MINING PROPOSAL

SORBY HILLS SILVER LEAD ZINC PROJECT

EAST KIMBERLEY, WESTERN AUSTRALIA

NOVEMBER 2011

MINING PROPOSAL FOR THE CONSTRUCTION AND OPERATION OF THE SORBY HILLS SILVER LEAD ZINC PROJECT MINE SITE

Tenements M80/197 & M80/286

Prepared by Sorby Management Pty Ltd with the assistance of Animal Plant Mineral Pty Ltd

CHECKLIST

Q No.	Mining proposal checklist	Y/N	Page No.	Comments
	Public availability			
1	Are you aware that the mining proposal is publicly available?	Y		
2	Is there any information in this mining proposal that should not be publicly available?	N		
3	If "No" to Q2, do you have any problems with the information contained in this mining proposal being publicly available?	N		
4	If "Yes" to Q2, has confidential information been submitted in a separate document/section?			
5	Has the mining proposal been endorsed? See last page Checklist.	Y		
	Mining proposal details			
6	Have you included the tenement number (s), site name, proposal overview and date in the title page?	Y		
7	Who authored the mining proposal?			Edgar Newman – SMPL Sharon Arena – APM
8	State who to contact enquiries about the mining proposal?			Sharon Arena – APM Contact Detail Page xv
9	How many copies were submitted to DMP?	2		1 x Hardcopy 1 x Electronic Copy
10	Is the mining proposal to support lease application?	N		
11	Has a geological resource statement been included?	Y		
12	Will more than 10 million tonnes of ore and waste be extracted per year? State total tonnage:	N		2,720,000 waste and ore extracted per annum
13	Will more than 2 million tonnes of ore be processed per year? State total throughput:	N		400,000T – 600,000T ore processed per annum
14	Is the mining proposal located on pre-1899 Crown Grant lands? (not subject to the *Mining Act*)	N		
15	Is the mining proposal located on reserve land? If "Yes" state reserve types	N		
16	Will the mining proposal occur within or affect a declared occupied townsite?	N		
17	Is the mining proposal within 2km of the coastline or a Private Conservation Reserve?	N		
18	Is the mining proposal wholly or partially within a World Heritage Property, Biosphere Reserve, Heritage Site or Soil Reference Site?	N		
	Tenement Details			
19	Are all mining operations within granted or applied for tenement boundaries?	Y		
20	Are you the tenement holder of all tenements?	N		
21	If "No" at 20, do you have written authorisation from the tenement holder (s) to undertake the Mining proposal activities?	Y		
22	If "Yes" at 21, then is a copy of the authorisation contained within the mining proposal?	N		Pursuant to Joint Venture Agreement
23	Have you checked for compliance against tenement conditions?	Y		
	Location and Site Layout Plans			
24	Have you included location plans showing tenement boundaries and mining operations?	Y		
25	Have you included site layout plans showing all mining operations and infrastructure in relation to tenement boundaries?	Y		
26	Have you included Area of Disturbance Tables for all tenements impacted by mining operations?	Y		
	Environmental Protection Act			

27	Does the mining proposal require referral under part four or the MOU? If "yes" describe.	Y		Project self referred to EPA December 2011
28	Has the EPA set a level of assessment?	N		
29	Is a clearing permit required? If 'No' explain.	Y		
30	If 'Yes' at Q29 then has a permit been applied for?	Y		VCP application submitted December 2011
31	Is a Works Approval required by DEC?	Y		
32	Has a Works Approval been submitted to DEC?	Y		Works Approval application submitted 12 December 2011
33	Stakeholder Consultation- Have the following stakeholders been consulted?	Y		
	Shire?	Y		
	Pastoralists?	Y		
	DEC?	Y		
	Main Roads?	Y		
	Others?	Y		Stakeholder Consultation Register, Appendix 17
	Environmental Assessment and Management			
34	Is the mining proposal wholly or partially within DEC managed areas?	N		
35	If 'yes' at Q34 has DEC been consulted?	N/A		
36	Is the mining proposal wholly or partially within a red book area or a bush forever site?	N		
37	Will the mining proposal impact upon a water resource area, water reserve, declared or proposed catchment, groundwater protection area, significant lake or wetland?	N		
38	Is a water or de-watering licence required?	Y		
39	If 'Yes' at Q39 then as the licence been applied for?	N		
40	Does the mining proposal include a new tailings storage or changes to existing tailings storage?	Y		
41	Has AMD assessment been undertaken?	Y		
42	Have flora and fauna checks been undertaken?	Y		
43	Are any rare species present?	Y		No DRF found however Priority Species identified. EPBC listed Threatened and Migratory birds present
44	Has preliminary closure plan been included?	Y		

I hereby certify to the best of my knowledge the above checklist accurately reflects the information contained within this mining proposal.

Name: **Edgar Newman** Signed: Date: **9 December 2011**

Position: **Project Manager – Sorby Management Pty Ltd as Manager of the Sorby Hills Joint Venture**

EXECUTIVE SUMMARY

The Sorby Hills Silver Lead Zinc Project (Sorby Hills Project) is being developed by the Sorby Hills Joint Venture being KBL Mining Limited (formerly Kimberley Metals Ltd) of Australia (75%) and Yuguang (Australia) Pty Ltd a wholly owned subsidiary of China's largest lead producer, Henan Yuguang Gold and Lead Co., Ltd (HYG&L) (25%). The Manager of the Joint Venture is Sorby Management Pty Ltd. Sorby Hills is situated in the North-East Kimberley region of Western Australia close to the Northern Territory border. The Sorby Hills Mine Site is located approximately 50 kilometres by road north-east from the regional centre of Kununurra. There is an access road linking the Sorby Hills Mine Site to the Weaber Plain Road, as well as pastoral and exploration tracks across the tenements. Infrastructure currently on site includes cattle yards, a dam, water and production bores, a small cattle loading ramp, a diesel pump, a core storage area and some disturbed areas and pads resulting from previous exploration. The Sorby Hills Project mining tenure area covers 12,612.40 hectares, with this proposal covering an area of 1,782.27 hectares (tenements M80/197 and M80/286) and a total disturbance footprint of 639.45 hectares for mine infrastructure and up to 100ha for perimeter firebreaks.

Sorby Hills is a major undeveloped Silver Lead Zinc deposit. The Sorby Hills mining leases contain 13 separate but adjacent mineralised ore pods within the platform carbonate rocks of the Burt Range Formation in the Bonaparte Basin. The ore pods form a linear belt (trending north to south) over 8 kilometres long and up to 1 kilometre wide on the eastern margin of the Pincombe Inlier. The project will initially consist of three open cut pits, comprising ore pods C, D and E, which are to be mined sequentially as separate entities, however as mining progresses the three ore bodies will be contained within one larger pit; the focus will be on resources within 70 metres of the surface. The ore will be processed by flotation and the concentrate produced will be exported through Wyndham. The site is expected to be mined over a period of 14 years at an ore production rate of 400,000 to 600,000 tonnes per annum; this will produce 45,000 tonnes per annum of concentrate for export. In addition to the open cut pits, the project will consist of a run-of-mine pad, waste dumps, haul roads, a mill and concentrator, laboratory, road train loading area, tailings dam, access roads, workshop, site office and laydown facilities at Wyndham Port.

The Sorby Hills deposit was discovered in 1971 by Elf Aquitaine. Aquitaine extensively and systematically explored the project area for carbonate hosted lead and zinc deposits during the 1970s and 1980s with various joint venture partners. Post 1990, little work was completed and the project was shelved in the late 1990s due to uncertainty surrounding the Ord River expansion scheme. In 2006 CBH Resources Ltd reactivated the Sorby Hills Project; in 2007 CBH Resources Ltd commissioned a review of the economic potential of the Sorby Hills deposits which suggested that the deposits had potential for economic extraction. KBL Mining Limited acquired the Sorby Hills Project in 2008 and entered into a Joint Venture Agreement with Yuguang (Australia) Pty Ltd a wholly owned subsidiary of China's largest lead producer, Henan Yuguang Gold and Lead for the project in 2010; in late 2010 a 99 hole Reverse Circulation and Diamond drilling program was completed. The joint venture partners have appointed KBL Mining Limited subsidiary, Sorby Management Pty Ltd, as Manager of the Joint Venture which is the proponent currently managing the Sorby Hills Project.

The mining technique for the Sorby Hills Project will consist of:

- Overburden (topsoil and clay) removal; two D10 dozers, four 631 scrapers and one 16H grader will be utilised for this purpose.

- Drill and blast operation to drill, load and blast in pre-defined patterns. Drill crew and plant will consist of a single blast hole drill rig (Sandvick DP1100 or similar) with operator, one bomb ute and shot firer and an explosives mobile manufacturing unit with operator.

- Site geologist and pit technicians will assess broken (blasted) ground to identify and delineate ore, low grade material and waste prior to load and haul commencing in the area.

- The load and haul mining fleet will include a 120 tonne excavator loading four 90 tonne haul trucks, which will transfer ore, low grade material and waste to the respective stockpile areas. Extraction will be predominantly carried out using conventional mining techniques. Ore and low grade material will be trucked along the haul road and tipped on the run-of-mine pad. Waste material will be stockpiled in designated areas on the eastern edge of the open cut to facilitate backfilling of the pit during rehabilitation.

