



Premise

Additional Information

QUORN PARK SOLAR FARM

Report No: 217510_002S


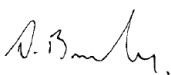

Rev: 001B

7 May 2020

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Document reference: O:\Synergy\Projects\217\217510\Submission to DPIE\Response to Request 1 May\217510_002B.docm

| DOCUMENT AUTHORISATION | | | | | |
|------------------------|---|-----------------|---|-----------------|---|
| Revision | Revision Date | Report Details | | | |
| B | 7 May 2020 | For Issue | | | |
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| Prepared By | | Reviewed By | | Authorised By | |
| David Walker |  | Andrew Brownlow |  | Andrew Brownlow |  |

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1. INTRODUCTION

This report has been prepared by Premise Australia Pty Ltd on behalf of Quorn Park Solar Farm Pty Ltd to provide additional information to Department of Planning Industry and Environment (DPIE) with regard to road upgrades and the extent of visual impacts of Quorn Park Solar Farm (QPSF) on R4, a non-associated receiver. This document supports the Environmental Impact Statement dated October 2019 and subsequent responses to queries already provided to DPIE.

The request for additional information consists of the following.

Road Upgrades

Provide a consolidated document providing the following information:

- clarify the nature and location(s) of the intersection upgrades and intersection treatment types, and include a swept path diagram for the largest vehicles travelling to and from the site;
- clarify all proposed road alignment upgrades, including type of road treatment (gravel/ asphalt) and length and width of treatment;
- provide an updated figure identifying where all intersection and road upgrades are proposed;
- confirm route and access points to the transmission line and associated infrastructure, including any road and/or access point upgrades required;
- provide an assessment of any upgrades (including biodiversity and heritage) that are not included in the application to date and identify any additional land parcels which may be affected due to the proposed road upgrades, including landowner consent for additional land parcels (if required).

Visual

Update the visual assessment for all potentially impacted non-associated residents, as requested in the Department's letter dated 6 March 2020.

Section 2 of this report summarises the proposed road upgrades. **Appendix A** provides a drawing set showing all associated road upgrade works.

Section 3 summarises the visual impact on non-associated receiver R4.

2. ROAD UPGRADES

The location and treatment type of the requisite roads works, including swept paths for 19 m semi-trailers accessing the site, are collated in the drawing set included in **Appendix A**.

Detail in the drawing set includes all proposed intersection and access upgrades, including type of road treatment and length and width of treatment. The drawing set provides an updated figure identifying where all intersection and road upgrades are proposed and identifies the access point to the transmission line.

Table 1 – Road Upgrades

| Upgrade | Treatment | Drawing Sheet Ref |
|---------------------------------------|--|-------------------|
| Henry Parkes Way/McGraths Lane | Austrroads BAR/BAL, bitumen sealed | C003 |
| Henry Parkes Way/Back Trundle Road | Spray Seal over 150 mm thick DGS520 overlay | C004 |
| Site Entrance 2 off Back Trundle Road | Cut fence/safety cones/no formation required | C005 |
| Site Entrance 1 off Back Trundle Road | Compacted road base | C006 |

All works would be undertaken within the road reserve and no additional land parcels would be impacted.

Biodiversity Impacts

Biodiversity impacts resulting from the proposed road upgrades not considered in the application to date are restricted to the following.

- Trimming of any limbs lower than 3 m from two trees on the western corner of the McGrath Lane/Back Trundle Road intersection.
- Possible (only if required) mowing of approximately 76 m² of grass verge on the eastern corner of McGrath Lane/Back Trundle Road intersection.
- Limited number of trucks driving over an extra 20 m² of grass for grid connection access off Back Trundle Road.

These impact areas were covered in the ecological field surveys undertaken as part of the EIS.

These impacts are temporary, do not result in the clearing of native vegetation and are not significant (refer **Appendix B**).

Inspection indicates provision of an 8 m wide seal for the 100 m of Back Trundle Road can be accommodated within the current road formation, with existing table drains to remain. It is also noted that the BDAR in the EIS assumed and assessed a clearance zone of up 5 m wide immediately adjacent to the northern side of Back Trundle Road for a distance greater than 100m east of McGraths Lane intersection.

Heritage Impacts

All areas impacted by the works were assessed in the Aboriginal heritage assessment and covered by field survey. Figures presented in the ACHAR in the EIS confirm this. No additional impacts to heritage would occur that is not included in the application to date.

3. VISUAL IMPACT

3.1 Receptor R4

By reference to Intergovernmental Committee on Surveying and Mapping (ICSM) elevation data, the residence at R4 has an elevation of approximately 292m AHD. The solar farm development site ranges in height from a low point in the south-west of approximately 275m AHD to a high point in the north-east of approximately 293m AHD. The development footprint closest to R4 ranges from approximately 283m AHD to 289m AHD. Hence R4 is approximately on the same elevation or slightly higher than the development.

R4 is located north of the QPSF development site. The residence has mature trees on its southern, western and eastern sides. It has a northerly aspect with no windows to the south in the direction of the development. It has water tanks immediately next to the house on the side facing the development. Farm buildings are located to the west of the residence and do not provide screening. Two silo bins and some mature trees located south of the residence provide some features in front of the development.

The residence has no aspect facing the development. There are no windows on the southern elevation of R4 which faces the development site. Large water tanks screen views to the development site from the house. There is no garden or outdoor living area with an aspect over the development site.

Figure 1 shows an aerial photo of R4 relative to the development footprint. The inset photo shows the trees, silos and sheds around the house. It shows the potential viewshed disregarding screening would be no more than 100 degrees. Since the final layout will occupy only part of the development footprint, the potential viewshed will be less. Hence only a limited portion of R4's potential total viewshed is affected.

