



Prepared for Flyers Creek Wind Farm Pty Ltd by Nacap Pty Ltd

# Flyers Creek Wind Farm Project

## CONSTRUCTION AIR QUALITY MANAGEMENT PLAN

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**DOCUMENT CONTROL RECORD**

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**REVISION HISTORY**

*This table describes the primary reason for the production of each new revision after Rev 0*

Date	Rev.	Reason for change

**SIGNATURE BLOCK**

Rev.	Description	BR	BT	PP PL	PL	
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*The first Issued for Use version of this plan will start Revision 0. Revision numbers shall use a sequential numbering system commencing at Rev. 01, 02, etc.*

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ACTIVITY	DESCRIPTION	REFERENCES										
<b>1. GENERAL INFORMATION</b>												
1.1 Purpose	<p>This Construction Air Quality Management Plan (CAQMP) has been prepared to satisfy the requirements of Condition F21 (g) of the Project Approval and incorporates related Conditions of Approval (CoA) and relevant commitments from the Flyers Creek Windfarm Environmental Assessment (EA) 2011 and modifications that have been subsequently approved</p> <p>This CAQMP has been prepared to ensure construction activities are carried out in accordance with the Conditions of Approval (CoA), relevant regulatory requirements, standards, procedures and current best practice to ensure that all reasonable and practical measures are implemented to minimise the potential for air quality related impacts.</p> <p>This CAQMP adopts an integrated approach, considering and identifying management measures overarching the sequencing of construction related activities. All works are to be implemented in accordance with the management measures and strategies contained within this plan.</p>	-										
1.2 Conditions of Approval (CoA)	<p>This plan and its associated management measures have been prepared to comply with the following CoA:</p> <ul style="list-style-type: none"> <li>F1 Dust Generation, and</li> <li>F21(g) Construction Air Quality Management Plan.</li> </ul>	Project Approval (MP 08_0252)										
1.3 CEMP Structure and relationship with sub-plans	<p>This CAQMP forms one of the FCWF Construction Environment Management Plan (CEMP) sub plans. The FCWF CEMP (CoA F20) comprises three Sections:</p> <ul style="list-style-type: none"> <li><b>PART A:</b> Provides background information and the overarching systems approach to environmental management and mitigation controls for the project</li> <li><b>PART B:</b> Comprising Appendices in support of PART A, and</li> <li><b>PART C:</b> Comprising the required series of environmental management sub-plans outlined in CoA F21 including;                             <ul style="list-style-type: none"> <li>(a) Construction Compound and Ancillary Facilities Management Plan</li> <li>(b) Construction Noise and Vibration Management Plan</li> <li>(c) Construction Traffic and Access Management Plan</li> <li>(d) Construction Soil and Water Quality Management Plan</li> <li>(e) Construction Heritage Management Plan</li> <li>(f) Construction Flora and Fauna Management Plan</li> <li>(g) <b>Construction Air Quality Management Plan, (this Plan)</b> and</li> <li>(h) Bushfire Management Plan.</li> </ul> </li> </ul>	Construction Environmental Management Plan										
1.4 Scope	<p>The CAQMP applies to all aspects of Air Quality Management for the construction phase of the Project.</p> <p>This CAQMP will inform Project Managers, Supervisors, Construction Personnel, Subcontractors and relevant stakeholders for the management of air quality impacts during construction activities.</p> <p>This CAQMP forms part of the CEMP and describes the mitigation and management measures and protocols derived from the Project Environmental Assessment (EA). The CAQMP applies only to the Construction phase of the proposed works.</p>	-										
1.5 Objectives and Targets	<p>The objectives and targets for the Flyers Creek Wind Farm Project to be undertaken by GE and CPP-Nacap in relation to air quality are listed in Table 1 Objectives and Targets.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;"><b>Table 1 Objectives and Targets</b></th> </tr> <tr> <th style="text-align: left;"><b>Objective</b></th> <th style="text-align: left;"><b>Target</b></th> </tr> </thead> <tbody> <tr> <td>Minimise air quality impacts on residential receivers and the generation of visible dust emissions from the site generated as a result of construction activities.</td> <td>Zero complaints from the community as a result of dust generation.</td> </tr> <tr> <td>Ensure all personnel, subcontractors and visitors are inducted, consulted and receive regular updates and information on project environmental aspects and impacts for the duration of works.</td> <td>100% completion of Inductions, Daily Pre-Start Inputs by Environment Team, and Monthly toolbox inputs by Environment Team.