
1998 Aerial Photograph



General Mining Sequence



Flowchart of Existing Operations



Existing Mine Water Management System



- Approximate current mining consent boundary
- Extent of proposed mining operations
- Year 2 mine plan
- Year 5 mine plan
- Year 10 mine plan
- Year 15 mine plan
- Year 18 mine plan

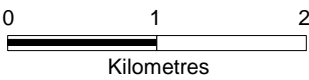
- Approximate location of conveyor
- Bridge location zone



Overview of the Proposed Extension



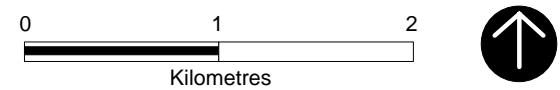
Development application area
Lease boundary



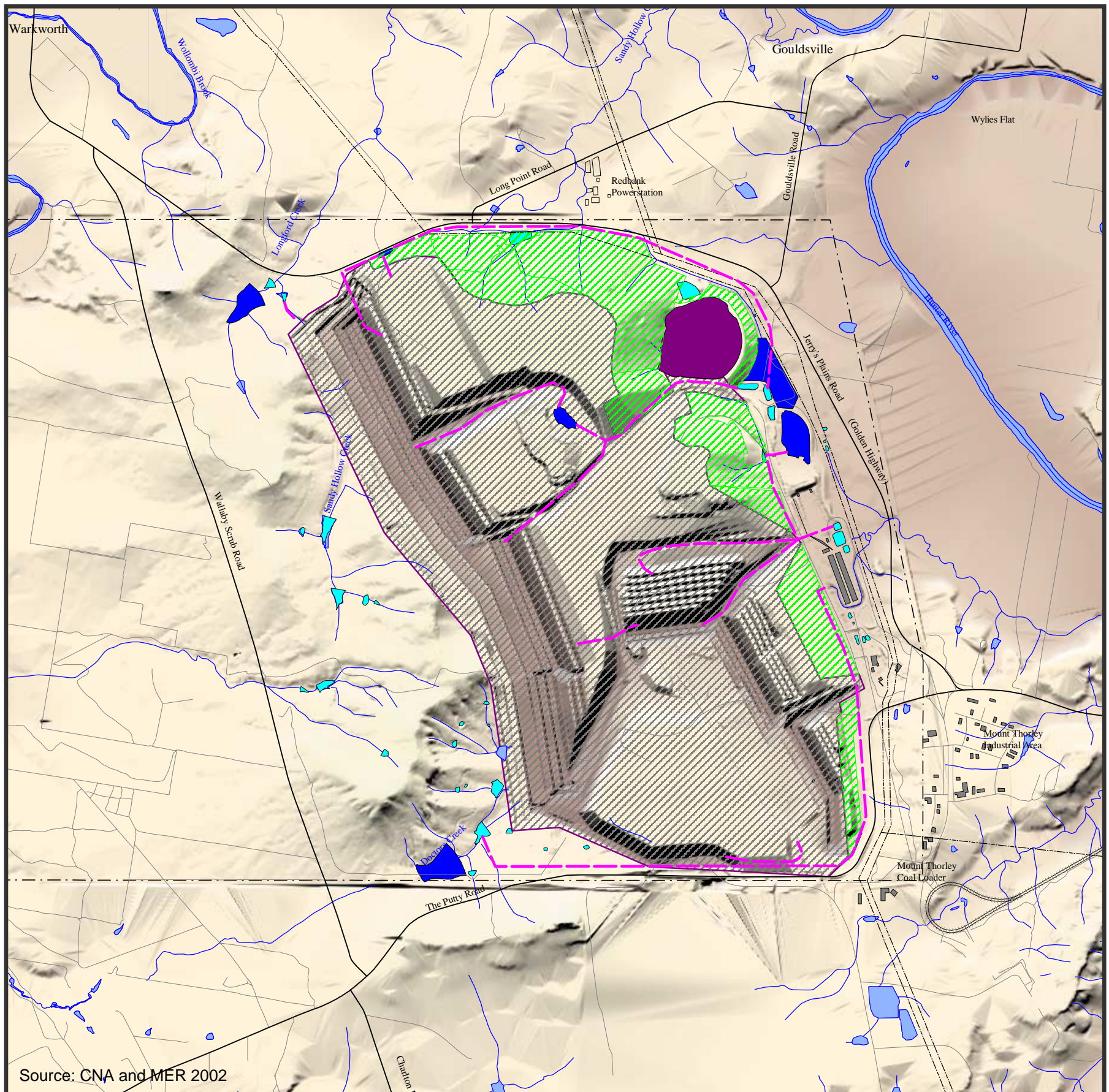
Development Application Area



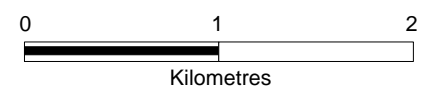
- Active mining area
- Rehabilitation area
- Pipeline
- Mine water dam
- Sediment dam
- Tailings dam
- Void water
- Lease boundary
- Powerline



