

COUNCIL IS REQUESTED TO FORWARD THE ORIGINAL TO THE DEPARTMENT FOR PLANNING AND INFRASTRUCTURE ONLY WHEN THE APPROVAL OF THE WESTERN AUSTRALIAN PLANNING COMMISSION IS REQUIRED

METROPOLITAN REGION SCHEME

Form 1

Office Use Only
Serial No.....

City/Town Shire of Serpentine - Jarrahdale.....

APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT

Owner of land on which development proposed. } Surname See Attached Schedule
Other Names.....
Address in full.....
Postcode.....

Submitted by Planning Solutions (Aust) Pty Ltd.....

Address for Correspondence PO Box 8701, PERTH BC.....

Post Code 6849 Phone 9227 7970

Locality of development (street, suburb, etc) Various Lots - Lots 1, 6, 52, 53, 63, 111, 112 and 113.....

Titles Office description of land: Lot No..... Location No.....

Plan or Diagram..... Certificate of Title Vol..... Folio.....

Nearest road junction or intersection.....

Description of proposed development Proposed 'Industry Extractive'

State nature of any existing buildings and/or land use Open pasture with scattered dwellings and out buildings.....

Approximate cost of proposed developments Approx \$12 million.....

Estimated time of completion Commencement of mining operations within 12 months of approval.....

Three copies of the Building Plan and Site Plan of the proposal are submitted with this application.

Signed by the owner of the land See Attached Schedule.....

Date.....

RECOMMENDATION OF COUNCIL

.....
.....
.....
.....
.....

RECEIVED
8 FEB 2010
BY: 16047 JGG

NOTE: Submit two original forms together with copies of the plans requested to the office of the Local Authority in whose area the development is proposed.

ALL DETAILS MUST BE COMPLETED

Shire of Serpentine Jarrahdale

Landowner	Address	Lot	Plan/Diagram	Volume	Folio	Area (ha)
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	6	D52395	1493	399	161.9221
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	52	P739	1740	735	124.2198
M. Furfaro, L Furfaro and A. Furfaro	52 Atkins Road, Keysbrook	111	D94183	2117	847	40.0004
Olympia Resources Ltd	Level 4, 25 Walters, Osborne Park	112	D94183	2117	848	47.1354
M. Furfaro, L Furfaro and A. Furfaro	52 Atkins Road, Keysbrook	113	D94183	2117	849	42.5014
James Henry Charles Hill	c/ Post Office. Keysbrook	63	P739	1049	169	323.7485
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	1	D8916	2094	330	202.1745

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 6
Street No: 762
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 52395
Certificate of Title Volume and Folio: 1493/399
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



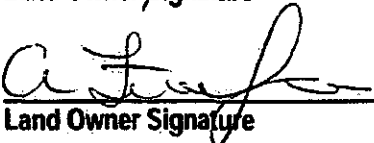
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 6/D52395	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1493** FOLIO **399**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 6 ON DIAGRAM 52395

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T E587208) REGISTERED 17 APRIL 1991

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. B446530 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 1493 FOL 399. REGISTERED 8.12.1977.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1493-399 (6/D52395).
PREVIOUS TITLE: 1085-164.
PROPERTY STREET ADDRESS: 762 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.



Application B472671

WESTERN

AUSTRALIA



Volume 1085 Folio 164

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

DATED 7th February, 1978

Lundborough

REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 6 on Diagram 52395, delineated and coloured green on the map in the Third Schedule hereto.

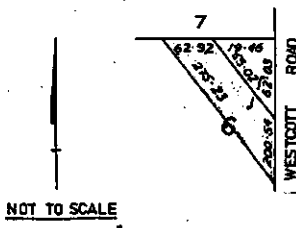
FIRST SCHEDULE (continued overleaf)

~~Norman Howard Oment of Keybrook, Farmer.~~

SECOND SCHEDULE (continued overleaf)

- ~~MORTGAGE 1022/1952 to The National Bank of Australasia Limited. Registered 30.10.52 at 10.30 o/c. Discharged B622868 20.11.78~~
- ~~MORTGAGE 5448/1954 to The National Bank of Australasia Limited. Registered 13.4.54 at 3.45 o/c. Discharged B622868 20.11.78~~

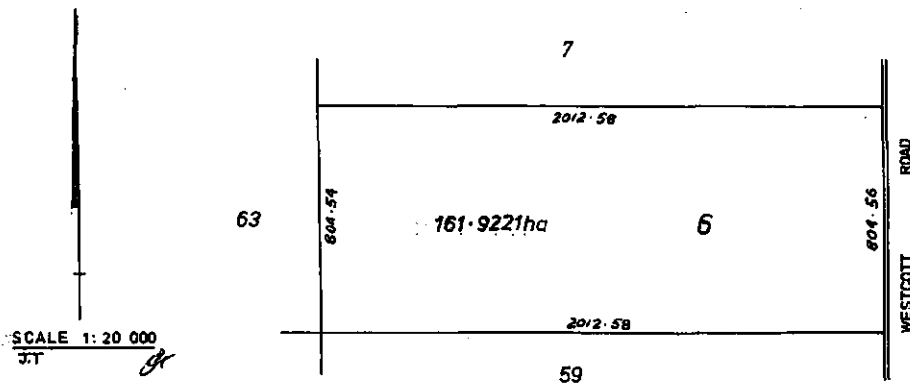
3. TRANSFER B446530. The right to enter in and upon the portion of the within land coloured blue on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 8.12.77 at 3.06 o/c.



Lundborough

REGISTRAR OF TITLES

THIRD SCHEDULE



NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

Page (of 2 pages) 1493

LANDGATE COPY OF ORIGINAL NOT TO SCALE Wed Jul 15 10:45:49 2009 JOB 32572525

FIRST SCHEDULE (continued)

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

REGISTERED PROPRIETOR	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	INITIALS
Bernard Ronald Stokes, Retired Farmer, of three undivided fourth shares; and Janet Sheila Page, Retired Hairdresser, of one undivided fourth share, both of 85 Mary Street, Como, as tenants in common.	Transfer B635784	14.12.78	9.33	Seal	Initials
St Aubyn's Pty. Ltd. of Beverley.	Transfer C42649	10.12.80	9.43	Seal	Initials
Kaustra Pty. Ltd. and Starward Pty. Ltd., both of care of P.A.T. Goh & Co., Unit 2, 123 Colin Street, West Perth, as tenants in common in equal shares.	Transfer D110458	16.9.85	12.11	Seal	Initials
Mervyn William Williams of Nosila Park, Keysbrook.	Transfer E587207	17.4.91	8.10	Seal	Initials
Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer E587208	17.4.91	8.10	Seal	Initials
The correct address of the registered proprietors is now Atkins Road, Keysbrook.	By G366633	7.1.97	8.37	Seal	Initials

SECOND SCHEDULE (continued)

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

INSTRUMENT NATURE	NUMBER	PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
Mortgage	B635785	to Norman Howard Osment, of Keysbrook, Farmer.	14.12.78	11.06	Seal	Initials	Discharged	C42647	10.12.80	Seal	Initials
Mortgage	B635786	to Bank of New South Wales.	14.12.78	9.33	Seal	Initials	Discharged	C42648	10.12.80	Seal	Initials
Mortgage	C42650	to Bernard Ronald Stokes, Retired Farmer and Janet Sheila Page, Retired Hairdresser both of 27 Nestor Way, Mandurah.	10.12.80	9.43	Seal	Initials	Discharged	D110457	26.9.85	Seal	Initials
Mortgage	D110459	to St. Aubyn's Pty. Ltd., of Beverley.	16.9.85	12.11	Seal	Initials	Discharged	E587206	17.4.91	Seal	Initials
Mortgage	D178355	to Esanda Ltd.	9.1.86	9.07	Seal	Initials	Dup. title not prod.			Seal	Initials
Mortgage	D953118		2.12.88		Seal	Initials	Discharged	D953118	2.12.88	Seal	Initials
Transfer	D252606	of Mortgage D110459 to Trade Credits Limited.	21.5.86	9.34	Seal	Initials	By Discharged	E587206	17.4.91	Seal	Initials
Caveat	E99602	Lodged 12.5.89 at 9.41 hrs.			Seal	Initials	Withdrawn	E587204	17.4.91	Seal	Initials
Caveat	E177169	Lodged 24.8.1989 at 14.40 hrs.			Seal	Initials	Withdrawn	E587205	17.4.91	Seal	Initials
Mortgage	E587209	to R & I Bank of Western Australia Ltd.	17.4.91	8.10	Seal	Initials				Seal	Initials
Mortgage	G366633	to Bank of Western Australia Ltd.	7.1.97	8.37	Seal	Initials				Seal	Initials
Mortgage	G623098	to Bank of Western Australia Ltd.	30.10.97	16.01	Seal	Initials				Seal	Initials
Mortgage	H652393	to Elders Rural Bank Ltd.	24.1.01	9.31	Seal	Initials				Seal	Initials

CERTIFICATE OF TITLE VOL.

1493 399

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 52
Street No: 100
Street Name: Atkins Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1740/735
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



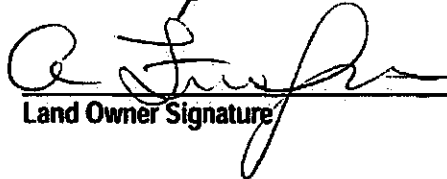
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 52/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1740** FOLIO **735**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 52 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ADRIANO FURFARO
MICHELEANGELO FURFARO
LINA FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G141567) REGISTERED 1 APRIL 1996

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1740 FOL 735.
2. *I769680 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 23.1.2004.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1740-735 (52/P739).
PREVIOUS TITLE: 1511-657.
PROPERTY STREET ADDRESS: 100 ATKINS RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.



Application D298184

WESTERN



AUSTRALIA

Volume 1511 Folio 657

1740 735



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 18th September, 1986

N.J. Smyth
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 52 on Plan 739A, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

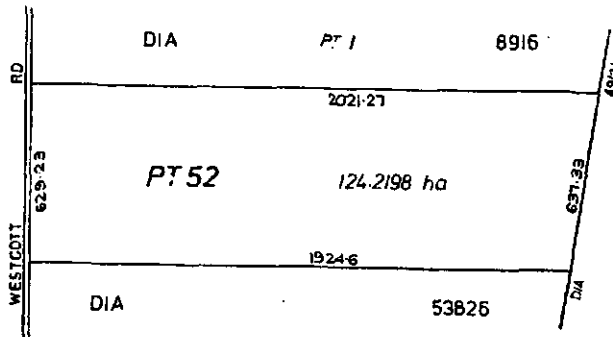
Vincenzo Cherubino
Registrar of Titles
Vincenzo Cherubino of 27 Hackett Road, Harvey, Farmer

SECOND SCHEDULE (continued overleaf)

- 1. MORTGAGE C967572 to Curatio Pty. Ltd. Registered 27.2.85 at 12.06 o/c Discharged G141565 1.4.96
- 2. CAVEAT C967573 Lodged 27.2.1985 at 12.18 o/c Withdrawn E233859, 14.11.89
- 3. CAVEAT C967574 Lodged 27.2.1985 at 12.19 o/c Withdrawn E233860, 14.11.89

N.J. Smyth
REGISTRAR OF TITLES

THIRD SCHEDULE



SCALE 1:20000
SR Cal. 297/86

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

LANDGATE COPY OF ORIGINAL NOT TO SCALE WED JUL 15 10:44:53 2009 JOB 52572495

Superseded - Copy for Sketch Only

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

REGISTERED PROPRIETOR	NATURE	NUMBER	REGISTERED	TIME	SEAL	INITIALS
Quetzal Finance Pty. Ltd. of care of Guy Capolingua & Associates, 1st Floor, 183 Scarborough Beach Road, Mount Hawthorn.	Transfer	G141566	1.4.96	14.47		7
Adriano Furfaro, Michelangelo Furfaro and Lina Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer	G141567	1.4.96	14.47		7
The correct name of the second proprietor is now Micheleangelo Furfaro.	Application	G366632	7.1.97	8.37		7 R
The correct address of the registered proprietors is now Atkins Road, Keysbrook.	By	G366633	7.1.97	8.37		R

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
NATURE	NUMBER										
Extension	E233861	of Mortgage C967572	14.11.89	11.49		7	By Discharge	G141565	1.4.96		7
Caveat	E233862	Lodged 14.11.1989 at 11.50 hrs				7	Withdrawn	E732447	28.10.91		7
Caveat	E233863	Lodged 14.11.1989 at 11.50 hrs				7	Withdrawn	E732448	28.10.91		7
Extension	E732449	of Mortgage C967572	28.10.91	11.04		7	By Discharge	G141565	1.4.96		7
Caveat	E732450	Lodged 28.10.91 at 11.04 hrs.				7	Withdrawn	G141563	1.4.96		7
Caveat	E732451	Lodged 28.10.91 at 11.04 hrs.				7	Withdrawn	G141562	1.4.96		7
Caveat	F73885	Lodged 23.12.92 at 14.20 hrs.				7	Withdrawn	G141564	1.4.96		7
Mortgage	G141568	to Quetzal Finance Pty. Ltd.	1.4.96	14.47		7	Discharged	G597592	2.10.97		7
Mortgage	G141569	to Bank of Western Australia Ltd.	1.4.96	14.48		7					
Mortgage	G366633	to Bank of Western Australia Ltd.	7.1.97	8.37		7					
Mortgage	G623098	to Bank of Western Australia Ltd.	30.10.97	16.01		7					
Mortgage	H652393	to Elders Rural Bank Ltd.	24.1.01	9.31		7					

CERTIFICATE OF TITLE VOL. 1740 735

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 111
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/847
Land Owner: Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Atkins Road, Keysbrook WA



Land Owner Signature

Date



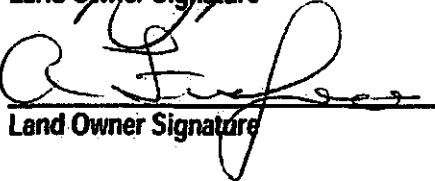
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 111/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2117

FOLIO
847

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 111 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623095) REGISTERED 30 OCTOBER 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-847 (111/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application 6623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 847



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Platt
REGISTRAR OF TITLES

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 111 on Diagram 94183, delineated on the map in the Third Schedule hereto.

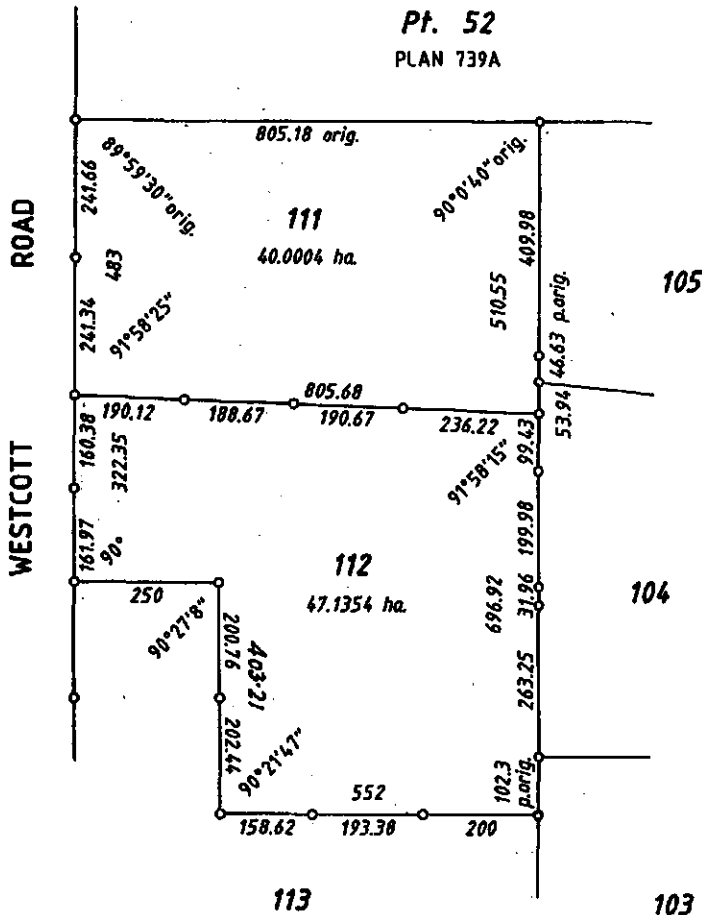
FIRST SCHEDULE (continued overleaf)

~~Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.~~

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE





Superseded - Copy for Sketch Only



Page 1 (of 2 pages) 2117 847

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
REGISTERED PROPRIETOR		INSTRUMENT	REGISTERED	TIME	SEAL	CERT. OFFICER					
NATURE	NUMBER										
<p>Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro, all of 52 Atkins Road, Keysbrook, as tenants in common in equal shares.</p>		Transfer	G623095	30.10.97	16.01						

SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623097	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01							

CERTIFICATE OF TITLE VOL. 2117 FOL. 847

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 112
Street No: 731
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/848
Land Owner: Olympia Resources Ltd
Land Owner Address: Level 4, 25, Walters Drive, Osborne Park WA



Land Owner Signature

4/9/09

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 112/D94183	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 23/1/2006

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME: **2117** FOLIO: **848**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 112 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

OLYMPIA RESOURCES LTD OF LEVEL 4, 25 WALTERS DRIVE, OSBORNE PARK
(T J581957) REGISTERED 12 JANUARY 2006

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
2. J581958 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 12.1.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-848 (112/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: 731 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

NOTE 1: J863760 CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON CURRENT EDITION OF THE DUPLICATE

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 848



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John J. ...
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 112 on Diagram 94183, delineated on the map in the Third Schedule hereto.

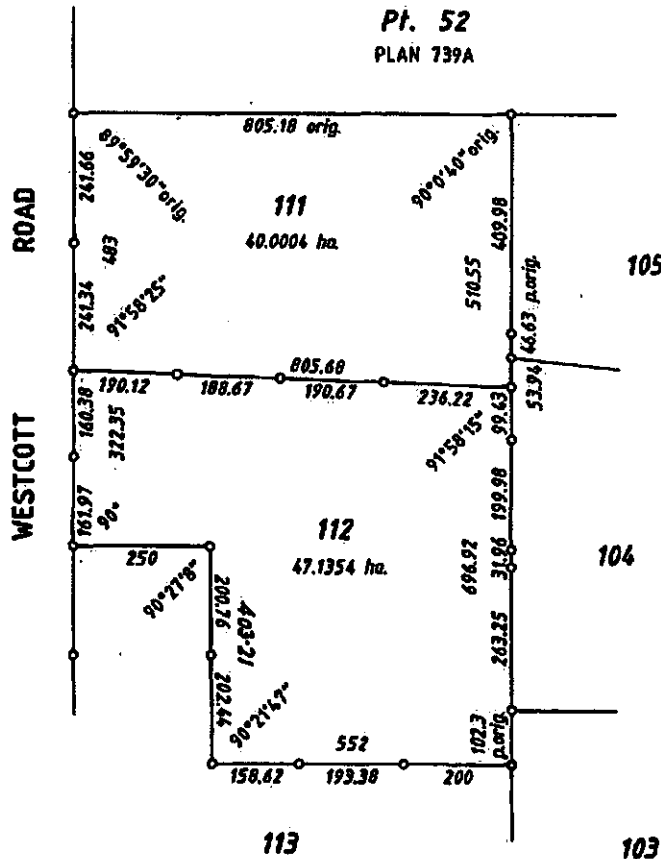
FIRST SCHEDULE (continued overleaf)

Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.


Superseded - Copy for Sketch Only

Page 1 (of 2 pages) 2117 848




PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

FIRST SCHEDULE (continued) **NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS**

Superseded Copy for Sketch Only

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	CERT. OFFICER
The correct address of the registered proprietor is now <u>Lot 112 Westcott Road, Keysbrook.</u>	By	H100193	6.5.99	8.56		CA

SECOND SCHEDULE (continued) **NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS**

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LOOED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623103	to <u>Donald James Piercy</u> of 416 Gaebler Road, Banjup.	30.10.97	16.05		CA	Discharged	H100192	6.5.99		CA
Mortgage	H100193	to <u>National Australia Bank Ltd.</u>	6.5.99	8.56		CA					

CERTIFICATE OF TITLE VOL2117 FOL818




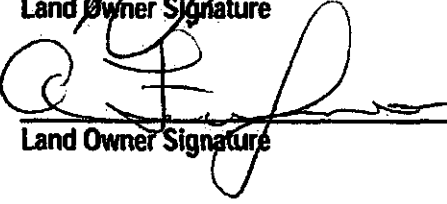
LANDGATE COPY OF ORIGINAL NOT TO SCALE WED JUL 15 10:40:52 2009 JOB 52572542

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 113
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/849
Land Owner: Micheangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Alkins Road, Keysbrook WA

 _____ Land Owner Signature	_____ Date
 _____ Land Owner Signature	_____ Date
 _____ Land Owner Signature	_____ Date
 _____ Land Owner Signature	_____ Date

WESTERN



AUSTRALIA

REGISTER NUMBER 113/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2117** FOLIO **849**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 113 ON DIAGRAM 94183

**REGISTERED PROPRIETOR:
(FIRST SCHEDULE)**

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623096) REGISTERED 30 OCTOBER 1997

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)**

1. B442342 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 2117 FOL 849. REGISTERED 1.12.1977.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-849 (113/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 849



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Platt
REGISTRAR OF TITLES

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 113 on Diagram 94183, delineated on the map in the Third Schedule hereto.

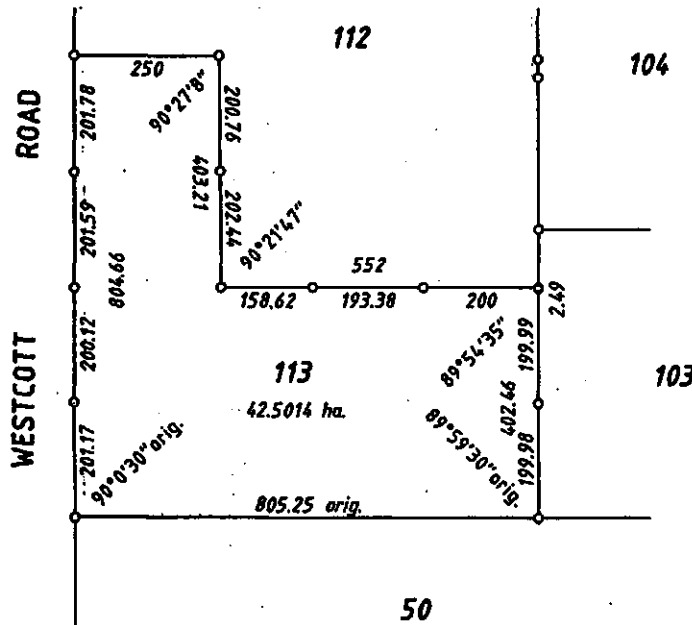
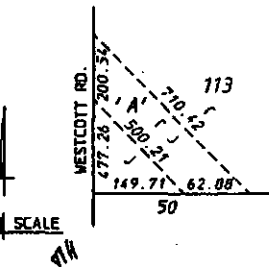
FIRST SCHEDULE (continued overleaf)

~~Andrew Colin Alfred MacDonald~~ of Lot 785 Karnup Road, Serpentine.

SECOND SCHEDULE (continued overleaf)

- TRANSFER B442342. The right to enter in and upon the portion of the within land marked 'A' on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 1.12.77 at 10.35 o'clock.

THIRD SCHEDULE



PLAN 739B (2)

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.


PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

Page 1 (of 2 pages) 2117 849


FIRST SCHEDULE (continued) NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

Superseded - Copy for Sketch Only

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	CERT. OFFICER
Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro, all of 52 Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer	G623096	30.10.97	16.01		£

SECOND SCHEDULE (continued)

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623097	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01		£					

CERTIFICATE OF TITLE VOL.2117 FOL849

RECEIVED
02/09/09

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALE SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 63
Street No: 1265
Street Name: Hopeland Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1049/169
Land Owner: James Henry Charles Hill
Land Owner Address: Care of Post Office, Keysbrook WA

J. H. C. Hill
Land Owner Signature

19.08.09
Date

WESTERN



AUSTRALIA

REGISTER NUMBER 63/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/4/2004

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1049** FOLIO **169**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 63 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

JAMES HENRY CHARLES HILL OF CARE OF POST OFFICE, KEYSBROOK
(T G374556) REGISTERED 16 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. D001832 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
REGISTERED 17.4.1985.
H632788 SUNDRY. THE GRANTEE OF EASEMENT D001832 IS NOW THE DBNGP LAND ACCESS MINISTER PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. REGISTERED 27.12.2000.
2. G374557 MORTGAGE TO ELDERS LTD REGISTERED 16.1.1997.
I810432 TRANSFER OF MORTGAGE G374557 , MORTGAGEE NOW ELDERS RURAL BANK LTD REGISTERED 5.3.2004.
3. H632788 SUNDRY. PORTION OF THE LAND HEREIN IS WITHIN THE DBNGP CORRIDOR PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. SEE LAND ADMINISTRATION PLAN 15584. REGISTERED 27.12.2000.
4. *K122441 CAVEAT BY OLYMPIA RESOURCES LTD LODGED 15.3.2007.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1049-169 (63/P739).
PREVIOUS TITLE: 1009-669.
PROPERTY STREET ADDRESS: 1265 HOPELAND RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

END OF PAGE 1 - CONTINUED OVER

RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 63/P739

VOLUME/FOLIO: 1049-169

PAGE 2

NOTE 1: A000001A PENDING SURVEY - PLAN 14030.
NOTE 2: CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON
CURRENT EDITION OF THE DUPLICATE.
NOTE 3: 1866472 DEPOSITED PLAN 39015 LODGED FOR EASEMENT PURPOSES ONLY

Superseded Copy for Sketch Only

TRANSFER 1842 VOL. 130/139 19 36.
1009, VOL. 669.
10000/15
3097/51
7799/56
2000/48

ORIGINAL



REGISTER BOOK.

Vol. 1049 Fol. 169.

WESTERN AUSTRALIA.

Plan 14030

Certificate of Title

under "The Transfer of Land Act, 1893" (Sec. 5, 56 Vol., 14).

Arthur Goodwin Haynes of 66 St. George's Terrace,
Perth, Solicitor

is now the sole proprietor

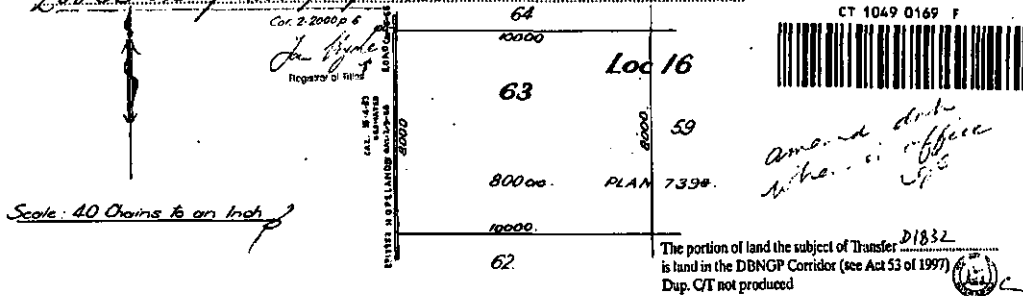
of an estate in fee simple in possession subject to the easements and encumbrances notified hereunder in ALL

that piece of land delineated and coloured green on the map hereon,

containing eight hundred acres

or thereabouts, being portions of Cockburn Sound Location 16 and being

Lot 63 on plan 739 B 739



The portion of land the subject of Transfer D1832 is land in the DBNGP Corridor (see Act 53 of 1997) Dup. CT not produced

Dated the twenty-sixth day of June One thousand nine hundred and thirty-six.

Barwell
Assistant Registrar of Titles.

Transfer 6761 1945 transferred to John Charles Haynes of Kingsbrook Farm
Registered 14th August 1945 at 14.45 in land

R. L. Caple
Assistant Registrar of Titles

Application 1334/1947. On the 12th June 1947 John Charles Haynes died and on the 22nd July 1947 probate of his will was granted to Arthur Goodwin Haynes of 66 St. George's Terrace Perth Solicitor the executor therein named.

P. Johnson
17th December 1947 Assistant Registrar of Titles

Transfer 2552/1950 to Thomas Henry Hill
of Keysbrook Farmer
Registered 27th December 1950 at 12.50

Application 36159/47. On the 6th September 1948 Thomas Henry Hill died and on the 21st September 1948 probate of his will was granted to Ellen Veronica Hill of Keysbrook, widow the executrix therein named.

W. J. G. Gifford
23rd May 1948 Asst. Registrar of Titles

Transfer 862926 to Ellen Veronica Hill widow and James Henry Charles Hill
Farmer both of Keysbrook as tenants in common in equal share
Registered 14th August 1948 at 9.40c.

W. J. G. Gifford
Assistant Registrar of Titles

Transfer G374556 to James Henry Charles Hill of care of Post Office, Keysbrook. Registered 16th January 1997 at 14.49 hrs.





Superseded - Copy for Sketch Only

Instrument stamped 10/1/36

Mortgage 3430/1936 Arthur Goodwin Haynes to Thomas James Garrick of 176 ...
which is a ... Registered 6th July 1936 at 1106.

Discharge 132/1939 of Mortgage 3430/1936. Registered 13th January 1939 at 1106.

Instrument stamped 17/6/36

Mortgage 1723/1946 John Charles Haynes to ... Registered 26th March 1936 at 1106.

Instrument stamped 17/6/36

Mortgage 1723/1946 John Charles Haynes to ... Registered 26th March 1936 at 1106.

Discharge 7504/1947 of Mortgage 1723/1946. Registered 17th December 1947 at 9.30 a.m.

Discharge 9505/1947 of Mortgage 1723/1946. Registered 12th December 1947 at 9.30 a.m.

Mortgage 10530/1947 Arthur Goodwin Haynes to Charles Richard Hayne ...
Registered 17th December 1947 at 1.45 p.m.

Discharge 10530/1947 of Mortgage 10530/1947.

Registered 27th December 1947 at 12.50 p.m.

Instrument stamped 17/10/48

Mortgage 16924/1948 ... to Bank of New South Wales.
Registered 5th August 1948 at 9.20 a.m.

Discharge 16924/1948 of Mortgage 16924/1948. Registered 5th August 1948 at 9.20 a.m.

Mortgage A67977 to Bank of New South Wales. Registered 5th August 1948 at 9.20 a.m.

DISCHARGED

Mortgage A681288 to The Rural Reconstruction Authority. Registered 20th January 1972 at 10.44 a.m.

Discharge B221316 of Mortgage A681288. Registered 27th September 1972 at 9.05 a.m.

Transfer D1832. The Right to enter upon the portion of the within land Comprised in Plan 14030 to construct use and maintain a pipeline for the carriage of natural or other gas as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 17th April, 1985 at 11.44 a.m.

Discharge G374554 of Mortgage A67977. Registered 16th January 1997 at 14.49 hrs.

Mortgage G374557 to Elders Ltd. Registered 16th January 1997 at 14.49 hrs.

Survey H632788. Portion of the land as shown on Land Administration Plan 15584 is land within the DBNGP Corridor pursuant to the Damper to Bunbury Pipeline Act 1997. (Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.

Survey H632788. The Grantee of Transfer D1832 is now the DBNGP Land Access Minister pursuant to the Damper to Bunbury Pipeline Act 1997. (Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.

CERTIFICATE OF TITLE.

Registered Vol.....Fol.....

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 1

Street No: 107

Street Name: Elliott Road

Suburb: Keysbrook

Diagram / Plan: 8916

Certificate of Title Volume and Folio: 2094/330

Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro

Land Owner Address: Atkins Road, Keysbrook WA




Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 1/D8916	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2094** FOLIO **330**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 1 ON DIAGRAM 8916

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(XA G372122) REGISTERED 7 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2094 FOL 330.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2094-330 (1/D8916).
PREVIOUS TITLE: 1511-656.
PROPERTY STREET ADDRESS: 107 ELLIOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Sundry Document G372122 WESTERN
Volume 1511 Folio 656



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2094 330

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Boalgueri
ASSISTANT
REGISTRAR OF TITLES



Dated 7th January, 1997

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 1 on Diagram 8916, delineated on the map in the Third Schedule hereto.

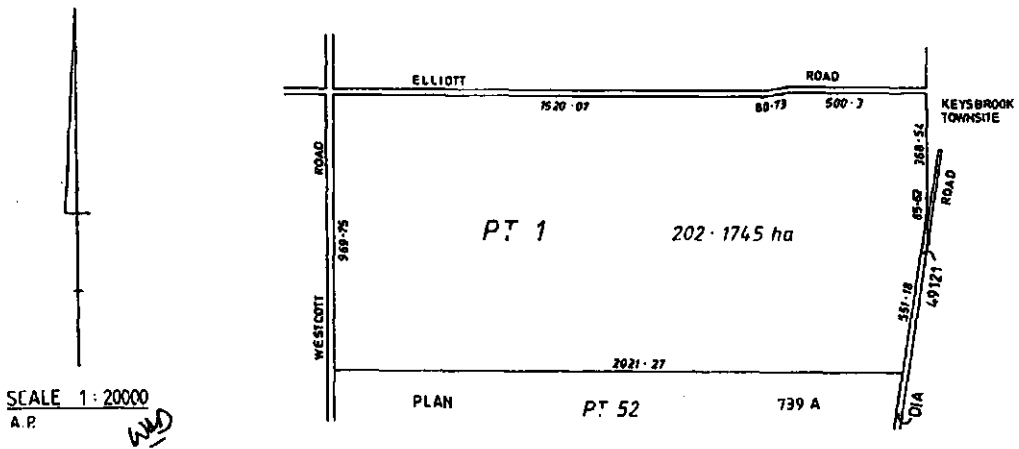
FIRST SCHEDULE (continued overleaf)

Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Atkins Road, Keysbrook, as tenants in common in equal shares.

SECOND SCHEDULE (continued overleaf)

1. MORTGAGE G141568 to Quetzal Finance Pty. Ltd. Registered 1.4.96 at 14.47 hrs. Discharged G597592 2.10.97
2. MORTGAGE G141569 to Bank of Western Australia Ltd. Registered 1.4.96 at 14.48 hrs.
3. MORTGAGE G366633 to Bank of Western Australia Ltd. Registered 7.1.97 at 8.37 hrs.

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.





Superseded - Copy for Sketch Only

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

LANDGATE COPY OF ORIGINAL NOT TO SCALE Fri Jul 24 10:47:34 2009 JOB 32628794

Superseded Copy for Sketch Only

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS					
REGISTERED PROPRIETOR		INSTRUMENT		REGISTERED	TIME	SEAL	CERT. OFFICER
		NATURE	NUMBER				

SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623098	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01							
Mortgage	H652393	to <u>Elders Rural Bank Ltd.</u>	24.1.01	9.31							

CERTIFICATE OF TITLE VOL. 2034FOL. 330



**FORM NO. 1
TOWN PLANNING SCHEME NO. 2
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT**

Name of Applicant: Planning Solutions (Aust) Pty Ltd	
Address of Applicant: PO Box 8701 Perth BC WA P/Code: 6849	
Day time Phone No.: 9227 7970	Mobile No:
Email Address: admin@planningsolutions.com.au Fax No: 9227 7971	
Name & Address of Owner (if not Applicant): Various Land Owners - See Attached Schedule. P/Code:	
Description of Land (Lot No. & Street Name of property where development is to occur): Refer to attached schedule and Certificates of Title in Report.	
Type of Development: Proposed Industry Extractive	
Existing land use (attach plan showing location of existing buildings): Open pasture with scattered dwellings and out buildings.	
Value of Development (excluding GST component of contract): \$ Approx. \$12 million	
Signature of Land Owner: See Attached Schedule.	
Date:	
This application form must be accompanied by the appropriate fee. This is not a building application for which a separate application is necessary.	

Office Use Only

Fee	Receipt No.	Date

SHIRE OF

- 8 FEB 2010

Shire of Serpentine Jarrahdale

Landowner	Address	Lot	Plan/Diagram	Volume	Folio	Area (ha)
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	6	D52395	1493	399	161.9221
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	52	P739	1740	735	124.2198
M. Furfaro, L Furfaro and A. Furfaro	52 Atkins Road, Keysbrook	111	D94183	2117	847	40.0004
Olympia Resources Ltd	Level 4, 25 Walters, Osborne Park	112	D94183	2117	848	47.1354
M. Furfaro, L Furfaro and A. Furfaro	52 Atkins Road, Keysbrook	113	D94183	2117	849	42.5014
James Henry Charles Hill	c/ Post Office, Keysbrook	63	P739	1049	169	323.7485
M. Furfaro, L Furfaro and A. Furfaro	Atkins Road, Keysbrook	1	D8916	2094	330	202.1745

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 6
Street No: 762
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 52395
Certificate of Title Volume and Folio: 1493/399
Land Owner: Micheangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



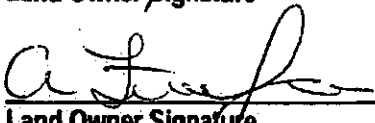
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 6/D52395	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1493** FOLIO **399**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 6 ON DIAGRAM 52395

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T E587208) REGISTERED 17 APRIL 1991

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. B446530 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 1493 FOL 399. REGISTERED 8.12.1977.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1493-399 (6/D52395).
PREVIOUS TITLE: 1085-164.
PROPERTY STREET ADDRESS: 762 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.



Application B472671

WESTERN



AUSTRALIA

Volume 1085 Folio 164

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

DATED 7th February, 1978

Lundborough

REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 6 on Diagram 52395, delineated and coloured green on the map in the Third Schedule hereto.

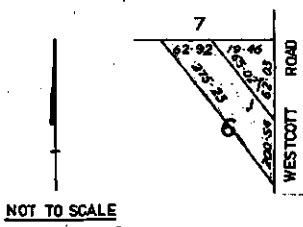
FIRST SCHEDULE (continued overleaf)

~~Norman Howard Osment of Keysbrook, Farmer.~~

SECOND SCHEDULE (continued overleaf)

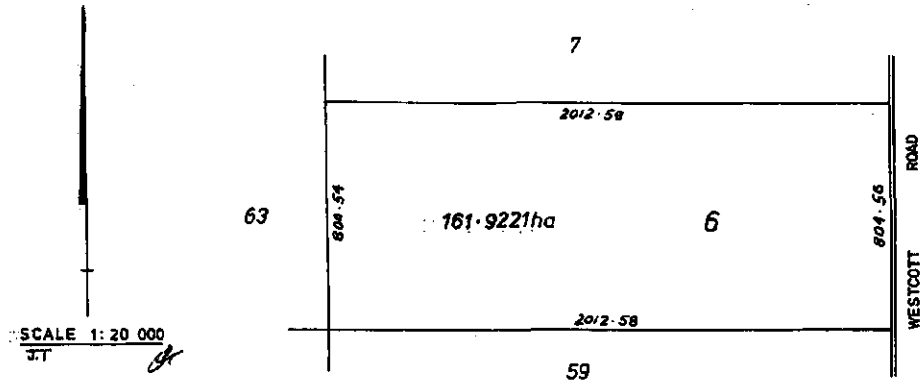
- ~~MORTGAGE 1032/1952 to The National Bank of Australasia Limited. Registered 30.11.52 at 10.30 o/c. Discharged B622868 20.11.78~~
- ~~MORTGAGE 5448/1954 to The National Bank of Australasia Limited. Registered 13.4.54 at 3.45 o/c. Discharged B622868 20.11.78~~

3. TRANSFER B446530. The right to enter in and upon the portion of the within land coloured blue on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 8.12.77 at 3.06 o/c.



Lundborough
REGISTRAR OF TITLES

THIRD SCHEDULE



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only



Page 1493 of 12 pages

LANDGATE COPY OF ORIGINAL NOT TO SCALE Wed Jul 15 10:45:49 2009 JOB 32572525

FIRST SCHEDULE (continued)		NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.				REGISTERED PROPRIETOR	INSTRUMENT NUMBER	REGISTERED TIME	SEAL	INITIALS
Bernard Ronald Stokes, Retired Farmer, of three undivided fourth shares, and Janet Sheila Page, Retired Hairdresser, of one undivided fourth share, both of 85 Mary Street, Gomo, as tenants in common.										
St Aubyn's Pty. Ltd. of Beverley.						Transfer	B635784	11.12.78 9.33		
Kaustra Pty. Ltd. and Starward Pty. Ltd., both of care of P.A.T. Goh & Co., Unit 2, 123 Colin Street, West Perth, as tenants in common in equal shares.						Transfer	042649	10.12.80 9.43		
Mervyn William Williams of Nosila Park, Keysbrook.						Transfer	D110458	16.9.85 12.11		
Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.						Transfer	E587207	17.4.91 8.10		
The correct address of the registered proprietors is now Atkins Road, Keysbrook.						Transfer By	E587208 G366633	17.4.91 8.10 7.1.97 8.37		

SECOND SCHEDULE (continued)		NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.									
NATURE	NUMBER	PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
Mortgage	B635785	to Norman Howard Osment, of Keysbrook, Farmer.	11.12.78	11.06			Discharged	042647	10.12.80		
Mortgage	B635786	to Bank of New South Wales.	11.12.78	9.33			Discharged	042648	10.12.80		
Mortgage	042650	to Bernard Ronald Stokes, Retired Farmer and Janet Sheila Page, Retired Hairdresser both of 27 Nestor Way, Mandurah.	10.12.80	9.43			Discharged	D110457	26.9.85		
Mortgage	D110459	to St. Aubyn's Pty. Ltd., of Beverley.	16.9.85	12.11			Discharged	E587206	17.4.91		
Mortgage	D178355	to Esanda Ltd.	9.1.86	9.07			Dup. title not prod.	D953118	2.12.88		
Transfer	D252606	of Mortgage D110459 to Trade Credits Limited.	21.5.86	9.34			By Discharged	E587206	17.4.91		
Caveat	E99602	Lodged 12.5.89 at 9.41 hrs.					Withdrawn	E587204	17.4.91		
Caveat	E177169	Lodged 24.8.1989 at 14.40 hrs.					Withdrawn	E587205	17.4.91		
Mortgage	E587209	to R & I Bank of Western Australia Ltd.	17.4.91	8.10							
Mortgage	G366633	to Bank of Western Australia Ltd.	7.1.97	8.37							
Mortgage	G623098	to Bank of Western Australia Ltd.	30.10.97	16.01							
Mortgage	H652393	to Elders Rural Bank Ltd.	24.1.01	9.31							

CERTIFICATE OF TITLE VOL. 1493 399

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 52
Street No: 100
Street Name: Atkins Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1740/735
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



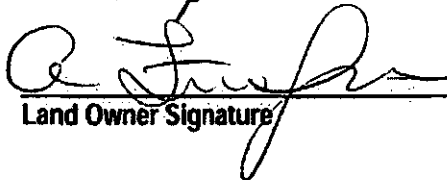
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 52/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1740** FOLIO **735**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

B. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 52 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ADRIANO FURFARO
MICHELEANGELO FURFARO
LINA FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G141567) REGISTERED 1 APRIL 1996

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1740 FOL 735.
2. *I769680 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 23.1.2004.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1740-735 (52/P739).
PREVIOUS TITLE: 1511-657.
PROPERTY STREET ADDRESS: 100 ATKINS RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.



Application D298184

WESTERN



AUSTRALIA

Volume 1511 Folio 657

1740 735



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 18th September, 1986

S. J. Smyth
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 52 on Plan 739A, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

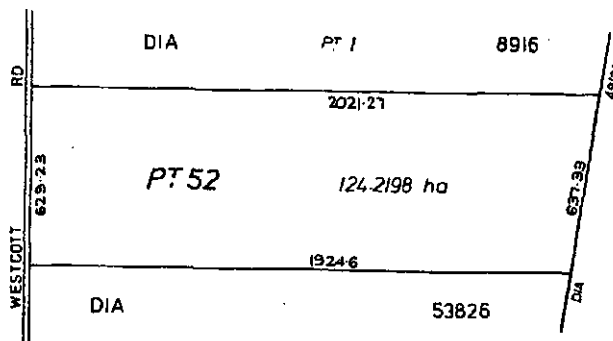
~~Vincento Cherubino of 27 Hackett Road, Harvey, Farmer~~

SECOND SCHEDULE (continued overleaf)

- 1. MORTGAGE C967572 to ~~Curatio Pty. Ltd.~~ Registered 27.2.85 at 12.06 o/c Discharged G141565 1.4.96
- 2. CAVEAT C967573 Lodged 27.2.1985 at 12.18 o/c Withdrawn E233859, 14.11.89
- 3. CAVEAT C967574 Lodged 27.2.1985 at 12.19 o/c Withdrawn E233860, 14.11.89

S. J. Smyth
REGISTRAR OF TITLES

THIRD SCHEDULE



SCALE 1:70000
Sf Cal. 297/86

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

Page 1 of 2 pages 17 (17) PL.

LANDGATE COPY OF ORIGINAL NOT TO SCALE WED JUN 15 10:44:53 2009 JOB 52572495

Superseded - Copy for Sketch Only

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULLED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

REGISTERED PROPRIETOR	INSTRUMENT NATURE	NUMBER	REGISTERED	TIME	SEAL	INITIALS
Quetzal Finance Pty. Ltd. of care of Guy Capolingua & Associates, 1st Floor, 183 Scarborough Beach Road, Mount Hawthorn.	Transfer	G141566	1.4.96	14.47		R
Adriano Furfaro, Michelangelo Furfaro and Lina Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer	G141567	1.4.96	14.47		R
The correct name of the second proprietor is now Micheleangelo Furfaro.	Application	G366632	7.1.97	8.37		R
The correct address of the registered proprietors is now Atkins Road, Keysbrook.	By	G366633	7.1.97	8.37		R

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULLED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
NATURE	NUMBER										
Extension	E233861	of Mortgage C967572	14.11.89	11.49		R	By Discharge	G141565	1.4.96		R
Caveat	E233862	Lodged 14.11.1989 at 11.50 hrs				R	Withdrawn	E732447	28.10.91		R
Caveat	E233863	Lodged 14.11.1989 at 11.50 hrs				R	Withdrawn	E732448	28.10.91		R
Extension	E732449	of Mortgage C967572	28.10.91	11.04		R	By Discharge	G141565	1.4.96		R
Caveat	E732450	Lodged 28.10.91 at 11.04 hrs.				R	Withdrawn	G141563	1.4.96		R
Caveat	E732451	Lodged 28.10.91 at 11.04 hrs.				R	Withdrawn	G141562	1.4.96		R
Caveat	F73885	Lodged 23.12.92 at 14.20 hrs.				R	Withdrawn	G141564	1.4.96		R
Mortgage	G141568	to Quetzal Finance Pty. Ltd.	1.4.96	14.47		R	Discharged	G597592	2.10.97		R
Mortgage	G141569	to Bank of Western Australia Ltd.	1.4.96	14.48		R					
Mortgage	G366633	to Bank of Western Australia Ltd.	7.1.97	8.37		R					
Mortgage	G623098	to Bank of Western Australia Ltd.	30.10.97	16.01		R					
Mortgage	H652393	to Elders Rural Bank Ltd.	24.1.01	9.31		R					

CERTIFICATE OF TITLE VOL. 1740 735

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 111
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/847
Land Owner: Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Atkins Road, Keysbrook WA



Land Owner Signature

Date



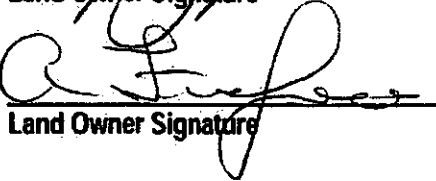
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 111/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2117** FOLIO **847**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 111 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623095) REGISTERED 30 OCTOBER 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-847 (111/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 847



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Platt
REGISTRAR OF TITLES

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 111 on Diagram 94183, delineated on the map in the Third Schedule hereto.

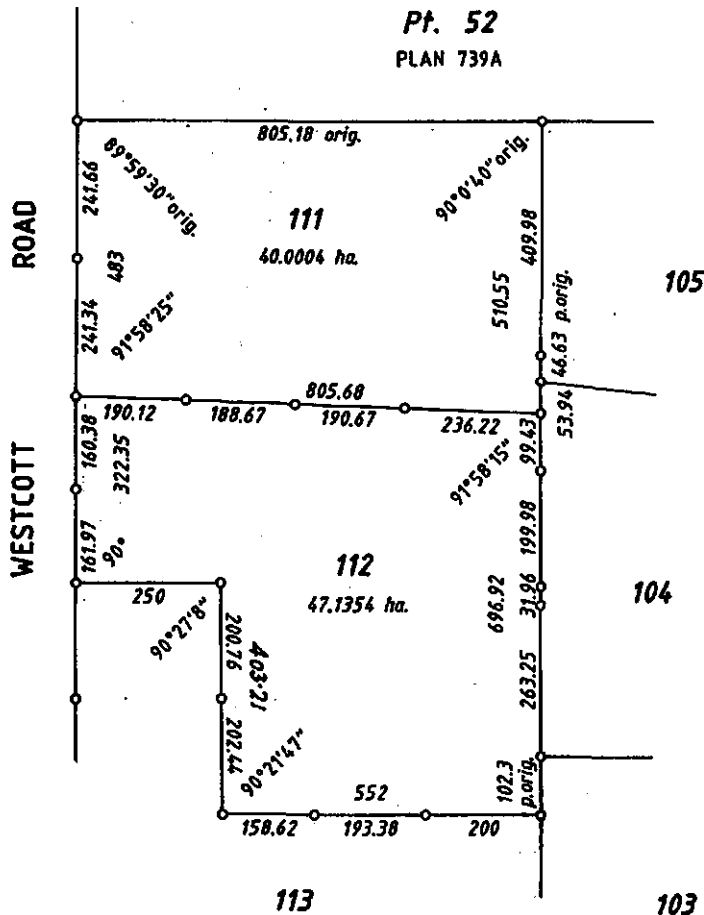
FIRST SCHEDULE (continued overleaf)

~~Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.~~

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE





NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Page 1 (of 2 pages) 2117 847
Superseded - Copy for Sketch Only

Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS						
REGISTERED PROPRIETOR		INSTRUMENT		REGISTERED	TIME	SEAL	CERT. OFFICER	
NATURE	NUMBER	REGISTERED	TIME	SEAL	CERT. OFFICER			
Micheleangelo Furfaro, <u>Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro</u> , all of 52 Atkins Road, Keysbrook, <u>as tenants in common in equal shares.</u>		Transfer	G623095	30.10.97	16.01		£	

SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623097	<u>to Bank of Western Australia Ltd.</u>	30.10.97	16.01		£					

CERTIFICATE OF TITLE VOL. 2117 FOL. 847

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALE SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 112
Street No: 731
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/848
Land Owner: Olympia Resources Ltd
Land Owner Address: Level 4, 25, Walters Drive, Osborne Park WA



Land Owner Signature

4/9/09

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 112/D94183	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 23/1/2006

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME 2117 FOLIO 848

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 112 ON DIAGRAM 94183

**REGISTERED PROPRIETOR:
(FIRST SCHEDULE)**

OLYMPIA RESOURCES LTD OF LEVEL 4, 25 WALTERS DRIVE, OSBORNE PARK
(T J581957) REGISTERED 12 JANUARY 2006

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)**

- EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
- J581958 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 12.1.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-848 (112/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: 731 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

NOTE 1: J863760 CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON CURRENT EDITION OF THE DUPLICATE

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 848



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Patterson
REGISTRAR OF TITLES



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Page 1 of 2 pages) 2117 848
Superseded - Copy for Sketch Only

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 112 on Diagram 94183, delineated on the map in the Third Schedule hereto.

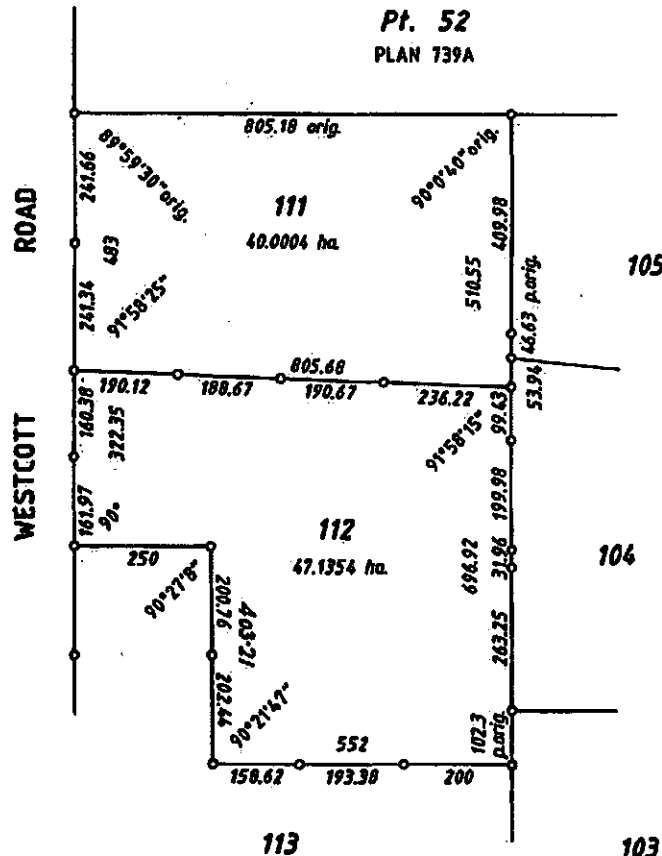
FIRST SCHEDULE (continued overleaf)

Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS					
REGISTERED PROPRIETOR		INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	CERT. OFFICER
The correct address of the registered proprietor is now <u>Lot 112 Westcott Road, Keysbrook.</u>		By	H100193	6.5.99	8.56		C1

SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LOGGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623103	to <u>Donald James Piercy</u> of 416 Gaebler Road, Banjup.	30.10.97	16.05		C1	Discharged	H100192	6.5.99		C1
Mortgage	H100193	to <u>National Australia Bank Ltd.</u>	6.5.99	8.56		C1					

CERTIFICATE OF TITLE VOL2117 FOL848

LANDGATE COPY OF ORIGINAL NOT TO SCALE REF JUT 15 10:46:52 2009 JOB 52572542

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 113
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/849
Land Owner: Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Atkins Road, Keysbrook WA



Land Owner Signature

Date



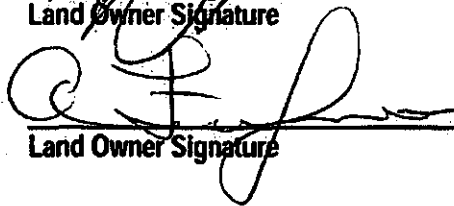
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 113/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2117** FOLIO **849**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 113 ON DIAGRAM 94183

**REGISTERED PROPRIETOR:
(FIRST SCHEDULE)**

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623096) REGISTERED 30 OCTOBER 1997

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)**

1. B442342 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 2117 FOL 849. REGISTERED 1.12.1977.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-849 (113/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 849



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Fletcher
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 113 on Diagram 94183, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

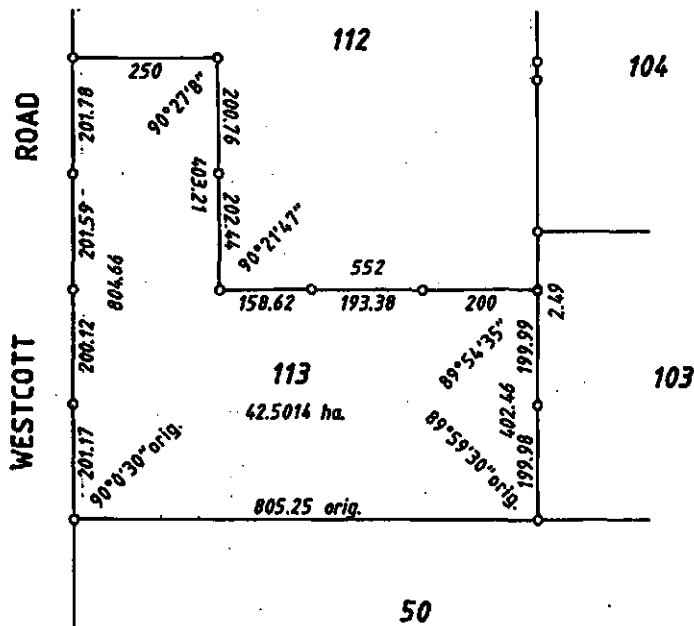
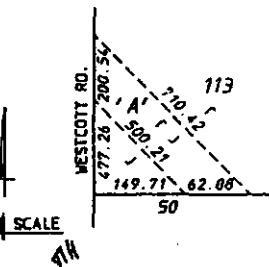
~~Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.~~



SECOND SCHEDULE (continued overleaf)

1. TRANSFER B442342. The right to enter in and upon the portion of the within land marked 'A' on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 1.12.77 at 10.35 o/c.