- The mining fleet will also include support machinery; a 35 kilolitre water cart will be required for dust suppression, a grader will be utilised for general earthworks and maintenance of the truck circuit and a 40 tonne excavator will be on site to pull and maintain the batters, excavate drains and in pit sumps, and provide backup for the 120 tonne excavator.

There is a groundwater aquifer in the mineralised dolomites and a dewatering system will be required to enable mining. Sorby Management Pty Ltd will construct periphery dewatering bores and install a typical in-pit sump.

The ore processing plant at the Sorby Hills Project Mine Site will comprise the following components;

- Run-of-mine pad and crusher loading facility

- Primary and secondary crusher, screens and associated fine ore bins

- Grinding circuit comprising a sag mill and a ball mill

- Flotation circuit, including flotation tanks, pumps and pipe work

- Associated infrastructure including a thickener, electrical switch room, backup generators and diesel storage area.

The run-of-mine pad will be used to stockpile ore and low grade material prior to processing; material will be delivered by haul trucks and stockpiled according to the material's characteristics. Ore material from these stockpiles will be fed into the crusher hopper using a front-end loader. If required the material will be blended either through creation of secondary stockpiles or during crusher loading operations.

The feed material will be crushed using a primary jaw crusher then conveyed to a coarse ore stockpile. Material from this stockpile is then fed to a primary sag mill followed by a secondary ball mill. The capacity of the processing circuit is approximately 500,000 tonnes per annum based on 24 hour operations.

From the course ore stock pile, ore will be mixed with water and milled to -200 microns before passing to the flotation circuit. The ore-water slurry will be mixed with a range of industry standard reagents; the slurry and reagent mixture will then be passed to a series of tanks where air is blown through the substance. Selected sulphide materials will adhere to these air bubbles, float to the surface and be skimmed off to form a concentrate. The concentrate to be produced by the Sorby Hills Project operations is a silver, lead, zinc composition. Following skimming, the concentrate product will be dried in a filter press and packaged directly into fully sealed and lockable containers for short term on site storage and subsequent transport off site. The tails from the flotation circuit will report to the tailings storage facility. The flotation circuit and filter press are contained within covered concrete bunded areas.

The Sorby Hills Project will have a significant impact on the community of Kununurra where Sorby Management Pty Ltd (and subcontractors) will employ and accommodate site personnel. In addition, employment opportunities will be created at the Wyndham Port which may benefit the community of Wyndham. Sorby Management Pty Ltd maintains a high degree of community focus and will develop the Sorby Hills Project in line with best practice community, environmental and safety standards.

The Sorby Hills Project site lies within the traditional lands of the Miriuwung Gajerrong people. Although the Sorby Hills tenements pre-date the *Native Title Act 1993* (Cth), a Heritage Protection Agreement was developed between the previous owners of the Sorby Hills tenements and the Miriuwung Gajerrong Corporation; as part of this agreement Sorby Management Pty Ltd will develop an Indigenous Land Use Agreement with the Miriuwung Gajerrong Corporation. Sorby Management Pty Ltd is committed to providing contracting opportunities, employment and training for the Traditional Owners.

Environmental effects from Mine Site activities, such as clearing, erosion, water abstraction and the generation of dust, noise and light, will be managed to mitigate or minimise any impacts. Additionally, extensive management and monitoring strategies will be implemented to mitigate or minimise risks including those relating to the contamination of the environment, including water sources, or unexpected significant negative impacts on faunal populations in the area. To reduce these and other risks, the Sorby Hills Project Mine Site operations, as well as the haulage and transport of concentrate and goods to and from the project area, will be subject to strict management strategies. Methods to mitigate the impact of the Sorby Hills Project on the environment include the use of sealable, lockable containers for the transport of concentrate, the development of an artificial water body to attract fauna away from the Tailings Storage Facility and the development of an exclusion boundary to provide a buffer between the proposed conservation reserve and the project area. The maintenance of the foothills and interzone habitats will assist in mitigating the impacts on flora and fauna in the region. A comprehensive list of management commitments is provided in the Commitments Table on page xvii.

TABLE OF CONTENTS

SECTION **Page No**

1 BACKGROUND INFORMATION 1
1.1 Ownership 1
1.2 Project Overview 1
1.3 Location and Site Layout Plans 3
1.4 History 5
1.5 Existing Facilities 5
2 EXISTING ENVIRONMENT 6
2.1 Regional Setting 6
2.2 Geology 6
2.3 Characterisation of Waste Rock and Tailings 12
2.4 Soils and Soil Profiles 12
2.5 Hydrology 13
2.5.1 Surface Water 13
2.5.2 Groundwater 15
2.6 Climate 15
2.7 Biological Environment 16
2.7.1 Flora and Vegetation 16
2.7.1.1 Regional Vegetation 16
2.7.1.2 Vegetation of the Project Area 18
2.7.1.3 Vegetation of Conservation Significance 20
2.7.1.4 Flora 20
2.7.1.5 Flora of Conservational Significance 20
2.7.1.6 Vegetation Condition 27
2.7.2 Fauna 32
2.7.2.1 Fauna Species Richness, Abundance and Diversity 32
2.7.2.2 Fauna Habitat Value 33
2.7.2.3 Non-Volant Fauna Species of Conservation Significance 37
2.7.2.4 Bats 39

2.7.2.5 Avifauna 39
2.7.2.6 Avifauna of Conservation Significance 40
2.7.2.7 Stygofauna and Troglofauna 40
2.8 Social Environment 41
3 PROJECT DESCRIPTION 42
3.1 Area of Disturbance 42
3.2 Mining Operations 44
3.3 Ore Processing 46
3.4 Tailings Storage 50
3.5 Concentrate Handling 50
3.6 Support Infrastructure 53
3.7 Workforce 53
3.8 Transportation Corridors 54
3.9 Resource Requirements and Regional Infrastructure 56
3.10 Compliance with Legislation and Other Approvals 56
3.10.1 Relevant Legislation 56
3.10.2 Standards, Guidelines and Codes of Practice 57
3.10.3 Approvals and Licences 59
3.10.4 Tenement Conditions 60
4 ENVIRONMENTAL IMPACTS AND MANAGEMENT 63
4.1 Environmental Management 63
4.2 Risk Assessment and Environmental Monitoring 64
4.3 Biological Impacts 66
4.3.1 Flora, Fauna and Ecosystems 66
4.3.2 Land Clearing 68
4.3.3 Management Strategies 73
4.4 Water Management 75
4.5 Soil Profiles 80
4.6 Domestic and Industrial Waste Products 81
4.7 Waste Rock Management 84

4.8 Tailings Management 85
4.9 Hydrocarbon Management 86
4.10 Dangerous Goods and Hazardous Substances Management 88
4.11 Atmospheric Pollution and Noise 91
5 SOCIAL IMPACTS 95
5.1 Heritage 95
5.2 Land Use and Community 95
5.3 Workforce Induction and Training 95
6 MINE CLOSURE 96
7 REFERENCES 97
8 APPENDICES 98

LIST OF TABLES

Table 2-1: Mineral Resource Estimate for Sorby Hills C, D and E Pods 11
Table 2-2: Kimberley Research Station Meteorological Data 16
Table 2-3: Vegetation Units 19
Table 2-4: Priority Species 23
Table 2-5: Location of Priority Species 24
Table 2-6: Weed Species Found on the Sorby Hills Project Area 27
Table 2-7: Richness and Abundance for Fauna Trapped in the Local Area 33
Table 2-8: Site Rankings Based on Ecological Indices 35
Table 2-9: Habitat Value 35
Table 2-10: Fauna of Conservation Significance 38
Table 3-1: Indicative Areas of Disturbance* 42
Table 3-2: Sorby Hills Processing Reagents and Chemicals 49
Table 3-3: Indicative Employee Roster 54
Table 3-4: State Legislation Relevant to the Management of Sorby Hills Concentrate 56
Table 3-5: HSE Standards, Guidelines and Codes of Practice Relevant to the Management of Sorby Hills Project 57
Table 3-6: Required Approvals and Licences 59
Table 3-7: Tenement Conditions 60
Table 4-1: Risk Matrix for Operations at Sorby Hills 64
Table 4-2: Risk Assessment for Particular Aspects of Sorby Hills Project Mine Site Operations 64
Table 4-3: Specific Management Strategies in relation to Land Clearing to be adopted at Sorby Hills 73
Table 4-4: Specific Management Strategies in relation to Water to be adopted at the Sorby Hills Project 79
Table 4-5: Volumes of Alluvium Extracted 80
Table 4-6: Volumes of Alluvium Required for Construction 80
Table 4-7: Specific Management Strategies in relation to Soil to be adopted at the Sorby Hills Project 81
Table 4-8: Specific Management Strategies in relation to Waste to be adopted at the Sorby Hills Project 84
Table 4-9: Specific Management Strategies in relation to Waste Rock to be adopted at the Sorby Hills Project 85
Table 4-10: Specific Management Strategies in relation to TSF operation to be adopted at Sorby Hills 86

Table 4-11: Specific Management Strategies in relation to Hydrocarbons to be adopted at the Sorby Hills Project 88
Table 4-12: Specific Management Strategies in relation to Dangerous Goods and Hazardous Substances to be adopted at the Sorby Hills Project 91
Table 4-13: Specific Management Strategies in relation to Atmospheric Pollution and Noise to be adopted at the Sorby Hills Project 94