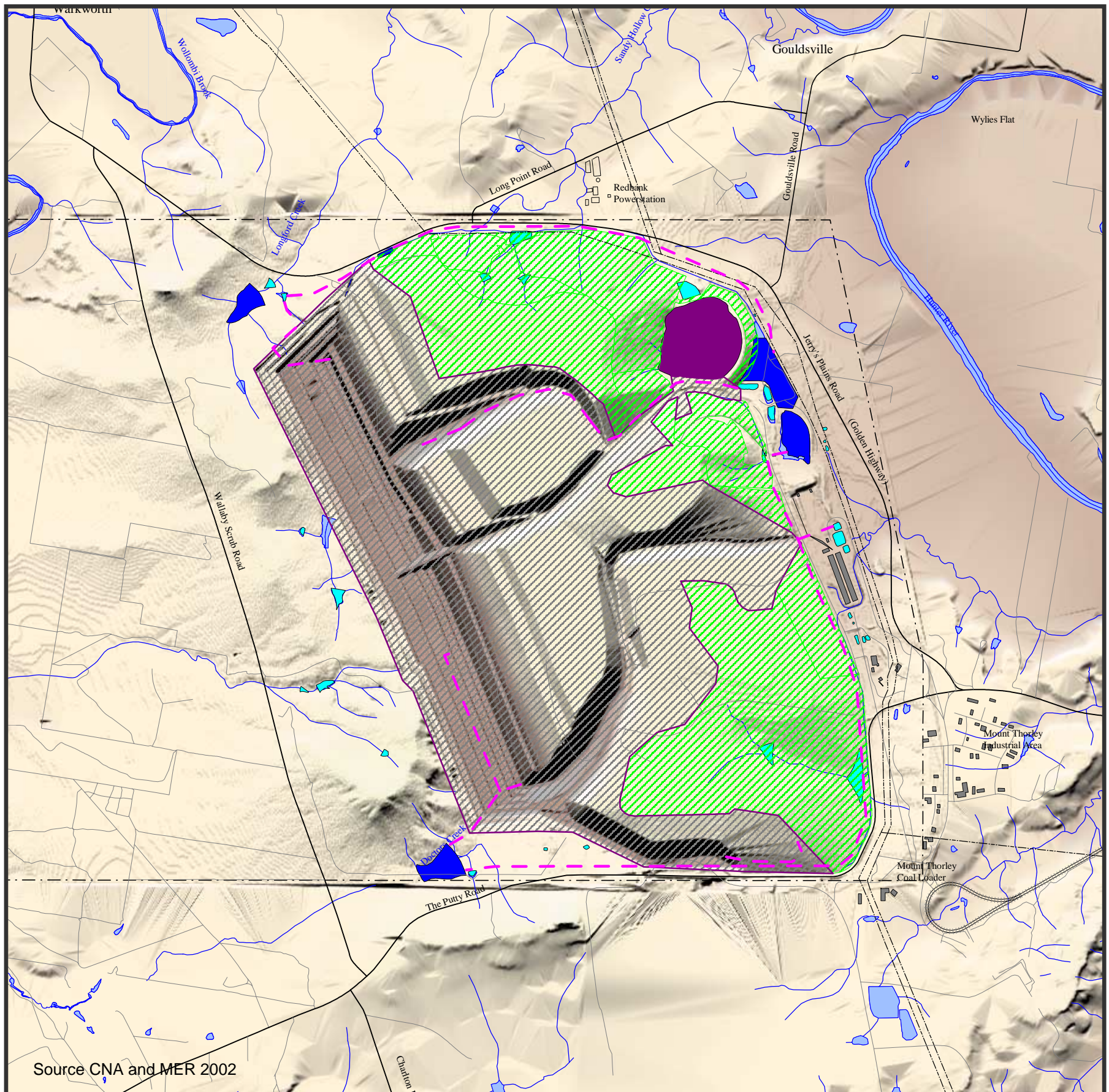
Year 2 Mine Plan












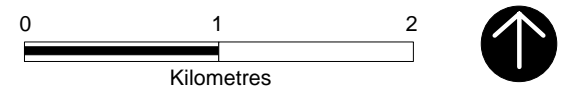
- Active mining area
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- Tailings dam
- Void water
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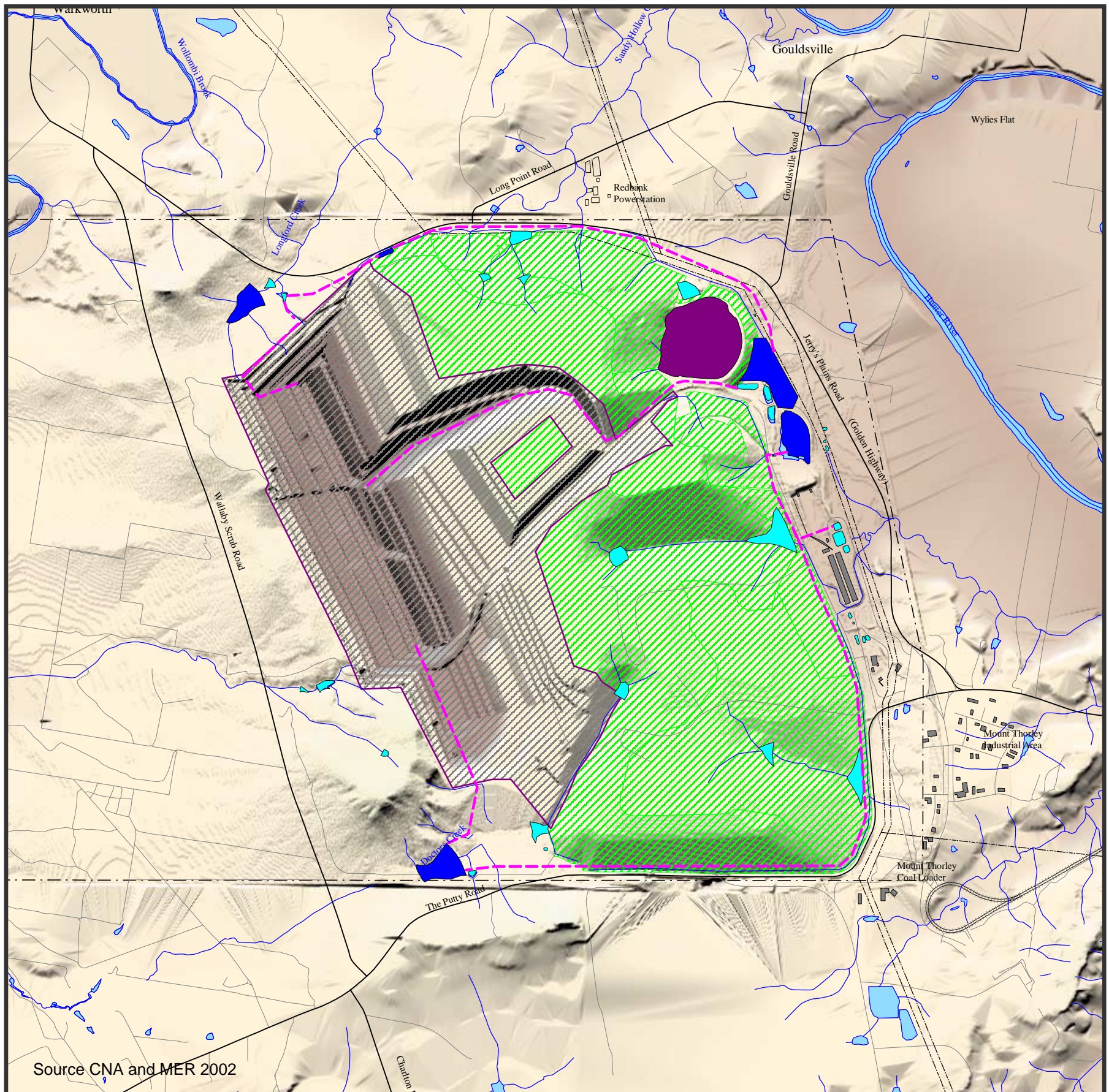
Year 5 Mine Plan



-  Active mining area
-  Rehabilitation area
-  Pipeline
-  Mine water dam
-  Sediment dam
-  Tailings dam
-  Void water
-  Lease boundary
-  Powerline



Year 10 Mine Plan



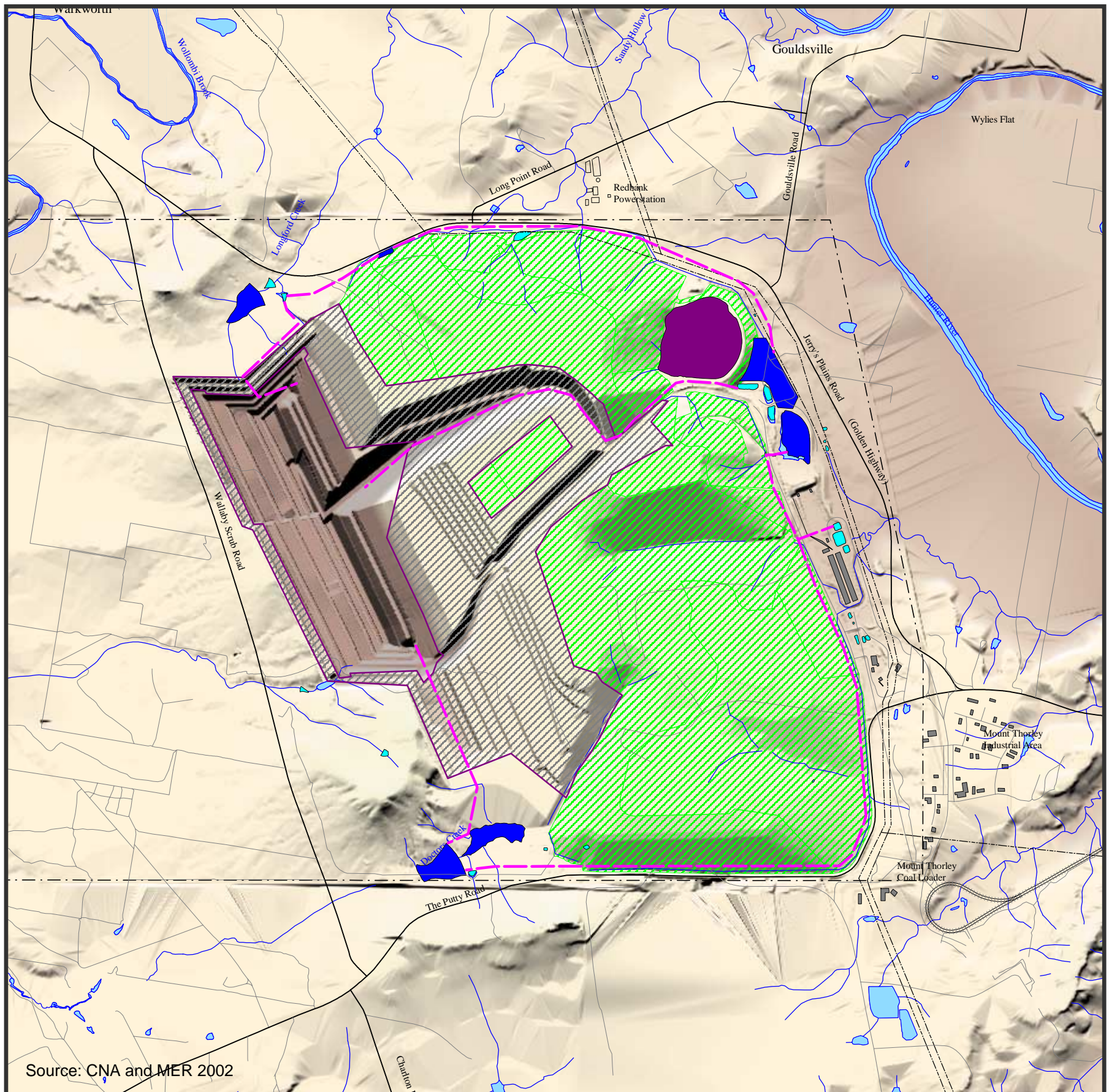
Source CNA and MER 2002

- Active mining area
- Rehabilitation area
- Pipeline
- Mine water dam
- Sediment dam
- Tailings dam
- Void water
- Lease boundary
- Powerline