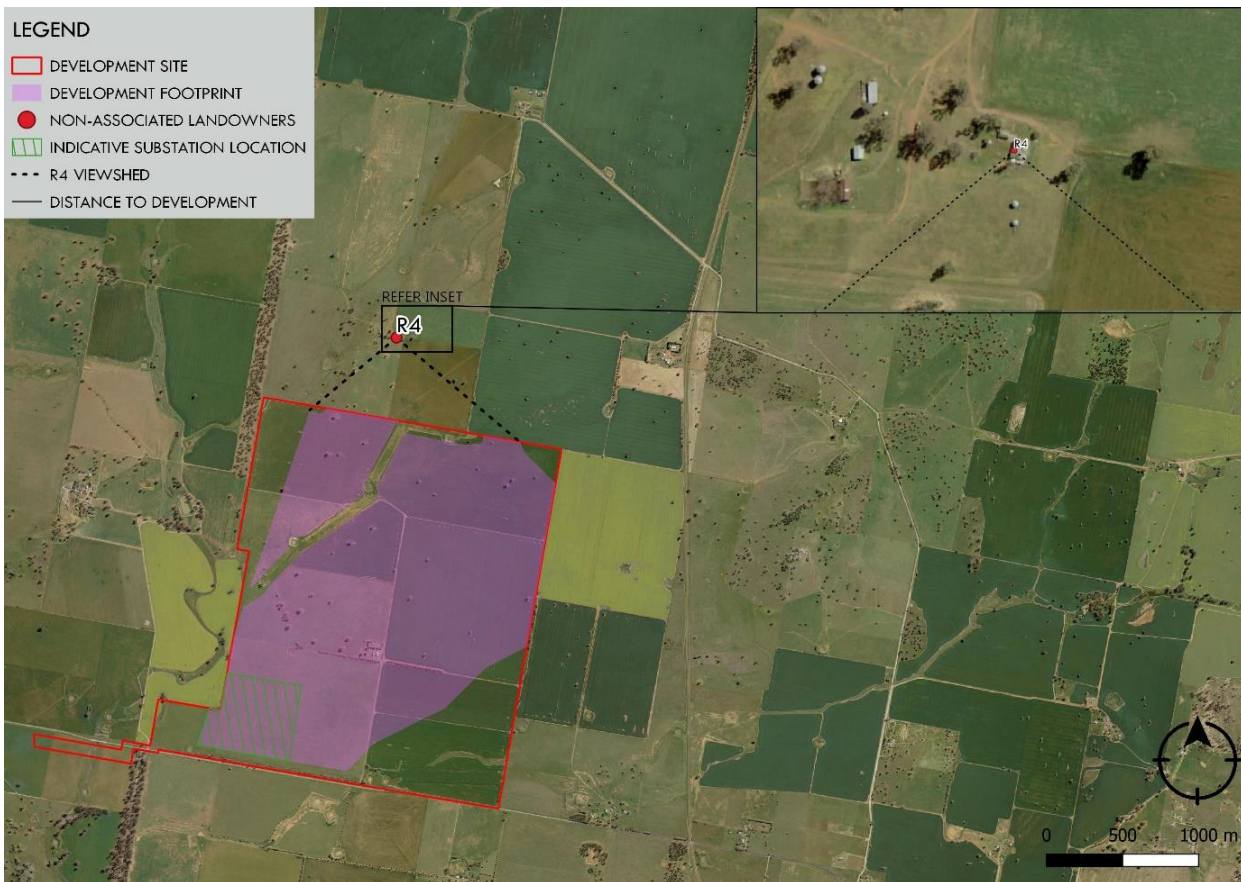


Figure 1: R4 Viewshed

R4 is located approximately 536m from the modified development footprint at its closest point. The development is in R4's middle ground with farmland in front and trees and hills behind.

The main property access for R4 is from Nanardine Lane to the north. At most, transitory and partial glimpses of parts of the development site, at least 2.2km distant, would be visible from Nanardine Lane with trees and buildings between this public road and the development site.

R4's visual sensitivity is considered medium. The magnitude of visual modification created by the proposed development is medium with its low level components occupying only a thin portion of the vertical plane. Hills and trees are visible in the background and farmland is in the foreground. The landscape has capacity to accommodate the low level solar farm infrastructure without the loss of valued attributes. The infrastructure would be located at distance and will sit in the middle ground. Only one quadrant of R4's viewshed would be affected. Based on a medium sensitivity and medium magnitude of change, the visual impact of the QPSF from R4 is considered moderate.

R4 is a secondary dwelling on the property owned by R7. It had been unoccupied for some time at the time of preparing the visual assessment. Through consultation R7 was the only landowner to accept the offer of preparation of a photomontage. They also raised visual impact in their submission.

A vegetation screen is proposed for part of the northern boundary of the development site which is closest to R4. The screen will be approximately 540m long and consist of three staggered rows of native trees. It will be located within the boundary of the QPSF. Vegetation screening would be effective in screening the

development. The effect of this mitigation measure would significantly reduce visual impacts to minor from the residence. A summary of the visual impact for R4 is shown below in Table 2.

Table 2 – Summary of Visual Impacts for R4

| Viewpoint | Sensitivity | | Magnitude of modification | Impact | Impact with mitigation |
|------------------------------|--------------------|--|----------------------------------|---------------|-------------------------------|
| Non-associated landowner, R4 | Medium | | Medium | Moderate | Minor |

3.2 Boundary screening

The modified Development Footprint is attached in **Appendix C** of this report. It includes vegetation screening in three locations.

- 570 m of vegetation screen on part of the northern boundary closest to R4
- 490 m of vegetation screen on part of the western boundary closest to R2
- 80 m of vegetation screen along the western and northern edges of the substation enclosure

The vegetation screens will consist of three rows of native trees. There will be a management plan to ensure the screens become established and continue to grow. The details will be included in a landscape management plan to be prepared in consultation with the Department of Planning Industry and Environment prior to construction.