</td> </tr> <tr> <td>Ensure that personnel and subcontractors are aware of environmental hazards and risks associated with construction activities and relevant scope of work under the contract.</td> <td>100% attendance recorded at SWMS workshops, and 100% Project Induction.</td> </tr> </tbody> </table>	<b>Table 1 Objectives and Targets</b>		<b>Objective</b>	<b>Target</b>	Minimise air quality impacts on residential receivers and the generation of visible dust emissions from the site generated as a result of construction activities.	Zero complaints from the community as a result of dust generation.	Ensure all personnel, subcontractors and visitors are inducted, consulted and receive regular updates and information on project environmental aspects and impacts for the duration of works.	100% completion of Inductions, Daily Pre-Start Inputs by Environment Team, and Monthly toolbox inputs by Environment Team.	Ensure that personnel and subcontractors are aware of environmental hazards and risks associated with construction activities and relevant scope of work under the contract.	100% attendance recorded at SWMS workshops, and 100% Project Induction.	-
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	<p>To conduct construction activities in compliance with all relevant approvals and environmental legislation.</p> <p>Promote a positive reporting culture to minimise the occurrence and severity of environmental incidents during construction activities.</p> <p>Ensure all corrective actions are closed out by the nominated due dates.</p>	<p>100% compliance No regulatory infringements, including Provisional improvement notices and prosecutions.</p> <p>All incidents to be reported to the Project Manager within 2 hours and investigated appropriately.</p> <p>No corrective actions outstanding past due date &gt;7 days.</p>
1.6 Consultation	Consultation on this Plan is not required under the CoA. It will be reviewed by the Department of Planning, Industry and Environment (DPIE) during their approval process.	-
1.7 Certification and Approval	The CAQMP and associated management measures required by CoA F21(g) are required to be submitted for approval by the Secretary of the Department of Planning, Industry and Environment (DPIE) at least one month prior to commencement of construction or as otherwise agreed by the Secretary.	-
1.8 Distribution	A controlled hard copy of this CAQMP will be maintained and reside at the Project construction site office. Approved copies of this CAQMP and supporting documentation will be distributed to the Project team, the DPIE, all relevant personnel and interested third parties as required. It will also be available to view on the Project website: <a href="http://www.flyerscreekwindfarm.com">www.flyerscreekwindfarm.com</a>	-
1.9 Reference Documents	<p>The CAQMP applies to all aspects of air quality management for the Project and has been informed by the following:</p> <ul style="list-style-type: none"> <li>• Conditions of Approval;</li> <li>• Project Environmental Impact Statement prepared by Aurecon, 2011, specifically: <ul style="list-style-type: none"> <li>○ Chapter 7 Existing Environment;</li> <li>○ Chapter 19 Statement of Commitments;</li> </ul> </li> <li>• Modification 3 Planning Application prepared by Flyers Creek Wind Farm Pty Ltd (FCWFPL), 3 May 2017; and</li> <li>• Modification 4 Planning Application prepared by FCWFPL, 27 July 2019.</li> </ul>	-
<b>2. DEFINITIONS AND ABBREVIATIONS</b>		
2.1 Definitions	Associated Residence	Any residence on privately owned land where the owner has reached a commercial or in kind agreement with Flyers Creek Wind Farm Pty Ltd.
	Aspect	An element of an organisation’s activities or products or service that can interact with the environment.
	Audit	A systematic review of management systems being applied on the Project.
	Client and or Proponent	Flyers Creek Wind Farm Pty Ltd (FCWFPL)
	CPP	Consolidated Power Projects Pty Ltd
	Form 2	CPP-Nacap utilise a system, which acts as a project control gateway (known as a Form 2) for each construction activity to commence. The Form 2 is a document reviewed and signed off by the various Project discipline leads and Project Manager. This form is a pre-commencement gateway for each construction activity within a discrete section of works. The Form 2 is a key means of communicating to the activity supervisor management controls for any given portion of the works.
	GE	General Electric International Inc.
	Impact	Any change to the environment whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.
	Incident	<p>A set of circumstances that:</p> <ul style="list-style-type: none"> <li>• causes or threatens to cause material harm to the environment; and/or</li> <li>• breaches or exceeds the limits or performance measures/criteria in this approval</li> </ul>
Inspection	Review or check on the environment requirements being implemented.	