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Year 15 Mine Plan

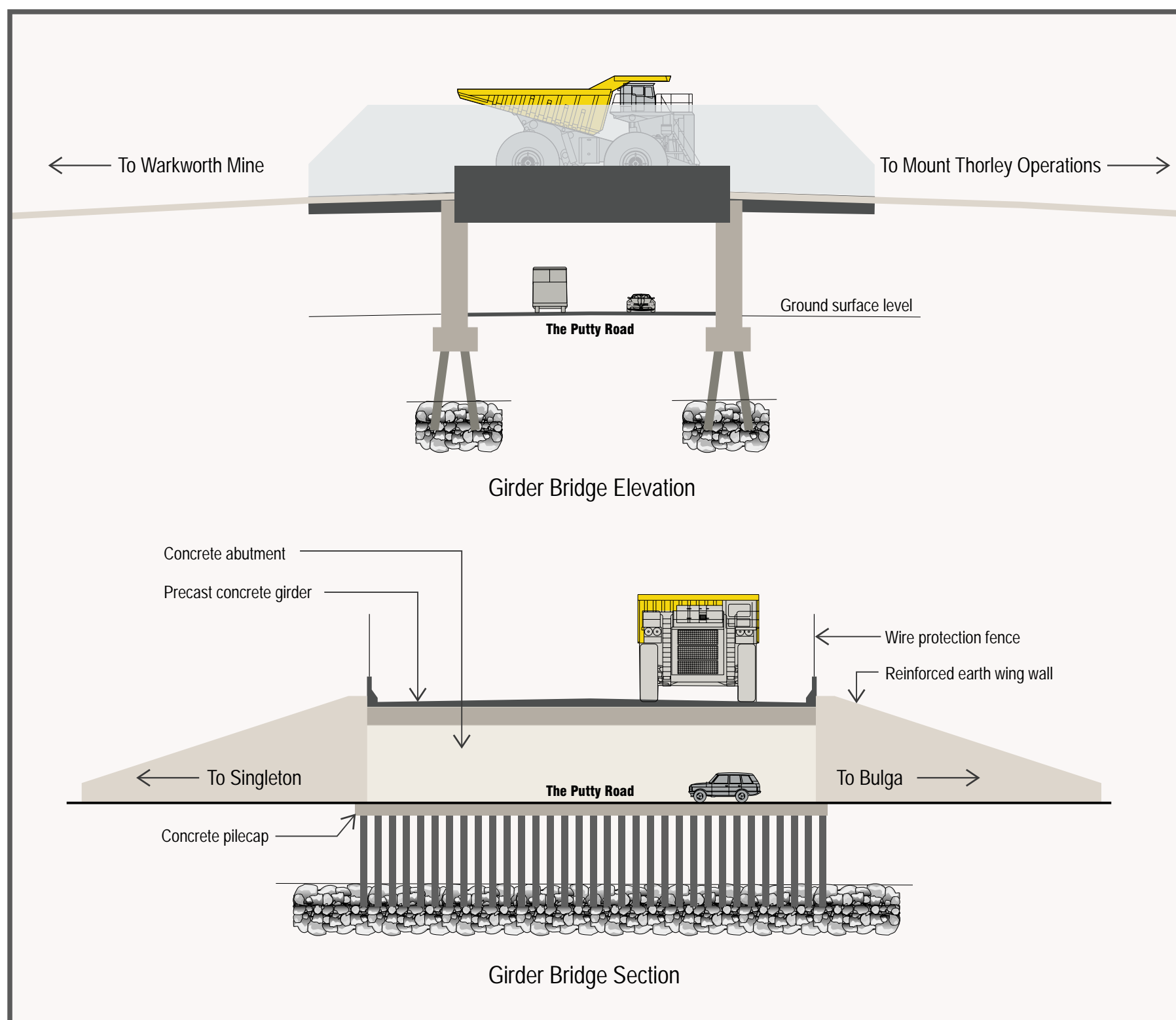


- Active mining area
- Rehabilitation area
- Pipeline
- Mine water dam
- Sediment dam
- Tailings dam
- Void water
- Lease boundary
- Powerline

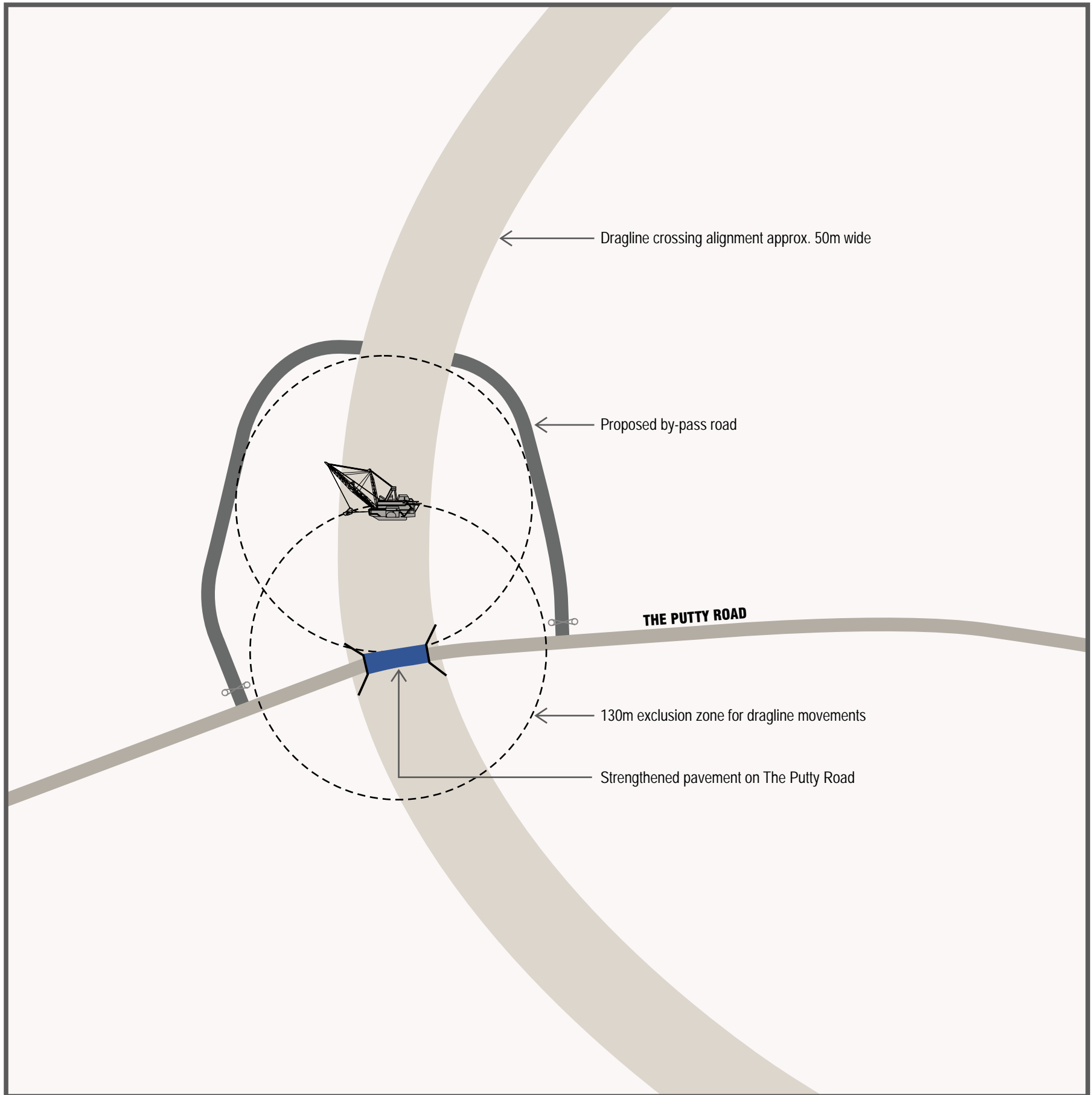
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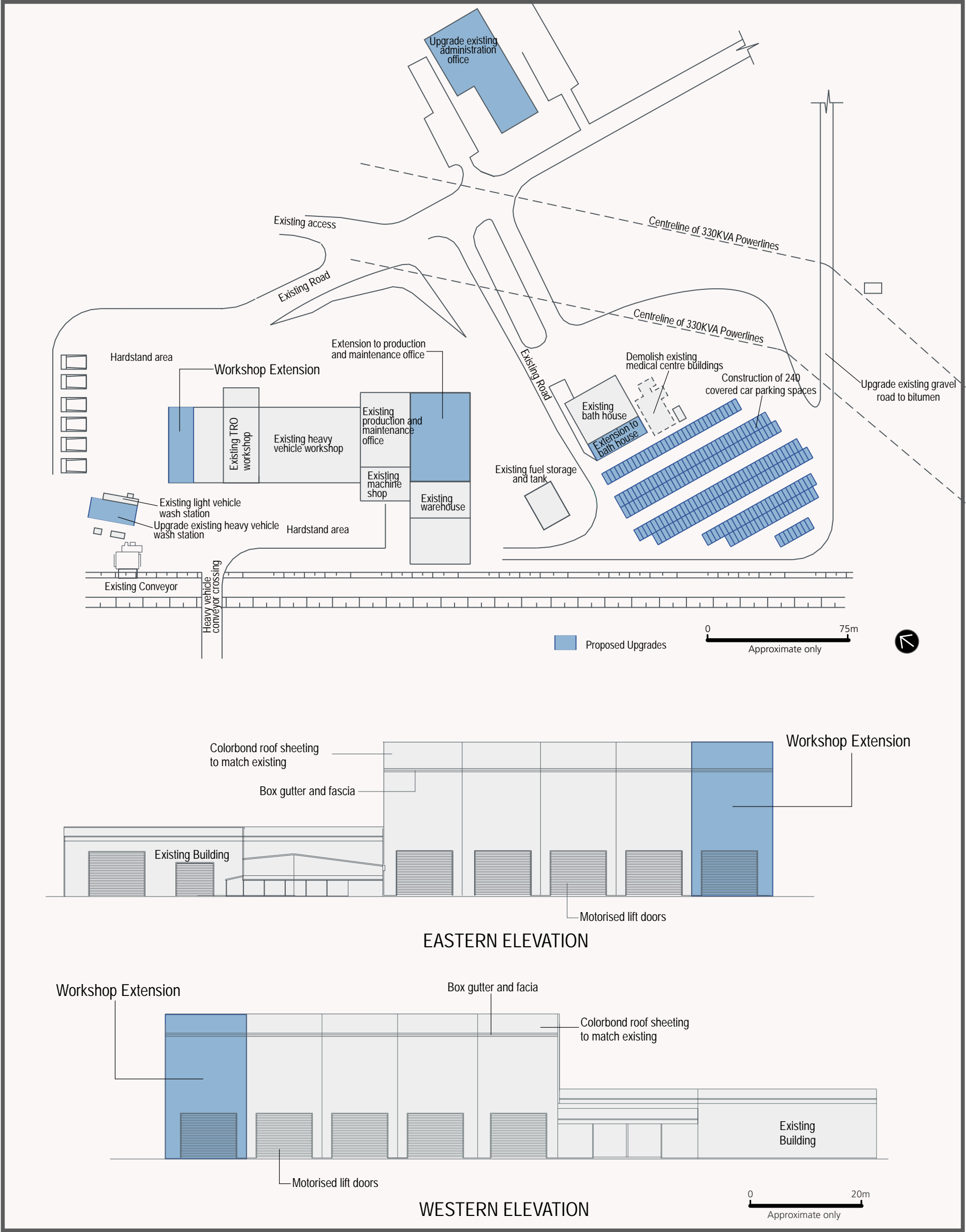
Year 18 Mine Plan



