



Fortescue
The New Force in Iron Ore

Our Ref: LS-100-E-2672

Kim Taylor
General Manager
Office of the Environmental Protection Authority
Locked Bag 33
CLOISTER SQUARE WA 6850

Attention: Danielle Griffiths

15 November 2011

Note: Further to this letter being posted, Table 6 - Combined Areas of Indirect Impacts with Indicative Footprint (copy attached) - was also subsequently provided to the OEPA. Table 1 was also amended as requested by the OEPA.

Dear Danielle

CLOUDBREAK LIFE OF MINE EXPANSION, EPA ASSESSMENT NUMBER 1848

I refer to requests from the Office of the EPA for additional information regarding the impacts to vegetation and fauna habitat from the Cloudbreak Life of Mine Expansion (the Project). Fortescue Metals Group Limited provides the figures (Attachment A) and tables (Attachment B) described in Table 1.

Table 1: Attached Figures and Tables

No.	Description
Figure 1	Project life of mine indicative footprint.
Figures 2a – i	Mounding - Areas of potential mounding inside and outside of the mine envelope, with and without the indicative footprint and water infrastructure, and including the areas by vegetation and fauna habitat type.
Figures 3a – i	Drawdown - Areas of potential drawdown inside and outside of the mine envelope, with and without the indicative footprint and water infrastructure, and including the areas by vegetation and fauna habitat type.
Figures 4a – i	Ponding - Areas of potential ponding inside and outside of the mine envelope, with and without the indicative footprint and water infrastructure, and including the areas by vegetation and fauna habitat type.
Figures 5a – i	Sheetflow Shadow - Areas of potential sheetflow shadow inside and outside of the mine envelope, with and without the indicative footprint and water infrastructure, and including the areas by vegetation and fauna habitat type.
Figures 6a – c	Indirect impacts combined - Areas of potential drawdown, mounding, ponding and sheetflow shadow combined, <i>with</i> the indicative footprint, and including the areas by vegetation and fauna habitat type.
Figures 6d-f	Indirect impacts combined - Areas of potential drawdown, mounding, ponding and sheetflow shadow combined, <i>without</i> the indicative footprint and water infrastructure, and including the areas by vegetation and fauna habitat type.

No.	Description
Figures 7a-d	Areas of potential drawdown, mounding, ponding and sheetflow shadow combined, with and without the indicative footprint and water infrastructure, by vegetation and fauna habitat type, and within and outside of the Proposed Conservation Reserve.
Table 1	Direct impacts - Areas of direct disturbance by vegetation and fauna habitat type.
Table 2	Indirect impacts - Areas of potential drawdown, mounding, ponding and sheetflow shadow inside and outside of the mine footprint, <i>with</i> the indicative footprint and water infrastructure, by vegetation and fauna habitat type.
Table 3	Indirect impacts - Areas of potential drawdown, mounding, ponding and sheetflow shadow inside and outside of the mine footprint, <i>without</i> the indicative footprint and water infrastructure, by vegetation and fauna habitat type.
Table 4	Indirect impacts combined - Total areas of drawdown, mounding, ponding and sheetflow shadow combined, with and without the indicative footprint and water infrastructure, by vegetation and fauna habitat type.
Table 5	Indirect impacts combined - Total areas of drawdown, mounding, ponding and sheetflow shadow combined, with and without the indicative footprint and water infrastructure, by vegetation and fauna habitat type, and within and outside of the Proposed Conservation Reserve.

I trust this information is sufficient for the EPA to complete its assessment of the Project.

If you have any questions on this, please contact Les Egerton on ph 6218 8829 or legerton@fmgl.com.au.

Yours sincerely

FORTESCUE METALS GROUP



SEAN MCGUNNIGLE

Manager, Environmental Approvals

Atts

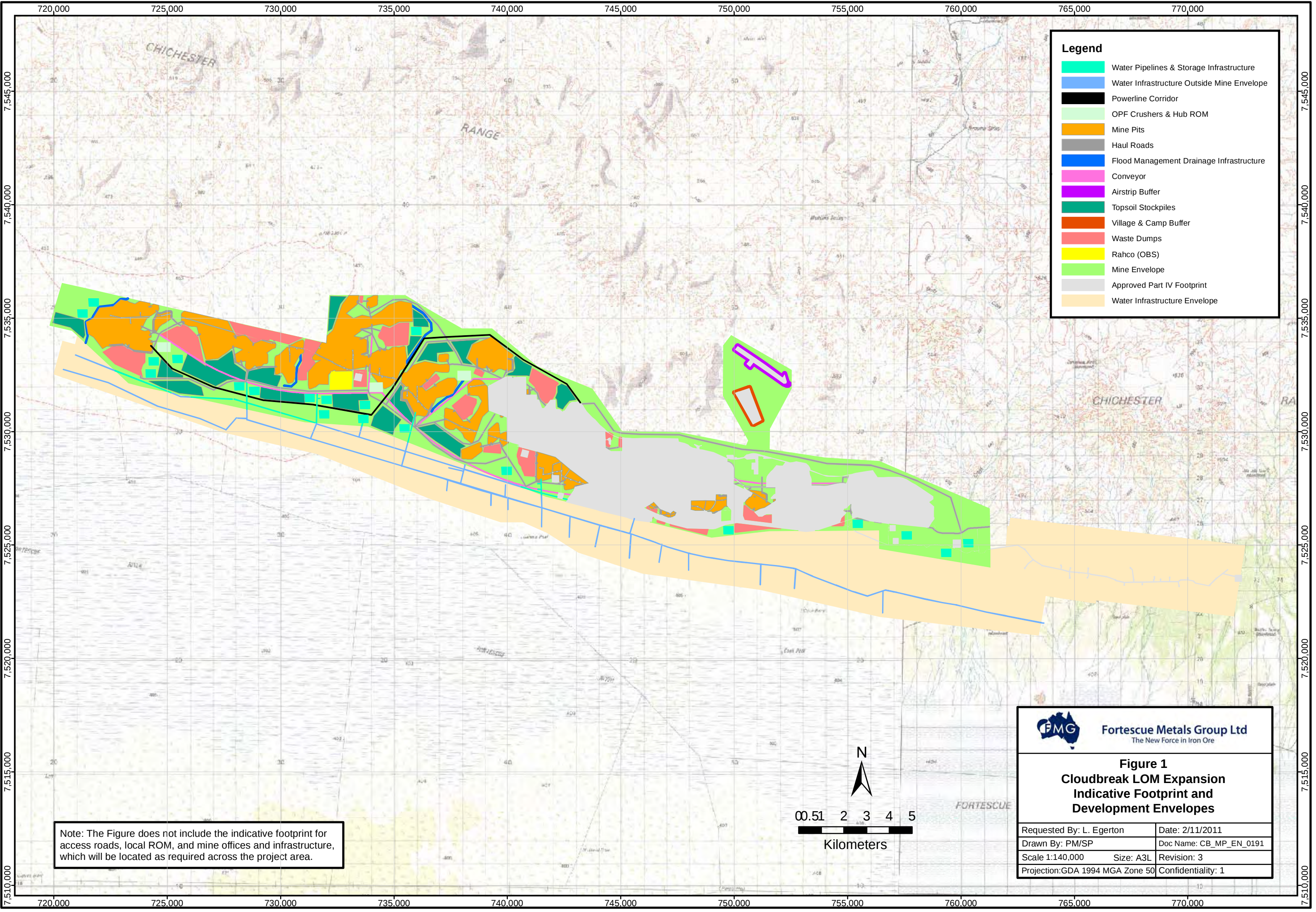
Attachment A Figures

Attachment B Tables

Attachment A: Figures



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Legend

- Water Pipelines & Storage Infrastructure
- Water Infrastructure Outside Mine Envelope
- Powerline Corridor
- OPF Crushers & Hub ROM
- Mine Pits
- Haul Roads
- Flood Management Drainage Infrastructure
- Conveyor
- Airstrip Buffer
- Topsoil Stockpiles
- Village & Camp Buffer
- Waste Dumps
- Rahco (OBS)
- Mine Envelope
- Approved Part IV Footprint
- Water Infrastructure Envelope



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Figure 1
Cloudbreak LOM Expansion
Indicative Footprint and
Development Envelopes

Requested By: L. Egerton	Date: 2/11/2011
Drawn By: PM/SP	Doc Name: CB_MP_EN_0191
Scale 1:140,000	Size: A3L
Projection: GDA 1994 MGA Zone 50	Revision: 3
	Confidentiality: 1

Legend

Mounding Inside Mine Envelope

Mounding Outside Mine Envelope

Mine Envelope Minus Indicative Footprint

Water Infrastructure Outside Mine Envelope

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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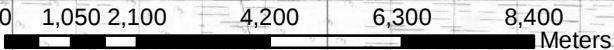
The New Force in Iron Ore

Figure 2a

Cloudbreak LOM Expansion

Areas of potential Mounding

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:120,000	Size: A3L
Projection: GDA 1994 MGA Zone 50	Revision: 0
	Confidentiality: 1



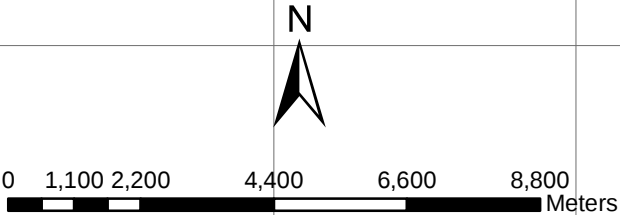
Legend

Mounding Inside Mine Envelope Minus Indicative Footprint

Mounding Outside Mine Envelope Minus Water Infrastructure

Mine Envelope Minus Indicative Footprint

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.





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Figure 2b
Cloudbreak LOM Expansion
Areas of potential Mounding outside
of the indicative footprint

Requested By: Sean McGunnigle

Date: 15/11/2011

Drawn By: Shumaila Pottachira

Doc Name: CB_MP_EN_0194

Scale 1:125,000

Size: A3L

Revision: 0

Projection: GDA 1994 MGA Zone 50

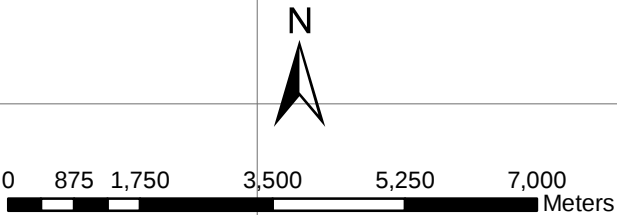
Confidentiality: 1

Legend

Mounding Inside Mine Envelope Minus Indicative Footprint

Mounding Outside Mine Envelope Minus Water Infrastructure

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



PMG

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Figure 2c

Cloudbreak LOM Expansion

Areas of potential Mounding outside of the indicative footprint

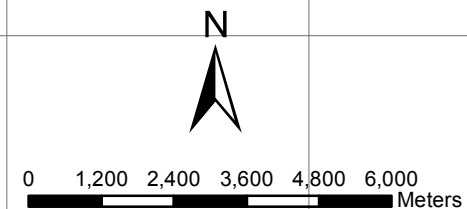
Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:100,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

Vegetation Type

- Creek lines and drainage lines – Mulga dominated
- Flats and broad plains containing Mulga
- Flats and broad plains without Mulga
- Fringes of Samphire Flats containing Samphire
- Fringes of Samphire Flats without Samphire
- Creek lines and drainage lines – Coolibah/River Red Gum dominated

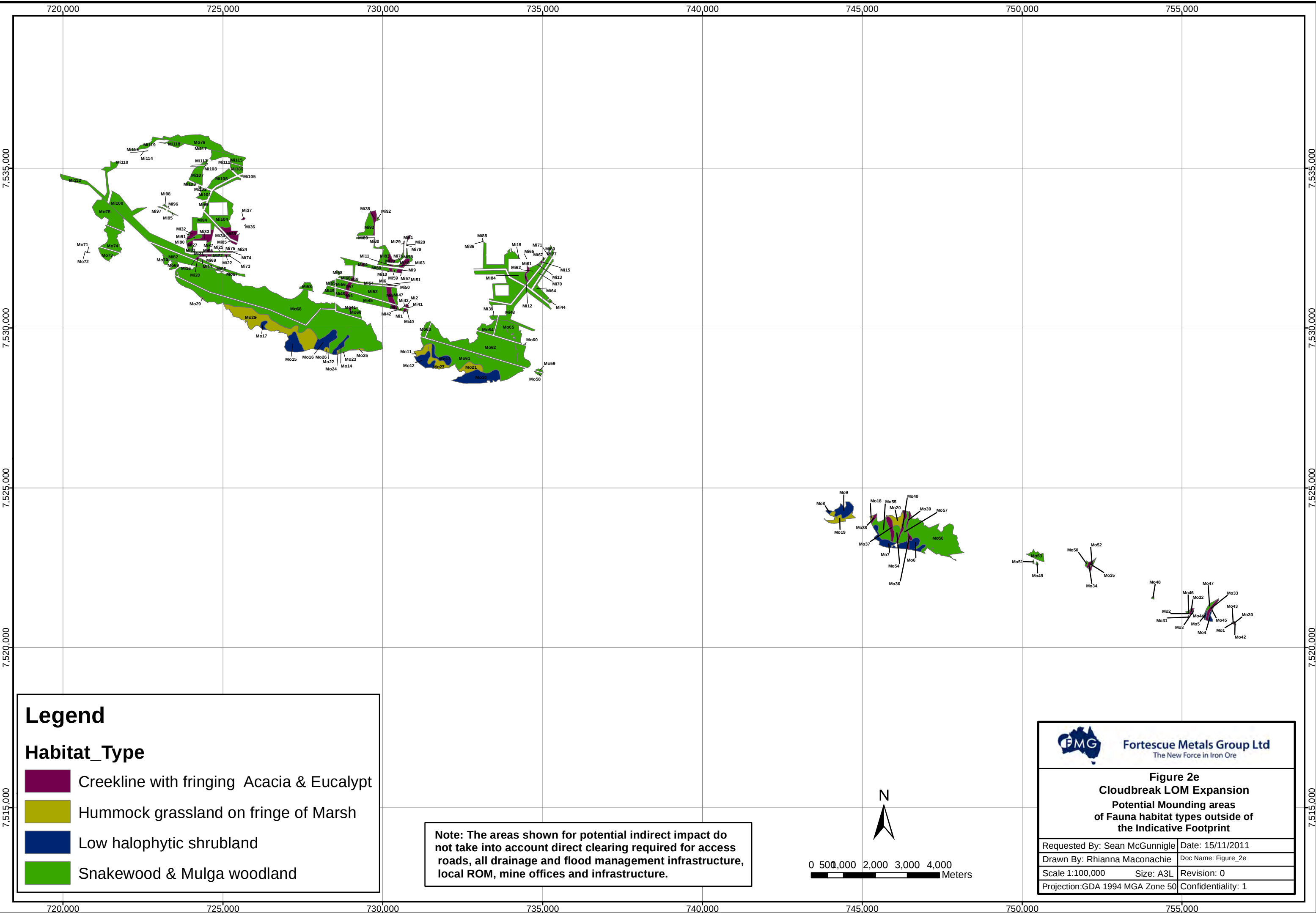
Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