LIST OF FIGURES

Figure 1-1: General Location Map 2
Figure 1-2: Detailed Site Layout Plan 4
Figure 2-1: Geological Setting 7
Figure 2-2: Deposit Sections (8291800mN) 9
Figure 2-3: Sorby Hills Project 2011 Drilling Program 10
Figure 2-4: Sorby Hills Project Soil Sampling 14
Figure 2-5: Australian Wind Regions 17
Figure 2-6: Distribution of Vegetation Units 21
Figure 2-7: Areas that may be classified as Priority 1 PECs 'Monsoon vine thickets of limestone ranges' 22
Figure 2-8: Flora survey sites as reference points for Flora Species of Conservation Significance . 26
Figure 2-9: Vegetation Condition 31
Figure 2-10: Fauna Survey Sites over Vegetation Condition 34
Figure 2-11: Vegetation within Fauna Survey Site 7 (Plate A) and Site 4 (Plate B) 36
Figure 3-1: Final Pit Design Model 45
Figure 3-2: Flow Diagram of the Ore Treatment Process 47
Figure 3-3: ROM Pad and Process Circuit Layout 48
Figure 3-4: Cross Section of the Proposed Tailings Dam 51
Figure 3-5: "Rotabox" Container (a), Container Unloading (b) and the Wyndham Port Facility (c) 52
Figure 3-6: Proposed Transport Route from Sorby Hills Project to Wyndham Port 55
Figure 4-1: Diversion Channel 76
Figure 4-2: Sorby Hills Water Monitoring Sites 78
Figure 4-3: Sorby Hills Project Layout with Landfill Site 83
Figure 4-4: Example of Self-Bunded Fuel Tanks (a) and Hydrocarbon Storage Containers (b) 87
Figure 4-5: Sorby Hills Project Dust Monitoring Sites 93

LIST OF APPENDICES

Appendix 1: Certificate of Incorporation and Joint Venture Agreement 99
Appendix 2: Crown Land Lot 373 on Deposited Plan 51355 131
Appendix 3: Geological Cross Section for D Pod and E Pod 133
Appendix 4: Geochemical Characterisation Report 164
Appendix 5: The Sorby Hills Pre-Mine Soils Characterisation Report 217
Appendix 6: Surface Water and Flood Assessment 267
Appendix 7: Hydrogeological Assessment for the Sorby Hills Project Ore Bodies 282
Appendix 8: Flora Survey Report 409
Appendix 9: Terrestrial Fauna Assessment describing Non-Volant Vertebrate Fauna 556
Appendix 10: Ornithological Assessment describing all Avifauna Species 635
Appendix 11: Echolocation Survey to describe Bat Species Present 685
Appendix 12: Subterranean Fauna Assessment Data 698
Appendix 13: Aboriginal Heritage Desktop Analysis 702
Appendix 14: DIA Heritage Register search results 720
Appendix 15: Archaeological and Ethnographic Surveys 727
Appendix 16: Written Correspondence from MG Corporation 796
Appendix 17: Stakeholder Consultation Register and Public Communication 798
Appendix 18: Monthly Mine Schedule for D pod for the First 2 Years of Operation 803
Appendix 19: Proposed Design of Purpose Built storage and Reagent Handling Facilities (BGRIMM) 805
Appendix 20: Rock Mechanics Analysis (Mount Isa Mines Ltd; 1979) 950
Appendix 21: MSDS data for Processing Reagents and Chemicals 1057
Appendix 22: Planned use of “Rotabox” Containers 1122
Appendix 23: Proposed Sorby Hills Project Organisational Structure 1141
Appendix 24: KBL Environmental Policy 1143
Appendix 25: Construction Environmental Management Plan 1145
Appendix 26: Dangerous Goods Classification – Sorby Hills Project Concentrate 1166
Appendix 27: Sorby Hills Project Mine Closure Plan 1199

LIST OF ABBREVIATIONS

Abbreviation	Meaning
%	Percentage
°	Degree
µg/L	micrograms per litre
µS/cm	Micro seconds per centimetre
4WD	Four Wheel Drive
A$	Australian dollar
AER	Annual Environmental Report
Ag	Silver
AHD	Australian Height Datum
APM	Animal Plant Mineral Propriety Limited
ARD	Acid Rock Drainage
ARI	Average Recurrence Interval
AS	Australian Standard
As	Arsenic
AS/NZS	Australian Standard/New Zealand Standard
ADGC	Australian Dangerous Goods Code
BGRIMM	Beijing Research Institute of Mining & Metallurgy
CarbNP	Carbonate Neutralisation Potential
CEC	Cation Exchange Capacity
CEMP	Construction Environmental Management Plan
CONTAM	Hazardous Substances and Contaminant Monitoring
Dangerous Goods Safety Act	*Dangerous Goods Safety Act 2004* (WA)
DEC	Department of Environment and Conservation
DEWHA	Department of Environment, Water, Heritage and the Arts
DIA	Department of Indigenous Affairs
DIPE	Department of Infrastructure Planning and the Environment
DMP	Department of Mines and Petroleum
DOIR	Department of Industry and Resources
DOT	Department of Transport
DOW	Department of Water
EC	Electrical conductivity
EC_{50}	Effective concentration
ECP	Environmental Clearing Permit
EMP	Environmental Management Plan
EPA	Environmental Protection Authority
Environmental Protection Amendment Act	*Environmental Protection Amendment Act 2003* (WA)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ESP	Exchangeable sodium percentage
Fe	Iron
GPS	Global Positioning System
g/T	Grams per tonne
ha	Hectare
HLA	HLA Environsciences

Abbreviation	Meaning
Hr	Hour
HYG&L	Henan Yuguang Gold and Lead
ILUA	Indigenous Land Use Agreement
ISO	International Organisation for Standardisation
IMDG Code	International Maritime Dangerous Goods Code
IMO	United Nations International Maritime Organisation
JORC	Joint Ore Reserves Committee
Kg	Kilogram
KL	Kilolitre
KLC	Kimberley Land Council
Km	Kilometre
KBL	KBL Mining Ltd (formerly Kimberley Metals Limited)
Kph	Kilometres per hour
Kt	Kilotonne
kV	Kilovolts
kVa	Kilovolt-ampere
L	Litres
L/sec	Litres per second
LAS	Land Access Solutions
LC_{50}	Lethal Concentration
Ltd	Limited
M	Metre
MD	Metalliferous Drainage
MG Corporation	Miriuwung Gajerrong Corporation
Mining Act	Mining Act 1978 (WA)
MMU	Mobile Manufacturing Unit
Mn	Manganese
mN	Magnetic North
mps	Metres per second
MRWA	Main Roads Western Australia
MSDS	Material Safety Data Sheet
Mt	Million tonnes
MWHrsPa	Megawatt Hours Per Annum
NAF	Non-acid forming
NAPP	Net Acid Producing Potential
Native Title Act	*Native Title Act 1993* (Cth)
NCA	Not a Controlled Action
NEPM	National Environmental Protection (Ambient Air Quality) Measure – 1998 (Guidelines)
NOHSC	National Occupational Health and Safety Commission
NSW	New South Wales
NT	Northern Territory
NTNT	Northern Territory Near Threatened
OEMP	Operational Environmental Management Plan
PAF	Potentially acid forming

Abbreviation	Meaning
Pb	Lead
PEC	Priority Ecological Community
PMP	Project Management Plan
POW	Program of Work
RC	Reverse Circulation
ROM	Run-of-Mine
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities
SG	Specific Gravity
SHEC	Safety, Health Environmental and Community
SHECMS	Safety, Health Environmental and Community Management System
SMPL	Sorby Management Propriety Limited
SMU	Soil Mapping Unit
SWC	Soil Water Consultants
Sorby Hills Project	Sorby Hills Silver Lead Zinc Project
SWEK	Shire of Wyndham East Kimberley
T	Tonne
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
Tl	Thallium
Tpa	Tonnes per annum
TSF	Tailings Storage Facility
WA	Western Australia
Wildlife Conservation Act	*Wildlife Conservation Act 1950* (WA)
WRC	Water and Rivers Commission
Zn	Zinc

CONTACTS LIST

Mr Edgar Newman
Project Manager – Sorby Management Pty Ltd
Ph: (02) 9927 2006
Fax: (02) 9927 2050
Mobile: 0458 881 445
Email: ednewman@kimberleymetals.com.au

Ms Sharon Arena
Principal HSE Adviser-Animal Plant Mineral
Ph: (08) 9397 1998
Fax: (08) 6296 5199
Mobile: 0419 934 461
Email: sharon@animalplantmineral.com.au

COMMITMENTS TABLE

Environmental Impact (in order of significance)	Management Commitment Implementation	
Vegetation and Clearing	Planning and Design	• Minimise clearing requirements wherever possible. • Pre-existing haul roads and access tracks will be used where possible to minimise interference with existing drainage patterns. • Ensure all required licences and permits have been obtained prior to clearing activities commencing. • Incorporate clearing management into the Sorby Hills CEMP and OEMP. Include prevention of unauthorised clearing. • Ensure clearing only occurs once the site has been surveyed for Aboriginal heritage significance. • The supervisor of the works shall notify all personnel involved in clearing activities of protected areas and the conditions that apply to each. • Machinery operators will discuss clearing requirements with Supervisors prior to commencing the work.
	Site Preparation	• Prior to clearing being conducted an internal ECP will be completed. • Areas to be cleared will be adequately marked to ensure only the required clearing is undertaken. • To avoid weed issues, machinery and vehicles used to conduct clearing will be inspected for weeds and cleaned where appropriate prior to commencement of works. • No burning of vegetation spoil is to occur. • Vegetation that is to be removed shall be either directly placed on disturbed areas to reduce erosion or stockpiled for later use in rehabilitation. • Cleared vegetation shall be stockpiled at a safe distance from streams/creeks. • Conduct clearing in a manner that facilitates the re-use of surface soils and vegetation debris for rehabilitation activities. • Planning for soil management should see that surface soils are utilised between 1 and 5 years after removal, wherever possible. • Stockpiles of surface soils and vegetation debris will be located to avoid impeding on critical surface drainage lines.
	Post – Clearing	• Following disturbance, cleared areas and stockpiles will be surveyed, documented on the Site Plan and reported in the AER.

