



Murra Warra Wind Farm Bushfire Mitigation Plan (BMP) (2023-2024)

Electricity Safety (Bushfire Mitigation) Regulations
2023

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Document Revision History

Version	Release Date	Reviewer	Description
1.0	30.6.20	Duncan Alexander	Based on V5 of 2013 Regulations
2.0	23.11.20	Duncan Alexander	Amended as per ESV Evaluation report (CM-10169).
3.0	25.10.21	Tanya Jackson	For 2022 Season
4.0	26.11.21	Duncan Alexander	Add MW2 At Risk Assets plus minor Amendments and review of reference documentation/links.
5.0	30.06.22	Duncan Alexander	Review prior to submission for 22-23 season
6.0	30.06.23	Joe Scott	Review prior to submission for 23-24 season Based on V1 of 2023 Regulations
7.0	15.09.23	Samanta Perna	Review against ESV 2023-24 Assessment Summary of findings

Document Approval

Name / Originator	Description	Date
Samanta Perna	Author	15.09.23
James Cooper	Reviewer	20.09.23

Applicable Sites

Murra Warra Wind Farm (Stage 1)

The land on which Murra Warra Wind Farm (MWWF) and its associated overhead line is established consists of agricultural land predominantly used for cropping. There are trees within the boundaries of the wind farm however there are none in proximity of the turbines or substations and all overhead lines are kept clear according to Electricity Safety (Electric Line Clearance) Regulations 2020.

It is recognised that there are multiple electrical assets located at the Murra Warra Wind Farm where fire could originate from, including:

- I. The wind turbine nacelle,
- II. The Integrated Grid Connection Transformer and Switchgear inside each wind turbine,
- III. The ≈3km of single and dual circuit 33kV overhead line mounted on 44 steel monopoles between the turbines and MWWF Switchyard (At-Risk Electric Lines), and
- IV. The Murra Warra Wind Farm (MWWF) Switchyard.

Murra Warra Wind Farm (Stage 2)

The land on which Murra Warra Wind Farm (MWWF2) and its associated overhead line is established consists of agricultural land predominantly used for cropping. There are trees within the boundaries of the wind farm however there are none in proximity of the turbines or substations and all overhead lines are kept clear according to Electricity Safety (Electric Line Clearance) Regulations 2020.

It is recognised that there are multiple electrical assets located at the Murra Warra II Wind Farm where fire could originate from, including;

- I. The wind turbine nacelle,
- II. The Integrated Grid Connection Transformer and Switchgear inside each wind turbine,
- III. 4km and 3km of dual circuit overhead lines mounted on 42 pole sets between the turbines and MWWF2 Switchyard (At-Risk Electric Lines), and
- IV. The Murra Warra Wind Farm 2 (MWWF2) Switchyard and synchronous condenser.

At-Risk Electric Lines

Murra Warra (Stage 1) Electric Lines

The internal overhead electric lines described in Stage 1 point iii. above are owned by Murra Warra Project Co and are located to the east of the MWWF Switchyard and 220kV Murra Warra Terminal Station (MRTS) and who's performance and compliance is ensured through the implementation of both this plan and the Electric Line Clearance Management Plan. They are steel pole, single and double circuit lines approximately 3 km in length and require vegetation management processes to maintain the clearance space around them. Siemens Gamesa Renewable Energy (SGRE) GmbH has been engaged as the main Operations and Maintenance provider for the Wind Farm.

Murra Warra (Stage 2) Electric Lines

The internal overhead electric lines described in Stage 2 point iii. above are owned by Murra Warra Project Co and are located to the north and east of the MWWF2 Switchyard and 220kV Murra Warra Terminal Station (MRTS) and who's performance and compliance is ensured through the implementation of both this plan and the Electric Line Clearance Management Plan. They are a pair of steel pole, double circuit lines approximately 3 km and 4km in length, respectively, and require vegetation management processes to maintain the clearance space around them. GE

Renewable Energy Australia has been engaged as the main Operations and Maintenance provider for the Wind Farm Stage 2.

Electricity Safety (Bushfire Mitigation) Regulations 2023

Regulation 6 - Prescribed particulars for the bushfire mitigation plans – specified operators

Murra Warra Find Farm (Stage 1)

Murra Warra Asset Co Pty Ltd (ACN 616 990 508) as trustee for the Murra Warra Asset Trust
ABN 70 335 611 289
Level 9, 61 York Street, Sydney NSW, 2000

(a) The name, address, email address and telephone number of the specified operator:

Mr. Benjamin Deer
Murra Warra Project Co Pty Ltd
171 – 173 Mounts Bay Road,
Perth, WA, 6000
Email: ben.deer@squadronenergy.com
Mobile +61 429 071 864

(b) The position, address, email address and telephone number of the person who was responsible for the preparation of the plan:

Ms. Samanta Perna
Plant Performance Engineer
RES Australia Pty Ltd
Level 7, 379 Collins Street
Melbourne, VIC, 3000
Email: samanta.perna@res-group.com
Mobile +61 459 592 607