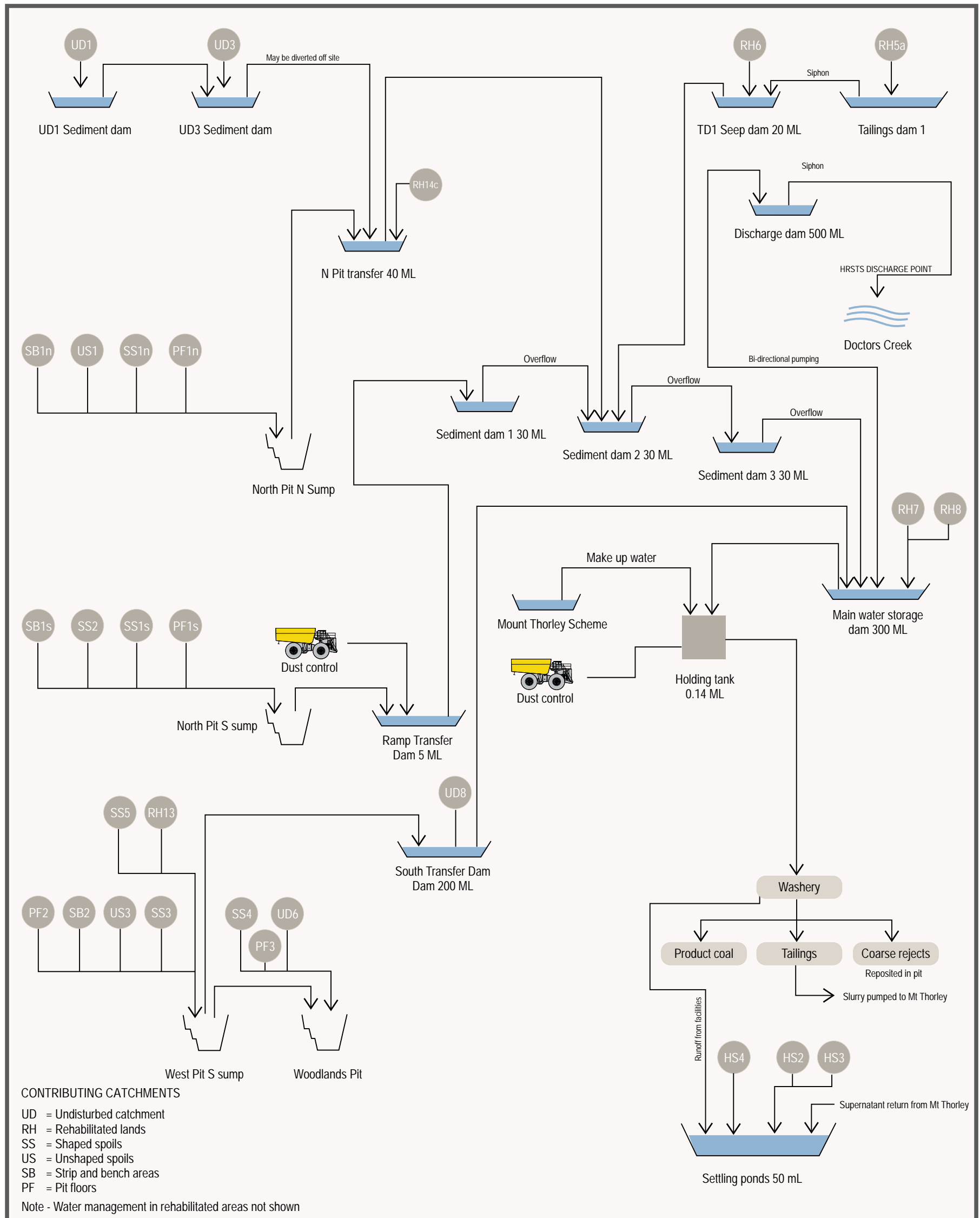
Conceptual Design of Bridges Across The Putty Road