APPENDIX A

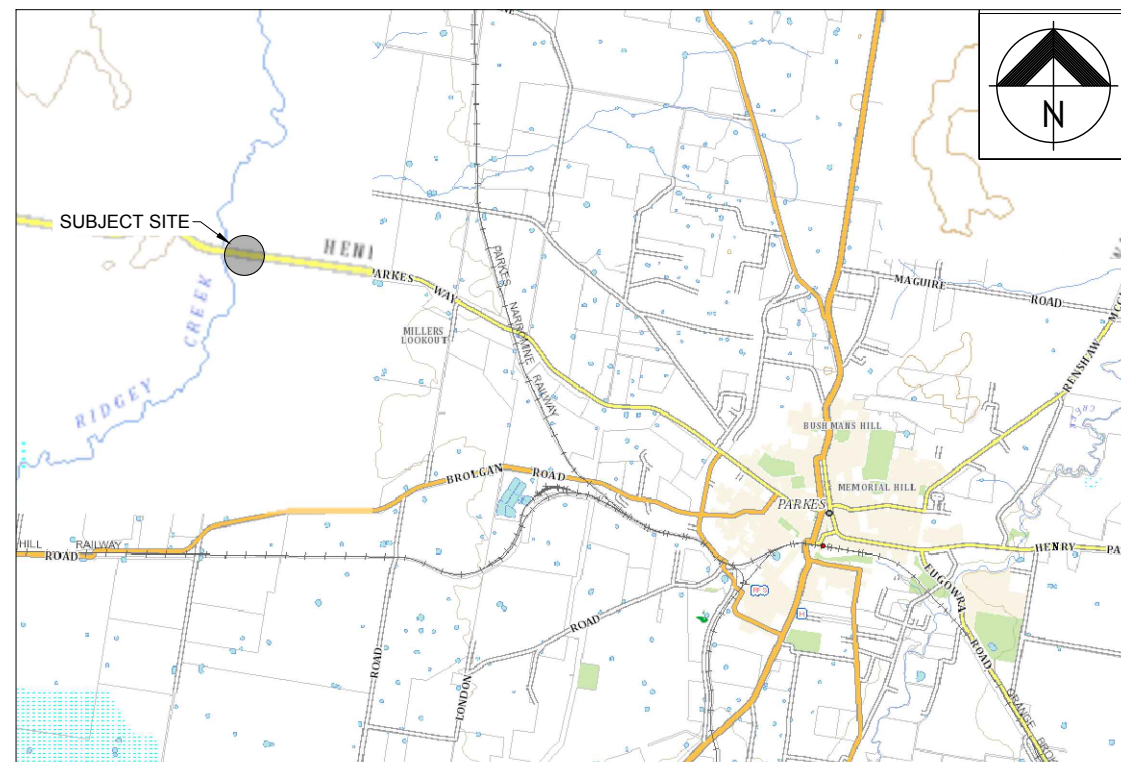
ROAD UPGRADES

QUORN PARK SOLAR FARM

PARKES, NSW 2870

QUORN PARK SOLAR FARM PTY LTD

QUORN PARK SOLAR FARM INTERSECTIONS



LOCALITY PLAN

NTS

| Sheet List Table | |
|------------------|--|
| Sheet Number | Sheet Title |
| C001 | TITLE SHEET AND SCHEDULE OF DRAWINGS |
| C002 | OVERALL LAYOUT PLAN |
| C003 | HENRY PARKES WAY AND McGRATH LANE INTERSECTION LAYOUT |
| C004 | McGRATH LANE AND BACK TRUNDLE ROAD INTERSECTION LAYOUT |
| C005 | GRID CONNECTION PROPERTY ACCESS POINT |
| C006 | QUORN PARK PROPERTY ACCESS UPGRADE WORKS |



FOR APPROVAL

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| 05/05/2020 | B | OVERALL LAYOUT ADDED - ISSUED FOR APPROVAL | MY | AGB |
| 05/05/2020 | A | ISSUED FOR APPROVAL | MY | PPO |



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|----------------------------------|-------------------------------------|
| DESIGNED PPO | SCALE ORIGINAL SHEET SIZE A1 |
| CHECKED PPO | |
| PROJECT MANAGER AGB | |
| ENGINEERING CERTIFICATION PPO | |

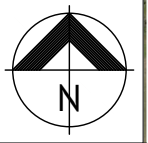
CLIENT QUORN PARK SOLAR FARM PTY LTD

PROJECT QUORN PARK SOLAR FARM

LOCATION PARKES, NSW 2870

SHEET TITLE TITLE SHEET AND SCHEDULE OF DRAWINGS

| | |
|--------------|-----------|
| JOB CODE | 217510_06 |
| SHEET NUMBER | C001 |
| REV | C |



LEGEND:

SITE BOUNDARY INCLUDING THE ETL EASEMENT BOUNDARY

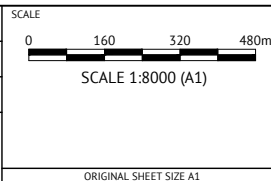
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| 05/05/2020 | B | OVERALL LAYOUT ADDED - ISSUED FOR APPROVAL | MY | AGB |
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| ENGINEERING CERTIFICATION | |
| | 08/05/2020 |
| PPO | |

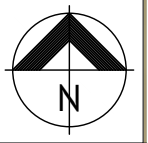


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| CLIENT | QUORN PARK SOLAR FARM PTY LTD |
| PROJECT | QUORN PARK SOLAR FARM |
| LOCATION | PARKES, NSW 2870 |
| SHEET TITLE | OVERALL LAYOUT PLAN |

| | |
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| SHEET NUMBER | C002 |
| REV | C |

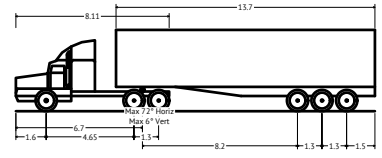
NOTES:

1. THIS PLAN IS CONCEPTUAL ONLY AND IS SUBJECT TO DETAILED ENGINEERING DESIGN AND THE APPROVAL OF THE NEW SOUTH WALES ROADS AND MARITIME SERVICE.
2. INTERSECTION LAYOUT SHOWN IS A BASIC LEFT TURN (BAL) AND BASIC RIGHT TURN (BAR) INTERSECTION IN ACCORDANCE WITH THE AUSTRADS GUIDE TO ROAD DESIGN PART 4A: UNSIGNALISED AND SIGNALISED INTERSECTIONS.
3. INTERSECTION LAYOUT SHOWN CATERS FOR THE LEFT TURN IN AND LEFT TURN OUT MOVEMENTS OF AN AUSTRADS PRIME MOVER AND SEMI-TRAILER (19m). REFER TO THIS SHEET FOR DETAILS.