(c) The position, address, email address and telephone number of the persons who are responsible for carrying out the plan:

Mr. Tony Goldenberg
Service Manager
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885 Mountain Highway
Bayswater, VIC, 3153
Email: tony.goldenberg@siemensgamesa.com
Mobile +61 438 788 708

(d) The email address (if any) and telephone number of the specified operator's control room so that persons in the room can be contacted in an emergency that requires action by the specified operator to mitigate the danger of bushfire:

Mr. Ashley Marra
Lead Service Technician
Siemens Gamesa Renewable Energy
Alisa Wheat Road
Murra Warra, VIC, 3401
(03) 8440 7400
Mobile +61 482 952 782

SGRE Remote Operations TCC Centre (Remote monitoring)
Email: tcc@siemensgamesa.com
Mobile +49 4331 8373333

Murra Warra Find Farm (Stage 2)

Murra Warra II Asset Co Pty Ltd (ACN 624 611 990) as trustee for the Murra Warra II Asset Trust
ABN 92 847 378 487
Level 9, 61 York Street, Sydney NSW, 2000

(a) The name, address, email address and telephone number of the specified operator:

Mr. Benjamin Deer
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171 – 173 Mounts Bay Road,
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(b) The position, address, email address and telephone number of the person who was responsible for the preparation of the plan:

Ms. Samanta Perna
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Mobile +61 459 592 607

(c) The position, address, email address and telephone number of the persons who are responsible for carrying out the plan:

Mr. Sam Kelly
Lead Service Technician
GE Renewable Energy Australia
Alisa Wheat Road
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Email: sam.kelly@ge.com
(03) 8440 7400
Mobile +61 407 924 933

(d) The email address (if any) and telephone number of the specified operator's control room so that persons in the room can be contacted in an emergency that requires action by the specified operator to mitigate the danger of bushfire:

Mr. Sam Kelly
Lead Service Technician
GE Renewable Energy Australia
Alisa Wheat Road
Murra Warra, VIC, 3401
(03) 8440 7400
Mobile +61 407 924 933

GE Remote Operations Centre (Remote monitoring)
Email: dlenergy.geroc@ge.com
Mobile +1 866 920 6834

(e) The bushfire mitigation policy of the specified operator to minimise the risk of fire ignition from its at-risk electric lines

To mitigate as far as practicable the risk of fire starting from those at-risk assets at Murra Warra Wind Farm.

(f) The objectives of the plan to achieve the mitigation of fire danger arising from the specified operator's at-risk electric lines

This Plan in conjunction with the site's Electric Line Clearance Management Plan has been developed with the main objective to;

- identify possible ignition sources that could cause fire, and
- mitigate/reduce the likelihood and consequences of these through the implementation of effective preventative measures.

The plan is also intended to fulfil the Legislative and Regulatory requirements of the;

- Electricity Safety Act 1998, and
- Electricity Safety (Bushfire Mitigation) Regulations 2023 (Version 005).

(g) A description, map or plan of the land to which the bushfire mitigation plan applies, identifying the location of the specified operator's at-risk electric lines

Refer to Appendices for the following map of the land and location of at-risk electric lines

- Murra Warra Wind Farm (Stage 1) Overhead Line – Site Layout (HBRA Classified)
Year of OHL line installation: 2018
- Murra Warra Wind Farm (Stage 2) Overhead Line – Site Layout (HBRA Classified)
Year of OHL line installation: 2021

(h) The preventative strategies and programs to be adopted by the specified operator to minimise the risk of the specified operator's at-risk electric lines starting fires

The preventative strategies and programs comprise the inspection regime described in section (i) below.

A 36-month inspection was completed on Murra Warra Stage 1 in May 2022. A copy of the inspection results and the action plan for defect resolution is found in Appendix E.

The first 36-month inspection at Murra Warra Stage 2 is scheduled to occur during 2024.

Murra Warra Wind Farm does not have a program for cyclic replacement/modification of its overhead electric line assets. The components used in the lines are not intended to be frequently replaced. Rather, replacement is triggered if an inspection determines that there is risk of faulty or damaged components.

(i) A plan for inspection that ensures that all of the specified operator's at-risk electric lines are inspected at regular intervals of no longer than 37 months

1. Scheduled 36-month Electric Line Asset Inspection. This will be done by the contracted asset inspectors following their Policies or Standard Operating Protocol (SOP) such as Powercor's 'Policy No 5 – C001.A-025 – Priority Policy' or AusNet's 'SOP 70-01' such that the reports stemming from these inspections identify, code, and prioritise defect/s and their rectification timings (refer to Figure 1 below).

Allocation	Symbol	Allocated to items assessed to be at risk of failure within the following timeframes	Need to be actioned within
Priority 1	P1	0 – 28 days	24 hours
Fault Follow Up 14 Days	FFU14	> 14 days	14 days
Fault Follow Up 28 Days	FFU28	> 28 days	28 days
Priority 28	P28	28 days - 32 weeks	28 days
Priority 2	P2	32 weeks – 3 years	32 weeks
Priority 3	P3	3 - 5 years	3 years

Figure 1 Asset Defect Priority Rating and Rectification Timings

Note: all time periods mentioned in the table are based on calendar days.