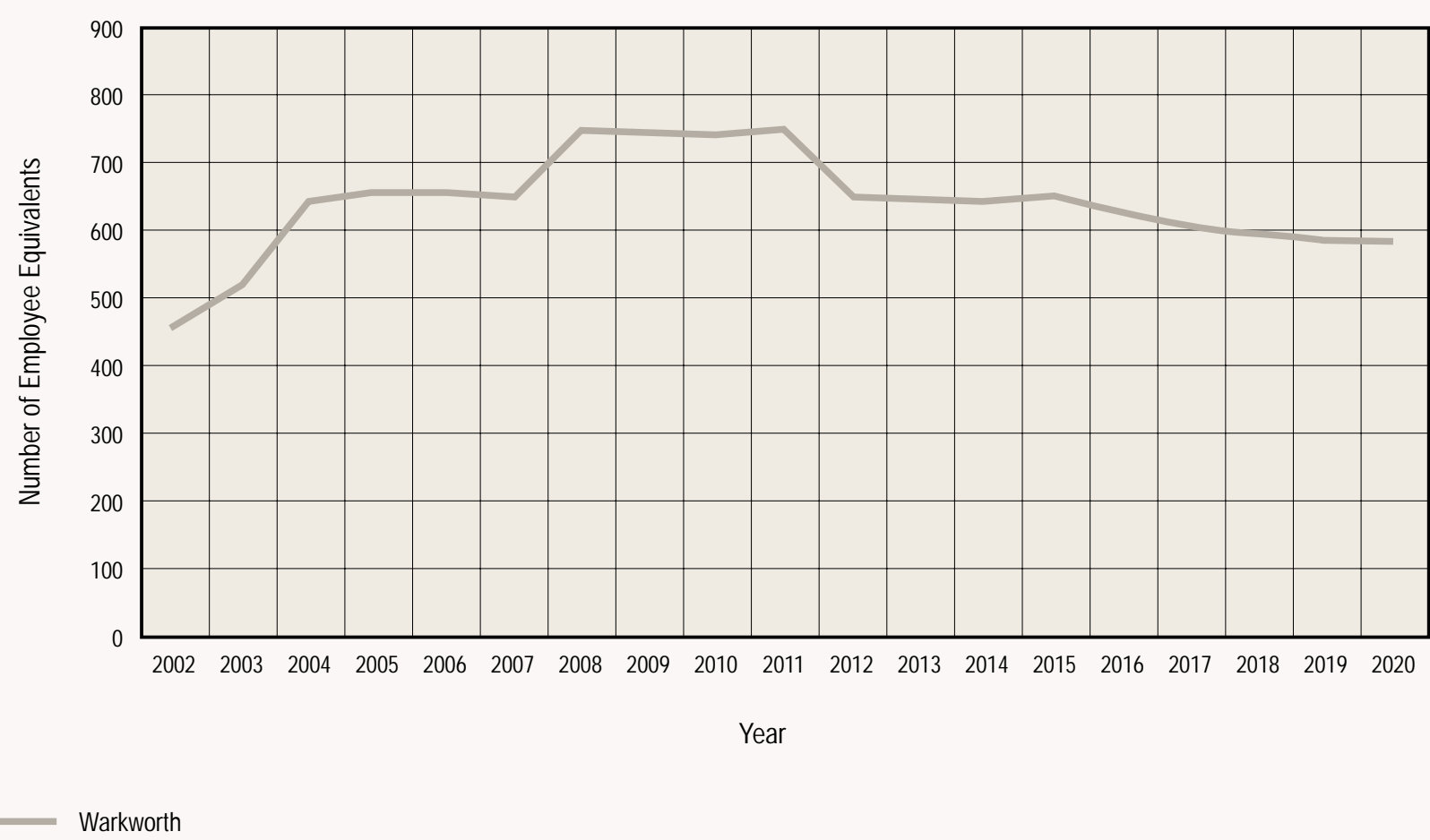
Conceptual Design of By-Pass Road Adjacent The Putty Road



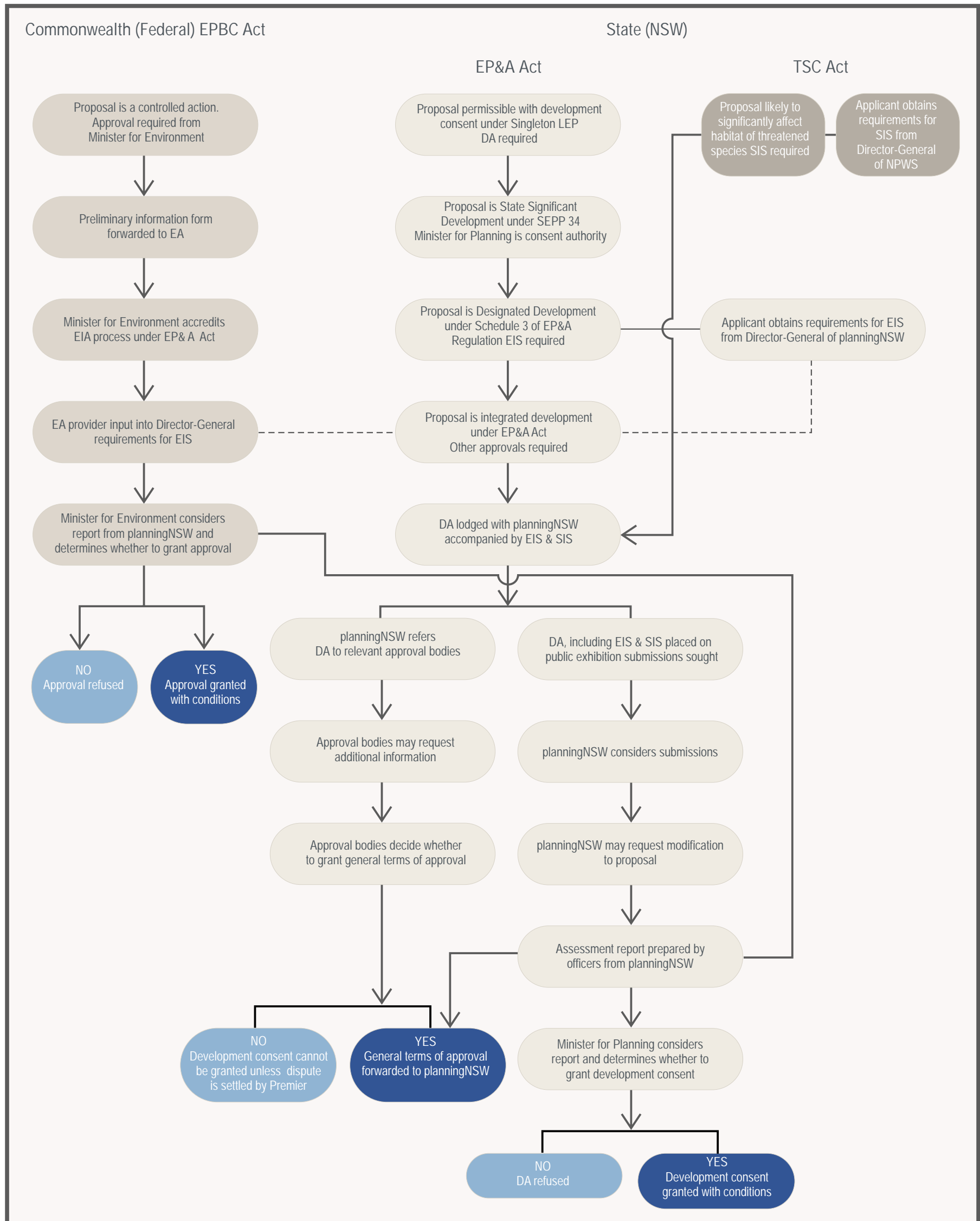
Proposed Upgrade of Office and Maintenance Facilities at Warkworth Mine