LEGEND:

- PROPOSED ROAD PAVEMENT
- EXISTING/PROPOSED EDGE OF BITUMEN
- EXISTING/PROPOSED EDGE OF FORMATION
- EXISTING/PROPOSED TYPE E1 EDGE LINE
- EXISTING/PROPOSED TYPE C1 CONTINUITY LINE
- PROPOSED TYPE BB DOUBLE BARRIER LINES
- PROPOSED TYPE TB HOLD LINE
- PROPOSED SIGN AND POST
- PROPOSED TABLE DRAIN
- APPROXIMATE LIMIT OF WORKS (SUBJECT TO DETAILED DESIGN)



Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.540m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m

AUSTRADS 19.0m SEMI-TRAILER
NTS

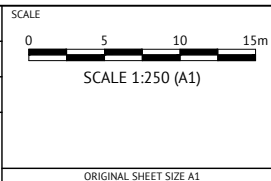
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| 05/05/2020 | A | ISSUED FOR APPROVAL | MY | PPO |
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| PROJECT MANAGER | AGB |
| ENGINEERING CERTIFICATION | |
| | 08/05/2020 |



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| CLIENT | QUORN PARK SOLAR FARM PTY LTD |
| PROJECT | QUORN PARK SOLAR FARM |
| LOCATION | PARKES, NSW 2870 |
| SHEET TITLE | HENRY PARKES WAY AND McGRATH LANE INTERSECTION LAYOUT |

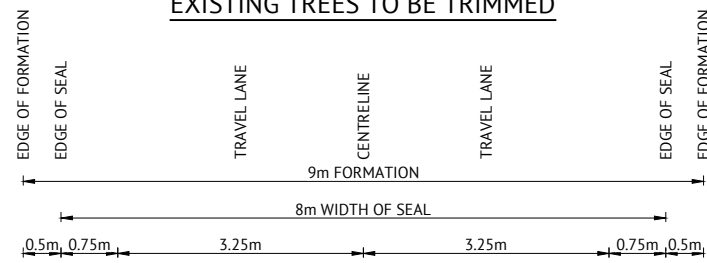
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| SHEET NUMBER | C003 |
| REV | C |

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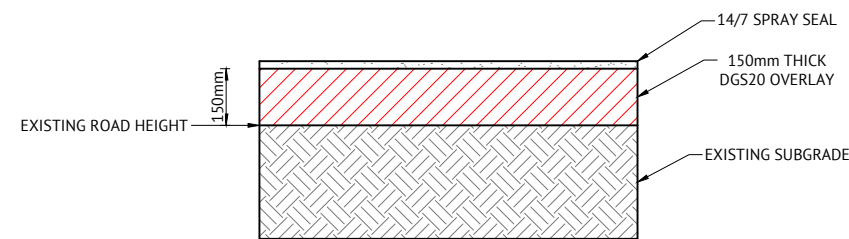
EXISTING TABLE DRAINS TO REMAIN. ROUTINE MAINTENANCE OF EXISTING TABLE DRAINS TO BE UNDERTAKEN IN CONJUNCTION WITH ROAD UPGRADE WORKS.



EXISTING TREES TO BE TRIMMED



TYPICAL ROAD CROSS SECTION
SCALE 1:50 (A1)



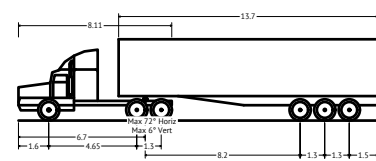
TYPICAL ROAD PAVEMENT DETAIL
SCALE 1:10 (A1)

SUBGRADE MATERIAL AND CONSTRUCTION REQUIREMENTS:

1. PAVEMENT DGS20 150mm OVERLAY.
2. SUBGRADE DESIGN CBR=4.5%, MIN. 98% STANDARD COMPACTION (PROOF ROLLED)

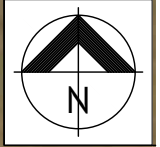
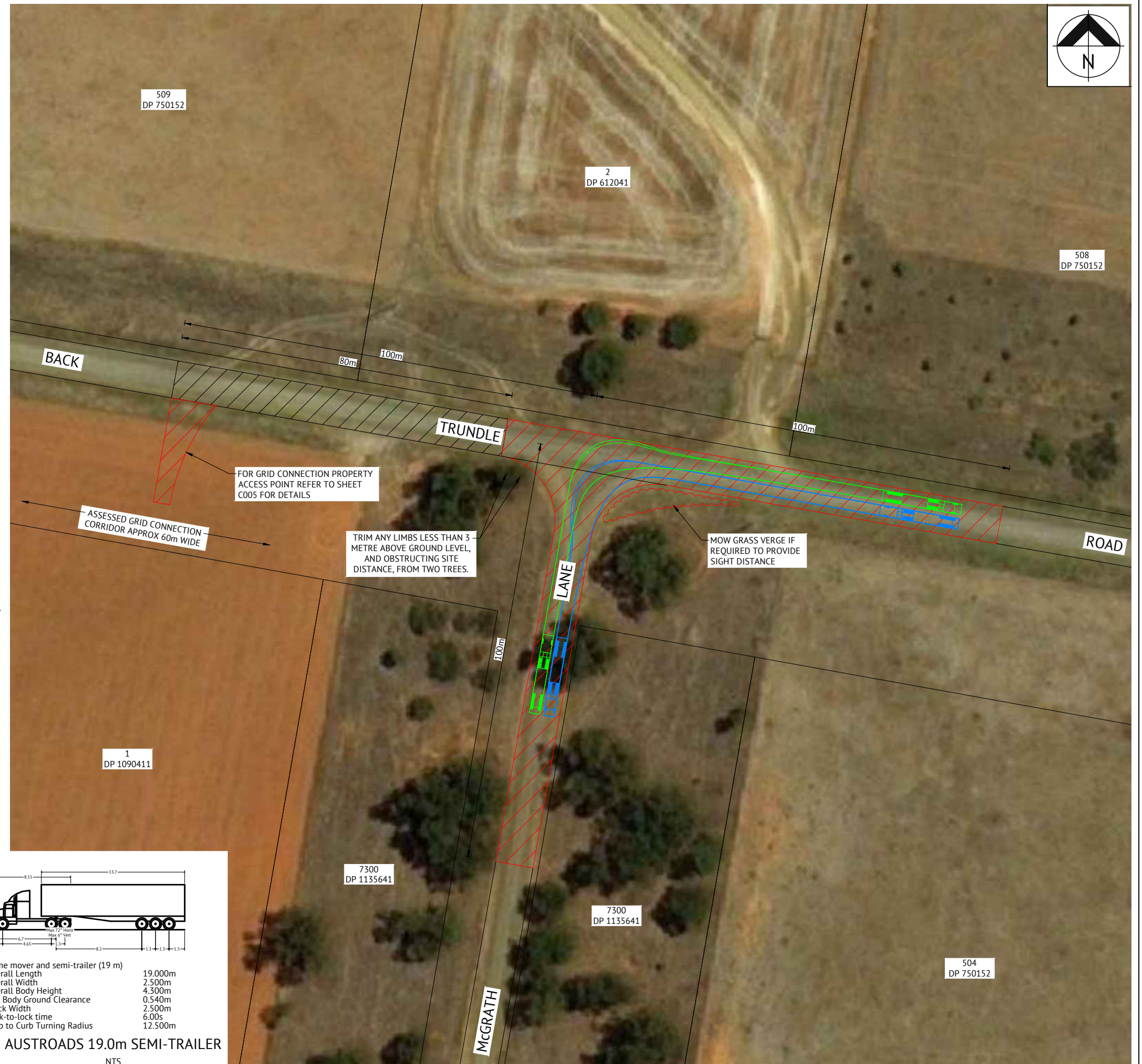
LEGEND:

- QUORN PARK SOLAR FARM PTY LTD TO CONSTRUCT (LIMIT OF DISTURBANCE)
- PARKES SHIRE COUNCIL TO CONSTRUCT



AUSTROADS 19.0m SEMI-TRAILER
NTS

| | |
|-------------------------------------|---------|
| Prime mover and semi-trailer (19 m) | 19.000m |
| Overall Length | 2.500m |
| Overall Width | 4.300m |
| Overall Body Height | 0.540m |
| Min Body Ground Clearance | 2.500m |
| Track Width | 6.00s |
| Lock-to-lock time | 12.500m |
| Curb to Curb Turning Radius | |



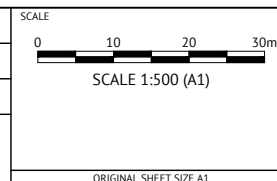
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| ENGINEERING CERTIFICATION | 08/05/2020 |
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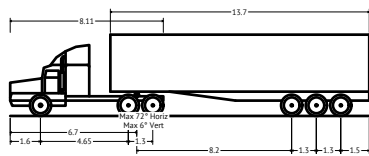
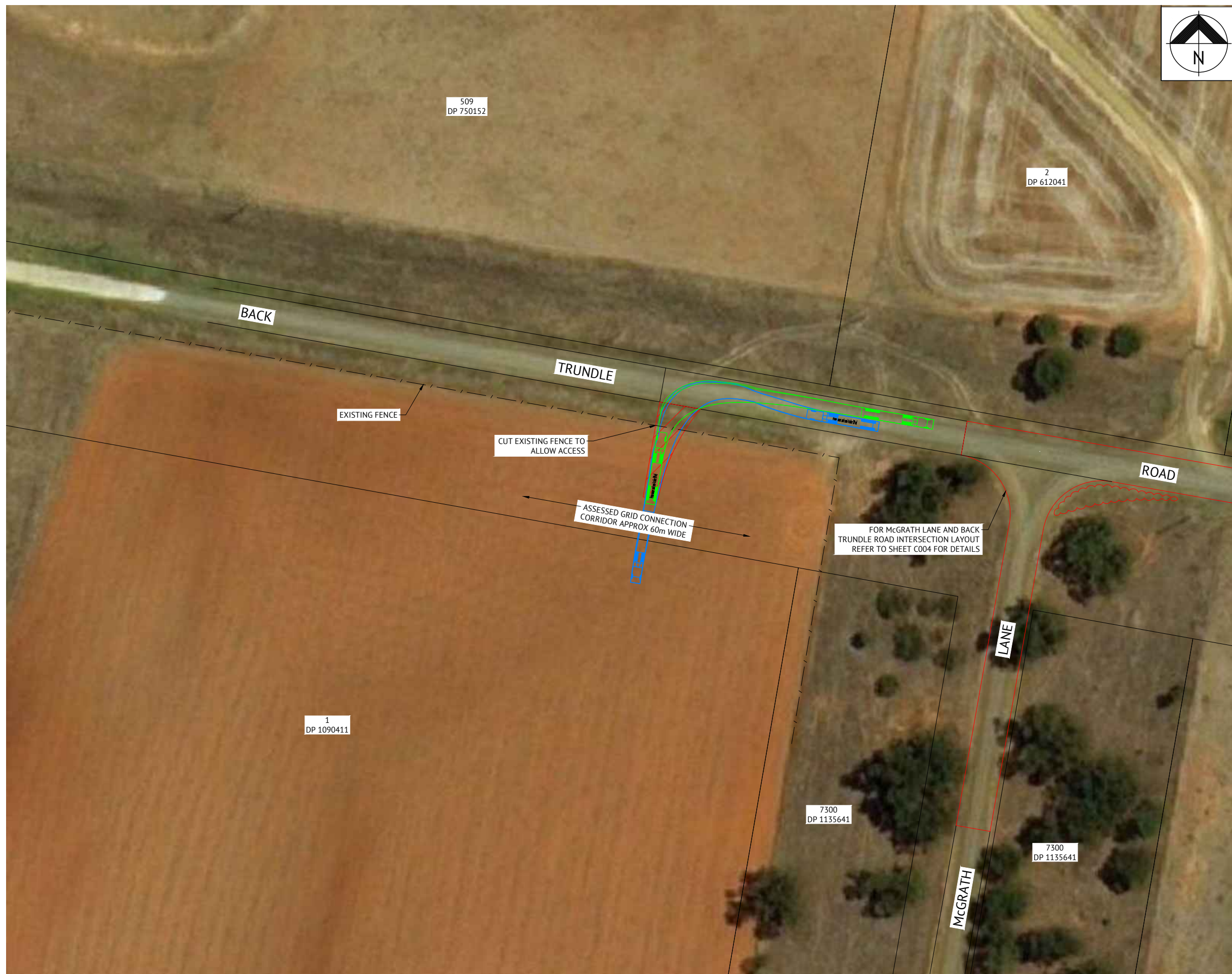
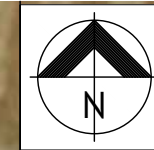