There can be a 2–3-week delay between inspection and provision of report and associated recommendations.

If pole/s are identified as part of the inspection with deteriorating defects, however;

- they have not exceeded the criteria under sections (f) to (j) to trigger replacement, and/or
- the inspector expects that deterioration will cause the pole to have a ‘limited life (L)’ or to become ‘unserviceable (U)’, as per definitions in AS4676:2000, during the following scheduled inspection interval then an increased inspection/testing interval can either be;
 - a. specified as part of the scheduled inspection (and associated report), or
 - b. requested of the Asset Inspector by the responsible person for carrying out this plan,

to track further deterioration.

The priority that is assigned to a ‘serviceable (S)’, ‘limited life’ or ‘unserviceable’ pole is independent the assignment and should be linked back to the Inspectors assessment of the risk of failure within the timeframes referred to in Figure 1.

Any increased inspection interval will be calculated using previous deterioration information/rates, if available, from previous inspection results. If no historical deterioration information/rates are available, then the increased interval will default to annual.

- ii. Scheduled 12-month electric line vegetation/clearance audit,
- iii. Thermographic Patrols as required. This is an unplanned/non-routine task which will be largely dependent on the person responsible for carrying out the plan and if they deem necessary to carry out this action based on fault event logs and known Electric Line condition,
- iv. Scheduled 5 yearly Insulator washing. This is dependent on the local conditions and subsequent impact of these on sections of the overhead lines, and
- v. the auto reclose functionality is currently suppressed on the power lines and the lines are inspected prior to re-energising after faults.

(j) Details of the processes and procedures for ensuring that each person who is assigned to carry out the inspections referred to in paragraph (i)

Personnel completing asset inspections (Asset Inspector, Auditor 'General') will hold current qualifications approved by ESV.

The qualifications, training and experience required to be current includes, but is not limited to;

- Certificate II in ESI - Asset Inspection and Testing (UET20621),

The training records from the Asset Inspector will be made accessible via the individuals prior to commencement of works. A SGRE or GE Representative will be on site at the commencement of the inspections/clearance to observe/conduct appropriate inductions which may include such a request for records.

If any worker associated with the tasks covered under this plan are found to be performing works without required training/qualifications/experience or outside of their capabilities or the prescribed documentation, they are supposed to be working under then work will be immediately stopped and the associated personnel removed from the site.

(k) Details of the processes and procedures for ensuring that persons (other than persons referred to in paragraph (j)) who carry out or will carry out functions under the plan are competent to do so

Those persons (other than persons referred to in paragraph (j)) (eg, Line workers, Communications workers or Vegetation Assessors, Cutter working from EWP, Ground Crews, Specialist Plant Operators, Tree Climbers, etc), must hold current qualifications approved by ESV.

Dependant on the work required the qualifications and experience that will be required to be current may include;

- Certificate II in ESI Powerline Vegetation Control
- (Arborist only) A National Certificate Level IV in Horticulture and Arboriculture (including 'Assess Trees' module) (UET20312), or equivalent, and
- (Arborist only) A minimum of 3 years field experience,
- Apply Occupational Health and Safety regulations, codes and practices in the workplace
- Comply with sustainability, environmental and incidental response policies and procedures
- Working safely near live electrical apparatus as a non-electrical worker
- Operate and maintain chainsaws
- Plan the removal of vegetation up to vegetation exclusion zone near live electrical apparatus
- Monitor safety compliance of vegetation control work in an ESI environment
- Apply pruning techniques to vegetation control near live electrical apparatus
- Recognise plants
- Apply ESI safety rules, codes and procedures for work on or near electrical apparatus
- Prepare to work safely in the construction industry
- Provide cardiopulmonary resuscitation
- Provide first aid in an ESI environment
- Safe Approach Distances - Vegetation Work
- Manual Handling

- Control traffic with stop-slow bat, (RIIWH205D)
- Implement traffic management plan, (RIIWH302D)
- VESI Environmental Framework,
- VESI Safety Framework,
- ESI Worker Card, and
- Network Operator Induction

to comply with this approved plan the [VESI Skills and Training Guideline](#), [VESI Skills and Training Matrix](#), [Vegetation Management Guideline](#), [Vegetation Skills and Training Matrix](#) and the Code.

The training records from the other worker will be made accessible via the individuals prior to commencement of works. A SGRE or GE Representative will be on site at the commencement of any work to observe/conduct appropriate inductions which may include such a request for records.

If any worker associated with the Electric Lines and tasks covered under this plan are found to be performing works without required training/qualifications/experience or outside of their capabilities or the prescribed documentation, they are supposed to be working under then work will be immediately stopped and the associated personnel removed from the site.