Year 10 Water Management System



Number of Fulltime Employee Equivalents Starting at Warkworth Mine



Approvals Process

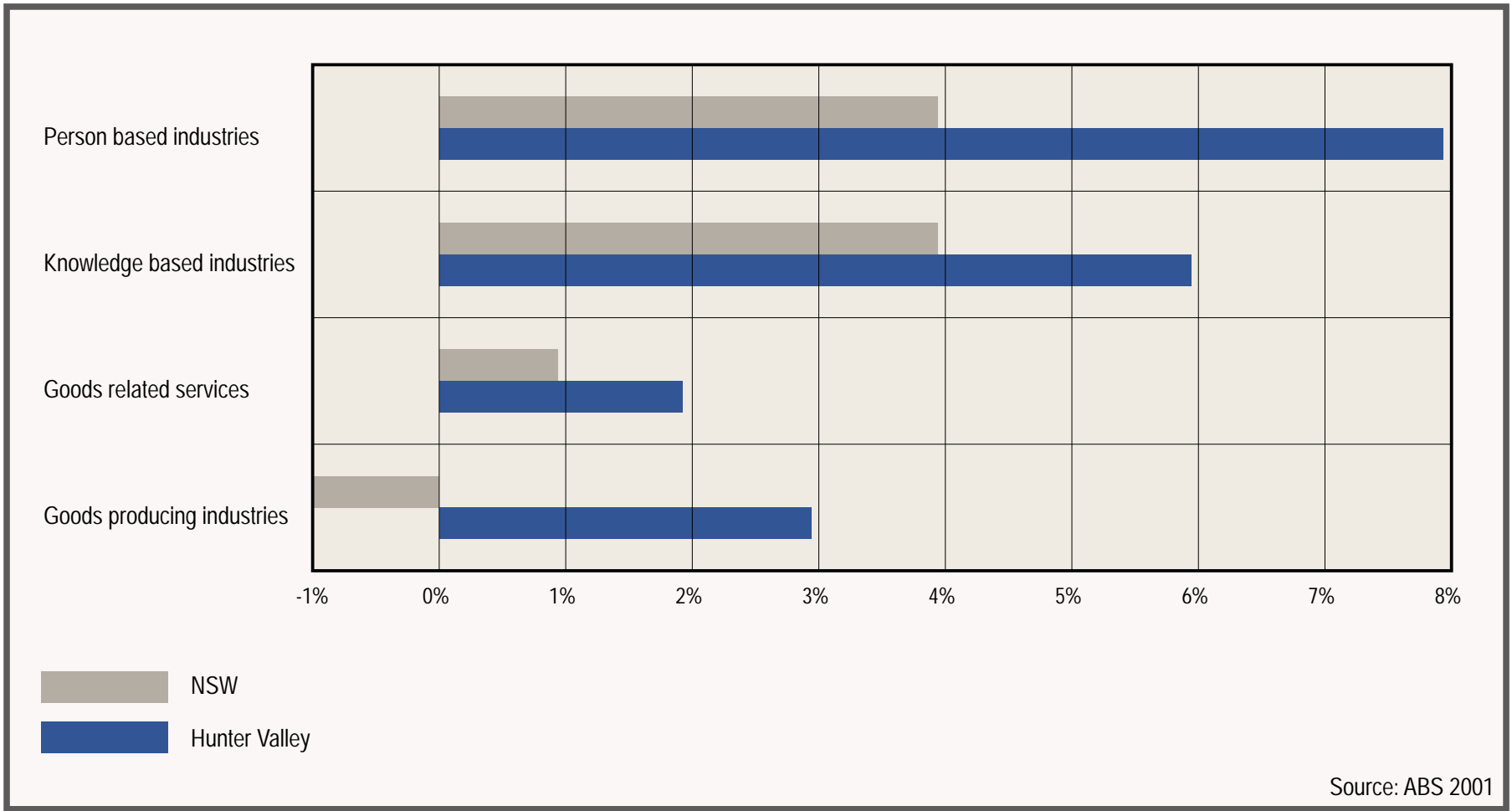


Bulga Community Information Day

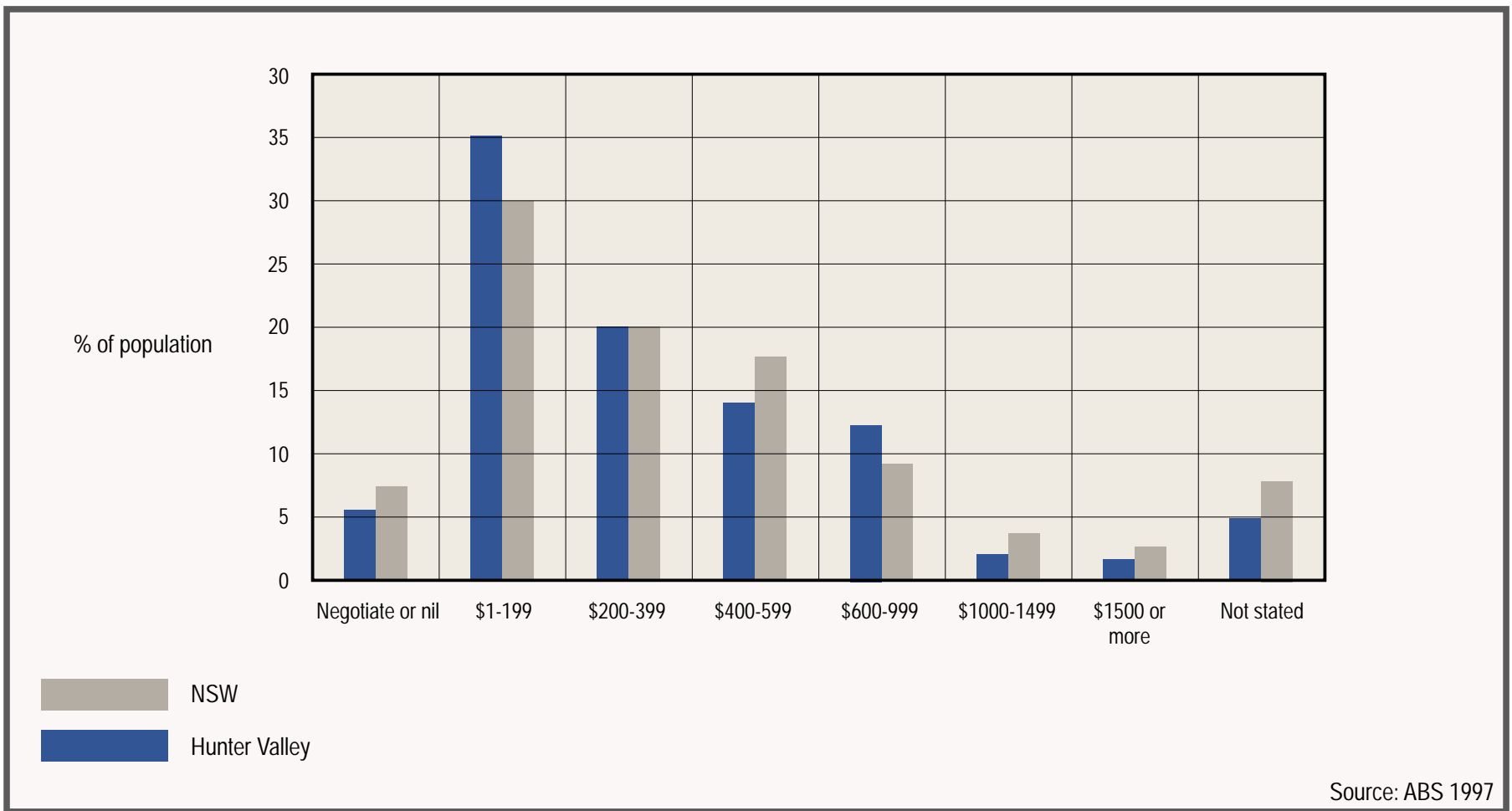


Warkworth Community Information Day

Bulga and Warkworth Community Information Days



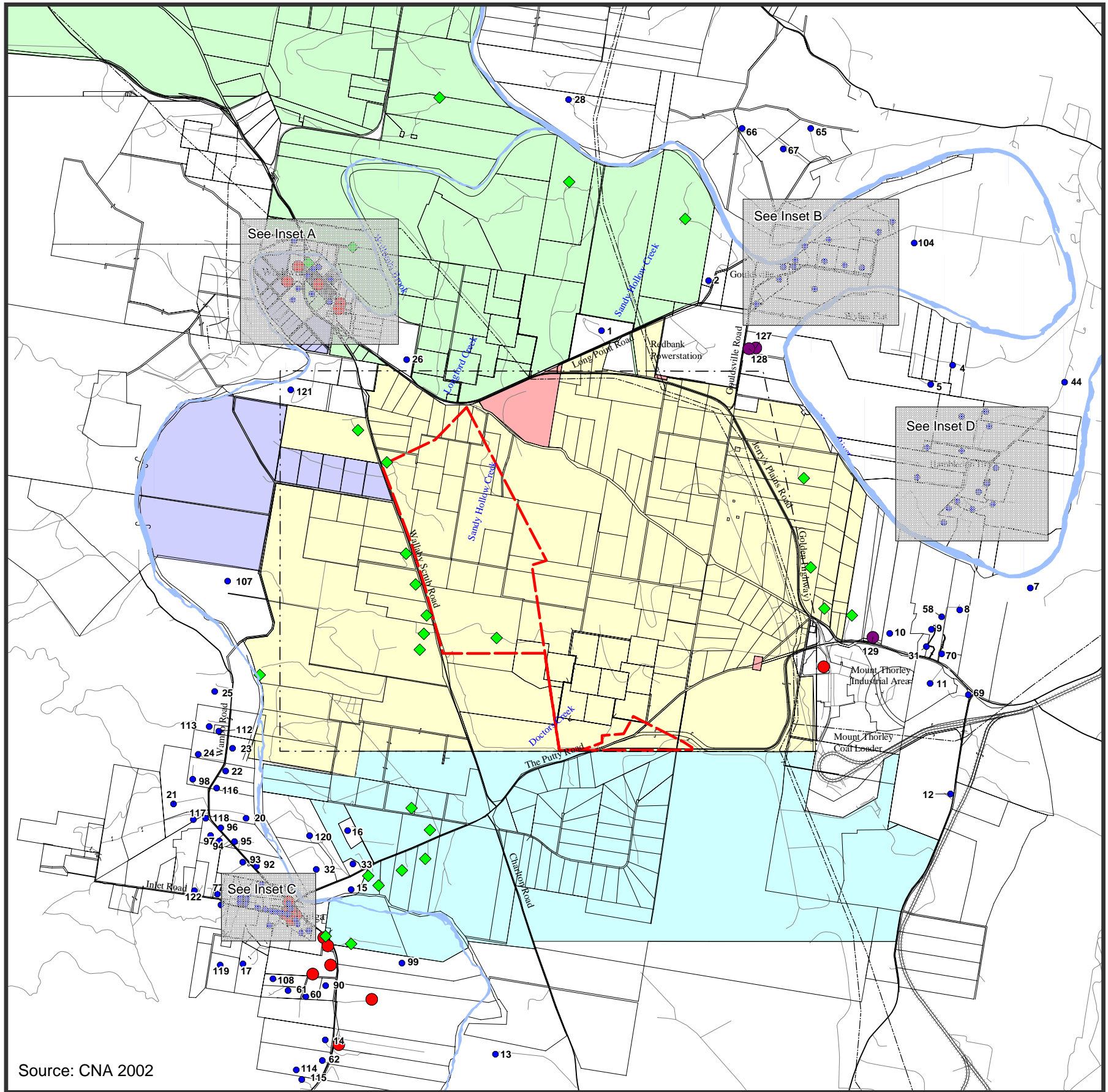
Employment by Industry Group in the Hunter Valley and NSW (1999-2000 Average)