Environmental Impact (in order of significance)	Management Commitment Implementation	
		• All tracks shall be rehabilitated if not required for ongoing operations • Bare, compacted soils and previously disturbed areas that are not needed shall be ripped and re-contoured in order to promote seed germination • Each stockpile will be clearly marked and an inventory compiled of the soil volumes. Stockpiles will be located away from major creek lines and appropriate erosion controls such as run-off diversion bunds constructed. Should evidence of significant wind or water erosion present on the stockpiles, measures will be implemented to improve the stability of the stockpiles. Stockpile height will vary based on soil characteristics and purpose.
	Construction	• All temporary construction infrastructure and facilities will be removed for rehabilitation • Incorporate weed management and feral animal control into the Sorby Hills CEMP to maintain and enhance the condition of fauna habitat on the site and reduce predation impacts. • Include fire management into the Sorby Hills CEMP to ensure wildfire impacts to threatened species are minimised. • Include retention of microhabitats and establishment and monitoring of nesting hollows into Sorby Hills CEMP.
	Operations	• Where exposed areas are presenting signs of wind or water erosion, measures such as surface water management and dust suppression techniques will be implemented to reduce impacts. These measures are discussed further in following sections. • Incorporate weed management and feral animal control into the Sorby Hills OEMP to maintain and enhance the condition of fauna habitat on the site and reduce predation impacts. • Include fire management into the Sorby Hills OEMP to ensure wildfire impacts to threatened species are minimised. • Include retention of microhabitats and establishment and monitoring of nesting hollows into Sorby Hills OEMP. • Include exploration activities into the Sorby Hills OEMP to ensure topsoil is segregated for drill pad rehabilitation, drill holes are capped immediately following drilling, sumps are ramped to allow fauna egress, drill bags and rubbish are removed from the site and rehabilitation is undertaken within 6 months of exploration programmes being completed. • De-stocked cattle from the site prior to mining
	Habitats of Conservation Significance	• All habitats identified as Monsoon vine thickets of limestone ranges are to be avoided. • Visual monitoring of habitats of conservation significance should be undertaken annually and photographic references must be taken. • Samples of surface detrital material from the areas identified as monsoon vine thickets of limestone ranges will be

Environmental Impact (in order of significance)	Management Commitment Implementation	
		collected annually and analysed for traces of toxins associated with mining and tailings. • Implement buffer zones to protect habitats of conservation significance from secondary impacts.
	Dust Generation	• Incorporate dust management into the Sorby Hills CEMP and OEMP, including inspection and notification requirements and suppression techniques to be employed (primarily water spray). • Continue the dust monitoring program, including establishment of photographic vegetation monitoring points.
	Staff Management/Training/Awareness	• Ensure all staff are appropriately inducted and trained in the environmental aspects applicable to their positions. • Ensure clearing and habitat preservation are in training and induction programs. • Establish a system to monitor compliance with environmental requirements.
	Closure	• All temporary infrastructure and facilities will be removed for rehabilitation following construction activities • Conduct progressive rehabilitation throughout the life of the project, where possible.
	Undertaking Clearing Activities	• Prior to clearing being conducted an internal Environmental Clearing Permit (ECP) will be completed.
		• Clearing requirements will be included in the induction program.
		• Following disturbance, cleared areas and stockpiles will be surveyed, documented on the Site Plan and reported in the Annual Environmental Report (AER).
		• Within the 1,782.27ha of the KBL lease areas (M80/197 and M80/286), only 639.45ha are going to be impacted (excluding firebreak clearing).
	Storage/stockpiling	• Ensure the surface 80cm of soil is segregated as a growth media. • Ensure stockpiles are adequately signposted and an inventory of stockpile volumes is undertaken. • Incorporate monitoring of stockpiles for water and wind erosion into the Sorby Hills OEMP and implement immediate mitigation measures as required. • Height of stockpiles will be controlled to minimise risk of erosion and will be determined by characteristics and purpose of soils
	Rehabilitation	• Where possible low-slope concave surfaces will be used which facilitate sediment deposition. • Vegetation debris will be incorporated into the post-mine land surface to facilitate infiltration of rainfall and minimise overland flow and potential sediment loss. • Contour ripping along slope of stockpiles to minimise erosion.

Environmental Impact (in order of significance)	Management Commitment Implementation	
Impact on Fauna	Strategies to minimise impact on local Fauna	• Include retention of microhabitats and establishment and monitoring of nesting hollows into Sorby Hills Project CEMP and OEMP. • Creation of an artificial wetland to detract migratory birds from the TSF. • Measures such as managing litter at the office and crib areas and regularly covering waste at the landfill site will be implemented to discourage feral animal species, which could impact on local native fauna.
Waste Material	Education and Awareness	• Develop a "Reduce, Reuse, Recycle" awareness campaign. • Incorporate waste management into the Sorby Hills CEMP and OEMP, including staff awareness programs, inspection requirements, storage requirements and waste reduction techniques. • Provide a suitable level of training to staff and contractors specific to their work areas to ensure they are aware of SMPL's requirements for waste collection, segregation, recycling and disposal.
	Handling and Storage of Waste Material	• Establish a waste segregation and recycling program wherever possible. • Construct a Rural Landfill Facility in accordance with the Environmental Protection (Rural Landfill) Regulations 2002 and the DEC Environmental Protection Licence conditions. • Waste storage areas will be appropriately signposted, regularly inspected and kept clean. • Adhere to MSDS requirements. • The location of the landfill will be located above the 1:100 year, 72Hr flood event limit. • Sewage will be treated using a bio-sewage system and will conform to the standards of the SWEK. An application to 'Construct or Install an Apparatus for the Treatment of Sewage' will be submitted to the Shire. • Medical wastes will be segregated and disposed appropriately. Kununurra Hospital will be consulted to determine if an arrangement is feasible for site medical wastes to be disposed at the hospital.
	Management of Rural Landfill Facility	• The landfill facility will be managed in accordance with requirements of the *Environmental Protection (Rural Landfill) Regulations 2002*. • Only approved wastes will be disposed into the landfill facility. Wastes such medical wastes, hydrocarbons and other chemicals will not be disposed of at the facility. • The facility will be fenced to prevent stock access. • Wastes will not be disposed within 35m of the boundary fence. • A 3m wide firebreak will be created within the boundary fence of the facility.

Environmental Impact (in order of significance)	Management Commitment Implementation	
		• An inventory of waste products and quantities will be maintained and reported to the appropriate authority, as required. • Training and Awareness of staff in appropriate disposal methods for waste streams on site. • Fire management at the landfill facility will be included in the Site Emergency Response Plan, or equivalent. • The tipping area will not be greater than 30m in length or 2m above ground level in height. It will also be at least 100m from a surface water body, at least 3m above the highest groundwater level and not within a 100year, 72hr event flood plain. • Stormwater will be diverted away from the tipping area. • Water that comes in contact with waste material will be retained on site. • Dust suppression techniques, such as the use of a water cart, will be implemented as required. • The waste material will be covered in accordance with the schedule identified in Section 6 of the *Environmental Protection (Rural Landfill) Regulations 2002*. This is to reduce food supply to feral animals (e.g. cats and wild dogs), breeding of insects and minimise the generation of odour. For the Sorby Hills Mine Site it is anticipated that waste pits will be covered monthly.
	Monitoring	• Waste storage areas will be regularly inspected and kept clean.
	Reporting	• An inventory of waste products and quantities will be maintained and reported to the appropriate authority, as required.
	Management of potential ARD (Acid Rock Drainage) and metaliferous seepage	• No specific management strategy is needed for potential ARD seepage as the tailings materials contain elevated carbonate content and are classified as NAF • No specific management strategy is need for potential metaliferous seepage as the source rocks do not contain mobile enriched metals and the risk of elevated metals content within the tailings solution is low.
Water	Abstraction	• Ensure appropriate licences are obtained for water abstraction on the site. • No extraction of groundwater beyond that permitted under the water licence. • Continue quarterly monitoring programme to assess water levels associated with the production bores and vegetation health in proximity and report in AER. • Incorporate minimisation techniques for water use into the Sorby Hills OEMP. • Report annual water use to the appropriate Regulatory Authority.