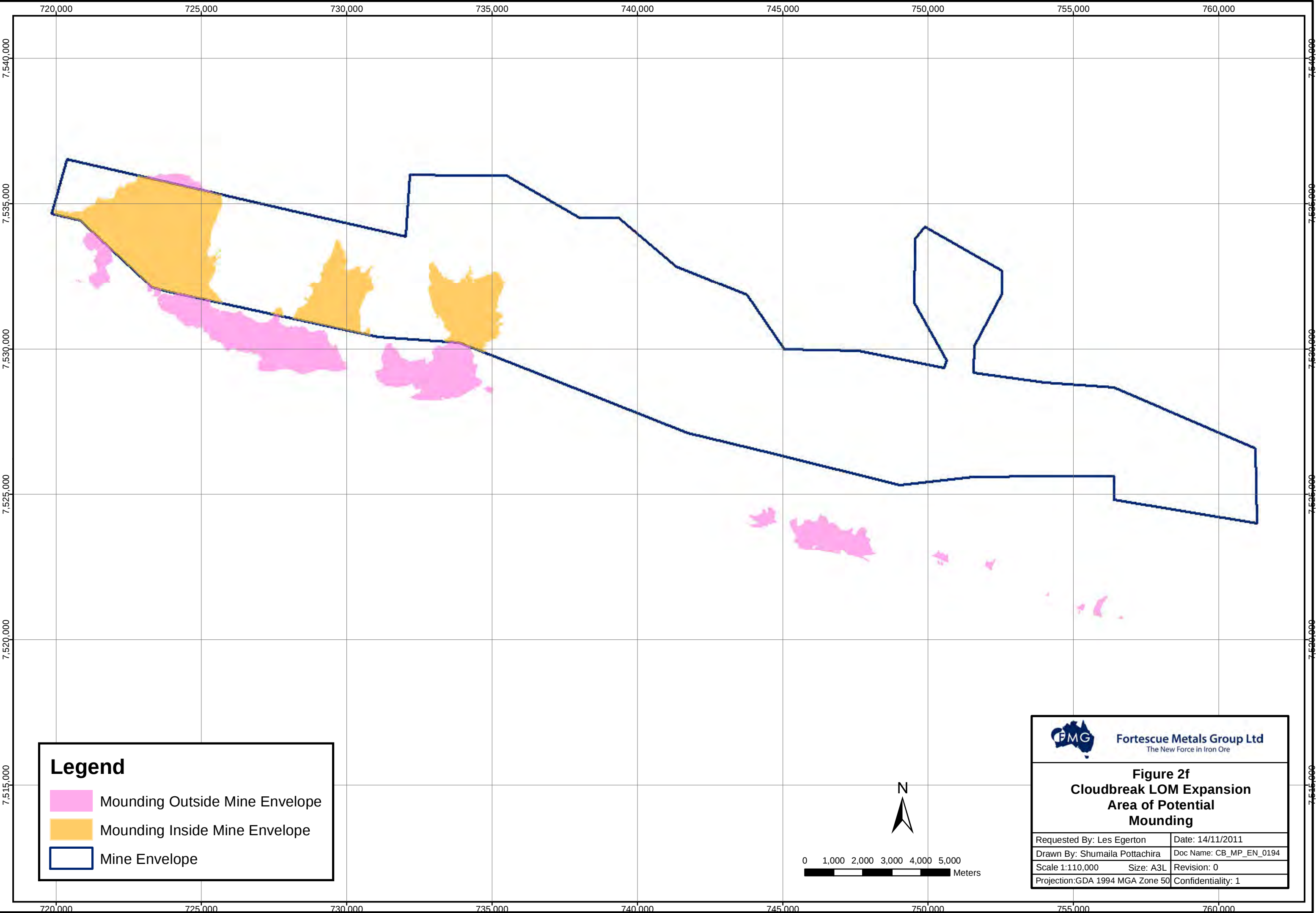


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Figure 2d
Cloudbreak LOM Expansion
Areas of potential Mounding outside
of the indicative mine footprint

Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:125,000	Size: A3L
Revision: 0	Confidentiality: 1





Legend

Mounding Outside Mine Envelope

Mounding Inside Mine Envelope

Mine Envelope

N

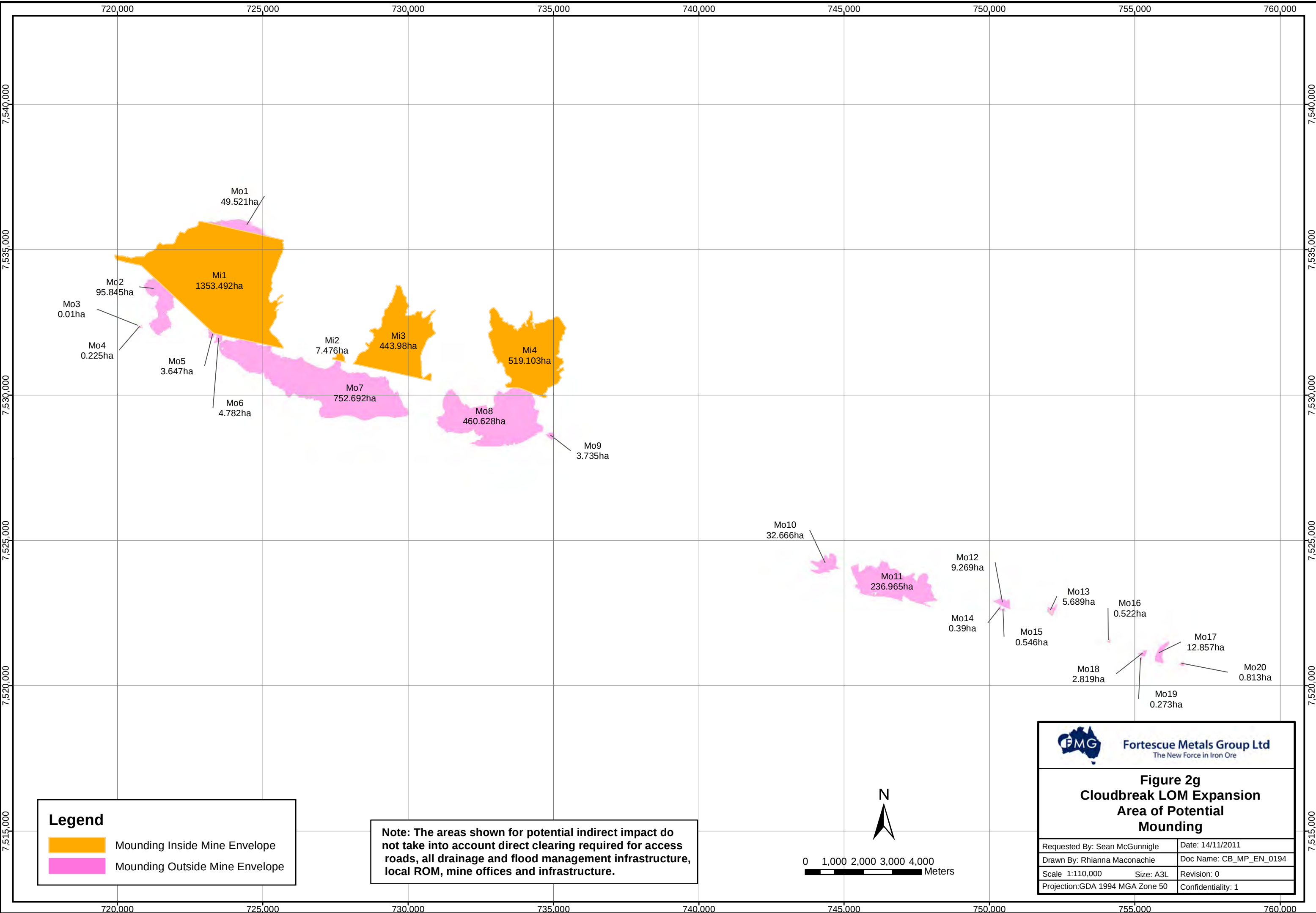
01,0002,0003,0004,0005,000

Meters

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Figure 2f
Cloudbreak LOM Expansion
Area of Potential Mounding

Requested By: Les Egerton	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:110,000 Size: A3L	Revision: 0
Projection:GDA 1994 MGA Zone 50	Confidentiality: 1



Legend

Vegetation Type

Creek lines and drainage lines – Mulga dominated

Flats and broad plains containing Mulga

Flats and broad plains without Mulga

Fringes of Samphire Flats containing Samphire

Fringes of Samphire Flats without Samphire

Creek lines and drainage lines – Coolibah/River Red Gum dominated



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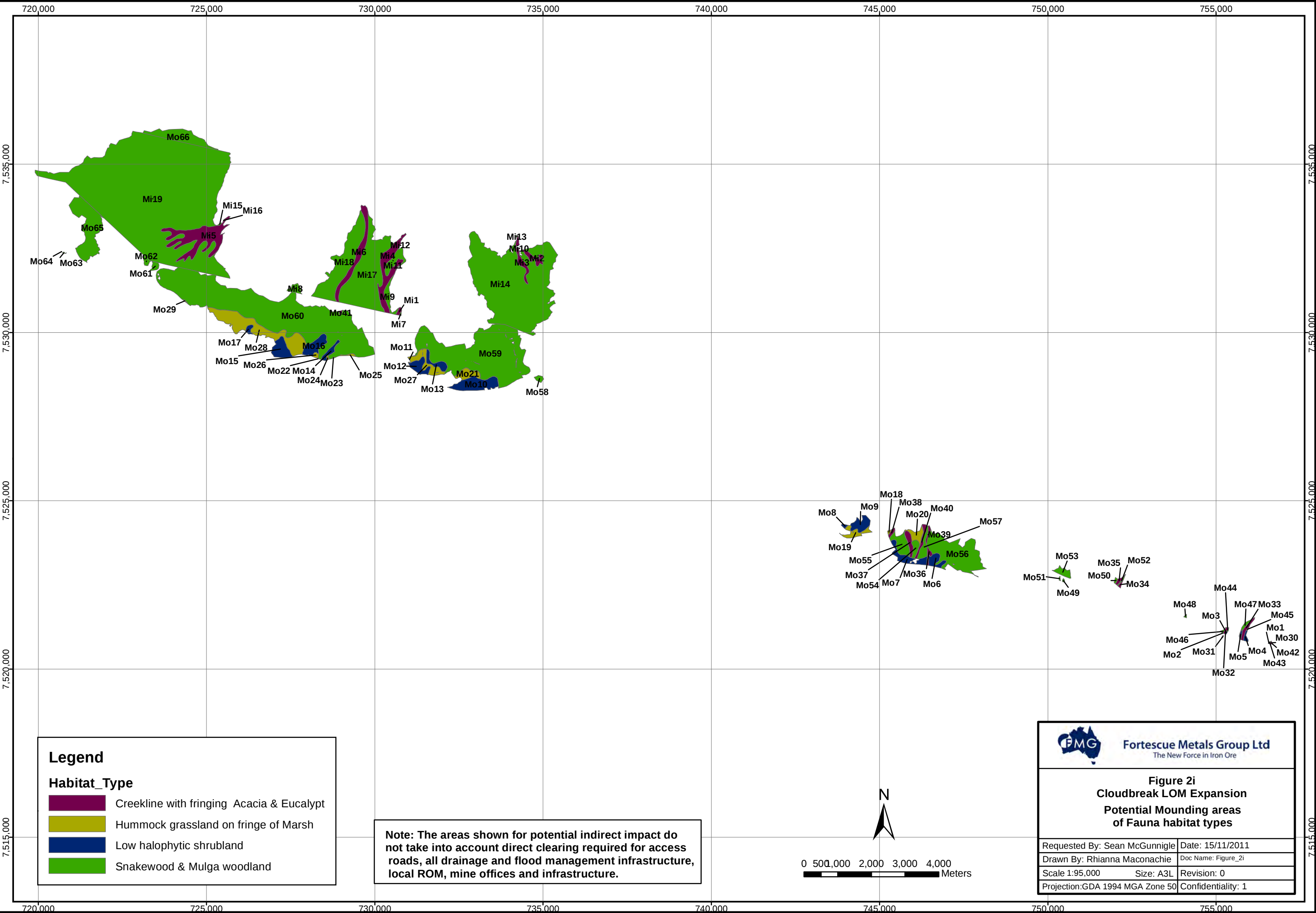
Figure 2h

Cloudbreak LOM Expansion

Areas of Vegetation Types

in potential Mounding

Requested By: Les Egerton	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:110,000	Size: A3L
Revision: 0	Confidentiality: 1



Legend

Habitat_Type

- Creekline with fringing Acacia & Eucalypt
- Hummock grassland on fringe of Marsh
- Low halophytic shrubland
- Snakewood & Mulga woodland

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

0 500 1,000 2,000 3,000 4,000
Meters



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Figure 2i
Cloudbreak LOM Expansion
Potential Mounding areas
of Fauna habitat types

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Rhianna Maconachie	Doc Name: Figure_2i
Scale 1:95,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

- Drawdown Inside Mine Envelope
- Drawdown Outside Mine Envelope
- Mine Envelope Minus Indicative Footprint
- Water Infrastructure Outside Mine Envelope

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



Figure 3a
Cloudbreak LOM Expansion
Areas of potential Drawdown

Requested By: Sean McGunnigle	Date: 13/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:120,000	Size: A3L
Revision: 0	Confidentiality: 1

0 1,050 2,100 4,200 6,300 8,400 Meters



Legend

Drawdown Inside Mine Envelope Minus Indicative Footprint

Drawdown Outside Mine Envelope Minus Water Infrastructure

Mine Envelope Minus Indicative Footprint

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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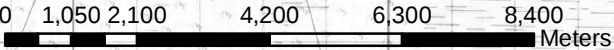
Figure 3b

Cloudbreak LOM Expansion

Areas of potential Drawdown outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:120,000	Size: A3L
Revision: 0	Confidentiality: 1