THIRD SCHEDULE





NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON



Page 1 (of 2 pages) 2117 849
Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued) NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

Superseded - Copy for Sketch Only

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	CERT. OFFICER
Micheleangelo Furfaro, <u>Lina Furfaro</u> , <u>Adriano Furfaro</u> and <u>Mark Antonio Julio Furfaro</u> , all of 52 Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer	G623096	30.10.97	16.01		

SECOND SCHEDULE (continued) NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623097	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01							

CERTIFICATE OF TITLE VOL.2117 FOL849

RECEIVED
02/09/09

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALE SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 63
Street No: 1265
Street Name: Hopeland Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1049/169
Land Owner: James Henry Charles Hill
Land Owner Address: Care of Post Office, Keysbrook WA

J. H. C. Hill
Land Owner Signature

19.8.09
Date

WESTERN



AUSTRALIA

REGISTER NUMBER 63/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/4/2004

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1049** FOLIO **169**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 63 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

JAMES HENRY CHARLES HILL OF CARE OF POST OFFICE, KEYSBROOK
(T G374556) REGISTERED 16 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. D001832 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
REGISTERED 17.4.1985.
H632788 SUNDRY. THE GRANTEE OF EASEMENT D001832 IS NOW THE DBNGP LAND ACCESS MINISTER PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. REGISTERED 27.12.2000.
2. G374557 MORTGAGE TO ELDERS LTD REGISTERED 16.1.1997.
I810432 TRANSFER OF MORTGAGE G374557 , MORTGAGEE NOW ELDERS RURAL BANK LTD REGISTERED 5.3.2004.
3. H632788 SUNDRY. PORTION OF THE LAND HEREIN IS WITHIN THE DBNGP CORRIDOR PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. SEE LAND ADMINISTRATION PLAN 15584. REGISTERED 27.12.2000.
4. *K122441 CAVEAT BY OLYMPIA RESOURCES LTD LODGED 15.3.2007.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1049-169 (63/P739).
PREVIOUS TITLE: 1009-669.
PROPERTY STREET ADDRESS: 1265 HOPELAND RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

END OF PAGE 1 - CONTINUED OVER

RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 63/P739

VOLUME/FOLIO: 1049-169

PAGE 2

NOTE 1: A000001A PENDING SURVEY - PLAN 14030.
NOTE 2: CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON
CURRENT EDITION OF THE DUPLICATE.
NOTE 3: 1866472 DEPOSITED PLAN 39015 LODGED FOR EASEMENT PURPOSES ONLY

Superseded Copy for Sketch Only

TRANSFER 1842 VOL. 1049, Fol. 169.
150/39
3077/51
1000/46
1506/36
1009, Fol. 669.
10000/45
7799/46

ORIGINAL



REGISTER BOOK.

Vol. 1049 Fol. 169.

WESTERN AUSTRALIA.

Plan 14030

Certificate of Title

under "The Transfer of Land Act, 1893" (Sch. 6, 68 Vic., 14).

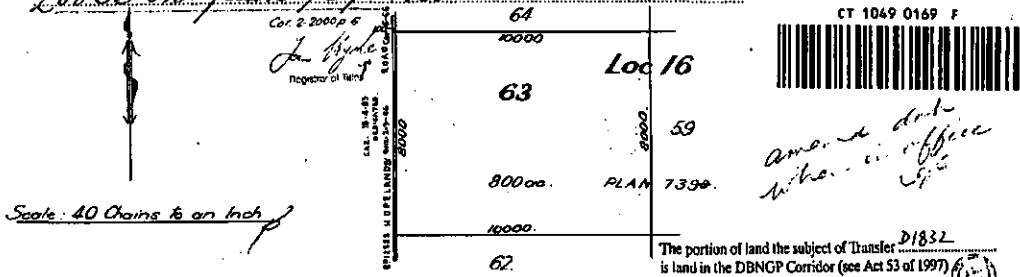
Arthur Goodwin Haynes of 66 St. George's Terrace, Perth, Solicitor

is now the sole proprietor

of an estate in fee simple in possession subject to the easements and encumbrances notified hereunder in ALL

that piece of land delineated and coloured green on the map hereon, containing eight hundred acres

or thereabouts, being part of Cockburn Sound Location 16 and being Lot 63 on plan 739-B 739



Dated the twenty-sixth day of June One thousand nine hundred and thirty-six.

W. S. Hall
Assistant Registrar of Titles.

Transfer 6741/1945 transferred to John Charles Haynes of Keysbrook Farmer
Registered 14th August 1945 at 14.45 hrs.

R. L. Caffee
Assistant Registrar of Titles.

Application 1301/1947. On the 12th June 1947 John Charles Haynes died and on the 29th July 1947 probate of his will was granted to Arthur Goodwin Haynes of 66 St. George's Terrace Perth Solicitor the executor therein named.

P. Johnson
Assistant Registrar of Titles

Transfer 2352/1950 to Thomas Henry Hill of Keysbrook Farmer
Registered 27th December 1950 at 12.5 hrs.

Application 3815/47. On the 6th September 1947 Thomas Henry Hill died and on the 21st September 1947 probate of his will was granted to Ellen Veronica Hill of Keysbrook, widow the executrix therein named.

W. S. Hall
Assistant Registrar of Titles

Transfer 62926 to Ellen Veronica Hill Widow and James Henry Charles Hill Farmer both of Keysbrook as tenants in common in equal shares.
Registered 14th August 1945 at 9.40 hrs.

W. S. Hall
Assistant Registrar of Titles

Transfer 6374556 to James Henry Charles Hill of care of Post Office, Keysbrook. Registered 16th January 1997 at 14.49 hrs.





Superseded - Copy for Sketch Only

Instrument stamped 19/10/36

Mortgage 3430/1936 Arthur Goodwin Haynes to Thomas James Barrick of 176 St. Albans Road Fremantle Retired Contractor. Registered 6th July 1936 at 8.00.

Discharge 132/1939 of Mortgage 3430/1936. Registered 13th January 1939 at 11.00.

Instrument stamped 17/6/40

Mortgage 1723/1946 John Charles Haynes to THE COMMISSIONER OF THE PUBLIC TRUSTS AND LANDS ACTS. Registered 26th March 1940 at 11.00.

V. Clifton ASSISTANT REGISTRAR OF TITLES

Instrument stamped 17/6/40

Mortgage 1723/1946 John Charles Haynes to THE COMMISSIONER OF THE PUBLIC TRUSTS AND LANDS ACTS. Registered 26th March 1940 at 11.00.

V. Clifton ASSISTANT REGISTRAR OF TITLES

Discharge 7504/1947 of Mortgage 1723/1946. Registered 12th December 1947 at 9.30.

P. Johnson ASSISTANT REGISTRAR OF TITLES

Discharge 9505/1947 of Mortgage 1723/1946. Registered 12th December 1947 at 9.30.

P. Johnson ASSISTANT REGISTRAR OF TITLES

Mortgage 1253/1947 Arthur Goodwin Haynes to Charles Richard Hyde of 176 St. Albans Road Fremantle Retired Contractor. Registered 17th December 1947 at 11.45.

P. Johnson ASSISTANT REGISTRAR OF TITLES

Discharge 1188/1950 of Mortgage 1253/1947. Registered 27th December 1950 at 12.00.

P. Johnson ASSISTANT REGISTRAR OF TITLES

Mortgage 1624/1962. Discharged file to Bank of New South Wales. Registered as a discharge for 9.20.00.

J. Kennedy ASSISTANT REGISTRAR OF TITLES

Discharge 116/1965 of Mortgage 1624/1962. Registered 5th August 1965 at 11.00.

J. Kennedy ASSISTANT REGISTRAR OF TITLES

Mortgage A67977 to Bank of New South Wales. Registered 5th August 1965 at 11.00.

J. Kennedy ASSISTANT REGISTRAR OF TITLES

DISCHARGED

Mortgage A681285 to The Rural Reconstruction Authority. Registered 20th January 1972 at 10.00.

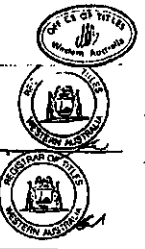
DISCHARGED

Discharge B221316 of Mortgage A681285. Registered 27th September 1976 at 9.05.00.



Transfer D1832 The Right to enter upon the portion of the within land Comprised in Plan 14030 to construct use and maintain a pipeline for the carriage of natural or other gas as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 17th April, 1985 at 11.44 o'clock.

Discharge G374554 of Mortgage A67977. Registered 16th January 1997 at 14.49 hrs.



Mortgage G374557 to Elders Ltd Registered 16th January 1997 at 14.49 hrs.

Sundry H632788 Portion of the land as shown on Land Administration Plan 15584 is land within the DBNGP Corridor pursuant to the Dampier to Bunbury Pipeline Act 1997. (Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.



Sundry H632788 The Grantee of Transfer D1832 is now the DBNGP Land Access Minister pursuant to the Dampier to Bunbury Pipeline Act 1997. (Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.



CERTIFICATE OF TITLE

Registered Vol..... Fol.....

REGISTERED PROPRIETORS SIGNATURE SCHEDULE

SERPENTINE JARRAHDALE SHIRE

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE**

Lot No: 1
Street No: 107
Street Name: Elliott Road
Suburb: Keysbrook
Diagram / Plan: 8916
Certificate of Title Volume and Folio: 2094/330
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



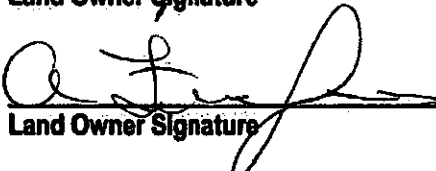
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 1/D8916	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2094** FOLIO **330**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 1 ON DIAGRAM 8916

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(XA G372122) REGISTERED 7 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2094 FOL 330.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2094-330 (1/D8916).
PREVIOUS TITLE: 1511-656.
PROPERTY STREET ADDRESS: 107 ELLIOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Sundry Document G372122 WESTERN
Volume 1511 Folio 656



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2094 330



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

W. J. G. ...
ASSISTANT
REGISTRAR OF TITLES



Dated 7th January, 1997

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 1 on Diagram 8916, delineated on the map in the Third Schedule hereto.

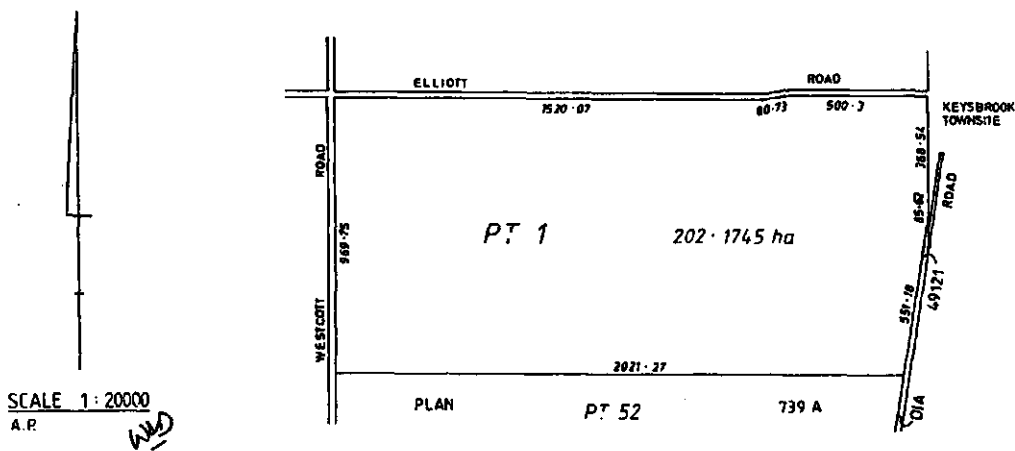
FIRST SCHEDULE (continued overleaf)

Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Atkins Road, Keysbrook, as tenants in common in equal shares.

SECOND SCHEDULE (continued overleaf)

- MORTGAGE G141568 to Quetzal Finance Pty. Ltd. Registered 1.4.96 at 14.47 hrs. Discharged G597592 2.10.97
- MORTGAGE G141569 to Bank of Western Australia Ltd. Registered 1.4.96 at 14.48 hrs.
- MORTGAGE G366633 to Bank of Western Australia Ltd. Registered 7.1.97 at 8.37 hrs.

THIRD SCHEDULE



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

LANDGATE COPY OF ORIGINAL NOT TO SCALE Ft Jul 24 10:47:34 2009 JOB 32628794

Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS					
REGISTERED PROPRIETOR		INSTRUMENT		REGISTERED	TIME	SEAL	CERT. OFFICER
NATURE	NUMBER						

SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS									
INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623098	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01		<i>[Signature]</i>					
Mortgage	H652393	to <u>Elders Rural Bank Ltd.</u>	24.1.01	9.31		<i>[Signature]</i>					

CERTIFICATE OF TITLE VOL. 2034FOL. 330

PLANNING SOLUTIONS

URBAN & REGIONAL
PLANNING

APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
PROPOSED INDUSTRY EXTRACTIVE
VARIOUS LOTS, KEYSBROOK

Job No: 1906

Date: February 2010

**APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
PROPOSED INDUSTRY EXTRACTIVE
VARIOUS LOTS, KEYSBROOK**

Copyright Statement 2010

© Planning Solutions (Aust) Pty Ltd

All rights reserved. Other than for the purposes of and subject to the conditions prescribed under the *Copyright Act 1968* (Cth), no part of this report may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic or otherwise, without the prior written permission of Planning Solutions (Aust) Pty Ltd.

No express or implied warranties are made by Planning Solutions (Aust) Pty Ltd regarding the information and analysis contained in this report. In particular, but without limiting the preceding exclusion, Planning Solutions (Aust) Pty Ltd will not verify, and will not assume responsibility for, the accuracy and completeness of information provided to us.

This report has been prepared with particular attention to our Client's instructions and the relevant features of the subject site. Planning Solutions (Aust) Pty Ltd accepts no liability whatsoever for:

1. a third party's use of, or reliance upon, this report;
2. use of, or reliance upon, this report in relation to any land other than the subject site; or
3. the Client's implementation, or application, of the strategies recommended in this report.

Direct all inquiries to:

PLANNING SOLUTIONS (AUST) PTY LTD
1/255 Beaufort Street
PERTH WA 6000

ALL CORRESPONDENCE TO:
PO Box 8701
PERTH BUSINESS CENTRE WA 6849

Phone: 08 9227 7970
Fax: 08 9227 7971
E-mail: admin@planningsolutions.com.au
Web: www.planningsolutions.com

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	APPROVAL UNDER THE METROPOLITAN REGION SCHEME.....	2
3.0	OTHER APPROVALS	3
3.1	ENVIRONMENTAL PROTECTION ACT 1986 (WA).....	3
3.2	ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999 (CTH)	4
3.3	LOCAL GOVERNMENT ACT 1995 (WA)	4
3.4	MINING ACT 1978 (WA).....	4
3.5	ABORIGINAL HERITAGE ACT 1972 (WA).....	4
3.6	EUROPEAN HERITAGE	4
4.0	SITE DETAILS	6
4.1	LEGAL DESCRIPTION.....	6
4.2	REGIONAL CONTEXT	6
4.3	LOCAL CONTEXT	7
4.4	LAND USE.....	7
4.5	TOPOGRAPHY.....	7
5.0	PROPOSED DEVELOPMENT	8
5.1	MINERALS.....	8
5.2	STAGING OF MINING	8
5.3	MINING PROCESSES	9
5.4	MINE INFRASTRUCTURE	9
5.4.1	Pipelines	9
5.4.2	Screening unit.....	10
5.4.3	Processing, Maintenance and Administration Infrastructure	10
5.5	MINE OPERATIONS	10
5.5.1	Vehicle Parking and Traffic.....	10
5.5.2	Noise	12
5.5.3	Blasting.....	13
5.5.4	Dust.....	13
5.5.5	Odour.....	14
5.5.6	Flora	14
5.5.7	Fauna	15

5.6	WATER RESOURCES.....	15
5.6.1	Aquifers.....	15
5.6.2	Watercourses.....	16
5.7	SERVICES	17
5.7.1	Power.....	17
5.7.2	Sewer.....	17
5.7.3	Water	17
6.0	SCHEME REQUIREMENTS UNDER TPS 2.....	18
6.1	ZONING	18
6.2	USE CLASS	18
6.3	PERMISSIBILITY OF USE	18
6.4	DEVELOPMENT STANDARDS AND REQUIREMENTS.....	18
6.5	SCHEME CONSIDERATIONS.....	18
6.6	SCHEME OBJECTIVES	19
6.7	TEMPORARY PLANNING APPROVAL	20
6.8	GENERAL APPEARANCE OF BUILDINGS AND PRESERVATION OF AMENITY	21
6.9	NUISANCE.....	21
6.10	TREE PRESERVATION AND PLANTING	22
6.11	INUNDATION BY FLOODWATERS.....	23
7.0	DRAFT LOCAL PLANNING POLICY NO. 30 – MINERAL SANDS MINING	24
7.1	GROUNDWATER.....	24
7.2	NATIVE TERRESTRIAL VEGETATION	24
7.3	NATIVE TERRESTRIAL FAUNA.....	24
7.4	OTHER ENVIRONMENTAL IMPACTS	24
7.4.1	Wetlands.....	24
7.4.2	Rehabilitation	25
7.4.3	Aboriginal Heritage Significance	25
7.4.4	Health Impacts.....	25
7.4.5	Transport	25
7.4.6	Amenity.....	26
7.4.7	Employment Opportunities.....	26
7.4.8	Community.....	26
7.4.9	Economic Impacts	26
7.4.10	Land Use Planning	27
7.4.11	Climate Change and Energy Consumption.....	27

7.4.12	Infrastructure Provision	27
7.4.13	Irrelevant Considerations	27
8.0	LOCAL RURAL STRATEGY	28
8.1	SHIRE OF SERPENTINE-JARRAHDAL E - RURAL STRATEGY	28
9.0	LANDSCAPE.....	30
9.1	WAPC - VISUAL LANDSCAPE PLANNING IN WESTERN AUSTRALIA A MANUAL FOR EVALUATION, ASSESSMENT, SITTING AND DESIGN.....	30
9.1.1	Visual Landscape Evaluation.....	31
9.2	SHIRE OF SERPENTINE-JARRAHDAL E DRAFT LOCAL PLANNING POLICY NO. 8 LANDSCAPE PROTECTION.....	34
9.3	DRAFT LOCAL PLANNING POLICY NO. 4 – REVEGETATION.....	35
10.0	STATE PLANNING POLICIES	37
10.1	STATE PLANNING POLICY NO. 1 – STATE PLANNING FRAMEWORK	37
10.2	STATE PLANNING STRATEGY (1997)	37
10.3	STATE PLANNING POLICY NO. 2 - ENVIRONMENT AND NATURAL RESOURCES POLICY	38
10.4	STATE PLANNING POLICY NO. 2.1 - THE PEEL-HARVEY COASTAL PLAIN CATCHMENT	39
10.5	STATE PLANNING POLICY NO. 2.5 - AGRICULTURAL AND RURAL LAND USE PLANNING	40
10.5.1	Objectives	41
10.5.2	Land use conflict.....	42
10.5.3	Impact on Agricultural Potential	42
10.5.4	Town Planning Scheme Provisions	43
10.6	STATE PLANNING POLICY NO. 2.9 – WATER RESOURCES	43
10.7	STATE PLANNING POLICY NO. 4.1 - STATE INDUSTRIAL BUFFER POLICY	44
11.0	DRAFT SOUTHERN METROPOLITAN AND PEEL SUB-REGIONAL STRUCTURE PLAN.....	46
12.0	OTHER PLANNING ISSUES AND CONSIDERATIONS.....	47
13.0	CONCLUSION	48

FIGURES

Figure 1: Metropolitan Region Scheme

Figure 2: Location plan

Figure 3: Extraction area

Figure 4: Regional context

Figure 5: Local context

Figure 6: Aerial of the subject site

Figure 7: Mining operation in diagrammatic form

Figure 8: Proposed transport route

Figure 9: Shire of Serpentine-Jarrahdale Town Planning Scheme No. 2

Figure 10: Shire of Serpentine-Jarrahdale Rural Strategy

TABLES

Table 1: Legal description

Table 2: Use of minerals

Table 3: Summary of Infrastructure and machinery within the Shire of Serpentine Jarrahdale

Table 4: Distance from a sensitive use

APPENDICES

Appendix 1: Minister for Environment; Youth Statement No. 810

Appendix 2: Report and Recommendation of the Environmental Protection Authority Bulletin 1269

Appendix 3: Certificates of Title

Appendix 4: Development Plans

1.0 INTRODUCTION

Planning Solutions (Aust) Pty Ltd ('Planning Solutions') acts on behalf of Matilda Zircon Limited, the proponent of a proposed 'Industry Extractive' land use on various lots within the Keysbrook locality (**Proposal**).

The Proposal will facilitate the extraction of heavy mineral sands.

In addition to and connected with the Proposal, the proponent will be extracting heavy mineral sands from adjacent land within the Shire of Murray. All primary processing of heavy mineral sands other than screening of oversized extracted material will occur within the Shire of Murray. Extracted material will be transported to the processing plant by pipeline with surplus soil material returned to the subject site for backfilling by pipeline. Transportation of all processed mineral sand will occur from the site to the processing plant within the Shire of Murray.

Separate development approval will be obtained from the Shire of Murray.

Actual extraction of heavy mineral sands will commence once development approval for the primary processing functions of the Proposal is obtained from the Shire of Murray or an amended planning approval is obtained from the Shire of Serpentine Jarrahdale to locate processing plant within the subject site.

Approval for the Proposal is required under cl. 5.1.1 of Shire of Serpentine Jarrahdale (the Shire) Town Planning Scheme No. 2 (TPS 2). This report is provided in support of the proponent's Application for Approval to Commence Development.

This report addresses all relevant issues for the Proposal, being:

- Land use;
- Zoning;
- Development standards; and
- Considerations and justification.

In our expert opinion the planning merits of the Proposal (including but not limited to the land capacity of the subject site) support the granting of development approval under the TPS 2.

2.0 APPROVAL UNDER THE METROPOLITAN REGION SCHEME

The subject site is zoned 'Rural' under the Metropolitan Region Scheme (**MRS**).

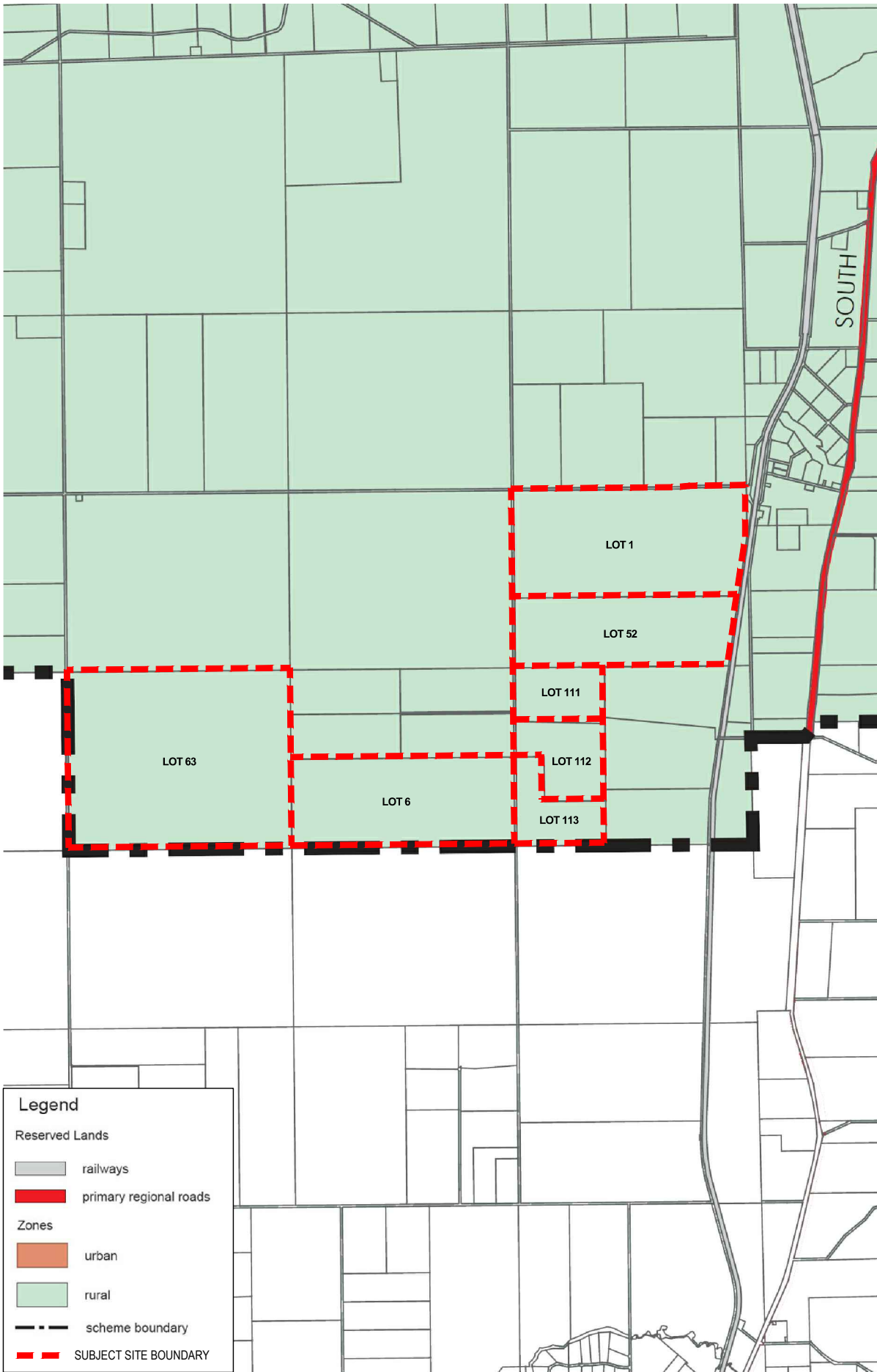
By Notice of Resolution made on 19 December 2008 under cl. 32 of the MRS the Shire of Serpentine Jarrahdale is required by item 2(a) of Schedule 1 to refer the Proposal to the Western Australian Planning Commission (WAPC) for approval under the MRS.

Figure 1 is an extract from the MRS map.

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9221 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the kerbside Trust



**FIGURE 1: METROPOLITAN REGION SCHEME
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 20 January 2010
 FILE 100120 1906 SJ DA Figs.dwg
 REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: WAPC

3.0 OTHER APPROVALS

No approval for the Proposal is required under:

- The Mining Act 1978 (WA);
- The Aboriginal Heritage Act 1972 (WA); or
- The Heritage of Western Australia Act 1990 (WA).

Other than development approval, the Proposal requires a number of approvals, being:

- Approval under the Environmental Protection Act 1986 (WA) (**EP Act**);
- Approval under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (**EPBC Act**); and
- Extractive industry licences approval under the Local Government Act 1995 (WA).

Due to the absence of monazite from the tested mineral sands deposits the Proposal does not require licensing and registration under the Radiation Safety Act 1975 (WA), however the proponent has indicated it will obtain a licence and registration in any event.

The obtaining of the above approvals does not affect in any way the power of the Shire to grant Approval to Commence Development. There exists no legal prohibition or limitation on the Shire granting Approval to Commence Development.

3.1 ENVIRONMENTAL PROTECTION ACT 1986 (WA)

On the 19 October 2009 the Minister for Environment; Youth issued Statement No. 810 (**Ministerial Approval**) which approved the Proposal under the EP Act. The Ministerial Approval contains conditions requiring a comprehensive range of management plans and reporting on native vegetation, watercourses, wetlands, rehabilitation, weed and dieback, water, acid sulphate soils, noise, air quality and dust.

A copy of the Ministerial Approval is appended to this report as *Appendix 1*.

The management plans required by the Ministerial Approval are:

- Rehabilitation Management Plan;
- Weed and Dieback Management Plan;
- Nutrient Management Plan;
- Water Management Plan;
- Acid Sulphate Soils Management Plan;
- Noise Monitoring Management Plan; and
- Air Quality and Dust Management Plan.

All of the environmental matters that are relevant planning considerations for the Proposal formed part of the environmental assessment that culminated in the Ministerial Approval. A copy of the environmental assessment undertaken by the Environmental Protection Authority (**EPA Bulletin 1269**) is appended as *Appendix 2*.

3.2 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999 (CTH)

On 7 July 2005 the Proposal was determined to be a controlled action under the EPBC Act. As the Commonwealth of Australia and the State of Western Australia have entered into a bilateral agreement under s. 45 of the EPBC Act, determination under Part 9 of the EPBC Act will be made by the EPA Bulletin 1269.

3.3 LOCAL GOVERNMENT ACT 1995 (WA)

The proponent will separately apply for an extractive industry licence under *Shire of Serpentine Jarrahdale Extractive Industries Local Law*. The gazetted Extractive Industries Licence By-Law states:

- a. *These activities should be regarded as generally acceptable, subject to assessment on their individual merits in rural areas.*

3.4 MINING ACT 1978 (WA)

The Proposal does not require approval under the *Mining Act 1978 (WA)* as the land titles for the subject lots pre-date 1 January 1899 and the ownership of mineral sands are vested in the freehold title landowner.

3.5 ABORIGINAL HERITAGE ACT 1972 (WA)

The Proposal does not require approval under s. 18 of the *Aboriginal Heritage Act 1972 (WA)* as no archaeological sites will be disturbed by the Proposal.

The Proponent carried out an Aboriginal heritage survey in 2006, which revealed no archaeological sites are located on the subject site.

The Aboriginal heritage survey comprised an ethnographic and archaeological survey.

Five representatives from the Gnarla Kaala Booja native title claimant group were involved in the ethnographic survey. They indicated the survey area has been highly disturbed through farming and other activities. Any ethnographic sites, such as camping areas, having been destroyed long ago. The Gnarla Karla Booja representatives did not consider the drain lines, as ethnographic sites and no sites appear on the Department of Indigenous Affairs database, nor in the Australian Interaction Consultants (2005) desktop study of the area. The Gnarla Karla Booja native title claimant group representatives have no objection to the Proposal because no ethnographic sites were identified.

3.6 EUROPEAN HERITAGE

The Proposal will not impact on the cultural or historical significance of the locality. The subject site is not located within an area of historical significance and does not affect any place of heritage significance.

The subject site is not listed in the Register of the National Estate under the EPBC Act.

The subject site is not listed within the Register of Heritage Places or the subject of a heritage agreement or a conservation order under the *Heritage of Western Australia Act 1990 (WA)*.

The Proposal will not affect any registered place or place that is the subject of a heritage agreement under the *Heritage of Western Australia Act 1990 (WA)*.

The subject site is not listed within the Shire's Municipal Inventory under the *Heritage of Western Australia Act 1990* (WA).

The subject site is not listed within or proximate to any place listed within Appendix 13 – Schedule of Places of Natural Beauty, Historic Buildings and Objects of Historical or Scientific Interest under TPS 2.

4.0 SITE DETAILS

4.1 LEGAL DESCRIPTION

The Proposal involves extraction of mineral sands from part of seven (7) lots (**subject site**) as depicted within Figure 2. The legal description of the subject lots is contained in Table 1 below.

Table 1 – Legal Description

Lot	Plan/Diagram	Volume	Folio	Area (ha)
6	D52395	1493	399	161.9221
52	P739	1740	735	124.2198
111	D94183	2117	847	40.0004
112	D94183	2117	848	47.1354
113	D94183	2117	849	42.5014
63	P739	1049	169	323.7485
1	D8916	2094	330	202.1745
TOTAL				941.7021

Certificates of Title for the subject site are appended as *Appendix 3*.

The Proposed extraction area comprises a total of 401.6099 hectares (**excavation area**), which amounts to approximately 42.6% of the subject site. An area of 30 hectares will be progressively mined at any one time in accordance with the Ministerial Approval (this includes any extraction within the Shire of Murray). The maximum extraction area of 30ha is 3.2% of the subject site and 7.5% of the extractive area.

Figure 3 depicts the excavation area.

4.2 REGIONAL CONTEXT

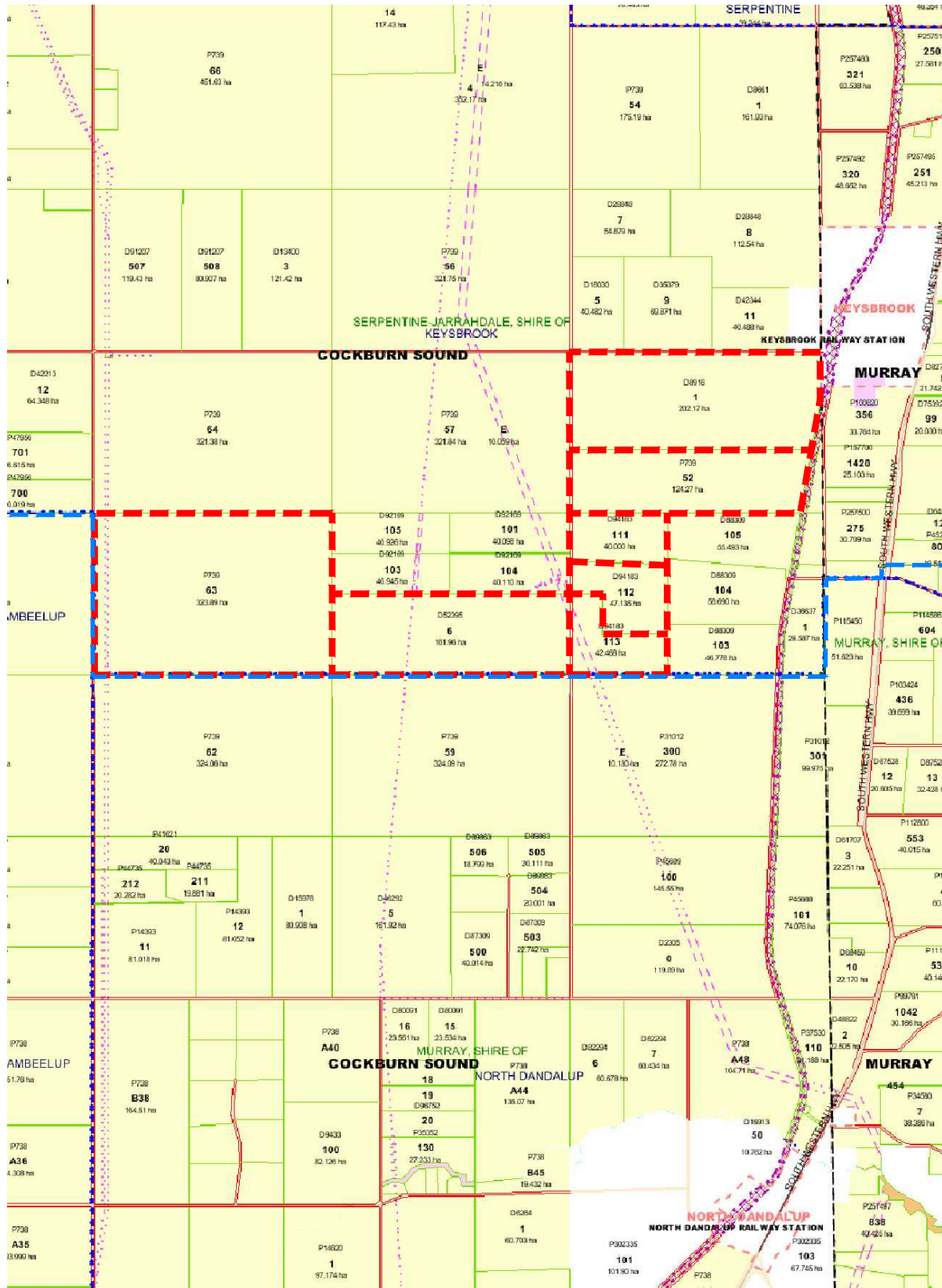
The subject site is located approximately:

- (i) Fifty five (55) kilometres south of the Perth Central Business District;
- (ii) Thirty two (32) kilometres south of the Armadale Regional Centre;
- (iii) Thirty (30) kilometres south east of the Rockingham Regional Centre; and
- (iv) Twenty (20) kilometres north east of the Mandurah Regional Centre.

The subject site is located in close proximity to both the South Western Highway and Forrest Highway, which connects the locality to the wider Perth Metropolitan Region, Peel Region, Greater Bunbury Region and the South West Region. South West Highway is reserved as 'Primary Regional Roads' under the MRS.

Figure 4 depicts the subject site in its Regional Context.

TOTAL LAND AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 941.7021 ha
 TOTAL EXCAVATION AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 401.6099 ha



--- SUBJECT SITE BOUNDARY
--- LOCAL GOVERNMENT BOUNDARY

FIGURE 2: LOCATION PLAN
LOTS 1, 6, 52, 63, 111-113
KEYSBROOK
WA

SCALE 1:50,000 @ A4
DATE 2 February 2010
FILE 100202 1906 SJ DA Figs.dwg
REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: LANDGATE

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

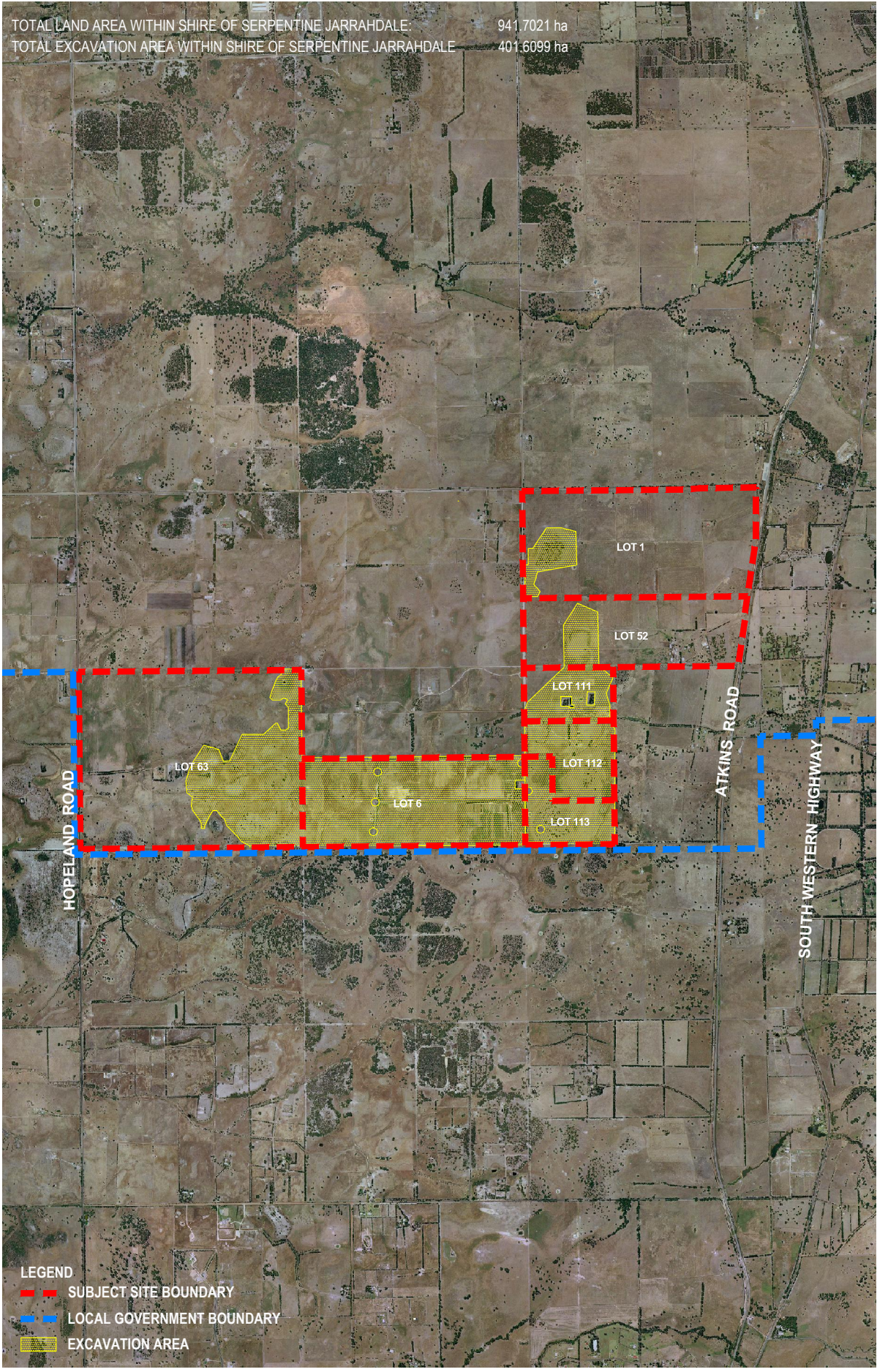
E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the 'Keysbrook Trust'

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the kerbside Trust

TOTAL LAND AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 941.7021 ha
 TOTAL EXCAVATION AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 401.6099 ha



LEGEND
--- SUBJECT SITE BOUNDARY
--- LOCAL GOVERNMENT BOUNDARY
 EXCAVATION AREA

**FIGURE 3: EXCAVATION AREA
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 2 February 2010
 FILE 100202 1906 SJ DA Figs.dwg
 REVISION C

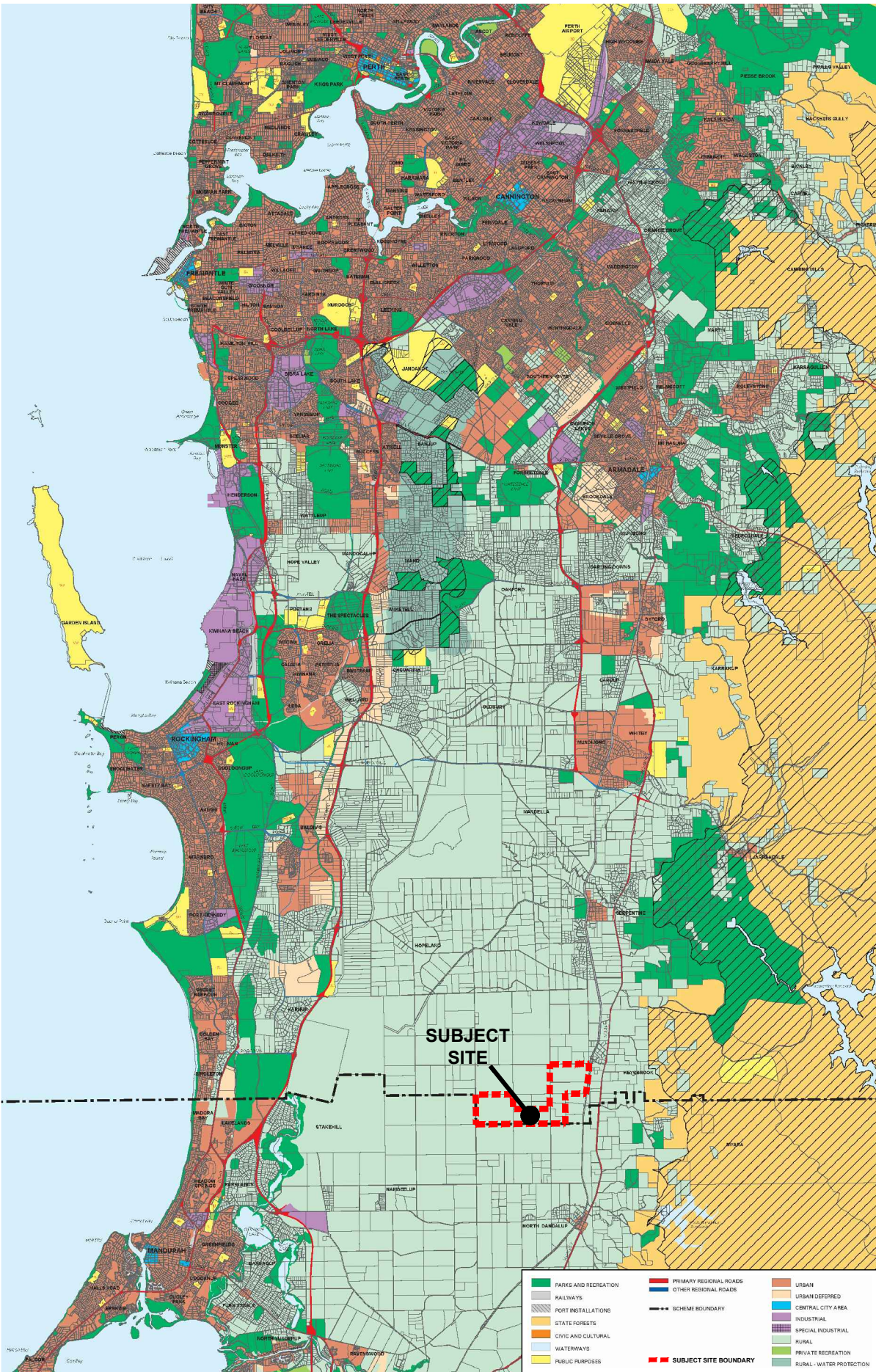


DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS
 ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY
 BASEPLAN SOURCE: LANDGATE & MBS ENVIRONMENTAL

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Aust) Pty Ltd is a member of the Kribbas Trust



**FIGURE 4: REGIONAL CONTEXT
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 20 January 2010
 FILE 100120 1906 SJ DA Figs.dwg
 REVISION C

DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: WAPC



4.3 LOCAL CONTEXT

The north-eastern boundary of the excavation area is located approximately 2.2 kilometres south west of the Keysbrook town site and 5.5 kilometres north-west of the North Dandalup town site. The subject site is located between Atkins Road to the east, the Shire of Serpentine Jarrahdale district boundary to the south, Hopeland Road to the west, and Elliot Road to the north.

The subject site is located between the town sites of Keysbrook and North Dandalup.

Figure 5 depicts the subject site in its Local Context.

4.4 LAND USE

The subject site presently accommodates agricultural land use comprising annual pasture with limited stands of remnant native vegetation. The subject site is predominately used for beef cattle farming with some keeping of horses.

The vegetation across the subject site is sparse however where it is located it is predominately associated with residences, road reserves and watercourses that traverse the subject site. There is a larger area of vegetation located on Lot 1 that is associated with a slight rise in the elevation of the land.

There are a number of residential dwellings within the subject site. There are no residential dwellings within the planned excavation area and none planned for demolition. There are three occupied dwellings located within Lots 1 and 52. Of the three dwellings two are 2,000 metres from the excavation area. A newly constructed colorbond iron shed has been adapted as a dwelling within 250 metres of the excavation area on Lot 1. The Noise Management Plan required as part of the Ministerial Approval addresses any noise related concerns (Refer to section 5.5.2 of this report.) associated with the dwellings.

The adjoining land holdings are also used for annual pasture and agricultural purposes with associated outbuildings and structures.

There are five dwellings located on land adjacent to the subject site. The dwellings located on Lot 64 to the north-west of the subject site are over 1.2 kilometres from the excavation area. The closest of the three dwellings located on Lot 105, 101 and 104 is within approximately 300 metres of the excavation area. The Noise Management Plan required as part of the Ministerial Approval addresses the noise matters associated with these dwellings.

4.5 TOPOGRAPHY

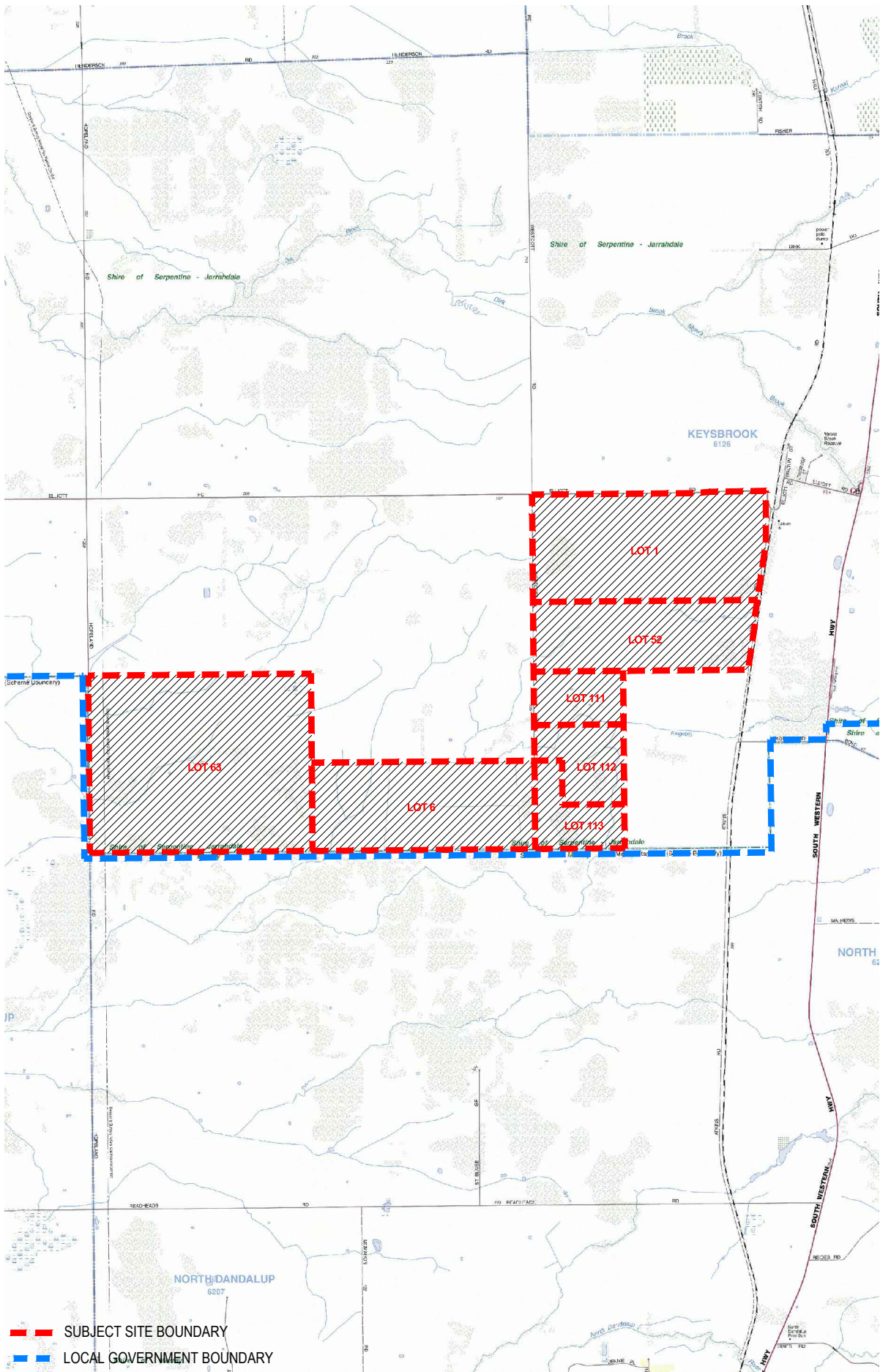
The subject site is generally low lying with limited undulation. To the south-west of the subject site, at the lowest point the ground surface contour is 26m AHD which gently slopes to a peak of 38m AHD some 3 kilometres directly east. The northern point of the subject site is a maximum of 40m AHD. Generally the subject site gently rises towards the east, closer to the escarpment.

Figure 6 depicts an aerial photograph of the subject site and immediate surrounds.

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9221 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Aust) Pty Ltd trades for the Kribben Trust



--- SUBJECT SITE BOUNDARY
 --- LOCAL GOVERNMENT BOUNDARY

FIGURE 5: LOCAL CONTEXT
LOTS 1, 6, 52, 63, 111-113
KEYSBROOK
WA

SCALE 1:50,000 @ A4
 DATE 20 January 2010
 FILE 100120 1906 SJ DA Figs.dwg
 REVISION C



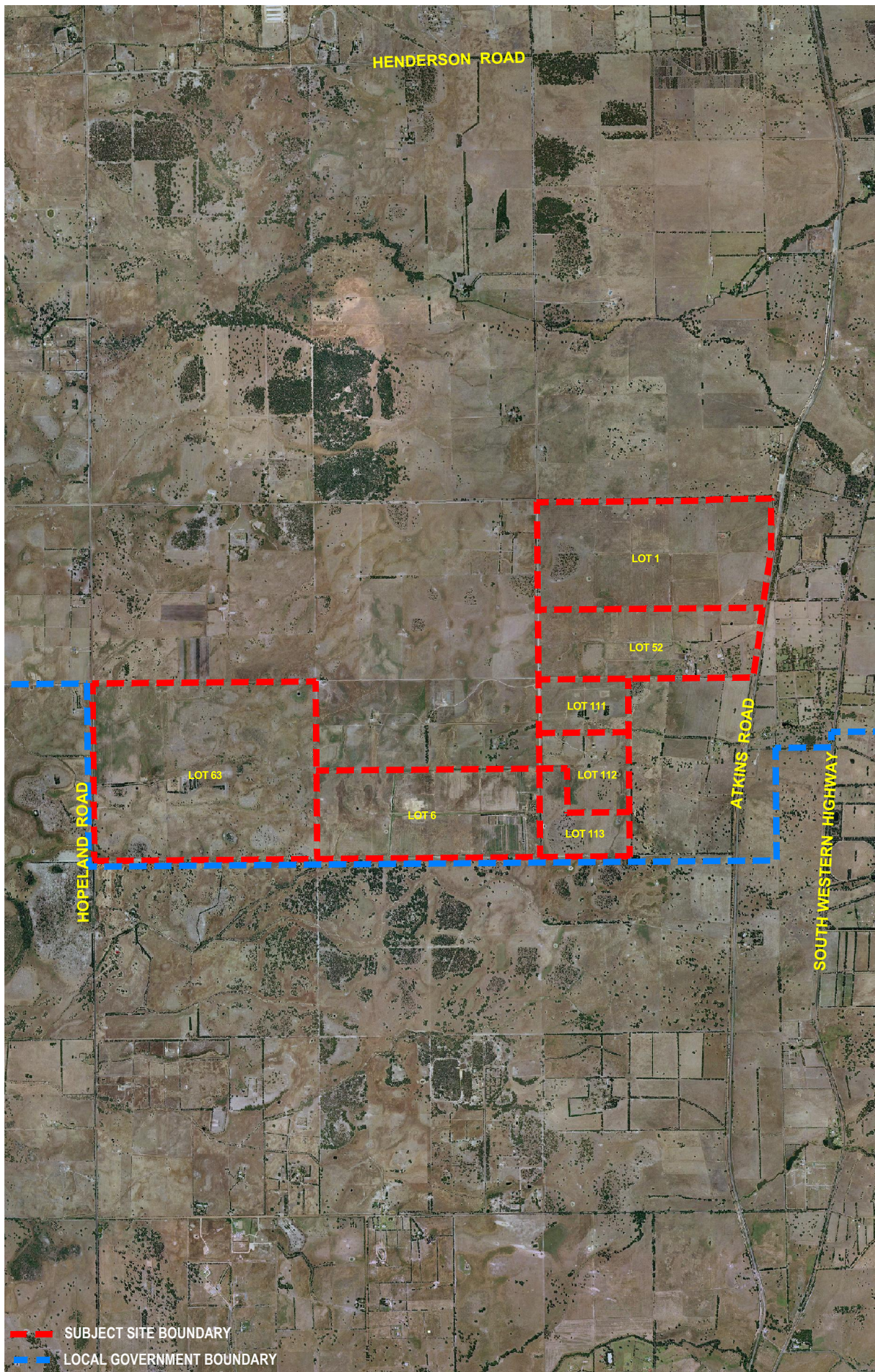
DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS
 ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY
 BASEPLAN SOURCE: LANDGATE 'STREET EXPRESS 2006'

PERTH
A: Suite 1, 255 Beaufort Street Perth WA 6000
T: (08) 9227 7970
F: (08) 9227 7971
P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
A: Level 4, 356 Collins Street Melbourne VIC 3000
T: (03) 9999 1900
F: (03) 9600 1477

E: admin@planningsolutions.com.au
W: www.planningsolutions.com.au

ACN 088 826 288 ABN 80 248 172 542
Planning Solutions (Aust) Pty Ltd trades for the Krush Test



**FIGURE 6: AERIAL PHOTOGRAPH
LOTS 1, 6, 52, 63, 111-113
KEYSBROOK
WA**

SCALE 1:50,000 @ A4
DATE 20 January 2010
FILE 100120 1906 SJ DA Figs.dwg
REVISION C

DISCLAIMER:
THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY



BASEPLAN SOURCE: LANDGATE

5.0 PROPOSED DEVELOPMENT

5.1 MINERALS

The Proposal involves the extraction of valuable heavy mineral sands from silica sand deposits across the subject site.

The valuable heavy mineral sands comprise zircon ($ZrSiO_4$), and the titanium bearing minerals ilmenite ($FeTiO_3$), leucoxene ($FeTiO_3$), and rutile (TiO_2). These minerals are used for a range of commercial purposes, as set out in Table 2.