(l) The operation and maintenance plans for the specified operator's at-risk electric lines

There are no dedicated operation and maintenance plans for the at-risk electric lines however any/all requests made, or support required, by the CFA or any other emergency services of the Wind Farm to minimise risk of fire will be followed.

i. In the event of fire

In the event of fire which prevents the safe operation of the at-risk electric lines they will be de-energised to minimise further ignition sources.

Where the fire is in the area but presents minimal or no risk to the safe operation of the electric lines it will continue to operate with the auto reclose suppressed.

ii. During a Total Fire Ban (TFB)

During a time of total fire ban the at-risk Electric lines will operate in accordance with normal operating practices (auto reclose suppressed) unless requested otherwise by the CFA or other emergency services. No hot work (including welding, cutting, grinding) will be undertaken. Vehicles and heavy equipment will not be driven or operated in locations with ground vegetation. The Site Manager shall maintain watch of weather and in the event of a warning or emergency services request, the Site Manager shall act in accordance with the warning advice or request.

iii. During the Fire Danger Period

The Wind Farm will be operated in accordance with normal operating practices (auto reclose suppressed) during the DFDP unless requested otherwise by the CFA or other emergency services. Grass will be maintained to height of less than 100 mm. Heavy equipment will not be operated in areas where long grass or deep leaf litter exists. No hot work (including welding, cutting, grinding) will be undertaken unless a hot work permit has been issued and fire-resistant shielding is used to prevent travel of sparks.

(m) The investigations, analysis and methodology to be adopted by the specified operator for the mitigation of the risk of fire ignition from its at-risk electric lines

Electrical events/faults, if they influence risk of fire ignition from the sites at-risk electric lines or not, are recorded and reported by SGRE (MW1) or GE (MW2) which if considered to be a 'serious electrical event' are reported separately to ESV and/or WorkSafe Victoria.

For faults/incidents/defects on at-risk-assets the Inspection reports will be the initial source of investigation and if further investigation is necessary then depending on the scenario, then either of an Non-Conformance Report (NCR), Defect Report, Electrical Event/Incident Report, Hazard Identification report, etc may be raised. A detailed technical Diagnostic Report may be instigated if there have been a sufficient number of identical/similar events (common/systemic Defect or fault).

This process helps to ensure that events/faults are properly reported, investigated and actions taken to reduce their likelihood of re-occurring.

There were no fires that started due to the at-risk electric line in the previous plan period.

(n) Details of the processes and procedures by which the specified operator will manage the bushfire mitigation plan

There are several processes and procedures adopted/relied upon to manage this plan including:

- i. Monitoring the implementation of the plan is performed predominantly through the following method;
 - the use and management of the Computerised Maintenance Management System (CMMS) which records any required scheduled or unscheduled works including, but not limited to, the preventative works listed under section (h & i) of this plan. The specific measure is the closure of maintenance work orders related to bushfire mitigation and line vegetation works.

This measure is referred to as the Bushfire Index and is calculated as follows:

Number of Outstanding Tasks ÷ Number of Required Tasks

Tasks include all line inspection/clearance works, both scheduled and unscheduled.

MURRA WARRA WIND FARM (STAGE 1)

The current ‘**outstanding tasks**’ from the previous period include:

- There are no outstanding/overdue works for this site

The ‘**tasks required**’ include:

- Annual Vegetation Inspection (next due: Oct 2023)
- 36-month Electric Line Inspection (next due: April 2025)
- Audit of line inspection/clearance

Therefore:

$$\mathbf{\underline{Bushfire Index = 0 \div 3 = 0}}$$

MURRA WARRAWIND FARM (STAGE 2)

The current ‘**outstanding tasks**’ from the previous period include:

- There are no outstanding/overdue works for this site

The ‘**tasks required**’ include:

- Powerline Bushfire Vegetation Inspection/Clearance (Scheduled, annually due in the CMMS in September)

- 36 month Electric Line Inspection (next due: November 2024)
- Audit of Bushfire vegetation line inspection/clearance

Therefore:

Bushfire Index = 0 ÷ 3 = 0

Note that the performance/progress of all site maintenance tasks, including the above where applicable, is monitored and reported on monthly by the Australian Operations Department.

Other performance measures which will be collated and reviewed annually prior to the resubmission of this plan to ESV include;

Key Performance Indicator (KPI)	Target	Result (previous year)
Number of electrical events/faults that have occurred on the relevant Electric Lines with the cause identified to be directly related to their condition and/or compliance with the Regulations.	0	0
Annual Number of Fire Starts.	0	0
Number of Stakeholder complaints/correspondence received in relation to the relevant Electric Lines as measured through Murra Warra Wind Farms Communication and Stakeholder Representative and the associated enquires line (1800 940 487) and email address (info@murrawarra-windfarm.com).	0	0
Lost Time Injuries (LTI's) or Medical Treatment Injuries (MTI's) with the cause identified to be directly related to the Electric Lines.	0	0
Completion of the 36mth Asset Inspection/s (MW1 & 2)	1 (MW1)	1 (MW1)
Future BMP submitted by 30th June each year	Yes	No*
Financial Penalties (Penalty Units) received.	None	None

* Extension granted to 10 July 2023. Initially submitted 7 July 2023. Re-submitted and receipt acknowledged by ESV 17 July 2023.