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| CLIENT | QUORN PARK SOLAR FARM PTY LTD |
| PROJECT | QUORN PARK SOLAR FARM |
| LOCATION | PARKES, NSW 2870 |
| SHEET TITLE | MCGRATH LANE AND BACK TRUNDLE ROAD INTERSECTION LAYOUT |

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| JOB CODE | 217510_06 |
| SHEET NUMBER | C004 |
| REV | C |

NOTE:

DELIVERIES SHALL BE SCHEDULED IN DRY WEATHER TO NEGATE THE NEED FOR ANY PAVEMENT/INTERSECTION WORKS TO BE UNDERTAKEN. WORKS AT THE ACCESS POINT SHALL BE LIMITED TO CUTTING THE FENCE TO ALLOW ACCESS. THE ACCESS SHALL BE DELINEATED WITH MINIMUM 450mm HIGH SAFETY CONES TO CONFINE VEHICLE MOVEMENTS TO THE AREA SHOWN.



Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.540m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m

AUSTROADS 19.0m SEMI-TRAILER
NTS

LEGEND:

PROPOSED VEHICULAR MOVEMENT AREA (LIMIT OF DISTURBANCE)

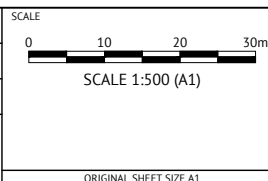
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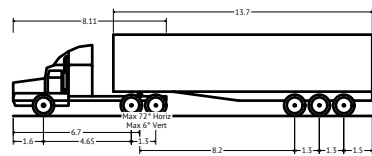
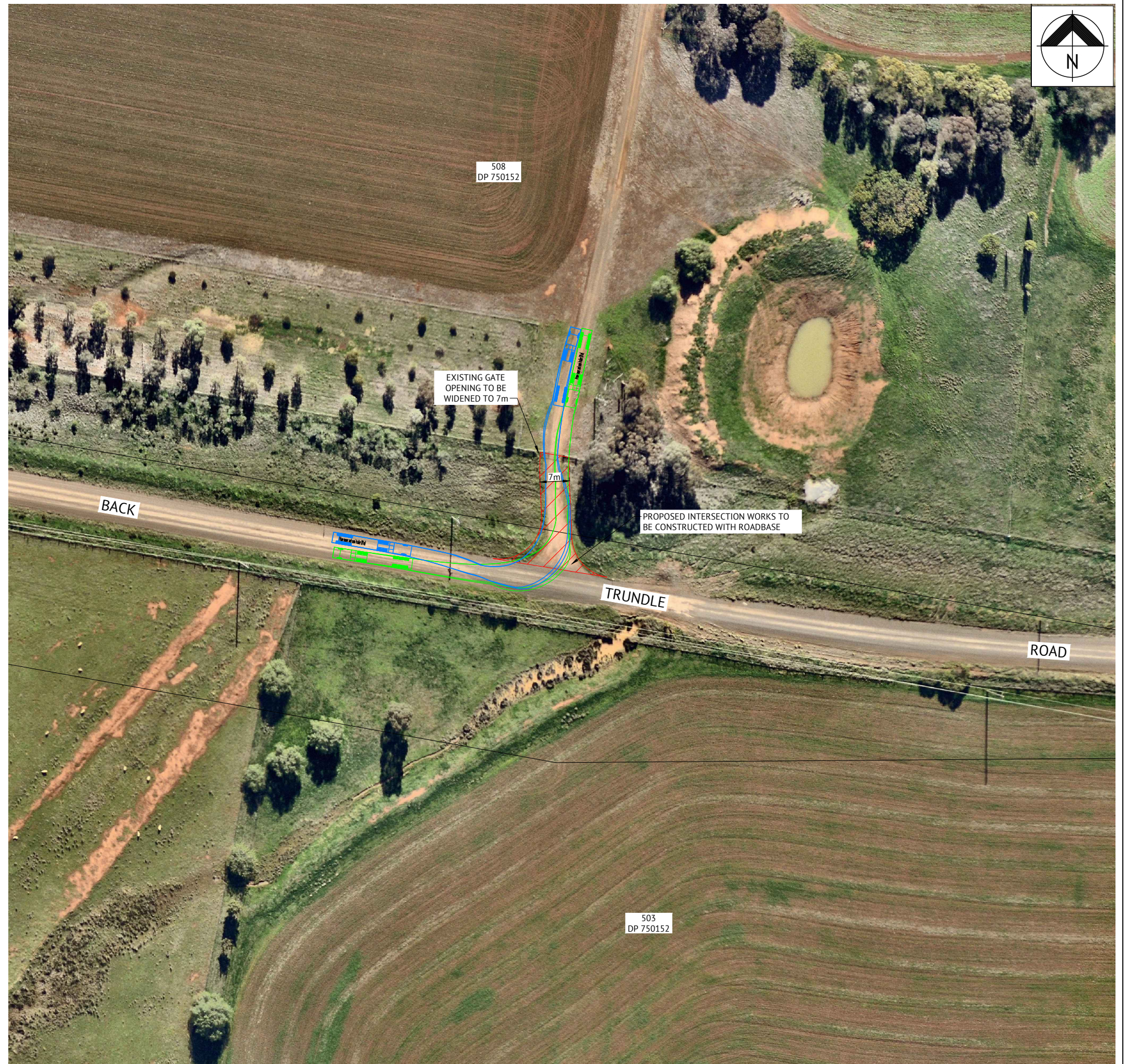
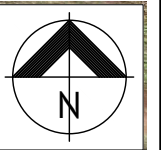
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| PROJECT MANAGER AGB | |
| ENGINEERING CERTIFICATION | |