Environmental Impact (in order of significance)	Management Commitment Implementation	
		• Incorporate management of the production bores into the Sorby Hills OEMP. Include conducting regular inspections of the bores and associated pipelines to ensure any leaks are detected and repaired promptly. • Develop a water balance for the site. • Recycling of process waters to offset demands (e.g.: Process water will be sourced from mine dewatering and recycled water from the processing plant. Potable water will most likely be sourced from rainwater and a groundwater production bore situated away from the mineralised field.)
	Discharge	• Establish monitoring program for water quality prior to discharge into the artificial wetland. Report in AER and review adequacy of monitoring program annually. • If water quality being discharged into the artificial wetland is unacceptable, divert discharge water to the evaporation basin until water quality returns to acceptable levels. • Establish photographic monitoring sites at water discharge points. Review discharge program if detrimental effects noted.
	Runoff	• Categorise run off into ''clean'' and ''potentially contaminated'' and manage accordingly. • Clean water runoff from the surrounding environment will be diverted away from the mine infrastructure areas to ensure this water does not become sediment laden or contaminated. • Stockpiles of surface soil and vegetation debris will be located to avoid impeding on critical surface drainage lines. • Vegetation debris will be incorporated into the post-mine land surface to facilitate infiltration of rainfall and minimise overland flow and potential sediment loss.
	Contamination	• Continue a quarterly monitoring programme to assess groundwater quality around critical infrastructure areas at the site, utilising the network of monitoring bores. Report in AER and review adequacy of monitoring program annually. • Surface water monitoring of Knox Creek and Keep River will be undertaken bi-annually, following the first flush and towards the end of the wet season. Report in AER and review adequacy of monitoring program annually. • Design contaminated water storages to minimise seepage. • Incorporate storage and handling requirements for dangerous goods and hazardous materials into the Sorby Hills CEMP and OEMP. Include bunding requirements and spill response procedures. • Ensure appropriate licences are obtained for storage and handling of dangerous goods and hazardous materials. • Ensure all hydrocarbons are stored on site in suitably bunded areas and fixed areas where hydrocarbons are to be

Environmental Impact (in order of significance)	Management Commitment Implementation	
		handled, such as refuelling bays, are also bunded. • Stormwater will be diverted away from the tipping area at the landfill site. • Water that comes in contact with waste material at the landfill site will be retained on site.
Handling, Haulage and Shipping of Concentrate	Handling of Concentrate	• Concentrate will be loaded directly from the filter press (final stage of processing plant) into the "Rotabox" containers and sealed. No concentrate stockpiles will be required on site.
	Storage and Shipping	• SMPL propose to use "Rotabox" (or similar) shipping containers for the collection, storage and transport of concentrate. "Rotabox" containers are purpose built, stackable, bulk ore containers that can be fully sealed with lockable lids as shown. The sealable lids provide security from product spillage, accidental discharge and variation in moisture level during transport. • Shipping will be undertaken by a specialist contractor.
	Minimising risk of contamination of environment as a result of concentrate spill along transport route or at Wyndham Port	• Develop concentrate handling protocols to ensure "Rotabox" system used correctly. • Develop an inspection program for each "Rotabox" before transporting to Wyndham to ensure incidental spills, leaks, container damage etc. is identified and addressed. • Develop a spill response plan to address environmental and community concerns in the instance of a spill and notify the appropriate authorities.
Dangerous Goods and Hazardous Substances	Use	• Develop procedures on the handling and storage of dangerous goods on site, incorporating spill response requirements • Provide a suitable level of training to staff and contractors identified to be involved in dangerous goods use, storage and disposal to ensure they are aware of SMPL's requirements and procedures. • All personnel who will handle dangerous goods, hazardous substances, gas cylinders or explosives will all be adequately trained. • SMPL and all its contractors responsible for handling and storing concentrate will be required to obtain a Dangerous Goods Licence under the *Dangerous Goods Safety (Storage and Handling of Non Explosives) Regulations 2007*. • Drivers of any vehicles transporting containers carrying SMPL concentrate will be required to obtain a Dangerous Goods Drivers Licence under the *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007*.
	Storage	• Specifically designed, labelled storage areas will be identified and installed, with consideration to segregation

Environmental Impact (in order of significance)	Management Commitment Implementation	
		requirements. • Appropriate fire response equipment will be located near storage areas. • Regular inspections of storage areas will be conducted. • Explosives will be stored in an explosives magazine in compliance with the *Explosives and Dangerous Goods Act 2004*, the *Dangerous Goods Safety (Explosives) Regulations 2007* and Australian Standard AS 2187.1:1998, Explosives – Storage, transport and use, Part 1. • Explosives will be stored remote from the mining operations. • Bunded, purpose built storage and reagent handling facilities will be incorporated into the Process Plant and specific handling and storage procedures for developed, which include spill response. • Fireproof Dangerous Goods cabinets will be installed in the workshop, laboratory and process plant; they will be clearly signposted and be noted on site emergency plans. • There will be an inventory system in place to record stocks of hazardous material and up-to-date MSDSs kept for all hazardous substances that will possibly be used on the site. • Gas cylinders will be stored in appropriate dedicated areas and procedures will be in place for the handling and storage of gas cylinders.
	Transport	• "Rotabox" containers to be individually inspected prior to transport off site • Unforseen concentrate spill during transport should be included in the Site Emergency Plan.
	Disposal	• Disposal of dangerous goods and hazardous materials will be in accordance with MSDSs and any requirements from DEC.
Hydrocarbon Management	Procedures and Training	• Incorporate hydrocarbon use procedure into the Sorby Hills CEMP and OEMP as required. • Provide a suitable level of training to staff and contractors identified to be involved in hydrocarbon management to ensure they are aware of KBL's requirements for use, storage and disposal. • Ensure spill response equipment is available and procedures are communicated effectively to staff involved with hydrocarbon use in their work areas. • Development of an incident management system, with corrective action processes, to facilitate continuous improvement of hydrocarbon storage, handling and disposal.
	Storage	• Storage of hydrocarbons to be in accordance with AS/NZS 1940:2004

Environmental Impact (in order of significance)	Management Commitment Implementation	
		• Self bunded fuel storage tank to be installed. • An inventory of hydrocarbons and quantities will be maintained and reported to the appropriate authority, as required. • Regular inspections of storage areas will be conducted to identify any leaks or issues with hydrocarbon storage areas. • MSDSs will be located at storage areas and will be regularly maintained. • Ensure diesel generators are bunded. • Diesel will be stored in four 50KL self-bunded fuel tanks expected to be refilled approximately weekly by a diesel fuel delivery from Wyndham. • Oils and lubricants will be located at the site workshop and stored in a sea container specifically designed and modified for that purpose. The base of the sea container will act as a bund for the quantity of oil stored within. • Oils and lubricants to be installed in weatherproof sea container.
	Disposal	• Recycle waste oil and oily rags wherever possible. • Develop a bioremediation facility to treat contaminated soil in situ • Oily water waste will be disposed of by utilising a Specialist Contractor that collects and recycles waste oil and oily water.
	Managing risk of contamination to surrounding environment	• An inventory of hydrocarbons and quantities of chemicals will be maintained. • Regular inspections of storage areas and pipelines will be conducted to identify any leaks or issues with hydrocarbons or hazardous materials. • Install bund and collection sump at the vehicle refuelling area • Spill kits will be available in the workshop and refuelling areas and spill response procedures will be implemented if necessary. • Soil contaminated by incidental hydrocarbon spills will be removed and placed in a purpose built bioremediation facility. The Contaminated Sites Management Series guideline *Bioremediation of hydrocarbon-contaminated soils in Western Australia* (DEC, 2004) will be used to guide the construction and operation of this facility. Clean soil, once validated, will be reused on site.
	Use of Hydrocarbons in Mining	• Appropriately registered and qualified fuel transport companies will be used for diesel deliveries with procedures in

Environmental Impact (in order of significance)	Management Commitment Implementation	
	Operations	place. Refuelling of vehicles from the diesel fuel tank will be controlled by a fuel management system. • Fuel usage of each mobile vehicle on site will be recorded separately. • The overflow from the sump will be filtered through triple interceptors fitted with environ filters, or equivalent technology, to ensure no hydrocarbons escape to the environment. • SMPL will have a mobile equipment refuelling procedure that will include spill response requirements and will also have spill response kits at designated refuelling areas. • Develop procedures for refuelling of mobile equipment.
Atmospheric Pollution and Noise	Noise	• Ensure vehicles, plant and equipment are serviced and maintained to system requirements to avoid unnecessary noise and implement noise mitigation measures where appropriate. • Ensure generators are serviced and maintained to system requirements. • Apply speed restrictions and a ban on exhaust braking for concentrate haulage trucks whilst travelling through the Kununurra and Wyndham townships to reduce noise impacts. • Concentrate haulage trucks to operate only during daylight hours. • The five fixed 500kW diesel generators will have modern noise suppression devices attached, thus minimising the noise emissions.
	Dust	• Incorporate dust management into the Sorby Hills CEMP and OEMP, including inspection and notification requirements and suppression techniques to be employed (primarily water spray). • Dust generating activities (such as blasting) will not be undertaken during unfavourable weather conditions. • Ensure stockpiles, roads, laydown areas, tipping areas and car parks are adequately dampened to reduce dust impacts. • Establish a system of regular visual monitoring for dust, halt activities if dust exceeds acceptable levels until conditions alter. • Personal dust monitoring of staff members in higher risk work areas to be undertaken as part of the Health Surveillance Program. • Establish photographic monitoring points of vegetation adjacent to high dust generating sources. • Continue dust sampling program. • Apply speed restrictions for concentrate haulage trucks whilst travelling through Kununurra and Wyndham to