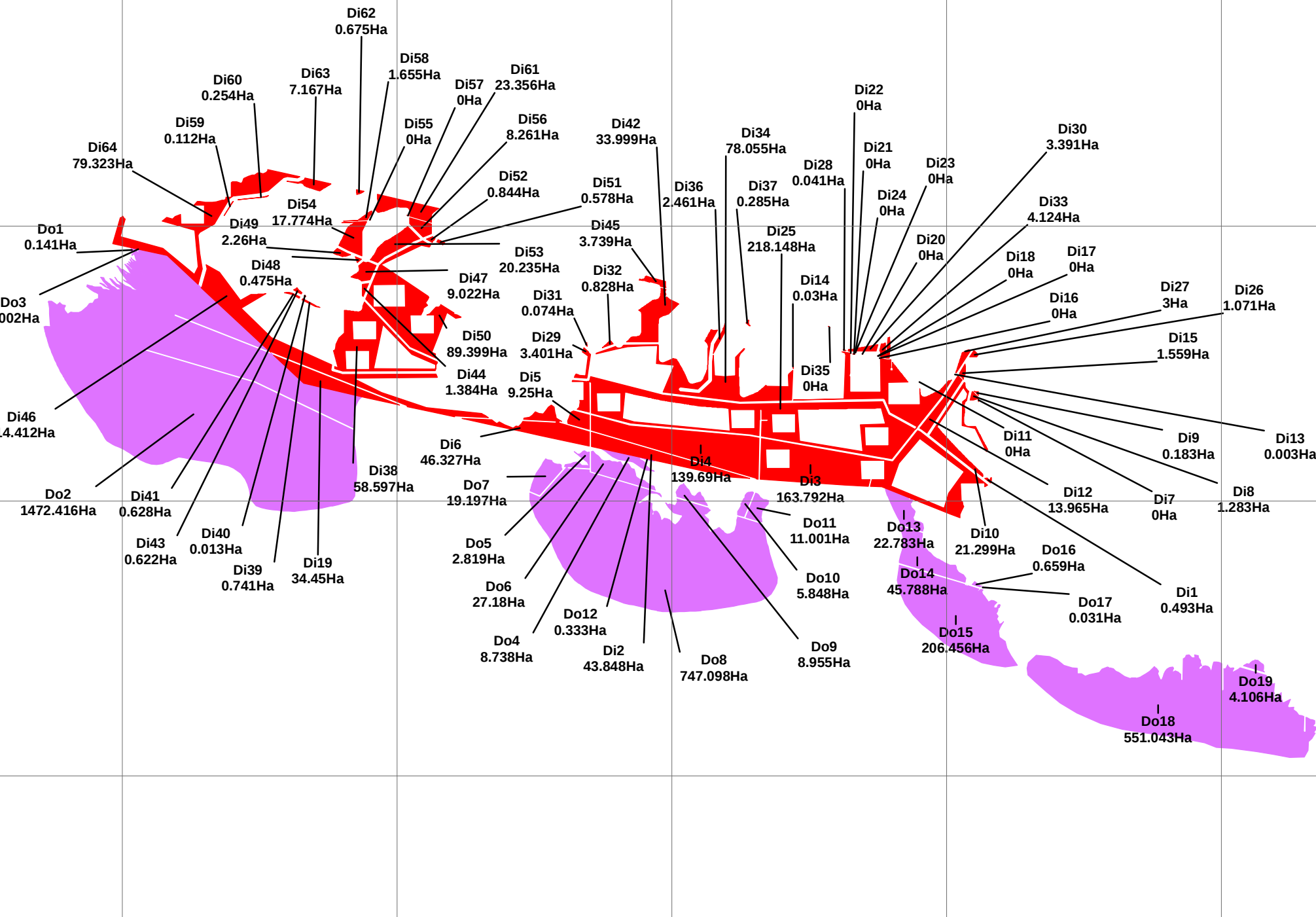
Projection: GDA 1994 MGA Zone 50

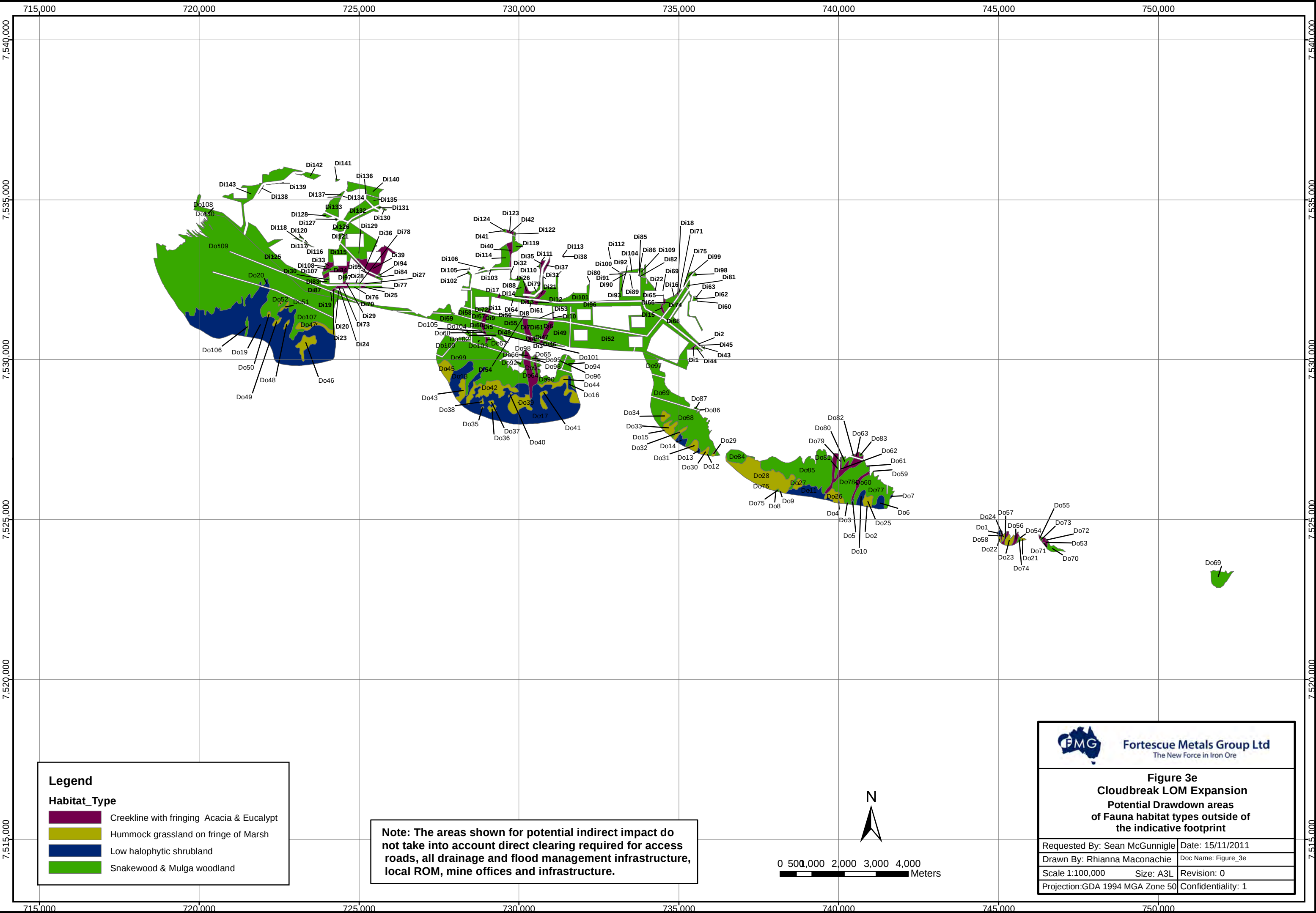


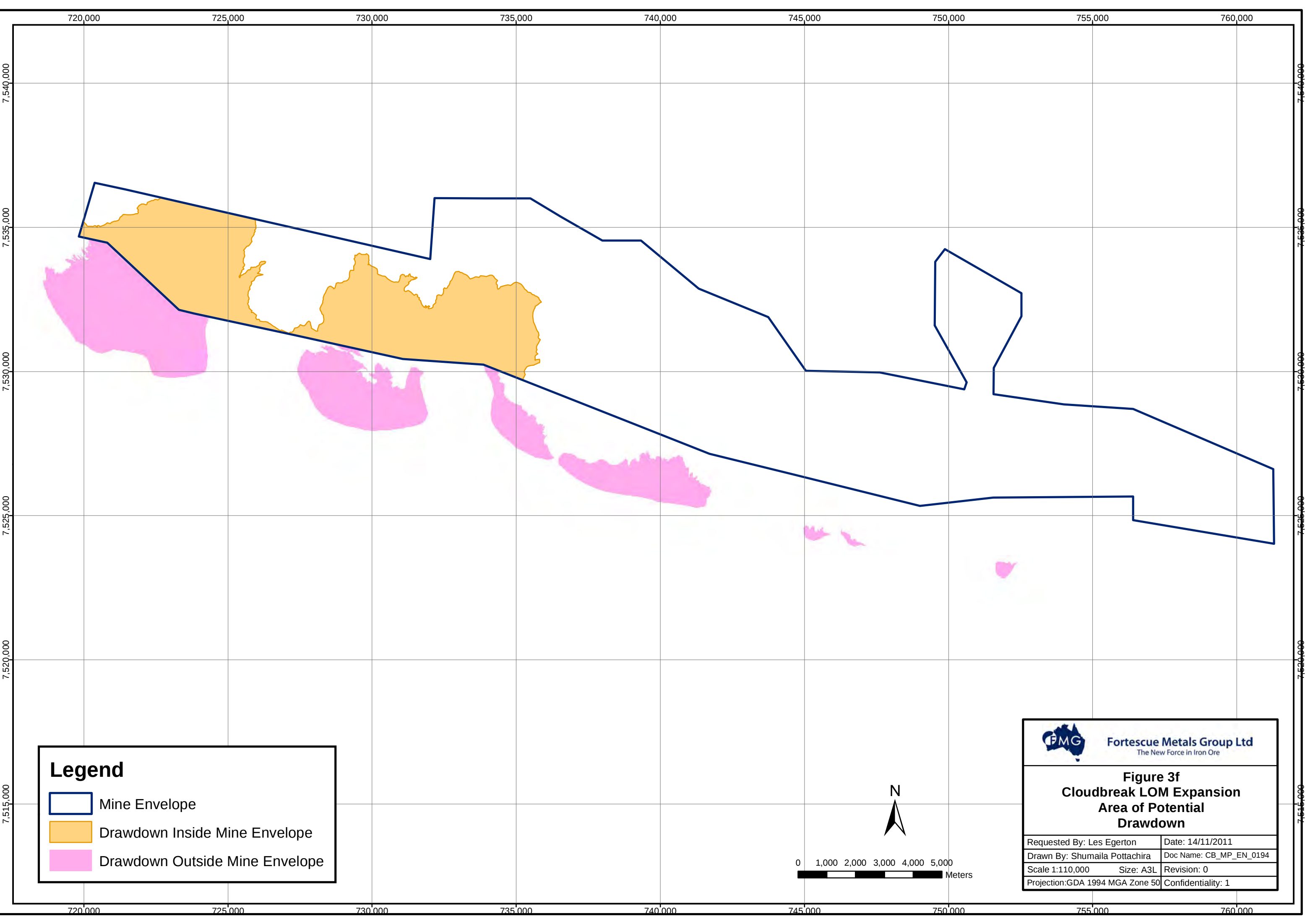
Legend

Drawdown Inside Mine Envelope Minus Indicative Footprint

Drawdown Outside Mine Envelope Minus Water Infrastructure







Legend

Mine Envelope

Drawdown Inside Mine Envelope

Drawdown Outside Mine Envelope

N

01,0002,0003,0004,0005,000

Meters



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Figure 3f
Cloudbreak LOM Expansion
Area of Potential Drawdown

Requested By: Les Egerton

Date: 14/11/2011

Drawn By: Shumaila Pottachira

Doc Name: CB_MP_EN_0194

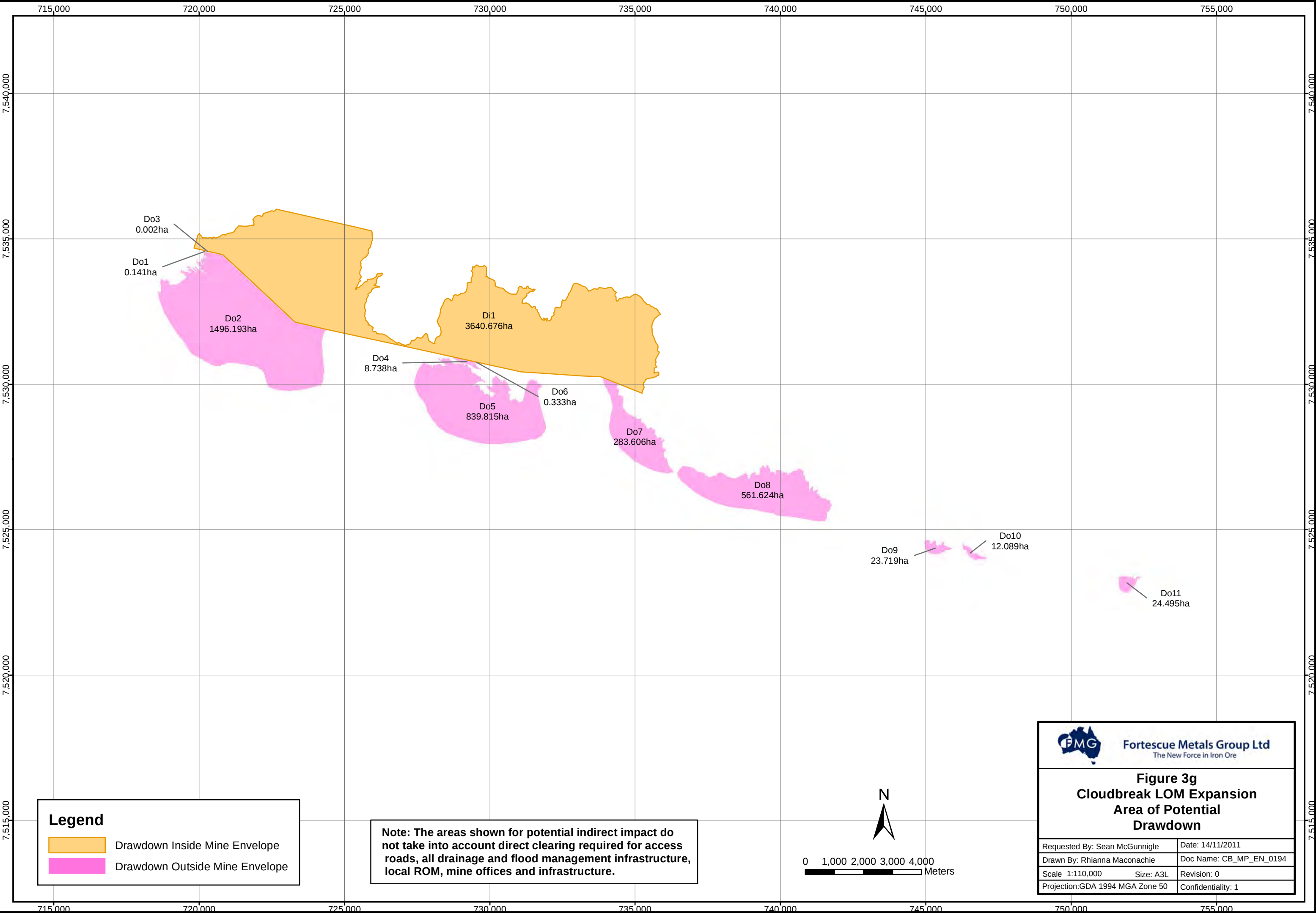
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Size: A3L

Revision: 0

Projection:GDA 1994 MGA Zone 50

Confidentiality: 1



Legend

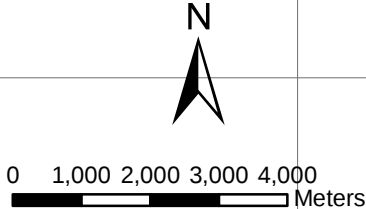
- Drawdown Inside Mine Envelope
- Drawdown Outside Mine Envelope

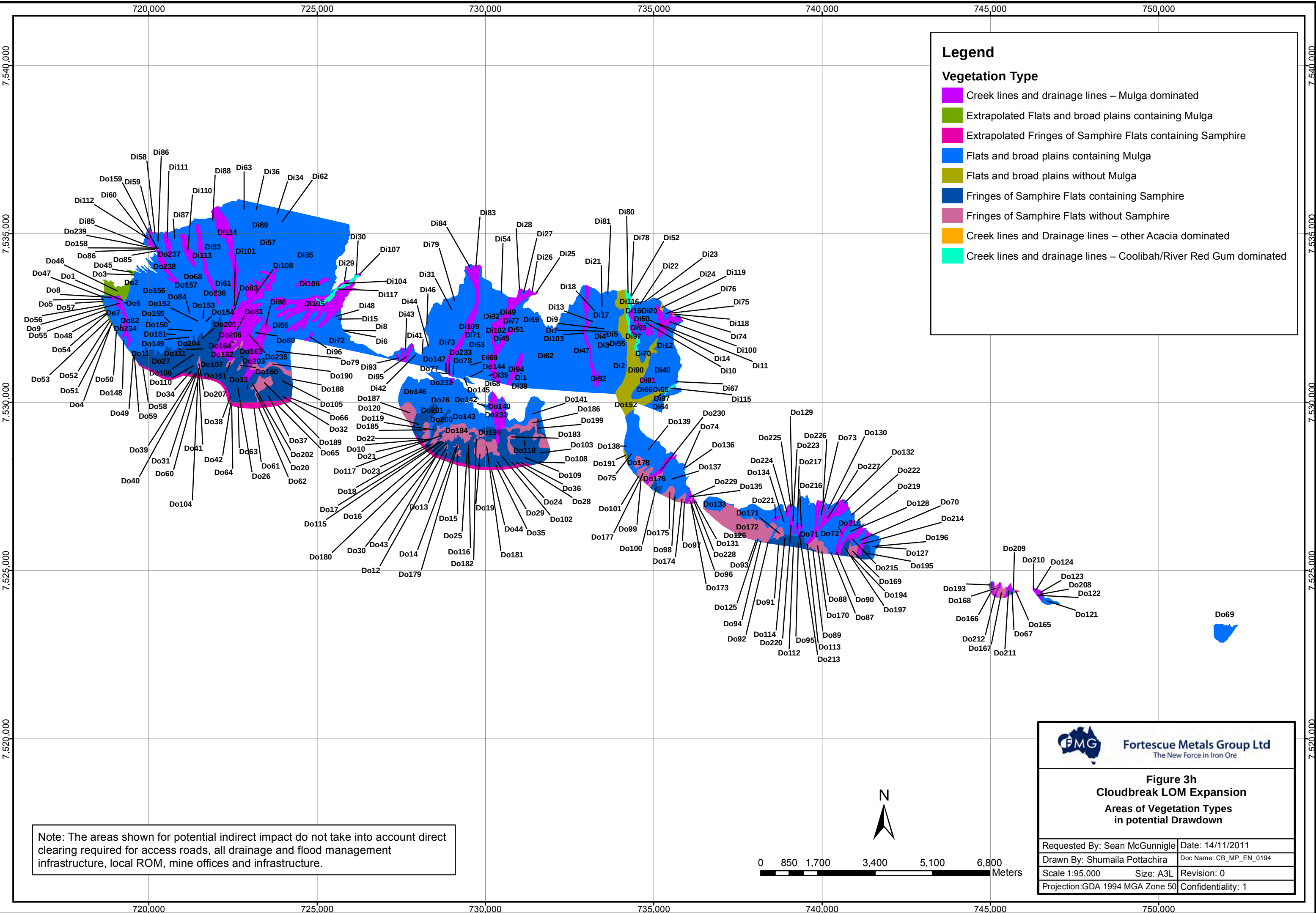


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Figure 3g
Cloudbreak LOM Expansion
Area of Potential
Drawdown

Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Rhianna Maconachie	Doc Name: CB_MP_EN_0194
Scale: 1:110,000	Size: A3L
Projection: GDA 1994 MGA Zone 50	Revision: 0
	Confidentiality: 1





Legend

Vegetation Type

Creek lines and drainage lines – Mulga dominated

Extrapolated Flats and broad plains containing Mulga

Extrapolated Fringes of Samphire Flats containing Samphire

Flats and broad plains containing Mulga

Flats and broad plains without Mulga

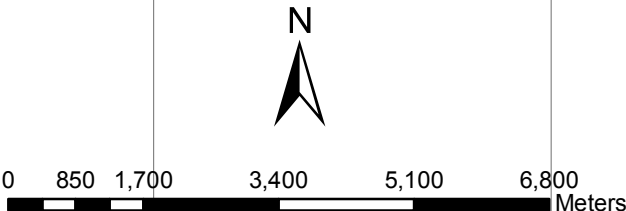
Fringes of Samphire Flats containing Samphire

Fringes of Samphire Flats without Samphire

Creek lines and Drainage lines – other Acacia dominated

Creek lines and drainage lines – Coolibah/River Red Gum dominated

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.