Table 2 – Use of Minerals

Mineral	Common Use
Titanium	White titanium dioxide pigment has a very high opacity and is the basic ingredient of paint. It is also used in the manufacture of paper, plastics, cosmetics and sunscreen. Titanium metal is a light, strong metal, which is resistant to corrosion. It has many uses including aircraft fuselages, prosthetic limbs, pacemakers and sporting equipment.
Zircon	Zircon is used extensively in ceramics especially in the manufacture of ceramic tiles and porcelain ware. In addition zircon is used in high quality refractory and foundry work as well as in glass in televisions.

5.2 STAGING OF MINING

The mineral sands will be sequentially extracted from a series of locations across the subject site within the excavation area.

The extraction process requires the excavation of shallow pits to access the ore body. The average depth of the pits is 2 metres. In areas that are slightly elevated approximately 4 metres, due to ancient dune formations, the excavation pit is up to 6 metres in depth. Pits of this depth are limited across the site. Operations will likely advance at approximately 10 to 12 hectares per month based on an average excavation depth of 2 metres.

The rehabilitation process occurs in a continuous manner and therefore only an area of approximately 30 hectares remains under excavation at any one time. The excavation will occur across a number of pits to ensure that operations can be modified and relocated in accordance with the Noise Management Plan required as part of the Ministerial Approval.

The heavy mineral sand makes up an average of 2.7% of the mined material (approximately 1.23 m³ for every 59 m³ extracted) and therefore 97.3% of the material is returned to the excavation area for the rehabilitation purposes.

There are sufficient deposits of minerals sands to sustain the excavation process for up to approximately 10 years, inclusive of construction, decommissioning and rehabilitation activities.

The extraction will occur in a staged approach. Extraction will begin to the west of the subject site then progressively move to the east and then north. The time taken for the extraction and mining of ore, decommissioning of infrastructure and rehabilitation of the subject site is to be in accordance with the Ministerial Approval, being 10 years.

5.3 MINING PROCESSES

Approximately 200 millimetres of topsoil will be progressively removed from the area about to be mined. The topsoil will only be removed immediately in front of the mine path. It will then either be directly returned to backfilled areas that are ready for final rehabilitation, if seasonal conditions are suitable, or stockpiled and stabilised to prevent wind erosion to be used in future seasonal rehabilitation.

The ore is excavated from the advancing edge of the pit via a front-end loader or excavator. There is no blasting involved in this extraction process.

The ore is transported via articulated dump trucks to a dump hopper and then conveyed to the screening unit. Screening removes material greater than two millimetres. Oversize material (approximately 10% of the ore body) is returned to the pit floor as backfill. The remaining sand (ore) is mixed with water and pumped as slurry to the primary processing plant. Approximately 70% of the slurry is water.

Both the dump hopper and screening unit are on the pit floor and therefore are only ever located within the extractive area.

The primary processing plant (located in the Shire of Murray) operates at 600 tonne per hour. Clay is removed from the slurry and fed into a thickener. Heavy mineral is separated from the sand using wet gravity spirals. Residue sand and thickened clay are pumped back into the excavation area as part of the rehabilitation process.

The heavy mineral concentrate is pumped into a stockpile to dry and then is transported to Bunbury for secondary processing and export.

Approximately 115,000 tonnes of heavy mineral concentrate will be produced per annum.

Figure 7 depicts the mining operation in diagrammatic form.

5.4 MINE INFRASTRUCTURE

The subject site provides for limited infrastructure on site as primary and secondary processing will occur off site. The primary processing will occur in the Shire of Murray. The initial processing is required to separate the 2.7% heavy mineral sands from the excavated ore. The majority of the infrastructure, that is processing, maintenance and administration infrastructure, will be located in the Shire of Murray and not subject to this approval. Only the screening unit and some pipelines will be located within the Shire of Serpentine-Jarrahdale for approximately 10 years.

5.4.1 Pipelines

Pipelines to transport water and slurry will traverse the subject site to connect the excavation area to the primary processing plant located in the Shire of Murray. These pipelines are relocated on a daily or weekly basis to facilitate the transportation of slurry to the primary processing plant.

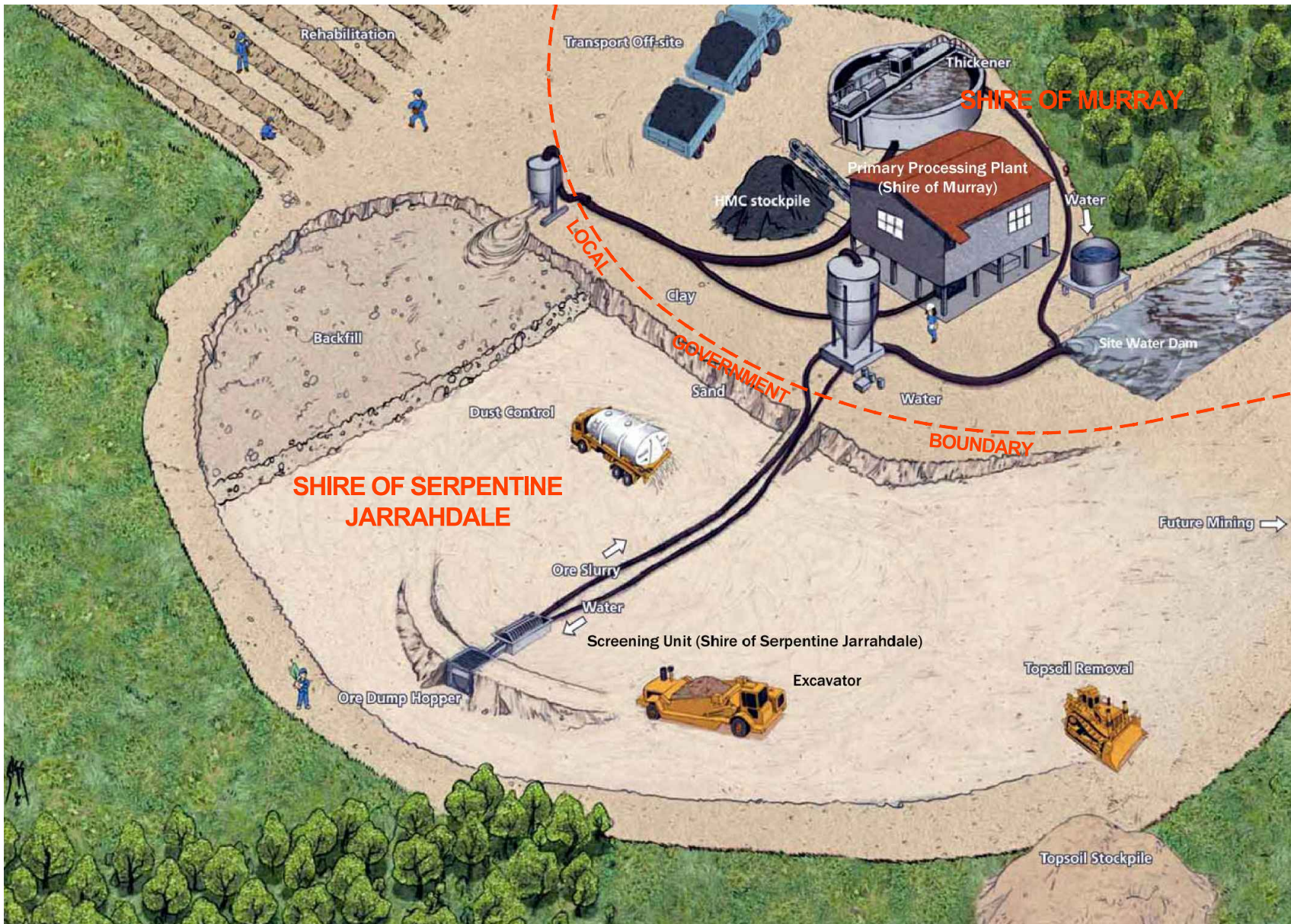


FIGURE 7:
MINING OPERATION IN DIAGRAMATIC FORM

LOTS 1, 6, 52, 63, 111-113
KEYSBROOK
WA

SCALE NTS @ A4
DATE 2 February 2010
FILE 100202 1906 SJ DA Figs.dwg
REVISION C

DISCLAIMER:
THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE
COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: ENVIRONMENTAL PROTECTION AUTHORITY

5.4.2 Screening unit

The screening unit is located on the floor of the mine pit (within the excavation area). A dump hopper receives ore from articulated dump trucks and feeds ore onto a conveyor belt. The conveyor belt delivers ore from the hopper to either a rotating trammel screen or vibrating deck screen. The oversized material is returned back to the pit. The undersized material from the screen is fluidised and pumped directly to the primary processing plant (located in the Shire of Murray) for separation by gravity. The dump hopper, conveyor and screening unit are mounted on individual skid bases for frequent relocation within the excavation area.

The screening unit is estimated to be located in the Shire of Serpentine Jarrahdale for approximately 12 months while ore is being excavated from Lots 111, 52 and 1. The extraction of ore from Lot 63, 6, 112 and 113 will be screened in the Shire of Murray. All ore is direct fed i.e.; ore is excavated, transported, screened, processed (at the primary processing plant) and returned to the pit as backfill in a continuous process. Ore is not generally stockpiled. The time from excavation to return to pit is less than 1 hour.

5.4.3 Processing, Maintenance and Administration Infrastructure

The primary processing plant, workshop, office and below ground water storage facility, will be located in the Shire of Murray and is not the subject of this application.

Table 3 – Summary of infrastructure and machinery within the Shire of Serpentine Jarrahdale

Location of Infrastructure	Infrastructure and Machinery
Pit infrastructure	Excavator or front end loader, articulated dump trucks, dump hopper, screening unit and pipelines

Development Plans are appended as *Appendix 4*.

5.5 MINE OPERATIONS

The impact of the proposed mining operations on the subject site and the surrounding locality will be limited due to the:

- Limited processing that will occur within the subject site, no primary or secondary processing, only screening will occur within the Shire of Serpentine Jarrahdale;
- Limited area of disruption relative to whole excavation area (7.5% of excavation area) at any one time being a maximum of 30 ha at any one time;
- Ease of extraction of the heavy mineral sand (gravity process);
- Top soil only being stripped and stockpiled when necessary in preparation for the extraction process;
- Limited number of staff required by the Proposal; and
- Limited infrastructure that will be required on the subject site (ie. screening unit).

5.5.1 Vehicle Parking and Traffic

The Proposal generates three types of traffic movements; commuter, heavy load, and supplies. The majority of the transport movements will be on an informal internal movement network that does not affect local authority infrastructure or impact on the surrounding locality.

Commuter Traffic and Car Parking

The commuter traffic generated will be minimal. There will be a maximum of 35 staff operating facilities within the Proposal, accessing the site over a 24 hour period. It is not expected that more than 10 to 12 light vehicles will arrive at site for each day shift; these will mainly be employees and contractors. Access by this commuting workforce will be by light vehicles (class 1 in the Ausroads classification system).

There are a number of local roads that staff may use to access the subject site. It is not expected that any particular road will be significantly utilised above another except for road reserves within the Shire of Murray. The staff will initially arrive at the offices located at the primary processing plant area in the Shire of Murray. The majority of staff may access the site via the South Western Highway, Readheads Road and Atkins Road within the Shire of Murray. The staff will then utilise the internal road network to arrive at the excavation area.

Car parking requirements are limited to catering for a maximum of 35 workers on site at any one time. Car parking bays will be informally marked and co-located with the primary processing plant, offices and workshop. The car parking is located within the Shire of Murray and not subject to this approval.

The potential adverse affect on amenity relating to vehicle traffic is expected to be minimal. There are limited workers accessing the subject site which is located a short distance from South Western Highway (which is a dedicated freight route).

Heavy Vehicle Movements

Within the subject site the heavy vehicle movements are likely to be dispersed due to the excavation area moving throughout the life span of the project. Truck movements within the site correlate with the location of the screening unit where vehicle movements relate to excavation activity. Rarely there will be heavy vehicle movements between the screening unit and the primary processing plant location as slurry will be piped from the screening unit to the primary processing point.

The heavy mineral concentrate (HMC) will be hauled by contractors on a daily basis to Bunbury for further processing. Each day eight (8) ore transport trucks will enter or leave the site. To achieve the maximum load per truck and minimise the number of truck movements from the site, either class 10 or 11 Austroads vehicles will be utilised. The planned haulage route is from the primary processing plant area in the Shire of Murray via the internal road network to Atkins Road, then south to Redheads Road and east to South Western Highway and on to Bunbury. None of the heavy haulage traffic movements on public roads will be within the Shire of Serpentine Jarrahdale.

Service Vehicles

There will be minimal supplies delivered to the subject site. The most regular delivery will be for diesel fuel, with one delivery by semi-trailer required per week. Other supplies will be delivered to the subject site via utilities or small trucks. It is expected this will be at a rate of one movement per day therefore having limited effect on the existing local road networks.

Deliveries of incidental equipment and spares will be minimal at less than one per day and again will unlikely to be within the Shire of Serpentine Jarrahdale apart from movement along South Western Highway.

Internal Traffic Movements

All other traffic movements are within an internal road network. The unmade portion of Westcott Road is to remain in its current state except for the occasional access across the road reserve for pipes and vehicles. The planned internal road network will be constructed adjacent and parallel to the unmade portion of Westcott Road and the trees within the road reserve will remain, providing screening. Some light traffic may access the subject site from time to time via the sealed and unsealed roads, however no heavy mining equipment will utilise public roads. Mining equipment will only cross over the unmade portion of Westcott where the road reserve dissects the planned excavation area between Lots 6 and 113 and Lots 59 and 300.

Figure 8 outlines the proposed transport route.

5.5.2 Noise

Noise associated with the Proposal will be managed in accordance with the requirements of the Ministerial Approval.

A comprehensive noise assessment of the Proposal has been undertaken as part of the Ministerial Approval process. That assessment addressed a range of noise sources associated with the operations of the extractive industry, including fixed infrastructure, mobile plant, ancillary equipment, construction activities, and on-site and associated off-site transportation.

Under the Ministerial Approval a Noise Management Plan is required with the following objectives:

- Identify potential noise impacts of the proposed operations;
- Outline the design and management strategies employed to avoid or minimise noise impacts; and
- Detail the monitoring and reporting requirements regarding noise impacts.

In order to achieve a noise level of 30 DB LA10 under the *Environmental Protection (Noise) Regulations 1987 (WA)* the following distances from a sensitive use, such as residential dwellings have generally been identified. Variables such as wind, time of day and ambient noise are also taken into consideration.

Table 4 – Distance from a sensitive use

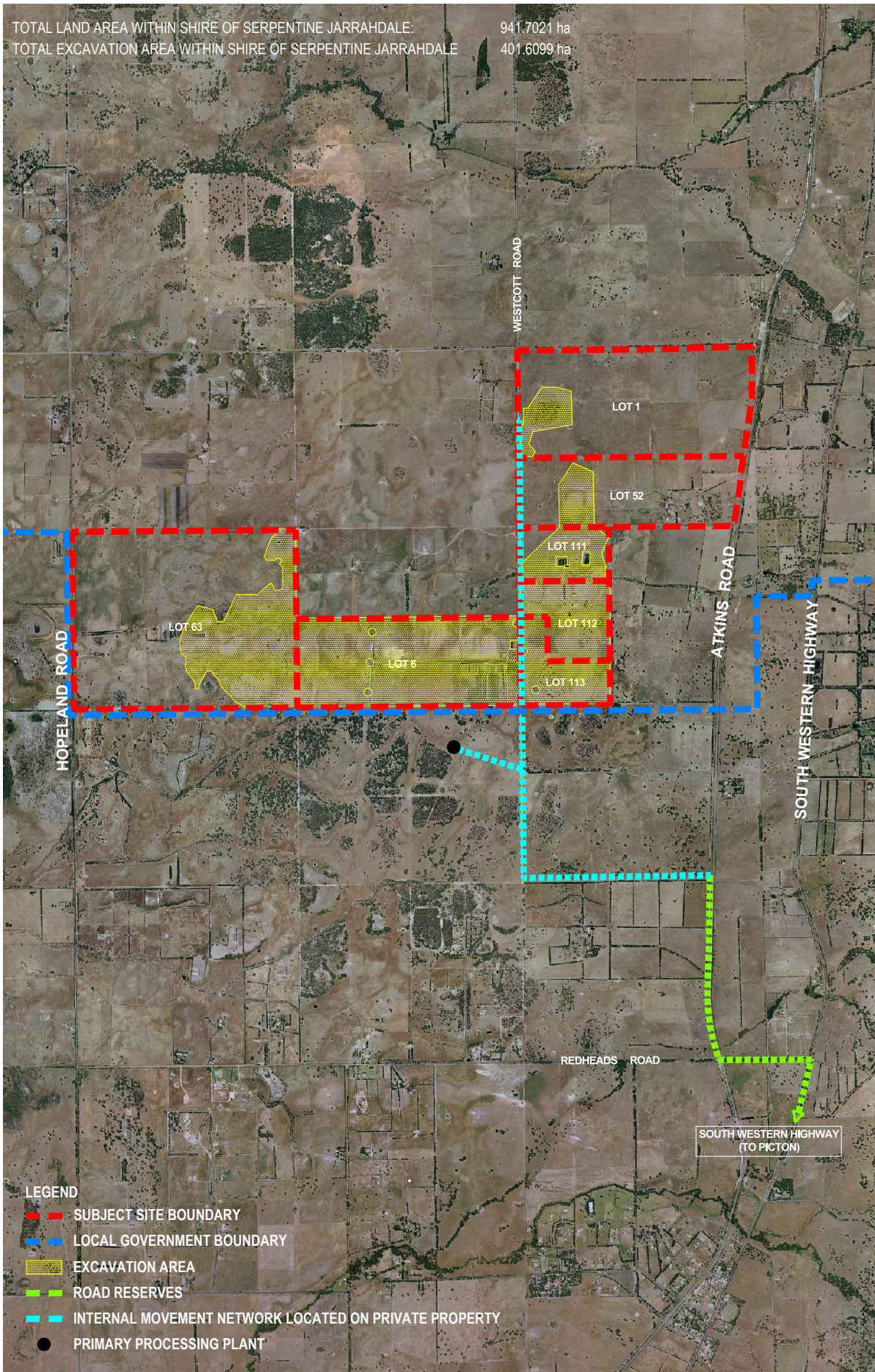
Infrastructure	Distance
Booster Pumps	750 metres
Screening unit (Mobile Plant) and associated dump hopper and pumps	Varies in accordance with climatic conditions
Ancillary equipment	Localised and does not create a nuisance beyond the boundary of the subject site
Construction	Limited with most infrastructure transported to the subject site
Transport noise	Expected to be minor and all modelling indicated that the internal road network would result in levels less than the assigned noise levels.

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the Kribbas Trust

TOTAL LAND AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 941.7021 ha
 TOTAL EXCAVATION AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 401.6099 ha



**FIGURE 8: PROPOSED TRANSPORT ROUTE
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 2 February 2010
 FILE 100202 1906 SJ DA Figs.dwg
 REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: LANDGATE & MBS ENVIRONMENTAL

Noise from on site activities will be kept to within acceptable ranges. Given no blasting will occur on site there will be no significant noise impacts. In accordance with the Ministerial Approval there will be no mining operations undertaken within 1,500 metres of any building associated with a noise sensitive use at any noise sensitive premises outside of the hours of 7 am and 7 pm Monday to Saturday (or on public holidays) unless agreed to in writing with the relevant landowner and the occupant.

Vehicular and traffic noise has been extensively modelled as part of the Ministerial Approval process and projected noise levels are less than the assigned noise levels. Noise from vehicles transporting both supplies to site and processed ore off-site is expected to be minimal.

5.5.3 Blasting

No blasting is required under the Proposal.

5.5.4 Dust

Dust will be appropriately managed on site in accordance with the Ministerial Approval. Dust suppression measures will minimise any off-site impacts.

Under the Ministerial Approval an Air Quality and Dust Management Plan is required to address the following:

- Ensure dust emissions from activities undertaken in implementing the proposal do not cause ambient dust concentration levels outside the boundary of the proposal area;
- Identify measures to reduce dust; and
- Ensure emission do not harm or adversely affect the environmental values of the health, welfare and amenity of the people and land uses.

The requirement for an Air Quality and Dust Management Plan addresses the operational actions of the Proposal, including:

- Clearing of site
 - no clearing of vegetation and stripping top soil until necessary;
 - top soil stripping will be conducted in calm wind conditions; and
 - a dedicated water truck in operation during stripping.
- Loading of processed material;
 - spillages of processed material in the stockpile area will be collected at the end of each shift and returned to the main stockpile;
 - water carts or fixed sprinklers will be used to keep the work area damp; and
 - all loads of processed material are covered prior to leaving the stockpile area.
- General operations
 - water trucks available for dust suppression;
 - internal roads watered to minimise dust from vehicle movements;
 - clay spread on open areas to create an erosion resistance crust;
 - mulch and stubble will be used on open areas as temporary stabilisation;
 - topsoil stockpiles will be sown with appropriate cover crop (e.g. cereal rye or oats) or hydro mulched to form an erosion resistant surface; and
 - temporary 'stubble' crops will be established on refilled mine pits. Pasture will be re-established as soon as practicable after mining.
- Transportation
 - all loads will be covered prior to leaving the site.

There will be no adverse amenity impacts on the existing and future uses in the locality. In accordance with the Ministerial Approval the objective of the Air Quality and Dust Management Plan is to ensure that ambient dust concentration levels outside the subject site are not:

- Higher than 1 ug/m³ of Total Suspended Particulars as a 15 minute average; or
- Higher than 50 ug/m³ of Particulate Matter smaller than 10 microns as a 24 hour average, in excess of five times per year.

Issues relating to dust have been comprehensively addressed through the environmental assessment process which culminated in the Ministerial Approval. The Proposal will not adversely affect the amenity of the locality. Orderly and proper planning does not require further consideration under TPS 2.

5.5.5 Odour

There will be no odour emissions associated with the Proposal.

5.5.6 Flora

The subject area is predominantly annual pasture with some scattered remnant native vegetation consisting of stands of mature trees, with minimal or no understorey. The majority of remnant native vegetation is described as CEBM – scattered trees of *Corymbia calophylla*, *Eucalyptus marginata* subsp. *marginata*, *Banksia* species and *Melaleuca preissiana*, and is too degraded to infer a vegetation community type.

Two small vegetation communities within the subject site are described as CcKa – *Corymbia calophylla* over tall open shrub land of *Kingia australis* over closed grassland of weeds and BaBm, both are completely degraded.

The Ministerial Approval requires the Proponent to prepare a Rehabilitation Management Plan with the objectives of:

- maintaining diversity of flora through the avoidance or management of adverse impacts; and
- ensuring rehabilitation achieves a stable and functioning landform that is consistent with the surrounding landscape and other environmental values.

The Ministerial Approval requires the re-establishment of self-sustaining local provenance native vegetation for clearing under the Proposal, at a ratio of not less than 1.4:1 (1.4 hectares of revegetation per 1 hectare of vegetation cleared) and the re-establishment of functioning pasture. The Proposal will therefore increase the quality of the existing natural environment (which has been degraded by the existing 'Rural' pursuits).

The local flora species selected for rehabilitation will enhance the biodiversity within the subject site by returning species that are at present poorly represented or absent.

An environmental corridor linkage will be established, running north-south. This corridor will connect to creek lines that run east-west. The majority of riparian vegetation on the subject site has been cleared. As part of the corridor linkage planting, both upland and lowland species will be replanted. Replanting will redress the current dominance of the existing upland community remnants.

Weed and dieback management issues are addressed under condition 9 of the Ministerial Approval, which requires the preparation and implementation of a Dieback and Weed Management Plan to ensure:

- *weeds are controlled in native revegetation areas to allow the establishment of planted trees; and*
- *declared pest plant species are controlled in pasture areas.*

Issues relating to rehabilitation have been comprehensively addressed through the environmental assessment process that culminated in the Ministerial Approval. Orderly and proper planning does not require further consideration under TPS 2.

5.5.7 Fauna

Fauna studies were undertaken as part of the environmental assessment process that culminated in the Ministerial Approval. Those studies considered:

- Short range endemic invertebrates;
- Systemic bird surveys, including for cockatoos;
- Reptiles, frogs and bats;
- Mammals such as the Quenda; and
- The habitat, trees and vegetation important for fauna particularly wildlife corridors and habitat linkages.

The studies (and the EPA Bulletin) concluded the fauna of the project area is depauperate due to extensive clearing, fragmentation and degradation of native vegetation. Notwithstanding, fauna still exists and is supported by the remnant vegetation. Those studies concluded that while the Proposal has the potential to impact on the fauna, the habitat for the fauna is already under threat.

The studies identified three species of black cockatoo, including the Red-tailed, Baudin and Carnaby cockatoos. No evidence of nesting was found on the subject site and minimal potential nesting hollows were identified. These species are also listed under the EPBC Act and the Proposal will be determined by the Federal Minister for the Environment under that statute by reference to the EPA Bulletin.

The Ministerial Approval concluded that the Proposal is environmentally acceptable subject to the undertaking of the previously identified rehabilitation and revegetation processes.

5.6 WATER RESOURCES

5.6.1 Aquifers

The aquifers within the subject site include the Superficial Bassendean Sand Aquifer and the deeper Leederville Aquifer. Both of these will be impacted upon by the Proposal. The mineral deposit occurs within the Bassendean Sand Formation and process water will be sourced from the Leederville aquifer via production bores screened in the deeper member of the Leederville Aquifer.

Superficial Aquifer

The Superficial aquifer is an unconfined aquifer up to 15m deep and recharge to the superficial aquifer is from direct rainfall on the ground surface, and local stream runoff from ephemeral drainage networks flowing from the Darling Plateau. Recharge occurs mainly between May and September.

The Bassendean Sand Formation is generally unsaturated in summer and autumn, and partly saturated in winter and spring with water levels fluctuating approximately one metre annually. However, in some areas the Bassendean Sand Formation extends below the summer watertable and is partly to fully saturated all year.

To enable mining to occur during winter, water will be removed from the pit using drains and sumps. The groundwater will be temporarily lowered to the base of the Bassendean Sand Formation in and around individual mining cells. Water levels will start recovering as mining moves to new cells, excavated cells are backfilled, and rainfall recharges the reconstituted aquifer. Backfill contains about 45% water.

The localised and temporary dewatering of the shallow aquifer will affect only those water-supply draw points that use the shallow aquifer, such as 'soaks' and 'drains' that probably extend to the base of the aquifer. The existing watering points on the subject site that draw from the superficial aquifer will not be required during the term of the mining operations.

Shallow watering points on properties adjoining the subject site may be affected by lowered water levels for one season. The proponent will identify watering points within 500 metres of proposed mining operations, commence water-level monitoring, and provide substitute water supplies at locations where existing supplies are significantly reduced as a result of mining/ dewatering.

The Department of Water (DoW) advice during the environmental assessment process (i.e. that culminated in the Ministerial Approval) concluded that the quality of water in the surrounding bores and the superficial aquifer should not be significantly affected as a result of groundwater abstraction.

Leederville Aquifer

The Leederville Aquifer is approximately 160 metres deep. Recharge to the Leederville Aquifer is from the superficial aquifer.

Calculated water level draw downs in the Leederville Aquifer indicate that the operation of any other Leederville bores in the area will not be significantly affected. By sinking the production bores into the lower (Marginiup) member of the aquifer, any impact on neighbouring bores, which are all screened into the upper (Wanneroo) member of the aquifer, is unlikely. A bore survey has been conducted and water level monitoring will be conducted. Remedial actions will be taken if any existing supply is significantly reduced as a result of mining.

The DoW advice during the environmental assessment process (i.e. that culminated in the Ministerial Approval) concluded that pumping the Leederville Aquifer would not have a significant impact on the Superficial Aquifer.

5.6.2 Watercourses

There are no *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP wetlands) or Conservation Category wetlands within the subject site.

Modelling of water level changes within the Conservation Category wetland located closest to active mine pits was undertaken as part of the environmental assessment that culminated in the Ministerial Approval. Impacts of the Conservation Category wetland were determined to be acceptable as impacts are localised and temporary with recovery to pre-mining levels occurring soon after mining is completed.

There are a number of Resource Enhancement category wetlands in the excavation area. They are seasonal, they become inundated in winter and drying out during the summer months. These wetlands have been cleared and degraded for pasture and grazing purposes and will be further cleared for mining. The Ministerial Approval considered these Resource Enhancement category wetlands and concluded that the Proposal was acceptable.

Streams from the Darling Scarp and foothills flow through the subject site. Balgobin Brook is the major watercourse and Nambeelup Brook North tributary is a medium watercourse and passes through the subject site. A significant length of the watercourse has been re-aligned to suit farm drainage requirements.

No clearing of vegetation or mining will occur:

- *Within 20 metres of the banks of watercourses shown in Figure 9 of the PER [Public Environmental Review] document; or*
- *Within 100m of the boundary (sic) a conservation category wetland.*

Issues relating to water resources have been comprehensively addressed through the environmental assessment process that culminated in the Ministerial Approval. Orderly and proper planning does not require further consideration under TPS 2.

5.7 SERVICES

The Proposal does not require the provision of water supply, sewer or communications servicing.

5.7.1 Power

Power will be sourced from the State grid for the majority of the mine requirements. Once an order for power is placed, Western Power will decide on the route. Diesel powered portable generators may be utilised from time to time to power remote welding units or water pumps for maintenance requirements and on an as required basis.

5.7.2 Sewer

No permanent toilet facilities will be established away from the primary processing area. The toilet facilities will be located within the Shire of Murray and will be addressed as part of a comprehensive development application.

5.7.3 Water

Tanks for potable water storage will be required at the primary processing plant area associated with the office and workshop, located within the Shire of Murray. The process water is to be stored in below ground water storage facilities in the primary processing plant area.

6.0 SCHEME REQUIREMENTS UNDER TPS 2

6.1 ZONING

The subject site is zoned 'Rural' under the provisions of TPS 2. The purpose and intent of the 'Rural' zone is:

To allocate land to accommodate the full range of rural pursuits and associated activities conducted in the Scheme Area.

Figure 9 is an extract from the scheme map for TPS 2.

6.2 USE CLASS

The Proposal is properly classified as 'Industry Extractive', which is a use defined in Appendix 1 to TPS 2 as:

Industry Extractive – mean an industry which involves –

(a) *the extraction of sand, gravel, clay, soil, rock, stone, minerals, or similar substance from the land, and also includes the management of products from any of those materials when the manufacture is carried out on the land from which any of the materials so used is extracted or on the land adjacent thereto, and the storage of such materials or products; and*

(b) *the production of salt by the evaporation of salt water.*

6.3 PERMISSIBILITY OF USE

Under Table 1 - Zoning Table of TPS 2 an 'Industry Extractive' is an 'AA' use within the 'Rural' zone. Clause 3.2.2 of TPS 2 defines an 'AA' use:

Means that Council may, at its discretion, permit the use.

6.4 DEVELOPMENT STANDARDS AND REQUIREMENTS

Part V – Development Requirements of TPS 2 outlines the various standards and requirements applicable to the development of land. Cl. 5.10 of TPS 2 does not impose any specific development standards or requirements relevant to the Proposal as applicable in a 'Rural' zone. There are no other specific development standards or requirements outlined in Part V of TPS 2 applicable to the 'Industry Extractive' proposal.

6.5 SCHEME CONSIDERATIONS

Cl. 6.4.2 of TPS 2 requires regard to be given to the following matters:

(a) *The purpose for which the subject land is ... zoned or approved for use under the Scheme;*

The Proposal is a land use that is permissible within the 'Rural' zone.

(b) ...

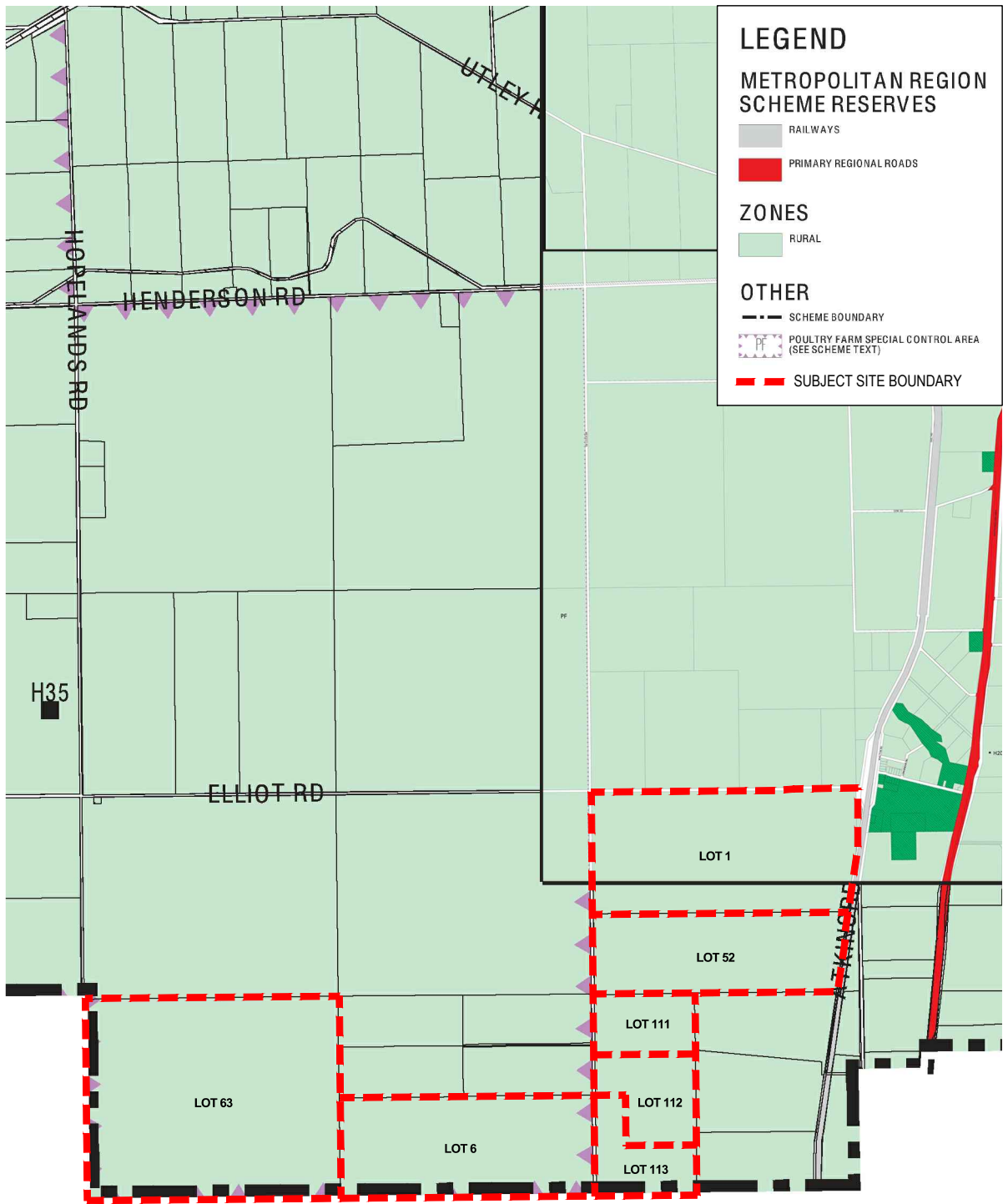
(c) *the size, shape and characteristics of the land, and whether it is subject to inundation by floodwaters;*

The subject site is a large area. Due to the scale, scope and timing of the Proposal the activities on site can be adjusted to address any inundation of floodwaters.

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9221 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 366 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd is a trustee for the Kribban Trust



**FIGURE 9: SHIRE OF SERPENTINE JARRAHDAL TOWN PLANNING SCHEME No 2
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 20 January 2010
 FILE 100120 1906 SJ DA Figs.dwg
 REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS
 ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY
 BASEPLAN SOURCE: SHIRE OF SERPENTINE - JARRAHDAL

(d) the provisions of the Scheme and any Council policy affecting the land;

The relevant provisions of the Scheme and Council policy are addressed at section 6.5 to 6.11, 7.0, 8.0, 9.2 and 9.3 of this report.

(e) ...

(f) ...

(g) The orderly and proper planning of the locality; and

The temporary and small scale nature of the development and the progressive rehabilitation will ensure the proposal is in accordance with the orderly and proper planning principles.

(h) The preservation of the amenity of the locality.

The amenity of the area will not be significantly affected for the following reasons:

- The excavation areas are relatively small in scale with only 30 ha of land being excavated at any one time;
- The excavation area is progressively rehabilitated;
- There is limited infrastructure required to undertake the extraction process, screening unit;
- There are limited number of workers on site at any one time (maximum of 35 people);
- The majority of the processing will occur off site;
- Significant areas of revegetation are required as part of the Ministerial Approval;
- Excavation is shallow and will enable the existing contours of the land to be preserved;
- A number of management plans are required as part of the Ministerial Approval that will ensure the highest of environmental outcomes:
 - Watercourses and wetlands;
 - Rehabilitation;
 - Weed and dieback
 - Water;
 - Acid sulphate soils;
 - Noise; and
 - Air quality and dust.
- There are strict compliance and monitoring requirements as part of the Ministerial Approval that will ensure the level of amenity experienced by the local community is preserved in accordance with the management plans.

6.6 SCHEME OBJECTIVES

Cl. 1.6 of TPS 2 contains the following general objectives:

(a) to secure the amenity, health, safety and convenience of the inhabitants of the District;

The Proposal does not adversely affect the amenity, health, safety or convenience of the inhabitants of the District. The management plans required as part of the Ministerial Approval will ensure that noise emissions, water quality and dust levels are within acceptable levels resulting in no adverse health concerns.

The Proposal is relatively isolated and therefore the safety and the convenience of the majority of the inhabitants of the District are not compromised. The extractive area is located within privately owned land and therefore there should be no need for the general community to enter the site. The amenity issues have been addressed within 6.5, 6.8 to 6.10, 7.4.6 and 9.0 of this report.

(b) to zone land for the purposes described in the Scheme so as to promote the orderly development of land by making suitable provision for land use;

As detailed within section 6.2 of this report the Proposal is for a land use 'Industry Extractive' that is a permissible land use identified within Table 1 – Zoning Table under TPS 2.

(c) ...

(d) to make provisions for the conservation and preservation of places of natural beauty, historic buildings and objects of historic or scientific interest.

As detailed in section 3.5 and 3.6 of this report there are no places of natural beauty, historic buildings and objects of historic or scientific interest as determined by the Shire of Serpentine Jarrahdale.

(e) To create a pedestrian and vehicular circulation system together with landscape environment which complements the wide range of activities carried on and proposed to be carried [on] in the District [;]

The nature of the Proposal is to return the subject site back to the existing broad acre rural activities as soon as is possible. The quality and diversity of the exiting landscape environment will be enhanced by increasing the vegetation on site and providing for a greater diversity of species.

(f) To encourage coordinated development of the District in accordance with the guidelines set out in the planning studies adopted by the Council for particular areas or [sic] the District as a whole [;]

As detailed within section 6.0, 7.0, 8.0 and 9.2 the Proposal complies with the strategic planning studies adopted by Council.

For the reasons stated in above sections, the Proposal satisfies the criteria and general objectives quoted above. Approval of the Proposal is consistent with orderly and proper planning.

6.7 TEMPORARY PLANNING APPROVAL

Cl. 6.10 of TPS 2 provides for the temporary planning approvals to be granted by the Shire.

Where the Council grants planning approval, the Council may impose conditions limiting the period of time for which the approval is granted.

In this instance the proposed mine life is expected to be in the order of 10 years. Given it is the proponents' intention to rehabilitate and return the land to its pre mine land use it is entirely appropriate that the approval be granted for a fixed period of time. In order to allow for mining activities, mobilisation and demobilisation, and final rehabilitation, a temporary approval for a period of 12 years is sought.

6.8 GENERAL APPEARANCE OF BUILDINGS AND PRESERVATION OF AMENITY

Cl. 7.1 of TPS 2 states the following:

No person shall without the approval of the Council erect or commence to erect a building which by virtue of its colour or type of materials, architectural style, height, bulk or ornamental or general appearance has, in the opinion of Council, an exterior design which is out of harmony with exterior designs of existing buildings or is likely to injure the amenity of the locality.

The screening unit will be temporary in nature, consistent with the temporary nature of the land use and the screening unit will be relocated over the life of the mine. On completion of the operations the screening unit will be removed from the subject site enabling the long term amenity of the locality to be preserved. During the mine operations the screening unit will be positioned well within the boundaries of the subject site and as a consequence have little effect on the visual amenity of the locality.

6.9 NUISANCE

Clause 7.2 of TPS 2 deals with Nuisance associated with development, and states:

7.2.1 No lot, building or appliance shall be used in such a manner as to permit the escape therefrom of smoke, dust, fumes, odour, noise, vibration or waste products in such quantity or extent or in such a manner as to create or be a nuisance to any inhabitant of the neighbourhood or such land or to traffic or persons using roads in the vicinity.

The emissions from the Proposal will be contained to the subject site and therefore will not be a nuisance to any inhabitant.

Where there is the potential for night time noise levels to be exceeded due to proximity to dwellings, mining operations will be relocated to a different excavation pit or will cease until noise levels stated in the Ministerial Approval can be met.

Dust suppression measures employed onsite will ensure mining operations will have a minimal nuisance on the locality. Sequential mining and the rehabilitation of the site will result in topsoil being returned to the subject site, thereby stabilising the land and allowing it to return to its pre mine use.

The fumes generated by the equipment on site will be minimal. The trucks that are proposed to be used will emit a similar level of fumes as other farm equipment.

No odours will be emitted as part of the extraction process. Minimal waste products are generated by the Proposal due to the nature of the extraction process as outlined in section 5.0 of this report.

Issues relating to dust and noise have been comprehensively addressed through the environmental assessment process that culminated in the Ministerial Approval, which found that no nuisance would be created. TPS2 does not require further consideration of these issues.

7.2.2 Any owner or occupier of land shall be responsible for appropriate measures to prevent dust pollution and soil erosion to the satisfaction of the Council.

Under the Ministerial Approval native vegetation can only be cleared within 6 months of the extraction. The Ministerial Approval addresses the stripping and storing of topsoil for reuse, the protection of the watercourses and wetlands and rehabilitation of the subject site. All of those issues will contribute to limiting soil erosion across the site. TPS2 does not require further consideration of these issues.

6.10 TREE PRESERVATION AND PLANTING

Cl. 7.13 of TPS 2 details the preservation of trees and tree planting requirements. No part of the subject site has been declared under cl. 7.13.3(2) of TPS2. No written notice has been served under cl. 7.13.3(4) of TPS2 to require the preservation of a particular tree or species of tree or group of trees.

Cl. 7.13.3 (1) states that:

No person shall remove, destroy or damage any tree or cause or suffer to permit the removal or destruction of or damage to any tree within the District having at least one well defined stem or trunk of a height greater than 4 metres or diameter greater than 150mm measured at a height of 1.2 metres above the natural ground level, except with the prior planning consent of the Council given on an application under sub-clause 6.1.1, or unless the tree is exempted pursuant to subclause 7.13.4.

Under cl. 7.13.3 (2) of TPS2 no tree or other natural growing vegetation shall be removed, destroyed or damaged within 100 metres of a watercourse or where there is a slope in excess of 1 in 5 except with the prior planning consent of the Council.

The Proposal addresses the objectives of the tree preservation and planting provisions as identified within cl. 7.13.2 of TPS 2:

a) to preserve the landscape attributes within the District and to protect significant and sensitive areas from the negative effects of clearing of the naturally growing vegetation;

The Ministerial Approval requires the preservation of significant and sensitive areas through the preservation of vegetation within 20m of major and medium watercourses and the exclusion of extraction activities within 100m of the boundary to a Conservation Category Wetland.

(b) to enhance the amenity, convenience and natural beauty of various parts of the District by facilitating:

- (i) reduction in soil salinity;*
- (ii) prevention of erosion;*
- (iii) provision of habitats for native fauna;*
- (iv) provision for aesthetic pleasure; and*
- (v) retention of the landscape quality.*

The temporary nature of the development and the management plans required as part of the Ministerial Approval will ensure the land is returned to its pre development standards. The requirements of a number of management plans will result in the improved quality of habitats for flora and fauna, provide greater vegetation positively contributing to aesthetic pleasure and the quality of the landscape.

(c) to encourage or require planting or replanting of areas considered by the Council to deficient in tree cover;

The Rehabilitation Management Plan requires the re-establishment of self sustaining local provenance native vegetation at a ratio of 1.4:1 (1.4 hectares of revegetation per 1 hectare of vegetation cleared, resulting in increased tree cover on completion of the mining activities.

(d) where appropriate to provide for visual screening of buildings or other development;

The Ministerial Approval requires a significant level of rehabilitation within the Rehabilitation Management Plan, much of the rehabilitation areas will function in a screening capacity, screening the screening unit from key views identified in section 9.1 of this report.

Within the subject site, the following will provide for the retention of trees, which will provide a screening function:

- Extraction exclusion area within 20 m of a major and medium watercourses;
- Extraction exclusion area within 100m of a boundary to a Conservation Category Wetland;
- Extraction exclusion area within 35m radius around power poles and towers;
- The re-established self sustaining local provenance native vegetation areas at ratio of 1.4:1.0 (1.4 hectares of revegetation per 1 hectare of vegetation cleared); and
- Existing vegetation along the road reserves.

Areas within the excavation area, outside the abovementioned buffer areas will be mined and as such existing trees will be removed. As previously stated the mine area presently accommodates agricultural land uses comprising annual pasture with limited stands of remnant native vegetation.

It is considered that the combination of buffer areas, vegetation retention and rehabilitation will meet the objectives of clause 7.13 of the Scheme by retaining a significant portion of vegetation on site and providing for the retention/rehabilitation of landscape buffer areas on the lot boundaries and within the subject site. The number of trees is expected to be greater than that currently provided for.

6.11 INUNDATION BY FLOODWATERS

Cl. 6.4.2 of TPS 2 states:

(c) the size, shape and characteristics of the land, and whether it is subject to inundation by floodwaters;

Due to the low laying nature of the subject site it is expected that in large storm events portions of the subject site are expected to inundate due to floodwaters. The mining and excavation process identified will provide mining pits that will store excess water as required. Any water stored in times of heavy rainfall will be treated through the approved processes within the Water Management Plans required as part of the Ministerial Approval. Water will only be discharged via the Licensed Discharge Point in accordance with Environmental Protection Authority and Department of Water approvals.

There will be no disruption to the existing creeks flowing through the subject site and therefore flood events can be accommodated through the natural drainage systems.

The screening unit will be protected from potential flood events by drainage channels feeding into a sump which is emptied by a diesel water pump into storage pits or dams. . Much of the machinery associated with screening unit is mobile and can be relocated simply in response to any flooding events.

7.0 DRAFT LOCAL PLANNING POLICY NO. 30 – MINERAL SANDS MINING

The Shire of Serpentine-Jarrahdale Draft Local Planning Policy No. 30 – Mineral Sands Mining (DLPP 30) is applicable to the proposal given the proposed use of the subject site.

DLPP has been publicly advertised and is therefore a seriously entertained planning policy. However, DLPP is not imminent and certain as planning officers from the *Shire of Serpentine Jarrahdale* have not considered the submissions arising from public advertising for the purpose of formulating a recommendation to the Council. A submission was lodged on behalf of the proponent during the public advertising process identifying its view that DLPP 30 is flawed and not based on proper planning considerations.

The objectives of DLPP 30 are stated as follows:

- To maintain a general presumption against the extraction of mineral sands within the Shire of Serpentine Jarrahdale;
- To clearly outline the matters that are required to be addressed by proponents that are seeking approval for mineral sands extraction within the Shire; and
- To ensure that the assessment of mineral sands extraction proposals is comprehensive and consistent with orderly and proper planning principles.

Appendix A of DLPP 30 identifies the matters to be addressed by the Proponent.

7.1 GROUNDWATER

Issues relating to groundwater have been comprehensively addressed through the environmental assessment process that culminated in the Ministerial Approval. The Proposal will not adversely affect groundwater within the subject site or surrounding area. Orderly and proper planning does not require further consideration of this issue under DLLP 30.

7.2 NATIVE TERRESTRIAL VEGETATION

Issues relating to native terrestrial vegetation have been comprehensively addressed through the environmental assessment process that generated the Ministerial Approval and will culminate in a determination by the Federal Minister under the EPBCA Act. The Proposal will not adversely affect native terrestrial vegetation within the subject site or the surrounding area. Orderly and proper planning does not require further consideration of these issues under DLPP 30.

7.3 NATIVE TERRESTRIAL FAUNA

Issues relating to terrestrial fauna have been comprehensively addressed through the environmental assessment process that generated the Ministerial Approval and will culminate in a determination by the Federal Minister under the EPBC Act. The Proposal will not adversely affect native terrestrial fauna within the subject site or the surrounding area. Orderly and proper planning does not require further consideration of these issues under DLPP 30.

7.4 OTHER ENVIRONMENTAL IMPACTS

7.4.1 Wetlands

Issues relating to wetlands have been comprehensively addressed the environmental process that culminated in the Ministerial Approval. The Proposal will not adversely affect any wetland. Orderly and proper planning does not require further consideration of this issue under DLPP 30.

7.4.2 Rehabilitation

Issues relating to rehabilitation have been comprehensively addressed through the environmental assessment process that generated the Ministerial Approval and will culminate in a determination by the Federal Minister under the EPBC Act. The Proposal involves on-site rehabilitation and does not generate a requirement for further rehabilitation within the surrounding area. Orderly and proper planning does not require further consideration of these issues under DLPP 30.

7.4.3 Aboriginal Heritage Significance

The subject site contains no Aboriginal sites and will not adversely impact on any matter of Aboriginal Heritage Significance.

7.4.4 Health Impacts

The local planning policy requests details associated with a large number of health concerns.

There will be no health or mental health impacts (e.g. respiratory disease, depression and lowered immunity) on local residents, visitors to the subject site or surrounding area or those involved in undertaking the Proposal, including exposure to airborne contaminants, radiation and dust.

The Proposal will not unreasonably interfere with the health, welfare, convenience, comfort or amenity of people on the subject site or within the surrounding area.

The Proposal does not have the potential for biophysical impacts to significantly and adversely cause change social surroundings, water contamination, and mosquito breeding or adversely affect end-product food production. The Proposal will not have a cumulative health impact on local residents, visitors to the subject site or surrounding area or those involved in undertaking the Proposal.

The Department of Health has been notified of the Ministerial Statement in accordance with section 45(7) of the EP Act.

7.4.5 Transport

Public Road Use

All heavy haulage is to occur on public roads within the Shire of Murray. Staff or maintenance vehicles may access the site via public roads within the Shire of Serpentine Jarrahdale (Refer to section 5.5.1 of this report.).

Commuter Workforce

Workforce vehicles will be light vehicles and there are several road options to access the office area (in the Shire of Murray) depending on where the workers live. Given these numerous route options, it is highly unlikely that the additional number of vehicles will be concentrated on any one road within the Shire of Serpentine Jarrahdale except for South Western Highway. Accordingly the overall impact of this traffic will be minimal (Refer to section 5.5.1 of this report.).

Noise from Trucks

Lloyd Acoustics modelled the noise impact from trucks on the internal road network. It demonstrates that noise levels are less than the assigned noise levels and therefore are acceptable.

7.4.6 Amenity

The potential impacts on the amenity and lifestyle opportunities for existing and future residents and visitors to the Serpentine-Jarrahdale Shire are limited.

Amenity concerns that relate to environmental issues were addressed in the comprehensive environmental approval process that culminated in the Ministerial Approval. Those issues will not individually or collectively adversely impact on the amenity of the locality. Orderly and proper planning does not require further consideration of those issues under DLPP 30.

No amenity concerns arise as a consequence of the proposed land use. Land use issues are addressed at section 4.4 of this report.

No amenity concerns arise as a consequence of to the visual appearance of the Proposal and the existing visual amenity will be preserved. Visual appearance and landscape issues can be appropriately dealt with and are addressed at section 9.1 of this report.

7.4.7 Employment Opportunities

The Proposal will generate employment opportunities. The mine will require a workforce of 30 to 35 persons who will be sourced locally where possible. There will be a range of skills required thus increasing the employment diversity in the area.

7.4.8 Community

There are benefits to the local economy and the environment resulting from the Proposal. There will be a greater diversity of employment and increased economic activity in the area. The rehabilitation required will result in a greater diversity of species and increased vegetation.

The Proposal will not have any effect on the community gaining access to services and facilities. The Proposal does not reduce access to any existing or likely future recreational opportunities in the locality.

There are no impacts from the Proposal on the accommodation of future population growth and provision of housing choice and diversity. There is no long term impact on the ability to utilise the area for agricultural activities.

7.4.9 Economic Impacts

The Proposal will not adversely affect the attractiveness of the locality for tourism activities.

Within ten years the subject site will have been rehabilitated to a level that provides for greater native vegetation, with a more diverse range of species than is currently provided for. The tapestry of the landscape will be preserved, if not enhanced.

The feasibility of future alternative land uses, both within and in proximity to the subject site is improved by the Proposal. Within ten years there will be greater environmental diversity, thus increasing the local landscape amenity of the area. Through the rehabilitation process the pasture will be reinstated thus not detrimentally affecting the existing grazing land uses.

There will be a number of positive impacts on the local economy. This will range from employment opportunities to potential expansion of local businesses:

- There is potential for staff to be sourced from the local area, the types of jobs on offer will require a range of expertise and experience ranging from manual labour to mechanical. This provides the local community with employment opportunities that were not originally provided for;
- From time to time there will be a need for the Proponent to purchase supplies and parts from local businesses thus further contributing to the local economy;
- There exists potential for discretionary spending by staff to occur within businesses in the area; and
- The Proposal will diversify the economic base of the locality and the region;

7.4.10 Land Use Planning

The Proposal is consistent with the existing State and local planning framework (Refer to sections 6.0 to 11.0 of this report).

7.4.11 Climate Change and Energy Consumption

The Proposal will be as energy efficient as practicable with power generated on site or drawn from mains supply.

The National Greenhouse and Energy Reporting Act 2007 (Cth) is a statute, which requires companies that operate facilities with energy use and/or greenhouse gas emissions that exceed certain thresholds to monitor and report their energy use and greenhouse gas emissions to the Federal Government. The energy use threshold is 100 terajoules per annum and the greenhouse gas threshold is 25 kilotonnes per annum. The energy use and greenhouse gas emissions associated with the proposal both fall well below these thresholds and will not trigger a reporting requirement. Orderly and proper planning does not require further consideration of these issues under DLPP 30.

7.4.12 Infrastructure Provision

There are limited infrastructure requirements on site. The infrastructure that is proposed is outlined in section 5.7 of this report.

7.4.13 Irrelevant Considerations

The considerations raised at items 4 and 56 of DLPP 30 are irrelevant and have no application to the determination of the Proposal under TPS2.

The financial viability of the project is not a proper planning consideration and economic competition is not a proper planning consideration unless it adversely impacts on amenity in the sense of *Kentucky Fried Chicken Proprietary Ltd v Ganditis* (1979) 140 CLR 675.

8.0 LOCAL RURAL STRATEGY

8.1 SHIRE OF SERPENTINE-JARRAHDAL - RURAL STRATEGY

The Shire of Serpentine Jarrahdale's Rural Strategy (**Rural Strategy**) was prepared in 1994 with the intent of guiding development over the subsequent 5 years against a 25 year planning horizon.

Among a range of broad strategy aims the Rural Strategy was to:

- Implement government land use planning and management policy;
- Provide land release to accommodate population growth whilst maintaining a healthy rural living lifestyle close to Perth; and
- Protect the Shire's agricultural lands and their productivity, rural character and lifestyle.

Principally the Rural Strategy is directed to preserving long term rural and agricultural land uses within the district. The Proposal is consistent with the Rural Strategy by:

- *being temporary in nature such that it will restore the subject site to long term rural and agricultural land uses; and*
- *not providing a reason for the future subdivision or fragmentation of the subject site.*

The subject site is identified as 'Rural (minimum 40ha lots)' and 'Agriculture Protection (minimum 40ha lots)'. Lots 63, 6, 113, 112, 111 and portion of Lot 1 and portion of Lot 52 are identified as 'Rural' and a portion of Lot 1 and portion of Lot 52 are 'Agriculture Protection' within the Rural Strategy. No part of the excavation area is located within the area designated as Agriculture Protection.

The policy objectives within the Rural Policy Area are:

- To retain and maintain the productive capacity of land and agriculture enterprise in close proximity to Perth and its markets;
- To encourage, provide opportunities for, and control over, a mosaic productive agricultural land uses;
- To adopt pro-active and co-operative approaches with landowners and the wider community to address catchment management and land degradation problems; and
- To otherwise prevent the future fragmentation of land through subdivision for farmlet development in the Policy Area.