- ii. Auditing the implementation of the plan is largely done in two ways;
 - as part of the annual review process prior to resubmission of this plan to ESV, and
 - an audit post the DFDP will be undertaken by a representative responsible for carrying out this plan which includes;
 - a. that the qualifications and experience of personnel performing the scheduled inspection and/or clearance works adheres to both ESV's and this plans requirements,
 - b. associated report/s have been submitted to the persons responsible for carrying out this plan,
 - c. all inspection/s, report/s and subsequent recommendations from have been conducted in line with the scope/timing of recommendations and to the quality of this plan and the applicable Acts, Regulations, Codes and Standards as further explained

under section (vi). **Note that this task may be conducted by an independent third party where requested by the persons responsible for carrying out this plan.** Additional inspections may take place throughout the year if in alignment with other scheduled/unscheduled line tasks (eg, insulator washing, event/fault inspections etc), and

d. the inspections and recommendations/works from the report, if any, have an appropriate task/s entered into the CMMS and those task/s have been closed out following completion or the works.

If either of items a, b, or c in above list are believed to have not occurred then a representative responsible for carrying out this plan is to immediately contact the Asset Inspector of the reports and request the required information

If either of the remaining items in above list have not occurred then the representative responsible for carrying out this plan is to immediately perform the required work or contact their manager and request support to perform the work.

Person/s responsible for carrying out this plan may also take the opportunity to perform audits outside the above timeframe.

- iii. Identification of any deficiencies in the plan or the plan's implementation can be done via;
 - the annual review process of this plan prior to resubmission to ESV,
 - Person/s carrying out this plan to provide feedback to their manager and/or the person/s responsible for the preparation of this plan when a deficiency is found. This will generally take the form of email correspondence,
 - Safety or Hazard Observations, and/or
 - Review of site/asset risk register.
- iv. A change, or changes, to the plan and the plan's implementation if any deficiencies are identified under subparagraph (iii) are performed during the annual review of this plan prior to submission to ESV. If there are more critical changes required to important information, including but not limited to, contact details or applicable procedures/policies these will be performed as soon as possible and resubmitted to ESV. The updated plans will then be reloaded onto the webpages listed in the plan.

The annual review of this plan is performed by the person/s responsible for preparing the plan in conjunction with the other people listed under sections (a-d). As well as incorporating any of the above changes the reviews intension is to, but is not limited to, re-aligning the plan to any updated Legislation, Regulations or Codes, industry practices and Electric Line configurations/locations.

- v. Monitor the effectiveness of inspections under the plan will be performed through the annual review of the performance measures listed under (n)(i) by the person/s responsible for preparing the plan.
- vi. Auditing the effectiveness of any inspections carried out under the plan is performed through conducting a ground based visual audit following the completion of the 36 month Electric Line Inspection works.

This will be performed by either;

- Personnel who have;
 - Knowledge of applicable Acts, Regulations and Codes associated with this plan,
 - Knowledge of this plan and its auditing obligations,
 - Knowledge of , and are familiar with, the Electric Lines subject to the audit, and
 - A minimum of 3 years Electric Line management experience

or,

– an independent third party.

The scope of the visual audit will cover a minimum of **10%** of the Electric Line spans previously inspected and take the form of a marked-up version of the inspection report or an I-Auditor checklist. If any significant inaccuracies are noted then the audit scope will be expanded to include 100% of the Electric Lines. These inaccuracies will then be reported back to the Asset Inspector.

Person/s responsible for carrying out this plan will also take the opportunity to perform audits outside the above timeframe if other scheduled/unscheduled line works are expected and resourcing is available.

(o) The policy of the specified operator in relation to the assistance to be provided to fire control authorities in the investigation of fires near the specified operator's at-risk electric lines

Access to site and any requests for assistance from fire control authorities in the investigation of fires at or near the relevant Electric Lines will be provided.

Regulation 13 - Exemptions

No exemptions were requested or issued by ESV from any of the requirements of the regulations.

Section 83BA (3) (a) of the Act - Plan available for inspection

The latest ESV approved Bushfire Mitigation Plan is available for inspection on the responsible person's website at;

<https://squadron-assets.spicyweb.net.au/main/Murra-Warra-Bushfire-Management-Plan-2022-2023.pdf>

Any superseded versions of the plan located at the above websites will be overwritten by the person responsible for preparing the plan once an updated version of the document has been approved/accepted by ESV.