ACTIVITY	DESCRIPTION	REFERENCES
	Management Measures	Management Measures are in addition to those outlined within the CoA and are intended to assist in the mitigation and prevention of non-conformances against the CoA during the FCWF project lifecycle.
	Nacap	Nacap Pty Ltd
	Non- Associated Residence	Any residence on privately owned land where the owner has not entered into a commercial or in kind agreement with Flyers Creek Windfarm Pty Ltd.
	Obligation	A legal relationship between two entities in which one entities' right is the other entities' duty.
	Project	Flyers Creek Wind Farm Project
	Regulatory Requirements	Government acts and regulations that are environment specific which prescribe legal obligations encompassing the client and contractor and amongst other things, registration of projects and plant, certificates to operate machinery and undertake certain trades and notification of injuries.
	Site	The Flyers Creek Wind Farm located within the approved Project boundary.
2.2	Abbreviations	<p>BOM - Bureau of Meteorology</p> <p>CEMP - Construction Environmental Management Plan</p> <p>CAQMP - Construction Air Quality Management Plan (This Plan)</p> <p>cBOP - Civil Balance of Plant</p> <p>CoA - Conditions of Approval</p> <p>DPIE - Department of Planning, Industry &amp; Environment</p> <p>EA - Environmental Assessment</p> <p>eBOP - Electric Balance of Plant</p> <p>EMP - Environmental Management Plan</p> <p>EPA - Environment Protection Authority</p> <p>EP&amp;A - Environmental Planning and Assessment Act 1979</p> <p>FCWF - Flyers Creek Wind Farm</p> <p>LECH - Lands Environment and Cultural Heritage</p> <p>NSW - New South Wales</p> <p>POEO Act - Protection of Environment and Operations Act</p> <p>SSD - State Significant Development</p> <p>SWMS - Safe Works Method Statement</p>
<b>3. PROJECT INFORMATION</b>		
3.1	Project Background and Description	<p>Flyers Creek Wind Farm Pty Ltd (the Proponent) forms part of the Infigen Energy corporate group (Infigen). Infigen Energy is a developer, owner and operator of generation assets delivering energy solutions to Australian businesses and large retailers. The FCWF is an approved 38 wind turbine wind farm located approximately 20km south of Orange NSW. The Project is located predominantly in the Blayney Shire local government area with part of the proposed 132 kilovolt transmission line and switching station being located in Cabonne Shire local government area.</p> <p>Project approval MP 08_0252 was granted under Part 3A of the Environmental Planning and Assessment Act 1979 (NSW) (EP&amp;A Act) to the Proponent for the Project by the NSW Planning and Assessment Commission on 14<sup>th</sup> March 2014. The Project Approval has been modified 4 times since originally being granted and was transitioned to State significant development (SSD) on 6<sup>th</sup> July 2018.</p> <p>The Project approval authorises the construction and operation of a wind farm and associated infrastructure including access tracks, local road infrastructure upgrades and electrical connections between the turbines (underground cable reticulation, also underground and aboveground powerlines), an on-site substation (inclusive of switch room, control room and auxiliary services building) and a 132-kilovolt transmission line and switching station to connect the Project to the grid.</p> <p>General Electric International Inc. (GE), Nacap Pty Ltd (Nacap) and Consolidated Power Projects Pty Ltd (CPP) will function as a consortium to collaboratively deliver the Project scope of works. GE will execute works associated with the wind turbine generator supply, installation and commissioning. Nacap will undertake detailed design and construct the civil Balance of Plant (cBOP) works associated with wind turbines, substation and underground cabling network. CPP will execute the electrical Balance of Plant (eBOP).</p>
<b>4. EXISTING PROJECT ENVIRONMENT</b>		
4.1	Legislation and Guidelines	<p>The following legislation and guidelines provide the primary context for construction air quality management in NSW:</p> <ul style="list-style-type: none"> <li>Environmental Planning and Assessment Act 1979 (EP&amp;A Act); and</li> <li>Protection of the Environment Operations Act 1997 (POEO Act).</li> </ul>