Environmental Impact (in order of significance)	Management Commitment Implementation	
		reduce dispersion of roadside dust. • All concentrate loads to be carried in fully sealed and locked containers. • Dust suppression will be carried out on site utilising a water truck; any areas that have mobile equipment operating and have the potential to create dust will be adequately watered to minimise dust generation. • Dust suppression systems will exist on the crusher and process conveyors to minimise dust. • Concentrate will also fall straight from the filter press into transport containers and will not be stored in stockpiles, thus mitigating excessive dust generation. • Dust generation resulting from concentrate haulage is expected to be minimal; all loads will be carried in fully sealed containers and speed restrictions will be applied through Kununurra and Wyndham. • The relevant standards, guidelines and codes of practice will be applied by SMPL and all contractors to ensure the Sorby Hills resource is mined, processed and transported in a manner which will minimise the exposure and impact of ore concentrate dust on the public, employees and the environment.
	Odour	• Waste material will be covered in accordance with the schedule identified in Section 6 of the *Environmental Protection (Rural Landfill) Regulations 2002.* For the Sorby Hills Mine Site it is anticipated that waste pits will be covered monthly.
	Light	• Ensure lighting is directed inwards to avoid visual impacts to surrounding traffic.
	Other atmospheric pollutants	• To minimise generation of other atmospheric pollutants, plant and equipment will be regularly maintained to ensure they operate at maximum achievable efficiency.
Consultation	Managing consultation with stakeholders	• Continue stakeholder consultation throughout the life of the project • All complaints regarding excessive noise generation, waste disposal, dust generation, visual amenity impacts, odours, concentrate transport or other complaints will be investigated and mitigating measures implemented where required.
Mine Closure	Mine Closure Plan	• A Mine Closure Plan has been developed for the Sorby Hills Project. This Plan will be reviewed every 3 years.
Staff Management / Training / Awareness	Minimising risk of environmental impact caused by staff activities	• Establish a system to monitor compliance with environmental requirements. • Establish an incident management system, which incorporates corrective action processes to avoid re-occurrence and ensure continuous improvement on site.

Environmental Impact (in order of significance)	Management Commitment Implementation	
		• SMPL will develop a Safety, Health Environmental and Community Management System (SHECMS) to ensure environmental management is effectively integrated into operations and that planning, implementation and review processes achieve continuous improvement. This SHECMS will be developed in accordance with the principles of AS/NZS ISO14001:2004 and AS/NZS 4801:2001, and will provide a structured approach to environmental management across the site.
Waste Rock	Handling and utilisation of overburden and waste rock materials	• Field sampling and laboratory analysis of mined materials (blast hole cuttings) will occur to accurately identify and segregate all PAF lithologies. • Where possible all PAF materials will be placed directly below the watertable to prevent oxidation and acidification. If not possible to place below the watertable, then all PAF material will be encapsulated within the pit to minimise the risk of oxidation. • Sufficient volume of competent NAF siltstone will be used to stabilise land surfaces. • All clayey overburden materials are classified as NAF and will be used primarily in the construction of the embankment walls of the TSF and to raise mining infrastructure to above flood levels.
Tailings	Management of potential overtopping of TSF embankment	• The development of the TSF will be staged and involve a cell by cell approach over the mine life. The facility will have a total disturbance catchment area of 1.2km2 and allow for the storage of 355,000T of solid per annum. The TSF will consist of embankments that will not exceed 8m in height and extend a total crest length of 1km. The expected maximum impoundment volume is $6m^3x10^6$ • A 1m high freeboard will be maintained from the top surface of the beach structure (tailings sediment) and the embankment crest to minimise potential overtopping during a 1:100 72Hr rainfall event. • Where possible multiple discharge points will be used for the tailings material to prevent build-up of sediment and allow removal of clay materials. • Daily inspections of TSF and associated pipelines as a minimum. • Conduct regular inspections of the TSF to ensure erosion and seepage is noted immediately. • Conduct geotechnical assessments of the TSF periodically. • Develop a management plan for the TSF to ensure correct operation and management, including activities in the case of seepage or overtopping. • Maintain an adequate freeboard at all times

1 BACKGROUND INFORMATION

1.1 Ownership

The Sorby Hills Project is being developed by the Sorby Hills Joint Venturers being KBL Mining Limited (KBL) (formerly Kimberley Metals Limited) of Australia (75%) and Yuguang (Australia) Pty Ltd a wholly owned subsidiary of China's largest lead producer, Henan Yuguang Gold and Lead Co., Ltd (HYG&L) (25%). The Manager of the Joint Venture is Sorby Management Propriety Limited (SMPL), which is 100% owned by KBL. The Certificate of Incorporation and the Joint Venture Agreement are included as Appendix 1.

The tenements associated with the Sorby Hills Project are currently held by KBL. Transfers of a 25% interest in these tenements have been executed by KBL in favour of Yuguang (Australia) Pty Ltd and these are currently with the Office of State Revenue for stamping. Tenements related to the Sorby Hills Project Mine Site are situated on unallocated Crown Land Lot 373 on Deposited Plan 51355 (refer to Appendix 2 for details). This land was previously covered by a pastoral lease and is currently stocked under a grazing permit issued by the Department of Regional Development and Lands. Prior to the commencement of mining activities, the grazing licence will be rescinded and the land de-stocked.

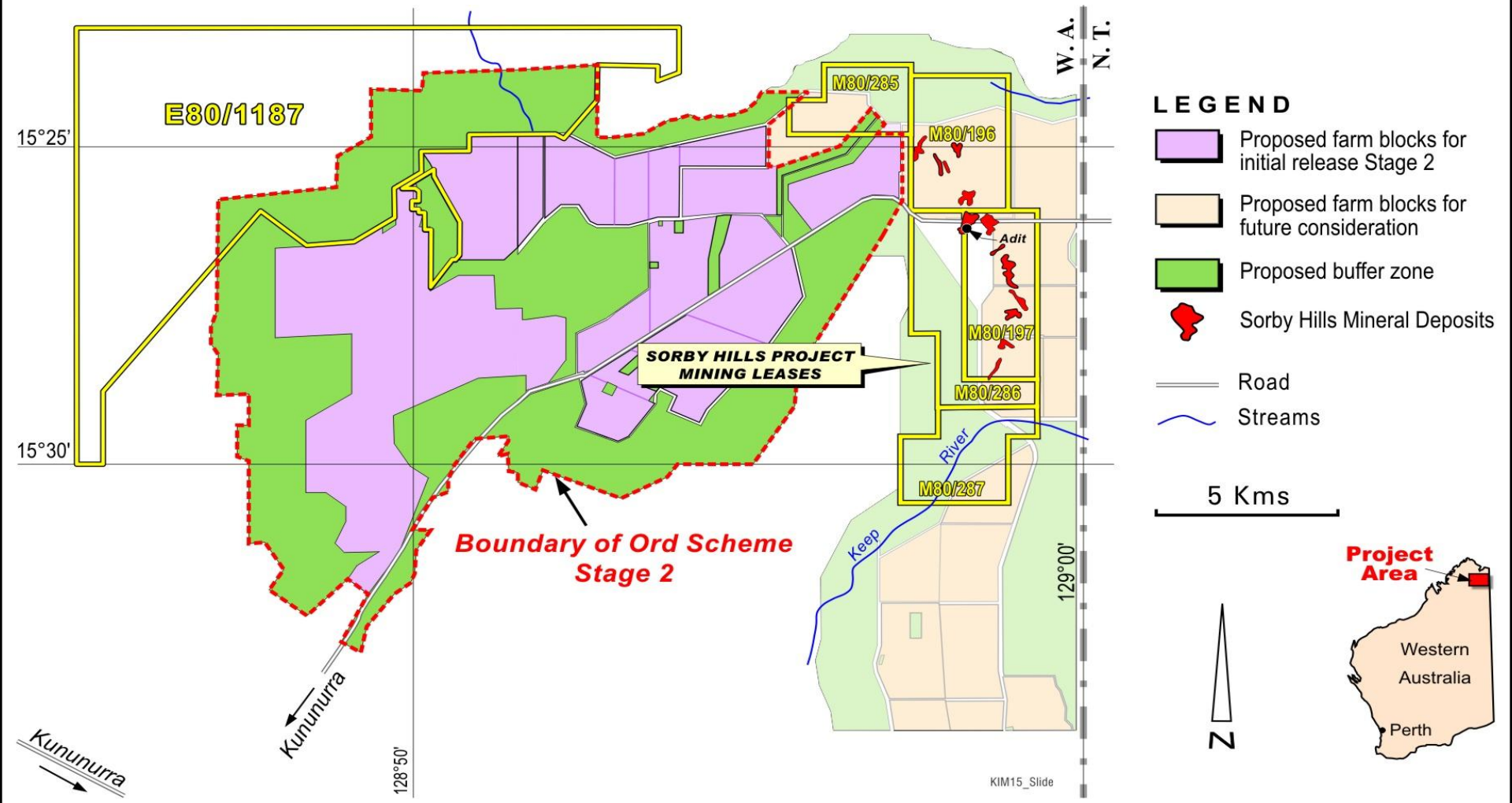
A summary of the key contacts and tenement information associated with the Sorby Hills Project is presented below; the tenement boundaries are illustrated in Figure 1-1: General Location Map.