A hardcopy of the ESV approved/accepted Bushfire Mitigation Plan mentioned above is available for inspection at the responsible person's office, during normal business hours, located at;

RES Australia Pty Ltd

Level 7, 379 Collins Street

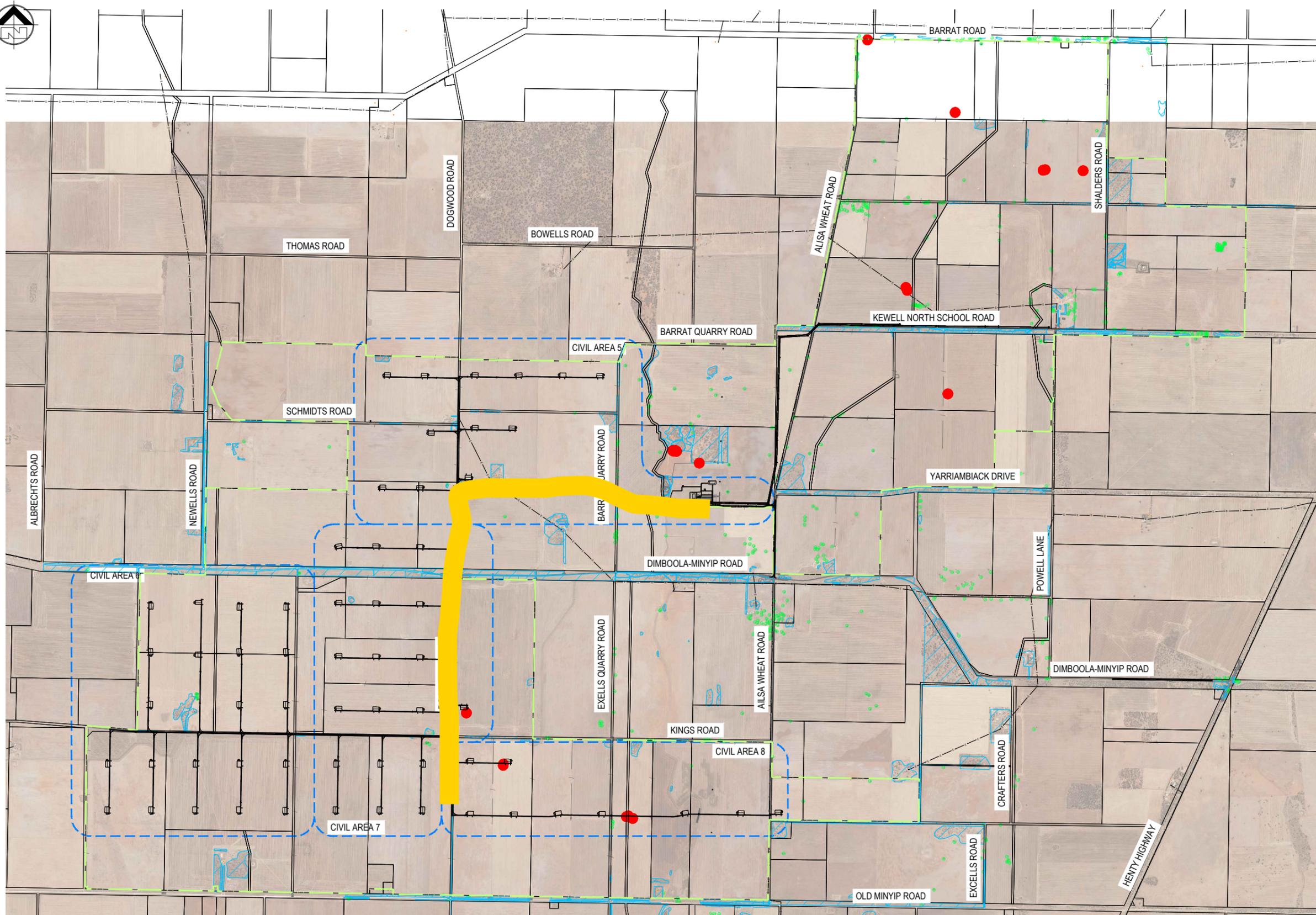
Melbourne, VIC, 3000

Appendices

- (A) Murra Warra Wind Farm (Stage 1) Overhead Line – Site Layout (Lines) (HBRA Classified)
- (B) MWWF Stage 1 Completed Inspection and Test Plans (Poles and Stringing)
- (C) Murra Warra Wind Farm (Stage 2) Overhead Line – Site Layout (Lines) (HBRA Classified)
- (D) MWWF Stage 2 Completed Inspection and Test Plans (Poles, Stays and Stringing)
- (E) Murra Warra Stage 1 - 36-month OHL Inspection May 2022

Appendix A: Murra Warra Wind Farm (Stage 1) Overhead Line - Site Layout (Lines) (HBRA Classified)

(Refer next page)



REFER LATEST ELECTRONIC MODELS FOR CONSTRUCTION
 20180508-16-104-3d Output.dwg
 20180508-16-104-3d Output.12daz
 20180509-16-104-Bench-3d Output.dwg
 20180509-16-104-Bench-3d Output.12daz