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| CLIENT | QUORN PARK SOLAR FARM PTY LTD |
| PROJECT | QUORN PARK SOLAR FARM |
| LOCATION | PARKES, NSW 2870 |
| SHEET TITLE | GRID CONNECTION PROPERTY ACCESS POINT |

| | |
|--------------|------------------|
| JOB CODE | 217510_06 |
| SHEET NUMBER | C005 |
| REV | C |



Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.540m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m

AUSTROADS 19.0m SEMI-TRAILER
 NTS

LEGEND:



PROPOSED INTERSECTION WORKS CONSTRUCTED WITH ROADBASE
 (LIMIT OF DISTURBANCE)

FOR APPROVAL

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| CHECKED PPO | |
| PROJECT MANAGER AGB | |
| ENGINEERING CERTIFICATION 08/05/2020 | |

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| CLIENT QUORN PARK SOLAR FARM PTY LTD |
| PROJECT QUORN PARK SOLAR FARM |
| LOCATION PARKES, NSW 2870 |
| SHEET TITLE QUORN PARK PROPERTY ACCESS UPGRADE WORKS |

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|------------------------------|
| JOB CODE 217510_06 |
| SHEET NUMBER C006 |
| REV C |



APPENDIX B

BIODIVERSITY ASSESSMENT

6 May 2020

Andrew Brownlow
General Manager - Central NSW
Premise
154 Peisley Street
Orange, NSW, 2800

Re: Quorn Park Solar Farm - McGrath Land/Back Trundle Road intersection upgrades

1 Introduction

Premise Australia Pty Ltd (Premise) has prepared an Environmental Impact Statement (EIS) on behalf of the Quorn Park Solar Farm Pty Ltd for the proposed Quorn Park Solar Farm (QPSF). The proposed QPSF is located approximately 10 kilometres (km) north-west of Parkes in the NSW South Western Slopes Interim Biogeographic Regionalisation of Australia (IBRA) region. The QPSF will include a solar farm with a connection to the electricity grid.

The project has been deemed State Significant Development (SSD) under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Therefore, a development application (DA) for the project is required to be submitted under Division 4.7 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The NSW Minister for Planning, or the Minister's delegate, is the consent authority.

EMM Consulting Pty Limited (EMM) have prepared a biodiversity development assessment report (BDAR, EMM 2018) to support the project EIS. The BDAR documents the biodiversity assessment methods and results, the initiatives built into the project design to avoid and minimise biodiversity impacts, and the additional mitigation and management measures proposed, including offset requirements, to address any residual impacts not able to be avoided.

The BDAR and EIS were submitted to the NSW Department of Planning, Industry and Environment (DPIE) on 23 October 2019. Submissions were received in early December 2019 and a response to submissions report prepared and submitted to DPIE on 23 January 2020.

1.1 Purpose of this letter

During assessment of the QPSF it was identified that the road upgrades to the intersection area of McGrath Lane and Back Trundle Road, and access to the grid connection, may extend outside of the area assessed in the original BDAR (EMM 2018). DPIE have requested that any impacts which have not previously been considered are assessed.

EMM has reviewed the McGrath Lane and Back Trundle Road Intersection Layout (Appendix A) and understand the following aspects require further consideration:

- an area of grass verge on the south-east corner which may require mowing to maintain vegetation at less than one metre height;
- trimming of limbs and foliage below three metres from ground level for two trees located on the south-west corner; and,

- vehicle access to the grid connection access point to the west of the intersection on Back Trundle Road.

2 Biodiversity assessment

Biodiversity impacts are assessed in the project BDAR (EMM 2018). Targeted survey effort for threatened flora and fauna is shown in Figure 5.1 and 5.2 of the BDAR (EMM 2018). No threatened species were recorded within the intersection area or grid connection access point.

2.1 Potential maintenance of grass verge

Maintenance of the grass verge may be required to keep the vegetation height below one metre. This is to facilitate visibility when exiting McGrath Lane onto Back Trundle Way. Vegetation within this area consists of grassland derived from PCT 82 Western Grey Box - Poplar Box - White Cypress Pine tall woodland on red loams mainly of the eastern Cobar Peneplain.

The area in question is already cleared of canopy and mid story species and is dominated by grasses (refer to Photograph 2.1). It is considered unlikely that any additional maintenance will be required to keep the height of the vegetation below one metre, given that the Back Trundle verge is already maintained, with periodic grazing further reducing the height of the grassland. No biodiversity impacts are anticipated as a result of this requirement.



Photograph 2.1 Middle ground depicts the grass verge, required to be maintained below one metre in height. Note that no impacts will occur to the trees shown in this photograph.

2.2 Trimming of trees

In order to maintain visibility when exiting McGraths Lane, trimming of branches below three metres from ground level may be required for two Grey Box (*Eucalyptus microcarpa*) trees shown at the bottom right of Photograph 2.2. Given that the two trees in question have sparse foliage and few lateral branches below three metres, it is likely that very few or no branches will require trimming. Any trimming that does occur will have minimal impact and is not likely to affect the viability of the trees. No hollows are present in either tree. No significant biodiversity impacts are anticipated as a result of this requirement.



Photograph 2.2 Grey Box trees which may require limited branch trimming, bottom right.

2.3 Access to the grid connection

Access to the grid connection during construction will involve crossing roadside grassland, prior to entering a cultivated field. Construction will be limited to dry periods, with no fill or other road base required. Impacts will be limited to six prime mover and semi trailers, driving over the grassland to enter and exit the field. No grassland vegetation will be cleared.

The BDAR (EMM 2018) allowed for clearing of vegetation to width of 5 m across the road reserve. The changes to the access arrangements will result in a reduction in impacts arising from the project given no vegetation will be cleared and only temporary disturbance of vegetation will occur.