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The New Force in Iron Ore

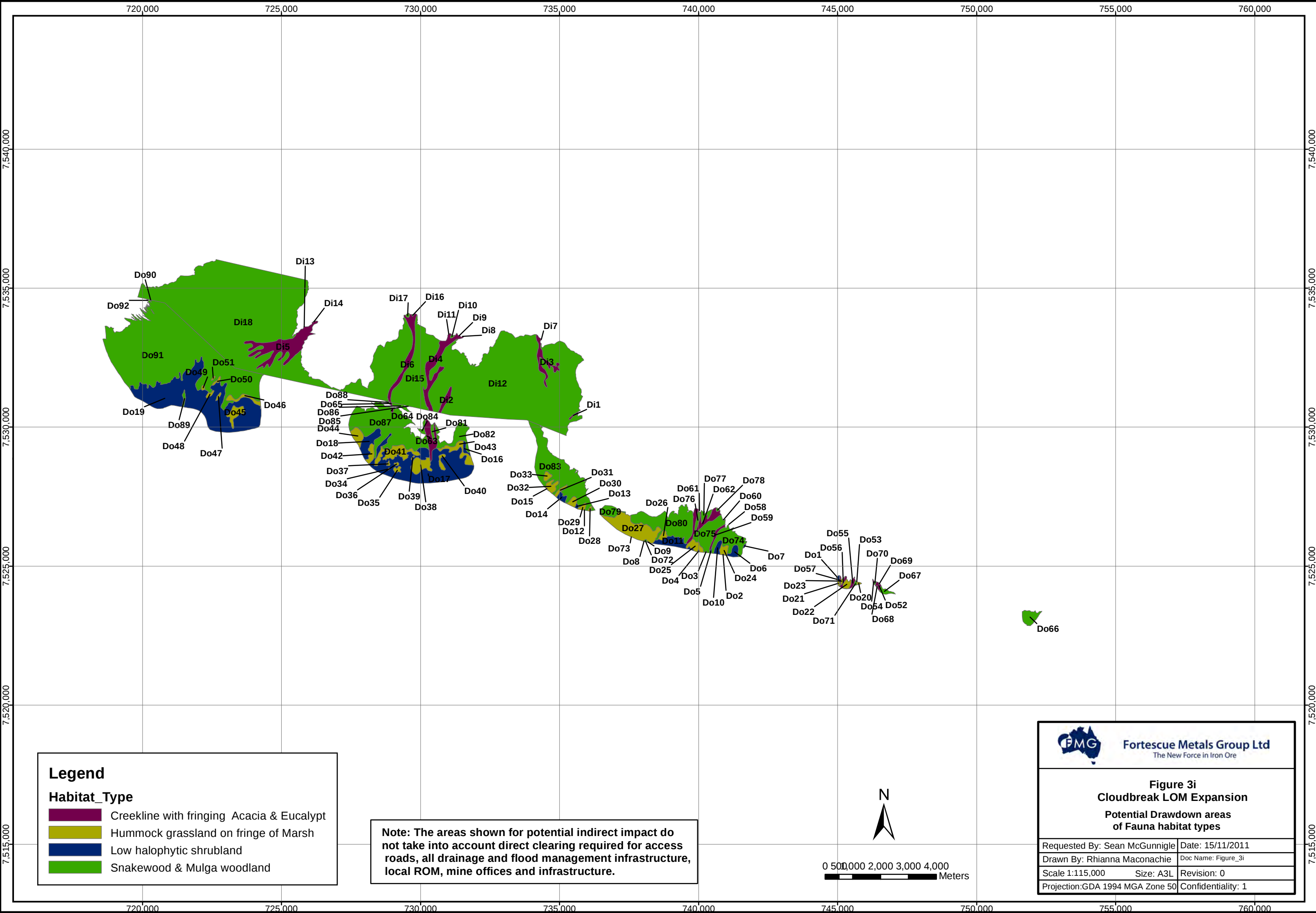
Figure 3h

Cloudbreak LOM Expansion

Areas of Vegetation Types

in potential Drawdown

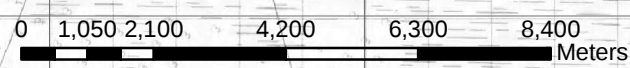
Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:95,000	Size: A3L
Revision: 0	Confidentiality: 1



Legend

-  Ponding
-  Mine Envelope Minus Indicative Footprint
-  Water Infrastructure Outside Mine Envelope

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



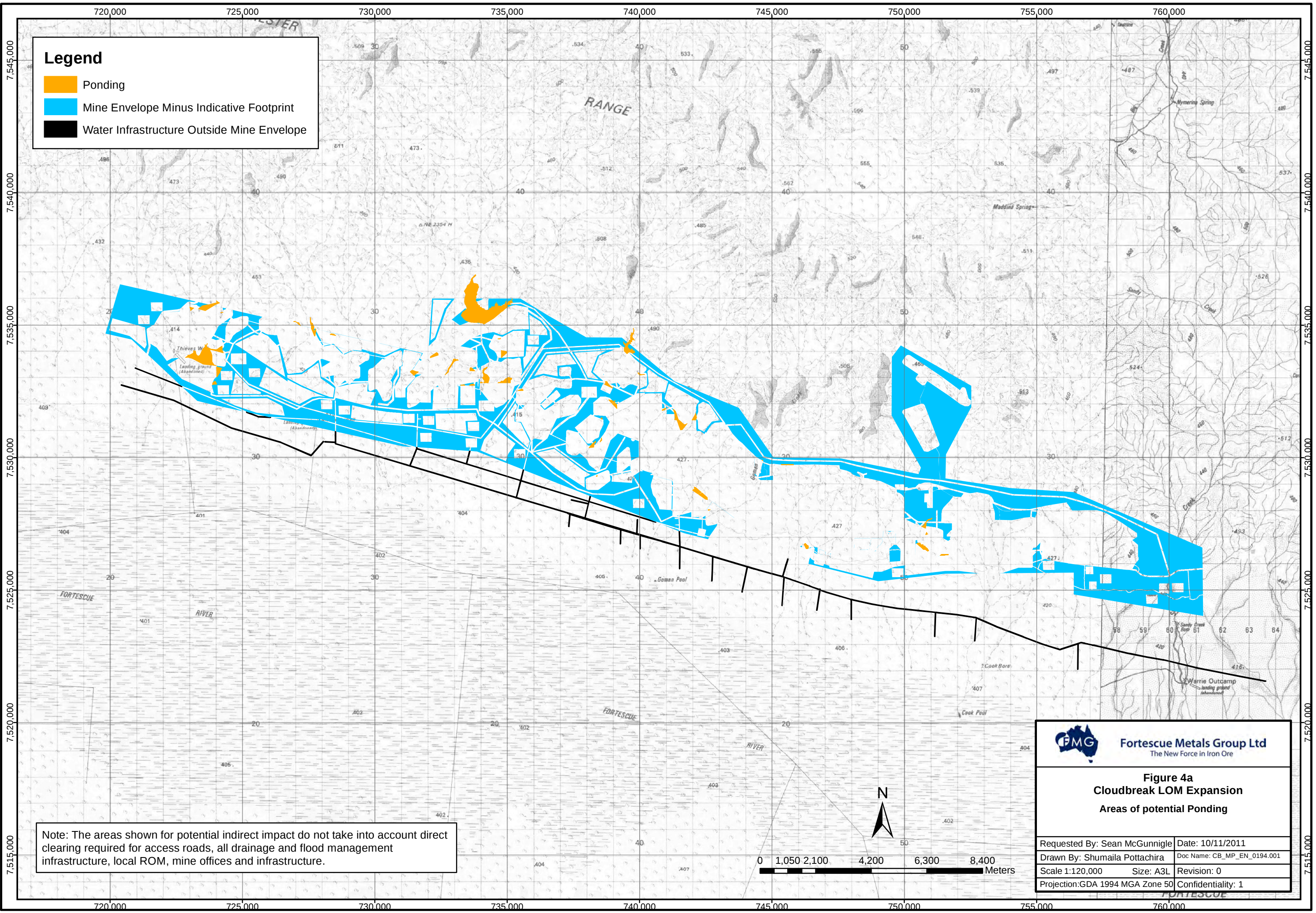


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Figure 4a
Cloudbreak LOM Expansion
Areas of potential Ponding

Requested By: Sean McGunnigle	Date: 10/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194.001
Scale 1:120,000	Size: A3L
Revision: 0	Confidentiality: 1

Projection: GDA 1994 MGA Zone 50



Legend

Ponding Inside Mine Envelope Minus Indicative Footprint

Ponding Outside Mine Envelope Minus Water Infrastructure

Mine Envelope Minus Indicative Footprint

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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The New Force in Iron Ore

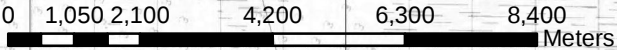
Figure 4b

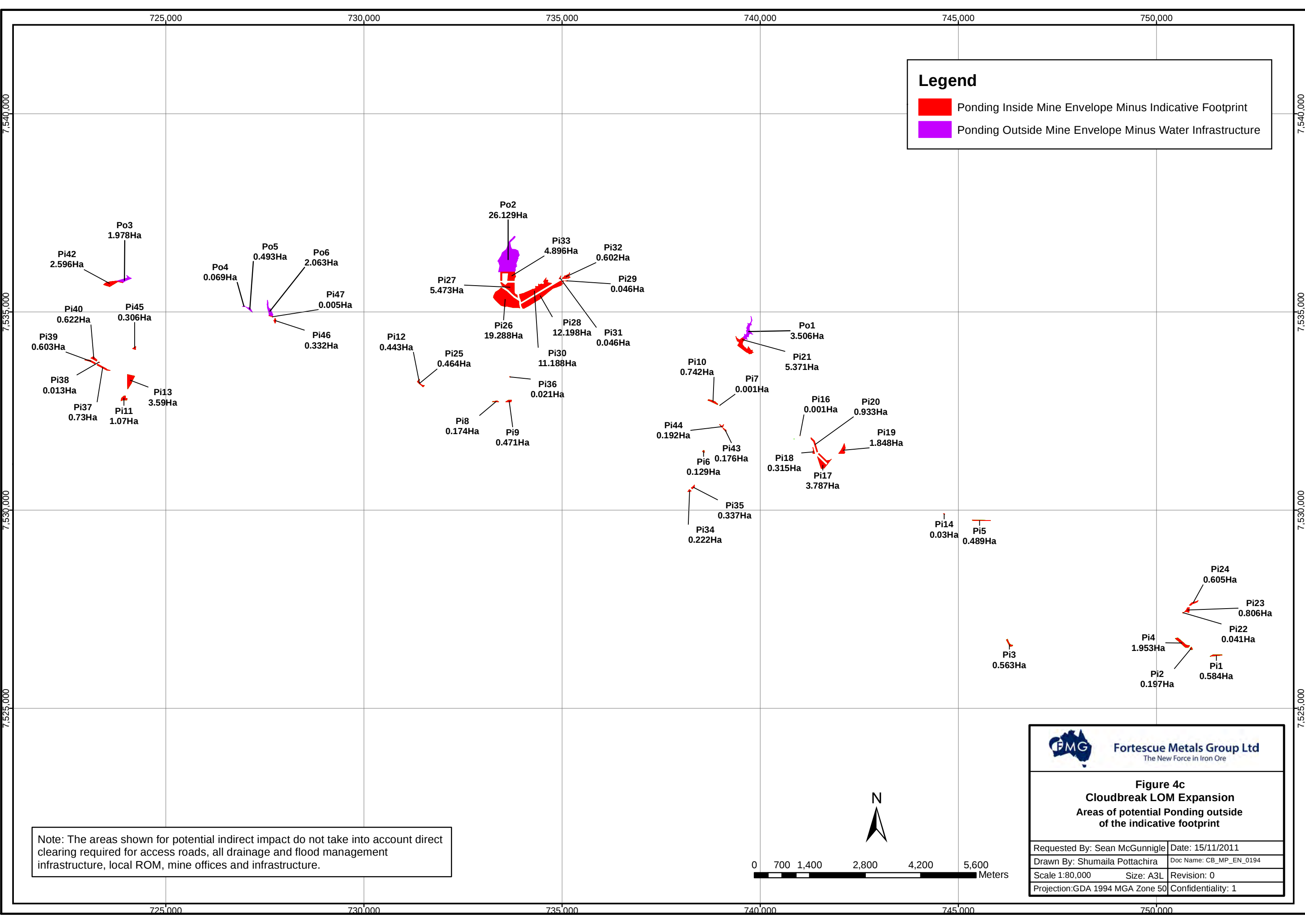
Cloudbreak LOM Expansion

Areas of potential Ponding outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194.002
Scale 1:120,000	Size: A3L
Revision: 0	Confidentiality: 1

Projection:GDA 1994 MGA Zone 50





Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

0 700 1,400 2,800 4,200 5,600 Meters



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Figure 4c
Cloudbreak LOM Expansion
Areas of potential Ponding outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:80,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

Vegetation Types

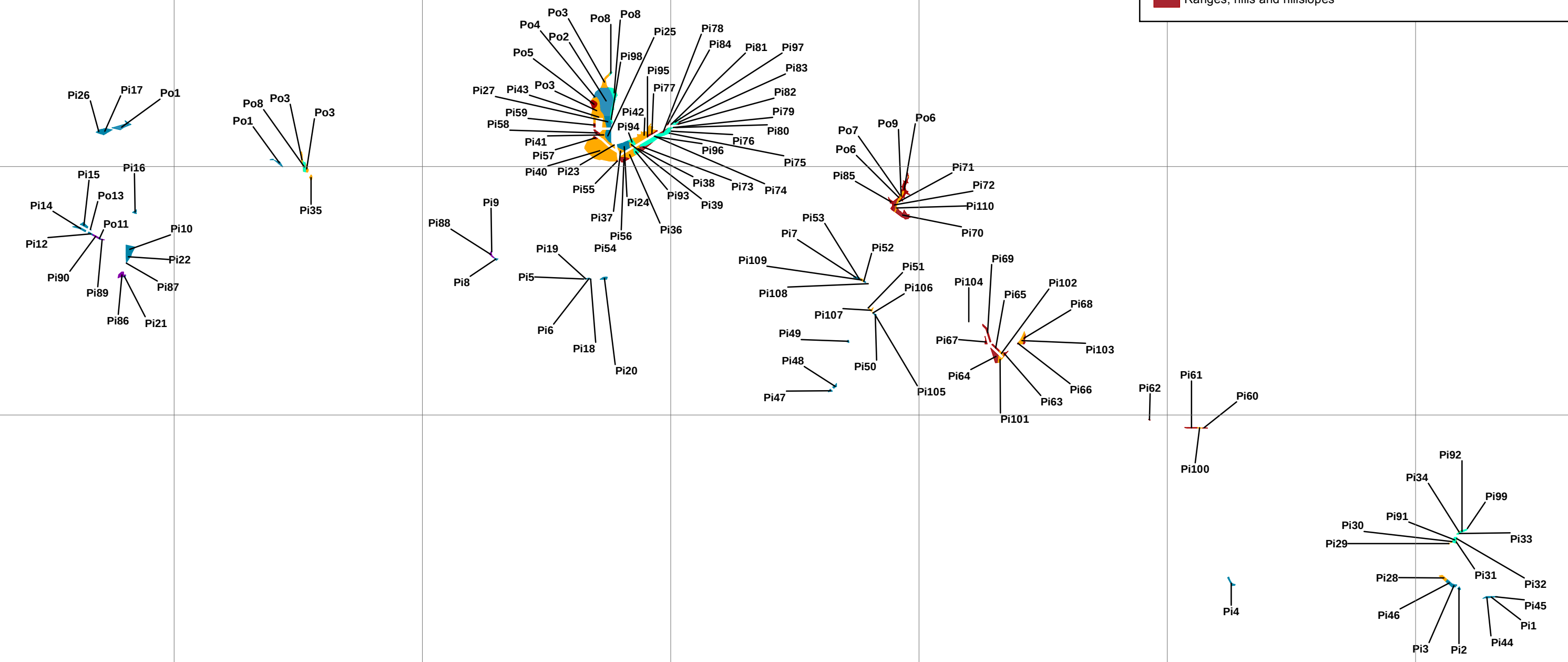
Creek lines and Drainage lines – other Acacia dominated