Proponent:	Sorby Management Pty Ltd
Address:	Level 3, 2 Elizabeth Plaza North Sydney, NSW, 2060
Joint Venture Partners:	KBL Mining Ltd and Yuguang (Australia) Pty Ltd
Tenement Holders:	KBL Mining Ltd. pending transfers to KBL Mining Limited (75%) and Yuguang (Australia) pty Ltd (25%)
Key Contact:	Edgar Newman Project Manager – Sorby Management Pty Ltd Ph: (02) 9927 2006 Fax: (02) 9927 2050 Mobile: 0458 881 445 Email: ednewman@kimberleymetals.com.au
Tenements Held:	M80/196; M80/197; M80/285; M80/286; M80/287; E80/1187

This Mining Proposal relates to activities on tenements M80/197 and M80/286.

1.2 Project Overview

Sorby Hills is a major undeveloped Silver Lead Zinc (Ag Pb Zn) deposit; the primary Lead mineral is Galena. The Sorby Hills Project mining leases cover an area of 1,782.27 hectares (Ha) (tenements M80/197 and M80/286) contain 13 separate but adjacent mineralised ore pods within the platform carbonate rocks of the Burt Range Formation in the Bonaparte Basin. The ore pods form a linear belt (trending north-south) over 8km long and up to 1km wide on the eastern margin of the Pincombe Inlier. The deposits have been well defined by extensive exploration.



Auth: M Ladyman	Project: SMPL Sorby Hills		NORTH	**Figure 1-1: General location map.**
Date: October 2011	Datum: GDA94 MGA Zone 52			

The shallow nature of the deposits allows for extraction of ore by open cut mining. The Sorby Hills Project covers an area of 1782.27ha (tenements M80/197 and M80/286). The project will initially consist of three open cut pits, comprising ore pods C, D and E, which are to be mined sequentially as separate entities, however as mining progresses the three ore bodies will be contained within one larger pit; the focus will be on resources within 70m of the surface. The ore will be processed by flotation and a concentrate produced for export through Wyndham. In addition to the open cut pits, the project will consist of a run-of-mine (ROM) pad, waste dumps, haul roads, a mill and concentrator, laboratory, road train loading area, tailings dam, access roads, workshop, site office and laydown facilities at Wyndham Port.

Between 400,000 and 600,000 tonnes per annum (Tpa) of ore will be excavated from the open pits and processed through the facility to produce 45,000Tpa of concentrate for export. Concentrate will be transported to Wyndham Port via road trains; there will be an average of 12 truck movements per week, with a maximum of 20 truck movements expected following events such as road closure due to flooding. SMPL are planning to utilise existing Wyndham Port facilities and ship once a month for 11 months each year. Shipping consignments will contain approximately 4,000T of concentrate.

The Sorby Hills Project will have a significant impact on the community of Kununurra where SMPL (and subcontractors) will employ and accommodate site personnel. In addition, employment opportunities will be created at the Wyndham Port which may benefit the community of Wyndham. SMPL maintain a high degree of community focus and will develop the Sorby Hills Project in line with best practice community, environmental and safety standards.

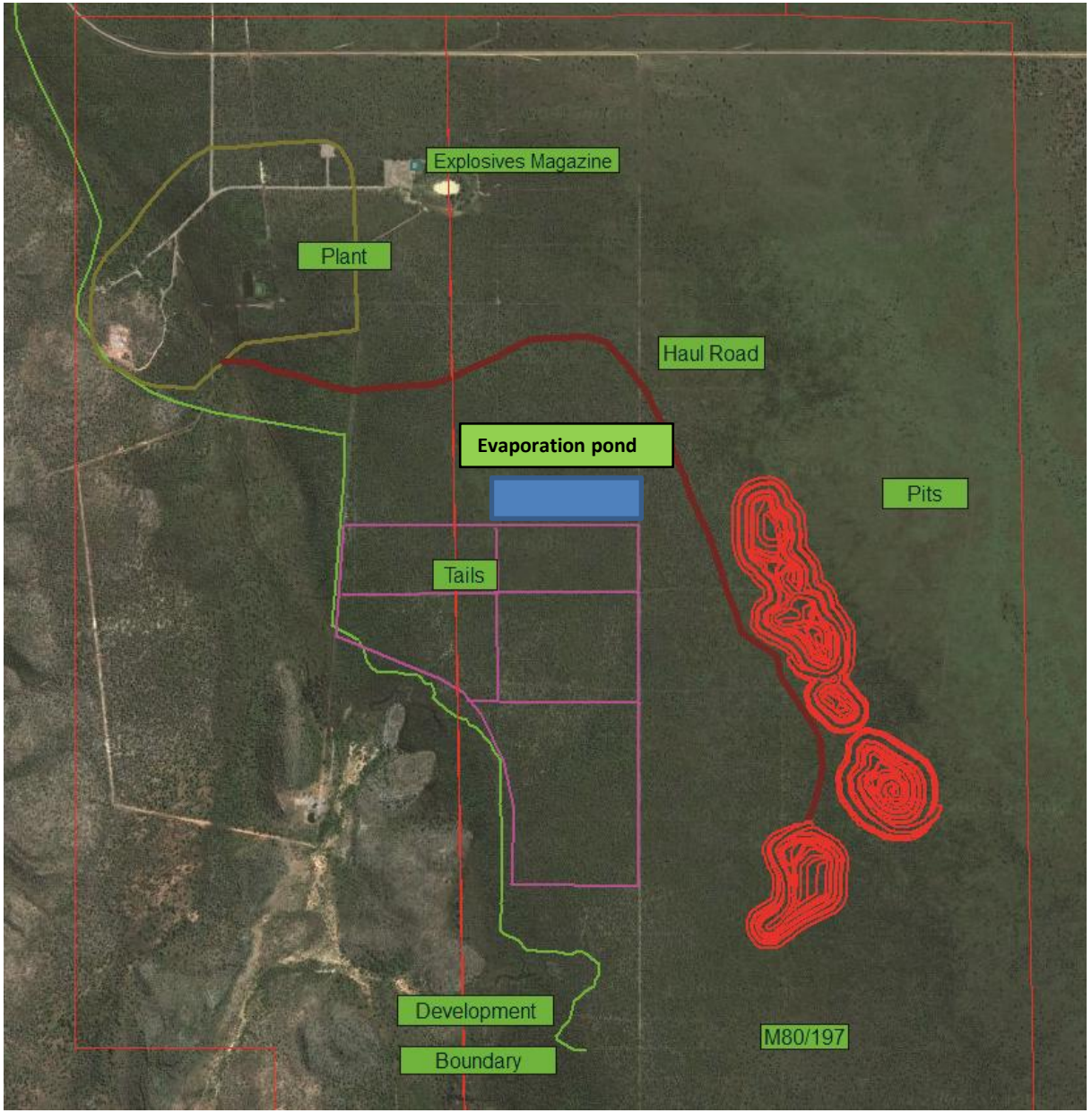
Critical dates for the Sorby Hills Project include:

February 2012	Feasibility
April 2012	Project approvals
May 2012	Commence construction
December 2012	Commissioning
First Quarter 2013	Production
2027	Closure

1.3 Location and Site Layout Plans

Sorby Hills is situated in the North-East Kimberley region of Western Australia (WA) close to the Northern Territory (NT) border. The Sorby Hills Mine Site is located approximately 50km by road north-east from the regional centre of Kununurra. The relevant Sorby Hills Project tenements lie to the east of the currently proposed Ord Irrigation Expansion Project Stage Two, with a common boundary on the north-western edge of the Sorby Hills Project (tenement M80/196). A location map is provided as Figure 1-1: General Location Map.

A detailed site layout plan for the Sorby Hills Project Site is provided as Figure 1-2: Detailed Site Layout Plan. These plans illustrate the location and scale of site infrastructure (overlaid on topographic data and aerial photography), along with key aspects of the existing environment such as vegetation communities, creeks and drainage lines, major topographic features and heritage site locations.



Auth: T.Smith	Project: SMPL Sorby Hills	aPm animal plant mineral	NORTH
Date: October 2011	Datum: GDA94 MGA Zone 52		

Figure 1-2: Detailed site layout plan

1.4 History

The Sorby Hills deposit was discovered in 1971 by Elf Aquitaine. Aquitaine extensively and systematically explored the project area for carbonate hosted lead and zinc deposits during the 1970s and 1980s with various joint venture partners. The exploration focused on delineating economic lead and zinc resources within the platform carbonate lithologies of the Bonaparte Basin. Exploration consisted of geochemical surveys, various geophysical surveys and extensive drilling. Base of Overburden geochemical sampling by auger or RAB drilling was used very effectively over most of the project area; the programs targeted the prospective stratigraphy along the main Sorby trend in all of the current mining leases to some extent. Geophysical surveys were used comprehensively. The most effective methods for delineating mineralisation and structure were gradient array and dipole-dipole Induced Polarisation surveys, of which there is complete coverage over the main Sorby trend. Drilling programs at the Sorby Hills Project have been quite intensive and comprehensive; approximately 888 holes were completed for approximately 95,000m from 1972 to 1988 and of these drill holes approximately 374 were diamond holes.