© Copyright **SITE LAYOUT PLAN**

SCALE 1:20,000

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P:\E_M\505_Hull_Roads\Civil\16-104 - Murra Warra Wind Farm\Civil\MWWF-C-5300-5308.dwg

i3 consulting pty ltd
 engineering consultants
 innovation, ingenuity, inspiration
 L2 39 Sherwood Rd Toowoomba, Qld 4066
 www.icubed.com.au ABN 89 106 675 156
 PO Box 678 Toowoomba, Qld 4066
 mail@icubed.com.au ACN 106 675 156
 p 07 3870 8888

SENVION
 wind energy solutions

REV No	REVISION DESCRIPTION	DRAWN BY	APPR'D BY	CHECKED BY	DATE
0	FOR CONSTRUCTION	M.S.	R.H.	R.H.	09.05.18
E	FOR REVIEW (80%)	M.S.	R.H.	R.H.	03.04.18
D	REVISED TRACK WIDTHS	M.S.	R.H.	R.H.	21.03.18
C	TRACKS ALIGNED TO FENCE	A.P.	R.H.	R.H.	30.01.18
B	REMOVED CIVIL AREAS 1,2,3,4	J.C.	R.H.	R.H.	16.01.18
A	FOR APPROVAL	M.J.L.	R.H.	R.H.	26.07.17

Downer
 Relationships creating success

CLIENT: SENVION

PROJECT:

MURRA WARRA WIND FARM

DRAWN BY:	DATE:	DESIGNED BY:	DATE:
M.J.L.	10.05.17	M.J.L.	26.07.17
DRG. CHECKED BY:	DATE:	DES. CHECKED BY:	DATE:
R.H.	26.07.17	R.H.	26.07.17
CAD FILE No:	APPROVED:	DATE:	
MWWF-C-5300-5308.dwg	R.H.	26.07.17	

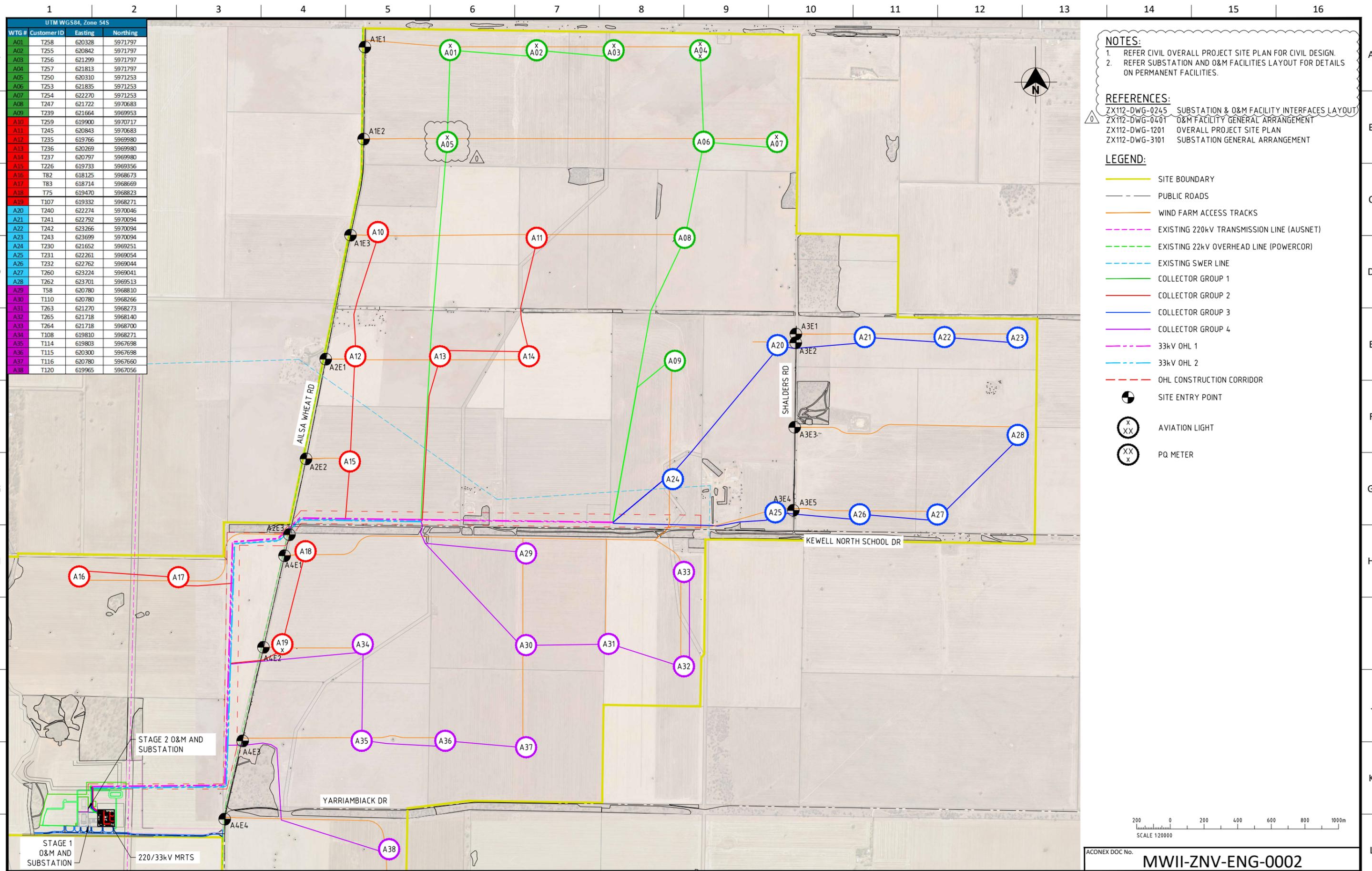
TITLE: **OVERALL SITE LAYOUT PLAN**
 SCALE: AS SHOWN
 DRAWING No: **MWWF-C-5300**
 JOB CODE: 16-104