The temporary nature of the Proposal will not adversely affect the long term outcomes that are proposed within the Rural zone. The intent is that the excavation area will be returned to its pre mine characteristics within a limited period of the mining operations ceasing.

Management of stock will enable the landowners to farm portions of the land while extraction activities are underway details are outlined in section 10.5.2.1 of this report.

The policy objectives within the Agriculture Protection area are:

- To retain and maintain the productive capacity of land for agricultural enterprise in proximity to Perth and its markets;
- To ensure that productive agricultural enterprise remains the primary land use and to maintain the integrity of the agricultural infrastructure;

- To adopt pro-active and co-operative approaches with landowners to address catchment management and land degradation problems;
- To support and protect agriculture and horticultural industries through:
 - *reduced pressure for fragmentation of land to other land uses;*
 - *resource security for agriculture enterprise;*
 - *maintenance of relative land values and rates levied; and*
 - *reduced pressure on agriculture from problems such as feral dogs and cat, stock straying into urban areas, competition for water rights, and increased traffic volumes.*
- To minimise or eliminate nutrient (principally phosphorus) export into the Peel-Harvey Estuarine System;
- To pursue the removal of Land Tax; and
- To establish Rural Buffer areas between residential (Urban and Rural Living) and Agricultural Protection Policy areas to prevent problems associate with urban encroachment.

The Proposal is consistent with the objectives of the Agricultural Protection area as the excavation area does not intrude into this area. It is not expected there will be any degradation of the land. In addition the rehabilitation will occur outside of the Agricultural Protection area and therefore not result in any loss of agricultural land through vegetation conservation.

The Proposal involves a reduced nutrient (principally phosphorus) export into the Peel-Harvey Estuarine System during the life span of the mining operation. The temporary reduction of agricultural land uses within the 'Rural' area will assist efforts to redress historical nutrient loads within the Peel-Harvey Estuarine System and catchment areas while not precluding future agricultural activities from taking place in close proximity to Perth and its markets.

Figure 10 depicts an extract from the Shire of Serpentine-Jarrahdale's Rural Strategy.

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the kerbside Trust

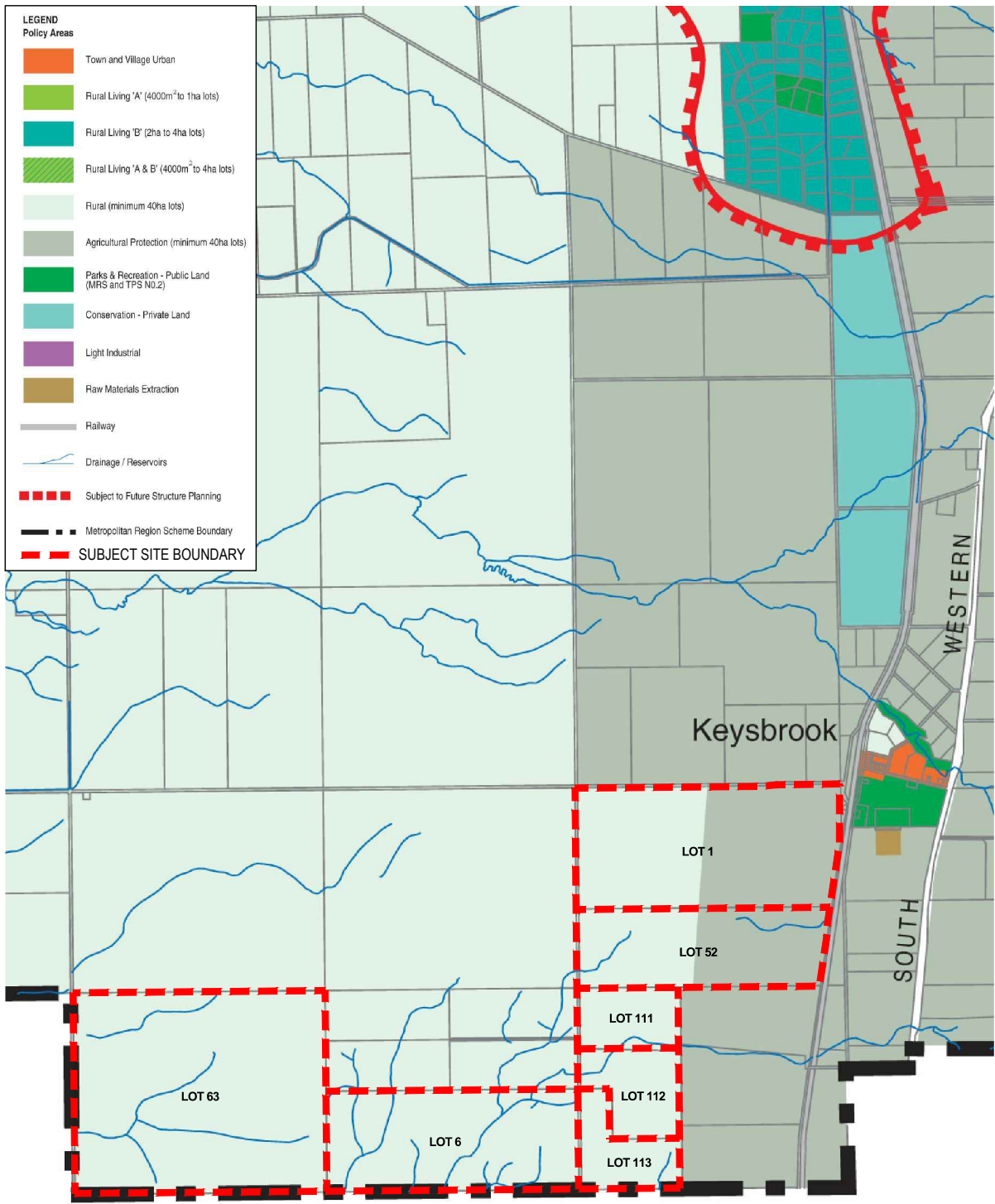


FIGURE 10: SERPENTINE JARRAHDALE - RURAL STRATEGY
LOTS 1, 6, 52, 63, 111-113
KEYSBROOK
WA

SCALE 1:50,000 @ A4
 DATE 20 January 2010
 FILE 100120 1906 SJ DA Figs.dwg
 REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS

ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY

BASEPLAN SOURCE: SHIRE OF SERPENTINE - JARRAHDALE

9.0 LANDSCAPE

The existing landscape is generally characterised by open grazing pasture with a scattering of trees. Areas of significant vegetation within the landscape will be retained and rehabilitation will occur both within the excavation area and outside the excavation area.

While there will be changes to the landscape those changes are acceptable. Short-term impacts from mining operations are localised with the majority of the subject site appearing as grazing pasture at any one time during the term of operations. Long-term benefits arise in terms of rehabilitation and revegetation and the return of the entire subject site to agricultural land uses. The resulting landscape will be a tapestry of bushland, watercourses and open pasture of higher quality than currently exists.

Mining operations will be visible from a limited number of key locations at times during the life of the project. These are identified below.

- South Western Highway;
- Escarpment;
- Internal road network; and
- Keysbrook Town Site.

Existing vegetation, distance from the subject site and viewing corridors result in much of the excavation area being screened. In addition, significant sequential revegetation and rehabilitation will occur within the subject site which will ensure the impact on visual amenity will be minimal.

9.1 WAPC - VISUAL LANDSCAPE PLANNING IN WESTERN AUSTRALIA A MANUAL FOR EVALUATION, ASSESSMENT, SITTING AND DESIGN

The Western Australian Planning Commission released the 'Visual Landscape Planning in Western Australia – A manual for evaluation, assessment, sitting and design' (**Landscape Manual**) in 2007 as an acknowledgement of the public's interest in the preservation of landscapes and the need to integrate the evaluation of the landscape into the planning process.

The Landscape Manual:

- Identifies that over time landscapes change through human and natural intervention; and
- Recognises that individual landscapes differ and that rural landscapes involve a highly modified, although sparsely populated context.

It is the management of the change to landscape that is the most critical issue, since the receptiveness of the public to change is based on a range of values.

The Manual identifies a process to resolve conflicts between environment, cultural and economic return considerations. The visual landscape evaluation model comprises the following steps:

- Step 1: Define the scope of the evaluation and set the context;
- Step 2: Describe the visual landscape character;
- Step 3: Evaluate the way the visual landscape character is viewed, experienced and valued;
- Step 4: Develop strategies for managing visual landscape character; and
- Step 5: Implementation strategies through the planning system.

Only steps 1 to 4 are relevant in assessing the Application.

9.1.1 Visual Landscape Evaluation

Step 1 - Define the scope of the evaluation and set the context.

The study area is the extractive area as identified earlier within this development application (Refer to section 4.1). The basic geographical features have been described within the section 4.5 of this report.

Step 2 - Describe the visual landscape character.

The visual landscape within the subject site and surrounding the subject site is predominately dominated by a natural landscape that has been heavily modified by human activity. There are scattered trees, out buildings associated with farming activities and a limited number of dwellings.

The subject site is dominated by large paddocks that have predominately been used for grazing purposes. These paddocks are characterised by open expanses of pasture and stands of degraded native vegetation, including a large number of die back affected stands. The vegetation on most properties within the subject site is limited, with most large stands of vegetation located predominately along the road reserves, watercourses and around dwellings. The open low-lying paddocks are broken with sparsely vegetated drainage channels. There is one area that is more heavily vegetated on Lot 1, covering approximately 16.6 ha, located on a slightly raised area. Areas demonstrating this clustering of vegetation are limited across the subject site.

The remaining existing vegetation tends to exist in linear patterns, such as along watercourses, public road reserves, and lot boundaries. There is a small clustering of exotic and native species around dwellings.

The watercourses are not a predominate feature across the landscape due to the diminished size of the tributaries and the lack of existing vegetation, this is predominately due to clearing associated with agricultural activities in the past. Even though the watercourses are visually diminished they have been protected through the Ministerial Approval.

To the east of the site is the railway line that connects Perth to Pinjarra.

Step 3 - Evaluate the way the visual landscape character is viewed, experienced and valued.

The area is low lying and therefore is predominately viewed at eye level from the surrounding road network. There are no significant features of the subject site that would be viewed from a distance and therefore there are limited elements that would draw the eye towards the subject site.

The key views are selected based on the significance of the location to the local and greater community and the number of people that are able to gain access to that view.

The key views are determined to be:

- To the west from the South Western Highway;
- To the south from Keysbrook Town Site;
- To the west from the Escarpment; and
- From the local roads into the subject site, namely Westcott Road, Atkins Road and Elliot Road.

The South Western Highway is a major thoroughfare through the *Shire of Serpentine Jarrahdale*. It not only provides the local community with an integrated movement network but also provides visitors with access to the Shire. As the Proposal is at the entrance to the *Shire of Serpentine Jarrahdale* the visual appearance of the Proposal is important to the local community. There are motorists that will potentially view the excavation area while travelling along the highway.

The number of people that are able to view the excavation area from the town site is potentially greater than the number viewing it from landholdings adjacent to the subject site. With a greater number of people potentially affected, the view from the Keysbrook town site is considered to be key view.

The potential for a greater portion of the excavation area to be seen from the elevated position of the escarpment makes it a key view. Both the local community and the visitors to the area may view the excavation area from this location.

The local road network is also a key viewing opportunity. The local roads are the closest that the community can get to view the excavation area. The number of potential viewers is however dramatically reduced compared to the South Western Highway, as the local roads are not high frequent thoroughfares. It was evident during the site visit that Hopeland Road and Atkins Road had a greater number of vehicles, predominately heavy haulage vehicles for industrial and farming activities that could view the excavation area than Westcott Road and Elliot Road.

Those experiencing the key views will be moving through the subject site in a number of ways that will affect the experience.

Predominantly the views from the South Western Highway will be experienced at high speeds in a motor vehicle. The view of the subject site viewed from the South Western Highway is intermittent with vegetation and the railway blocking views of the excavation area. The site visit confirmed that it could be difficult to even identify the railway that is between the subject site and South Western Highway. The vegetation screens much of the view of the trains on the freight line and therefore also screens the excavation site.

The view from the Keysbrook town site that is the Keysbrook general store on the corner of South Western Highway and Elliot Road is completely obstructed by vegetation. No portion of the excavation area would be seen.

The potential view of the excavation area from the escarpment was viewed from Boyd Road. The ability to see the subject site was intermittent due to heavy vegetation (trees and shrubs) within the road reserve. There was no formal point along Boyd Road (to the west of the escarpment) that a motorist could park their vehicle to experience the view. The occasional break in the vegetation with the road reverse allowed for glimpses of the excavation area when travelling in a motor vehicle. The 30 ha area that will be progressively revegetated is some 3.6 kilometres away and would be expected to blend with the existing cleared nature of the paddocks.

The potential view of the extractive area from the local roads is more detailed. While the viewer is able to distinguish the excavation area more clearly it is expected to be viewed by less people. The view of the excavation area would most visible from Westcott Road (based on distance from the excavation area) however that road only services the lots that are subject to the Proposal and one additional lot resulting in reduced traffic levels.

In addition the lot sizes are large and therefore there are times throughout the life of the mine the distance between the extractive area and the road reserve will be up to 800m. The southern boundary of the subject site abuts adjoining properties and therefore there is no road access along that boundary further restricting access to the site and limiting potential views.

In addition, the portion of the view that will be modified will be reduced depending on a number of factors:

- the circumstances in which the viewer is attempting to view the excavation area;
- the angle the excavation area is viewed at;
- the distance the viewer is from the excavation area;
- the objects that are between the viewer and the excavation area; and
- speed the viewer is travelling at, (i.e. walking, cycling, riding, driving or flying); and
- the area that is currently being mined;
- the maturity of the rehabilitation;
- the location of the clearing of existing vegetation within the subject site (i.e. 40m from road reserve not to be cleared as per extractive industries licence);
- the topography of the land;
- the weather on the day of viewing the extractive area; and
- the time of year (i.e. green pasture in winter will reduce the visual impact of a rehabilitated extractive area).

All these factors combine to reduce the visual appearance of the extractive area when viewed from the escarpment, South Western Highway and the Keysbrook Town site. It is important to note the visual characteristic of the area is a highly modified landscape. The rural activities have resulted in the large scale clearing of land. The mining activities are of a similar nature (clearing of land) however with a commitment and requirement to replace the vegetation which is not provided for by the current land use.

Step 4 - Develop strategies for managing visual landscape character.

There are a number of visual management outcomes that have resulted from the Management Plans required as part of the Ministerial Approval.

The visual impact on the Proposal area will either be temporary or minimal, as revegetation and planting of pasture will occur sequentially in the shadow of the excavation. Large open areas of existing degraded land will be temporarily modified through the excavation process. Pasture and trees will be cleared to allow for extraction to occur. The largest single area of trees is located on Lot 1. Some of these trees will be removed during excavation however rehabilitation will occur at a rate of 1.4:1.

The Proposal includes a number of measures that will minimise the visual impact of mining activities, such as:

- no existing native vegetation will be cleared within 40m of any formed road reserve abutting the subject site as per the extractive industry licence provisions, except where access to the road reserve is required;
- sequential rehabilitation of the excavation area;

- an extraction area that is only 30 ha, at any one time;
- limiting the clearing of vegetation to 6 months prior to when the excavation of the area is planned thus reducing the area that is disrupted;
- storing and reusing the top soil to encourage growth of pastures;
- Revegetation at a ratio of 1.4:1.0; and
- Preservation of vegetation within 20m of the major and medium watercourses.

Where possible, fixed infrastructure will be located in a way that existing rehabilitation and vegetation will screen the view of the motorists along South Western Highway, escarpment and the town site. Where appropriate the choice of materials and colours will complement the existing rural character of the surrounding area and blend with the tones of the landscape.

The rehabilitation process will not only address the environmental conditions applied through the Ministerial Approval but will also take into consideration the exiting character of the landscape.

The mine is temporary and the land will be returned to the landowners at its pre-mined condition, that is the landowner will be able to continue to farm the land. Part of the rehabilitation process will need to ensure areas to be protected do not adversely affect the ability of landowners to continue with their agricultural land practices.

The proposed revegetation will continue to reflect the character of the vegetation that currently dominates the landscape, linear plantings of vegetation along road reserves and watercourses will act as screens and windbreaks and blend with the existing vegetation.

9.2 SHIRE OF SERPENTINE-JARRAHDAL DRAFT LOCAL PLANNING POLICY NO. 8 LANDSCAPE PROTECTION

The Shire of Serpentine Jarrahdale's Local Planning Policy No. 8 – Landscape Protection (**Landscape Policy**) is applicable to the Proposal. The Proposal is consistent with the Landscape Policy.

The introduction to the Landscape Policy states:

Every landscape has a different capacity to successfully absorb change such as new subdivision, development on existing subdivision, upgrading of roads and powerlines, extractive industry and recreation developments. Some landscapes are more valued by the community and more sensitive to change than others.

This policy targets areas of high landscape value and aims to maintain the integrity of significant landscape areas and features. In particular, such areas occur all along the escarpment between the railway line and the top of the escarpment in a line of site (viewshed) from the South Western Highway and along some major watercourses.

The subject site is not contained within the landscape protection policy area under the Landscape Policy and accordingly the Landscape Policy has limited application to the Proposal. The building requirements within the Landscape Policy do not apply as they are stated to apply to the development of buildings within the landscape protection policy area.

The Landscape Policy details a number of objectives. The following are relevant to the Proposal:

- To protect and enhance the landscape, [and] scenic ... values through control over design, building materials and siting of development and land uses rather than prohibition of development and land use as such; and

- To maintain the integrity of landscapes in the line of sight view corridor along identified scenic routes in the Shire, including but not limited to South West Highway,... and natural water courses;

The Landscape Policy states:

Screening around proposed extractive and industrial developments or operations will be required to minimise visual impacts. These types of developments are not to be seen from the coastal plain, major roads and tourists routes, and major recreation areas. Approval for these types of development will not be given unless the visual impact of the proposal on the Darling Scarp has been addressed to Council's satisfaction.

While the subject site does not form part of the Darling Scarp, the Proposal has been developed to minimise visual impacts (Refer to section 9.1 of this report.).

9.3 DRAFT LOCAL PLANNING POLICY NO. 4 – REVEGETATION

The Shire of Serpentine Jarrahdale has prepared a draft Local Planning Policy No. 4 – Revegetation (**Revegetation Policy**) which is presently undergoing public comment concluding on 1 February 2010. As the adoption process has not been completed the content of the policy is not certain. Notwithstanding the statutory nature of the policy the following demonstrates how the Proposal would address this policy. The Proposal is consistent with the Revegetation Policy as the purpose of the policy is to facilitate the revegetation of native and local endemic flora.

Cl. 2 of the revegetation policy states the objectives:

- Raise awareness of the importance of revegetation of land as a relevant planning consideration when assessing planning proposals;
 - Clearly outline Council's expectations for revegetation using native, local endemic flora;
 - To encourage the use of revegetation to:
 - *Reduce nutrient and sediment export to the Peel Harvey Catchment;*
 - *Increase aquifer recharge, and improve the quality of storm water runoff;*
 - *Enhance landscape amenity, sense of place and local identity;*
 - *Increase habitat quantity and quality by the creation of new and enrichment of existing habitats and corridor linkages for local native plants and animals;*
 - *Recognise, preserve and protect biodiversity and the gene pools of local flora and fauna*
- Provide screening and shade for stock in rural areas, and privacy, isolation or perception of remoteness in residential or public lands.*

Within cl. 4 the policy states that a landscape and revegetation condition may be applied as part of an extractive industry planning approval. The policy also outlines within cl. 3 that the proposed revegetation can be outlined in **any** required comprehensive management plan. The principles that the management plan may incorporate are outlined in cl. 4 which include, plant stock to be local native endemic species, tube stock to come from accredited nurseries, shelter belts to provide protection from the easterly winds, the creation of a self-sufficient and sustainable ecosystem, local provenance stock to be utilised, establishment of plants between May and August and a maintenance period of between 2-5 years. The Shire also identifies the desire to negotiate a replacement ratio of 10 trees/ plants for every 1 tree/ plant removed or twice the area of the affected vegetation established in a similar environment.

Cl. 6 provides detailed requirements for the implementation of the revegetation management plans, specifying the ground preparation, establishment techniques, plant stock hardening, application of fertilizers, timing of planting, creation of habitat for fauna, maintenance of the vegetation, ongoing weeding, monitoring requirement. Where plant survival is below 75% in any one year then the Shire will require supplementary planting. The policy also outlines the different establishment techniques that may be used in the different situations:

- *Visual screening (0.17 stems per m²);*
- *Shelter/wind break (0.17 stems per m²);*
- *Streamlining (0.22 stems per m²);*
- *Biodiversity (1 stem per m²);*
- *Compensating basin shrubs (1 stems per m²); or*
- *Nutrient stripping sedges and rushes (6 stems per m²).*

Issues relating to environmental and biodiversity (as opposed to landscape) concerns have been comprehensively addressed through the environmental assessment process that generated the Ministerial Approval and will culminate in a determination by the Federal Minister under the EPBC Act. Orderly and proper planning does not require further consideration of these issues under the Revegetation Policy.

10.0 STATE PLANNING POLICIES

10.1 STATE PLANNING POLICY NO. 1 – STATE PLANNING FRAMEWORK

State Planning Policy No. 1 – State Planning Policy Framework (Variation No. 2) (SPP 1) sets out the key principles relating to environment, community, economy, infrastructure and regional development which guide the way in which planning decisions are made.

SPP 1 aims to assist in the creation of regional wealth, the development of new industries and the encouragement of economic activity. SPP 1 encourages ecologically sustainable land use and development through the wise use and management of resources, including minerals.

Clause 3.1(a) of SPP 1 requires local government and all decision making authorities to have regard to the provisions that form part of the SPP 1 framework in making decisions on planning matters.

The Proposal is entirely consistent with the general principles for land use planning and development as outlined in the various statements of planning policy made under SPP 1.

10.2 STATE PLANNING STRATEGY (1997)

The State Planning Strategy (1997) is a State Government strategy that has effect as a State Planning Policy under SPP 1 and therefore applies to the Proposal. The State Planning Strategy 1997 was prepared by the WAPC to guide the planning response to the potential long-term urban planning challenges that face the State. The strategy attempts to balance the needs of the expanding population as well as aspirations of the community. The Proposal is consistent with the State Planning Strategy.

The principles of the State Planning Strategy are as follows:

- Environmental principle: To protect and enhance the key natural and cultural assets of the State and deliver to all Western Australians a high quality of life which is based on environmentally sustainable principles;
- Community principle: To respond to social changes and facilitate the creation of vibrant, accessible, safe and self-reliant communities;
- Economic principles: To actively assist in the creation of regional wealth, support the development of new industries and encourage economic activity in accordance with sustainable development principles;
- Infrastructure principle: To facilitate strategic development by ensuring land use, transport and public utilities are mutually supportive; and
- Regional development principle: To assist the development of regional Western Australia by taking account of the region's special assets and accommodating the individual requirements of each region.

In particular, the State Planning Strategy highlights the need to balance agricultural and mineral resources and highlights the benefits of processing natural resources, which provides wealth of the region.

In the vast areas between towns the mineral and agricultural resources will be developed in harmony with conservation of the natural environment ensuring that all development projects are sustainably managed. A higher degree of processing of natural resources will have increased regional wealth and importance. p. viii.

The State Planning Strategy Discussion Paper prepared in 1995 identifies the importance of the resources sector and the role it plays in the economic health of the State.

The medium-term future of the WA economy is optimistic and will be driven mainly by the resources sector with strong downstream processing activity encouraged by reduced power costs. Mining and agriculture account for 20 percent of economic activity in the State and 76.6 percent of the State's exports. p.2

Western Australia's economic growth rate has exceeded that of the rest of Australia in recent years. This is expected to continue. The State has great potential for regional development based on the further exploitation of the vast natural mineral wealth and increased downstream processing p.x.

The major exports of the State measured in Gross State Product (GSP) terms will continue to be in the resource and agriculture sectors. p.11.

The State Planning Strategy indicates traditional industries of mining and agriculture are expected to continue to be important. There are a number of projects that are committed and proposed including mineral sands projects. In particular the Vision Plan within the State Planning Strategy identifies the subject site as being located in a Mineral Potential Management Priority Area.

The Proposal is consistent with the principles of the State Planning Strategy as it provides a balance between the economic and environmental considerations within an area identified as having mineral potential.

10.3 STATE PLANNING POLICY NO. 2 - ENVIRONMENT AND NATURAL RESOURCES POLICY

State of Planning Policy No. 2 – Environment and Natural Resources Policy (SPP 2) applies to the Proposal. The Proposal is consistent with SPP 2.

The objectives of SPP 2 are as follows:

- To integrate environment and natural resource management with broader land use planning and decision – making;
- To protect, conserve and enhance the natural environment; and
- To promote and assist in the wise and sustainable use and management of natural resources.

SPP 2 seeks to balance the environmental concerns with the need to optimise the use and management of natural resources, including mineral resources.

The Proposal has limited environmental impact due to the proposed site rehabilitation practices and the provision of appropriate buffers. The integration of these components ensures there will be no long term impact on the surrounding environment. The environmental and hydrological aspects of the Proposal were considered in detail as part of the Ministerial Approval.

Cl. 5.7 of SPP 2 states:

Mineral resources, petroleum resources and basic raw materials are important natural resource assets and are a vital part of the economy, contributing 30% to Western Australia's gross domestic product. Mineral production is very diverse with over 50 different minerals in commercial production...

Planning strategies, schemes and decision-making should:

- (i) Identify and protect important and economic mineral resources to enable mineral exploration and mining in accordance with acceptable environmental standards.*
- (ii)*
- (iii) Support sequencing of uses where appropriate to maximise options and resultant benefits to community and the environment.*
- (iv) Have regard to the ... any other Government adopted ... mineral strategy, in considering proposals for the extraction of ... mineral resources.*
- (v) Support, where possible, improved efficiencies in the production and consumption of mineral ... resources to ensure their availability for future environmental and human uses.*

The extracting of heavy mineral sands from the subject site will support the Western Australian economy and meet a demand for products that produced using the extracted minerals.

The short - term duration of the Proposal, being ten years, ensures the use and extraction of heavy mineral sands will have a limited impact on the surrounding environment. The proposal will involve sequential land use whereby the extraction and rehabilitation processes are undertaken simultaneously to ensure the land is restored to its pre-mine status, and community impacts are minimised by reducing the mine foot print by rehabilitation shadowing mining activities. This will also provide for an early return of mined areas to other rural uses. The duration of the Proposal and proposed rehabilitation program ensures the capacity of the subject site to support a variety of rural land uses is retained.

The Proposal is consistent with the purpose, objectives and strategies of SPP2 as the extraction of heavy mineral sands utilises environmentally sustainable practices and minimises of impacts on the surrounds rural locality.

10.4 STATE PLANNING POLICY NO. 2.1 - THE PEEL-HARVEY COASTAL PLAIN CATCHMENT

The subject site is within located within the Peel-Harvey Coastal Plain Catchment Area as classified with the Western Australia Statement of Planning Policy No. 2.1 – The Peel-Harvey Coastal Plain Catchment (**SPP 2.1**). The Proposal is consistent with SPP 2.1.

The objectives of SPP 2.1 include:

- To improve the social, economic, ecological, aesthetic, and recreational potential of the Peel-Harvey Coastal Plain Catchment;
- To ensure that changes to land use within the Catchment to the Peel-Harvey Estuarine system are controlled so as to avoid and minimise environmental damage;
- To balance environmental protection with the economic viability of the primary sector;
- To increase high water-using vegetation cover within the Peel-Harvey Coastal Plain Catchment; and
- To prevent land uses likely to result in excessive nutrient export into the drainage system.

SPP 2.1 seeks to reduce nutrient pollution of and manage nutrient levels within the Peel Harvey Estuarine System.

Cl. 1 of the Background to SPP 2.1 states:

... Clearing of vegetation in the catchment exacerbates the problem by resulting in a rise in the water table and increasing run-off, which requires artificial drainage. The replacement of native vegetation with land uses which result in increased nutrient application is a major contribution to increased nutrient pollution of the estuary. These developments have increased the surface drainage and nutrient loads into the Estuary.

Cl. 5.4 of SPP 2.1 states:

The retention and rehabilitation of existing remnant vegetation is to be encouraged. A catchment target of 50% of land area established to deep rooted perennial plants, preferably local indigenous species but including high water using and suitable exotic species, shall be attempted. Remnant vegetation shall be retained along watercourses, or the margins shall be replanted to higher water-using vegetation, to maintain the stability of banks and exert some control on sediment and nutrient movement.

The Proposal incorporates an extensive rehabilitation of the natural environment that ensures the restoration of the subject site and limits the impact on the surrounding environment. The reduction in nutrient loading activities such as farming will improve the ecological potential of the Peel-Harvey Coastal Plain Catchment. The management plans associated with the Ministerial Approval will control the land use and minimise environmental damage associated with the excavation area. The Proposal strikes a balance between the protection of the environment through management plans under the Ministerial Approval, with the economic viability of the primary sector as the excavation of minerals is temporary in nature and farming activities can return to normal after 10 years and in many cases continue in a modified way for a large portion of the ten years. The rehabilitation of the excavation area at a rate of 1.4:1 will result in an increase in the number of high water-using vegetation in the Peel-Harvey Coastal Plain Catchment and the reduced agricultural activities will result in a reduced nutrient export into the Catchment.

The rehabilitation process includes:

- Protecting areas to be re-vegetated from access by grazing stock to enable the vegetation to mature;
- Translocating native plant species to re-vegetation areas;
- Identifying and eradicating weeds in the re-vegetation areas;
- Revegetation at a ratio of 1.4:1;
- Utilising dieback resistant species; and
- Identifying the use of local species of the local area.

The environmental objectives of SPP 2.1 are satisfied by the Ministerial Approval. Orderly and proper planning and SPP 2.1 do not require further consideration of these issues.

10.5 STATE PLANNING POLICY NO. 2.5 - AGRICULTURAL AND RURAL LAND USE PLANNING

State Planning Policy No. 2.5 – Agricultural and Rural Land Use Planning (SPP 2.5) applies to the Proposal given the subject site's existing and surrounding land use.

The subject site is not located within an Agricultural Priority Management Area or Precinct as defined under the policy.

The subject site adjoins an area parallel to the South Western Highway, which has been identified as being a 'Potential Developing Area', which is subject to additional and detailed investigation.

The policy objectives are identified within cl. 4, including the careful management of natural resources through the "*wide use of resources including...minerals*" and the prevention of "*land and environmental degradation during the extraction of minerals*".

Due to the mine life of 10 years the proposed 'Industry Extractive' will not have any long term affect on the capacity of the subject site or surrounding locality to further its agricultural potential into the future.

The Proposal is consistent with the principles in SPP 2.5.

10.5.1 Objectives

The purpose of SPP 2.5 is to protect agricultural land resources, minimise land use conflict in rural areas and to carefully manage and provide security for natural resources.

Cl. 4. of SPP 2.5 states:

The four key objectives of the policy are –

1. *Protect agricultural land resources wherever possible by –*
 - a. *discouraging land uses unrelated to agriculture from locating on agricultural land;*
 - b. *...; and*
 - c. *improving resource and investment security for agricultural and allied industrial production.*
2. *...*
3. *Minimise the potential for land use conflict by –*
 - a. *providing adequate separation distance between potential conflicting land uses;*
 - b. *introduce management requirements that protect existing agricultural land uses;*
 - c. *identify areas that are suitable and capable for intensive agricultural pursuits as agricultural priority areas; and*
 - d. *...*
4. *Carefully manage natural resources by –*
 - a. *discouraging development and/or subdivision that may result in land or environmental degradation;*
 - b. *integrating land, catchment and water resource management requirements with land use planning controls;*
 - c. *assisting in the wise use of resources including ... minerals ...;*
 - d. *preventing land and environmental degradation during the extraction of minerals ...; and*
 - e. *incorporating land management standards and sequential land use change in the land use planning and development process.*

Cl. 5.2.3 of SPP 2.5 requires that aside from the potential for land use conflict the Proposal have regard to both on-site and off-site risks, environmental values and risks, the potential impacts and restrictions on allowed uses on adjacent or nearby locations and separation distances or buffers. Those issues are addressed within sections 5.0, 6.6 to 6.11, 7.0, 8.0, 9.0 and 10.0 of this report respectively.

10.5.2 Land use conflict

The subject site and its surrounding locality are presently predominantly used for grazing and broad acre farming. The subject site is relatively isolated with limited abutting development. There is a scattered and sparse distribution of residential dwellings surrounding the subject site. To the north of the site is the Keysbrook town site. The closest the excavation area comes to the town site is over 1.75 km metres. The Proposal will not conflict with the adjacent land uses as detailed below.

Agricultural land use

The Proposal will not diminish the capability for agricultural activities on surrounding and abutting land continuing into the future, as the excavation area that is under mining at any one time is significantly smaller than both the total area to be mined (excavation area) and the subject site.

While development is for ten years within the Shire of Serpentine Jarrahdale the excavation area will only be up to a maximum of 30 ha at any one time, and with management of livestock and appropriate planning of crops some farming activities can still occur within the subject site. Temporary fencing will be regularly erected and relocated to minimise the land utilised by mining operations and maximise land available for farming.

It is expected that a number of the 10 years will be set aside for the establishment of rehabilitation and decommissioning where farming practices can still occur. It is expected that rehabilitated land will be made available to the landowner after two growing seasons.

Dust

Dust emission will be managed through the Ministers Approval and specific limitations are set out within the Air Quality and Dust Management Plan. On completion of the mining activities the rehabilitation programme will result in greater vegetation on the subject site therefore increasing the ability to manage dust.

Water

The Ministerial Approval requires a Water Management Plan, which specifically requires the "*proposal shall not materially effect on the quality or quantity of groundwater available to other uses in the area*" thereby ensuring that no agricultural activities which rely on water resources abutting the subject site will be affected. The approved water supply is from the deep Leederville aquifer, pump testing and modelling of drawdown details have been assessed and determined as part of the Ministerial Approval.

Traffic Movements

Landholdings affected by mining will be fenced internally with agreement of the landowners, stock movements will be taken into account prior fencing being erected.

Noise

A Noise Management Plan is required as part of the Ministerial Approval, which addresses any land use conflicts (Refer to section 5.5.2 of this report).

10.5.3 Impact on Agricultural Potential

The proposed extraction of heavy mineral sands will reduce, however not remove, the opportunity for agricultural pursuits on the subject site for up to 10 years. However as sequential mining activities will occur, there will be an ongoing return of land for 'Rural' and associated agricultural uses.

This will facilitate the use of the land for agricultural purposes, consistent with TPS 2 and is compatible with the long term planning for the area.

10.5.4 Town Planning Scheme Provisions

Clause 5.4.3 of SPP 2.5 states in respect of Mineral and Basic Raw Material Resource Areas:

- a. *Town planning schemes should make provisions for the protection ... mineral ... resources identified in the local planning strategy.*
- b. *Town planning schemes should include provisions for the extraction of ... mineral ... resources. These provisions should include the development of appropriate local policies and requirements, particularly buffer requirements, that the extraction industries will be subject to; sequential land use proposals; and environmental management measures.*
- c. *These activities should be regarded as generally acceptable, subject to assessment on their individual merits in rural areas.*

There are currently no planning strategies, town planning scheme provisions or adopted policies within the district to guide the extraction of minerals.

Appendix 2 to SPP 2.5 states in relation to the identification and planning of rural settlements:

9. Natural resources

The location of rural-residential and rural smallholdings areas should avoid any unacceptable impacts on, or sterilisation of, natural primary resources including prospective areas for mineralisation and basic raw materials, water catchments and areas of environmental significance. Extraction of resources and rehabilitation of land could be staged to allow sequential development for rural residential or agricultural land uses'.

The Proposal is consistent with the provisions and requirements of WAPC and State Government policies addressing buffers and environmental management (refer to sections 6.0, 10.0 and 11.0). The Proposal has obtained environmental clearance through the Ministerial Approval.

10.6 STATE PLANNING POLICY NO. 2.9 – WATER RESOURCES

State Planning Policy No. 2.9 – Water Resources (SPP 2.9) applies to the Proposal because the subject site is located within the Karnup-Dandalup Underground Water Pollution Control Area that has been identified as a proposed Priority 2 Public Drinking Water Source Area.

Priority 2 classification has been proposed to ensure that there is no increased risk of pollution to the water source.

The policy provides direction on the planning, protection and management of surface and groundwater catchments in relation to the waterways and wetlands. The intent of the policy is to coordinate the different agencies and the private sector to achieve a sustainable approach to development.

The policy objectives are to protect, conserve and enhance water resources, ensure the availability of suitable water resources for human consumption and promote and assist in the management of sustainable use of water resources.

Where development is proposed and there is no strategic direction provided then consultation with the Department of Water, Department of Environment and Conservation, Water Corporation and Department of Planning should occur. The generic considerations are the appropriate buffers or setback to water resources, rehabilitation of water resource areas, improvement of the water quality, reduced nutrient exports, and the preparation of a management plan.

There are a range of measures that will be undertaken as part of the Ministerial Approval to ensure the protection of the water resource, including:

- Watercourses to be protected by preventing mining or the clearing of trees within 20 metres of the banks of identified watercourses or within 100 metres to the boundary of conservation category wetlands;
- Significant levels of rehabilitation that will reduce soil erosion and therefore reduce turbidity downstream;
- Extraction of water to not materially effect the quality and quantity of groundwater or the health of native vegetation; and
- The monitoring of groundwater and minimises the impacts associated with discharge of excess water.

The Proposal is consistent with the objectives of the SPP 2.9. Issues relating to water resources have been comprehensively addressed through the environmental assessment process that culminated in the Ministerial Approval. SPP 2.9 does not require further consideration of these issues.

10.7 STATE PLANNING POLICY NO. 4.1 - STATE INDUSTRIAL BUFFER POLICY

State Planning Policy 4.1 – State Industrial Buffer Policy (SPP 4.1) notionally applies to the Proposal since an extractive industry is involved. The Proposal, however, does not require an offsite buffer because the proposed operations will ensure the protection of surrounding land uses and amenity.

SPP 4.1 and Draft *State Planning Policy 4.1 – State Industrial Buffer (Amended)* are principally concerned with off-site buffers for emissions that include noise, smoke, fumes, dust, odour, vibration, light and risk.

Cl. 1.0 of SPP 4.1 contains the following objective :

To provide a consistent Statewide approach for the protection and long – term security of industrial zones, transport terminals (including ports) other utilities and special uses. It will also provide for the safety and amenity of surrounding land uses while having regard to the rights of landowners who may be affected by residual emissions and risk.

The objectives stated within cl. 4 of the Draft State Planning Policy 4.1 – State Industrial Buffer (Amended) are:

- *Avoid conflict between industry and ... sensitive land uses;*
- ...
- *Provide for the development of industry ... that maximises amenity, minimises environmental and health impacts and takes account of risk to nearby sensitive land uses; and*
- ...

Clause 3.2 of SPP 4.1 classifies an 'Extractive Industry' use that may require an 'Off – Site Buffer Area'. An 'Off – Site Buffer Area' is defined as:

For some uses it is not possible to contain all potential emissions or risk of acceptable criteria within the site boundaries. In these cases an off site buffer area is needed.

Clause 4 of SPP No. 4.1 states the definition and requirements of 'Off – Site Buffer Areas' specific to extractive industries:

Extractive industry is a special case, as it can be a temporary use or a long term use. In the case of basic raw materials, or materials used in the development of urban areas for buildings, roads and infrastructure, its cost effectiveness often requires proximity to the urban areas. Each case will need to be considered separately, with hard rock quarries being of a long - term nature perhaps needing different treatment to the limestone and sand extraction areas.

Cl. 5.2 of the *Draft State Planning Policy 4.1 – State Industrial Buffer (Amended)* states:

Proposals that satisfy recommended buffer distances in Guidance for the Assessment of Environmental Factors No 3 Separation distances between industrial and sensitive land uses (Environmental Protection Authority June 2005) are deemed to comply with the objectives of this policy and shall form the basis of planning controls adopted by the WAPC as a basis for local planning.

Environmental Protection Authority Guidance Statement No. 3 – Separation Distances Between Industrial and Sensitive Land Uses provides generic buffer distances. For extractive industry operations that do not include blasting (grinding, milling or separated by sieving, aeration etc) the buffer distance is calculated on a case by case basis. A generic buffer of 300 to 500 metres depending on the size of the operation is specified for extractive industry operations for sand and limestone where there is no grinding or milling undertaken.

Cl. 5.3 of *Draft State Planning Policy 4.1 – State Industrial Buffer (Amended)* states:

... Technical analysis is required if a proponent seeks to reduce the buffer from those specified in EPA guidance statement 3 and in circumstances where industry seeks to expand their operations or where cumulative impacts may occur.

The Proposal does not require an 'Off – Site Buffer Area' given:

- The temporary nature of the overall operations, that being ten years;
- Sequential mining is at 30 hectares at a time;
- The disperse nature of the operations across the subject site, that being only number of months in each sector;
- In many locations the distance from the boundary of the subject site to the boundary of the extractive area being greater than 300m;
- The rehabilitation areas will provide shelter belts, rehabilitation outside of the excavation area and port mining rehabilitation; and
- The requirement for management plans in accordance with the Ministerial Approval.

11.0 DRAFT SOUTHERN METROPOLITAN AND PEEL SUB-REGIONAL STRUCTURE PLAN

The WAPC has prepared the Southern Metropolitan and Peel Sub-Regional Structure Plan (**Structure Plan**), which was released for public consultation in June 2009. The Structure Plan is a strategic document and has been prepared to provide a holistic approach to the development of the area. The relevant local authorities have worked closely with the Department of Planning to prepare the document. The Structure Plan is consistent with the WAPC's Directions 2031: Spatial Framework. The intent is to guide development until 2031. Throughout the document the subject site is identified for Rural land use.

12.0 OTHER PLANNING ISSUES AND CONSIDERATIONS

There are no other planning issues or considerations that are relevant to the Proposal and its determination under TPS2.

13.0 CONCLUSION

It is in the public interest that the Proposal should be approved in recognition of the readily available deposit of heavy mineral sands within the subject site.

The Proposal represents orderly and proper planning under TPS 2 for the following reasons:

1. The proposed 'Industry Extractive' use is consistent with the objectives, development standards and provisions of TPS 2;
2. The Proposal is consistent with all relevant State Planning Policies;
 - a. Statement of Planning Policy No. 1 – State Planning Framework;
 - b. Statement of Planning Policy No. 2 - Environment and Natural Resources Policy;
 - c. Statement of Planning Policy No. 2.1 – The Peel-Harvey Coastal Plain Catchment;
 - d. Statement of Planning Policy No. 2.5 – Agriculture and Rural Land Use Planning;
 - e. Statement of Planning Policy No. 4.1 – State Industrial Buffer Policy;
3. The Proposal is compatible with the existing landscape characteristics and represents an appropriate and justifiable change to the existing landscape having regard to the Western Australian Planning Commission's Visual Landscape Planning in Western Australia a manual for Evaluation, assessment, siting and design.
4. The Proposal has been approved by the Minister for the Environment under the Environmental Protection Act 1986 and consequently will not have an inappropriate impact on the environment;
5. The proposed development is temporary in nature and will not adversely impact on the surrounding environment, community or amenity of the locality; and
6. The native vegetation on subject site will be improved as a consequence of the Proposal.

APPENDIX 1

**MINISTER FOR ENVIRONMENT; YOUTH
STATEMENT NO. 810**



Minister for Environment; Youth

Statement No: 810

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986

KEYSBROOK MINERAL SANDS MINE
SHIRE OF SERPENTINE-JARRAHDAL AND SHIRE OF MURRAY

Proposal: To develop a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit. The proposal is described further in schedule 1 of this document.

Proponent: Matilda Zircon Ltd (formerly Olympia Resources Ltd)
(ACN: 077 221 722)

Proponent Address: 1st Floor, 143 Hay Street, Subiaco Western Australia

Assessment Number: 1580

Report of the Environmental Protection Authority: Bulletin 1269

Appeal Numbers: 99-109 of 2007

The proposal referred to in the report of the Environmental Protection Authority may be implemented subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister under sections 38(6) or 38(7) of the Act is responsible for the implementation of the proposal.

2-2 The proponent shall notify the CEO of any change of the name and address of the proponent for the serving of a notice or other correspondence within 30 days of such change.

Date published:

3 Time Limit of Authorisation

- 3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.
- 3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

- 4-1 The proponent shall prepare and maintain a compliance assessment plan to the requirements of the CEO.
- 4-2 The proponent shall submit to the CEO the compliance assessment plan required by condition 4-1, at least six months prior to the first compliance report required by condition 4-6, and prior to ground-disturbing activity, whichever is sooner.

The compliance assessment plan shall indicate:

- a. the frequency of compliance reporting;
 - b. the approach and timing of compliance assessments;
 - c. the retention of compliance assessments;
 - d. reporting of potential non-compliances and corrective actions taken;
 - e. the table of contents of compliance reports; and
 - f. public availability of compliance reports.
- 4-3 The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1.
 - 4-4 The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by condition 4-1 and shall make those reports available when requested by the CEO.
 - 4-5 The proponent shall advise the CEO of any potential non-compliance within two business days of that non-compliance being known.
 - 4-6 The proponent shall submit a compliance assessment report annually from the date of issue of this Implementation Statement addressing the previous twelve month period or other period as agreed by the CEO. The compliance assessment report shall:
 - a. be endorsed by the proponent's Managing Director or a person, approved in writing by the CEO, delegated to sign on the Managing Director's behalf;
 - b. include a statement as to whether the proponent has complied with the conditions;

- c. identify all potential non-compliances and describe corrective and preventative actions taken;
- d. be made publicly available in accordance with the approved compliance assessment plan; and
- e. indicate any proposed changes to the compliance assessment plan required by condition 4-1.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO a Performance Review Report at the conclusion of the first year after the start of implementation and then, at a minimum of triennial intervals, which addresses:

- a. the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;
- b. the level of progress in the achievement of best practice environmental performance, including industry benchmarking, and the use of best available technology where practicable; and
- c. improvements gained in environmental management which could be applied to this and other similar projects.

6 Protection of native vegetation

6-1 Prior to the commencement of clearing, the proponent shall, in consultation with the DEC, ensure that a minimum of 75 hectares of native vegetation within the area cross-hatched red in Figure 3 is protected in perpetuity by an instrument or instruments approved by the CEO.

6-2 The instrument or instruments referred to in 6-1 shall include the following:

- a. measures to protect the area from grazing stock; and
- b. measures which have the objective of maintaining a functioning and self sustaining vegetation community.

6-3 The proponent shall not clear any native vegetation within the proposal area unless the land to be cleared is required for the extraction of mineral ore within six months of the date of the clearing.

7 Protection of watercourses and wetlands

7-1 The proponent shall not clear vegetation or undertake mining activities:

- a. within 20 metres of the banks of watercourses shown in Figure 9 of the PER document;

b. within 100 metres of the boundary a conservation category wetland.

7-2 The proponent shall implement management measures (including but not limited to weed and disease control, revegetation and monitoring) in respect to the areas under 7-1 to achieve a functioning and self sustaining vegetation community.

8 Rehabilitation management plan

8-1 Prior to the commencement of operations, the proponent shall submit a Rehabilitation Management Plan to the requirements of the CEO.

8-2 The objectives of the Plan are to:

- a. re-establish self-sustaining local provenance native vegetation cleared in the implementation of the proposal, at a ratio of not less than 1.4:1 (1.4 hectares of revegetation per 1 hectare of vegetation cleared); and
- b. re-establish functioning pasture.

8-3 The Rehabilitation Management Plan shall:

- a. describe measures to protect the areas to be revegetated from access, including grazing by stock;
- b. identify measures to translocate native plant species cleared for mining into revegetated areas;
- c. identify measures to eradicate weeds in the revegetated areas;
- d. identify measures to use dieback un-infested topsoil and dieback resistant species in the revegetated areas;
- e. describe a strategy to revegetate areas, including the use of local species of local provenance, and establishment of middle storey and understorey species;
- f. identify completion criteria for revegetation; and
- g. outline a revegetation monitoring programme.

8-4 The proponent shall implement the Rehabilitation Plan.

8-5 The proponent shall review and revise the Rehabilitation Plan as and when directed by the CEO.

8-6 The proponent shall implement revisions of the Rehabilitation Plan required by condition 8-5.

8-7 The proponent shall make the Rehabilitation Plan (including all amendments) publicly available in a manner approved by the CEO.

8-8 The proponent shall ensure grazing stock are excluded from areas described in condition 8-2(a)

9 Weed and Dieback Management

9-1 Prior to the commencement of operations, the proponent shall prepare and submit a Dieback and Weed Management Plan to the requirements of the CEO.

9-2 The proponent shall implement the Plan.

10 Nutrient mobilisation

10-1 Prior to the commencement of operations, the proponent is to submit a Nutrient Management Plan to the requirements of the CEO.

10-2 The objective of the Plan is to ensure the proposal assists in meeting the water quality objectives of the Peel-Harvey Water Quality Improvement Plan.

10-3 The Plan shall:

- a. outline a programme to monitor nutrient levels within the proposal area and at the downstream boundary of the proposal area;
- b. identify nutrient trigger levels consistent with the Peel-Harvey Water Quality Improvement Plan; and
- c. identify management actions should a trigger level be reached.

10-4 The proponent shall implement the Nutrient Management Plan.

10-5 The proponent shall make the Nutrient Management Plan available to the public in manner approved by the CEO.

11 Water Management

11-1 The abstraction of any groundwater required for the implementation of this proposal shall not materially effect on the quality or quantity of groundwater available to other users in the area, or adversely effect the health and condition of native vegetation and ecosystems in the area.

11-2 Prior to the commencement of operations, the proponent shall revise the Water Management Plan to the requirements of the Department of Water.

11-3 The objective of the Plan is to comply with condition 11-1.

11-4 The Plan shall:

- a. outline a programme to monitor groundwater quality and quantity, including monitoring of bores located on surrounding properties, and at the downstream boundary of the project area;
- b. monitor the health and condition of native vegetation within the project area to ensure that it is not affected by groundwater drawdown associated with the proposal;
- c. identify groundwater trigger levels and management actions should a trigger level be reached;
- d. identify measures to provide an alternative source of water, particularly to surrounding groundwater users, where monitoring in item (a) indicates that mining activities has adversely affected water quality to the point where it cannot be used for its intended purpose or ecosystem maintenance;
- e. identify measures to ensure that the quality and quantity of groundwater is maintained post-mining;
- f. identify measures to minimise impacts associated with the discharge of excess water;
- g. outline a monitoring programme to detect any adverse impacts to the water quality, water levels or vegetation health of the conservation category wetlands adjacent to the mine area; and
- h. identify management measures in the event that monitoring in item (g) detects adverse impacts to conservation category wetlands adjacent to the mine area as a result of the proposal.

11-5 The proponent shall implement the Water Management Plan.

11-6 The proponent shall review and revise the Water Management Plan as and when directed by the CEO.

11-7 The proponent shall implement revisions of the Water Management Plan required by condition 11-6.

11-8 The proponent shall make the Water Management Plan (including amendments) publicly available in a manner approved by the CEO.

12 Acid Sulphate Soils Management

12-1 The proponent shall not:

- a. lower the depth of the watertable to below that required for accessing the orebody;
- b. cause acid sulphate soil contamination either within the proposal area or elsewhere.

12-2 The proponent shall implement the Acid Sulphate Soils Management Plan.

12-3 Upon identifying monitoring results indicating exceedance of trigger levels specified in the Acid Sulphate Soils Management Plan the proponent shall:

- a. report the monitoring results to the CEO within seven days;
- b. submit details of the management measures proposed to be implemented to address the exceedance results to the CEO within seven days; and
- c. implement the management measures proposed to address the exceedance..

12-4 Details of any reports under the Management Plan or condition 12-3 shall be publicly available in a manner approved by the CEO.

13 Performance Bond

13-1 As security for the due and punctual observance and performance by the proponent of the requirements of conditions 6, 7, 8, 9, 10, 11, 12 and 15, the proponent shall, prior to commencement of operations, provide to the CEO, to be replaced every five years in accordance with 13-2, a financial assurance for the benefit of both the Minister and the CEO and which is in the form of an unconditional and irrevocable bank guarantee, from a guarantor acceptable to the CEO and in a form acceptable to the CEO, in the amount specified in condition 13-2.

13-2 The financial assurance shall be for an initial amount of AU\$3 million and shall be substituted on 1 July every year of operations in accordance with the following schedule:

- a. \$5.568 million for the year commencing on 1 July after a minimum of 12 months from the commencement of operations (year 2);
- b. \$6.356 million for the subsequent year commencing on 1 July (year 3);
- c. \$7.552 million for the subsequent year commencing on 1 July (year 4);
- d. \$8.304 million for the subsequent year commencing on 1 July (year 5);
- e. \$6.772 million for the subsequent year commencing on 1 July (year 6);
- f. \$5.584 million for the subsequent year commencing on 1 July (year 7);
- g. \$3.795 million for the subsequent year commencing on 1 July (year 8),

with the fixed initial amount of each successive guarantee being indexed to inflation (being the Consumer Price Index, Perth).

13-3 In the event that the guarantor referred to in condition 13-1 terminates its liability under the bank guarantee by paying to the Minister or the CEO the balance of the financial assurance remaining unpaid, the CEO will hold the financial assurance (being the amount paid by the guarantor upon termination), as security for the due and punctual observance and performance by the proponent of the requirements of conditions 6, 7, 8, 9, 10, 11, 12 and 15, in an interest bearing account nominated by the CEO, with the interest accruing for the benefit of the Minister or the CEO.

13-4 The financial assurance may be called on or used in accordance with section 86E of the Act if the proponent fails to implement the proposal in accordance with conditions 6, 7, 8, 9, 10, 11, 12 and 15.

13-5 The financial assurance shall be discharged by the CEO and the Minister when the CEO has given the proponent written notice pursuant to section 86F(1) of the Act.

14 Noise Management

14-1 Unless otherwise agreed in writing between the proponent and the owner and any occupier of noise sensitive premises:

- a. the proposal must comply with the Noise Regulations at any building associated with a noise sensitive use at any noise sensitive premises; and
- b. outside the hours 0700 to 1900 Monday to Saturday, or on public holidays, no mining activity is to be undertaken within 1,500 metres of any building associated with a noise sensitive use at any noise sensitive premises.

14-2 Prior to an agreement being executed under 14-1, the proponent is to ensure owners and occupiers obtain independent legal advice on the meaning and effect of any such agreement.

14-3 Unless registered on the relevant land title, an agreement obtained under 14-1 does not bind successive owners or occupiers.

14-4 Noise monitoring shall be undertaken in a manner consistent with the Noise Monitoring Plan, and shall include monitoring of noise levels at a location or locations representative of the noise sensitive premises closest to the active mining area for which the proponent does not have written agreement in place under 14-1.

14-5 The proponent shall submit quarterly reports to the CEO, prepared by an independent acoustic expert, which include the following:

- a. reviews noise monitoring methodology and results for the quarter;
- b. an assessment of the extent to which noise emissions from the proposal comply with the Noise Regulations; and
- c. details of any management or other measures that the proponent has implemented, or proposes to implement, to abate emissions, and to prevent non-compliance with the Noise Regulations, and the effectiveness of any measures that have been implemented.

14-6 The report referred to in 14-5 is to be provided to the CEO within four weeks of the end of the quarter to which it relates, with the first report due within four months of the commencement of operations.

14-7 Within six weeks of the end of the first 12 months following the commencement of operations, the proponent is to submit a report to the CEO, prepared by an independent acoustic expert, which includes the following:

- a. an assessment of the extent to which noise emissions from the proposal comply with the Noise Regulations;

- b. details and effectiveness of management or other measures the proponent has implemented to reduce or abate noise emissions;
- c. details of what, if any, modifications are recommended to these conditions to more effectively manage noise emissions from the proposal.

14-8 The reports referred to in condition 14-5 and 14-7 shall be made available to the public in a manner approved by the CEO.

15 Air Quality and Dust Management

15-1 Prior to the commencement of operations, the proponent shall revise the Air Quality and Dust Management Plan to the requirements of the CEO.

15-2 The objectives of the Plan are to:

- a. ensure dust emissions from activities undertaken in implementing the proposal do not cause ambient dust concentration levels outside the boundary of the proposal area that are
 - i. higher than 1 ug/m^3 of Total Suspended Particulates as a 15 minute average; or
 - ii. higher than 50 ug/m^3 of Particulate Matter smaller than 10 microns as a 24 hour average, in excess of five times per year;
- b. identify measures to reduce dust emissions; and
- c. ensure that dust emissions do not harm or adversely affect environmental values or the health, welfare and amenity of people and land uses.