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4.2 Conditions of Approval	<p>This Plan has been prepared to comply with the CoA, specifically the requirements of CoA F21 (b) as listed in Table 2 Conditions of Approval.</p> <p style="text-align: center;"><b>Table 2 Conditions of Approval</b></p> <table border="1"> <thead> <tr> <th>CoA</th> <th>Condition</th> <th>Refer to Section within This Plan</th> </tr> </thead> <tbody> <tr> <td>F1</td> <td>The Project shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic generated dust and tracking of material onto public roads. All Project related activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works as appropriate such that emissions of visible dust cease.</td> <td>Section 6</td> </tr> <tr> <td>F21(g)</td> <td>A Construction Air Quality Management Plan to detail how construction impacts on air quality will be minimised and managed. The Plan shall include, but not necessarily limited to:</td> <td>This Plan</td> </tr> <tr> <td></td> <td>i) the identification of potential sources of dust;</td> <td>Section 4.9</td> </tr> <tr> <td></td> <td>ii) dust management objectives;</td> <td>Section 6</td> </tr> <tr> <td></td> <td>iii) mitigation measures to be implemented, including measures during weather conditions where high dust level episodes are probable (such as strong winds in dry weather);</td> <td>Section 6</td> </tr> <tr> <td></td> <td>iv) a monitoring program to assess compliance with the identified objectives; and</td> <td>Section 8</td> </tr> <tr> <td></td> <td>v) mechanisms for monitoring, review and amendment of this Plan.</td> <td>Section 8</td> </tr> </tbody> </table>	CoA	Condition	Refer to Section within This Plan	F1	The Project shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic generated dust and tracking of material onto public roads. All Project related activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works as appropriate such that emissions of visible dust cease.	Section 6	F21(g)	A Construction Air Quality Management Plan to detail how construction impacts on air quality will be minimised and managed. The Plan shall include, but not necessarily limited to:	This Plan		i) the identification of potential sources of dust;	Section 4.9		ii) dust management objectives;	Section 6		iii) mitigation measures to be implemented, including measures during weather conditions where high dust level episodes are probable (such as strong winds in dry weather);	Section 6		iv) a monitoring program to assess compliance with the identified objectives; and	Section 8		v) mechanisms for monitoring, review and amendment of this Plan.	Section 8	
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4.3 Sensitive Receivers	<p>The most recent assessment undertaken as part of Modification 4 identified 103 residences within three kilometres of the project (measured between the residence, the closest wind turbine location and 132kV OHL). A total of 34 of these receivers have entered into an agreement with the Project and are considered associated residences. The remaining 69 residences are non-associated residences – refer to Table 3. Refer to Appendix B for Associated and Non-Associated Residences.</p> <p style="text-align: center;"><b>Table 3 – Distribution of Residences within three kilometres</b></p> <table border="1"> <thead> <tr> <th>Distance of residence from nearest turbine</th> <th>Total number of residences</th> <th>Wind Farmer Associated Residences</th> <th>Non-Associated Residences</th> </tr> </thead> <tbody> <tr> <td>0-1 km</td> <td>8</td> <td>5</td> <td>3</td> </tr> <tr> <td>1-2 km</td> <td>45</td> <td>16</td> <td>29</td> </tr> <tr> <td>2-3 km</td> <td>50</td> <td>13</td> <td>37</td> </tr> <tr> <td>Total</td> <td>103</td> <td>34</td> <td>69</td> </tr> </tbody> </table>	Distance of residence from nearest turbine	Total number of residences	Wind Farmer Associated Residences	Non-Associated Residences	0-1 km	8	5	3	1-2 km	45	16	29	2-3 km	50	13	37	Total	103	34	69	<p>EA 2011</p> <p>Appendix A Associated and Non-Associated Residences</p>				
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Total	103	34	69																							
4.4 Existing Environment - Air Quality	<p>Due to the moderate rainfall observed historically in the Flyers Creek area and good grass cover there is less likelihood of air borne dust than for other drier parts of the state. The existing air quality in the Flyers Creek area can vary with the seasons in response to airborne particulate matter associated with windy and dusty conditions and events such as bushfires. Visibility can also be affected by climatic factors such as low cloud cover on the ranges and fog and mist in the lower areas. Sources contributing to the existing air quality include:</p> <ul style="list-style-type: none"> <li>• Mining and quarry activities operating adjacent to and in proximity of the Project site</li> <li>• Agricultural activities, and</li> <li>• while impacts are likely to be insignificant, the Mid Western Highway (located within 5km of the Project site).</li> </ul>	-																								
4.5 Climate	<p>The climate characteristics summarised in this section should be regarded as indicative only, as there are no Bureau of Meteorology (BOM) monitoring stations within the defined project area.</p> <p>Statistics have been obtained from the following BOM stations:</p> <ul style="list-style-type: none"> <li>• Canobolas State Forest BOM – 063018 - Representative of the northern extent of the project area</li> <li>• Milthorpe BOM – 063053 - Representative of the central extent of the project area, and</li> <li>• Blayney Post Office BOM – 063010- Representative of the southern extent of the project area.</li> </ul> <p>As indicated below, there are differences in historical rainfall records across the three BOM monitoring stations in proximity to the Flyers Creek Project area. These are likely influenced by the differences in elevation and localised topography around each station site. As the wider area contains many ridgelines and valleys, rainfall is influenced by these topographic features to a greater degree than if the region had less topographic relief. As such, rainfall across the project area is likely to also be variable, depending on the elevation and topography of a particular area. It is also expected to be similar to the rainfall ranges indicated by these meteorological stations, further described below and</p>	BOM																								