Creek lines and drainage lines – Coolibah/River Red Gum dominated

Creek lines and drainage lines – Mulga dominated

Flats and broad plains containing Mulga

Ranges, hills and hillslopes



Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

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Figure 4d

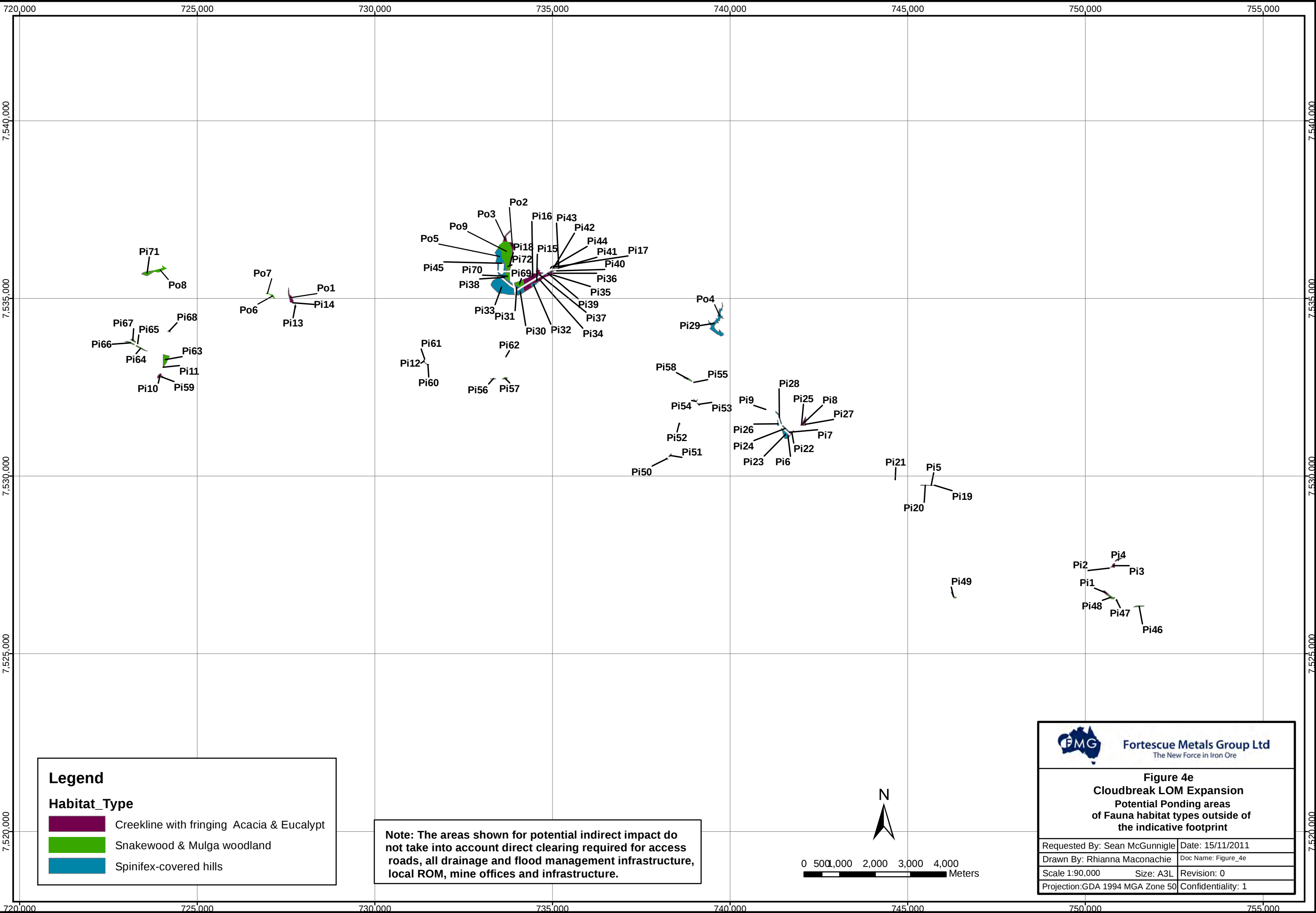
Cloudbreak LOM Expansion

Areas of Vegetation Types

in potential Ponding Areas

outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:80,000	Size: A3L
Revision: 0	Confidentiality: 1



Legend

Habitat_Type

- Creekline with fringing Acacia & Eucalypt
- Snakewood & Mulga woodland
- Spinifex-covered hills

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

N

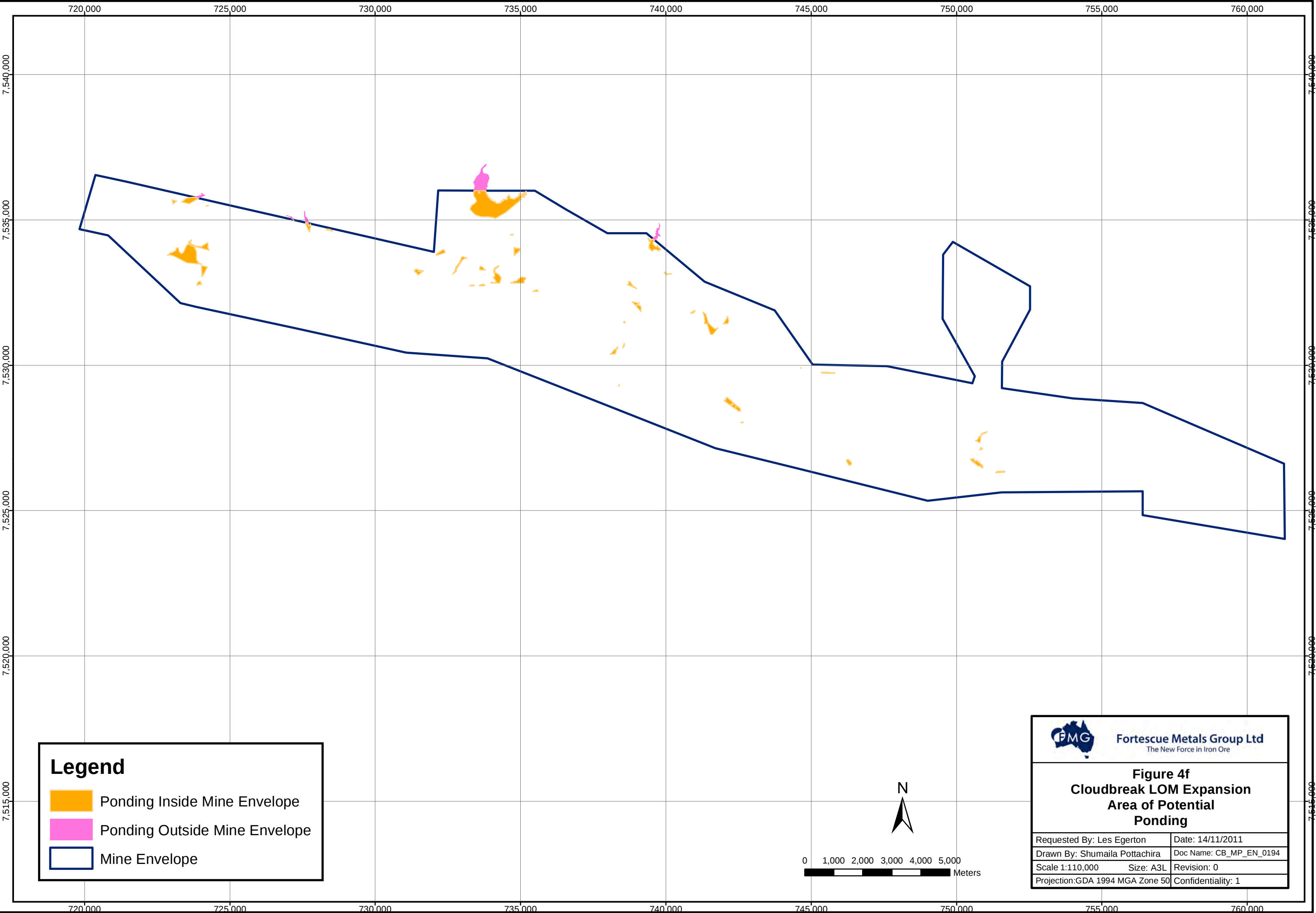
0 500 1,000 2,000 3,000 4,000 Meters



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Figure 4e Cloudbreak LOM Expansion Potential Ponding areas of Fauna habitat types outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Rhianna Maconachie	Doc Name: Figure_4e
Scale 1:90,000	Size: A3L
Projection: GDA 1994 MGA Zone 50	Confidentiality: 1



Legend

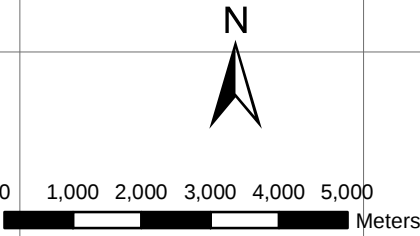
-  Ponding Inside Mine Envelope
-  Ponding Outside Mine Envelope
-  Mine Envelope

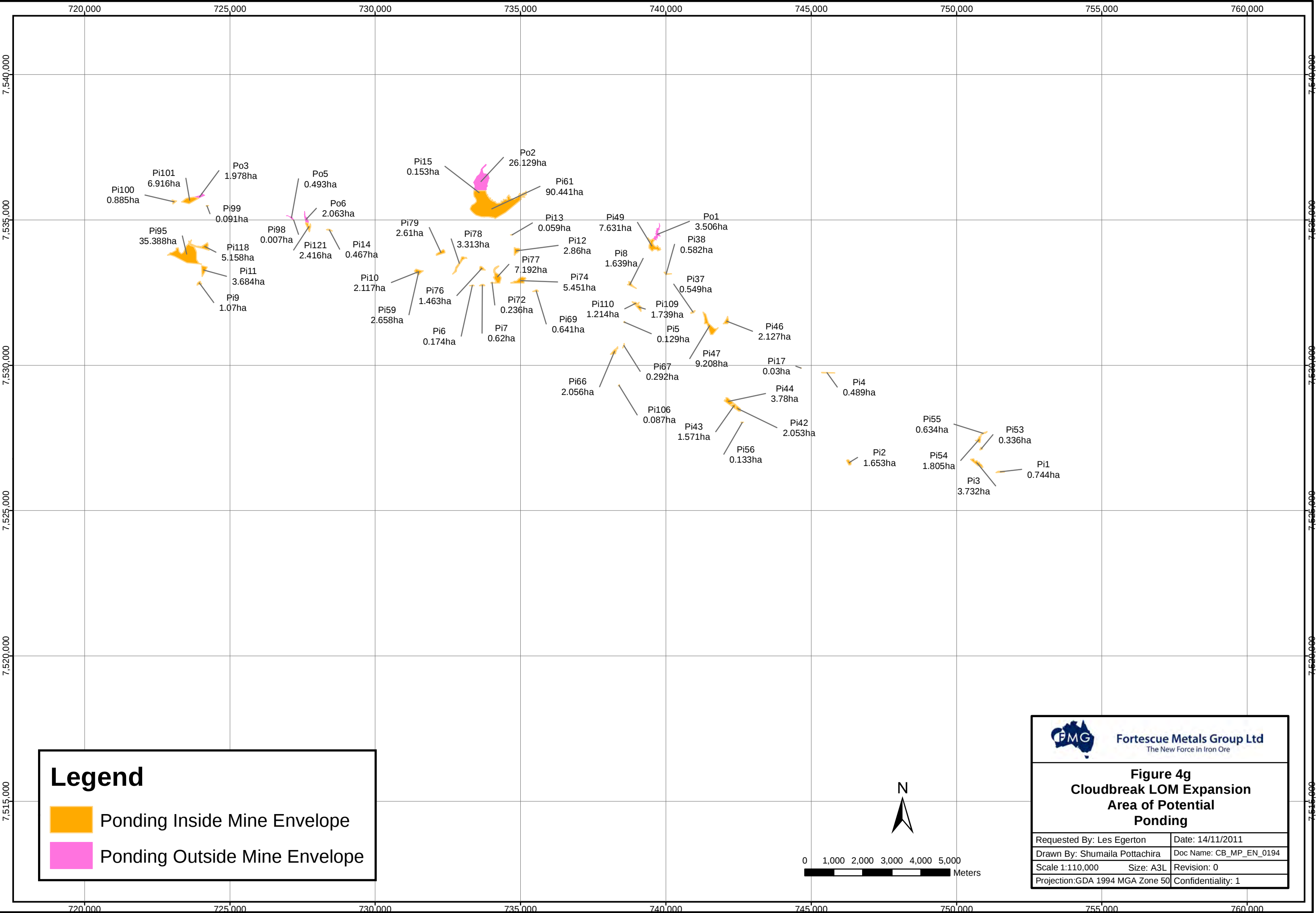


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Figure 4f
Cloudbreak LOM Expansion
Area of Potential
Ponding

Requested By: Les Egerton	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:110,000 Size: A3L	Revision: 0
Projection:GDA 1994 MGA Zone 50	Confidentiality: 1





Legend

Vegetation Type

Creek lines and Drainage lines – other Acacia dominated

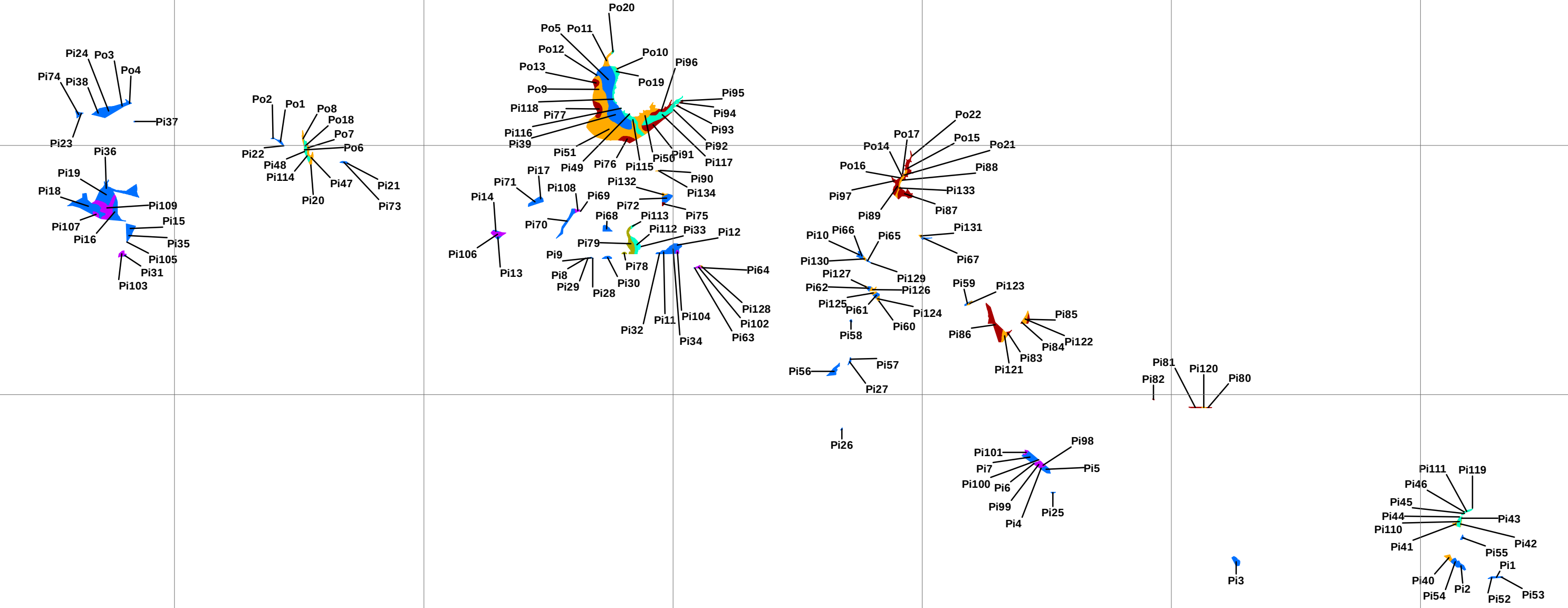
Creek lines and drainage lines – Coolibah/River Red Gum dominated