Post 1990 little work was completed and the project was shelved in the late 1990s due to uncertainty surrounding the Ord River expansion scheme. In 2006 CBH Resources Ltd (CBH) reactivated the Sorby Hills Project; in 2007 CBH commissioned a review of the economic potential of the Sorby Hills deposits which suggested that the deposits had potential for economic extraction. The results led to a new phase of exploration which included a desktop review of historic data, a small scale diamond drilling program (13 holes), construction of a wireframe resource model and conceptual mining study. KBL acquired the Sorby Hills Project in 2008 and entered into a Joint Venture Agreement with HYG&L's Australian subsidiary, Yuguang (Australia) Pty Ltd for the project in 2010; in late 2010 a 99 hole Reverse Circulation (RC) and Diamond Drilling program was completed. SMPL is a wholly owned of KBL and is the Manager of the Sorby Hills Joint Venture and thereby is the proponent currently managing the Sorby Hills Project.

The Sorby Hills Project area is situated on land that was once covered by pastoral leases and as such pastoral tracks, cattle yards and other limited infrastructure is present on the tenements. At present cattle graze in the project area but the land will be de-stocked prior to mining. Some remnant disturbed areas and access tracks plus a core storage area are present on the Sorby Hills Project mining tenements from previous exploration.

1.5 Existing Facilities

There is little infrastructure currently on site. There is an access road linking the Sorby Hills Project site to the Weaber Plain Road, as well as pastoral and exploration tracks across the tenements. The limited infrastructure includes cattle yards, a dam, water and production bores, a small cattle loading ramp, a diesel pump, a core storage site and some disturbed areas and pads resulting from previous exploration. It is planned to utilise these existing degraded areas for the Project's Plant Site and other support infrastructure.

SMPL plan to utilise the Weaber Plain Road, Mills Road, Ivanhoe Road, Victoria Highway and Great Northern Highway to haul concentrate from the Sorby Hills Project Mine Site to the laydown facilities at Wyndham port. There will however be minimal utilisation of other public services for the project. Power will be generated on site and water will be sourced from mine dewatering and recycled water from the processing plant.

2 EXISTING ENVIRONMENT

2.1 Regional Setting

The Sorby Hills Project area is situated at the north-eastern extent of the Sorby Hills Ranges. Tenement M80/286 encompasses a portion of the Ranges and associated foot slopes; to the east of the hills in tenements M80/286 and M80/197 the environment is predominantly broad flood plains of red-grey clay pan (cracking clay) soils with Bauhinia trees. Floodwaters draining off the eastern rangelands flow south-east towards Knox Creek, however residual water bodies can remain present for extended periods at the base of the ranges.

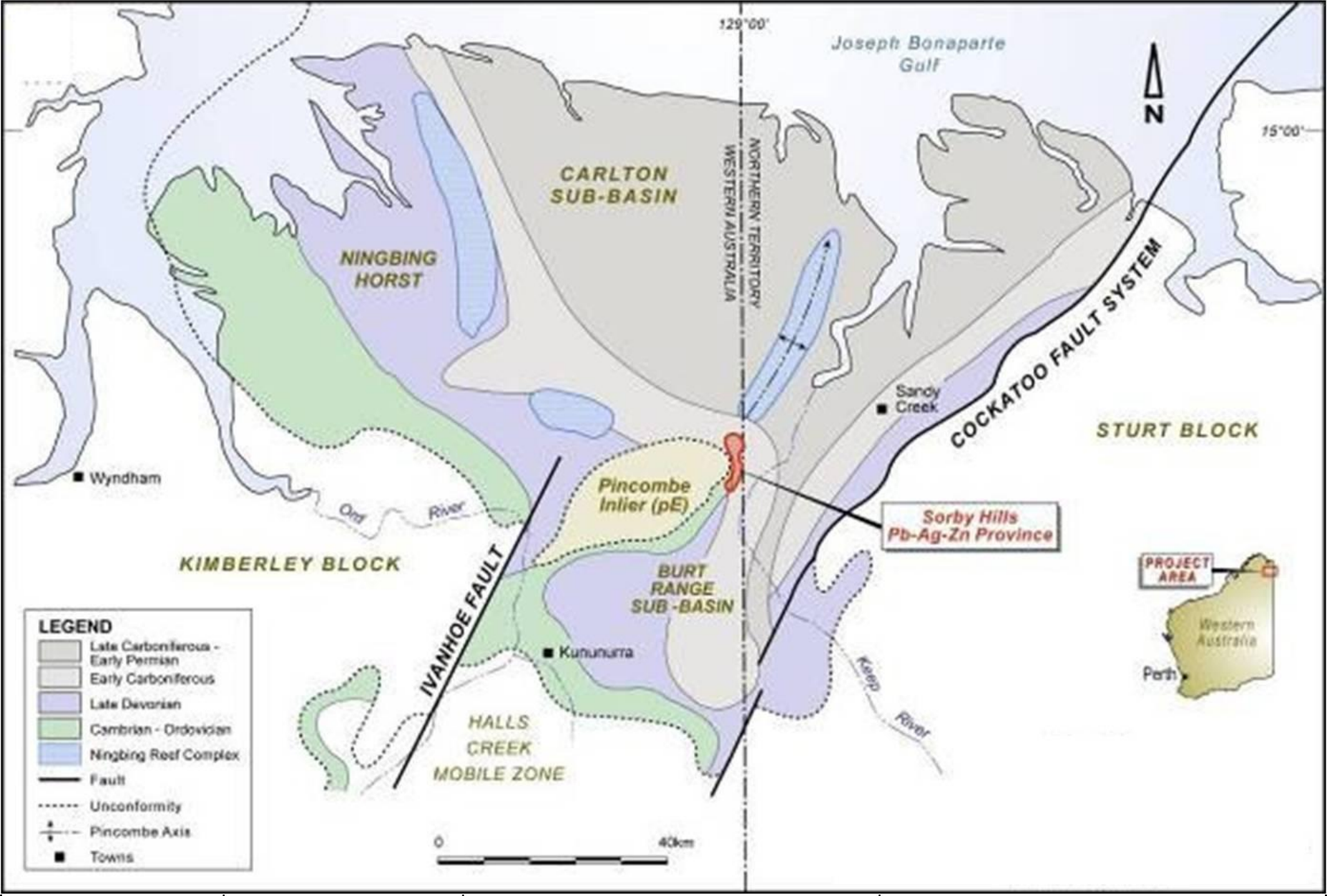
Mapping for the Interim Biogeographic Regionalisation for Australia (IBRA version 6.1) programme placed the Sorby Hills Project area in the Victoria Bonaparte Bioregion. This bioregion comes under the Tropical and Subtropical Grasslands, Savannas and Shrublands Ecoregion which stretches across northern Australia into northern New South Wales (NSW). The Victoria Bonaparte Bioregion continues into the NT as far as Bradshaw (Department of Sustainability, Environment, Water, Population and Communities, 2011). Within the Victoria Bonaparte Bioregion the vegetation over lowland parts of the survey area has been mapped as 'Tussock grasslands' while upland areas come under 'Tropical Eucalyptus woodland/grasslands'. Tussock grasslands covered an estimated 631,088ha (8.7%) of the bioregion prior to European settlement. By about 1997 this area was little changed at 631,032ha (8.7%). Tropical Eucalyptus woodland/grasslands covered an estimated 4,696,792ha (64.6%) of the bioregion prior to European settlement. By about 1997 this area had been slightly reduced to 4,678,368ha equating to 64.4% (Australian Government, 2011).

The project area lies in the Gardner Botanical District within the Northern Botanical Province of WA (Beard, 1975) and encompasses the Pinkerton and Ivanhoe Land Systems (Department of Agriculture and Food, 2009).

2.2 Geology

The Sorby Hills mineralisation consists of 13 discrete carbonate hosted Ag Pb Zn deposits (pods), Pods A – J, Beta Pod East, Beta Pod West and Alpha pod. The pods form a linear north-south belt extending over 8km, sub parallel to the eastern margin of the Pincombe Inlier and within the Burt Range Formation of the Bonaparte Basin. (Figure 2-1: Geological Setting).

The Bonaparte Basin unconformably overlies the north-eastern margin of the Proterozoic Kimberley block. It is a northward-opening basin of which 10% is currently above sea level; the sediments vary from Cambrian to Tertiary in age. The oldest part of the onshore basin is the Antrim Plateau flood basalts which unconformably overlies the Palaeoproterozoic basement of the Halls Creek orogen. Clastic sediments of the Late Cambrian and Ordovician Carlton Group locally overlie the basalts, after which there is a period of non-deposition and/or erosion from the Ordovician to the Middle Devonian. The onshore basin is dominated by Middle Devonian to early Carboniferous carbonate and clastic sediments, commencing with the Frasnian Cockatoo Group, dominated by sandstones (quartz arenites). During the Famennian, mixed carbonate-clastic sedimentation deposited the Ningbing Group reef complex and the Buttons Formation in the Sorby Hills area. Reef growth was terminated in the Carboniferous, when shelf carbonates and clastics of the Tournaisian Burt Range Formation were deposited in the Sorby Hills area. The Tournaisian carbonates are overlain transgressively by Visean basinal black shales of the Milligans Formation. Above this there is an unconformable -contact with the Carboniferous – Permian Kulshill Group composed of fluvio-glacial sandstones.



Auth: T.Smith	Project: SMPL Sorby Hills		NORTH	**Figure 2-1: Geological Setting**
Date: October 2011	Datum: GDA94 MGA Zone 52			