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	<p>in the range of 750 mm to 1000 mm a year.</p> <p>Mean monthly rainfall values at the three (BOM) sites show a trend of higher winter rainfall than summer rainfall, with the period of June to October generally having the highest monthly rainfall as well as having the most number of days where rain can be expected to be above 10 mm which may impact on construction activities and the areas of disturbance.</p> <p>The geographical location of the BOM Monitoring stations being indicative of likely weather patterns affecting the project area suggest higher rainfall in the northern section, with the southern extent of the project area likely to be driest. Temperature range across the project area is expected to be relatively uniform without any significant changes as indicated by the mean July and January temperature records given below.</p> <p>Predominant winter rainfall occurrence combined with lower soil temperatures and lower vegetation cover in winter is suggestive that soil moisture will be higher during winter.</p>																																																																																																																																																																																																				
4.6 Rainfall	<p>Monthly rainfall statistics obtained from each of the BOM Monitoring Stations is provided below:</p> <p>Canobolas State Forest - Years 1949-2018                      Mean Total Rainfall = 1101.8mm (northern extent)</p> <table border="1"> <thead> <tr> <th></th> <th>J</th> <th>F</th> <th>M</th> <th>A</th> <th>M</th> <th>J</th> <th>J</th> <th>A</th> <th>S</th> <th>O</th> <th>N</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Mean</td> <td>87.7</td> <td>80.2</td> <td>65.3</td> <td>62.5</td> <td>81.1</td> <td>88.6</td> <td>107.8</td> <td>116.6</td> <td>92.4</td> <td>100.1</td> <td>87.4</td> <td>81.3</td> </tr> <tr> <td>Low</td> <td>4.4</td> <td>2.8</td> <td>0</td> <td>0</td> <td>3</td> <td>1</td> <td>0</td> <td>3.8</td> <td>13.6</td> <td>4</td> <td>6.4</td> <td>0</td> </tr> <tr> <td>High</td> <td>361.6</td> <td>351.5</td> <td>242.8</td> <td>393.6</td> <td>298.5</td> <td>295</td> <td>271.4</td> <td>272.4</td> <td>222.6</td> <td>257</td> <td>213.8</td> <td>382</td> </tr> <tr> <td>Av No of Days &gt;=10m m</td> <td>2.7</td> <td>2.2</td> <td>2</td> <td>2</td> <td>2.8</td> <td>2.7</td> <td>3.5</td> <td>3.6</td> <td>3.1</td> <td>3.3</td> <td>3</td> <td>2.5</td> </tr> </tbody> </table> <p>Milthorpe - Years 1899-2005                      Mean Total Rainfall = 806.2mm (central area)</p> <table border="1"> <thead> <tr> <th></th> <th>J</th> <th>F</th> <th>M</th> <th>A</th> <th>M</th> <th>J</th> <th>J</th> <th>A</th> <th>S</th> <th>O</th> <th>N</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Mean</td> <td>71.2</td> <td>61.5</td> <td>55.4</td> <td>52.9</td> <td>59.9</td> <td>72.7</td> <td>75.9</td> <td>79.4</td> <td>66.1</td> <td>78</td> <td>64.5</td> <td>67.3</td> </tr> <tr> <td>Low</td> <td>0</td> <td>0</td> <td>0</td> <td>0.5</td> <td>0</td> <td>1.3</td> <td>1.3</td> <td>1.3</td> <td>8.4</td> <td>1.3</td> <td>1.6</td> <td>0</td> </tr> <tr> <td>High</td> <td>285.4</td> <td>293.9</td> <td>247.9</td> <td>269.7</td> <td>199</td> <td>237</td> <td>202.4</td> <td>258.2</td> <td>160.7</td> <td>248</td> <td>188.7</td> <td>228.3</td> </tr> <tr> <td>Av No of Days &gt;=10mm</td> <td>2.3</td> <td>1.8</td> <td>1.8</td> <td>1.7</td> <td>2.1</td> <td>2.1</td> <td>2.3</td> <td>2.6</td> <td>2.2</td> <td>2.6</td> <td>2.1</td> <td>2.2</td> </tr> </tbody> </table> <p>Blayney Post Office – Years 1885-1992                      Mean Total Rainfall = 765.5mm (southern extent)</p> <table border="1"> <thead> <tr> <th></th> <th>J</th> <th>F</th> <th>M</th> <th>A</th> <th>M</th> <th>J</th> <th>J</th> <th>A</th> <th>S</th> <th>O</th> <th>N</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Mean</td> <td>70.8</td> <td>55.6</td> <td>52.7</td> <td>49.7</td> <td>56.1</td> <td>71.8</td> <td>73.5</td> <td>76.7</td> <td>63.9</td> <td>70.8</td> <td>59.8</td> <td>63.7</td> </tr> <tr> <td>Low</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>4.6</td> <td>3.1</td> <td>0</td> <td>8.4</td> <td>0.8</td> <td>0</td> <td>0</td> </tr> <tr> <td>High</td> <td>346.3</td> <td>200.3</td> <td>164.6</td> <td>189.3</td> <td>225.8</td> <td>193.8</td> <td>221.3</td> <td>148</td> <td>173.5</td> <td>164.1</td> <td>209.8</td> <td>263.7</td> </tr> <tr> <td>Av No of Days &gt;=10mm</td> <td>2.3</td> <td>1.9</td> <td>1.7</td> <td>1.7</td> <td>2</td> <td>2.4</td> <td>2.4</td> <td>2.6</td> <td>2.3</td> <td>2.4</td> <td>2.1</td> <td>2.1</td> </tr> </tbody> </table>		J	F	M	A	M	J	J	A	S	O	N	D	Mean	87.7	80.2	65.3	62.5	81.1	88.6	107.8	116.6	92.4	100.1	87.4	81.3	Low	4.4	2.8	0	0	3	1	0	3.8	13.6	4	6.4	0	High	361.6	351.5	242.8	393.6	298.5	295	271.4	272.4	222.6	257	213.8	382	Av No of Days >=10m m	2.7	2.2	2	2	2.8	2.7	3.5	3.6	3.1	3.3	3	2.5		J	F	M	A	M	J	J	A	S	O	N	D	Mean	71.2	61.5	55.4	52.9	59.9	72.7	75.9	79.4	66.1	78	64.5	67.3	Low	0	0	0	0.5	0	1.3	1.3	1.3	8.4	1.3	1.6	0	High	285.4	293.9	247.9	269.7	199	237	202.4	258.2	160.7	248	188.7	228.3	Av No of Days >=10mm	2.3	1.8	1.8	1.7	2.1	2.1	2.3	2.6	2.2	2.6	2.1	2.2		J	F	M	A	M	J	J	A	S	O	N	D	Mean	70.8	55.6	52.7	49.7	56.1	71.8	73.5	76.7	63.9	70.8	59.8	63.7	Low	0	0	0	0	0	4.6	3.1	0	8.4	0.8	0	0	High	346.3	200.3	164.6	189.3	225.8	193.8	221.3	148	173.5	164.1	209.8	263.7	Av No of Days >=10mm	2.3	1.9	1.7	1.7	2	2.4	2.4	2.6	2.3	2.4	2.1	2.1	BOM