The biodiversity impacts are anticipated to be negligible and temporary.

3 Closing

The proposed maintenance of vegetation relating to the McGrath Lane/Back Trundle Road intersection and access to the grid connection is anticipated to have negligible biodiversity impacts.

Yours sincerely



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4 References































EMM Consulting 2018, Quorn Park Solar Farm Biodiversity Assessment Report, prepared for Quorn Park Solar Farm Pty Ltd.

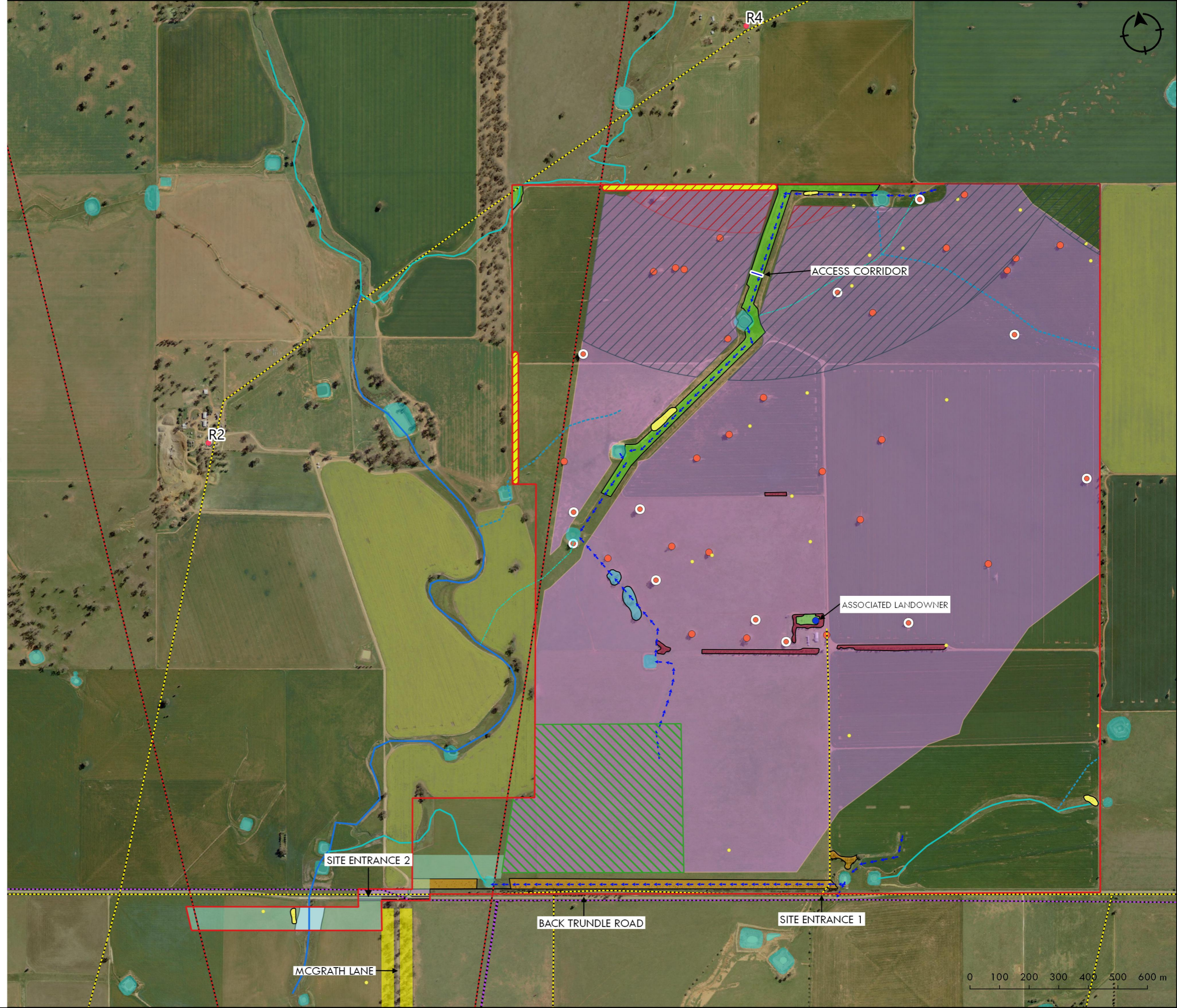


APPENDIX C

MODIFIED DEVELOPMENT FOOTPRINT

LEGEND

-  DEVELOPMENT FOOTPRINT
 -  DEVELOPMENT SITE BOUNDARY
 -  GRID CONNECTION
 -  TRAVELLING STOCK RESERVE
 -  INDICATIVE SUBSTATION LOCATION
 -  ASSOCIATED LANDOWNER
 -  NON-ASSOCIATED LANDOWNERS
 -  ACCESS CORRIDOR
 -  VEGETATION BUFFERS - 20 WIDE
- ABORIGINAL HERITAGE SITES**
-  ISOLATED ARTEFACT
 -  OPEN SCATTER
- WATERCOURSE**
-  BUILT ONGROUND DRAINAGE
 -  MAPPED STRAHLER 1ST ORDER
 -  MAPPED STRAHLER 2ND ORDER STREAM
 -  MAPPED STRAHLER 3RD ORDER STREAM
 -  MAPPED STRAHLER 4TH ORDER STREAM
 -  FARM DAMS
- OVERHEAD POWERLINE**
-  132kV
 -  66kV
 -  11kV
- NOISE BUFFERS**
-  INVERTER STATION BUFFER
 -  BATTERY STORAGE BUFFER
- Paddock Trees**
-  PADDOCK TREES
 -  HOLLOW BEARING TREES
- NATIVE VEGETATION**
-  PCT 278 DERIVED NATIVE GRASSLAND
 -  PCT 82 PLANTED
 -  PCT 82 DERIVED NATIVE GRASSLAND
 -  PCT 437 PLANTED
 -  PCT 437 DERIVED NATIVE GRASSLAND
 -  PCT 437 WOODLAND





Premise