SHEET SIZE: **A1**
 SHEET No: **0**

Appendix B: MWWF Stage 1 Completed Inspection and Test Plans (Poles and Stringing)
(Refer separate documents)

Appendix C: Murra Warra Wind Farm (Stage 2) Overhead Line - Site Layout (Lines) (HBRA Classified)

(Refer next page)



UTM WGS84, Zone 54S

WTG #	Customer ID	Easting	Northing
A01	T258	620328	5971797
A02	T255	620842	5971797
A03	T256	621299	5971797
A04	T257	621813	5971797
A05	T250	620310	5971253
A06	T253	621835	5971253
A07	T254	622270	5971253
A08	T247	621722	5970683
A09	T239	621664	5969953
A10	T259	619900	5970717
A11	T245	620843	5970683
A12	T235	619766	5969980
A13	T236	620269	5969980
A14	T237	620797	5969980
A15	T226	619733	5969356
A16	T82	618125	5968673
A17	T83	618714	5968669
A18	T75	619470	5968823
A19	T107	619332	5968271
A20	T240	622274	5970046
A21	T241	622792	5970094
A22	T242	623266	5970094
A23	T243	623699	5970094
A24	T230	621652	5969251
A25	T231	622261	5969054
A26	T232	622762	5969044
A27	T260	623224	5969041
A28	T262	623701	5969513
A29	T58	620780	5968810
A30	T110	620780	5968266
A31	T263	621270	5968273
A32	T265	621718	5968140
A33	T264	621718	5968700
A34	T108	619810	5968271
A35	T114	619803	5967698
A36	T115	620300	5967698
A37	T116	620780	5967660
A38	T120	619965	5967056

NOTES:
 1. REFER CIVIL OVERALL PROJECT SITE PLAN FOR CIVIL DESIGN.
 2. REFER SUBSTATION AND O&M FACILITIES LAYOUT FOR DETAILS ON PERMANENT FACILITIES.

REFERENCES:
 ZX112-DWG-0245 SUBSTATION & O&M FACILITY INTERFACES LAYOUT
 ZX112-DWG-0401 O&M FACILITY GENERAL ARRANGEMENT
 ZX112-DWG-1201 OVERALL PROJECT SITE PLAN
 ZX112-DWG-3101 SUBSTATION GENERAL ARRANGEMENT

- LEGEND:**
- SITE BOUNDARY
 - PUBLIC ROADS
 - WIND FARM ACCESS TRACKS
 - EXISTING 220kV TRANSMISSION LINE (AUSNET)
 - EXISTING 22kV OVERHEAD LINE (POWERCOR)
 - EXISTING SWER LINE
 - COLLECTOR GROUP 1
 - COLLECTOR GROUP 2
 - COLLECTOR GROUP 3
 - COLLECTOR GROUP 4
 - 33kV OHL 1
 - 33kV OHL 2
 - OHL CONSTRUCTION CORRIDOR
 - SITE ENTRY POINT
 - X
XX AVIATION LIGHT
 - XX
X PQ METER



No	DESCRIPTION	DES	DRN	CHK	APP	DATE
0	ISSUED FOR CONSTRUCTION	JH	MB	JH	BR	17/12/2020
E	MINOR REVISIONS	JH	MB	JH	BR	22/10/2020
D	MINOR REVISIONS	MW	MB	JH	BR	20/02/2020
C	MINOR AMENDMENTS	JS	KT	JS	BR	04/03/2020
B	HOLD CLOUD UPDATED	JS	MB	JS	BR	10/02/2020
A	FOR REVIEW	JS	MB	JS	BR	21/01/2020

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SIZE	SCALE							
A3	1:20000							
STATUS								
FOR CONSTRUCTION								
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ACONEX DOC No. MWII-ZNV-ENG-0002	
PROJECT	MURRA WARRA 2 WIND FARM
TITLE	PROJECT OVERALL SITE LAYOUT
DRAWING No.	ZX112-DWG-0241
REV	0

Appendix D: MWWF Stage 2 Completed Inspection and Test Plans (Poles, Stays and Stringing)

(Refer separate documents)

Appendix E: Murra Warra Stage 1 - 36-month OHL Inspection May 2022
(Refer separate documents)