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4.7 Temperature	<p>Mean Minimum and Maximum Temperature statistics for each of the BOM Monitoring sites are given below:</p> <table border="1"> <thead> <tr> <th>BOM Monitoring Station</th> <th>Mean Minimum Temp °C July</th> <th>Mean Maximum Temp °C January</th> </tr> </thead> <tbody> <tr> <td>Canobolas State Forest</td> <td>0.2</td> <td>26.0</td> </tr> <tr> <td>Milthorpe</td> <td>1.1</td> <td>26.6</td> </tr> <tr> <td>Blayne Post Office</td> <td>1.1</td> <td>26.2</td> </tr> </tbody> </table>	BOM Monitoring Station	Mean Minimum Temp °C July	Mean Maximum Temp °C January	Canobolas State Forest	0.2	26.0	Milthorpe	1.1	26.6	Blayne Post Office	1.1	26.2	BOM
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4.8 Soils and Landforms	<p>The soil landscape of the project site is primarily characterised by sandy/loamy topsoil over clayey subsoil. The typical landscape of the area is undulating low hills, becoming more rolling in the southern half of the project area. Overall, existing instances of erosion are rare and for most parts of the site, substantial grass cover is present.</p>	EA 2011												
4.9 Environmental Aspects and Impacts	<p>The EA 2011 assessed the impacts of construction on air quality and identified the potential for impacts to occur during construction from the generation of dust as a result of earthworks, emissions from machinery and vehicles and drilling. All identified impacts are likely to be temporary during the construction phase and of a short duration.</p> <p><b>Construction Activities</b></p> <p><b>Earthworks</b>                      Exposure of soils for foundations and access track construction and the formation of topsoil and weathered rock stockpiles means that there is potential for the wind to create airborne dust that could degrade local air quality, albeit temporarily.</p> <p><b>Construction Equipment and Vehicle</b>                      All vehicles delivering equipment, materials and personnel to the site during the construction stage will be registered vehicles that are required to maintain the necessary emission controls. These vehicle movements will be confined to the construction period of twelve to eighteen months and their impact on local air quality is likely to be negligible.</p> <p><b>Rock Crushing</b>                      The preliminary geotechnical data has indicated that there may be rock excavated from site which is suitable for utilisation as road base and fill material. In preparing this rock for re-use on site this will need to be crushed through a series of crushing plants (circuit) to meet the specifications. This operation is likely to cause dust impacts in the local vicinity of the crushing activities and the transport and placement of this crushed material.</p> <p><b>Rock hammering and Drill and Blast Activities</b>                      The preliminary geotechnical results from the site have identified some hard rock which may be unable to be excavated (e.g. for turbine foundation footings) by conventional means with an excavator and bucket. As such a rock hammer and/or drill and blast activities may be required. Both of these activities have the potential to produce dust as a by-product of the operation.</p> <p><b>Drilling</b>                      The turbine footings will involve a reinforced concrete block to which the tower will be attached. To ensure stability of the footing, rock anchors may be required. Air blast drilling is often used to prepare the hole into which the rock anchors will be inserted and can be associated with dust plumes if not subject to controls. Dust filters and/or mist sprays will be applied to control any dust resulting from the air blast drilling.</p> <p>Other construction activities that have the potential to impact on existing air quality are:</p> <ul style="list-style-type: none"> <li>• Vegetation clearing; and</li> <li>• Wind erosion from unsealed surfaces including access tracks, laydowns and stockpiles.</li> </ul> <p><b>Factors Likely to effect Dust Generation</b>                      Environmental factors that have the potential to effect dust generation are:</p> <ul style="list-style-type: none"> <li>• Wind speed</li> <li>• Wind direction</li> <li>• Soil type</li> <li>• Soil moisture</li> <li>• Rainfall.</li> </ul> <p><b>Potential Impacts</b></p> <ul style="list-style-type: none"> <li>• Impacts on vegetation and/or water quality from dust deposition</li> <li>• Impacts upon residential receivers relating to aesthetics and visible emissions</li> <li>• Impacts upon residential receivers relating to inhalation of fine particles</li> </ul>	EA 2011												