Weekly Individual Income of Hunter Valley and NSW (1996)

Singleton Super Group	Wollombi Coal Measures	Glen Gallic Subgroup	Greigs Creek Coal	
			REDMANVALE CREEK FORMATION	
			Dights Creek Coal	Hillsdale Coal Member Nalleen Tuff Hobden Gully Coal Member
		Doyles Creek Subgroup	Waterfall Gully Formation	
			Pinegrove Formation	Hambleton Hill Sandstone Wylies Flat Coal Member Glenrowan Shale
		Horseshoe Creek Subgroup	Lucernia Coal	Eyriebower Coal Member Longford Creek Siltstone Rombo Coal Member Hillsdale Claystone Carramere Coal Member
			Strathmore Formation	
			Alcheringa Coal	
			Clifford Formation	
		Apple Tree Flat Subgroup	Charlton Formation	Stafford Coal Member Monkey Place Creek Tuff
			Abbey Green Coal	
	WATTS SANDSTONE			
	Wittingham Coal Measures	DENMAN FORMATION		
		Jerry's Plains Subgroup	Mount Leonard Formation	Whybrow Seam
			Althorpe Formation	
			Malabar Formation	Redbank Creek Seam Wambo Seam Whynot Seam Blakefield Seam
			Mount Ogilvie Formation	Saxonvale Member Glen Munro Seam Woodlands Hill Seam
			Milbrodale Formation	
			Mount Thorley Formation	Arrowfield Seam Bowfield Seam Warkworth Seam
			Fairford Formation	
			Burnamwood Formation	Mount Arthur Seam Piercefield Seam Vaux Seam Broonie Seam Bayswater Seam
		ARCHERFIELD SANDSTONE		
		Vane Subgroup	Bulga Formation	
			Foybrook Formation	Lemington Seam Pikes Gully Seam Arties Seam Liddell Seam Barrett Seam Hebden Seam
			Saltwater Creek Formation	

Stratigraphic Nomenclature of the Coal Seams in the Warkworth Area



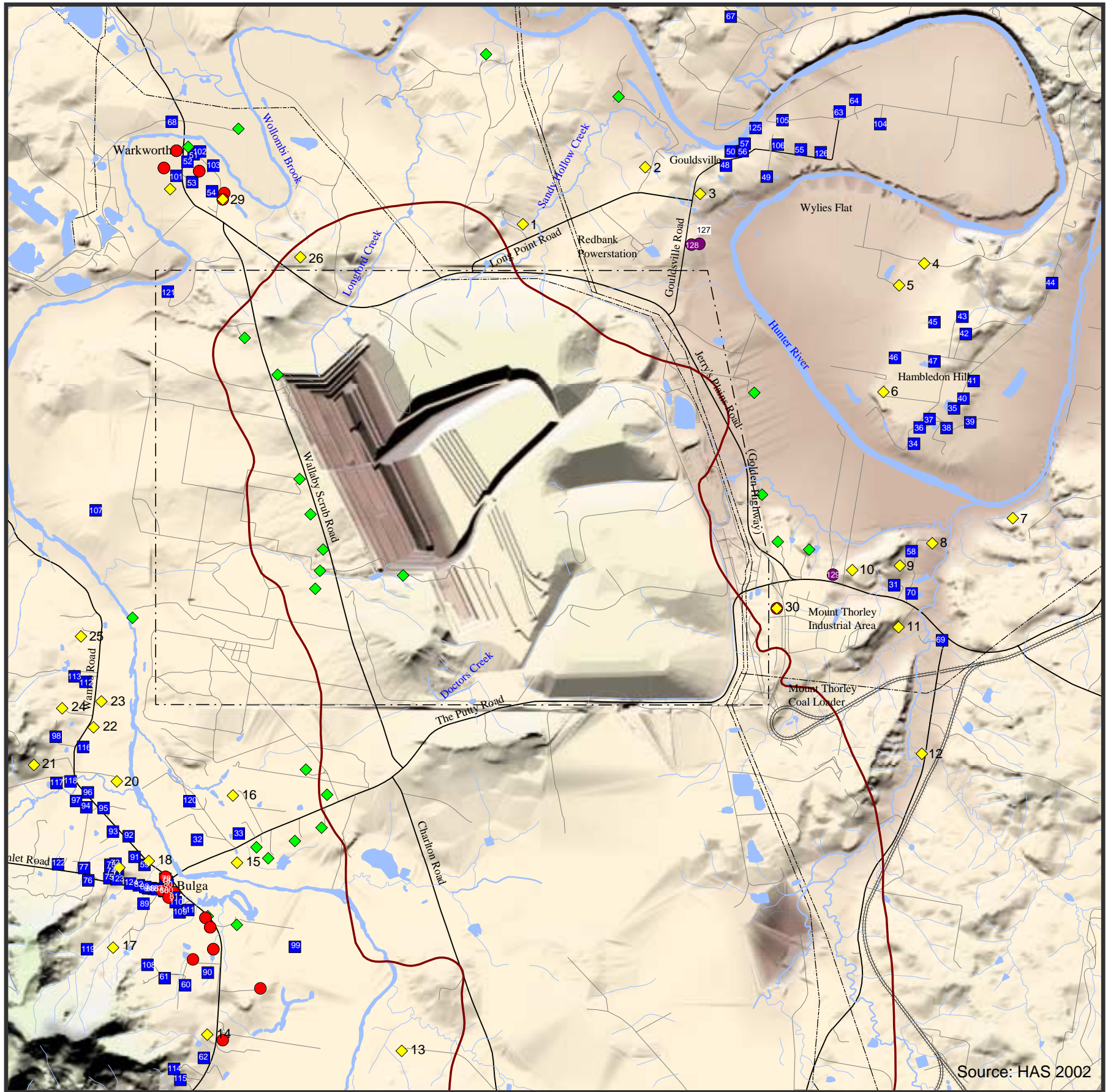
Source: CNA 2002

- Private residence
- Private residence within existing zone of affectation
- ◆ Warkworth Mine, Mount Thorley Operations or Hunter Valley Operations owned residence
- Commercial/club/church or other mine owned residence
- Warkworth Mine owned land
- Crown owned land
- Mount Thorley Operations owned land
- Wambo Mine owned land
- Hunter Valley Operations owned land
- Extension disturbance boundary
- Lease boundary