Creek lines and drainage lines – Mulga dominated

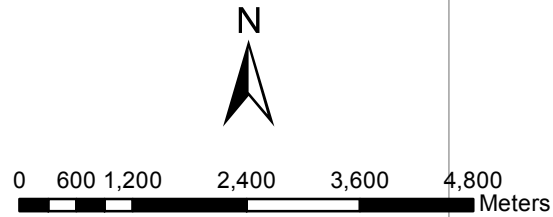
Flats and broad plains containing Mulga

Flats and broad plains without Mulga

Ranges, hills and hillslopes



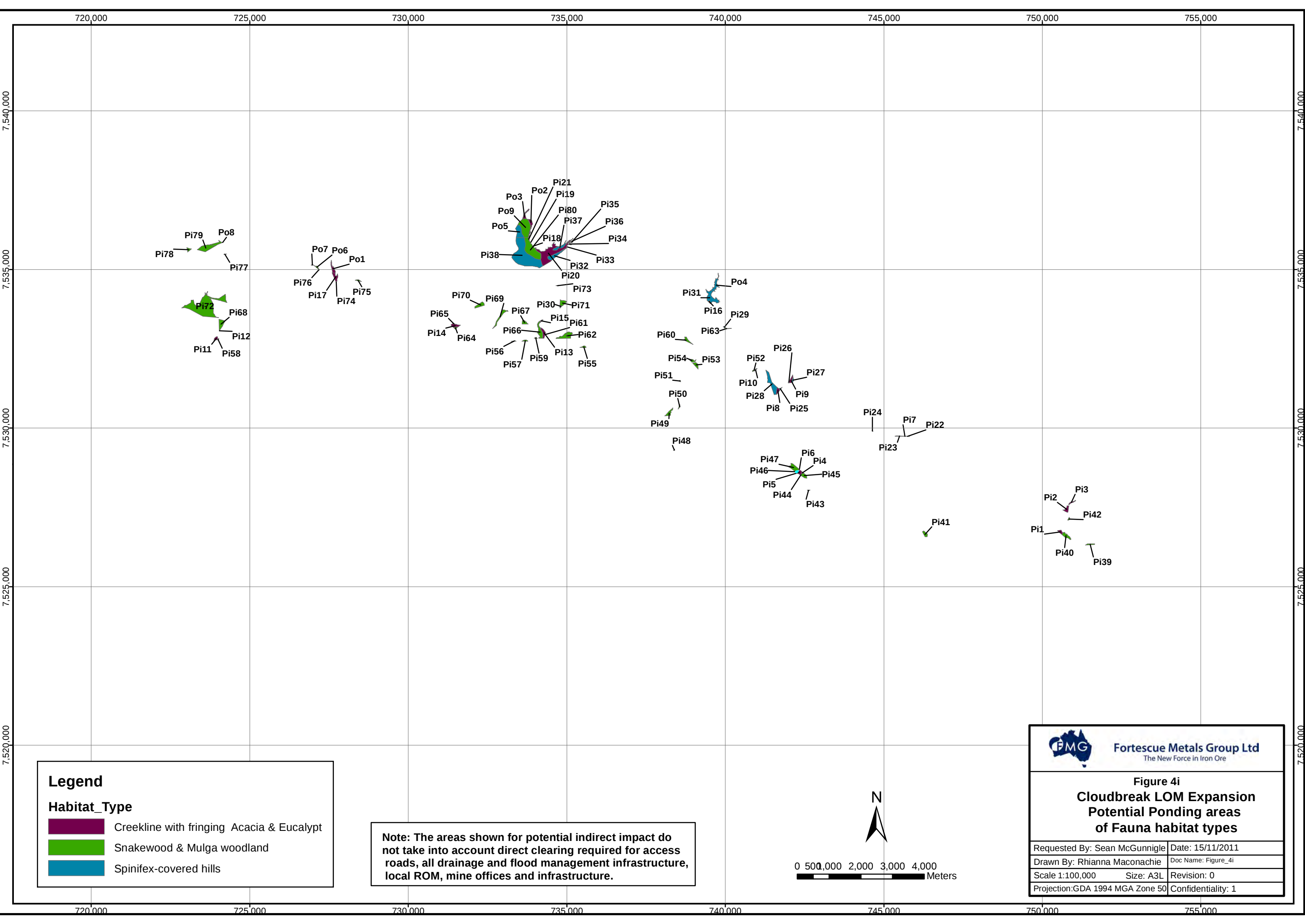
Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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Figure 4h
Cloudbreak LOM Expansion
Areas of Vegetation Types
in potential Ponding

Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:80,000	Size: A3L
Revision: 0	Confidentiality: 1

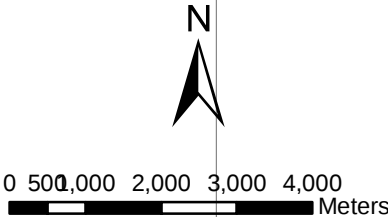


Legend

Habitat_Type

- Creekline with fringing Acacia & Eucalypt
- Snakewood & Mulga woodland
- Spinifex-covered hills

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.





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Figure 4i

Cloudbreak LOM Expansion

Potential Ponding areas

of Fauna habitat types

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Rhianna Maconachie	Doc Name: Figure_4i
Scale 1:100,000	Size: A3L
Revision: 0	Confidentiality: 1

Projection:GDA 1994 MGA Zone 50

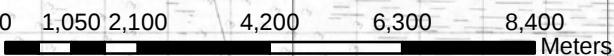
Legend

Sheetflow Shadow

Mine Envelope Minus Indicative Footprint

Water Infrastructure Outside Mine Envelope

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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Figure 5a

Cloudbreak LOM Expansion

Areas of potential Sheetflow Shadow

Requested By: Sean McGunnigle	Date: 10/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194.003
Scale 1:120,000	Size: A3L
Revision: 0	Confidentiality: 1

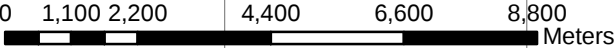
Legend

Sheetflow Shadow Outside Mine Envelope Minus Water Infrastructure

Sheetflow Shadow Inside Mine Envelope Minus Indicative Footprint

Mine Envelope Minus Indicative Footprint

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.





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The New Force in Iron Ore

Figure 5b

Cloudbreak LOM Expansion

Areas of potential Sheetflow Shadow
outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194.004
Scale 1:125,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

Sheetflow Shadow Inside Mine Envelope Minus Indicative Footprint

Sheetflow Shadow Outside Mine Envelope Minus Water Infrastructure

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

N

0

850

1,700

3,400

5,100

6,800

Meters



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The New Force in Iron Ore

Figure 5c

Cloudbreak LOM Expansion

Areas of potential SheetflowShadow outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:95,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

Vegetation Type

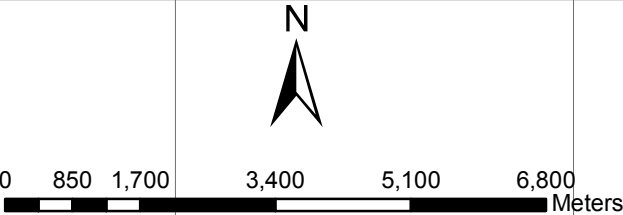
Creek lines and Drainage lines – other Acacia dominated

Creek lines and drainage lines – Mulga dominated

Flats and broad plains containing Mulga

Ranges, hills and hillslopes

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.





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The New Force in Iron Ore

Figure 5d

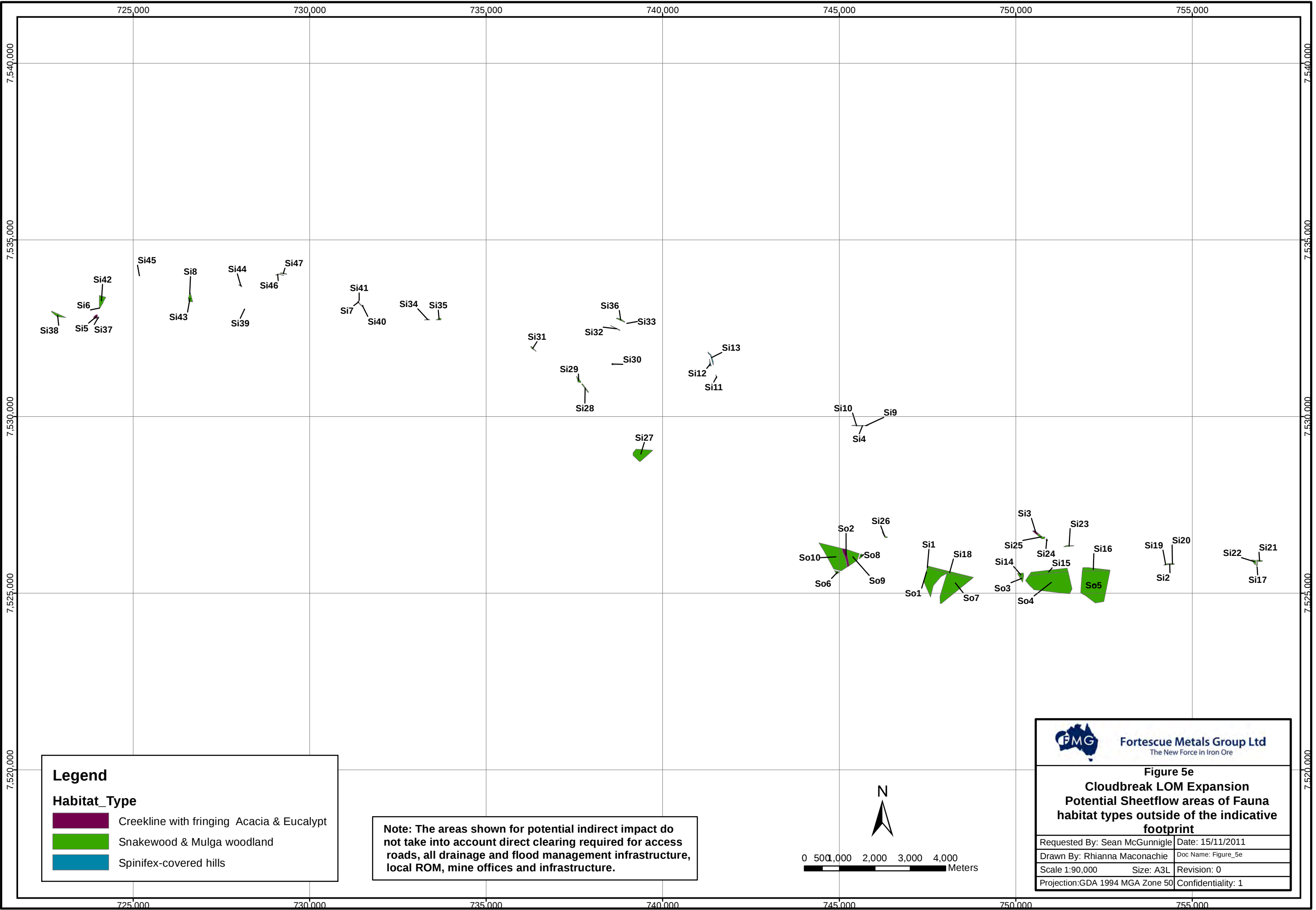
Cloudbreak LOM Expansion

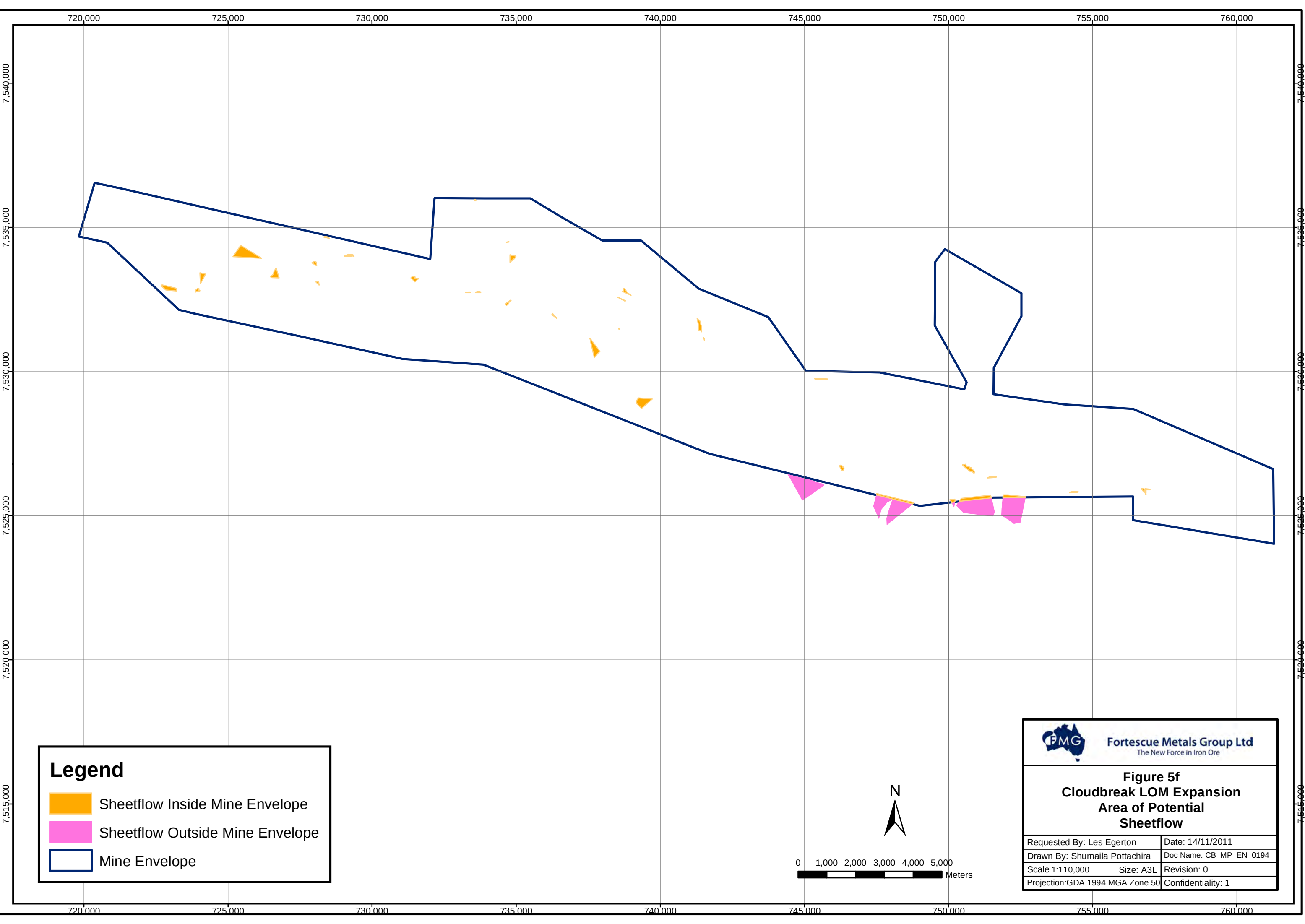
Areas of Vegetation Types

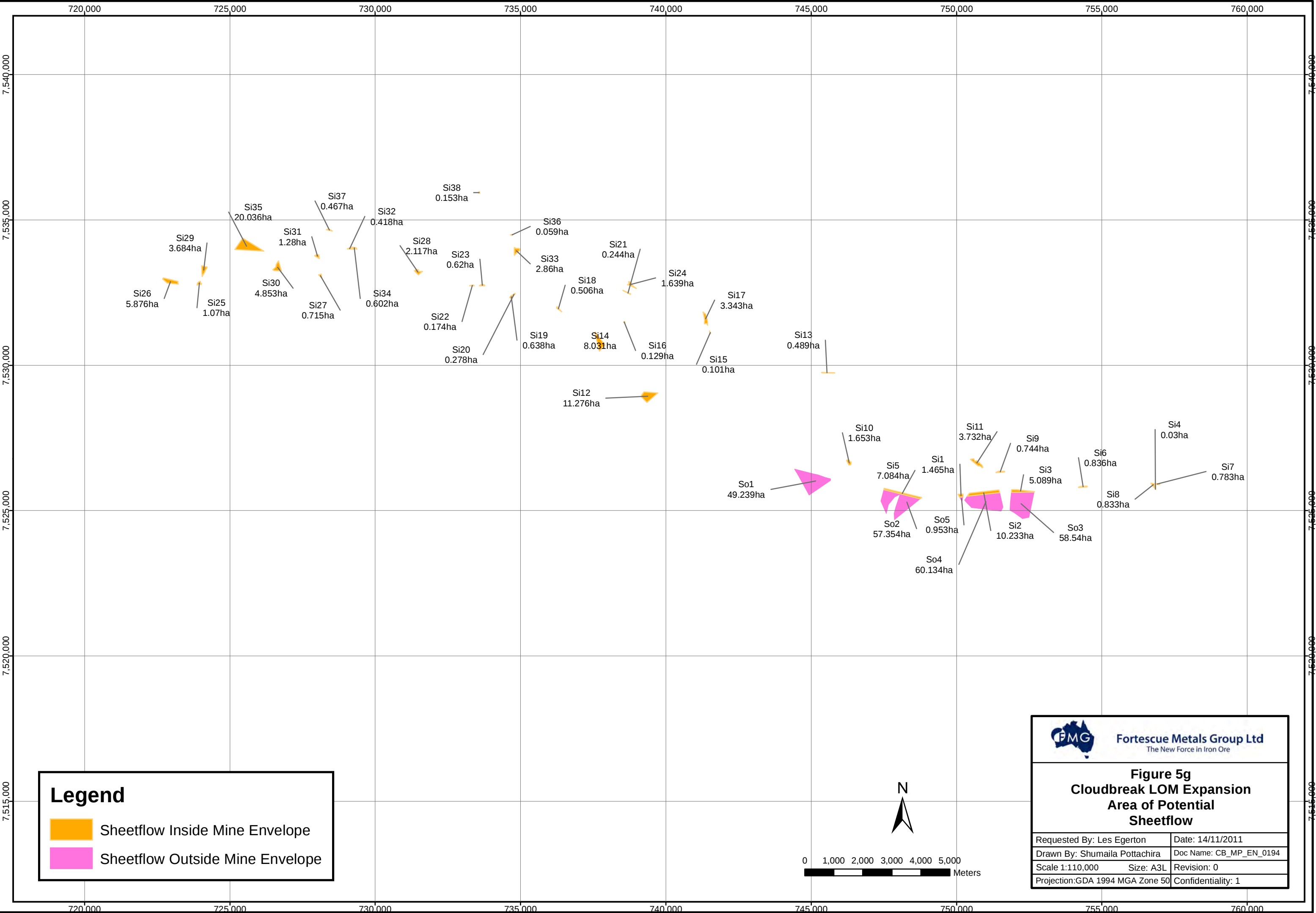
in potential Sheetflow Shadow Zones

outside of the indicative footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:95,000	Size: A3L
Projection:GDA 1994 MGA Zone 50	Confidentiality: 1