15-3 The Plan shall:

- a. outline the results of on-site baseline dust monitoring and modelling;
- b. identify dust management measures for a range of predicted weather forecasts, including avoiding, ameliorating and protecting from dust impacts;
- c. identify dust management measures according to actual winds experienced at the site;
- d. identify a plan for each pit, which details the times of day and weather conditions under which parts of the pit could be mined;
- e. identify a monitoring program, incorporating trigger values for the implementation of management measures to ensure dust emissions from activities undertaken in implementing the proposal do not cause ambient dust concentration levels outside the boundary of the proposal area that are:
 - i. higher than 1 ug/m^3 of Total Suspended Particulates as a 15 minute average; or
 - ii. higher than 50 ug/m^3 of Particulate Matter smaller than 10 microns as a 24 hour average, in excess of five times per year;

- e. identify management measures to ensure dust emissions from activities undertaken in implementing the proposal do not cause ambient dust concentration levels outside the boundary of the proposal area that are:
 - i. higher than 1 ug/m³ of Total Suspended Particulates as a 15 minute average; or
 - ii. higher than 50 ug/m³ of Particulate Matter smaller than 10 microns as a 24 hour average, in excess of five times per year;
- f. identify a complaint management procedure; and
- g. describe the outcomes of landowner agreements when mining in close proximity to occupied residences.

15-4 The proponent shall implement the Air Quality and Dust Management Plan.

15-5 The proponent shall review and revise the Air Quality and Dust Management Plan as and when directed by the CEO.

15-6 The proponent shall implement revisions of the Air Quality and Dust Management Plan required by condition 15-5.

15-7 The proponent shall make the Air Quality and Dust Management Plan (including any revisions) and the results of monitoring publicly available in a manner approved by the CEO.

15-8 To the extent that the proposal is subject to a licence issued under Part V of the Act, that licence may impose conditions which are different from, or additional to, the requirements of this Statement.

16 Definitions

In these conditions, unless the contrary intention appears:

“Acid Sulphate Soils Management Plan” means the *Keysbrook Mineral Sand Project Acid Sulfate Soils Management Plan*, prepared for Olympia Resources Ltd by MBS Environmental, May 2007, and referred to in Appendix 2 of EPA Report 1269;

“Act” means the *Environmental Protection Act 1986*;

“CEO” means the chief executive officer of the Department of Environment and Conservation;

“commencement of operations” means the date on which the first ground disturbing activities commence for the implementation of the proposal, but does not include minor preliminary works such as erection of fencing and undertaking sampling;

“conservation category wetland” has the meaning given in regulation 6(7)(c) of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*;

“DEC” means the Department of Environment and Conservation;

“Minister” means the Minister for Environment;

“Noise Monitoring Plan” means the *Noise Monitoring Plan, Keysbrook Titanium Minerals Proposal*, prepared for Olympia Resources Ltd by Lloyd George Acoustics, October 2008;

“Noise Regulations” means the *Environmental Protection (Noise) Regulations 1997*;

“noise sensitive premises” has the same meaning as in Schedule 1 of the Noise Regulations;

“Peel-Harvey Water Quality Improvement Plan” means the *Water Quality Improvement Plan for the Rivers and Estuary of the Peel-Harvey System - Phosphorus Management*, EPA, November 2008;

“PER document” means the *Keysbrook Minerals Sand Project, Keysbrook Western Australia Public Environmental Review*, prepared for Olympia Resources Ltd by MBS Environmental, West Perth, WA, June 2006;

“proposal area” means the boundaries of the mining area shown in Figure 2;

“revegetated areas” refers to those areas that have been revegetated by the proponent following clearing, or as replacement for clearing done, by the proponent during the implementation of the proposal;

“watercourse” has the meaning given in section 3 of the *Rights in Water and Irrigation Act 1914*;

“Water Management Plan” means the *Keysbrook Mineral Sand Project Water Management Plan*, prepared for Olympia Resources Ltd by MBS Environmental, May 2007, and referred to in Appendix 2 of EPA Report 1269.

Notes

1. Where a condition for a Management Plan states "to the requirements of the CEO", the proponent shall consult with the DEC during preparation of the Management Plans.
2. The Minister will determine any dispute between the proponent and the CEO over the fulfilment of the requirements of the conditions.



Hon Donna Faragher JP MLC
MINISTER FOR ENVIRONMENT; YOUTH

19 OCT 2009

Schedule 1

Keysbrook Mineral Sands Mine (Assessment No. 1580)

The proposal is to develop a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit. Local roads would be upgraded to facilitate the transport of the heavy mineral concentrate to South Western Highway.

An area of 30 hectares will be progressively mined at any time. Waste from the processing will be used as backfill in the mined areas. Backfilled areas will be progressively re-contoured and stabilised prior to topsoil replacement and return to pasture or native vegetation. The wet concentrator plant will be relocated three times throughout the life of mine. Support infrastructure, such as pipelines, offices and workshops will also be relocated with the wet concentrator plant. A site dam will be constructed at each of the three locations.

The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Key Proposal Characteristics (Assessment No. 1580)

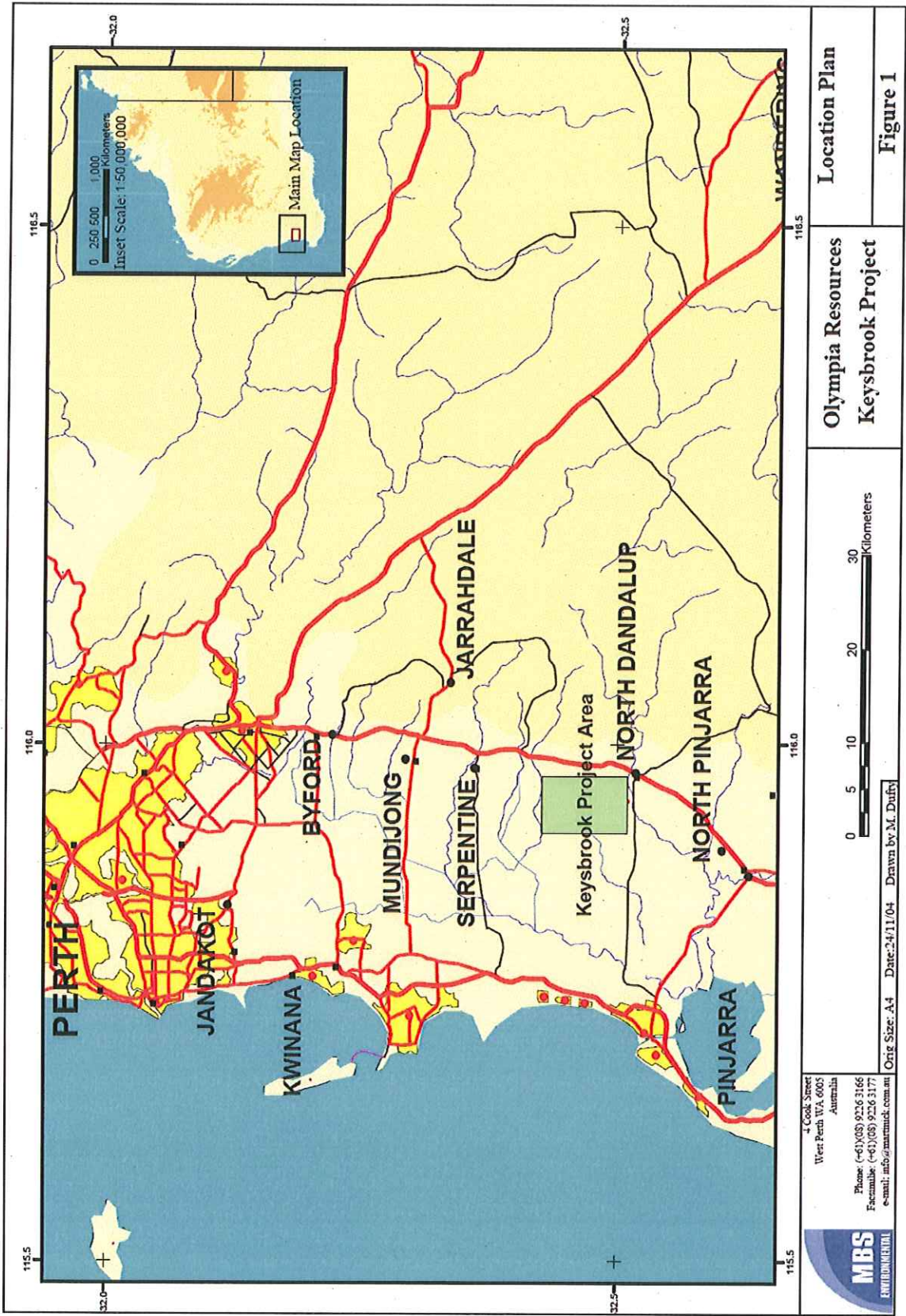
Element	Description	
Land tenure over the mining area	Keysbrook	North Dandalup
	Part Lot 56 Westcott Rd Part Lot 57 Elliott Rd Part Lot 1 Elliott Rd Part Lot 52 Westcott Rd Part Lot 111 Westcott Rd Lot 112 Westcott Rd Lot 113 Westcott Rd Part Lot 6 Westcott Rd Part Lot 63 Hopeland Rd	Part Lot 62 Hopeland Rd Part Lot 59 Westcott Rd Part Lot 300 Westcott Rd Part Lot 49 Readheads Rd Part Lot 7 Readheads Rd Part Lot 6 Readheads Rd Part Lot 44 Readheads Rd
Life of mine	Approximately 8 years	
Product quantity	approximately 920,000 tonnes of heavy mineral concentrate	
Pit depth	average 2 metres below ground level, and up to 6 metres on sandy dunes	
Proposal area	1366 hectares	
Dewatering	in-pit sumps to dewater the superficial Bassendean Sand aquifer at 0.2 gigalitres per annum	
Bore abstraction	up to 1.8 gigalitres per annum from two bores into the deep Leederville aquifer	
Road upgrades	upgrades of existing roads; Westcott Rd, Atkins Rd, Readheads Rd and intersection of Readheads Rd and South Western Hwy	

Figures

Figure 1 – Regional location

Figure 2 – Mine Boundaries

Figure 3 – Area within which minimum of 75ha of native vegetation to be retained



J. Cook Street
 West Perth WA 6005
 Australia
 Phone: (+61)(08) 9216 3166
 Facsimile: (+61)(08) 9216 3177
 e-mail: info@marmudat.com.au



Location Plan
Olympia Resources
Keysbrook Project

Figure 1

Figure 1 – Regional location

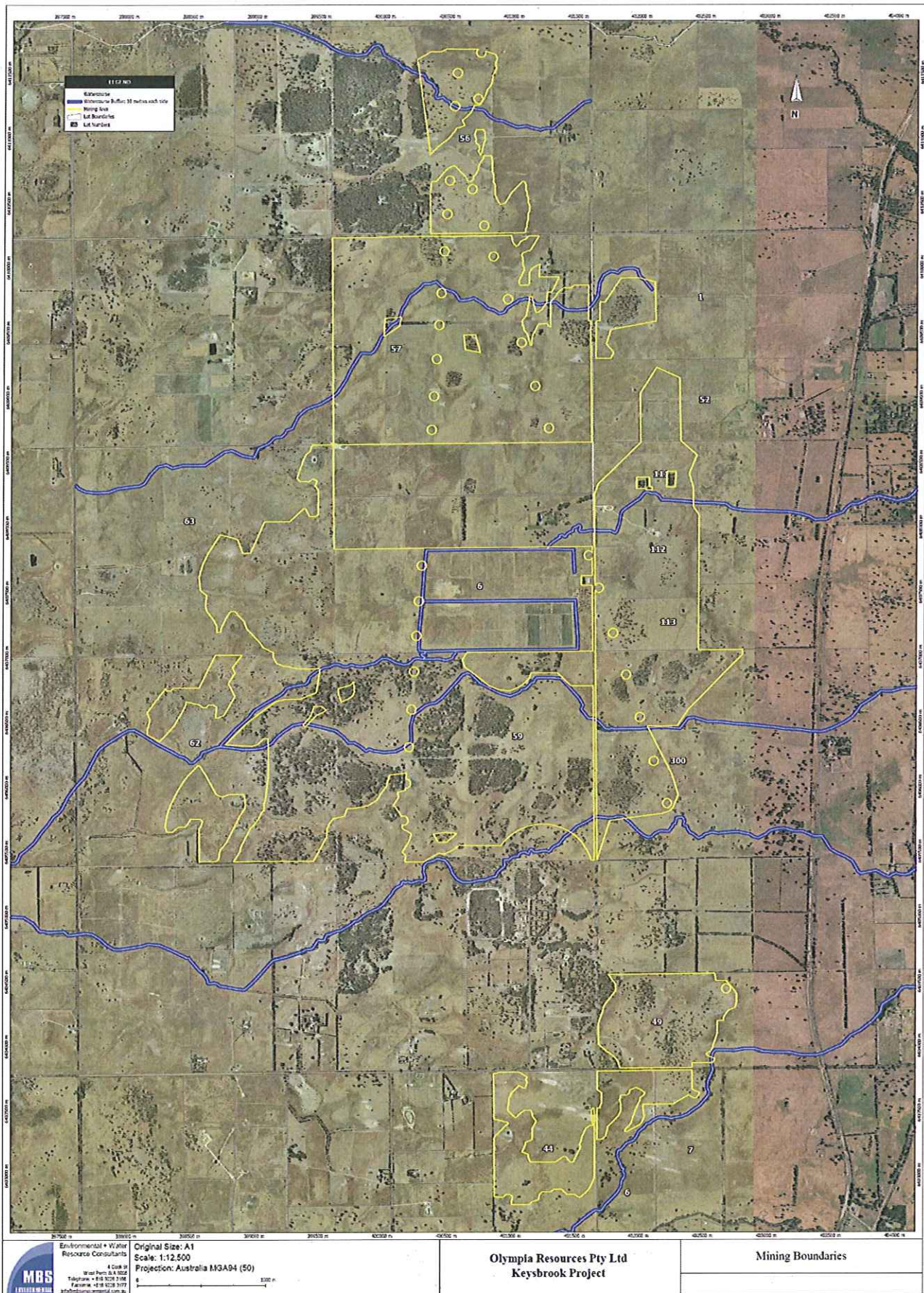


Figure 2 – Mine boundaries

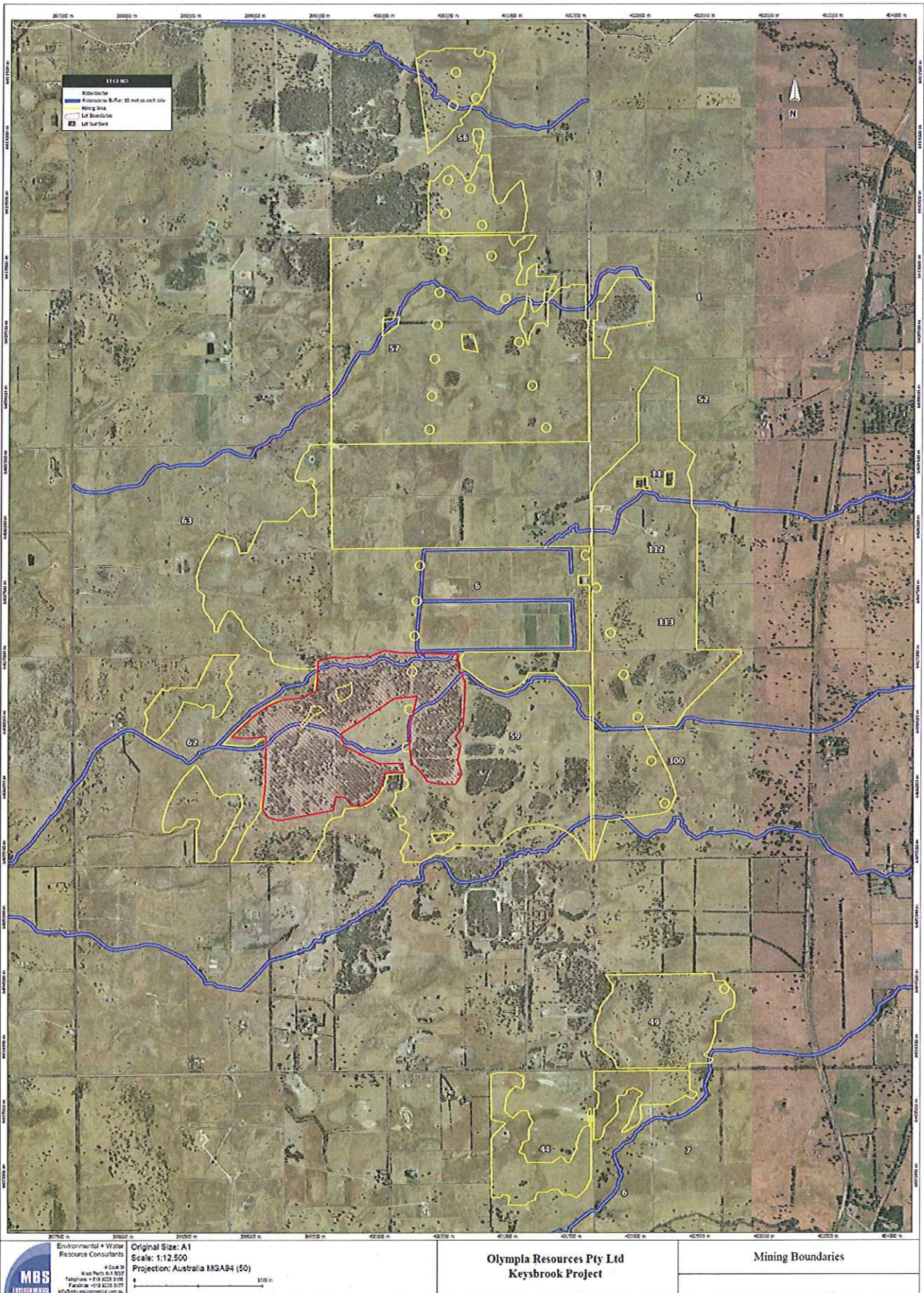


Figure 3 – Area within which minimum 75ha native vegetation to be retained (condition 6-1)

APPENDIX 2

**REPORT AND RECOMMENDATION OF THE
ENVIRONMENTAL PROTECTION AUTHORITY
BULLETIN 1269**

Keysbrook Mineral Sands Mine

Olympia Resources Limited

**Report and recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1269
October 2007**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
25/07/05	Level of assessment set (following any appeals upheld)	0
26/06/06	Proponent document released for public comment	48
21/08/06	Public comment period closed	8
28/09/07	Final proponent response to the issues raised	58
29/10/07	EPA report to the Minister for the Environment	4

RELEASE DATE:

29 OCTOBER 2007.

APPEAL PERIOD CLOSED:

12 NOVEMBER 2007.

Assessment No. 1580

Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the proposal by Olympia Resources Limited to develop a mineral sands mine near the rural township of Keysbrook. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit to produce 920,000 tonnes of heavy mineral concentrate over 8 years. The concentrate would be trucked 117 kilometres (km) to Bunbury by road for further processing and export.

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out the:

- key environmental factors identified in the course of the assessment; and
- EPA's recommendations as to whether or not the proposal may be implemented, and if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA is also required to have regard for the principles set out in section 4A of the *Environmental Protection Act 1986*.

Key environmental factors and principles

The EPA decided that the following key environmental factors relevant to the proposal required detailed evaluation in the report:

- (a) vegetation (includes fauna, wetlands and rehabilitation);
- (b) groundwater;
- (c) noise; and
- (d) dust.

There were a number of other factors which were relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

The following principles were considered by the EPA in relation to the proposal:

- (a) precautionary principle;
- (b) principle of intergenerational equity;
- (c) principle of the conservation of biological diversity and ecological integrity;
- (d) principles relating to improved valuation, pricing and incentive mechanisms; and
- (e) principle of waste minimisation.

Conclusion

The EPA has considered the proposal by Olympia Resources Limited to develop a mineral sands mine near the rural township of Keysbrook.

The Commonwealth Department of the Environment and Water Resources found the proposal to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* for the presence of Listed threatened species and communities, and Wetlands of international importance in the vicinity of the project area. The threatened species are *Calyptorhynchus baudinii* (Baudin's Black Cockatoo) and *Calyptorhynchus latisostris* (Carnaby's Black Cockatoo). The wetlands of interest are the Peel-Yalgorup Ramsar site (20km downstream of the project area), Becher Point Wetlands (20km northwest of the project area), and the Forrestdale and Thomsons' Lakes (37km north of the project area). The EPA has assessed the proposal in accordance with the bilateral agreement between the Commonwealth and Western Australia relating to environmental impact assessment.

The proposed mine area has multiple owners, and comprises farmland not owned by the proponent. The minerals in the area are "minerals to owner".

The project area is within a dampland (seasonally waterlogged basin). On-ground assessment of wetlands by the Department of Environment and Conservation found that no mapped conservation category wetlands exist within the mine area.

Most of the project area is annual pasture grazed by cattle. During the assessment, the EPA established that the remnant native vegetation on Lot 56 and Lot 3 has the highest conservation value of the vegetation in the project area because it contains remnants that:

- are poorly represented on the eastern side of the Swan Coastal Plain;
- are in Good to Very Good condition, in an extensively cleared area; and
- comprise habitat for native fauna of conservation significance. The significant stands of mature trees provide feeding areas for endangered cockatoos and other conservation significant bird species.

For these reasons, the EPA advised the proponent that the proposal to clear remnant native vegetation on Lots 56 and 3 would not be supported. As a result, the proponent excised these areas from the mine plan.

The majority of the mine area is pasture with scattered native trees. The remnant native vegetation within the mine area consists of stands of mature trees with minimal or no understorey. The remnant vegetation, that covers about 13% of the proposed mine area in discrete pockets, has environmental value because it:

- is poorly represented on the eastern side of the Swan Coastal Plain;
- exists in an extensively cleared area; and
- provides resource value, in terms of food, breeding, roosting or shelter for endangered cockatoos and other conservation significant bird species.

Considering the significance of the vegetation and trees to be cleared as a result of mining, the EPA recommended that the proponent identify a consolidated area of remnant native vegetation on Lots 59 and/or 62, and excise this area from the mine plan. This area should be protected from grazing, enhanced through revegetation and weed control, and preferably secured in perpetuity for conservation purposes, by means of a conservation covenant. The EPA notes that the proponent is negotiating with the landowners of Lots 59 and 62 to provide compensation to place a conservation covenant over the excised area.

On-site monitoring and modelling indicated that groundwater drawdown associated with the proposal should not adversely affect the aquifers and surrounding bore users.

The EPA has recommended a daytime noise level of 50dB(A), evening noise limit of 40dB(A), and a night time noise limit of 35dB(A). This would preclude mining at night in the southern part of the project area, consistent with the proponent commitments. Overall, there would be a pre-disposition towards daytime operations.

The EPA considered that the generation of Total Suspended Particulate matter (which includes all particles up to 50 micrometres in diameter) requires management for the proposal.

The EPA considered that the proponent could have agreements with the surrounding landowners that may be adversely affected by noise and dust generated from the proposal.

The EPA has concluded that the proposal should proceed only if the proponent can ensure that mining operations meet the recommended noise limits, and there is satisfactory implementation of the recommended conditions set out in Appendix 4 of this report.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is the development of a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit. Local roads would be upgraded to facilitate the transport of the heavy mineral concentrate to South Western Highway.
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3.
3. That the Minister notes that the EPA has concluded that mining operations should be allowed to proceed only when the recommended noise levels are met.
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.

Conditions

Having considered the proponent's management actions and commitments and information provided in this report, the EPA has developed a set of conditions that it recommends is imposed if the proposal by Olympia Resources Limited to develop a mineral sands mine near Keysbrook is approved for implementation. These conditions are presented in Appendix 4. Matters addressed in the conditions are outlined below.

- (a) Fulfillment of the commitments set out as an attachment to the recommended conditions in Appendix 4.
- (b) Rehabilitation.
- (c) Weed and dieback management.
- (d) Water management.
- (e) Acid sulfate soils management.
- (f) Performance bond.
- (g) Noise management.
- (h) Air quality and dust management.

Contents

	Page
Summary and recommendations.....	i
1. Introduction and background.....	1
2. The proposal	1
3. Key environmental factors and principles.....	7
3.1 Vegetation (includes fauna, wetlands and rehabilitation).....	7
3.2 Groundwater	21
3.3 Noise	25
3.4 Dust	28
3.5 Key environmental principles	32
4. Conditions and commitments	32
5. Other advice	33
6. Conclusions.....	33
7. Recommendations.....	35

Tables

Table 1: Summary of key proposal characteristics	3
--	---

Figures

1. Regional location
2. Project area
3. Project operations
4. Mine area
5. Groundwater production and monitoring bores

Appendices

1. List of submitters
2. References
3. Summary of identification of key environmental factors and principles
4. Recommended environmental conditions and proponent's consolidated commitments
5. Summary of submissions and proponent's response to submissions

1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the key environmental factors and principles for the proposal by Olympia Resources Limited to develop a mineral sands mine 70 kilometres (km) south of Perth, between the rural townships of Keysbrook and North Dandalup (Figure 1). The project area is on the eastern edge of the Swan Coastal Plain (SCP) within the Shire of Serpentine-Jarrahdale and the Shire of Murray.

The land in the project area is held in pre-1898 title, where the private landowner, rather than the State has ownership of the minerals. Therefore the provisions of the *Mining Act 1978* do not apply to the proposal. The area to be mined is in private ownership, with multiple landowners. The proponent owns one of the sixteen lots to be mined (Lot 112). The full extent of the mineral sands deposit at Keysbrook is identified in Figure 2. The proponent proposes to partially mine the identified deposit based on obtaining land access agreements with the landowners.

The proposal was referred to the EPA in June 2005. The level of assessment was set at Public Environmental Review (PER) in July 2005. The PER document was made available for a public review period of eight weeks commencing on 26 June 2006, and ending on 21 August 2006.

The proposal was assessed bilaterally with the Department of the Environment and Water Resources (formerly the Department of the Environment and Heritage) due to the Commonwealth controlling provisions in relation to Listed threatened species and communities, and Wetlands of international importance.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the environmental factors and principles for the proposal. The conditions and commitments to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 4. Section 5 provides other advice by the EPA, Section 6 presents the EPA's conclusions and Section 7, the EPA's recommendations.

Appendix 5 contains a summary of submissions and the proponent's response to submissions, and is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process, and which have been taken into account by the EPA appear in the report itself.

2. The proposal

The proposal involves the excavation and processing of a low-grade (2.7%) heavy mineral sands deposit near Keysbrook to produce 920,000 tonnes of Heavy Mineral Concentrate (HMC) over 8 years. An area of 30 hectares (ha) would be progressively mined at any time. Topsoil would be removed and stockpiled for use in rehabilitation. The ore would be excavated and unloaded into a dump hopper located on the pit floor. The ore would be conveyed to a screening plant where oversize material would be removed and placed in the mined areas as backfill. The remaining sand and clay

would be mixed with water and pumped, as slurry, to a wet concentrator plant. Here, the clay would be removed and be fed into a clay fines thickener. A non-hazardous chemical flocculant would be added to remove the clay from the water in the thickener. The HMC would be removed from the sand and pumped to a stockpile. The residual sand would be mixed with the thickened clay and pumped from the wet concentrator plant into mined areas as backfill. The backfilled areas would be re-contoured and stabilised prior to topsoil replacement and return to pasture or native vegetation.

Dewatering would be required where the ore body extends below the watertable. This water would be used in the wet concentrator plant. Where there is insufficient dewater for processing, additional water would be abstracted from bores in the Leederville aquifer. This water would be pumped into the site dam for use in the wet concentrator plant and for dust suppression.

Several roads within the project area would be upgraded to facilitate the transport of the HMC in heavy vehicles to South Western Highway (Figure 2). The wet concentrator plant would be relocated three times throughout the life of mine (Figure 2). Support infrastructure, such as pipelines, offices and workshops would also be relocated with the wet concentrator plant. A site dam would be constructed at each of the three locations. A conceptual layout of the project operations, where the mine pit is close to the location of the processing plants, is provided in Figure 3. Where the mine pits are further away from the processing plants, the slurry and water pipelines would be longer.

Two high voltage powerlines traverse the project area (Figure 2). A 35-metre (m) radius mine exclusion zone would be established around each pylon. The properties are the project area where mining would occur and the transport route to South Western Hwy. The mine area is the area within the project area to be mined.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 4 of the *Keysbrook Mineral Sand Project Public Environmental Review* (MBS, 2006).

Since release of the PER a number of modifications to the proposal have been made by the proponent. These are outlined below.

1. Increase to the mine area from 1,234ha to up to 1,366ha due to the addition of areas of pasture with scattered native trees.
2. Increase to the remnant native vegetation mine exclusion area from 49ha to 87ha. This includes 72ha and 15ha of remnant native vegetation on Lots 56 and 3 respectively. An additional consolidated area on Lots 59 and/or 62 would also be excluded from mining.
3. Change to the secondary processing location of the HMC from Picton to Cable Sands' plant in Bunbury.
4. Potential use of quieter primary mining equipment.

The potential impacts of the proposal initially predicted by the proponent in the PER (MBS, 2006) and their proposed management are summarised in Table 1 (Executive summary) of the proponent's document.

The anticipated stages of mining are:

Stage 1

- Lot 112 Westcott Rd, Keysbrook
- Part Lot 300 Westcott Rd, Keysbrook

Stage 2

- Eastern half Lot 59 Westcott Rd, North Dandalup

Stage 3

- Western half Lot 59 Westcott Rd, North Dandalup
- Part Lot 62 Hopeland Rd, North Dandalup

Stage 4

- Part Lot 63 Hopeland Rd, Keysbrook
- Lot 6 Westcott Rd, Keysbrook

Stage 5

- Lot 113 Westcott Rd, Keysbrook
- Part Lot 111 Westcott Rd, Keysbrook
- Part Lot 52 Westcott Rd, Keysbrook
- Part Lot 1 Elliott Rd, Keysbrook
- Eastern section Lot 57 Elliott Rd, Keysbrook

Stage 6

- Western section Lot 57 Elliott Rd, Keysbrook

Stage 7

- Part Lot 56 Westcott Rd, Keysbrook
- Part Lot 49 Readheads Rd, North Dandalup
- Part Lot 7 Readheads Rd, North Dandalup
- Part Lot 6 Readheads Rd, North Dandalup

Stage 8

- Part Lot 44 Readheads Rd, North Dandalup

Table 1: Summary of key proposal characteristics

Element	Description	
Land tenure over the mine area	Keysbrook	North Dandalup
	Part Lot 56 Westcott Rd Part Lot 57 Elliott Rd Part Lot 1 Elliott Rd Part Lot 52 Westcott Rd Part Lot 111 Westcott Rd Lot 112 Westcott Rd Lot 113 Westcott Rd Part Lot 6 Westcott Rd Part Lot 63 Hopeland Rd	Part Lot 62 Hopeland Rd Part Lot 59 Westcott Rd Part Lot 300 Westcott Rd Part Lot 49 Readheads Rd Part Lot 7 Readheads Rd Part Lot 6 Readheads Rd Part Lot 44 Readheads Rd
Life of mine	8 years	
Ore quantity	34 Million tonnes (to produce 920,000 tonnes of HMC)	
Pit depth	Average 2m below ground level, and up to 6m on sandy dunes	
Area of disturbance	Not more than 1,366ha (includes up to 182ha of remnant native vegetation and up to 1,184ha of pasture with scattered native trees)	
Dewatering	In-pit sumps to dewater the superficial Bassendean Sand aquifer at 0.2 gegalitres per year	
Bore abstraction	Up to 1.8 gegalitres per year from two bores into the deep Leederville aquifer	
Road upgrades	Upgrades of existing roads: Westcott Rd, Atkins Rd, Readheads Rd and intersection of Readheads Rd and South Western Hwy	



Figure 1: Regional location

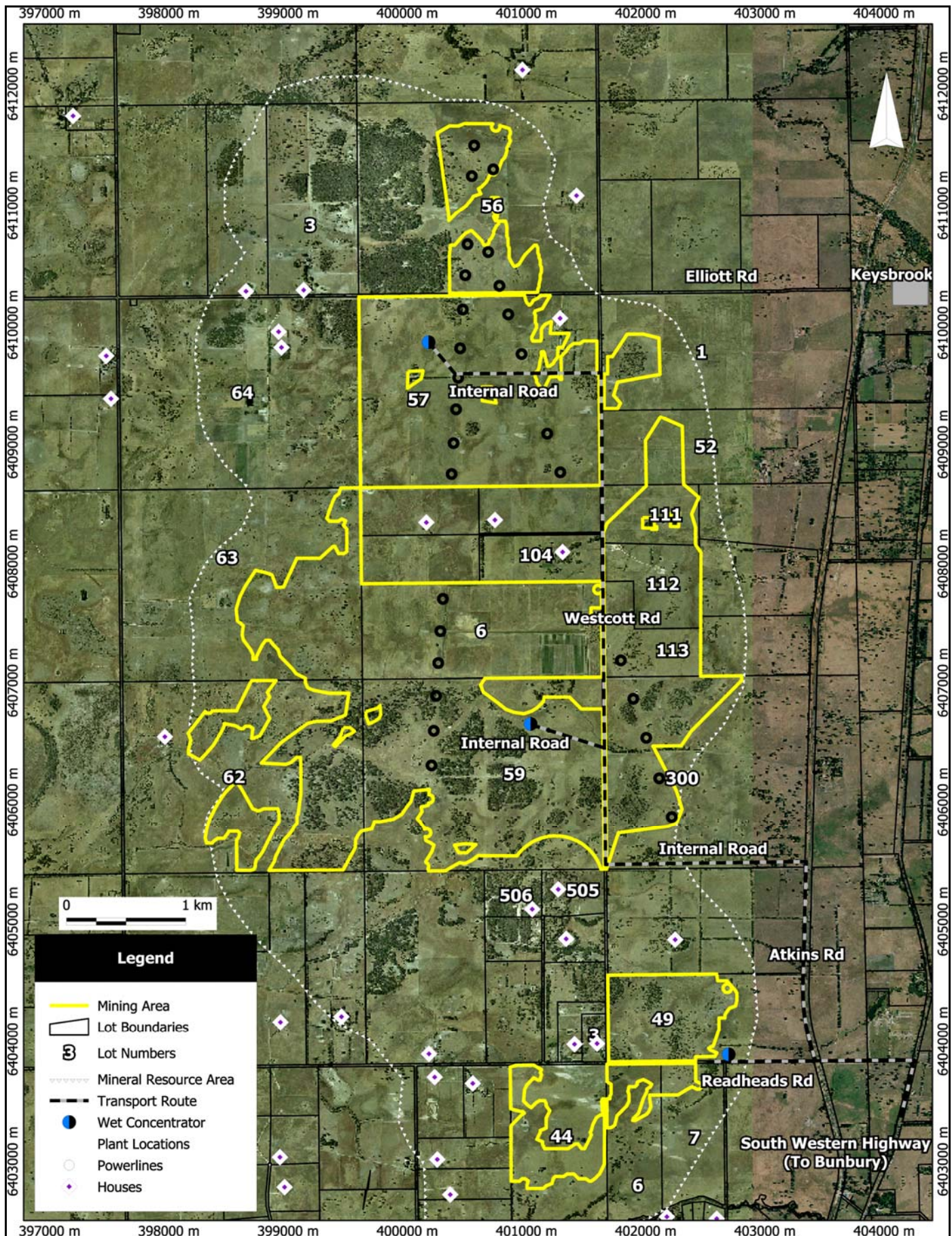


Figure 2: Project area

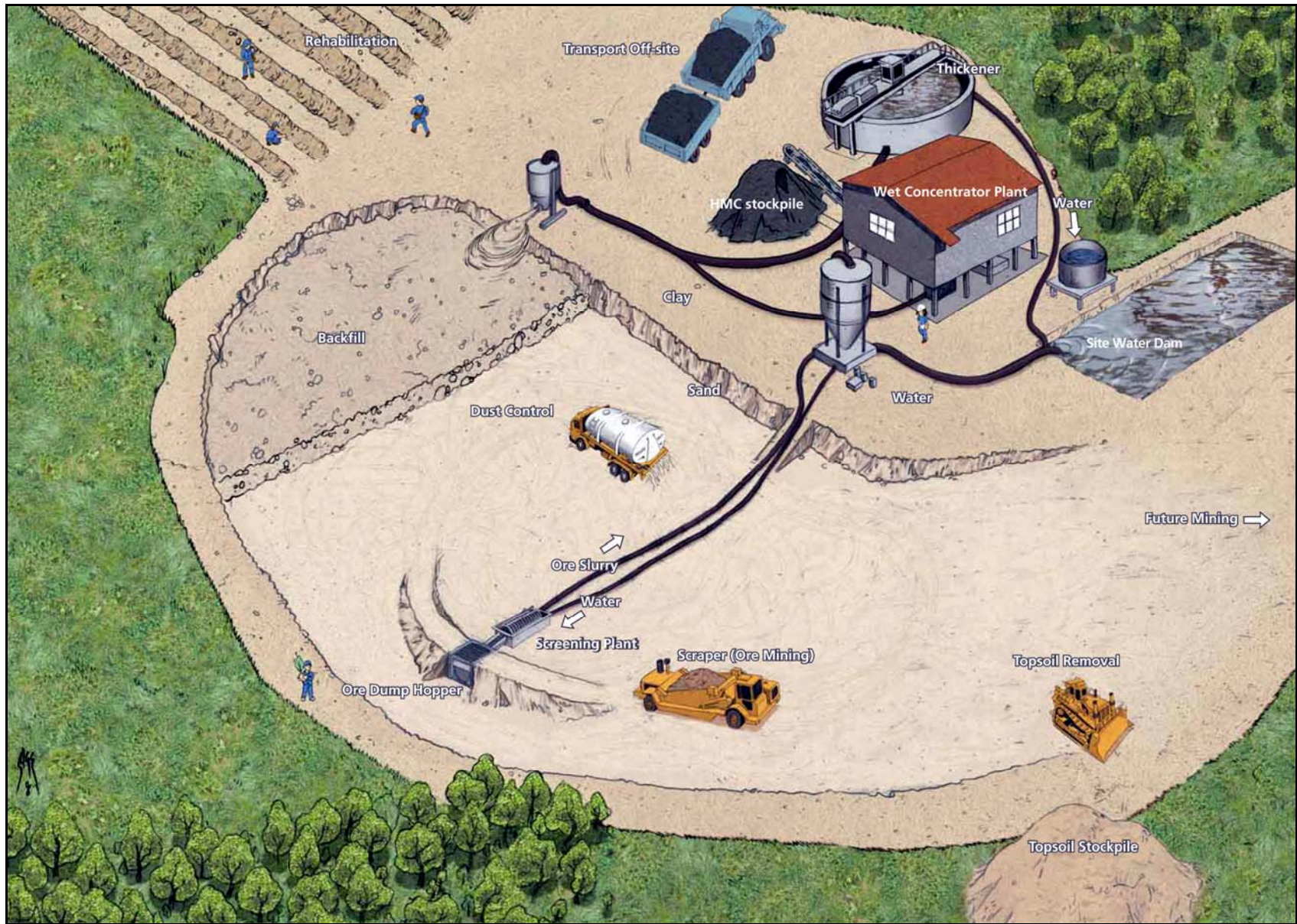


Figure 3: Project operations

3. Key environmental factors and principles

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the key environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the key environmental factors selected for detailed evaluation in this report is summarised in Appendix 3. The reader is referred to Appendix 3 for the evaluation of factors not discussed below. A number of these factors, such as liquid and solid waste and greenhouse gas emissions, are relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

It is the EPA's opinion that the following key environmental factors for the proposal require detailed evaluation in this report:

- (a) vegetation (includes fauna, wetlands and rehabilitation);
- (b) groundwater;
- (c) noise; and
- (d) dust.

The above key environmental factors were identified from the EPA's consideration and review of all environmental factors generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

Details on the key environmental factors and their assessment are contained in Sections 3.1 – 3.4. The description of each factor shows why it is relevant to the proposal and how it would be affected by the proposal. The assessment of each factor is where the EPA decides whether or not the proposal meets the environmental objective(s) set for that factor.

The following principles were considered by the EPA in relation to the proposal:

- (a) precautionary principle;
- (b) principle of intergenerational equity;
- (c) principle of the conservation of biological diversity and ecological integrity;
- (d) principles relating to improved valuation, pricing and incentive mechanisms; and
- (e) principle of waste minimisation.

3.1 Vegetation (includes fauna, wetlands and rehabilitation)

Description

Vegetation

The majority of the project area is annual pasture with scattered native trees. The native vegetation in the mine area has been reduced to pockets of remnant vegetation and scattered trees due to the extensive clearing for agriculture. The majority of the

mine area is grazed by cattle. The vegetation complexes (as defined by Heddle *et al.* 1980) of Bassendean Central and South, Guildford and Southern River occur within the mine area. The proposal requires clearing of up to 1,366ha (Figure 4). This includes up to 182ha of remnant native vegetation, which includes stands of mature trees mainly subject to permanent or intermittent grazing by cattle, and having minimal or no understorey. There is about 1,184ha of pasture with scattered native trees in the mine area. Most clearing of remnant native vegetation would occur in the Bassendean Central and South complex.

The project area is within the System 6 region. The northern half of the project area is within the Bush Forever Study Area. No System 6 conservation areas and no Bush Forever site exists within this area.

The remnant vegetation in the mine area is Marri (*Corymbia calophylla*) woodland (MBS, 2006). Nine vegetation units were identified in a survey carried out by Bennett Environmental Consulting. The Floristic Community Types (FCTs) were inferred for the vegetation units, and three FCTs, 20b¹, 3a² and 3c³, were inferred to be Threatened Ecological Communities (TECs). PATN analysis (clustering analysis software) by Griffin and Associates concluded that FCT 20b more closely resembles other communities (21a or 21c), which are not TECs. The condition of FCTs 3a and 3c was considered to be Degraded⁴ to Completely Degraded⁵, and not worthy of conservation in the Bennett (2004) report. No Declared Rare Flora or Priority Flora was located during surveys of the project area.

The proponent considers that any drawdown in the aquifers as a result of the proposal would have a negligible impact on the root zone of the surrounding vegetation. Dewatering of the superficial aquifer would produce localised drawdown during winter to a level similar to the natural summer watertable. These levels are expected to recover after mining. Dewatering would not be required during summer.

The effect on the aquifers as a result of abstracting from the Leederville aquifer was measured through pumping on-site and modelling by Rockwater Proprietary Limited. The location of the bores is identified in Figure 5.

1. During the on-site pumping test of production bore KL3P, the impact on the superficial aquifer was measured at bore KWT3A, which is 24m from KL3P. The drawdown recorded at KWT3A was 0.04m after 44 hours, compared with 3.5m in the Leederville aquifer (at observation bore KL3Obs). For a pumping rate of 2,740 kilolitres per day (1.6 times that of the test) for 8 years, the drawdown at KWT3A was extrapolated to average 0.06 metres per year (m/yr).
2. The scenario modelled is that production bores KL2P and KL3P are pumped for 8 years at 2,466 kilolitres per day each to produce a total of 1.8 Gigalitres per year (GL/yr). In the Bassendean Sand Formation water levels would be reduced by 0.05 to 0.10m by the end of summer to the north and east of the

¹ FCT 20b is Eastern *Banksia attenuata* and/or *Eucalyptus marginata* woodlands.

² FCT 3a is *Eucalyptus calophylla* – *Kingia australis* woodlands on heavy soils.

³ FCT 3c is *Eucalyptus calophylla* – *Xanthorrhoea preisii* woodlands and shrublands.

⁴ The vegetation structure is severely impacted by disturbance (Government of WA, 2000).

⁵ The vegetation structure is no longer intact and the area is completely or almost completely without native species (Government of WA, 2000).

bores (average drawdown would be less than 0.013m/yr). In winter, drawdown would be reduced by additional recharge. At 3 to 4km east of the bores drawdown would be 0.2m. In the Guildford Formation, drawdown would be up to 0.6m 4km south-east of bore KL2P (average rate of drawdown would be less than 0.075m/yr). Drawdown in the Leederville aquifer would be less than 2m beyond about 2km from the bores, after 8 years of pumping, and up to 5m within 2km of the bores (Rockwater, 2007).

An aspect of the proposal that the EPA has considered is the potential to impact directly on vegetation through clearing. Vegetation adjacent to the mine area could be indirectly impacted through dust deposition and reduced water availability from bore abstraction.

The Bennett (2004) report identified the presence of 34 weed species, of which 28 are considered to be invasive, that is, able to invade natural bushland and waterways. Weeds of particular concern due to their ability to invade natural bushland and change the structure, composition and function of ecosystems are *Bromus diandrus* (Great brome), *Ehrharta calycina* (Perennial veldt grass), *Leptospermum laevigatum* (Victorian teatree), and *Romulea rosea* (Guildford grass).

Root and soil samples were taken from recently dead Banksias for the presence of *Phytophthora cinnamomi*⁶ at three locations in the project area; two on Lot 59 and one in the mine exclusion area on Lot 56. Results identified the presence of dieback in some upland vegetation on the eastern patch of remnant native vegetation on Lot 59.

The EPA will expect the proponent to manage its operations to ensure that neither weeds nor dieback are inadvertently spread to retained vegetation or watercourse buffers.

Fauna

Fauna surveys over the project area identified the presence of *Merops ornatus* (Rainbow Bee-eater), a migratory species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo); and 15 bird species that are habitat specialists with a reduced distribution on the SCP, or wide-ranging species with reduced populations on the SCP (Government of WA, 2000), including *Calyptorhynchus baudinii* (Baudin's Black Cockatoo), *Phaps chalcoptera* (Common Bronzewing), *Malurus splendens* (Splendid Fairy-wren), *Smicromis brevirostris* (Weebill), *Acanthiza apicalis* (Broad-tailed Thornbill), *Acanthiza chrysorrhoa* (Yellow-rumped Thornbill), *Petroica multicolor* (Scarlet Robin), *Pachycephala pectoralis* (Golden Whistler), *Manorina flavigula* (Yellow-throated Miner) and *Artamus cinereus* (Black-faced Woodswallow). Surveys also identified the potential presence of *Calyptorhynchus latirostris* (Carnaby's Black Cockatoo) and *Isodon obesulus fusciventer* (Quenda), a Priority listed species.

⁶ *Phytophthora cinnamomi* is a soil-borne water mould that kills a range of plants in the south west of WA by destroying their root systems. This slow moving epidemic of root disease in native vegetation is known as dieback (CALM, 2004).

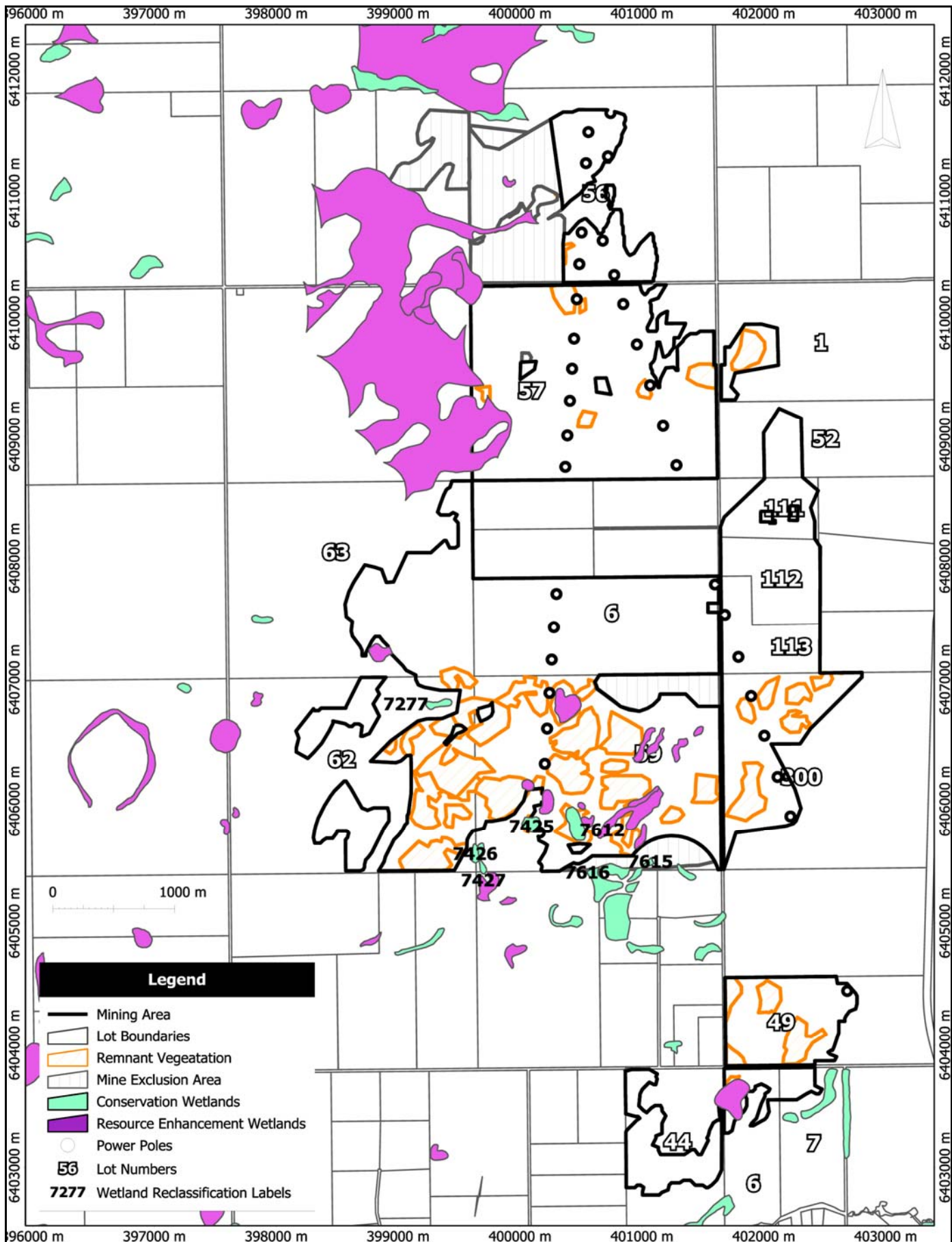


Figure 4: Mine area

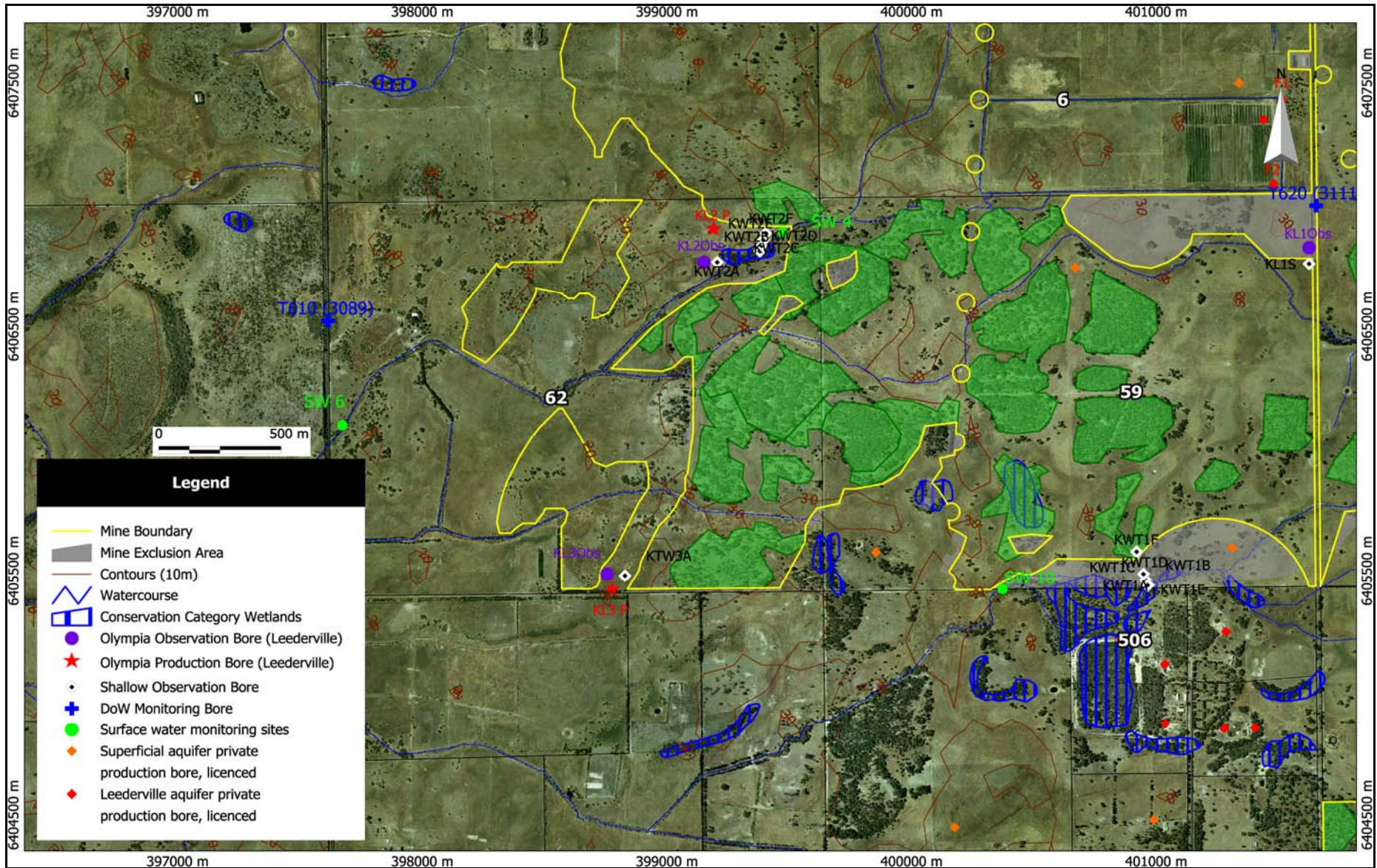


Figure 5: Groundwater production and monitoring bores

All three species of black cockatoo are listed in Schedule 1 of the *Wildlife Conservation Act 1950*. The Forest Red-tailed Black Cockatoo is extinct on the SCP portion of the Perth Metropolitan Region. Baudin's Black Cockatoo and Carnaby's Black Cockatoo are listed under the EPBC Act and have reduced populations on the SCP (Government of WA, 2000).

Western Wildlife conducted a survey of the remnant native vegetation on Lots 56, 59, 300 and 3 in October 2005 for nesting and feeding activity by black cockatoos. Western Wildlife (2005) reported that the vegetation is likely to provide feeding habitats for all three species of black cockatoo. Only a few potential nesting hollows were identified, but hollows are sometimes not visible from the ground. Most potential hollows identified were on Lot 56. It was noted that cockatoos may breed in the area.

Bamford Consulting Ecologists carried out a detailed fauna survey in winter/spring 2006. The following conclusions were made in the Bamford (2006) report: the project area does not have a natural pattern of rare, discontinuous habitats likely to have given rise to short-range endemic invertebrates, therefore the likelihood of such species being present is low; a high number of bird species were observed on Lots 300, 59, 56 and 62; it is likely that Red-tailed Black Cockatoos breed in the project area, based on a fresh but broken cockatoo egg that was found; additional surveys for bats, reptiles, Quendas and black cockatoos should be carried out; impact on cockatoo nesting sites should be minimised; native vegetation should be retained where possible; wetlands should not be affected; and rehabilitation should enhance wildlife habitat and corridors. In February 2007 Bamford Consulting Ecologists carried out a micro-bat survey. Two species were recorded in the project area; *Chalinolobus gouldii* (Gould's Wattled bat) and *Vespadelus regulus* (Southern Forest Bat). These species are not threatened.

The proposal has the potential to impact on fauna through loss of habitat from vegetation clearing, fragmentation of habitat and noise from mining and transport.

The proponent proposes to collect seeds of species used by the black cockatoos, such as Marri, Jarrah, Sheoak and Banksia from the project area for use in revegetation. These plants would provide suitable habitat for black cockatoos after many decades. The proponent considers that trees planted in the early stages of mining will provide a food source for fauna as the vegetation establishes. The proponent also considers that there are food supplies in the region, and cockatoos can travel 4 to 5km to these sites (which consist of the foothills and Darling Range forest).

Wetlands

The location of the wetlands listed in the Ramsar Convention⁷ in the vicinity of the project area are provided in Figure 1. The Becher Point Wetlands and Forrestdale and Thomsons' Lakes are about 20km and 37km, respectively from the project area, and are functionally separate. The Peel-Yalgorup System is about 20km downstream of the project area.

The proponent used wetland mapping from the Revised Draft *Environmental Protection (Swan Coastal Plain Wetlands) Policy and Regulations 2004* in the PER.

⁷ The Ramsar Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources (EPA, 2005).