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Kilometres



Land Ownership

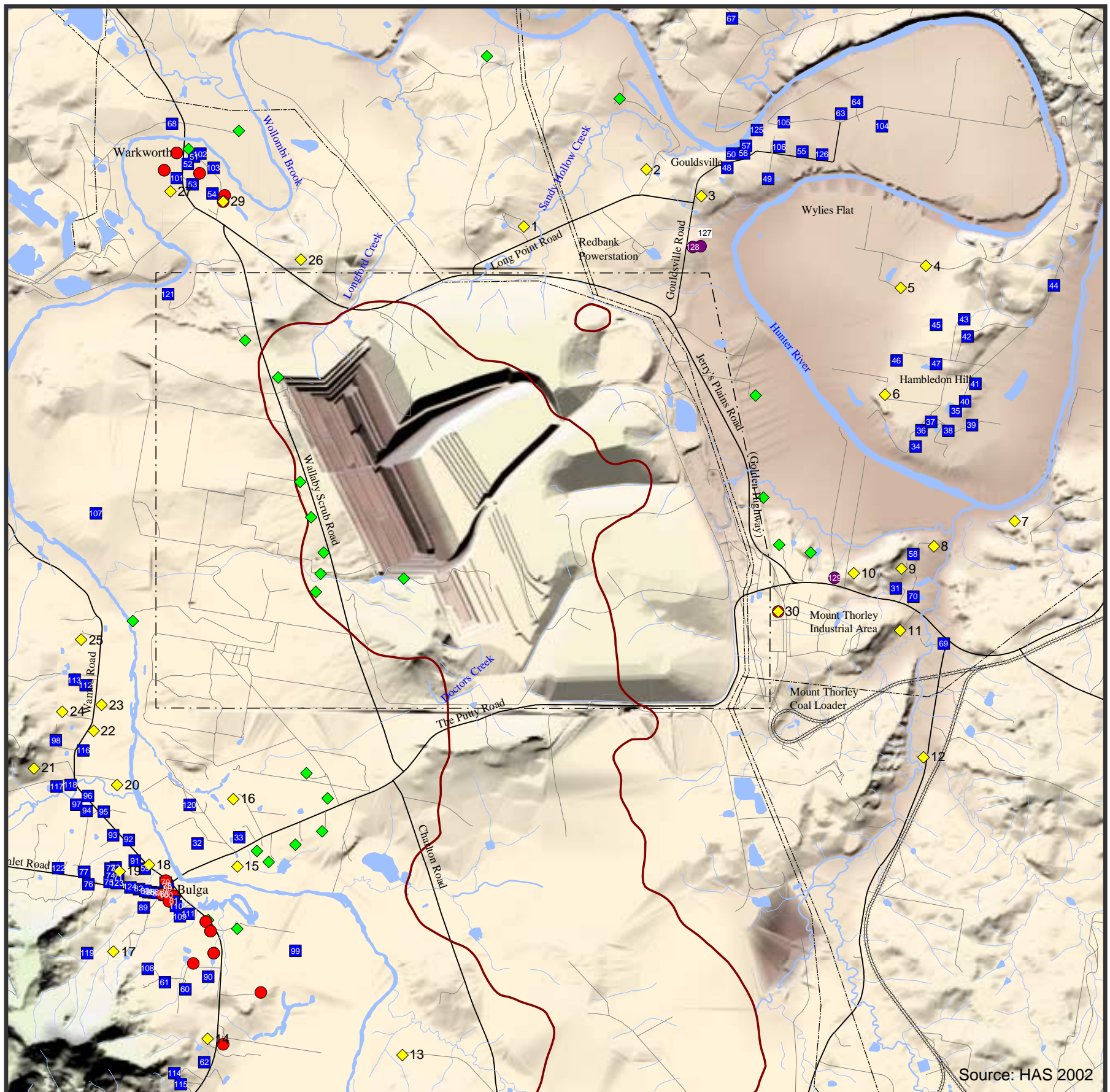


- ◆ Representative property
- PM10 30 µg/m³ contour
- Private residence
- ◆ Warkworth Mine, Mount Thorley Operations or Hunter Valley Operations owned residence
- Private residence within existing zone of affectation
- Commercial, club, church or other mine owned residence
- Lease boundary

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Kilometres



All Years Envelope Annual Average PM₁₀ 30 µg/m³ Warkworth Mine and Other Mines

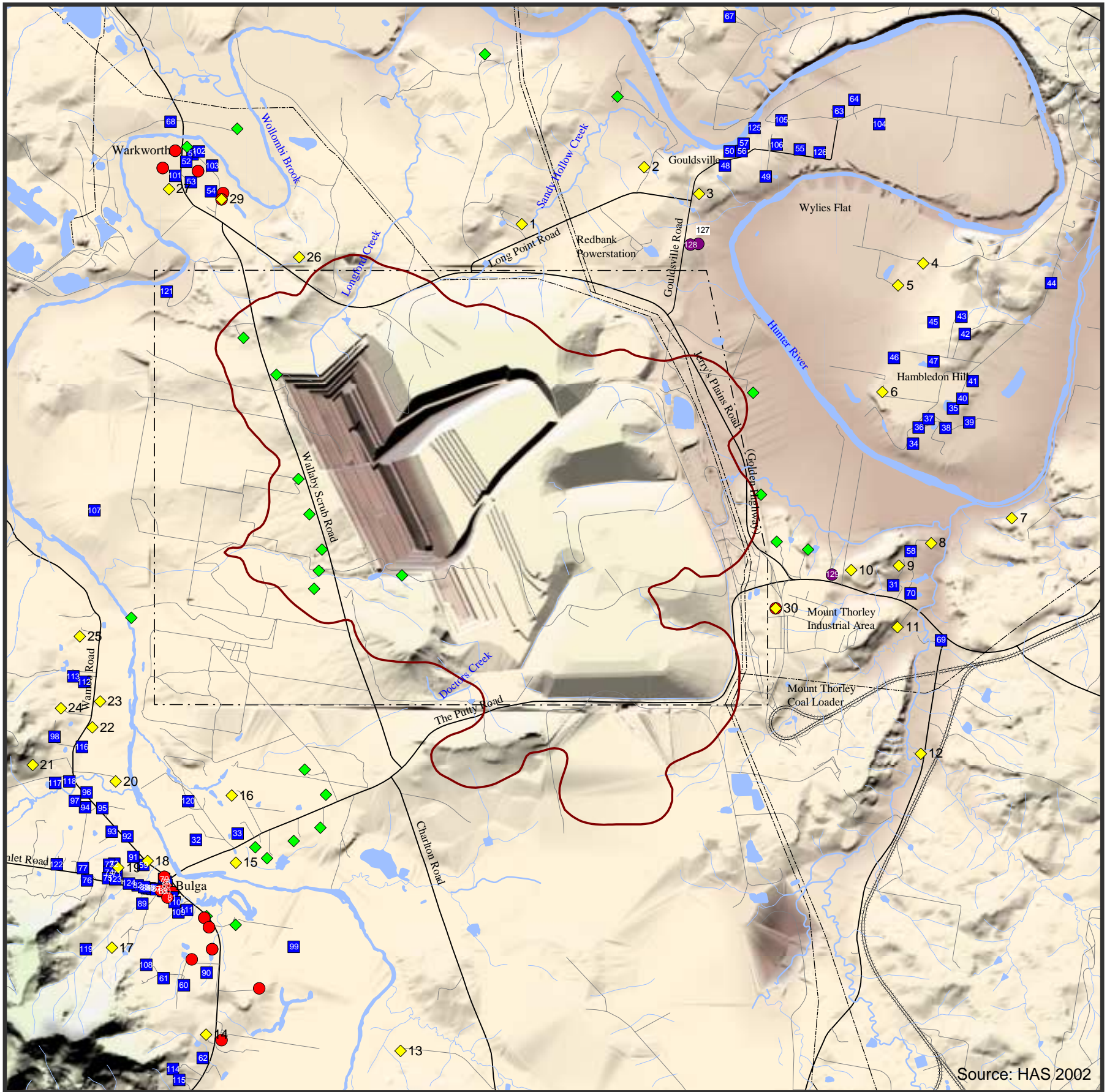


- ◆ Representative property
- TSP 90 μ g/m³ contour
- Private residence
- ◆ Warkworth Mine, Mount Thorley Operations or Hunter Valley Operations owned residence
- Private residence within existing zone of affectation
- Commercial, club, church or other mine owned residence
- Lease boundary

0 1 2
Kilometres



All Years Envelope Annual Average TSP 90 μ g/m³ Warkworth Mine and Other Mines



- ◆ Representative property
- 2 g/m²/month dust deposition contour
- Private residence
- ◆ Warkworth Mine, Mount Thorley Operations or Hunter Valley Operations owned residence
- ◆ Private residence within existing zone of affectation
- Commercial, club, church or other mine owned residence
- Lease boundary

0 1 2
Kilometres



All Years Envelope Annual Average Dust Deposition 2 g/m²/month Warkworth Mine Alone