Legend

-  Sheetflow Inside Mine Envelope
-  Sheetflow Outside Mine Envelope

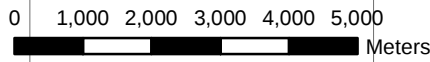


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The New Force in Iron Ore

Figure 5g
Cloudbreak LOM Expansion
Area of Potential Sheetflow

Requested By: Les Egerton	Date: 14/11/2011
Drawn By: Shumaila Pottachira	Doc Name: CB_MP_EN_0194
Scale 1:110,000	Size: A3L
Revision: 0	Confidentiality: 1

Projection:GDA 1994 MGA Zone 50



Legend

Vegetation Type

- Creek lines and Drainage lines – other Acacia dominated
- Creek lines and drainage lines – Mulga dominated
- Flats and broad plains containing Mulga
- Ranges, hills and hillslopes

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



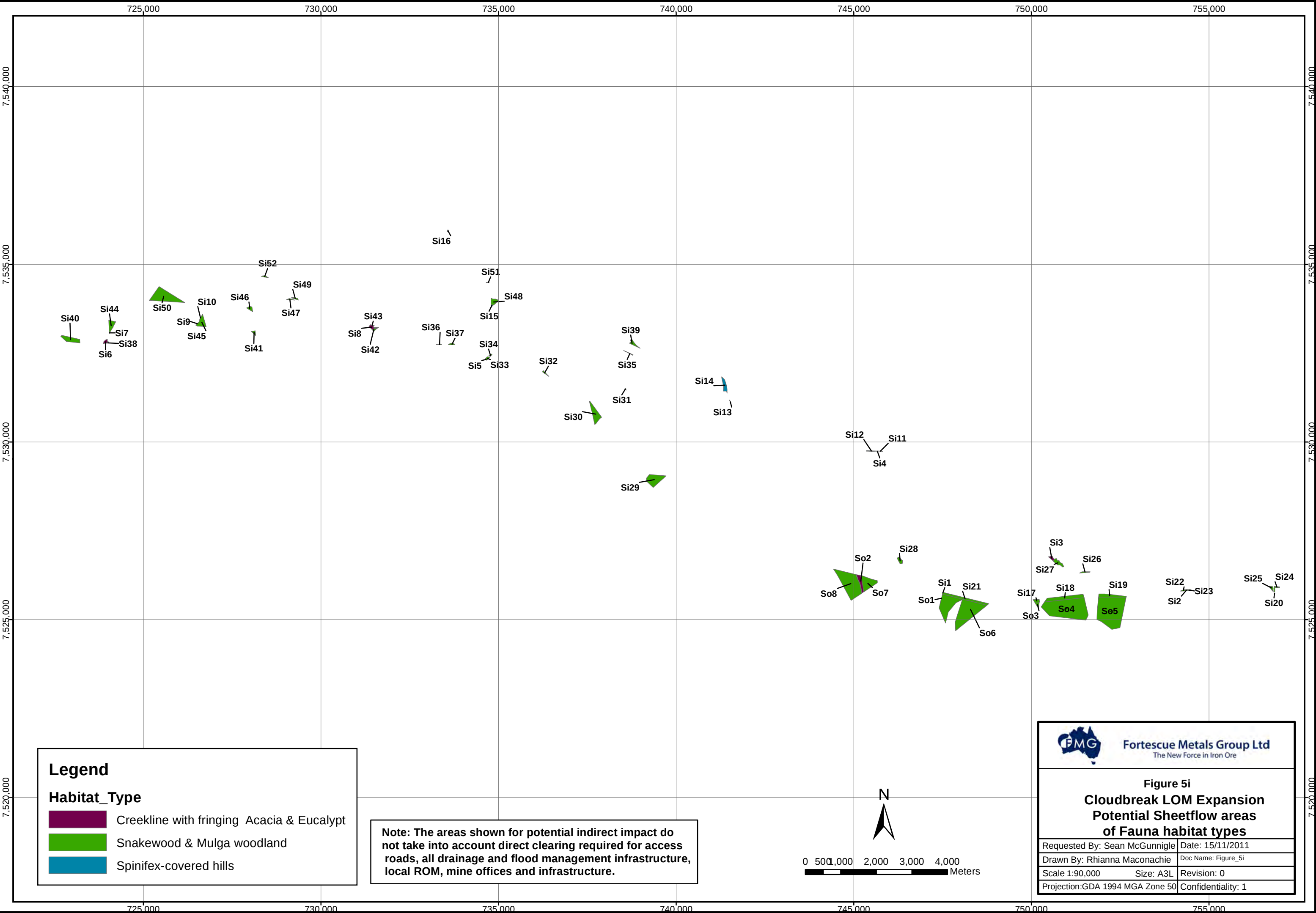
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The New Force in Iron Ore

Figure 5h
Cloudbreak LOM Expansion
Areas of Vegetation Types
in potential Sheetflow Shadow Zones

Requested By: Sean McGunnigle		Date: 14/11/2011	
Drawn By: Shumaila Pottachira		Doc Name: CB_MP_EN_0194	
Scale 1:90,000	Size: A3L	Revision: 0	
Projection: GDA 1994 MGA Zone 50		Confidentiality: 1	

0 800 1,600 3,200 4,800 6,400 Meters





Legend

Habitat_Type

- Creekline with fringing Acacia & Eucalypt
- Snakewood & Mulga woodland
- Spinifex-covered hills

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



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Figure 5i Cloudbreak LOM Expansion Potential Sheetflow areas of Fauna habitat types

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Rhianna Maconachie	Doc Name: Figure_5i
Scale 1:90,000	Size: A3L
Revision: 0	Confidentiality: 1

Legend

Mounding Inside Mine Envelope Minus Indicative Footprint

Mounding Outside Mine Envelope Minus Water Infrastructure

Drawdown Inside Mine Envelope Minus Indicative Footprint

Drawdown Outside Mine Envelope Minus Water Infrastructure

Ponding Inside Mine Envelope Minus Indicative Footprint

Ponding Outside Mine Envelope Minus Water Infrastructure

Sheetflow Shadow Inside Mine Envelope Minus Indicative Footprint

Sheetflow Shadow Outside Mine Envelope Minus Water Infrastructure

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

N

0

875

1,750

3,500

5,250

7,000

Meters



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Figure 6a

Cloudbreak LOM Expansion

Areas of potential Drawdown, Mounding, Ponding and Sheetflow Shadow

Requested By: Sean McGunnigle

Date: 14/11/2011

Drawn By: Rhianna Maconachie

Doc Name: CB_MP_EN_0194

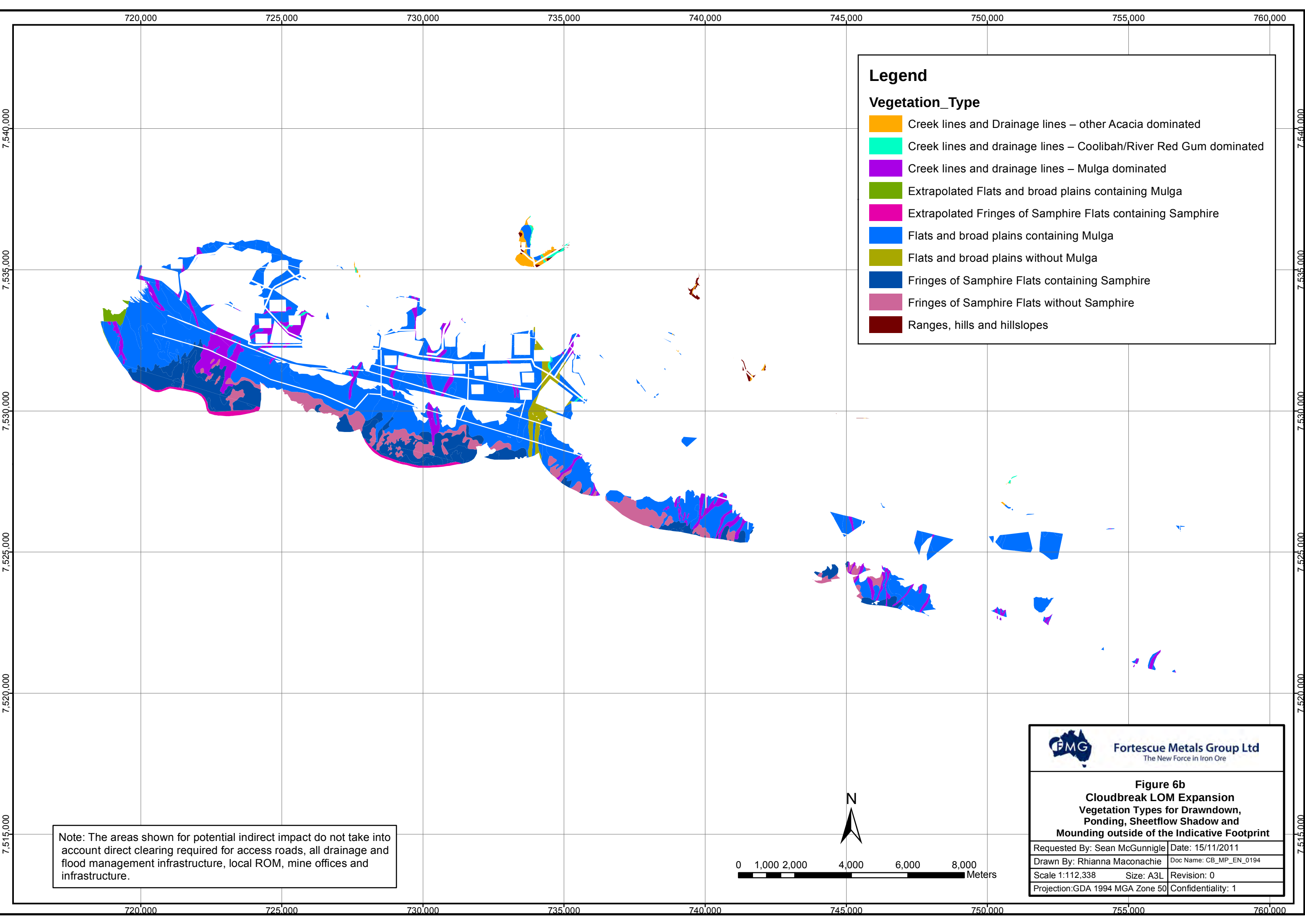
Scale 1:100,000

Size: A3L

Revision: 0

Projection: GDA 1994 MGA Zone 50

Confidentiality: 1



Legend

Vegetation_Type

Creek lines and Drainage lines – other Acacia dominated

Creek lines and drainage lines – Coolibah/River Red Gum dominated

Creek lines and drainage lines – Mulga dominated

Extrapolated Flats and broad plains containing Mulga

Extrapolated Fringes of Samphire Flats containing Samphire

Flats and broad plains containing Mulga

Flats and broad plains without Mulga

Fringes of Samphire Flats containing Samphire

Fringes of Samphire Flats without Samphire

Ranges, hills and hillslopes

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

N

0 1,000 2,000 4,000 6,000 8,000 Meters

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Figure 6b
Cloudbreak LOM Expansion
Vegetation Types for Drawdown,
Ponding, Sheetflow Shadow and
Mounding outside of the Indicative Footprint

Requested By: Sean McGunnigle	Date: 15/11/2011
Drawn By: Rhianna Maconachie	Doc Name: CB_MP_EN_0194
Scale 1:112,338	Size: A3L Revision: 0
Projection: GDA 1994 MGA Zone 50	Confidentiality: 1

Legend

Habitat_Type

Creekline with fringing Acacia & Eucalypt

Hummock grassland on fringe of Marsh

Low halophytic shrubland

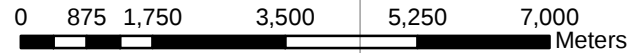
Snakewood & Mulga woodland

Spinifex-covered hills

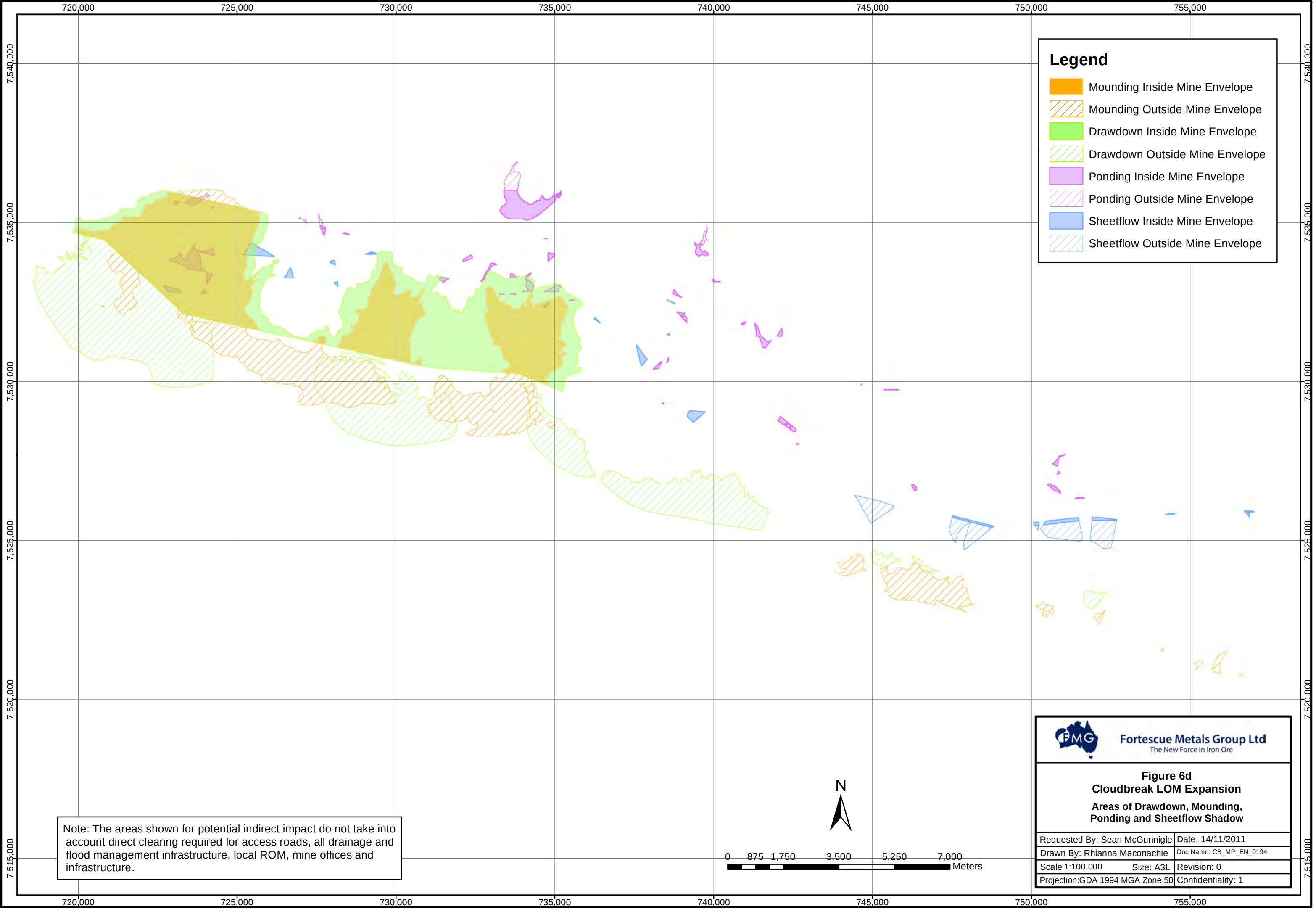
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Figure 6c
Cloudbreak LOM Expansion
Fauna Types for Drawdown,
Ponding, Sheetflow Shadow and
Mounding outside of the Indicative Footprint

Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Rhianna Maconachie	Doc Name: CB_MP_EN_0194
Scale 1:100,000	Size: A3L
Revision: 0	Confidentiality: 1
Projection:GDA 1994 MGA Zone 50	



Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.