On advice of the Department of Environment and Conservation (DEC), the proponent used the *Geomorphic Wetlands Swan Coastal Plain* dataset, as it displays the location, boundary, geomorphic classification and management category of wetlands on the SCP. The project area is within a dampland (seasonally waterlogged basin). According to the dataset, Conservation Category Wetland (CCW) Unique Feature Identifier (UFI) 7612 and twelve resource enhancement wetlands are mapped as occurring within the mine area. CCW UFI 7425 is mapped as partly within the mine area. Other CCWs and resource enhancement wetlands exist adjacent to the mine area.

The proponent applied to DEC to reclassify the two CCWs within the mine area to 'not a wetland', and downgrade seven other CCWs adjacent to the mine area to either multiple use wetlands or 'not a wetland' (MBS, 2007a). Preliminary advice from DEC is that the two CCWs mapped as occurring within the mine area are not conservation category, but resource enhancement wetlands. They do not have free water.

One of the issues considered by the EPA is the significance of the impact on resource enhancement wetlands within the mine area. Wetlands adjacent to the mine area have the potential to be impacted as a result of groundwater drawdown.

The aquifers in the proposal area are the superficial Bassendean Sand aquifer and the deep Leederville aquifer. In the project area, the soil formations in the superficial aquifer consist of the Bassendean Sand Formation, with a depth of 0 to 5m, and the underlying Guildford Formation, with a depth of 9 to 15m (Rockwater, 2007).

Rockwater Proprietary Limited conducted monitoring and modelling of the superficial aquifer to identify potential impacts on wetlands as a result of pumping 1.8GL/yr from two bores into the Leederville aquifer and dewatering 0.2GL/yr from the superficial aquifer. Changes to groundwater levels around wetland UFI 7277 on Lot 62 were modelled for mining at the beginning of winter, in May (scenario 1), and mining after winter, in September (scenario 2). With winter mining the groundwater level at the wetland during and soon after mining will be lowered by 0.05 to 0.2m during winter. With mining after winter, the groundwater level at the wetland will be 0.1 to 0.26m lower than usual for four months. Once mining is complete backfilling of mined areas with slurry will recharge the superficial layer within the mined pit. This produces a water mound up to 0.2m above surrounding groundwater levels for scenario 1, and up to 0.5m for scenario 2, which disperses into the surrounding soil matrix (MBS, 2007a).

Modelling of water level changes in the Bassendean Sand Formation as a result of dewatering at selected locations near wetlands (Rockwater, 2007) found that:

1. Mining in the eastern section of Lot 59 would not produce groundwater level drawdown at the wetland to the south of it.
2. Mining in the southwest section of Lot 59 would result in drawdown of up to 0.2m at the wetland to the south. If the mine perimeter is drawn back about 200m to the north, there is indicated to be no drawdown at the wetland.
3. Mining in the northwest section of Lot 59 would result in drawdown of up to 0.37m at the eastern edge of the wetland. Mining would continue progressively into the southern section of Lot 63. The predicted drawdown at the edge of the wetland is 0.2m after about 2 months, and 0.04 m after about 5 months.

Superficial aquifer bores were drilled along two sections leading into wetlands (Figure 5). Section 1 consisted of monitoring bores (KWT1A-F) on Lot 59 near the mapped CCWs adjacent to the mine area. Here, the Bassendean Sand Formation is unsaturated in summer/autumn. Relative levels in the bores in May were between 29.69m Australian Height Datum (AHD) and 31.27mAHD. The base elevation of mining in this area is 29.8mAHD, so there would be no discernible lowering of the summer watertable at the wetlands. If this area was mined in winter/spring, and the watertable at the edge of the mine area was maintained at 30mAHD, the water level could not be lowered below 30mAHD at the edge of the wetlands. Negligible drawdown is expected at the wetland. Based on the measured water levels and allowing for a 1m rise in winter, the watertable would not reach ground surface in the wetland unless there was additional recharge from surface water (Rockwater, 2007).

Section 2 consisted of monitoring bores (KWT2B-F) near wetland UFI 7277 on Lot 62. Here, the Bassendean Sand Formation is dry in the southern half, and extends below the watertable elevation of up to 27mAHD in the northern half. Mining in the northern area will lower water levels at the mine edge to about 26mAHD, which is about 1m higher than the summer water level beneath the wetland. The wetland watertable would not be affected by mining in the dry season. Lowering of water levels in the mine area to 26mAHD in winter/spring would result in a very small groundwater flow from beneath the wetland towards the pit (Rockwater, 2007).

The proponent considers that the groundwater drawdown from pit dewatering is localised and temporary, returning to pre-mining levels within one year, and that these fluctuations are not expected to impact on adjacent vegetation, wetlands or the ability of neighbours outside the mine area to access the aquifer. The localised drawdown would have no effect on the Ramsar wetlands; the Peel-Yalgorup System, Becher Point Wetlands and Forrestdale and Thomsons' Lake (MBS, 2007a).

Rehabilitation

The topography of the project area is flat to gently undulating plain. The lowest elevations are in the western section at approximately 22mAHD, gradually sloping to approximately 40mAHD in the eastern section of the project area. The proponent intends to return the land to its pre-mining use of agriculture. The proposal involves mining of up to 1,366ha over 8 years. The mine area would be progressively returned to pasture with a small part rehabilitated to native vegetation.

Topsoil would be directly returned to the mined areas, except outside the vegetation rehabilitation season (April to August), when topsoil would be stockpiled. The stockpiling of topsoil for an extended period would occur on locations around the wet concentrator plant, where the facility is fixed for a number of years. Mining within each 30ha pit would take about three months. Pasture species would be seeded in May and August to stabilise the land. Return to pasture would involve two seeding years. Outside these months the land would be stabilised through the application of a layer of clay from the wet concentrator plant. Rehabilitation to native vegetation would include the establishment of understorey species.

The proponent has identified measures, outlined below, to minimise impacts on native vegetation, fauna and wetlands.

1. Implement a mine exclusion area (Figure 4) of 87ha of vegetation on Lots 56 and 3 that contain suitable habitat for all three species of black cockatoo and other birds. An additional consolidated area of vegetation on Lots 59 and/or 62 would also be excluded from mining.
2. Locate the wet concentrator plant and support infrastructure on existing cleared areas.
3. Implement dieback management measures identified in Table 40 of the PER including: isolation of remnant areas not to be impacted from mining; visual inspections of vegetation for symptoms of dieback; topsoil for upland areas to be sourced from dieback-free areas; dieback susceptible species to be planted and seeded in rehabilitation on upland areas; and phosphite fungicide to be used on susceptible species in rehabilitation.
4. Implement a Fauna Management Plan (MBS, 2007b) that identifies a programme for black cockatoo surveys and relocating cockatoo nest sites by remounting potential nest sites from trees to be cleared into remnant vegetation areas that would not be disturbed, by cutting the nest site out of the existing tree and remounting it in the replacement tree. Constructed wooden and plastic nest boxes for cockatoos would also be mounted in replacement trees.
5. Implement a Water Management Plan (MBS, 2007a) which outlines the results of modelling impacts from drawdown on wetlands. The Plan also provides a monitoring schedule to identify whether any significant impacts to surrounding wetlands occurs as a result of the project.
6. Implement a Vegetation and Rehabilitation Management Plan (MBS, 2007c).

Measures are identified in the Plan to control weeds by:

- applying herbicide in areas rehabilitated with native vegetation in the spring of the first year of planting to improve the establishment of planted trees, and application in the second year if required; and
- inspecting rehabilitated areas for declared weed species.

Measures are identified in the Plan to:

- plant native species in remnant vegetation areas outside the mine area;
- plant and seed with native species in pasture areas outside the mine area as part of an “early planting” programme to provide feeding sites for black cockatoos and other birds throughout the life of the mine;
- plant and seed with native species in areas that have been mined;
- transplant *Xanthorrhoea* and *Kingia australis* trees from areas to be mined into the above areas;
- fence areas to be planted or seeded with native vegetation; and
- remove mature trees within the mine area that contain potential cockatoo nesting sites during December to July (i.e. outside the breeding season) to avoid impact on hatchling birds.

The Plan also includes the following:

- return of mined areas to as close as possible to pre-mining levels;
- return of sand and clay from the wet concentrator into mined areas;
- temporary erosion control measures to minimise water erosion of restored landforms prior to establishment of a vegetative cover;
- shelter planting using fast growing tree species;
- sourcing seed from local provenance and germinating seedlings in nurseries to plant as tubestock;

- completion criteria;
- monitoring of rehabilitation;
- a conceptual rehabilitation plan; and
- a rehabilitation bond of \$10,000 per ha of native vegetation cleared, to be reduced after revegetation commences, based on the extent of works completed and achieving completion criteria.

Submissions

Many submissions made by the public expressed concern regarding the loss of native vegetation, particularly vegetation in good condition and mature trees, and the loss of fauna habitat and impact on local fauna. Submissions also noted that a survey of all of the trees in the project area (not just the remnant native vegetation) should be carried out to determine fauna habitat values of the trees. It was submitted that net environmental benefit is not demonstrated in the proposal as the removal of remnant native vegetation and trees in good condition cannot be replaced by a strip replanting with a limited number of species. The testing and mapping for dieback was considered inadequate in the submissions.

The submission from DEC was based on the proposal in the PER that 222ha of remnant native vegetation would be cleared. DEC stated that the remnant vegetation in the project area is likely to provide the only native habitat and food source for a number of fauna species, particularly birds. Vegetation within the project area provide ecological linkage for habitat sensitive bird species. Remnant vegetation of various sizes and scattered or clumped trees in paddocks facilitate movement for a range of fauna species. Further efforts should be made to conserve areas of remnant native vegetation. The placement of conservation covenants over areas of native vegetation to be excluded from mining or established as a result of the project would assist in securing the long-term protection of conservation values. Offsets should be provided for the loss of native vegetation and fauna habitat.

Submissions from the public and DEC expressed concern regarding the impact on CCWs, resource enhancement wetlands and Ramsar wetlands. Submissions highlighted the lack of detailed on-ground mapping and evaluation of wetlands in the area. It was submitted that the annual drawdown around wetlands should reflect the natural wet and dry cycles of the water bodies, and actions should be implemented if the watertable does not return to natural levels by the end of the mining process. The issue of contaminants and nutrients generated from the proposal entering the waterways and polluting the Peel-Harvey system was raised in the submissions.

Submissions from DEC and the Local Shires stated that the suite of plant species occurring within the original plant communities should be re-established in mined areas using seed of local provenance. The submissions also raised concern regarding the clearing of mature trees claimed to be hundreds of years old.

Submissions from the public raised concern regarding the lack of conservation covenants on revegetation, and maintenance of revegetation in the long-term by private landowners. It was submitted that the rehabilitation cannot replace the quality of the existing mature native trees, their value in providing fauna habitat, and their biodiversity values. The revegetation list is insufficient, does not include middle

storey or understorey species, does not replace the species diversity present in the project area, and contains dieback susceptible species. The bulk of the revegetation is a highly artificial set of straight lines, with no attempt to re-establish a natural bush setting. Wetland rehabilitation should be considered. Weed control and dieback management is required in rehabilitated areas.

Assessment

The remnant native vegetation in the proposed mine area is degraded through direct grazing, and faces inevitable demise.

The EPA's environmental objective for vegetation is to retain and enhance one or more protected areas, and to give these areas security.

The EPA's environmental objectives for rehabilitation are to: ensure that mine closure achieves stable, non-polluting and functioning landforms which are consistent with the surrounding landscape and other environmental values. Rehabilitation of native vegetation should use seed of local provenance.

The EPA notes advice from DEC that Floristic Community Types inferred to be TECs in the Bennett (2004) report are communities that were once TECs, but because of their Degraded condition, are not interpreted to contain intact TECs.

The remnant native vegetation within the mine area is degraded and deteriorating, but contains remnant vegetation in an extensively cleared area, and it comprises habitat for native fauna of conservation significance. Conservation significant fauna are those listed under the EPBC Act, the *Wildlife Conservation Act 1950*, as Priority by DEC, or have declining distributions or populations on the SCP.

The EPA recognises that the majority of the mine area is cleared, and the remnant native vegetation consists of mature stands of trees with minimal or no understorey. The EPA considers that due to the lack of protection and management of the vegetation, the condition of the vegetation is likely to decline over time due to grazing and weed and dieback infestations.

The EPA notes advice from DEC regarding the significance of the larger patches of remnant vegetation in the project area, and the linkage roles of these together with smaller patches and scattered trees. The EPA also notes advice from DEC that there is fauna living locally that exclusively rely on the remnant native vegetation and native trees within the project area for all or part of their resource requirements, including food, breeding, roosting and shelter. The EPA agrees with advice from DEC that it would take many decades for the proposed revegetation to mature adequately to provide hollows for fauna to that present in the existing vegetation.

During the assessment, the EPA established that the remnant native vegetation on Lots 56 and 3 is better than the rest in the project area because it contains remnants of vegetation that:

- is poorly represented on the eastern side of the SCP;
- is in Good to Very Good condition, in an extensively cleared area; and

- comprises habitat for native fauna of conservation significance. The significant stands of mature trees provide feeding areas for endangered cockatoos and other conservation significant bird species.

For these reasons, the EPA advised the proponent that the proposal to clear remnant native vegetation on Lots 56 and 3 would not be supported. As a result, the proponent excised these areas from the mine plan.

The EPA notes the proponent's efforts to avoid, minimise and rectify impacts on native vegetation and fauna. In particular, the EPA notes that 87ha of remnant native vegetation on Lots 56 and 3 would be excised from the mine area. However, a residual impact remains, as the proposed mine area contains native trees and vegetation that would be cleared. The remnant native vegetation within the mine area consists of stands of mature trees with minimal or no understorey. The remnant vegetation, that covers about 13% of the proposed mine area in discrete pockets, has environmental value because it:

- is poorly represented on the eastern side of the SCP;
- exists in an extensively cleared area; and
- provides resource value, in terms of food, breeding, roosting or shelter for endangered cockatoos and other conservation significant bird species.

The EPA notes advice from DEC (which was based on the initial proposal that 222ha of vegetation would be cleared) that the conceptual rehabilitation plan is lacking from a conservation perspective as the majority of the areas revegetated would be narrow linear corridors. The EPA agrees that a more suitable approach would be to retain larger intact areas of remnant vegetation and rehabilitate these areas so that they form a more resilient, consolidated vegetated area.

Considering the significance of the vegetation and trees to be cleared as a result of mining, the EPA recommends that the proponent identify a consolidated area of remnant native vegetation on Lots 59 and/or 62 to be excised from the current mine area (of 1,366ha). This area to be excised should preferably include vegetation that is dieback un-infested and mature trees that currently or would potentially provide hollows for black cockatoos.

This excised area should be protected from grazing, and enhanced through revegetation and weed control to improve the fauna habitat value of the area. The EPA notes the proponent's commitment to negotiate with the landowners to secure this excised area in perpetuity by means of a conservation covenant⁸. The EPA considers that this is a valuable undertaking, which would see the permanent security, of purpose and management, of an area of remnant native vegetation within the project area. The EPA recommends that should this area be secured through a conservation covenant, the area should be fenced to exclude grazing by cattle, managed for fauna and flora conservation purposes, and sign posted to notify significance of the area.

⁸ A conservation covenant is a voluntary agreement by the landowner to permanently protect the native vegetation and other environmental values on their land, and registering this on the property title.

The EPA notes that by retaining the remnant native vegetation on Lots 56 and 3, a source of habitat would be available to fauna potentially affected by the mining proposal. The EPA considers that the management of impacts associated with clearing of vegetation and trees in the mine area should include revegetation in the excised area on Lots 59 and/or 62 to improve the condition and function of the vegetation in this area, consistent with an Excised Area Management Plan (condition 7-3). This should include planting of understorey and middle storey species using local species, eradicating weeds, planting dieback resistant species, and enhancing fauna habitat value, through the placement of suitable tree hollows and nesting boxes.

The EPA notes that the majority of the mine area would be returned to pasture. The EPA considers that rehabilitation to native vegetation would be required where areas of remnant native vegetation and native trees are cleared for mining. The EPA acknowledges the proponent's intention to plant and seed with native species in pasture areas outside the mine area as part of an "early planting" programme, to use seeds from the project area for use in revegetation, and to transplant *Xanthorrhoea* and *Kingia australis* trees from areas to be mined into rehabilitated area. Mature trees to be transplanted should be managed for dieback.

The EPA notes that several watercourses that traverse the mine area, including Dirk Brook Tributary, Nambeelup Brook North Tributary, Balgobin Brook and Nambeelup Brook South Tributary, would have a buffer and would not be mined. The EPA considers that the vegetation along these watercourses should be enhanced consistent with a Watercourse Rehabilitation Plan (condition 7-3). This should include planting of understorey and middle storey species, eradicating weeds and planting dieback resistant species.

The EPA provides the following recommendation in regards to weed management for the Excised Area Management Plan and Watercourse Rehabilitation Plan: the proponent should map the distribution and abundance of weed species within the excised area; prioritise the weed species identified based on their ecological impact; describe measures to eradicate the weed species identified, based on their priority; identify a weed control monitoring programme; and identify hygiene practices for all vehicle and plant equipment entering the excised area.

The EPA notes that both weeds and dieback are present within the project area. The EPA considers that retaining and securing areas of remnant native vegetation would minimise the spread of weeds and dieback in the project area. The EPA also considers that hygiene and control measures should be implemented during the life of the mine to ensure that weeds are not spread within or outside the project area (condition 8). This would include cleaning all vehicles, equipment and footwear prior to entering the excised area and watercourse buffers; containing run-off from stockpiles and surface water that may contain dieback; using of the chemical phosphate to prevent dieback infection; and monitoring dieback infested and un-infested areas.

The EPA has recommended a condition for a performance bond (condition 11) to ensure adequate implementation of condition 7, which includes the return of functioning pasture, enhancement of the excised area on Lots 59 and/or 62, and implementation of the Watercourse Rehabilitation Plan.

The EPA notes that modelling indicated that bore abstraction would result in a reduction in the pressure head in the Leederville aquifer, and the average rate of drawdown in the Guildford Formation is predicted to be 0.075m/yr. The EPA considers that the reduction in the watertable per year as a result of the proposal is small, and should not adversely affect the surrounding native vegetation. The EPA notes that the estimation of the extent to which the aquifers would be affected by dewatering and bore abstraction was largely based on a numerical model. Therefore the EPA recommends that the proponent confirm model predictions and monitor the health and condition of retained native vegetation within the project area, and identify trigger levels and management actions, to ensure that vegetation is not adversely affected by groundwater drawdown associated with the proposal (condition 9).

The EPA notes that DEC is considering an application by the proponent to reclassify the two currently mapped CCWs within the mine area, and seven other CCWs adjacent to the mine area⁹. The EPA notes that on-ground assessment of wetlands by DEC in September 2007 found that no mapped CCWs exist within the mine area, and the closest CCW is at least 100m from the mine area. Assessment by DEC identified additional resource enhancement wetlands within the mine area. The EPA notes that approximately 15 resource enhancement wetlands would be cleared as a result of the mining proposal. The EPA considers that these wetlands have been significantly disturbed, and their conservation values are low. Therefore the EPA accepts that the proposal would result in the disturbance of these wetlands.

The EPA notes that CCWs would not be directly affected by mining. The EPA recommends that monitoring and management be carried out to ensure that CCWs adjacent to the mine area are not indirectly affected by the proposal (condition 9).

Summary

Having particular regard to the:

- (a) removal of 87ha of remnant native vegetation on Lots 56 and 3 from the mine area, which includes all Good and better condition vegetation;
- (b) recommended condition to excise a consolidated area of remnant native vegetation on Lot 59 and/or Lot 62 from the mine area;
- (c) recommended condition to enhance the vegetation along retained watercourses, and in the area to be excised from mining on Lots 59 and/or 62 through revegetation, weed control and fencing;
- (d) on-ground surveys by DEC identifying that mapped CCWs do not occur in the mine area;
- (e) groundwater modelling and monitoring that shows minimal impact on CCWs adjacent to the mine area; and
- (f) recommended condition for a performance bond,

it is the EPA's opinion that the proposal can be managed to meet the EPA's objectives for this factor.

⁹ The proponent's application is provided in Appendix 3 of the Water Management Plan (MBS, 2007a).

3.2 Groundwater

Description

The project area is located within the unproclaimed Karnup-Dandalup Underground Water Pollution Control Area, which has been identified as a Proposed Priority 2 Public Drinking Water Source Area (PDWSA). A Priority 2 classification has been proposed to ensure that there is no increased risk of pollution to the water source.

The aquifers affected by the proposal are the superficial Bassendean Sand aquifer and the deep Leederville aquifer. The project area is in a recharge zone to the superficial aquifer, Leederville aquifer and underlying Yarragadee aquifer. The superficial aquifer is about 10m deep, and the Leederville aquifer is about 130m deep. Water salinities in the superficial aquifer range from 200 to 1,000 mg/litre Total Dissolved Solids, while in the Leederville aquifer they are generally less than 1,000 mg/litre Total Dissolved Solids. Recharge to the superficial aquifer is from rainfall and runoff from watercourses, and recharge to the Leederville aquifer is from the superficial aquifer. The direction of the groundwater flow within the project area is westward (MBS, 2007a). In the project area, the soil formations in the superficial aquifer consist of the Bassendean Sand Formation, with a depth of 0 to 5m, and the underlying Guildford Formation, with a depth of 9 to 15m (Rockwater, 2007).

The Bassendean Sand Formation is in places fully unsaturated in summer/autumn, and partly saturated in winter/spring; water levels fluctuate about 1m annually. In other areas, the Bassendean Sand Formation extends below the summer watertable and is partly to fully saturated all year. The Guildford Formation lies mainly below water level, although its upper surface becomes unsaturated by up to 2m in dry seasons. The Bassendean Sand is low in clay content and has high permeability. The Guildford Formation varies from clay to sand and has generally low permeability (Rockwater, 2007). The mineral sands deposit is contained in the Bassendean Sand Formation, which would be dewatered to the base of the deposit.

Rockwater Proprietary Limited evaluated the hydrogeological conditions in the project area, and modelled the dewatering requirements and drawdown effects of pumping the Leederville aquifer based on hydrogeological publications (Rockwater, 2006) and field measurements within the project area (Rockwater, 2007). This information was used to predict impacts on the aquifers and surrounding users as a result of pumping 1.8GL/yr from two bores (KL2P and KL3P) into the Leederville aquifer and dewatering 0.2GL/yr from the superficial aquifer.

The Rockwater (2007) report indicated that most dewatering would be during winter when the groundwater levels are highest. Dewater would be used in the wet concentrator plant and any excess water would be stored in the site dam. Where there is insufficient dewater for processing, additional water would be abstracted from bores into the Leederville aquifer. This additional water would be pumped to the site dam and used in the wet concentrator plant and for dust suppression. Where there is excess water in the site dam, water would be discharged from the dam into a natural drainage channel.

The site dam would be about 150m by 100m by 5m deep. The dam would be constructed by excavating to the base of the Bassendean Sand Formation, and using the excavated material to construct a 3m high dam wall. The dam will have a plastic liner.

The proponent would be required to obtain a licence from the Department of Water (DoW) under the *Rights in Water and Irrigation Act 1914* to abstract water from the Leederville and superficial aquifers. The proponent would also need to develop an Operating Strategy to supplement the licence conditions. An Operating Strategy outlines the proponent's commitments and responsibilities in managing the impacts of taking and using the water on the environment and other water users.

Production bores KL2P and KL3P (Figure 5) were constructed to the base of the Leederville Formation, and three observation bores (KL1Obs, KL2Obs and KL3Obs) were constructed in the Leederville aquifer. The effects of abstracting from the Leederville aquifer on the superficial aquifer was measured at bore KWT3A, during the pumping test of bore KL3P. The drawdown recorded at KWT3A was 0.04m after 44 hours, compared with 3.5m in the Leederville aquifer (at KL3Obs). For a pumping rate of 2,740 kilolitres per day (1.6 times that of the test) for 8 years, the drawdown at KWT3A was extrapolated to average 0.06m/yr, not including recharge.

The scenario modelled is that production bores KL2P and KL3P are pumped for 8 years at an average rate of 2,466 kilolitres per day each to produce a total of 1.8GL/yr. In the Bassendean Sand Formation water levels would be reduced by 0.05 to 0.10m by the end of summer to the north and east of the bores. In winter, drawdown would be reduced by additional recharge. The average drawdown rate would be less than 0.013m/yr. At 3 to 4km east of the bores there would be 0.2m drawdown. In the Guildford Formation, drawdown would be up to 0.6m 4km south-east of bore KL2P. The average rate of drawdown would be less than 0.075m/yr. Drawdown in the Leederville aquifer would be less than 2m beyond about 2km from the bores, after 8 years of pumping, and up to 5m within 2km of the bores. In this area the productive sandstone aquifers lie at 50 to 150 metres below ground level (mbgl) while standing water levels are 0 to 4mbgl. Given the available drawdown exceeding 45m, the operation of any other Leederville bores in the area would not be significantly affected (Rockwater, 2007).

The proponent considers that during winter, mining operations would lower groundwater levels to the base of the Bassendean Sand Formation in and around each mine pit. Water levels will start recovering as mining moves to new pits, excavated pits are backfilled, and rainfall recharges the reconstituted aquifer (MBS, 2007f).

The sand and clay tails are pumped back into the mine pit at approximately 45% density. Some of the water would segregate out of the tails, would be collected in in-pit drainage and taken to a collection sump and pumped to the site dam for reuse. The remaining water is held in the tails matrix and would seep out to recharge the superficial aquifer (MBS, 2007f).

DoW has advised that the proponent has collected sufficient data to support the hydrogeological assessment. DoW also advised that the proponent has conducted a sensitivity analysis, during modelling, to predict the level of risk of water required for the proposal on other users to the satisfaction of DoW.

Acid Sulfate Soils (ASS) are naturally occurring soils and sediments containing sulphide minerals, predominantly pyrite (an iron sulfide). When undisturbed below the watertable these soils are not acidic (Potential ASS). However, if the soils are drained, excavated or exposed by lowering of the watertable, the sulfides would react with oxygen to form sulfuric acid (EPA, 2005).

According to the WAPC Planning Bulletin No. 64 *Acid Sulfate Soils*, the majority of the project area is classified as “moderate to low risk”, where ASS layers are predicted at depths greater than 3mbgl, with two areas classified as “high risk” within Lot 57. Mining is proposed to an average depth of 2mbgl, with a maximum depth of 6mbgl when mining in sandy dunes. The ore body extends below the seasonal watertable in some areas, where dewatering of the soils would be required.

The ore body is confined to the Bassendean Sand Formation. The sampling programme identified that the areas sampled, which included the two high risk areas, are of moderate to low risk of ASS. Sampling was concentrated in the low-lying and central part of the project area where the first stages of mining would commence. Other areas would be sampled in advance of mining. The soil profile where Potential ASS is likely to occur is in the underlying Guildford Formation, which would not be disturbed through excavation or dewatering. Dewatering would be via drains on the pit floor directing water to collection sumps (MBS, 2007f).

Hazardous material such as fuels and oils, and the release of nutrients contained in the soil from excavation could enter the groundwater system through infiltration.

The processing plant site would be located on a layer of hardstand. The HMC minerals are insoluble, so they do not contribute soluble nutrient or saline elements to the water. No chemicals are used in processing that adds soluble nutrients or possible toxins to the water. As the water draining from the HMC stockpile is the same as that used throughout the process, the quality of water draining from the HMC stockpile is expected to be the same as from other sources. The water draining from the HMC stockpile would be directed to collection sumps and recycled back into the process circuit; it would not be discharged to the environment (MBS, 2007f).

One aspect of the proposal that the EPA has considered is the potential to impact on the quantity of groundwater from dewatering the superficial aquifer and abstracting from the Leederville aquifer. Groundwater drawdown may impact on groundwater dependant ecosystems, such as vegetation and wetlands, on the aquifers, and on surrounding users. Groundwater drawdown impacts on vegetation and wetlands are considered in Section 3.1 of this report. The proposal has the potential to impact on the quality of the groundwater from exposure of ASS material as a result of dewatering and excavation. Pollutants from the mining operation could enter the groundwater system and the proposal has the potential to pollute the Proposed PDWSA.

The proponent has identified measures, outlined below, to minimise impacts on groundwater.

1. Implement a Water Management Plan (MBS, 2007a) which outlines the results of modelling and testing of drawdown on the aquifers. The Plan also includes measures to minimise contamination of groundwater, a water balance for the

operations, and a groundwater monitoring programme. The Plan includes trigger levels for water quality parameters, and actions to be implemented where there is an exceedence of a trigger level.

2. Prepare and implement a Water Operating Strategy in accordance with DoW licensing requirements.
3. Prepare and implement a Hydrocarbon Management Procedure.
4. Locate fuel storage areas and workshop facilities on elevated ground to ensure a minimum 2m separation distance to the highest watertable level.
5. Implement an Acid Sulfate Soils Management Plan (MBS, 2007d). The Plan outlines the staged field sampling programme to be undertaken in each mine area 12 months in advance of mining, and management actions to be implemented as a result of the sampling. A monitoring programme to detect any changes in water quality and trigger levels for Titratable Actual Acidity and pH are also identified in the Plan.

Submissions

Submissions made by the public highlighted concern regarding the perceived large water requirement from the proposal, and subsequent impact on the aquifers, the water available from surrounding bores, and on groundwater dependant ecosystems. Submissions noted that recharge to the Leederville aquifer would be reduced through dewatering the superficial Bassendean Sand aquifer. It was submitted that local bores that may be impacted by the proposal should be monitored, and impacts managed where water in the bores is significantly reduced. No information is provided as to the quality of the water draining from the HMC stockpile, which could leach into the soil and groundwater. The proposal should not impact on the future availability and quality of the proposed Karnup-Dandalup Underground Water Pollution Control Area. Submissions also raised concern regarding the generation of ASS and lack of a contingency plan for ASS contamination.

Assessment

The area considered for assessment of this factor is the groundwater aquifers within the project area.

The EPA's environmental objective for this factor is to maintain the quantity and quality of groundwater so that the superficial Bassendean Sand and Leederville aquifers, and surrounding users, are not adversely affected by groundwater drawdown or potential leaching of ASS associated with the proposal.

The EPA notes that 0.2GL/yr would be dewatered from the superficial aquifer, and 1.8GL/yr would be abstracted from the Leederville aquifer. The EPA notes that some of the water used in processing would be included in the backfill material, which would recharge the superficial aquifer.

The EPA notes advice of DoW, that based on field measurements obtained by the proponent after release of the PER and analysis, the quantity of water in the surrounding bores and the superficial aquifer should not be significantly affected as a result of groundwater abstraction associated with the proposal. DoW also advised that subsequent modelling has indicated that pumping of the Leederville aquifer would not have a significant impact on the superficial aquifer.

The EPA considers that the proponent should revise the Water Management Plan and identify a groundwater monitoring programme, including monitoring at the downstream project boundary (condition 9). The programme should include monitoring of groundwater levels within the project area and in surrounding bores. In the event that monitoring indicates that groundwater levels in surrounding bores are significantly declining, as a result of the proposal, the proponent should provide the supply of water to these surrounding groundwater users. The Plan should also identify trigger values to ensure there is no adverse impact on the environment, and mitigation measures should the trigger values be reached. The Plan should also identify measures to ensure that there is no long-term adverse effect on the quantity or quality of groundwater as a result of the proposal.

The EPA notes advice from DEC that although the ASS sampling results indicate low sulfide content, there are indications that some soil profiles have both Titratable Actual Acidity and Titratable Peroxide Acidity. This is likely derived from organic sources including metal hydrolysis. From the information provided, the risk of ASS disturbance in the first stage investigation was considered low. Background values of the receiving environment should be established to prevent acidification that may not be derived from sulfide oxidation.

The EPA notes that the sampling was targeted at the low-lying, central part of the project area, and identified that the risk of the presence of ASS to be moderate to low. The EPA also notes that the risk of impacting ASS is low because the soil profile where Potential ASS is likely to occur (the Guildford Formation) would not be disturbed through excavation or dewatering. The EPA recommends that the proponent should implement the Acid Sulphate Soils Management Plan (condition 10).

Summary

Having particular regard to the:

- (a) information in the hydrogeological assessment (Rockwater, 2007);
- (b) advice from DoW;
- (c) DoW groundwater licensing and permitting requirements; and
- (d) recommended condition for Water and Acid Sulfate Soils Management Plans,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.3 Noise

Description

The southern part of the project area is located 500m from the North Dandalup township and 120 to 500m from local residences (Figure 2). The proposal has the potential to generate noise from land clearing, excavation, processing and vehicle movement. Noise generated from the proposal has the potential to impact on the amenity of the local residents.

A Noise Impact Assessment carried out by Lloyd Acoustics in February 2006 indicated that in order to comply with the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations), the wet concentrator plant must be 1km from residences, the hopper/screen and pump should be located 2 metres below ground level (mbgl) within a 2m high bund and 215m from residences, and the booster pumps¹⁰ should be at least 200m from residences.

The assigned noise levels in the Noise Regulations for day time is 45dB(A)¹¹, 40dB(A) for evening, and 35dB(A) for night time. The assigned noise levels may be penalised 5 to 10dB if the nature of the noise is annoying. The EPA has analysed the likely noise impacts that could be generated if mining was conducted as proposed in the proponent's documents.

The following is based on the noise from the scraper in the original proposal. The scraper would have the highest noise emission of all equipment. Contours calculated for worst case wind conditions and calm conditions found that:

- under calm conditions a distance of 1km is required to achieve 30dB(A), the penalised value for night time; and
- under calm conditions a distance of 300m is required to achieve 45dB(A), the non-penalised value for daytime.

The proponent proposes mining during the daytime and night time to ensure continuous operation of the scraper and wet concentrator plant. Based on analysis by the EPA, and the proximity of residences, it would be likely that mining in the southern project area i.e. on Lots 6 (Readheads Road), 7, 44 and 49, would be subject to daytime mining only. The proponent has made a commitment in the PER to only mine in these areas during the daytime.

Additional modelling to examine the noise impact from haul trucks on the internal roads found that the predicted noise levels are less than the assigned noise levels.

The proponent has prepared a Noise Management Plan (MBS, 2007e) to minimise noise emissions. Management measures identified in the Plan include: using meteorological forecasts to schedule operations; fitting all mining equipment with mufflers to reduce noise levels; undertaking periodic noise measurements from site activities when operations are within 500m of sensitive premises; monitoring noise at the receiving premises; and implementing a noise complaint system.

Submissions

Concern was raised in the public submissions regarding the impact of noise on the local community from clearing, excavation, processing and transport, and from operating 24 hours a day, 7 days a week. It was submitted that the noise model failed to include: the use of at least two scrapers and beeping from mine vehicles; all residences in the vicinity of the mine area; all mobile vehicles; and cumulative noise

¹⁰ Booster pumps would be required if the wet concentrator plant is more than 750m from the hopper.

¹¹ An A-weighted noise level has been filtered to represent the way in which the human ear perceives sound, and is described as L_AdB or dB(A) (Lloyd Acoustics, 2006).

impacts from all equipment operating at one time. The submissions considered that the measures outlined in the PER would not adequately manage noise impacts.

Assessment

The area considered for assessment of this factor is the project area, and the residences adjacent to the project area.

The EPA's environmental objective for this factor is to protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet acceptable standards.

The EPA notes advice from DEC that there are limitations, outlined below, in the modelling and Noise Management Plan.

1. Management measures were not provided for dealing with other sources when the scraper is not operating.
2. Only the closest residences were included in the Lloyd Acoustics (2006) noise assessment report. However, there are residences 400m from the mine area that were not included in the assessment.
3. No background data was provided to support the assertion in the Lloyd Acoustics (2006) report that ambient noise during the day should mask tonality, thus making a 5dB reduction unnecessary. Rural areas often have low ambient noise levels during the day, and if tonality was included, further constraints on mining would occur.
4. As night time operations could be unacceptable at distances of less than 1km to residences, the proponent identified that mining in the southern part of the project area would be restricted to daytime only. There are at least 19 residences within 1km of areas to be mined (Figure 2), and other areas across the mine area would be similarly affected and have restrictions in night time mining.

The EPA notes that the proponent is investigating the use of quieter mine equipment. These have not been included in the EPA analysis, as the degree of improvement is uncertain.

When noise levels do not meet the Noise Regulations there are various options to consider setting different levels. One option is through a variation with regulation 17 of the Noise Regulations. This is sometimes used for major developments with continuing noise issues. The operator is required to meet reasonable and practicable means to minimise noise emissions, and this sets the allowable decibel limit.

Another option is for the Minister for the Environment to set limits as part of the approvals process. The EPA has suggested that this option is appropriate for the proposal, so that all decision makers have certainty.

The EPA recommends that there be no change to the night time and evening noise levels identified in the Noise Regulations, 35dB(A) and 40dB(A) respectively. The EPA recommends that there be no penalty for annoying characteristics, instead the proponent be required to identify and minimise annoying characteristics. Likewise, the

EPA recommends that no penalty should be applied during the daytime, with an increase of the allowable limit from 45 to 50dB(A).

Based on the information provided to the EPA, using the above noise levels, and the proximity to houses; night time mining could be unacceptable.

The EPA notes that the proposed mining is a mobile operation; the mineral sand deposit is shallow, and the proponent anticipates mining across the site quickly. Therefore noise impacts on local residences would be temporary, and there is potential to relocate mine equipment over a pit area where necessary to minimise impact. The EPA expects that the recommended noise levels would predispose towards daytime operations only.

The EPA also considered the 5dB allowance for night time mining, and found that the allowable mining areas, based on wind direction, was largely the same as without the 5dB allowance. The EPA considered that due to the numerous residences in the vicinity of the mine area, it would be extremely difficult to manage the operation for wind direction to avoid significant impact on the residents during the night time.

The EPA considers that the recommended noise levels be the maximum allowable measured at the nearest occupied residence. Furthermore, where the proponent can demonstrate an agreement with the nearest occupied resident that relieves the noise limitations, the relevant site for measurement would become the next nearest occupied residence.

Summary

Having particular regard to the:

- (a) rapid rate of mining over a particular area; and
- (b) daytime noise limits of 50dB(A), evening limits of 40dB(A) and night time limits of 35dB(A), and a requirement to identify and minimise annoying characteristics,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.4 Dust

Description

The southern part of the project area is located 500m from the North Dandalup township and 120 to 500m from local residences (Figure 2). The proposal has the potential to generate dust from land clearing, topsoil stripping, excavation, movement of vehicles along haul roads and wind erosion of exposed surfaces. Dust generated from the proposal has the potential to impact on the health, welfare and amenity of local residents, impact on the health of the stock and deposit on surrounding native vegetation.

The National Environment Protection Measures (NEPM) standard for PM₁₀ is 50 micrograms per cubic metre (ug/m³) under certain conditions. PM₁₀ refers to particles with aerodynamic diameter of less than 10 microns. This standard allows up to 5

exceedances per year to accommodate dust from natural events such as fires. The standard is designed to protect human health as particles smaller than PM₁₀ can penetrate the respiratory tract.

The proponent carried out dust monitoring from February 2007 to March 2007 to obtain baseline PM₁₀ concentrations, and to determine the relationship between wind speed and direction and dust concentrations. Due to the occurrence of high speed easterly winds in the region during the summer months, the monitoring programme would resume over summer 2007/2008 to obtain comprehensive background dust data.

In the PER the proponent considered that the wind data available at the Perth airport was representative of the Keysbrook area. After release of the PER the proponent commissioned Sinclair Knight Merz to model particulate emissions generated from the development. Wind speed and wind direction data from the meteorological station at Mundijong (30km north of Keysbrook) operated by Iluka from 1991 to 2001, was compared to the meteorology at Perth airport. SKM reported that wind speed recorded at Perth airport is a suitable surrogate for wind speed at the project area, but wind direction data for Perth Airport is not a suitable indicator for wind direction at the project site due to the influence of local topography (SKM, 2007).

The SKM (2007) report stated that the project area is likely to experience localised wind impacts due to the proximity to the Darling Escarpment, including:

- the generation of very strong easterly winds, of particular concern during summer from early evening to several hours after sunrise;
- the creation of rotating winds where the wind direction reverses under moderate to strong easterly winds, and has the potential to carry particles aloft, occurring during summer from early evening to several hours after sunrise;
- wind channelling of westerly winds (north westerlies through to south westerlies) such that the localised wind direction is more northerly or southerly, respectively, and usually occurring under evening conditions; and
- night time winds under calm conditions would tend to become easterly.

The SKM (2007) report noted that dominant winds are from an easterly to south easterly direction, and correspond to the high wind speed direction. Seasonal variation in wind behaviour is evident. The SKM (2007) report concluded that the high frequency of easterly wind would increase the wind erosion potential from open and active mine areas, and there is the potential within this locality for extended periods of high wind speeds which would result in high dust emissions from the operations. These high emissions have the potential to impact on sensitive receptors.

Estimated dust emissions from the removal of topsoil and ore by scrapers, unloading of material onto stockpiles or the dump hopper, and wind erosion from product stockpiles and unsealed areas was used in the model. Worst case scenario modelling revealed the potential to impact upon some residences located close to the mine area at different stages of operations. The estimated distance for concern is when operations are approaching within 300m of a residence. Exceedances of NEPM were predicted at the residence on Lot 104 Westcott Rd when mining occurs on Lot 6 Westcott Rd and at the residence on Lot 3 Readheads Rd when mining occurs on Lot 49 Readheads Rd.

Recommendations of the SKM (2007) report are:

- Particulate emissions from wind erosion due to easterly winds is an issue, and wind erosion emissions would need to be reduced.
- Some residences are relatively close to operations, so the proponent should investigate the use of a monitoring network between the operations and the receptor to alert of high dust concentrations so that dust control procedures can be implemented. Some of the procedures that can be used include: increase use of watering; reducing the speed of vehicles; or briefly ceasing operations until the dust concentrations at the dust monitors have decreased then recommencing operations with an increased use of watering.

The proponent has committed to wash down roofs of residences that rely on rainwater collection at the end of summer, to ensure that winter rain collected would be clean (MBS, 2007f).

The proponent has prepared an Air Quality and Dust Management Plan (MBS, 2007g) to minimise dust generated from the proposal. Management actions identified in the Plan include:

1. Minimising clearing and open areas;
2. Not stripping topsoil during periods of high winds. Visual monitoring of topsoil stripping, and ceasing activity if dust crosses the project boundary.
3. Watering of internal roads and dust generating disturbed areas as required.
4. Growing of temporary 'stubble' crops to bind soil and decrease wind velocity at ground level.
5. Using mulch, chemical or polymer suppressants where suitable and surface spraying of clay to control dust prior to rehabilitation.
6. Re-establishing pasture and vegetation as soon as possible after mining has been completed.
7. Using sprinkler systems around high activity infrastructure areas.
8. Installing a high wind warning system to enable the site to initiate dust control mechanisms in a timely manner.
9. Using continuous real time weather monitoring linked to an alarm when the wind speed threshold value of 45km per hour is reached.
10. Installing continuous particle monitors along the boundary to the closest residences when operations are within 500m.
11. Regularly reviewing monitoring data and investigating high results, with corrective actions to eliminate the causal factors.
12. Implementing a complaints management system.
13. Covering loads of HMC on trucks prior to leaving the stockpile area.
14. Restricting vehicle speeds on unsealed surfaces.
15. Using weather forecasts as a proactive management tool to schedule tasks and implement dust reduction activities.

Submissions

Submissions from the Local Shires recommended that the Dust Management Plan should address impacts from active mine areas on nearby residents, and relatively high wind speeds are experienced in the area, and appropriate dust management should be employed during mining and rehabilitation on-site.

Submissions from the public raised concern regarding the difficulty in controlling the large amount of dust that would be generated. The need for separate night and day pits and different mining locations based on the prevailing winds would mean a larger area of excavated land is exposed. It was submitted that water sprays would not adequately control dust generation under high easterly winds during the summer months. Clearing of tall and dense remnant vegetation would increase the likelihood of sand dune blowouts and dust storms from katabatic winds descending the Scarp and hitting the SCP at high velocities. This would be further exacerbated by removing the soil profile by scrapers during such high wind conditions. The proponent should do site-specific measurements and base any wind erosion predictions and management plans on these. The proponent's claim to only mine on the down wind side of residences is not possible, with houses surrounding the mine, and summer winds changing 180 degrees in a day.

Assessment

The area considered for assessment of this factor is the project area, and the residences adjacent to the project area.

The EPA's environmental objectives for this factor are to reduce dust emissions as far as practicable, and ensure that dust emissions do not adversely affect environmental values or the health, welfare and amenity of people and land uses.

The EPA notes the proponent has modelled the expected dust emissions from the proposal, and that modelling has indicated that PM₁₀ concentrations at some residences would exceed the NEPM standard. The EPA considers that the generation of Total Suspended Particulate matter (which includes all particles up to 50 micrometres in diameter) requires management for the proposal.

The EPA acknowledges the proponent's intention to use weather forecasts as a proactive management tool to schedule tasks and implement dust reduction activities. The EPA notes that mining is a mobile operation, and the equipment can be moved depending on the weather conditions. The EPA notes the proponent's intention to monitor at the project boundary, and use continuous real time weather monitoring linked to an alarm when the wind speed threshold value of 45km per hour is reached.

The EPA recommends that the proponent should revise the Air Quality and Dust Management Plan (condition 13) to include: dust management according to predictions (i.e. weather forecasts); management according to actual winds experienced at the site; measures to minimise open areas; a plan for each pit, with the times of day and weather conditions under which parts of the pit could be mined (i.e. no mining upstream of an occupied residence when an easterly wind is blowing). The Plan should also include dust management measures negotiated between the proponent and

the landowners when mining in close proximity to their residences and high dust levels are experienced at the residence for a period of time.

Summary

Having particular regard to the:

- (a) rapid rate of mining over a particular area;
- (b) recommended condition for an Air Quality and Dust Management Plan; and
- (c) agreement with landowners when mining in close proximity to their residence,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.5 Key environmental principles

In preparing this report and recommendations, the EPA has had regard for the object and principles contained in section 4A of the *Environmental Protection Act 1986*. Appendix 3 contains a summary of the EPA's consideration of the principles.

4. Conditions and commitments

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

Having considered the proponent's management actions, commitments and the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Olympia Resources Limited to develop the Keysbrook Mineral Sands Mine was to proceed.

These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

- (a) Fulfillment of the commitments set out as an attachment to the recommended conditions in Appendix 4.
- (b) Rehabilitation.
- (c) Weed and dieback management.
- (d) Water management.
- (e) Acid sulfate soils management.
- (f) Performance bond.
- (g) Noise management.
- (h) Air quality and dust management.

5. Other advice

Protection of vegetation on Lot 56 and Lot 3

During the assessment the EPA established that the remnant native vegetation on Lot 56 and Lot 3 has high conservation value because it contains remnants of vegetation that:

- is poorly represented on the eastern side of the SCP;
- is in Good to Very Good condition, in an extensively cleared area;
- comprises habitat for native fauna of conservation significance. The significant stands of mature trees provide feeding areas for endangered cockatoos and other conservation significant bird species.

For these reasons, the EPA considered that the remnant native vegetation on Lot 56 and Lot 3 should not be cleared for mining. Furthermore, the EPA recognises that the removal of any threatening processes, such as grazing and land development, is important to ensure that the vegetation is protected in the long-term. The EPA advises that any subsequent proposal to clear this vegetation would need to be carefully scrutinised by DEC and assessed under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. The EPA encourages the landowners to place a conservation covenant over this bushland to ensure the security, of purpose and management, of the vegetation in perpetuity.

Other approvals processes

Other regulatory mechanisms relevant to the Keysbrook Mineral Sands Mine are:

- works approval and licensing by DEC under Part V of the *Environmental Protection Act 1986*;
- permits and water licensing by DoW under the *Rights in Water and Irrigation Act 1914*;
- planning approval, extractive industries licence and traffic safety assessment by the Local Shires.

Community involvement

The EPA is aware that the local community has many environmental and social concerns about the proposal. The EPA considers that the proponent should continue to undertake effective community consultation (commitment 2).

The proponent stated that “A range of appropriate local programmes would be supported during the project” in the PER (MBS, 2006). Furthermore, the proponent stated that “Olympia sponsorship of local groups: \$25,000 per year” in the Response to Submissions document (MBS, 2007f). In accordance with commitment 2, the proponent should identify community development programmes that would be initiated or supported by the proponent.

6. Conclusions

The EPA has considered the proposal by Olympia Resources Limited to develop a mineral sands mine near the rural township of Keysbrook.

The Commonwealth Department of the Environment and Water Resources found the proposal to be a controlled action under the EPBC Act for the presence of Listed threatened species and communities, and Wetlands of international importance in the vicinity of the project area. The threatened species are Baudin's Black Cockatoo and Carnaby's Black Cockatoo. The wetlands of interest are the Peel-Yalgorup Ramsar site (20km downstream of the project area), Becher Point Wetlands (20km northwest of the project area), and the Forrestdale and Thomsons' Lakes (37km north of the project area). The EPA has assessed the proposal in accordance with the bilateral agreement between the Commonwealth and Western Australia relating to environmental impact assessment.

The project area is within a dampland (seasonally waterlogged basin). On-ground assessment of wetlands by DEC found that no mapped conservation category wetlands exist within the mine area.

Most of the project area is annual pasture grazed by cattle. During the assessment, the EPA established that the remnant native vegetation on Lot 56 and Lot 3 has the highest conservation value in the project area because it contains remnants of vegetation that:

- is poorly represented on the eastern side of the Swan Coastal Plain;
- is in Good to Very Good condition, in an extensively cleared area; and
- comprises habitat for native fauna of conservation significance. The significant stands of mature trees provide feeding areas for endangered cockatoos and other conservation significant bird species.

For these reasons, the EPA advised the proponent that the proposal to clear remnant native vegetation on Lots 56 and 3 would not be supported. As a result, the proponent excised these areas from the mine plan. The proponent has committed to excise an additional consolidated area of vegetation on Lots 59 and/or 62 from the mine area. The EPA notes that the proponent is negotiating with the landowners of Lots 59 and 62 to provide compensation to place a conservation covenant over the excised area in order to secure the vegetation in perpetuity for conservation purposes.

The majority of the mine area is pasture with scattered native trees. The remnant native vegetation within the mine area consists of stands of mature trees with minimal or no understorey. The remnant vegetation, that covers about 13% of the proposed mine area in discrete pockets, has environmental value because it:

- is poorly represented on the eastern side of the Swan Coastal Plain;
- exists in an extensively cleared area; and
- provides resource value, in terms of food, breeding, roosting or shelter for endangered cockatoos and other conservation significant bird species.

Considering the significance of the vegetation and trees to be cleared as a result of mining, the EPA recommended that the proponent identify a consolidated area of remnant native vegetation on Lots 59 and/or 62, and excise this area from the mine plan. This area should be protected from grazing, enhanced through revegetation and weed control, and preferably secured in perpetuity for conservation purposes, by means of a conservation covenant.

On-site monitoring and modelling indicated that groundwater drawdown associated with the proposal should not adversely affect the aquifers and surrounding bore users.

The EPA has recommended a daytime noise level of 50dB(A), evening noise limit of 40dB(A), and a night time noise limit of 35dB(A). This would preclude mining at night in the southern part of the project area, consistent with the proponent commitments. Overall, there would be a pre-disposition towards daytime operations.

The EPA considered that the generation of Total Suspended Particulate matter (which includes all particles up to 50 micrometres in diameter) requires management for the proposal.

The EPA considered that the proponent could have agreements with the surrounding landowners that may be adversely affected by noise and dust generated from the proposal.

The EPA has concluded that the proposal should only proceed if the proponent can ensure that mining operations meet the recommended noise limits, and there is satisfactory implementation of the recommended conditions set out in Appendix 4 of this report.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is the development of a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sand deposit. Local roads would be upgraded to facilitate the transport of the heavy mineral concentrate to South Western Highway.
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3.
3. That the Minister notes that the EPA has concluded that mining operations should be allowed to proceed only when the recommended noise levels are met.
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.

Appendix 1

List of submitters

Organisations:

Conservation Council of Western Australia
Department of Environment and Conservation
Department of Indigenous Affairs
Department of Industry and Resources
Department of Water
Greenacres Turf Farm
Keysbrook North Dandalup Action Group
Landcare Serpentine-Jarrahdale Inc
North Dandalup Primary School P&C Association
Peel Harvey Catchment Council Inc
Radiological Council
Shire of Murray
Shire of Serpentine-Jarrahdale
Water Corporation
Wildflower Society of Western Australia Inc
3 anonymous organisations (confidential)

Individuals:

Brenda and Mervyn Beacham
Brian and June Bowman
Brian Buck
Monika Cameron
Bruce Campbell
Tina Edwards
Alan Elliott
Colby Elliott
Graham Elliott
Harrison Elliott
Kathleen Elliott
Luke Elliott
Marrion Elliott
Jessica Harrison
R. F. and S.F. Hickson
Robert Shane Hickson
Samantha Hickson
Brian Higgs
Denise Honeybone
Jean B. Horner
Lewis W. Horner
Tom Hoyer
Faye Llewellyn
Rod Lukatelich
Denyse Needham
Greg and Leanne O'Neil
David Royans
Leanne Stacey
Maddison Weston
Sierra Weston
92 anonymous individuals (confidential)

Appendix 2

References

- Bamford (2006) *Keysbrook Mineral Sand Project. Additional fauna investigations.* (Unpub) Prepared for MBS Environmental by Bamford Consulting Ecologists. September 2006.
- Bennett (2004) *Vegetation and flora of Exploration Licence 70/2407.* (Unpub) Prepared for MBS Environmental by Bennett Environmental Consulting Pty Ltd. May 2004.
- CALM (2004) *Best practice guidelines for the management of Phytophthora cinnamomi.* Department of Conservation and Land Management, Perth. 2004.
- Commonwealth of Australia (2001) *National objectives and targets for biodiversity conservation 2001-2005.* Environment Australia, Canberra. June 2001.
- EPA (2005) *Environmental guidance for planning and development.* Draft Guidance Statement No. 33. Environmental Protection Authority, Perth. June 2005.
- Government of WA (2000) *Bush Forever. Volume 2.* Department of Environmental Protection, Perth. December 2000.
- Lloyd Acoustics (2006) *A study of possible noise impact from mining of mineral sands between the towns of Keysbrook and North Dandalup.* (Unpub) Prepared by Lloyd Acoustics for MBS Environmental. February 2006.
- MBS (2006) *Keysbrook Mineral Sand Project. Public Environmental Review.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. June 2006.
- MBS (2007a) *Keysbrook Mineral Sand Project. Water Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. May 2007.
- MBS (2007b) *Keysbrook Mineral Sand Project. Fauna Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. May 2007.
- MBS (2007c) *Keysbrook Mineral Sand Project. Vegetation and Rehabilitation Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. May 2007.
- MBS (2007d) *Keysbrook Mineral Sand Project. Acid Sulfate Soils Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. May 2007.
- MBS (2007e) *Keysbrook Mineral Sand Project. Noise Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. May 2007.
- MBS (2007f) *Keysbrook Mineral Sand Project. Public Environmental Review Response to Submissions.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. June 2007.

MBS (2007g) *Keysbrook Mineral Sand Project. Air Quality and Dust Management Plan.* (Unpub) Prepared for Olympia Resources Limited by MBS Environmental. August 2007.

Rockwater (2006) *Hydrogeological assessment for dewatering and water supplies.* (Unpub) Rockwater Proprietary Limited. March 2006.

Rockwater (2007) *Keysbrook area. Hydrogeological assessment stage 2.* (Unpub) Prepared for Olympia Resources Limited by Rockwater Proprietary Limited. June 2007.

SKM (2007) *Keysbrook Mineral Sand. Dust modelling.* (Unpub) Sinclair Knight Merz Pty Ltd. May 2007.

Western Wildlife (2005) *The value of remnant vegetation in the Keysbrook area to three species of threatened cockatoo.* (Unpub) Prepared for MBS Environmental by Western Wildlife. November 2005.