ACTIVITY	DESCRIPTION	REFERENCES	
	The EA 2011 determined that the small areas of earthworks required for the wind farm relative to local rural activities such as ploughing of fields, and mining activities, that dust generation from the wind farm construction whilst a temporary impact requiring mitigation, is likely to be relatively minor contribution to the overall dust generation in the region.		
4.10 Recommendations and Agreed Management Measures	The 2011 EA identified the following recommendations for management of Air Quality relevant to this CAQMP - Table 4		
	<b>Table 4 Recommendations for Management</b>		
	<b>Aspect</b>	<b>Management Measure</b>	
	<b>Refer to Section in this plan</b>		
	<ul style="list-style-type: none"> <li>Rolling and possibly wetting of access tracks with water to compact loose soil exposed during initial track formation</li> <li>If necessary, application of approved wetting agent to exposed soil during dry and windy periods</li> <li>Capping of access tracks with gravel to suit the track usage requirements and limit dust generation</li> <li>stabilisation of exposed soils and stockpiles</li> <li>Where necessary, placement of stockpiles in locations sheltered from wind and surface water flows</li> <li>Restoration of disturbed areas as soon as possible</li> </ul>	Section 6 MM01-10	
	<ul style="list-style-type: none"> <li>All vehicles delivering equipment, materials and personnel to the site during the construction stage will be registered vehicles that are required to maintain the necessary emission controls. These vehicle movements will be confined to the construction period of twelve to eighteen months and their impact on local air quality is likely to be negligible.</li> </ul>	Section 6 MM05	
	<ul style="list-style-type: none"> <li>The turbine footings will involve a reinforced concrete block to which the tower will be attached. To ensure stability of the footing, rock anchors may be required. Air blast drilling is often used to prepare the hole into which the rock anchors will be inserted and can be associated with dust plumes if not subject to controls. Dust filters and/or mist sprays will be applied to control any dust resulting from the air blast drilling.</li> </ul>	Section 6 MM07	
<b>5. CONSTRUCTION AIR QUALITY MANAGEMENT ROLES AND RESPONSIBILITIES</b>			
	Position descriptions describe the responsibilities specific to positions on the Project. The Project Manager(s) with support from the Project Director(s) shall be responsible for providing the adequate resourcing to implement this Plan.	-	
<b>6. CONSTRUCTION AIR QUALITY RISKS, IMPACTS, OBJECTIVES AND MANAGEMENT CONTROLS – CONSTRUCTION ACTIVITY BASED</b>			
Air Quality Impacts	<ul style="list-style-type: none"> <li>Degradation of existing air quality as a result of airborne dust generated from construction activities</li> <li>Nuisance dust and odour at sensitive receptors.</li> <li>Impacts on vegetation and/or water quality as a result of dust deposition</li> <li>The generation of visible dust emissions from the site generated as a result of construction activities</li> </ul>		
Air Quality Performance Objectives and Standards	<ul style="list-style-type: none"> <li>To minimise nuisance dust or odour at sensitive receptors.</li> <li>To minimise impacts to flora and fauna</li> <li>To minimise impacts to water quality</li> </ul>		
Measurement Criteria	<ul style="list-style-type: none"> <li>Compliance with dust suppression management measures.</li> <li>Incidence of visible dust emissions are minimal</li> </ul>		
<b>Management Measures</b>		<b>Responsibility</b>	<b>Reference</b>
MM01	<p>All construction personnel and subcontractors are required to undertake a Project induction which will incorporate information on management of air quality specific to the project and field of operations and shall include the following:</p> <ul style="list-style-type: none"> <li>Legislation and penalties relating to air pollution</li> <li>Roles and Responsibilities</li> <li>Identification and awareness regarding construction activities likely to impact on Air Quality</li> <li>Air quality management measures and</li> <li>Incident reporting and record keeping.</li> </ul> <p>A register attendance at all inductions will be maintained</p>	Principal Contractor/ Subcontractors	CoA F1, F21(g) (i) (ii) (iii)
MM02	All construction personnel and subcontractors will participate in Safe Work Method Statement (SWMS) development that will include specific management measures relating to dust emissions for specific construction activities.	Principal Contractor/ Subcontractors	CoA F1, F21(g) (i) (ii) (iii)