Legend

Vegetation_Type

- Creek lines and Drainage lines – other Acacia dominated
- Creek lines and drainage lines – Coolibah/River Red Gum dominated
- Creek lines and drainage lines – Mulga dominated
- Extrapolated Flats and broad plains containing Mulga
- Extrapolated Fringes of Samphire Flats containing Samphire
- Flats and broad plains containing Mulga
- Flats and broad plains without Mulga
- Fringes of Samphire Flats containing Samphire
- Fringes of Samphire Flats without Samphire
- Infrastructure
- Ranges, hills and hillslopes



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The New Force in Iron Ore

Figure 6e
Cloudbreak LOM Expansion
Vegetation Types for Drawdown, Ponding,
Sheetflow Shadow and Mounding

Requested By: Sean McGunnigle		Date: 15/11/2011	
Drawn By: Rhianna Maconachie		Doc Name: CB_MP_EN_0194	
Scale 1:103,997		Size: A3L	Revision: 0
Projection: GDA 1994 MGA Zone 50		Confidentiality: 1	

Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

0 875 1,750 3,500 5,250 7,000 Meters



Legend

Habitat_Type

Creekline with fringing Acacia & Eucalypt

Hummock grassland on fringe of Marsh

Low halophytic shrubland

Snakewood & Mulga woodland

Spinifex-covered hills



Fortescue Metals Group Ltd

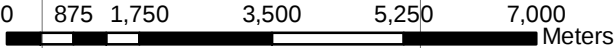
The New Force in Iron Ore

Figure 6f

Cloudbreak LOM Expansion

Fauna Types for Drawdown, Ponding, Sheetflow Shadow and Mounding

Requested By: Sean McGunnigle	Date: 14/11/2011
Drawn By: Rhianna Maconachie	Doc Name: CB_MP_EN_0194
Scale 1:100,000	Size: A3L
Revision: 0	Confidentiality: 1
Projection:GDA 1994 MGA Zone 50	



Note: The areas shown for potential indirect impact do not take into account direct clearing required for access roads, all drainage and flood management infrastructure, local ROM, mine offices and infrastructure.

Attachment B: Tables



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Table 1 - Direct Impacts - Areas of direct disturbance by vegetation and fauna habitat type

	Vegetation Community	Total Mapped Area (ha)	Indicative direct disturbance (ha)(1)	Indicative direct disturbance amount in PCR (ha)(1)	Indicative direct disturbance amount outside PCR (ha) (1)
By Vegetation Type					
Creek lines and drainage lines – Coolibah/River Red Gum dominated	1	2,367	126	62	64
Creek lines and drainage lines – Mulga dominated (2)	2	15,402	660	279	381
Creek lines and Drainage lines – other Acacia dominated	8, 9	3,300	402	150	252
Flats and broad plains containing Mulga	3, 4, 10	74,652	5,169	2,413	2,756
Flats and broad plains without Mulga	15	231	102	82	20
Ranges, hills and hillslopes	7, 16, 17, 18	22,128	883	207	676
Fringes of Samphire Flats containing Samphire	12, 13, 22, 25, 26	31,478	3	2	1
Fringes of Samphire Flats without Samphire	11, 14, 20, 27	947	0	0	0
Extrapolated Fringes of Samphire Flats containing Samphire		324	0	0	0
Extrapolated Flats and broad plains containing Mulga		12	0	0	0
Total Mulga impact	2,3,4,10	90,066	5,829	2,692	3,137
Total Samphire impact	12, 13, 22, 25, 26	31,802	1	0	1
Total creekline vegetation	1, 2, 8, 9	21,069	1,188	491	696
By Fauna Habitat Type					
(A) Low halophytic shrubland (samphire)	See Note (3)	25,599	1		1
(B) Hummock grassland on the fringe of the Fortescue Marsh (spinifex)		875	2	2	0
(C) Mulga and other Acacia woodland		44,504	5,695	2,661	3,034
(D) Spinifex covered hills and ranges		23,746	985	215	770
(E) Creeklines with shrubland and/or eucalypt open woodland		11,596	683	318	365
(F) Rocky escarpments		32	0	0	0
(E1) Extrapolated Creeklines with shrubland and/or eucalypt woodland		1	0	0	0
(C1) Extrapolated Mulga and other Acacia woodland		136	0	0	0
Night Parrot Habitat (A, B)		26,474	3	2	1
Greater Bilby Habitat – preferred (A, B)		26,474	3	2	1
E, C1, E1)		56,237	6,378	2,979	3,399
Greater Bilby Habitat – total (A, B, C, E, C1, E1)		82,711	6,381	2,981	3,400
Northern Quoll Habitat (F)		32	0	0	0
Mulgara Habitat (A, B)		26,474	3	2	1
Pilbara leaf-nosed bat Habitat (refer Figure 83 of PER)		14 114	1,092	269	822
Greater Egret and other migratory waders Habitat (refer Figure 94 of PER)		16 063	584	265	319

Notes

(1) The areas calculated do not take into account direct disturbance clearing required for access roads, all drainage and flood management infrastructure, local ROM and mine infrastructure.

(2) "Creeklines and drainage lines – Mulga dominated" counts as both Mulga and creekline vegetation.

(3) Vegetation communities have not been included as there is not always a direct link between veg community and habitat, as habitat takes into account other factors.

PCR = Proposed Conservation Reserve

Table 2 - Areas of Indirect Impact by Type (with Indicative Footprint)

	Areas Inside Mine Envelope with indicative footprint (ha) (1)				Areas Outside Mine Envelope with indicative water infrastructure footprint (ha)				
	Mounding	Drawdown	Sheetflow Shadow	Ponding	Mounding	Drawdown	Sheetflow Shadow	Ponding	
Total Areas	778.7	1266.6	55.7	84.5	1618	3194.7	224.8	34.2	
By Vegetation Type	Figure 2d	Figure 3d	Figure 5d	Figure 4d	Figure 2d	Figure 3d	Figure 5d	Figure 4d	Totals
Flats and broad plains without Mulga	39.9	42.7	0.0	0.0	59.0	17.8	0.0	0.0	159.4
Creek lines and drainage lines – Mulga dominated	143.0	191.2	3.6	1.6	72.6	312.1	4.8	0.0	728.9
Fringes of Samphire Flats without Samphire	0.0	0.0	0.0	0.0	178.7	390.0	0.0	0.0	568.7
Flats and broad plains containing Mulga	589.8	1015.6	49.3	21.2	1124.3	1587.2	219.9	17.7	4625.0
Extrapolated Flats and broad plains containing Mulga	0.0	0.0	0.0	0.0	0.0	31.8	0.0	0.0	31.8
Extrapolated Fringes of Samphire Flats containing Samphire	0.0	0.0	0.0	0.0	0.0	75.9	0.0	0.0	75.9
Fringes of Samphire Flats containing Samphire	0.0	0.0	0.0	0.0	183.1	779.9	0.0	0.0	963.0
Creek lines and drainage lines – Coolibah/River Red Gum dominated	5.8	9.1	0.0	8.3	0.0	0.0	0.0	3.6	26.8
Creek lines and Drainage lines – other Acacia dominated	0.0	0.0	1.0	38.1	0.0	0.0	0.0	8.6	47.7
Ranges, hills and hillslopes	0.0	0.0	1.8	14.5	0.0	0.0	0.0	4.4	20.7
By Fauna Habitat Type	Figure 2e	Figure 3e	Figure 5e	Figure 4e	Figure 2e	Figure 3e	Figure 5e	Figure 4e	
Creekline with fringing Acacia & Eucalypt	85.8	122.1	2.3	21.3	38.8	90.6	4.4	6.0	371.3
Snakewood & Mulga woodland	692.7	1144.2	51.6	22.0	1209.0	1858.9	220.4	17.7	5216.5
Hummock grassland on fringe of Marsh	0.0	0.0	0.0	0.0	172.9	386.8	0.0	0.0	559.7
Low halophytic shrubland	0.0	0.0	0.0	0.0	194.3	857.2	0.0	0.0	1051.5
Spinifex-covered hills	0.0	0.0	1.8	41.6	0.0	0.0	0.0	10.8	54.2
Rocky escarpments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes

1. The areas of indirect impact stated to not take into the direct clearing required for access tracks, all flood management and drainage, infrastructure, Local ROMs, and mine offices and infrastructure.

Figure reference

Table 3 - Areas of Indirect Impact by Type

	Areas Inside Mine Envelope (ha)				Areas Outside Mine Envelope (ha)				
	Mounding	Drawdown	Sheetflow Shadow	Ponding	Mounding	Drawdown	Sheetflow Shadow	Ponding	
Total Areas	2324.0	3640.7	104.1	220.3	3102.9	3250.8	226.2	34.2	
By Vegetation Type	Figure 2h	Figure 3h	Figure 5h	Figure 4h	Figure 2h	Figure 3h	Figure 5h	Figure 4h	Totals
Flats and broad plains without Mulga	106.6	3064.9	0.0	4.6	61.5	17.8	0.0	0.0	3255.4
Creek lines and drainage lines – Mulga dominated	420.0	575.7	0.0	15.0	72.6	321.5	4.8	0.0	1409.6
Fringes of Samphire Flats without Samphire	0.0	0.0	0.0	0.0	178.7	390.1	0.0	0.0	568.8
Flats and broad plains containing Mulga	1780.1	0.0	0.0	94.5	1178.0	1632.2	221.4	17.7	4924.0
Extrapolated Flats and broad plains containing Mulga	0.0	0.0	0.0	0.0	0.0	31.8	0.0	0.0	31.8
Extrapolated Fringes of Samphire Flats containing Samphire	0.0	0.0	0.0	0.0	0.0	75.9	0.0	0.0	75.9
Fringes of Samphire Flats containing Samphire	0.0	0.0	0.0	0.0	183.1	781.3	0.0	0.0	964.4
Creek lines and drainage lines – Coolibah/River Red Gum dominated	17.4	0.0	0.0	17.0	0.0	0.0	0.0	3.4	37.8
Creek lines and Drainage lines – other Acacia dominated	0.0	0.0	0.0	56.7	0.0	0.0	0.0	8.6	65.3
Ranges, hills and hillslopes	0.0	0.0	0.0	30.0	0.0	0.0	0.0	4.4	34.4
By Fauna Habitat Type	Figure 2i	Figure 3i	Figure 5i	Figure 4i	Figure 2i	Figure 3i	Figure 5i	Figure 4i	
Creepline with fringing Acacia & Eucalypt	219.1	308.9	3.9	39.4	38.8	93.8	4.5	6.0	714.4
Snakewood & Mulga woodland	2104.7	3331.5	96.0	111.3	1265.2	1910.1	221.3	17.7	9057.8
Hummock grassland on fringe of Marsh	0.0	0.0	0.0	0.0	172.9	387	0.0	0.0	559.9
Low halophytic shrubland	0.0	0.0	0.0	0.0	194.3	858.6	0.0	0.0	1052.9
Spinifex-covered hills	0.0	0.0	4.3	67.9	0.0	0.0	0.0	10.8	83.0
Rocky escarpments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure reference

Table 4 - Combined Areas of Indirect Impacts

	Total of mounding,drawdown, ponding and sheetflow shadow with indicative footprint (ha)	Total of mounding,drawdown, ponding and sheetflow shadow without indicative footprint (ha)
	Figure 6b	Figure 6e
By Vegetation Type		
Flats and broad plains without Mulga	105.54	199.5
Creek lines and drainage lines – Mulga dominated	575.8	945
Fringes of Samphire Flats without Samphire	524.4	524.6
Flats and broad plains containing Mulga	3610.8	5647
Extrapolated Flats and broad plains containing Mulga	31.8	31.8
Extrapolated Fringes of Samphire Flats containing Samphire	75.9	75.9
Fringes of Samphire Flats containing Samphire	907.7	909.1
Creek lines and drainage lines – Coolibah/River Red Gum dominated	21.1	48.7
Creek lines and Drainage lines – other Acacia dominated	46.7	65.8
Ranges, hills and hillslopes	19	34.7
By Fauna Habitat Type	Figure 6c	Figure 6f
Creekline with fringing Acacia & Eucalypt	280.6	485.9
Snakewood & Mulga woodland	4071.9	6400.5
Hummock grassland on fringe of Marsh	515.63	515.0
Low halophytic shrubland	996	997.0
Spinifex-covered hills	52.5	79.0
Rocky escarpments	0.0	0.0

Figure reference

Table 5 - Areas for Proposed Conservation Reserve

	Total of mounding,drawdown, ponding and sheetflow shadow with indicative footprint (ha)		Total of mounding,drawdown, ponding and sheetflow shadow without indicative footprint (ha)	
	Inside PCR	Outside PCR	Inside PCR	Outside PCR
By Vegetation Type	Figure 7a		Figure 7c	
Flats and broad plains without Mulga	105.0	0.4	186.2	13.3
Creek lines and drainage lines – Mulga dominated	261.0	314.7	377.8	561.6
Fringes of Samphire Flats without Samphire	426.2	98.4	426.2	98.4
Flats and broad plains containing Mulga	2014.0	1595.9	2887.6	2760.8
Extrapolated Flats and broad plains containing Mulga	0.0	31.8	0.0	0.0
Extrapolated Fringes of Samphire Flats containing Samphire	75.9	0.0	75.9	31.8
Fringes of Samphire Flats containing Samphire	753.8	154.1	753.8	155.5
Creek lines and drainage lines – Coolibah/River Red Gum dominated	4.8	16.3	13.6	36.0
Creek lines and Drainage lines – other Acacia dominated	3.3	43.3	7.5	59.8
Ranges, hills and hillslopes	5.4	13.7	9.3	25.4
By Fauna Habitat Type	Figure 7b		Figure 7d	
Low halophytic shrubland	836.6	159.4	836.6	160.8
Hummock grassland on fringe of Marsh	418.0	97.6	418.1	97.6
Creekline with fringing Acacia & Eucalypt	180.6	100.0	269.7	216.2
Spinifex-covered hills	5.3	47.2	9.3	69.7
Snakewood & Mulga woodland	2207.7	1864.2	3202.4	3198.0
Rocky escarpments	0.0	0.0	0.0	0.0

Figure reference

Table 6 - Combined Areas of Indirect Impacts with Indicative Footprint

	Total of mounding,drawdown, ponding and sheetflow shadow with indicative footprint (ha)	Total of mounding,drawdown, ponding and sheetflow shadow with indicative footprint (ha)	
		Inside PCR	Outside PCR
By Vegetation Type	Figure 6b	Figure 7a	
Flats and broad plains without Mulga	105.54	105.0	0.4
Creek lines and drainage lines – Mulga dominated	575.8	261.0	314.7
Fringes of Samphire Flats without Samphire	524.4	426.2	98.4
Flats and broad plains containing Mulga	3610.8	2014.0	1595.9
Extrapolated Flats and broad plains containing Mulga	31.8	0.0	31.8
Extrapolated Fringes of Samphire Flats containing Samphire	75.9	75.9	0.0
Fringes of Samphire Flats containing Samphire	907.7	753.8	154.1
Creek lines and drainage lines – Coolibah/River Red Gum dominated	21.1	4.8	16.3
Creek lines and Drainage lines – other Acacia dominated	46.7	3.3	43.3
Ranges, hills and hillslopes	19	5.4	13.7
By Fauna Habitat Type	Figure 6c	Figure 7b	
Creekline with fringing Acacia & Eucalypt	280.6	180.6	100.0
Snakewood & Mulga woodland	4071.9	2207.7	1864.2
Hummock grassland on fringe of Marsh	515.63	418.0	97.6
Low halophytic shrubland	996	836.6	159.4
Spinifex-covered hills	52.5	5.3	47.2
Rocky escarpments	0.0	0.0	0.0

Figure reference