Appendix 3

Summary of identification of key environmental factors and principles

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
BIOPHYSICAL			
Vegetation	<p>The proposal would require clearing of up to 1,366 hectares (ha). This includes up to 182ha of remnant native vegetation and 1,184ha of pasture with scattered native trees. The vegetation in Good or better condition has been removed from the mine area. The vegetation in the mine area consists of stands of mature trees with minimal or no understorey.</p> <p>The vegetation complexes of Bassendean Central and South, Guildford and Southern River occur within the project area. Most clearing would take place in the Bassendean Central and South complex. The vegetation remaining within these complexes is below 30% of the total extent pre-1750. Therefore the native vegetation within the mine area is considered to be regionally significant.</p> <p>Nine vegetation communities exist within the project area, of which three Floristic Communities Types (FCTs), 20b, 3a and 3c, were inferred to be Threatened Ecological Communities (TECs). PATN analysis concluded that FCT 20b more closely resembles other communities (21a or 21c), which are not TECs. The condition of FCTs 3a and 3c was considered to be Degraded to Completely Degraded, and not worthy of conservation.</p> <p>The northern half of the project area is within the Bush Forever study area. No Bush Forever sites exist within this area.</p> <p>No Declared Rare Flora (DRF) or Priority flora was identified during surveys of the project area.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • Remnant native vegetation within the project area is important in maintaining diversity in agricultural environments. • The condition of the original plant communities inferred as TECs are Degraded and cannot be interpreted to contain intact TECs. • Offsets should be provided to compensate for the loss of the vegetation within the complexes that are currently under the 30% biodiversity threshold. • All vegetation identified as Good or better condition should be retained. • Vegetation to be excised from mining should be fenced to exclude grazing. • The placement of conservation covenants over areas of native vegetation to be excluded from mining or established as a result of the project would assist in securing the long-term protection of conservation values. <p><u>Public</u></p> <ul style="list-style-type: none"> • Concern regarding the loss of native vegetation, particularly vegetation in Good condition and mature trees. • The proposal is not consistent with the Native Vegetation Clearing Principle e). • Remnant native vegetation in the project area is significant because it comprises vegetation in an area that has been extensively cleared i.e. the eastern side of the Swan Coastal Plain (SCP). A reduction in the number of remnant blocks of native vegetation tends to reduce the value of remaining remnant blocks. Therefore remnant vegetation should be excised from mining. • Vegetation to be protected should be permanently fenced. • Vegetation classed as Good should be excised from the mine area. • Remnant vegetation in the project area should receive permanent protection, including fencing to prevent stock grazing and the application of conservation covenants. Rehabilitation of the areas mined should include the establishment of linkages between these remnants. • FCTs 3a and 3c, inferred as TECs, are worthy of conservation. • Net environmental benefit is not demonstrated in the proposal. The removal of remnant vegetation communities and many trees in good health cannot be replaced by a strip replanting with a limited number of species. • The project area has not been adequately surveyed for flora. • Further flora surveys should be carried out to verify the extent of the presence 	<p>Considered to be a key environmental factor and is discussed in section 3.1 “Vegetation”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>The proposal would impact on native vegetation through direct land clearing. Surrounding native vegetation has the potential to be impacted through dust deposition and reduced water availability from groundwater drawdown.</p>	<p>of DRF and Priority flora within the project area.</p> <ul style="list-style-type: none"> The flora and vegetation survey did not assess the values of the trees in the parkland cleared areas. Lowering of the water table will adversely impact on the vegetation in the area. The diversion of watercourses would impact on the wetland vegetation. 	
Weeds	<p>34 weed species exist within the mine area, of which 28 are invasive. Weeds of particular concern are Great brome, Perennial veldt grass, Victorian teatree, and Guildford grass.</p> <p>The proposal has the potential to increase the spread of weeds both within and outside the project area.</p>	<p><u>Department of Environment and Conservation</u></p> <ul style="list-style-type: none"> Vegetation to be excised from the mine area should be fenced to exclude grazing and minimise the spread of weeds into the area. <p><u>Public</u></p> <ul style="list-style-type: none"> Weed control should be undertaken more frequently than only during spring, and according to optimum time for control of individual species. 	<p>Considered to be a key environmental factor and is discussed in section 3.1 “Vegetation”.</p>
Dieback	<p>Root and soil samples were taken from recently dead Banksias for the presence of <i>Phytophthora cinnamomi</i> at three locations in the project area. Results identified the presence of dieback in some upland vegetation on the eastern patch of remnant native vegetation on Lot 59.</p> <p>The proposal has the potential to increase the spread of dieback both within and outside the project area.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> A Dieback Management Plan should be prepared. Dieback areas should be identified through further testing and on-site mapping. Vegetation to be excised from the mine area should be fenced to exclude grazing and minimise the spread of dieback into the area. <p><u>Public</u></p> <ul style="list-style-type: none"> No quantitative information or mapping of dieback affected areas is provided. All mobile equipment and vehicles must be washed down before entering and exiting the mine area to eliminate the spread of dieback to unaffected areas. Dieback infected material will be placed in low-lying areas prone to sheetwash. Without buffering minor watercourses dieback would enter the wetland chain. A Dieback Management Plan should be prepared. 	<p>Considered to be a key environmental factor and is discussed in section 3.1 “Vegetation”.</p>
Fauna	<p>Fauna surveys over the project area identified the presence and potential presence of the following conservation significant species:</p> <ul style="list-style-type: none"> at least 15 bird species that are habitat specialists with a reduced distribution on the SCP, or wide-ranging species with reduced populations on the SCP according to Bush Forever; <i>Calyptrorhynchus latirostris</i> (Carnaby’s Black 	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> Remnant native vegetation within the project area is important in providing habitat for fauna. The project area represents one of the larger areas of mature vegetation and fauna habitat remaining on the eastern side of the SCP. It would take many years for the rehabilitation to provide suitable habitat for fauna of conservation significance. Remnant vegetation with habitat values should therefore be retained as much as possible. Conservation offsets should be investigated for the loss of fauna habitat and local biodiversity, and the difficulties associated with rehabilitation. 	<p>Considered to be a key environmental factor and is discussed in section 3.1 “Vegetation”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>Cockatoo) and <i>Calyptorhynchus baudinii</i> (Baudin's Black Cockatoo) listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) and <i>Wildlife Conservation Act 1950</i>;</p> <ul style="list-style-type: none"> • <i>Calyptorhynchus banksii naso</i> (Forest Red-tailed Black Cockatoo), listed under the <i>Wildlife Conservation Act 1950</i>; • <i>Merops ornatus</i> (Rainbow Bee-eater) a migratory species under the EPBC Act; and • <i>Isoodon obesulus fusciventer</i> (Quenda), a Priority listed species. <p>A survey of the remnant vegetation for the three species of black cockatoo found that the vegetation is likely to provide feeding habitats for all three species. Although only a few potential nesting hollows were identified in the survey, it was noted that hollows are sometimes not visible from the ground. Most of the potential hollows identified were on Lot 56.</p> <p>A detailed fauna survey in 2006 found that: the likelihood of short-range endemic invertebrate species being present is low; a high number of bird species were observed on Lots 300, 59, 56 and 62; surveys for bats, reptiles, Quendas and black cockatoos should be carried out; the proposal impact on cockatoo nesting sites should minimise, retain native vegetation where possible and not affect wetlands; and rehabilitation should enhance wildlife habitat and corridors.</p> <p>The proposal has the potential to impact on fauna through loss of habitat from vegetation clearing, fragmentation of habitat and noise from mining operations and transport.</p>	<ul style="list-style-type: none"> • The limited areas of remnant vegetation are likely to provide the only native habitat and food source for a number of fauna species across the site. • Corridor linkages are not defined. Remnants of various sizes and scattered or clumped trees in paddocks facilitate movement for a range of species. • Remnant vegetation on Lots 3 and 56 represent excellent habitat for habitat sensitive bird species listed as significant on the SCP. Cockatoo nesting sites on Lot 56 should be excised from the mine area. • Remnants on Lots 62 and 59 and the adjoining vegetation on properties that will not be mined contain ecological linkage for habitat sensitive bird species. • A survey of the faunal values of the project area should be undertaken to determine their regional significance. Areas determined as regionally significant habitat should be removed from the mine area. <p><u>Public</u></p> <ul style="list-style-type: none"> • Concern regarding the loss of fauna habitat and impacts of the proposal on local fauna, many of regional conservation significance. • The project area has not been adequately surveyed for fauna. • An assessment of all of the trees in the project area (not just the remnants) should be carried out to determine fauna habitat values. • Clearing of all mature trees (except for the mine exclusion area) means that there will be no nesting hollows for hundreds of years across a 1,200ha area. The cockatoos that use these hollows will be displaced. • The Baudin's Black Cockatoo and Carnaby's Black Cockatoo sightings and nesting hollows identified in the PER is an underestimate. • Remnants containing Marri tress are significant feeding and breeding areas for Forest Red-tailed Black Cockatoos. • A more in-depth assessment of trees that are currently or will be suitable feeding and nesting habitat for all three black cockatoos should be undertaken. • The impact on the other 32 bird species of conservation significance identified in the PER has not been addressed • The potential impact on bats should be assessed through surveys. • The numbers of kangaroos identified in the area is an underestimate. • Many kangaroos use the vegetation within the project area for habitat, and would be forced into neighbouring properties. • Clearing of remnant vegetation will lead to a further loss of fauna species in the SCP. Therefore remnant vegetation within the project area should be retained. 	

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
Soil and landform	<p>The project area lies within the major geomorphological system of Bassendean Dunes/Pinjarra Plains. The soil formations within this system consist of the Bassendean Sand Formation and the underlying Guildford Formation. The mineral sands deposit is contained in the Bassendean Sand Formation.</p> <p>The proposal would result in alterations to the local topography and landforms within the project area.</p>	<p><u>Shire of Murray</u></p> <ul style="list-style-type: none"> Measures to ensure that current ground levels across the site are maintained or enhanced to reduce the potential for inundation should be provided. <p><u>Public</u></p> <ul style="list-style-type: none"> The cause and extent of salinity within the project area has not been addressed. Mobilisation and release of nutrients from excavation could affect the soil and landscape. A Nutrient and Drainage Management Plan should be prepared including on-site testing and modelling. Removal of remnant vegetation will raise the groundwater table and increase salinity of the agricultural land in the surrounds of the project area. Land clearing and mining should not occur during the spring and summer months due to the risk of east wind erosion. Concern regarding the disturbance of the natural landform of the area. There is no digital terrain model for the area. Therefore it is not possible to re-establish existing landforms if they are not initially understood. 	<p>The post-mining landform would be returned as close as possible to the pre-mining state. Pre-existing drainage patterns (that are not proposed to be diverted) would be maintained. Post mining ground level would re-establish the pre-mining regional surface drainage.</p> <p>Erosion control measures would be implemented during the life of the mine. All landforms would be stabilised with either pasture or native vegetation.</p> <p>Not considered to be a key environmental factor.</p>
Groundwater	<p>The project area is located within the unproclaimed Karnup-Dandalup Underground Water Pollution Control Area, which has been identified as a Proposed Priority 2 Public Drinking Water Source Area (PDWSA). The project area is in a recharge zone to the superficial Bassendean Sand aquifer, the Leederville aquifer and underlying Yarragadee aquifer.</p> <p>The two aquifers affected by the proposal are the superficial Bassendean Sand aquifer, which ranges from 10 to 15 metres (m) depth, and the deep Leederville aquifer, which extends to about 100m depth. Water salinities in the superficial aquifer range from 200 to 1,000 mg/litre Total Dissolved Solids, while in the Leederville aquifer they are generally less than 1,000 mg/litre Total Dissolved Solids. Recharge to the superficial aquifer is from rainfall and local stream runoff.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> More information on the impact of dewatering the superficial aquifer and extraction from the Leederville aquifer on the Leederville aquifer is required. The impact on water levels in the Leederville aquifer as a result of the reduction in recharge has not been adequately addressed. It is stated in the PER that dewatering would affect other users and the natural system. However, very little information is provided on the affect of these impacts and the proposed mitigation measures. Further information should be provided regarding localised impacts on the groundwater table as a result of dewatering, particularly with respect to the duration and extent of these impacts. Impacts from groundwater table elevation (mounding) associated with the tailings deposition areas should be determined. Pump test data and on-site measurements are required to validate the model used in the Rockwater (2006) report to predict changes in groundwater levels. The cumulative impacts of local bores abstracting from the superficial and Leederville aquifers, in addition to the mining operation was not considered. Baseline groundwater levels and water quality should be provided. 	<p>Considered to be a key environmental factor and is discussed in section 3.2 “Groundwater”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>Recharge to the Leederville aquifer is from the superficial aquifer. The direction of the groundwater flow within the project area is westward.</p> <p>In the project area the soil formations in the superficial aquifer consists of the Bassendean Sand Formation and the underlying Guildford Formation.</p> <p>0.2 gegalitres per year (GL/yr) would be dewatered from the superficial aquifer, and used in the wet concentrator plant. About 20% of the water required for the proposal would be sourced from dewater. The balance would be sourced from bores into the Leederville aquifer, at a maximum rate of 1.8 GL/yr.</p> <p>After release of the PER, the proponent carried out modelling of the dewatering requirements and drawdown effects, based on field measurements of hydrogeological parameters.</p> <p>The proposal has the potential to impact on the quantity of groundwater from dewatering the superficial aquifer and abstracting from bores into the Leederville aquifer.</p> <p>The proponent would be required to obtain a licence from the Department of Water to abstract water from the Leederville and superficial aquifers.</p> <p>The proponent has prepared a Water Management Plan which outlines the results of modelling and testing of drawdown on the aquifers. The Plan also includes measures to minimise contamination of groundwater, a water balance for the operations, and a groundwater monitoring</p>	<ul style="list-style-type: none"> • Insufficient information is provided to demonstrate that water levels and quality of surrounding water users will not be impacted. Bore depths, screen intervals, water levels and water quality should be identified in surrounding bores. • All nearby groundwater users should be identified and consulted with. A plan should be developed to deal with groundwater licences within the project area. • Estimates of the processing water requirements should be refined. • A risk analysis of potential impacts on the local bores in the event that the drawdowns estimated by the model are underestimated should be conducted. • As part of obtaining a groundwater licence, a rigorous groundwater monitoring programme will be required due to the volume of water required for the proposal, the density of local bores in the area and the proximity to wetlands. • A Water Management Plan should be prepared defining groundwater monitoring locations, frequency and parameters. • Monitoring would be required beyond the life of the mine. • Concern regarding impact on the Proposed PDWSA. • The minimum 2m separation to the groundwater table will not be achieved. • Fuel storage tanks need to be installed above ground. • A Hydrocarbon Management Procedure should be prepared to prevent any surface water or groundwater pollution in the proposed PDWSA. <p><u>Water Corporation</u></p> <ul style="list-style-type: none"> • The project area is within a proposed Priority 2 source protection area, where protection of public water supplies is a high priority. <p><u>Public</u></p> <ul style="list-style-type: none"> • The amount of water required for the proposal is very large, underestimated, and will severely deplete the resource. • The quantity and quality of water in the Leederville aquifer should not be adversely impacted by the proposal. • The groundwater aquifers could be contaminated from release of nutrients and pollutants from the mining operation. • Investigations undertaken to ensure that the proposal will not lead to the mobilisation of the nutrients (and salts) stored in the soil being released into the groundwater should be outlined. • What disposal system will be in place to protect the groundwater from pollutants generated by the mining operation? 	

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>programme. The Plan includes trigger levels for water quality parameters, and actions to be implemented where there is an exceedence of a trigger level.</p>	<ul style="list-style-type: none"> • Recharge to the Leederville aquifer will be reduced through dewatering the superficial Bassendean Sand aquifer. • Pit dewatering and groundwater abstraction will adversely affect the quantity and quality of the water available from neighbouring bores. The proponent should monitor local bores that may be impacted by the proposal. • What will happen if groundwater abstraction and dewatering significantly reduces the water available in the bores of the surrounding landowners? • Impacts on the superficial aquifer as a result of dewatering should not extend beyond the boundary of the mine area. • The model (Rockwater, 2006) did not consider the future developments and agricultural production in the area adjacent to the mine, and their subsequent demand for water; declining rainfall and run-off reducing the recharge to the aquifers; bores that show a decline in water levels; local borehole data; and the effects on the Leederville aquifer. • Modelling should be repeated using hydraulic parameters that are calculated from field-testing of the project area. • No information is provided as to the quality of the water draining from the HMC stockpile, which could leach into the soil and groundwater. • There are no calculations on how the annual drawdown of the Leederville aquifer will affect the watertable in the immediate area of the mine bore field. • An understanding of the interaction of the Leederville aquifer with other aquifers, groundwater dependent ecosystems and wetlands in the local area, supported by groundwater drawdown pumping trials, should be demonstrated • Evidence that water abstraction will be sustainable and will not impact on the environment is not provided. • Dewatering will be required during summer. • Reclaiming slurry water for re-use should be investigated. • Timing of dewatering should reflect the natural fluctuations of the watertable. • The three site dams should be designed so as not to draw water from the aquifers or release nutrients and sediments to the aquifers. • The proposal should not impact on the future availability and quality of the proposed Karnup-Dandalup Underground Water Pollution Control Area. 	
Wetlands	<p>The Ramsar listed Becher Point Wetlands and Forrestdale and Thomsons' Lakes are about 20km and 37km, respectively from the project area.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • Dewatering could affect the ephemeral hydrological regime resulting in vegetation death and degradation of wetlands. 	<p>Considered to be a key environmental factor and is discussed in section 3.1</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>The Peel-Yalgorup System is about 20km downstream of the project area.</p> <p>The proponent used wetland mapping from the Revised Draft <i>Environmental Protection (Swan Coastal Plain Wetlands) Policy and Regulations 2004</i> in the PER. On advice of DEC, the proponent used the <i>Geomorphic Wetlands Swan Coastal Plain</i> dataset. The project area is within a dampland. According to the dataset, Conservation Category Wetland (CCW) UFI 7612 and twelve resource enhancement wetlands are mapped as occurring within the mine area. CCW UFI 7425 is mapped as partly within the mine area. Other CCWs and resource enhancement wetlands exist adjacent to the mine area.</p> <p>The proponent applied to DEC to reclassify the two CCWs within the mine area to 'not a wetland', and downgrade seven other CCWs adjacent to the mine area to either multiple use wetlands or 'not a wetland'. Preliminary advice from DEC is that the two CCWs mapped as occurring within the mine area are not conservation category, but resource enhancement wetlands.</p> <p>The proposal has the potential to impact on resource enhancement wetlands within the mine area through direct clearing. Wetlands adjacent to the mine area have the potential to be impacted as a result of groundwater drawdown.</p> <p>Rockwater Proprietary Limited conducted monitoring and modelling of the superficial aquifer to identify potential impacts on wetlands as a result of bore abstraction and dewatering.</p>	<ul style="list-style-type: none"> • It has not been clearly demonstrated that dewatering will not impact on wetlands. • Geomorphic wetland mapping, available from DEC, shows CCWs within the mine area that has not been reflected in the PER. The project area should be revised to avoid impact on CCWs and resource enhancement wetlands. • The proposed buffers to wetlands are inadequate. • The environmental water requirements and conservation values of the wetlands should be determined prior to any site works. • The model (Rockwater, 2006) does not provide an indication of the drawdowns in the wetlands adjacent to the mine areas. • Dewatering should be sufficiently far away from protected wetlands to ensure there is no hydrological impact. • The current hydrological state of the wetlands has not been accurately determined to state whether the wetlands are wholly dependant on creek flow, or if the wetlands have a groundwater inflow component. <p><u>Public</u></p> <ul style="list-style-type: none"> • The PER did not consider the presence of and impact on CCWs, resource enhancement wetlands and multiple use wetlands. • The buffers between the mine area and wetlands should be determined according to the WAPC's <i>Guideline for the Determination of Wetland Buffer Requirements (Draft)</i>. • There has been no detailed on-ground mapping of wetlands in the area. • The lack of a detailed digital terrain model prevents the identification of wetlands. This will lead to unrecoverable areas after mining. • The annual drawdowns around wetlands should reflect the natural wet and dry cycles of the water bodies. • Impacts drawdown may have on the wetlands or what actions will be implemented should the water table not return to natural levels by the end of the mining process has not been addressed. • Concern regarding impacts on the Ramsar listed sites and the Peel-Harvey system, particularly from mobilisation of fertilizers trapped in the soil. • Ramsar listed wetlands should not be adversely impacted by the proposal. • Management of impacts on the wetlands from dewatering is not addressed. • Wetland areas should be permanently protected by fencing and the application of conservation covenants on the titles of the properties. 	<p>“Vegetation”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
Surface water	<p>The Major watercourses that traverse the project area are Balgobin Brook and North Dandalup River Tributary. The Medium watercourses are Dirk Brook Tributary, Nambeelup Brook North Tributary, Balgobin Brook South Tributary and Nambeelup Brook South Tributary. The Minor watercourses are generally shallow and poorly defined. Many of the existing drainage lines have been modified into agricultural drains, and stock has access to most of the drainage lines within the project area (MBS, 2006).</p> <p>Rates of groundwater contribution to stream flow for the Medium watercourses before and during dewatering were estimated using a numerical model. From the model it was calculated that stream flow would decrease in the range of zero to 250m³/day and are mainly less than 60m³/day. The proponent considers that these are very minor amounts in the hydrology of the area (MBS, 2007f). Excess water would flow over a lined spillway on the dam to these nearby watercourses. If considered necessary, additional sediment sumps would be installed between the dam and the creek line to further decrease turbidity of discharge water (MBS, 2007a).</p> <p>In the event that water available from dewatering and in the site dam exceeds that required for processing and dust suppression, surplus water is proposed to be discharged along an existing drainage channel. Discharge water would be released from the site dam via a sediment settlement pond before discharge to the environment. Testing of nutrient levels in the Bassendean subsoils by the proponent has shown low levels of the major nutrients, nitrogen,</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • Dewatering impact on groundwater contribution to streams has not been demonstrated. • The Nambeelup Catchment is one of the most nutrient enriched catchments in the Peel-Harvey. • All watercourses within the project area should be fenced and revegetated. • The proposed buffers to watercourses are inadequate. • The disturbance of the Minor watercourses is not supported. Should this disturbance be permitted then detailed management plans should be prepared. • Stream flow, nitrogen and phosphorus loads should be calculated and regularly monitored during the life of the mine and after closure. • A Water Management Plan should be prepared defining surface water monitoring locations, frequency and parameters and baseline information. • The model (Rockwater, 2006) does not provide an indication of the drawdowns in the watercourses. • The potential impacts of the use of flocculants during processing on water disposal and storage should be addressed. • All surface watercourses eventually drain to the Peel-Harvey estuary. Appropriate controls should be put in place to ensure that the estuary is not impacted upon by the mining operations. • Given that the site is located within the Peel-Harvey Catchment, any overflow from the mining operations will need to be appropriately monitored and managed to minimise potential downstream impacts. • During the peak of the wet season, discharge of excess water into drainage channels may have significant impacts in regard to flooding and water quality. The impacts on downstream users in regard to water quantity and quality have not been adequately addressed. • Change in topography as a result of excavation impacting on the surface flow regime across the project area should be addressed. <p><u>Water Corporation</u></p> <ul style="list-style-type: none"> • Outflows from the project area should be kept to existing levels. • Management procedures should be in place to prevent unacceptable impacts on the drainage system associated with the disturbance of ASS. 	<p>The proponent has identified measures, outlined below, to minimise impacts on the watercourses.</p> <ol style="list-style-type: none"> 1. Maintain a 10m buffer each side of the Major and Medium watercourses crossing the mine area to ensure no direct physical disturbance on the watercourses. 2. Bund mine pits to prevent surface water runoff to the pit or from the pit, while mining occurs. 3. Capture and treat waters from potentially contaminated catchments prior to release to natural catchments. 4. Prepare and implement a Hydrocarbon Management Procedure. 5. Monitor discharge water for acidity. 6. Construct sediment sumps and silt and oil traps to remove sediments or pollutants from runoff before water enters local drainage. 7. Clean up any spills of contaminants such as oils and fuels immediately. 8. Monitor surface water quality around the active mine area. 9. Construct diversion drains so that water re-enters natural

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>phosphorus and potassium. The proponent expects that the discharge water would not contain high levels of nutrients (MBS, 2006).</p> <p>DoW advised that a licence to discharge into a natural drainage channel is not required because the project area is not located within a Management Area identified under the <i>Waterways Conservation Act 1976</i>.</p> <p>The proponent used stream flow data from a DoW stream gauging station located 10km southwest of the project area. The majority of the project area is located within the catchment for the gauging station (Nabeelup Brook Catchment). The average annual flow volume recorded is 24,920 megalitres, and a mean peak annual discharge of 15.7 cubic metres per second (m³/sec). Annual average runoff depth is 216 millimetres. There are generally no flows from January to April, and high flows occur from June to October. Analysis using a hand held water quality metre to measure conductivity of water at 15 locations within the project area in October 2005 found that the surface water is fresh (MBS, 2006).</p> <p>Minor watercourses that traverse the mine area would be diverted around the mine pits. The diverted watercourses would be constructed so that water re-enters the natural drainage line downstream of the mine pit at a velocity and depth similar to the original drainage channel. These diversions would be temporary, in that the pre-mining surface drainage would be re-instated after mining (MBS, 2006).</p> <p>The proponent will be required to apply for a</p>	<p><u>Public</u></p> <ul style="list-style-type: none"> • The lack of a detailed digital terrain model prevents the identification of the smaller drainage patterns. This will lead to unrecoverable areas after mining. • The annual drawdowns around watercourses should reflect the natural wet and dry cycles of the water bodies. • Impacts drawdown may have on the waterways or what actions will be implemented should the water table not return to natural levels by the end of the mining process has not been addressed. • Concern regarding the impact on the natural drainage of the area, and the lack of detailed investigations into water drainage from the mine area. • Concern regarding impacts on the quantity and quality of water in the watercourses, and impacts on the Ramsar listed sites and the Peel-Harvey system, particularly from mobilisation of fertilizers trapped in the soil. • Drainage areas should be permanently protected by fencing and the application of conservation covenants on the titles of the properties. • Pit dewatering in highly permeable sand and tailings in the mine pits will allow nutrients from the mine to enter Nabeelup Creek, which flows to the Peel-Harvey estuary catchment area. • Pit dewatering has the potential to contaminate Nabeelup Creek and impact on the wetlands. • Pollutants from the mine site including flocculants, and sediments and nutrients suspended from excavation could contaminate the wetlands and watercourses and be transported to downstream watercourses and to the Peel-Harvey estuary. • During the wet season it will be difficult to contain contaminated surface water, resulting in polluted water entering creeks, drains and flat areas. • There should be no net loss of nutrients to the catchment. • An assessment of when and how the Minor watercourses will be diverted, and the impacts associated with the diversions (on the watercourse itself, surrounding properties, and the adjoining wetlands) should be identified, as well as the management of the impacts. • During excavation and processing salt mineralisation held within the soil profile will be released into the water, and when returned to the mine pits or into the drainage system, what will occur with this potentially salty water? • At times the watertable is at the ground level. Nearby residences could be subject to inundation through any addition of water into the drainage system. 	<p>drainage lines at a velocity and depth that can be accommodated by the natural steam line without increasing scouring.</p> <p>10. Construct sedimentation basins in areas of exposed land to reduce turbidity before release to the environment.</p> <p>11. Implement a Water Management Plan which identifies measures to manage impacts on surface water quality by implementing the following actions:</p> <ul style="list-style-type: none"> • Isolate infrastructure areas that have the potential to contaminate surface water by directing all surface water from these locations to contained basins. • Construct sediment sumps, silt and oil traps where necessary to remove sediments or pollutants from runoff before water enters local drainage. • Any spills of contaminants such as oil or fuel will be cleaned up immediately. • Monitor surface water quality around the active mine area. <p>Not considered to be a key environmental factor.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>permit to DoW to interfere with creek bed and banks under the <i>Rights in Water and Irrigation Act 1914</i>. The application would need to include information on how the potential impacts on the creeks and the surrounding environment, from the creek diversions, will be minimised and managed.</p> <p>The proposal has the potential to impact on the integrity of the Minor watercourses through diversions. Runoff and erosion from disturbed areas, and pollutants such as fuels and oils, could enter the watercourses. The watercourses may also be impacted from the discharge of excess water into drainage lines, particularly where the water is contaminated with ASS.</p>	<ul style="list-style-type: none"> • It should be demonstrated that the proposed buffers to the Major and Medium watercourses will ensure no adverse impacts on the watercourses. • Pit dewatering in highly permeable sand in an area subject to sheet wash during wet winters will mean that mine waste water will carry nutrients remobilised by mining into the Nambeelup drainage system. • The project has a high risk of polluting the local surface water systems which drain into the Peel-Harvey system. • Given the vigorous washing action associated with the separation of heavy minerals from quartz sand, most of the nutrients will dissolve in the water and eventually pollute the Peel-Harvey system, unless contained. • The issue of nutrient release and pollution of water quality is not addressed in the PER, despite recognition in the <i>Surface Hydrology Report</i> (MBS, 2006) that “The major water quality issue for the area is the high level of nutrients.” • The use of ASS samples to determine soil nutrient levels is not appropriate. 	
Rehabilitation	<p>The topography of the project area is flat to gently undulating plain. The lowest elevations are in the western section at approximately 22mAHD, gradually sloping to approximately 40mAHD in the eastern section of the project area. The proponent intends to return the land to its pre-mining use of agriculture. The proposal involves mining of up to 1,366ha over 8 years. The mine area will be progressively returned to pasture or rehabilitated to native vegetation.</p> <p>Topsoil will be directly returned to the mined areas, except outside the vegetation rehabilitation season (April to August), when topsoil will be stockpiled. The stockpiling of topsoil for an extended period will occur on locations around the wet concentrator plant, where the facility is fixed for a number of years.</p> <p>Mining within each 30ha pit will take about three months. Pasture species will be seeded in May and August to stabilise the land. Return to pasture will involve two seeding years. Outside</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • The suite of plant species occurring within the original plant communities should be re-established in rehabilitation areas using seed of local provenance. • The use of mulched material in rehabilitation should be clarified with DEC. • Completion criteria should be developed. • Trees to be cleared should be relocated where possible. • Seed collection and propagation from vegetation on-site and endemic to the area should be used. • Revegetation should commence soon after the completion of mining. • Measures should be identified to ensure that the current ground levels across the site are maintained or enhanced to reduce the potential for inundation. • Dieback resistant species should be used in rehabilitation. <p><u>Public</u></p> <ul style="list-style-type: none"> • Concern regarding the lack of conservation covenants on revegetation and the maintenance of revegetation in the long-term by private landowners. • The proponent should manage revegetated areas until self-sustaining ecosystems are established, which reflect similar natural ecosystems. • The revegetation list is insufficient, includes species locally regarded as weeds, does not include middle storey or understorey species, does not replace the species diversity present in the project area, and contains dieback susceptible 	<p>Considered to be a key environmental factor and is discussed in section 3.1 “Vegetation”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>these months the land will be stabilised through the application of a layer of clay from the wet concentrator plant. Rehabilitation to native vegetation will include the establishment of understorey species.</p> <p>The proponent has prepared a Vegetation and Rehabilitation Management Plan.</p>	<p>species. A larger and more diverse revegetation list is required.</p> <ul style="list-style-type: none"> • Revegetation of the project area would be at the expense of older established trees that provide nesting hollows or could provide hollows in the future. • The ecological value of planted vegetation will be much lower than that of the original flora, therefore the area of revegetation should be sufficiently large to compensate for this difference. • The bulk of the revegetation is a highly artificial set of straight lines, with no attempt to re-establish a natural bush setting. • Cleared trees should be used in rehabilitation rather than burnt. • Rehabilitation of the Beenup Mineral Sands Mine found that the clay could not consolidate, and as a result ASS entered the groundwater. • The PER does not define any rehabilitation bonds in the event that the proponent does not meet its rehabilitation commitments. • Mitigating past impacts through wetland rehabilitation should be considered. • The PER needs to demonstrate how the rehabilitation completion criteria will be met and what measures will be put in place to ensure the revegetation can be maintained in the long-term. • Full weed control following germination and prior to planting should be carried out. Selective weed control may then be needed in spring and/or the following year but initial weed control is vital to success. • The impact of removing minerals on water and nutrient uptake of native plants in revegetated areas should be determined. • Revegetated areas should be permanently fenced to prevent grazing from livestock and minimise the spread of dieback and weeds. • The proposed two year post mining monitoring programme is not sufficient. • The area should be returned to a better condition than before mining. This should include a larger area to be permanently revegetated to prevent salinity. • There is no commitment to monitor the spread of salinity, ASS, radiation levels and nutrient discharge post mining. • The land should be returned to a stable landform. • What modelling and testing has been done to demonstrate that the mixing of various strata of the soil profile will work on Bassendean soils? What impacts will this have on infiltration rates to the groundwater aquifers? • There is no digital terrain model for the area. Therefore it is not possible to re-establish existing landforms if they are not initially understood. 	

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
POLLUTION			
Acid sulfate soils	<p>According to the WAPC Planning Bulletin No. 64 <i>Acid Sulfate Soils</i>, the majority of the project area is classified as “moderate to low risk”, where ASS layers are predicted at depths greater than 3m below ground level, with two areas classified as “high risk” within Lot 57. Mining is proposed to a depth of 2m below ground level, and up to 6m below ground on sandy dunes. The ore body extends below the seasonal water table in some areas, where dewatering of the soils will be required.</p> <p>The ore body is confined to the Bassendean Sand Formation. The sampling programme identified that the areas sampled, which included the two high risk areas, are of moderate to low risk of ASS. Sampling was concentrated in the low-lying and central part of the project area where the first stages of mining will commence. Other areas will be sampled in advance of mining. The soil profile where Potential ASS is likely to occur is in the underlying Guildford Formation, which will not be disturbed through excavation or dewatering. Dewatering will be via drains on the pit floor directing water to collection sumps (MBS, 2007f).</p> <p>The proposal has the potential to impact on the quality of the groundwater and the soil from exposure of ASS material as a result of dewatering. The discharge of acidified water from dewatering and processing could impact on the surrounding environment.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • The approach undertaken to assess ASS risk for the proposal is limited. • Without conducting a comprehensive site investigation, commencement of site excavation and dewatering may represent a risk to groundwater quality and the receiving environment. • Contingencies should be identified and implemented to ensure acidification of the groundwater does not occur. • An ASS Management Plan should be prepared prior to any site works. <p><u>Water Corporation</u></p> <ul style="list-style-type: none"> • The proponent should have management procedures in place to prevent the potential unacceptable impacts associated with the disturbance of the ASS. <p><u>Public</u></p> <ul style="list-style-type: none"> • Concern regarding the disturbance of ASS and the related impacts on water quality, aquatic communities, CCWs and Ramsar listed wetland systems. • The ASS assessment is limited in inadequate to guarantee minimisation of the risk of ASS development due to the design of the sampling programme, relatively small number of sampling sites and limited depth of coring. • A comprehensive grid pattern drilling programme should be undertaken over the project area to identify risk of ASS. • There is no contingency plan for ASS contamination. • The possibility of a plume of acidic water moving from the mine area via groundwater or surface water streams to the Peel-Harvey system is a high priority impact requiring management on this project. • Acidified soils will be spread over a large area from the mixing of soils, air and water associated with backfilling. Disturbance of the lower clay layers of the soil profile will reduce the acid buffering capacity of the soil, and create the conditions for acidic groundwater, and facilitate the rapid infiltration and transport of the plume to receiving environments. • An ASS Management Plan should be provided with identified trigger levels and management actions, and include groundwater and surface water quality monitoring bores through the soil profile and across the project area and downstream. 	<p>Considered to be a key environmental factor and is discussed in section 3.2 “Groundwater”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
Noise	<p>The project area is located 500m from the North Dandalup township and 120 to 500m from local residences. The proposal has the potential to generate noise from land clearing, excavation, processing and vehicle movement. Noise generated from the proposal has the potential to impact on the amenity of the local residents.</p> <p>A Noise Impact Assessment carried out by Lloyd Acoustics in February 2006 found that in order to comply with the <i>Environmental Protection (Noise) Regulations 1997</i> (Noise Regulations), the wet concentrator plant must be 1km from residences, the hopper/screen and pump should be located 2 metres below ground level (mbgl) within a 2m high bund and 215m from residences, and the booster pumps should be at least 200m from residences.</p> <p>The scraper will have the highest noise emission of all equipment. Modelling indicated that:</p> <ol style="list-style-type: none"> 1. under downwind conditions, a distance of 2.1km is required to achieve 30dB(A) (the night time threshold level); 2. under downwind conditions a distance of 640m is required to achieve 45dB(A) (the day time threshold level); 3. under calm conditions a distance of 1km is required to achieve 30dB(A); and 4. under calm conditions a distance of 300m is required to achieve 45dB(A). 	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> • A Noise Management Plan should be prepared and identify all noise sources and associated noise control measures; monitoring regime for noise emissions; management of transport noise; model refining/verification; reporting of noise emissions; review and continuous improvement programme; commitment to “buy quiet”; and complaint management procedure. • The Noise Management Plan should address construction noise management. • The value used in the acoustic model for ground absorption may be excessively attenuating the predicted noise levels by approximately 2-3dB. • The Noise Management Plan should address the movement of heavy haulage vehicles on local roads, restricting this activity between 7pm to 7am Monday to Saturday and not at all on Sunday. <p><u>Public</u></p> <ul style="list-style-type: none"> • Concern regarding the impact of noise on the local community from clearing, excavation, processing and transport associated with the mining proposal, and from operating 24 hours a day, 7 days a week. • The noise model failed to include: the use of at least 2 scrapers and beeping from mine vehicles; all residences in the vicinity of the mine area; all mobile vehicles (e.g. the water truck and haulage trucks were not included); and cumulative noise impacts from all equipment operating at one time. • The location of the wet concentrator plant in the southern part of the project area is in a creek. • The noise model suggests that scrapers cannot operate at night for much of the project area. • There appears to be no allowance for noise reduction during the day. • The sound travels further in the area, as it is flat land. • Mining should be restricted during night time. • The measures outlined in the PER will not adequately manage noise impacts. 	<p>Considered to be a key environmental factor and is discussed in section 3.3 “Noise”.</p>
Dust	<p>The project area is located 500m from the North Dandalup township and 120 to 500m from local residences. The proposal has the potential to generate dust from land clearing, topsoil stripping, excavation, movement of vehicles along haul roads and wind erosion of exposed</p>	<p><u>Local Government agencies</u></p> <ul style="list-style-type: none"> • The Dust Management Plan should address impacts from active mine areas on nearby residents. • Relatively high wind speeds are experienced in the area and appropriate dust management should be employed during mining and rehabilitation on-site. 	<p>Considered to be a key environmental factor and is discussed in section 3.4 “Dust”.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>surfaces. Dust generated from the proposal has the potential to impact on the health, welfare and amenity of local residents, impact on the health of the stock and deposit on surrounding native vegetation.</p> <p>Estimated dust emissions from the removal of topsoil and ore by scrapers, unloading of material onto stockpiles or the dump hopper, and wind erosion from product stockpiles and unsealed areas was used in the model. Worst case scenario modelling revealed the potential to impact upon some residences located close to the mine area at different stages of operations. The estimated distance for concern is when operations are approaching within 300m of a residence. Exceedances of NEPM were predicted at the residence on Lot 104 Westcott Rd when mining occurs on Lot 6 Westcott Rd and at the residence on Lot 3 Readheads Rd when mining occurs on Lot 49 Readheads Rd.</p> <p>The proponent has prepared an Air Quality and Dust Management Plan.</p>	<p><u>Public</u></p> <ul style="list-style-type: none"> • The need for separate night and day pits and different mining locations based on the prevailing winds will mean a larger area of excavated land is exposed. • The proposal will create a large amount of dust that will be difficult to control and will impact on the health of local residents and affect rain water tanks. • Water sprays will not adequately control dust generation under high easterly winds during the summer months. • The proponent has not demonstrated that Perth airport has similar wind conditions to the project area in order to justify the use of Perth airport data. • Clearing of tall and dense remnant vegetation will increase the likelihood of sand dune blowouts and dust storms from katabatic winds descending the Scarp and hitting the SCP at high velocities. This will be further exacerbated by removing the soil profile by scrapers during such high wind conditions. The proponent should do site-specific measurements and base any wind erosion predictions and management plans on these. • The absence of local wind monitoring fails to address the severe wind velocities of the area (especially during summer), enhanced by local topography. • Further study of the local katabatic winds and assessment of impacts on soil erosion, vegetation removal (and establishment) should be undertaken. • Will the proponent set up a weather monitoring station? • The proponent's claim to only mine on the down wind side of residences is not possible, with houses surrounding the mine, and summer winds changing 180 degrees in a day. • The dunes that act as wind breaks from the strong easterlies will be cleared. • The timing of land clearing is important to minimise wind erosion during summer. • Land clearing and mining should not occur during the spring and summer months due to the risk of east wind erosion. 	
Greenhouse gas emissions	<p>Emission data for diesel combustion from mobile equipment for:</p> <ul style="list-style-type: none"> • VOCs is 4,608 Kilograms per year. • NO_x is 51,199 Kilograms per year. • NO₁₀ is 4,739 Kilograms per year. • CO is 17,168 Kilograms per year. • Formaldehyde is 1,330 Kilograms per year. 	<p><u>Public</u></p> <ul style="list-style-type: none"> • No assessment was made of the quantities of greenhouse gas emissions over the life of the project. • Greenhouse gas emissions generated from the proposed mining operation should be quantified. • No information was provided as to how the proponent will offset greenhouse emissions generated by the proposed mine. 	<p>Indirect fossil fuel consumption (i.e. WA SWIS grid electricity consumption) for electrically driven items is 25,200 tonnes of CO_{2-e}.</p> <p>The emissions from the</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<ul style="list-style-type: none"> • SO₂ is 5,247 Kilograms per year. 	<ul style="list-style-type: none"> • Information on how the proponent will operate as carbon-neutral should be provided. 	<p>extraction, production and transport of fuels used in the production of purchased electricity and emissions associated with the electricity lost in transmission and distribution on the way to the consumer is 28,080 tonnes of CO₂-e.</p> <p>Not considered to be a key environmental factor.</p>
Hazardous material	<p>There is potential for hazardous material to leak or spill and contaminate the soil, surface water and groundwater. Hazardous material includes fuels, grease and radioactive material in the mineral sands.</p> <p>Measures to minimise risk to the environment from hydrocarbons includes:</p> <ul style="list-style-type: none"> • Hydrocarbon storage areas and workshops will be located in bunded areas, at least 2m above the groundwater. • Runoff from the workshop and office areas potentially contaminated with hydrocarbons will be directed to containment sumps prior to discharge. • Hazardous wastes generated by the operation will be transported off-site to licenced waste disposal facilities. • Hydrocarbon spills will be cleaned up, contaminated soil removed from site, and be reported in the incident report procedure. <p>One of the main potential sources of radiation emission is airborne dust.</p>	<p><u>Radiological Council</u></p> <ul style="list-style-type: none"> • No radiation monitoring results are presented in the PER to confirm the proponent's claim that testing conducted in the ore body detected no monazite. • The PER does not reflect the legislative requirements for registration and licensing under the <i>Radiation Safety Act 1975</i>. • If the site to registered, the Radiological Council will require compliance with a Radiation Management Plan and Radiation Waste Management Plan. • The objectives of the radiation management, rehabilitation and closure plans should make reference to approvals required from the Radiological Council. • Once mining ceases, the site will remain registered until the Radiological Council approves the release of the site and terminates the registration. <p><u>Public</u></p> <ul style="list-style-type: none"> • No baseline levels of radiation are provided. • Monazite is a mineral sands by-product that contains the radioactive material thorium. The proponent proposes to dispose of the monazite with the tailings into the mine void. The shallow depth of the mine void and close proximity to the groundwater means that there is potential for the groundwater to be contaminated with this radioactive waste material. • Monazite should be disposed of in a regulated waste management site. • A radiation assessment should be carried out. 	<p>A baseline gamma radiation survey over the area comprising the first three years of mining (Lots 112, 300, 59 and 62) was conducted. Subsequent surveys will be conducted in other areas in advance of mining.</p> <p>The proponent has prepared a Radiation Management Plan.</p> <p>The proponent has prepared an Air Quality and Dust Management Plan.</p> <p>Radiation can be managed under the <i>Radiation Safety Act 1975</i>, which may require registration and licensing of the site.</p> <p>The proponent will prepare and implement a Hydrocarbon Management Procedure.</p> <p>Not considered to be a key environmental factor.</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
Liquid and solid waste	<p>There will be no on-site disposal of waste. Hazardous waste material will be stored in a bunded area. Wastes will be recycled where possible. Contractors will be engaged to remove all rubbish and waste from the site.</p> <p>Potential impacts if wastes are not managed properly include contamination of the soil, surface water and groundwater.</p>	<p><u>Local and State Government agencies</u></p> <ul style="list-style-type: none"> The numbers, locations, types and proposed usage rates of effluent disposal systems should be provided. The nature of the flocculant to be used and whether it poses a potential risk to the environment if released should be investigated. <p><u>Public</u></p> <ul style="list-style-type: none"> All recyclable materials should be recycled locally. 	Not considered to be a key environmental factor.
SOCIAL SURROUNDINGS			
Aboriginal heritage and culture	<p>A desktop Aboriginal Heritage Assessment carried out by Australian Interaction Consultants identified the potential for three sites to be impacted by the proposal.</p> <p>After release of the PER, the proponent carried out an on-site archaeological survey of the project area, and consulted with the local Aboriginal people to identify any ethnographic sites in the area.</p>	<p><u>Department of Indigenous Affairs</u></p> <ul style="list-style-type: none"> Archaeological field inspections and consultation with relevant Aboriginal people should be conducted prior to any developments in the project area. Suitably qualified consultants should be engaged to conduct ethnographic and archaeological surveys of the area. Aboriginal interest groups should be consulted so that all sites in the project area are identified or avoided. Surveys should include archival research, consultations and on-ground inspections. <p><u>Public</u></p> <ul style="list-style-type: none"> An on-ground Aboriginal heritage assessment and consultation with local Aboriginal elders should be conducted. The PER does not address management of aboriginal heritage for the proposal. 	<p>The proponent will be required to comply with the requirements of the <i>Aboriginal Heritage Act 1972</i>.</p> <p>Not considered to be a key environmental factor.</p>
Public health and safety	<p>The route to transport the Heavy Mineral Concentrate (HMC) utilises Westcott Rd (through the mine area), a private road through Lot 300, Atkins Rd, south to Readheads Rd and east to South Western Highway. Trucks will travel approximately 117km for secondary processing at Cable Sands' plant in Bunbury.</p> <p>Truck movements to and from the mine site to Bunbury will be 12 to 14 per day, and all loads will be covered. In addition to the haulage of the HMC, there will be truck movements associated with the delivery (about one per week) of supplies</p>	<p><u>Public</u></p> <ul style="list-style-type: none"> Air emissions from the proposal will impact on the health of local residents, some of whom already have health problems. Noise generated from the proposal will exacerbate migraine headaches experienced by a local resident. Due to air quality issues the burning of cleared vegetation is not supported. The PER does not explain how the water pipelines will cross properties and roads to reach the processing plants at various locations. The haul roads are along narrow country roads used by cyclists, horse riders and walkers, school bus routes and an overcrowded South Western Highway. The increased truck haulage will make it dangerous for other road users. The South Western Highway will experience greater traffic pressure from the 	<p>The proponent has negotiated with the person suffering from migraine headaches to re-locate the family when mining is close to their property.</p> <p>The proponent will consult with the Local Shires regarding upgrading and maintaining local roads used as haulage roads. The proponent will consult with Main Roads to ensure the safe movement of vehicles along the</p>

Preliminary environmental factors	Proposal characteristics	Government agency and public comments	Identification of key environmental factors
	<p>to the site, particularly diesel fuel.</p> <p>A resident 400m from the mine area has health problems that can be exacerbated by pollutants, such as diesel emissions generated by the proposal. The proponent will employ selective mining near the residence to mine only when prevailing wind blows away from the property.</p> <p>The proponent will maintain a complaints register, and respond to all issues raised.</p>	<p>proposal.</p> <ul style="list-style-type: none"> • 12 to 14 movements of 50 tonne trucks, plus additional light vehicles, is not a minimal traffic increase. • The HMC should be transported off-site by constructing a siding to the existing railway line to minimise impacts from transportation via trucks on the road. • Concern regarding noise and safety impacts from the trucks passing the school. • Safety concern regarding the use of Readheads Road as a haul road because it is a narrow school bus route. 	<p>South Western Highway.</p> <p>The proponent considered that the costs associated with establishing a rail siding at the existing railway line was not viable for the proposal.</p> <p>Not considered to be a key environmental factor.</p>
Visual amenity	<p>The mine area would be visible from some local roads and residences.</p> <p>The active mine area will move relatively quickly through the landscape. Progressive rehabilitation will re-instate the visual amenity soon after the completion of mining.</p> <p>The proposed 'early planting' programme would assist in retaining visual amenity for local residents and visitors.</p>	<p><u>Shire of Serpentine-Jarrahdale</u></p> <ul style="list-style-type: none"> • The topography of the landscape lends itself to the operations being visible from the surrounding region, creating a visual impact of the mining operation. <p><u>Public</u></p> <ul style="list-style-type: none"> • The crude and unnatural revegetation plan to plant an artificial looking series of straight lines will be a visible scar. • The mine and processing plants will be a visual impact to the natural beauty of the area enjoyed by visitors and local residents. • Mining will occur within 500m of the North Dandalup township and 200m within local residences. 	<p>Not considered to be a key environmental factor.</p>

PRINCIPLES		
Principle	Relevant Yes / No	If yes, consideration
<p>1. The precautionary principle <i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –</i></p> <p>(a) <i>careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p>(b) <i>an assessment of the risk-weighted consequences of various options.</i></p>	Yes	The proposal has the potential to affect groundwater dependant ecosystems through groundwater drawdown. Monitoring and contingency measures will need to be implemented to avoid and manage any adverse impacts. This matter is discussed in the key environmental factors of vegetation and groundwater.
<p>2. The principle of intergenerational equity <i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	Yes	The proposal would permanently decrease the resource in the area, and has the potential to reduce the productivity of the land if not managed and rehabilitated properly. Vegetation (including fauna, wetlands and rehabilitation) is a key environmental factor discussed in this report.
<p>3. The principle of the conservation of biological diversity and ecological integrity <i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	Yes	The proposal has the potential to impact on the biological diversity of fauna and flora. Vegetation (including fauna, wetlands and rehabilitation) is a key environmental factor discussed in this report.
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms</p> <p>(1) <i>Environmental factors should be included in the valuation of assets and services.</i></p> <p>(2) <i>The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i></p> <p>(3) <i>The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.</i></p> <p>(4) <i>Environmental goals, having been established, should be</i></p>	Yes	<p>The proponent should bear the cost of avoiding or abating pollution. Potential impacts of pollution and their mitigation are discussed in the key environmental factors of groundwater, noise and dust.</p> <p>Where environmental assets are lost, the proponent should bear the cost of rectifying these losses. Rehabilitation is discussed in the key environmental factor of vegetation.</p>

PRINCIPLES		
Principle	Relevant Yes / No	If yes, consideration
<i>pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximize benefits and/or minimize costs to develop their own solution and responses to environmental problems.</i>		
5. The principle of waste minimisation <i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i>	Yes	The proposal will require the appropriate management of waste products such as tailings.

Appendix 4

**Recommended environmental conditions and
proponent's consolidated commitments**

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986**

KEYSBROOK MINERAL SANDS MINE
SHIRE OF SERPENTINE-JARRAHDAL AND SHIRE OF MURRAY

Proposal: To develop a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit. The proposal is described further in schedule 1 of this document.

Proponent: Olympia Resources Limited

Proponent Address: Level 4, 25 Walters Drive HERDSMAN WA 6016

Assessment Number: 1580

Report of the Environmental Protection Authority: Bulletin 1269

The proposal referred to in the report of the Environmental Protection Authority may be implemented subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the condition and procedures of this statement.

2 Proponent Environmental Management Commitments

2-1 The proponent shall fulfil the environmental management commitment contained in schedule 2 of this statement.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

3-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of a notice or other correspondence within 30 days of such change.

4 Time Limit of Authorisation

4-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

4-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

5 Compliance Reporting

5-1 The proponent shall submit to the CEO environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO to report more frequently.

5-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.

5-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent's chief executive officer or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's chief executive officer;
2. state whether the proponent has complied with each condition and procedure contained in this statement;
3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;
4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;
5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;
6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;
7. provide an assessment of the effectiveness of all corrective and preventative actions taken; and
8. describe the state of implementation of the proposal.

5-4 The proponent shall make the environmental compliance reports required by condition 5-1 publicly available in a manner approved by the CEO.

6 Performance Review

6-1 The proponent shall submit a Performance Review report every two years after the start of production to the Environmental Protection Authority, which addresses:

1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve

these; and the key indicators of environmental performance measured against those objectives;

2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;
 3. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
 4. the proposed environmental objectives over the next two years, including improvements management processes and practices.
- 6-2 The proponent shall make the Performance Review reports required by condition 6-1 publicly available in a manner approved by the CEO.

7 Rehabilitation

- 7-1 The proponent shall reinstate areas of functioning annual pasture after mining, unless otherwise agreed to by the landowner.
- 7-2 Prior to the commencement of ground-disturbing activities, the proponent shall prepare a Rehabilitation Programme to the requirements of the Department of Environment and Conservation.

The Programme shall include the following Plans:

1. Excised Area Management Plan

The objective of the Plan is to excise a consolidated area of remnant native vegetation on Lots 59 and/or 62 from the mine area, provide protection and security to this area and enhance the condition of the vegetation to provide fauna habitat.

2. Watercourse Rehabilitation Management Plan

The objective of the Plan is to enhance the condition of the vegetation along the watercourses in the project area.

The Excised Area Management Plan shall:

1. identify a consolidated area of remnant native vegetation on Lot 59 and/or 62 that will be excised from mining, and protected from mine related disturbance;
2. describe the condition of the vegetation in the excised area, and habitat values; and
3. identify measures to establish nest boxes for black cockatoos and other bird species of conservation significance into the excised area;

The Excised Area Management Plan and Watercourse Rehabilitation Management Plan shall:

1. describe measures to protect the areas to be revegetated from access, including grazing by stock;
 2. identify measures to translocate native plant species cleared for mining into revegetated areas;
 3. identify measures to eradicate weeds in the revegetated areas;
 4. identify measures to use dieback un-infested topsoil and dieback resistant species in the revegetated areas;
 5. describe a strategy to revegetate areas, including the use of local species of local provenance, and establishment of middle storey and understorey species;
 6. identify completion criteria for revegetation; and
 7. outline a revegetation monitoring programme.
- 7-3 The proponent shall implement the Rehabilitation Programme required by condition 7-2.
- 7-4 The proponent shall review and revise the Rehabilitation Programme required by condition 7-2 as and when directed by the CEO.
- 7-5 The proponent shall implement revisions of the Rehabilitation Programme required by condition 7-4.
- 7-6 The proponent shall make the Rehabilitation Programme required by condition 7-2 and revisions required by condition 7-4 publicly available in a manner approved by the CEO.

8 Weed and Dieback Management

- 8-1 The proponent shall manage its operations to ensure that neither weeds nor dieback are spread as a result of project activities.

9 Water Management

- 9-1 Prior to the commencement of ground-disturbing activities, the proponent shall revise the Water Management Plan to the requirements of the Department of Water.

The objective of the Plan is to maintain the quantity and quality of groundwater so that the aquifers, and surrounding users are not adversely affected by groundwater drawdown associated with the proposal.

The Plan shall:

1. outline a programme to monitor groundwater quality and quantity, including monitoring of bores located on surrounding properties, and at the downstream boundary of the project area;
 2. monitor the health and condition of retained remnant native vegetation within the project area to ensure that it is not affected by groundwater drawdown associated with the proposal;
 3. identify groundwater trigger levels and management actions should a trigger level be reached;
 4. identify measures to provide an alternative source of water, particularly to surrounding groundwater users, where monitoring in item 1 indicates that mining activities has adversely affected water quality to the point where it cannot be used for its intended purpose or ecosystem maintenance;
 5. identify measures to ensure that the quality and quantity of groundwater is maintained post-mining;
 6. identify measures to minimise impacts associated with the discharge of excess water;
 7. outline a monitoring programme to detect any adverse impacts to the water quality, water levels or vegetation health of the conservation category wetlands adjacent to the mine area; and
 8. identify management measures in the event that monitoring in point 7 detects adverse impacts to conservation category wetlands adjacent to the mine area as a result of the proposal.
- 9-2 The proponent shall implement the Water Management Plan required by condition 9-1.
- 9-3 The proponent shall review and revise the Water Management Plan required by condition 9-1 as and when directed by the CEO.
- 9-4 The proponent shall implement revisions of the Water Management Plan required by condition 9-3.
- 9-5 The proponent shall make the Water Management Plan required by condition 9-1 and revisions required by condition 9-3 publicly available in a manner approved by the CEO.

10 Acid Sulfate Soils Management

- 10-1 The proponent shall not lower the depth of the watertable below that required for accessing the orebody.
- 10-2 The proponent shall implement the Acid Sulfate Soils Management Plan dated May 2007.

11 Performance Bond

11-1 As security for the due and punctual observance and performance by the proponent to meet the requirements of condition 7, the proponent shall lodge with the CEO on demand prior to commencement of construction of the mine, an unconditional and irrevocable bank guarantee, from a guarantor acceptable to the CEO in his sole unfettered discretion to a cash value and in a form acceptable to the CEO (“the Security”) which Security at the hereof being \$12,000 per hectare of land disturbed.

After two years of return to pasture or revegetation post mining, the Security may be reduced to \$5,000 per hectare of land disturbed based on the achievement of condition 7-2 and completion criteria identified in condition 7-3.

After five years of return to pasture or revegetation post mining, the Security may be returned on the achievement of condition 7-2 and completion criteria identified in condition 7-3.

11-2 The CEO may review the Security required by condition 11-1 at any time or times and if, on such review, the CEO considers that a security has ceased to be acceptable to the CEO, then the CEO may, with the approval of the Minister for the Environment, require the proponent to furnish replacement or additional security for performance by the proponent of its obligations under condition 7.

11-3 The proponent shall within fourteen days after written request by the CEO furnish replacement or additional security in such sum as the CEO shall nominate, in a form and upon terms and conditions approved by the CEO, which approval shall not be unreasonably withheld. On receipt of approved replacement security the CEO shall release and discharge the original security.

Note: In the preparation of advice to the CEO in relation to condition 7, the Environmental Protection Authority expects that the advice of the Department of Environment and Conservation would be obtained.

12 Noise Management

12-1 The proponent shall not undertake any mining operations where and when measurements at the nearest occupied residence exceeds the noise levels identified in condition 12-3. A residence will assumed to be occupied unless the proponent has written confirmation from the resident to the contrary.

12-2 Where the proponent has an agreement with a resident that the noise levels identified in condition 12-3 is not to apply, written evidence of that agreement shall be provided by the proponent.

12-3 Noise emissions from mineral excavation activities, carried out in accordance with conditions 12-1 and 12-2, when received on a noise-sensitive premises at locations within 15 metres of a building that is directly associated with a noise-sensitive use, shall not exceed the following daytime, evening and night time noise levels:

Daytime (between 0700 hours and 1900 hours)

- $L_{A\ 10}$ of 50 dB(A);
- $L_{A\ 1}$ of 60 dB(A); and
- $L_{A\ max}$ of 70 dB(A).

Evening (between 1900 hours and 2200 hours)

- $L_{A\ 10}$ of 40 dB(A);
- $L_{A\ 1}$ of 50 dB(A); and
- $L_{A\ max}$ of 55 dB(A).

Night time (between 2200 hours and 0700 hours)

- $L_{A\ 10}$ of 35 dB(A);
- $L_{A\ 1}$ of 45 dB(A); and
- $L_{A\ max}$ of 55 dB(A).

Note: For the purpose of these Conditions the level of a noise emission shall be determined in accordance with Part 3 of the *Environmental Protection (Noise) Regulations 1997*; and the terms $L_{A\ 10}$, $L_{A\ 1}$ and $L_{A\ max}$ have the meaning given in those regulations.

12-4 There shall be no penalty of noise levels ascribed to tonality, modulation and impulsiveness. The proponent shall identify and minimise any such sources.

12-5 The proponent shall have publicly available, rolling three month plans for operations showing predicted levels of noise impacts.

12-6 The proponent shall have continuous monitoring of noise levels at the nearest occupied residence (except where there is an agreement otherwise).

12-7 Measurements and locations for $L_{A\ 10}$, $L_{A\ 1}$ and $L_{A\ max}$ shall be made public each week, in the week after measurements.

13 Air Quality And Dust Management

13-1 Prior to the commencement of ground-disturbing activities, the proponent shall revise the Air Quality and Dust Management Plan to the requirements of the Department of Environment and Conservation.

The objective of the Plan is to reduce dust emissions as far as practicable, and ensure that dust emissions do not adversely affect environmental values or the health, welfare and amenity of people and land uses.

The Plan shall:

1. outline the results of on-site baseline dust monitoring and modelling;
 2. identify dust management measures for a range of predicted weather forecasts, including avoiding, ameliorating and protecting from dust impacts;
 3. identify dust management measures according to actual winds experienced at the site;
 4. identify a plan for each pit, which details the times of day and weather conditions under which parts of the pit could be mined;
 5. identify a monitoring programme;
 6. identify a complaint management procedure; and
 7. describe the outcomes of landowner agreements when mining in close proximity to occupied residences.
- 13-2 The proponent shall implement the Air Quality and Dust Management Plan required by condition 13-1.
- 13-3 The proponent shall review and revise the Air Quality and Dust Management Plan required by condition 13-1 as and when directed by the CEO.
- 13-4 The proponent shall implement revisions of the Air Quality and Dust Management Plan required by condition 13-3.
- 13-5 The proponent shall make the Air Quality and Dust Management Plan required by condition 13-1 and revisions required by condition 13-3 publicly available in a manner approved by the CEO.

Notes

1. Where a condition for a Management Plan states "to the requirements of the Department of Environment and Conservation", the proponent shall consult with the Department during preparation of the Management Plans.
2. The Minister for the Environment will determine any dispute between the proponent and the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.
3. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

Schedule 1

Keysbrook Mineral Sands Mine (Assessment No. 1580)

The proposal is to develop a mineral sands mine near the Keysbrook township. The proposal involves the excavation and processing of a low-grade heavy mineral sands deposit. Local roads would be upgraded to facilitate the transport of the heavy mineral concentrate to South Western Highway.

An area of 30 hectares will be progressively mined at any time. Waste from the processing will be used as backfill in the mined areas. Backfilled areas will be progressively re-contoured and stabilised prior to topsoil replacement and return to pasture or native vegetation. The wet concentrator plant will be relocated three times throughout the life of mine. Support infrastructure, such as pipelines, offices and workshops will also be relocated with the wet concentrator plant. A site dam will be constructed at each of the three locations.

The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Key Proposal Characteristics (Assessment No. 1580)

Element	Description	
Land tenure over the mining area	Keysbrook	North Dandalup
	Part Lot 56 Westcott Rd Part Lot 57 Elliott Rd Part Lot 1 Elliott Rd Part Lot 52 Westcott Rd Part Lot 111 Westcott Rd Lot 112 Westcott Rd Lot 113 Westcott Rd Part Lot 6 Westcott Rd Part Lot 63 Hopeland Rd	Part Lot 62 Hopeland Rd Part Lot 59 Westcott Rd Part Lot 300 Westcott Rd Part Lot 49 Readheads Rd Part Lot 7 Readheads Rd Part Lot 6 Readheads Rd Part Lot 44 Readheads Rd
Life of mine	8 years	
Product quantity	approximately 920,000 tonnes of heavy mineral concentrate	
Pit depth	average 2 metres below ground level, and up to 6 metres on sandy dunes	
Area of disturbance	not more than 1,366 hectares. This area would be reduced as a result of implementation of the excised area on Lot 62 and/or Lot 59, to be confirmed in condition 7.	
Dewatering	in-pit sumps to dewater the superficial Bassendean Sand aquifer at 0.2 gicalitres per annum	
Bore abstraction	up to 1.8 gicalitres per annum from two bores into the deep Leederville aquifer	
Road upgrades	upgrades of existing roads; Westcott Rd, Atkins Rd, Readheads Rd and intersection of Readheads Rd and South Western Hwy	

Figures

Figure 1 - Regional location. See Figure 1, page 4 above

Figure 2 - Project area. See Figure 2 page 5 above

Figure 3 - Mine area. See Figure 4 page 10 above.

Schedule 2

**Proponent's Environmental Management Commitments – OCTOBER 2007
KEYSBROOK MINERAL SANDS MINE (ASSESSMENT NO. 1580)**

No	Topic	Objective	Action	Timing	Advice
1	Security of remnant native vegetation	To secure areas of remnant native vegetation within the mine area by means of a conservation covenant	The proponent shall negotiate with the landowners of Lot 62 and Lot 59 to provide compensation for the security, in perpetuity, of areas of remnant native vegetation by means of a conservation covenant.	Life of the mine	Department of Environment and Conservation
2	Community consultation	To engage with the local community	The proponent shall continue to undertake community consultation and identify community development programmes to be initiated or supported by the proponent to the value of at least \$25,000 per year.	Life of the mine	Department of Environment and Conservation

Appendix 5

**Summary of submissions and
proponent's response to submissions**

APPENDIX 3
CERTIFICATES OF TITLE

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDAL SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 1
Street No: 107
Street Name: Elliott Road
Suburb: Keysbrook
Diagram / Plan: 8916
Certificate of Title Volume and Folio: 2094/330
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 1/D8916	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2094** FOLIO **330**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

RG Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 1 ON DIAGRAM 8916

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(XA G372122) REGISTERED 7 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2094 FOL 330.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2094-330 (1/D8916).
PREVIOUS TITLE: 1511-656.
PROPERTY STREET ADDRESS: 107 ELLIOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Sundry Document G372122 WESTERN



AUSTRALIA

REGISTER BOOK VOL. FOL.

Volume 1511 Folio 656

CT 2094 330



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

M. J. G. G.
ASSISTANT REGISTRAR OF TITLES



Dated 7th January, 1997

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 1 on Diagram 8916, delineated on the map in the Third Schedule hereto.

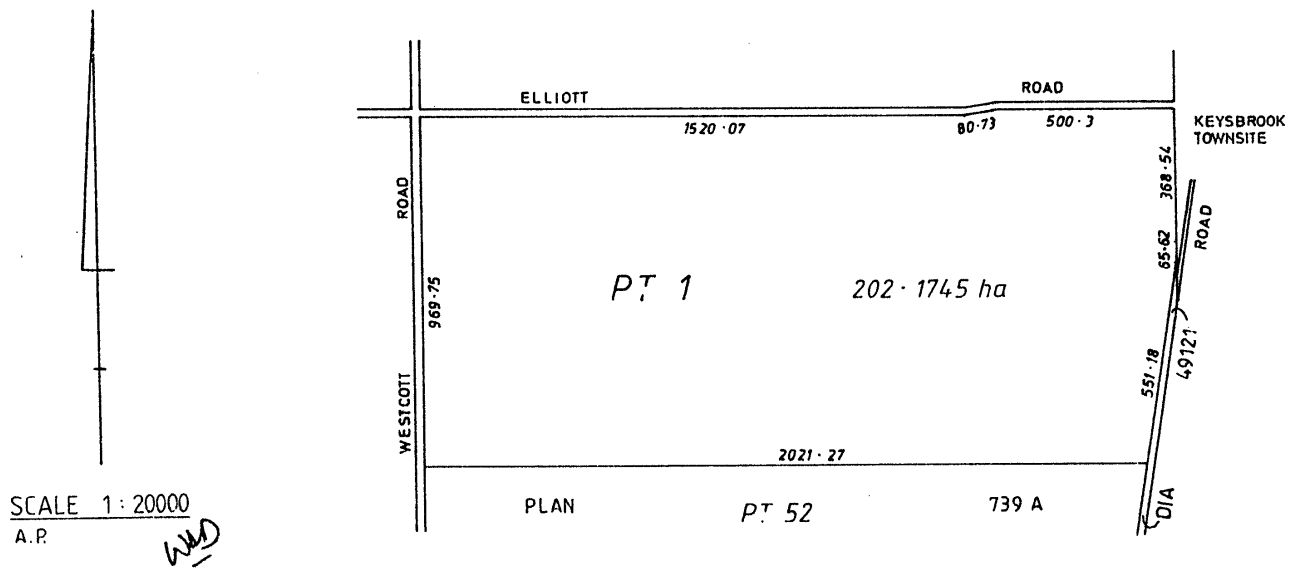
FIRST SCHEDULE (continued overleaf)

Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Atkins Road, Keysbrook, as tenants in common in equal shares.

SECOND SCHEDULE (continued overleaf)

- ~~MORTGAGE G141568 to Quetzal Finance Pty. Ltd. Registered 1.4.96 at 14.47 hrs.~~
Discharged G597592 2.10.97
- MORTGAGE G141569 to Bank of Western Australia Ltd. Registered 1.4.96 at 14.48 hrs.
- MORTGAGE G366633 to Bank of Western Australia Ltd. Registered 7.1.97 at 8.37 hrs.

THIRD SCHEDULE



Superseded - Copy for Sketch Only



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

THIS SCHEDULE (continued) NOT AFFECTED BY SUBSEQUENT ENDORSEMENTS
REGISTERED PROPRIETOR

INSTRUMENT		REGISTERED	TIME	SEAL	CERT. OFFICER

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	CERT. OFFICER	REGISTERED OR LODGED	NUMBER	CANCELLATION	SEAL	CERT. OFFICER
NATURE	NUMBER										
Mortgage	G623098	to <u>Bank of Western Australia Ltd.</u>	30.10.97	16.01							
Mortgage	H652393	to <u>Elders Rural Bank Ltd.</u>	24.1.01	9.31							

SECOND SCHEDULE (continued) NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDAL SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 6
Street No: 762
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 52395
Certificate of Title Volume and Folio: 1493/399
Land Owner: Micheangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 6/D52395	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
1493

FOLIO
399

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 6 ON DIAGRAM 52395

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T E587208) REGISTERED 17 APRIL 1991

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. B446530 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 1493 FOL 399. REGISTERED 8.12.1977.
2. H652393 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 24.1.2001.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1493-399 (6/D52395).
PREVIOUS TITLE: 1085-164.
PROPERTY STREET ADDRESS: 762 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.



Application B472671

WESTERN

AUSTRALIA

Volume 1085 Folio 164



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

DATED 7th February, 1978

Lundborough

REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 6 on Diagram 52395, delineated and coloured green on the map in the Third Schedule hereto.

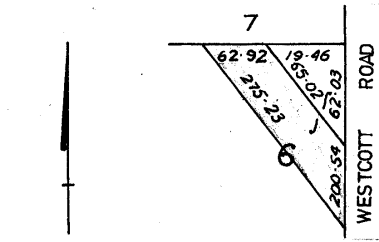
FIRST SCHEDULE (continued overleaf)

~~Norman Howard Osment of Keysbrook, Farmer.~~

SECOND SCHEDULE (continued overleaf)

- ~~MORTGAGE 1023/1952 to The National Bank of Australasia Limited. Registered 30.1.52 at 10.30 o'c. Discharged B622868 20.11.78~~
- ~~MORTGAGE 5448/1954 to The National Bank of Australasia Limited. Registered 13.4.54 at 3.45 o'c. Discharged B622868 20.11.78~~

- TRANSFER B446530. The right to enter in and upon the portion of the within land coloured blue on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 8.12.77 at 3.06 o'c.

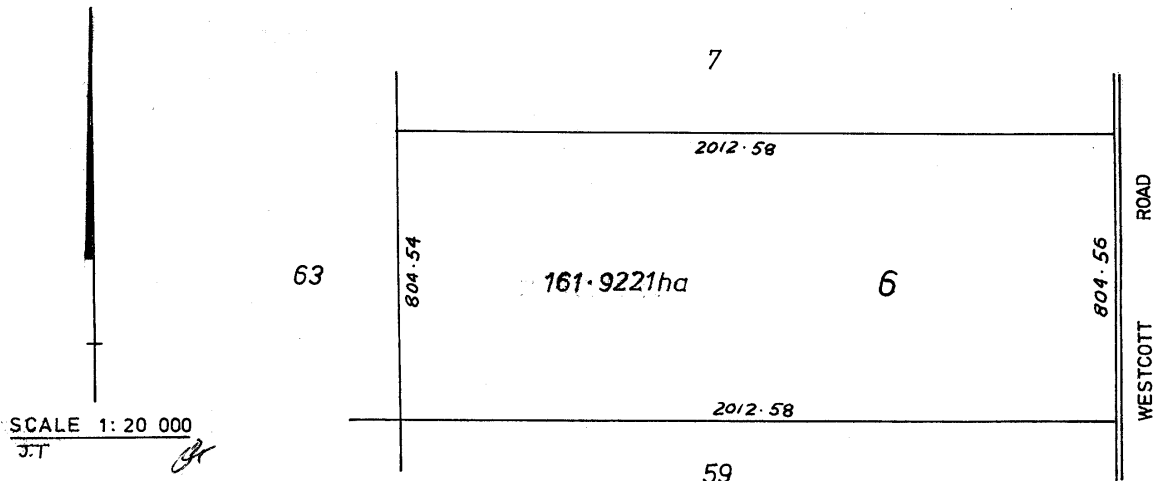


NOT TO SCALE

Lundborough

REGISTRAR OF TITLES

THIRD SCHEDULE



SCALE 1:20 000

Superseded - Copy for Sketch Only

Page (of 2 pages) 1493


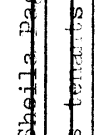
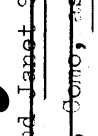
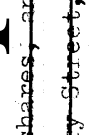
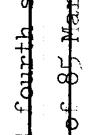
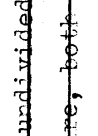
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON



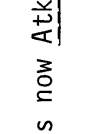
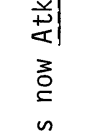


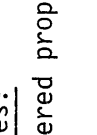
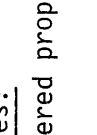
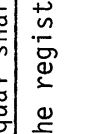
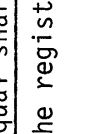
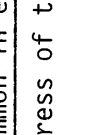
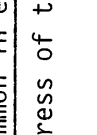
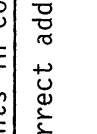
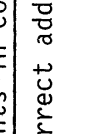
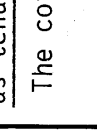
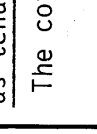


NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

FIRST SCHEDULE (continued)

Superseded Copy for Sketch Only

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENTRIES.

REGISTERED PROPRIETOR	INSTRUMENT NUMBER	REGISTERED DATE	OFFICE SEAL	INITIALS
<u>Bernard Ronald Stokes, Retired Farmer, of three undivided fourth shares, and Janet Sheila Page, Retired Hairdresser, of one undivided fourth share, both of 85 Mary Street, Como, as tenants in common.</u>	<u>B635784</u>	<u>14.12.78</u>		<u>RS</u>
<u>St Aubyn's Pty. Ltd. of Beverley.</u>	<u>G42649</u>	<u>10.12.80</u>		<u>R</u>
<u>Kaustra Pty. Ltd. and Starward Pty. Ltd., both of care of P.A.T. Goh & Co., Unit 2, 123 Colin Street, West Perth, as tenants in common in equal shares.</u>	<u>D110458</u>	<u>16.9.85</u>		<u>RS</u>
<u>Mervyn William Williams of Nosila Park, Keysbrook.</u>	<u>E587207</u>	<u>17.4.91</u>		<u>RS</u>
<u>Michelangelo Furfaro, Lina Furfaro and Adriano Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.</u>	<u>E587208</u>	<u>17.4.91</u>		<u>RS</u>
<u>The correct address of the registered proprietors is now <u>Atkins Road, Keysbrook.</u></u>	<u>G366633</u>	<u>7.1.97</u>		<u>RS</u>

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
NATURE	NUMBER										
<u>Mortgage</u>	<u>B635785</u>	<u>to Norman Howard Osment, of Keysbrook, Farmer.</u>	<u>14.12.78</u>	<u>11.06</u>		<u>RS</u>	<u>Discharged</u>	<u>G42647</u>	<u>10.12.80</u>		<u>RS</u>
<u>Mortgage</u>	<u>B635786</u>	<u>to Bank of New South Wales.</u>	<u>14.12.78</u>	<u>9.33</u>		<u>RS</u>	<u>Discharged</u>	<u>G42648</u>	<u>10.12.80</u>		<u>RS</u>
<u>Mortgage</u>	<u>G42650</u>	<u>to Bernard Ronald Stokes, Retired Farmer and Janet Sheila Page, Retired Hairdresser both of 27 Nestor Way, Mandurah.</u>	<u>10.12.80</u>	<u>9.43</u>		<u>RS</u>	<u>Discharged</u>	<u>D110457</u>	<u>26.9.85</u>		<u>RS</u>
<u>Mortgage</u>	<u>D110459</u>	<u>to St. Aubyn's Pty. Ltd., of Beverley.</u>	<u>16.9.85</u>	<u>12.11</u>		<u>RS</u>	<u>Discharged</u>	<u>E587206</u>	<u>17.4.91</u>		<u>RS</u>
<u>Mortgage</u>	<u>D178355</u>	<u>to Esanda Ltd.</u>	<u>9.1.86</u>	<u>9.07</u>		<u>RS</u>	<u>Discharged</u>	<u>D953118</u>	<u>2.12.88</u>		<u>RS</u>
<u>Transfer</u>	<u>D252606</u>	<u>of Mortgage D110459 to Trade Credits Limited.</u>	<u>21.5.86</u>	<u>9.34</u>		<u>RS</u>	<u>By Discharged</u>	<u>E587206</u>	<u>17.4.91</u>		<u>RS</u>
<u>Caveat</u>	<u>E99602</u>	<u>Lodged 12.5.89 at 9.41 hrs.</u>				<u>RS</u>	<u>Withdrawn</u>	<u>E587204</u>	<u>17.4.91</u>		<u>RS</u>
<u>Caveat</u>	<u>E177169</u>	<u>Lodged 24.8.1989 at 14.40 hrs.</u>				<u>RS</u>	<u>Withdrawn</u>	<u>E587205</u>	<u>17.4.91</u>		<u>RS</u>
<u>Mortgage</u>	<u>E587209</u>	<u>to R & I Bank of Western Australia Ltd.</u>	<u>17.4.91</u>	<u>8.10</u>		<u>RS</u>					
<u>Mortgage</u>	<u>G366633</u>	<u>to Bank of Western Australia Ltd.</u>	<u>7.1.97</u>	<u>8.37</u>		<u>RS</u>					
<u>Mortgage</u>	<u>G623098</u>	<u>to Bank of Western Australia Ltd.</u>	<u>30.10.97</u>	<u>16.01</u>		<u>RS</u>					
<u>Mortgage</u>	<u>H652393</u>	<u>to Elders Rural Bank Ltd.</u>	<u>24.1.01</u>	<u>9.31</u>		<u>RS</u>					

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

CERTIFICATE OF TITLE VOL. 1493 399

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 52
Street No: 100
Street Name: Atkins Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1740/735
Land Owner: Micheleangelo Furfaro, Lina Furfaro and Adriano Furfaro
Land Owner Address: Atkins Road, Keysbrook WA



Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 52/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 22/4/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1740** FOLIO **735**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 52 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ADRIANO FURFARO
MICHELEANGELO FURFARO
LINA FURFARO
ALL OF ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G141567) REGISTERED 1 APRIL 1996

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1740 FOL 735.
2. *I769680 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 23.1.2004.
3. *J856333 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1740-735 (52/P739).
PREVIOUS TITLE: 1511-657.
PROPERTY STREET ADDRESS: 100 ATKINS RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDAL.



Application D298184

WESTERN



AUSTRALIA

Volume 1511 Folio 657

1740 735



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 18th September, 1986

N. J. Smyth
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being part of Lot 52 on Plan 739A, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

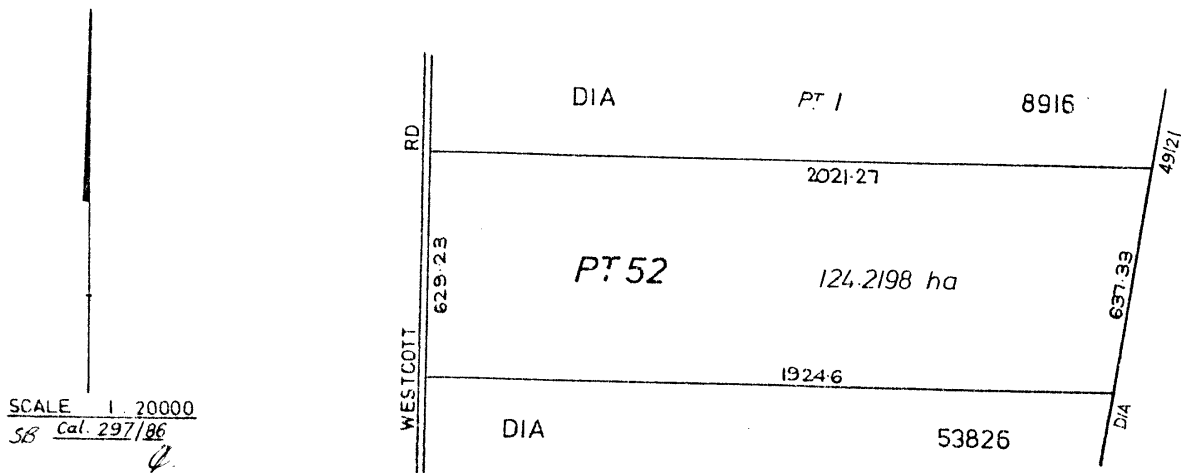
Vincenzo Cherubino
Registrar of Titles
~~Vincenzo Cherubino of 27 Hackett Road, Harvey, Farmer~~

SECOND SCHEDULE (continued overleaf)

- 1. ~~MORTGAGE C967572 to Curatio Pty. Ltd. Registered 27.2.85 at 12.06 o/c~~ Discharged G141565 1.4.96
- 2. ~~CAVEAT C967573 Lodged 27.2.1985 at 12.18 o/c~~ Withdrawn E233859, 14.11.89
- 3. ~~CAVEAT C967574 Lodged 27.2.1985 at 12.19 o/c~~ Withdrawn E233860, 14.11.89

N. J. Smyth
REGISTRAR OF TITLES

THIRD SCHEDULE



NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

Page 1 of 2 pages, 1740 VOL 1511 FOLIO 657

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded Copy for Sketch Only

INSTRUMENT NATURE	REGISTERED	TIME	SEAL	INITIALS
Quetzal Finance Pty. Ltd. of care of Guy Capolingua & Associates, 1st Floor, 183 Scarborough Beach Road, Mount Hawthorn.	1.4.96	14.47		
Adriano Furfaro, Michelangelo Furfaro and Lina Furfaro all of Lot 52, Atkins Road, Keysbrook, as tenants in common in equal shares.	1.4.96	14.47		
The correct name of the second proprietor is now <u>Micheleangelo Furfaro</u> .	7.1.97	8.37		
The correct address of the registered proprietors is now <u>Atkins Road, Keysbrook</u> .	7.1.97	8.37		

INSTRUMENT		PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS
NATURE	NUMBER										
Extension	E233861	of Mortgage C967572	14.11.89	11.49			By Discharge	G141565	1.4.96		
Caveat	E233862	Lodged 14.11.1989 at 11.50 hrs					Withdrawn	E732447	28.10.91		
Caveat	E233863	Lodged 14.11.1989 at 11.50 hrs					Withdrawn	E732448	28.10.91		
Extension	E732449	of Mortgage C967572	28.10.91	11.04			By Discharge	G141565	1.4.96		
Caveat	E732450	Lodged 28.10.91 at 11.04 hrs.					Withdrawn	G141563	1.4.96		
Caveat	E732451	Lodged 28.10.91 at 11.04 hrs.					Withdrawn	G141562	1.4.96		
Caveat	F73885	Lodged 23.12.92 at 14.20 hrs.					Withdrawn	G141564	1.4.96		
Mortgage	G141568	to Quetzal Finance Pty. Ltd.	1.4.96	14.47			Discharged	G597592	2.10.97		
Mortgage	G141569	to Bank of Western Australia Ltd.	1.4.96	14.48							
Mortgage	G366633	to Bank of Western Australia Ltd.	7.1.97	8.37							
Mortgage	G623098	to Bank of Western Australia Ltd.	30.10.97	16.01							
Mortgage	H652393	to Elders Rural Bank Ltd.	24.1.01	9.31							

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

SECOND SCHEDULE (continued)

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 63
Street No: 1265
Street Name: Hopeland Road
Suburb: Keysbrook
Diagram / Plan: 739
Certificate of Title Volume and Folio: 1049/169
Land Owner: James Henry Charles Hill
Land Owner Address: Care of Post Office, Keysbrook WA

J. H. C. Hill
Land Owner Signature

19.08.09
Date

WESTERN



AUSTRALIA

REGISTER NUMBER 63/P739	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/4/2004

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1049** FOLIO **169**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 63 ON PLAN 739

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

JAMES HENRY CHARLES HILL OF CARE OF POST OFFICE, KEYSBROOK
(T G374556) REGISTERED 16 JANUARY 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. D001832 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
REGISTERED 17.4.1985.
H632788 SUNDRY. THE GRANTEE OF EASEMENT D001832 IS NOW THE DBNGP LAND ACCESS MINISTER PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. REGISTERED 27.12.2000.
2. G374557 MORTGAGE TO ELDERS LTD REGISTERED 16.1.1997.
I810432 TRANSFER OF MORTGAGE G374557 , MORTGAGEE NOW ELDERS RURAL BANK LTD REGISTERED 5.3.2004.
3. H632788 SUNDRY. PORTION OF THE LAND HEREIN IS WITHIN THE DBNGP CORRIDOR PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. SEE LAND ADMINISTRATION PLAN 15584. REGISTERED 27.12.2000.
4. *K122441 CAVEAT BY OLYMPIA RESOURCES LTD LODGED 15.3.2007.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1049-169 (63/P739).
PREVIOUS TITLE: 1009-669.
PROPERTY STREET ADDRESS: 1265 HOPELAND RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

END OF PAGE 1 - CONTINUED OVER

RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 63/P739

VOLUME/FOLIO: 1049-169

PAGE 2

NOTE 1: A000001A PENDING SURVEY - PLAN 14030.
NOTE 2: CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON
CURRENT EDITION OF THE DUPLICATE.
NOTE 3: I866472 DEPOSITED PLAN 39015 LODGED FOR EASEMENT PURPOSES ONLY

Superseded Copy for Sketch Only

TRANSFER 1847 VOL. 1936.

1301/39

3097/51

2000/48

14006/36

1009, VOL. 669.

14000/45

7799/46

ORIGINAL



REGISTER BOOK.

Vol. 1049 Fol. 169.

plan 14030

WESTERN AUSTRALIA.

Certificate of Title

under "The Transfer of Land Act, 1893" (Sch. 5, 56 Vic., 14).

*Arthur Goodwin Haynes of 66 St. George's Terrace,
Perth, Solicitor*

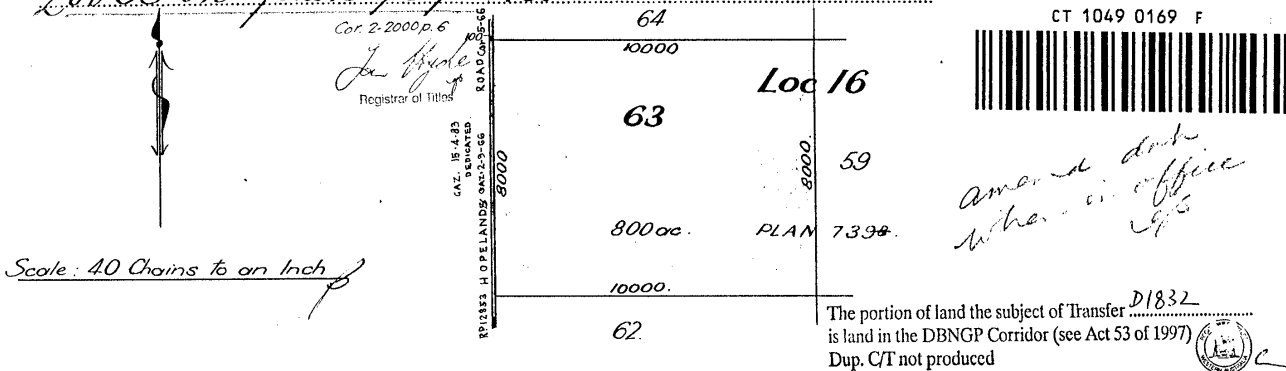
is now the sole proprietor

of an estate in fee simple in possession subject to the easements and encumbrances notified hereunder in ALL

that piece of land delineated and coloured *green* on the map hereon,

containing *eight hundred acres*

or thereabouts, being *portion of Cockburn Sound Location 16 and being
Lot 63 on plan 739 B 739*



Dated the *twenty-sixth* day of *June* One thousand nine hundred and thirty-six.

S. Marshall
Assistant Registrar of Titles.

Transfer by 61/1945 transferred to *John Charles Haynes of Keysbrook Farmer*
Registered 14th August 1945 at 12.45 in clock

R. C. Caffa
ASSISTANT REGISTRAR OF TITLES.

Application 431/1967. On the 12th June 1967 *John Charles Haynes* died and on the 29th July 1967 probate of his will was granted to *Arthur Goodwin Haynes of 66 St. George's Terrace, Perth, Solicitor* the executor therein named.

P. Johnson
17th December 1967 ASSISTANT REGISTRAR OF TITLES

TRANSFER 2382/1950. to *Thomas Henry Hill* of *Keysbrook* Farmer
Registered 27th December 1950 at 12.50 in clock

Application 38159/67. On the 6th September 1964 *Thomas Henry Hill* died and on the 21st September 1965. Probate of his will was granted to *Eileen Veronica Hill of Keysbrook, Widow* the executrix therein named.

S. Marshall
23rd May 1967 Asst. Registrar of Titles.

Transfer A 62976 to *Eileen Veronica Hill Widow* and *James Henry Charles Hill* Farmer both of *Keysbrook* as tenants in common in equal shares.
Registered 5th August 1968 at 9.14 o'clock.

S. Marshall
ASSISTANT REGISTRAR OF TITLES

Transfer G374556 to *James Henry Charles Hill* of care of Post Office, Keysbrook. Registered 16th January 1997 at 14.49 hrs.





Superseded - Copy for Sketch Only

Instrument stamped 10/-

Mortgage 3430/1936 Arthur Goodwin Haynes to Thomas James Barrick of 176
St. James Street Fremantle Retired Contractor. Registered 6th July 1936 at 3 o'clock

Discharge 132/1939 of Mortgage 3430/1936. Registered 13th January 1939 at 11 o'clock

Instrument stamped 17/6

Mortgage 1723/1946 John Charles Haynes to THE COMMISSIONERS OF THE RURAL AND
INDUSTRIES BANK OF WESTERN AUSTRALIA Registered 26th March

R. L. Cuffin
ASSISTANT REGISTRAR OF TITLES

Instrument stamped £11.5.0

Mortgage 1723/1946 John Charles Haynes to THE COMMISSIONERS OF THE RURAL AND
INDUSTRIES BANK OF WESTERN AUSTRALIA Registered 26th March

R. L. Cuffin
ASSISTANT REGISTRAR OF TITLES

Discharge 9504/1947 of Mortgage 1723/1946. Registered 12th December 1947 at 9.50 o'clock

P. Johnson
ASSISTANT REGISTRAR OF TITLES

Discharge 9505/1947 of Mortgage 1723/1946. Registered 12th December 1947 at 9.30 o'clock

P. Johnson
ASSISTANT REGISTRAR OF TITLES

Mortgage 10530/1947 Arthur Goodwin Haynes to Charles Richard Hyne
of 4444 Woodford Road South Guildford, Western Australia to secure £2200. Registered 17th
December 1947 at 1.45 o'clock

P. Johnson
ASSISTANT REGISTRAR OF TITLES

DISCHARGE 11464/1950 of Mortgage 10530/1947

Registered 27th December 1950 at 12 o'clock

P. Johnson
ASSISTANT REGISTRAR OF TITLES

Instrument stamped £7.10.0

Mortgage 16924/1962 Thomas James Barrick Hill to Bank of New South Wales.
Registered 23rd November 1962 at 9.21 o'clock

Thomas James Barrick Hill
ASSISTANT REGISTRAR OF TITLES

Discharge A67975 of Mortgage 16924/1962. Registered 5th August 1968 at

J. R. Kennedy
ASSISTANT REGISTRAR OF TITLES

Mortgage A67977 to Bank of New South Wales. Registered 5th August
1968 at 9.14 o'clock

J. R. Kennedy
ASSISTANT REGISTRAR OF TITLES

DISCHARGED

Mortgage A481288 to The Rural Reconstruction Authority. Registered 20th January 1972 at 10.44 o'clock

R. L. Cuffin

Discharge B221316 of Mortgage A481288. Registered 27th September 1976 at 9.05 o'clock



Transfer D1832 The Right to enter upon the portion of the within land Comprised in Plan 14030 to construct use and maintain a
pipeline for the carriage of natural or other gas as set out in the said Transfer is granted to The State Energy Commission of Western
Australia. Registered 17th April, 1985 at 11.44 o'clock.

Discharge G374554 of Mortgage A67977. Registered 16th January 1997 at 14.49 hrs.



Mortgage G374557 to Elders Ltd Registered 16th January 1997 at 14.49 hrs.



Sundry H632788 Portion of the land as shown on Land Administration Plan 15584 is land within the DBNGP Corridor pursuant to the
Dampier to Bunbury Pipeline Act 1997. (Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.



Sundry H632788 The Grantee of Transfer D1832 is now the DBNGP Land Access Minister pursuant to the Dampier to Bunbury Pipeline Act 1997.
(Dup C/T Not Prod). Registered 27th December, 2000 at 13.07 hrs.



CERTIFICATE OF TITLE.

Registered Vol.....Fol.....

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDALÉ SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 111
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/847
Land Owner: Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Atkins Road, Keysbrook WA



Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 111/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2117** FOLIO **847**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 111 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623095) REGISTERED 30 OCTOBER 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-847 (111/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 847



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Platford
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 111 on Diagram 94183, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

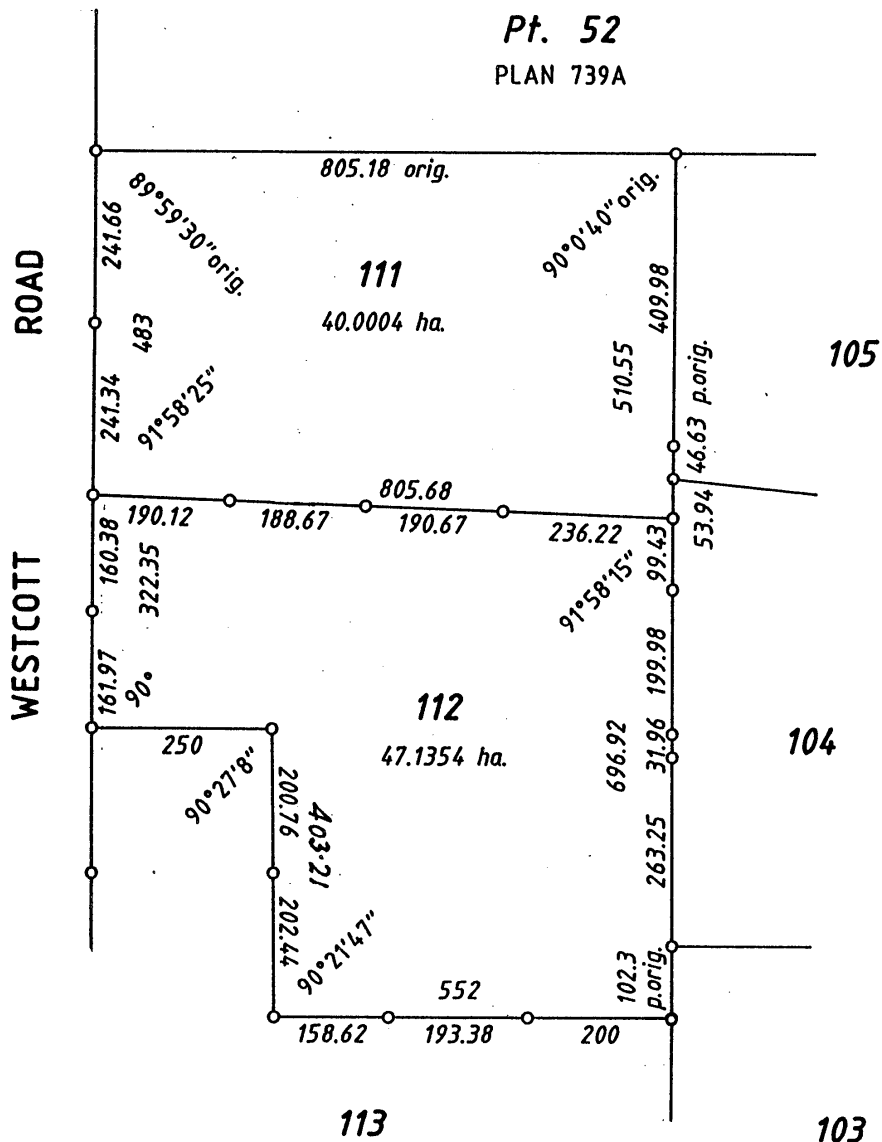
~~Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.~~



SECOND SCHEDULE (continued overleaf)

- 1. EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE





NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Page 1 (of 2 pages) 2117 847
Superseded - Copy for Sketch Only

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued)		SECOND SCHEDULE (continued)		THIRD SCHEDULE (continued)	
NATURE	INSTRUMENT NUMBER	NATURE	INSTRUMENT NUMBER	REGISTERED TIME	CERT. OFFICER
		Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro, all of 52 Atkins Road, Keysbrook, as tenants in common in equal shares.	Transfer	30.10.97 16.01	

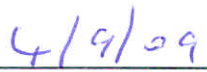
SECOND SCHEDULE (continued)		NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS								
INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED TIME	SEAL	CERT. OFFICER	REGISTERED OR LODGED	NUMBER	CANCELLATION	SEAL	CERT. OFFICER
Mortgage	G623097	to Bank of Western Australia Ltd.	30.10.97 16.01							

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDAL SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 112
Street No: 731
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/848
Land Owner: Olympia Resources Ltd
Land Owner Address: Level 4, 25, Walters Drive, Osborne Park WA



Land Owner Signature



Date

WESTERN



AUSTRALIA

REGISTER NUMBER 112/D94183	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 23/1/2006

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2117** FOLIO **848**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BG Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 112 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

OLYMPIA RESOURCES LTD OF LEVEL 4, 25 WALTERS DRIVE, OSBORNE PARK
(T J581957) REGISTERED 12 JANUARY 2006

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 94183.
2. J581958 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 12.1.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-848 (112/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: 731 WESTCOTT RD, KEYSBROOK.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

NOTE 1: J863760 CORRECTION MADE ON ORIGINAL CERTIFICATE OF TITLE - BUT NOT SHOWN ON CURRENT EDITION OF THE DUPLICATE

ORIGINAL—NOT TO BE REMOVED FROM DEPARTMENT OF LAND ADMINISTRATION

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 848



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Hutton
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 112 on Diagram 94183, delineated on the map in the Third Schedule hereto.

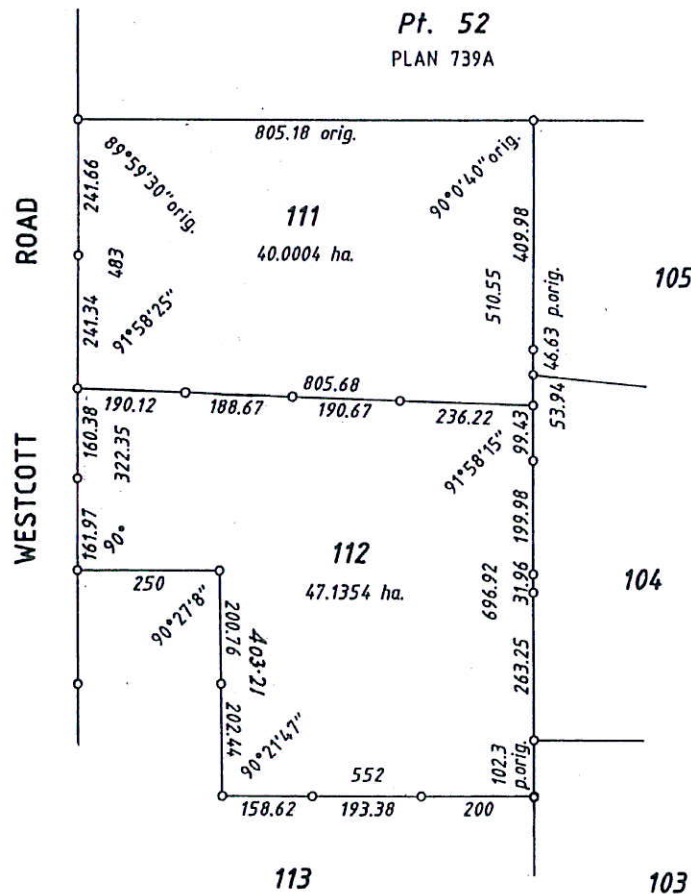
FIRST SCHEDULE (continued overleaf)

Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.

SECOND SCHEDULE (continued overleaf)

- EASEMENT for Drainage purposes created on Diagram 94183 under Section 27A T.P. & D. Act.

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Page 1 of 2 pages) 2117 848
For Sketch Only
Superseded - Copy for Sketch Only

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

FIRST SCHEDULE (continued)
Superseded Copy for Sketch Only

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS
 REGISTERED PROPRIETOR

The correct address of the registered proprietor is now Lot 112 Westcott Road, Keysbrook.

INSTRUMENT NATURE	NUMBER	REGISTERED TIME	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
				H100193	6.5.99	8.56	CA

SECOND SCHEDULE (continued) NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS

INSTRUMENT NATURE	NUMBER	PARTICULARS	REGISTERED TIME	SEAL	CERT. OFFICER	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER
Mortgage	6623103	to Donald James Piercy of 416 Gaebler Road, Banjup.	30.10.97		CA					
Mortgage	H100193	to National Australia Bank Ltd.	6.5.99		CA	Discharged	H100192	6.5.99		CA

CERTIFICATE OF TITLE VOL2117 FOL848

REGISTERED PROPRIETORS SIGNATURE SCHEDULE
SERPENTINE JARRAHDAL SHIRE
APPLICATION FOR APPROVAL TO COMMENCE DEVELOPMENT
&
APPLICATION FOR AN EXTRACTIVE INDUSTRY LICENSE

Lot No: 113
Street No: N/A
Street Name: Westcott Road
Suburb: Keysbrook
Diagram / Plan: 94183
Certificate of Title Volume and Folio: 2117/849
Land Owner: Micheangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro
Land Owner Address: 52 Atkins Road, Keysbrook WA



Land Owner Signature

Date



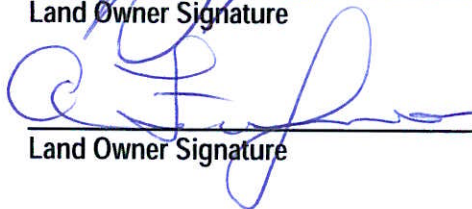
Land Owner Signature

Date



Land Owner Signature

Date



Land Owner Signature

Date

WESTERN



AUSTRALIA

REGISTER NUMBER 113/D94183	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 7/5/2002

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2117

FOLIO
849

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

R. Roberts

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 113 ON DIAGRAM 94183

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MICHELEANGELO FURFARO
LINA FURFARO
ADRIANO FURFARO
MARK ANTONIO JULIO FURFARO
ALL OF 52 ATKINS ROAD, KEYSBROOK
AS TENANTS IN COMMON IN EQUAL SHARES

(T G623096) REGISTERED 30 OCTOBER 1997

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. B442342 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE SKETCH ON VOL 2117 FOL 849. REGISTERED 1.12.1977.
2. I066507 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 8.4.2002.
3. *J856334 CAVEAT BY OLYMPIA RESOURCES NL LODGED 1.8.2006.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2117-849 (113/D94183).
PREVIOUS TITLE: 2007-431.
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AREA: SHIRE OF SERPENTINE-JARRAHDALE.

Application G623094
Volume 2007 Folio 431

WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.

CT 2117 849



CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

Dated 30th October, 1997

John Flatt
REGISTRAR OF TITLES

ESTATE AND LAND REFERRED TO

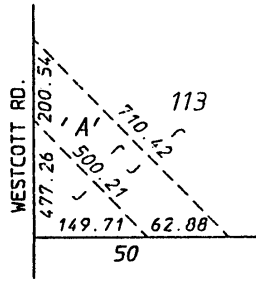
Estate in fee simple in portion of Cockburn Sound Location 16 and being Lot 113 on Diagram 94183, delineated on the map in the Third Schedule hereto.

FIRST SCHEDULE (continued overleaf)

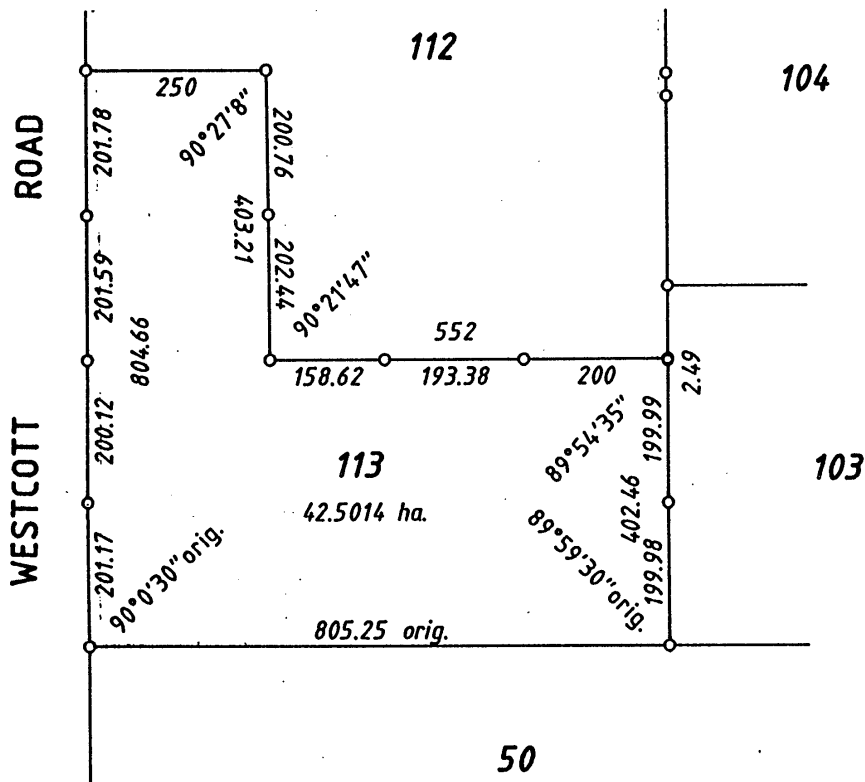
~~Andrew Colin Alfred MacDonald of Lot 785 Karnup Road, Serpentine.~~

SECOND SCHEDULE (continued overleaf)

- TRANSFER B442342. The right to enter in and upon the portion of the within land marked 'A' on the map in the margin for the purpose of erecting and maintaining towers, poles, wires and other necessary apparatus, together also with certain other rights, conditions and restrictions as to buildings as set out in the said Transfer is granted to The State Energy Commission of Western Australia. Registered 1.12.77 at 10.35 o'clock.



THIRD SCHEDULE



PLAN 739B (2)

NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

Superseded - Copy for Sketch Only

Page 1 (of 2 pages) 2117 849

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

FIRST SCHEDULE (continued)
Superseded - Copy for Sketch Only

INSTRUMENT NUMBER		NATURE	REGISTERED NUMBER	REGISTERED TIME	SEAL	CERT. OFFICER
NATURE	NUMBER					
Micheleangelo Furfaro, Lina Furfaro, Adriano Furfaro and Mark Antonio Julio Furfaro, all of 52 Atkins Road, Keysbrook, as tenants in common in equal shares.	G623096	Transfer	30.10.97	16.01		

SECOND SCHEDULE (continued)							NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS						
INSTRUMENT NUMBER		PARTICULARS	REGISTERED TIME	SEAL	CERT. OFFICER	CANCELLATION NUMBER	REGISTERED OR LODGED	SEAL	CERT. OFFICER				
NATURE	NUMBER												
Mortgage	G623097	to Bank of Western Australia Ltd.	30.10.97	16.01									

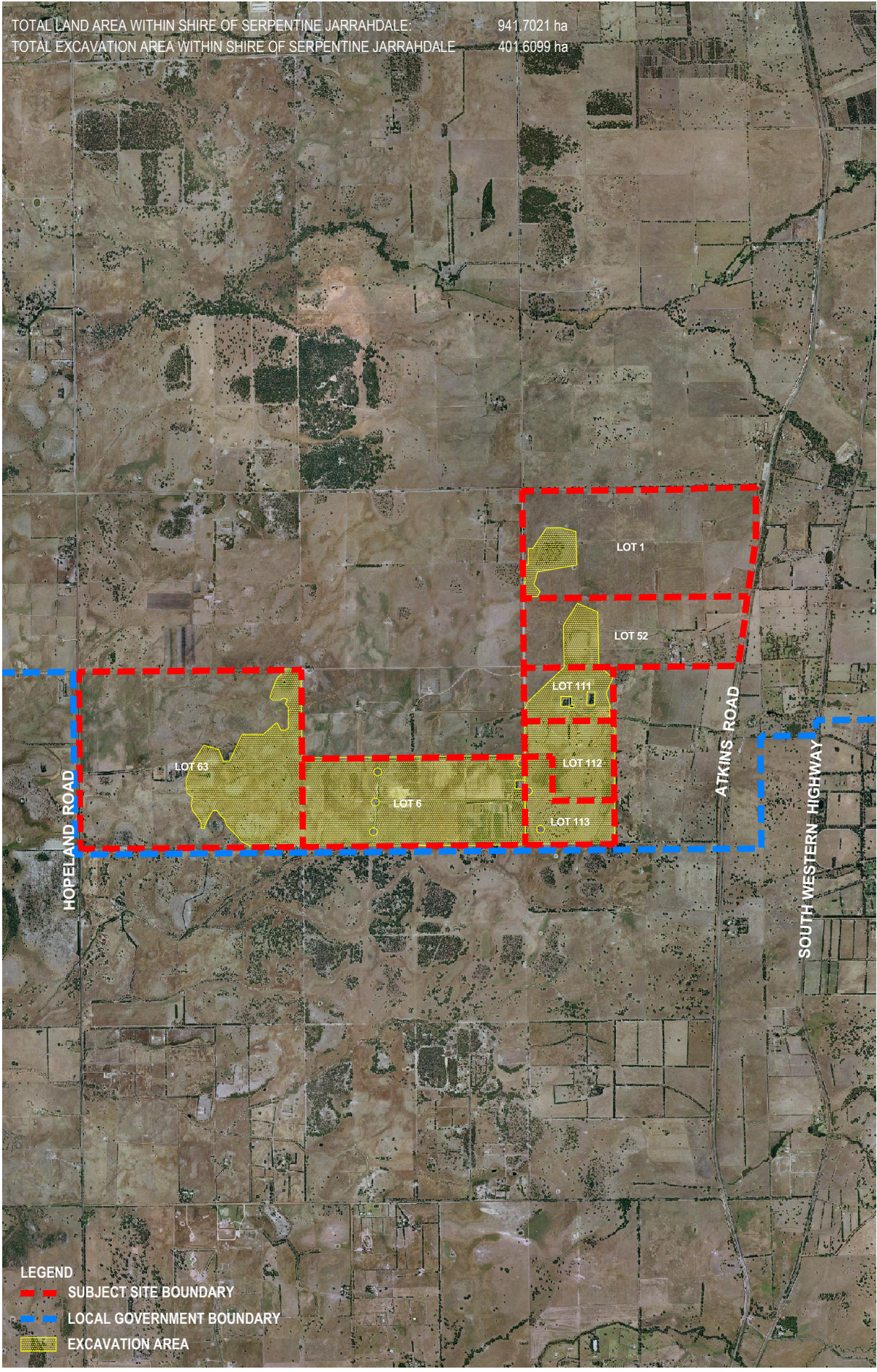
APPENDIX 4
DEVELOPMENT PLANS

PERTH
 A: Suite 1, 255 Beaufort Street Perth WA 6000
 T: (08) 9227 7970
 F: (08) 9227 7971
 P: PO Box 8701 PERTH BC WA 6849

MELBOURNE
 A: Level 4, 356 Collins Street Melbourne VIC 3000
 T: (03) 9999 1900
 F: (03) 9600 1477

E: admin@planningsolutions.com.au
 W: www.planningsolutions.com.au
 ACN 088 826 288 ABN 80 248 172 542
 Planning Solutions (Australia) Pty Ltd trades for the kerbside Trust

TOTAL LAND AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 941.7021 ha
 TOTAL EXCAVATION AREA WITHIN SHIRE OF SERPENTINE JARRAHDALE: 401.6099 ha



LEGEND
- - - SUBJECT SITE BOUNDARY
- - - LOCAL GOVERNMENT BOUNDARY
 EXCAVATION AREA

**FIGURE 3: EXCAVATION AREA
 LOTS 1, 6, 52, 63, 111-113
 KEYSBROOK
 WA**

SCALE 1:50,000 @ A4
 DATE 2 February 2010
 FILE 100202 1906 SJ DA Figs.dwg
 REVISION C



DISCLAIMER:
 THIS DOCUMENT IS AND REMAINS THE PROPERTY OF PLANNING SOLUTIONS AND MAY NOT BE COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PLANNING SOLUTIONS
 ALL AREAS, DISTANCES AND ANGLES ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY
 BASEPLAN SOURCE: LANDGATE & MBS ENVIRONMENTAL