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MM03	<p>Weather conditions will be monitored / reviewed at the start of each day to enable construction activities or methods to be modified in response to wind / storm conditions predicted to generate visible emissions of dust from the site as a result of construction activities.</p> <p>Weather information will be obtained from the Bureau of Meteorology, a weather station will also be available at the Project site office located off Errowanbang road, central to the Project. The weather station will be utilised to measure atmospheric conditions and rainfall events in the locality of the Project within the previous 24-hour period and provide real time data on wind speeds within the locality.</p> <p>The Beaufort Scale is a system the Project may also utilise to measure wind speeds without the use of instruments based on the effects wind has on the physical environment. This scale, sourced from the Bureau of Meteorology will be used as a guide only to estimate wind speeds.</p> <table border="1"> <thead> <tr> <th>Beaufort Scale Number</th> <th>Descriptive Term</th> <th>Unit</th> <th>Description on Land</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Calm</td> <td>0</td> <td>Smoke rises vertically</td> </tr> <tr> <td>1-3</td> <td>Light winds</td> <td>19km/h or less</td> <td>Wind felt on face; leaves rustle; ordinary vanes moved by wind.</td> </tr> <tr> <td>4</td> <td>Moderate winds</td> <td>20-29km/h</td> <td>Raises dust and loose paper; small branches are moved.</td> </tr> <tr> <td>5</td> <td>Fresh winds</td> <td>30-39km/h</td> <td>Small trees in leaf begin to sway; crested wavelets form on inland waters</td> </tr> <tr> <td>6</td> <td>Strong winds</td> <td>40-50km/h</td> <td>Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty.</td> </tr> <tr> <td>7</td> <td>Near gale</td> <td>51-62km/h</td> <td>Whole trees in motion; inconvenience felt when walking against wind.</td> </tr> <tr> <td>8</td> <td>Gale</td> <td>63-75km/h</td> <td>Twigs break off trees; progress generally impeded.</td> </tr> <tr> <td>9</td> <td>String gale</td> <td>76-87km/h</td> <td>Slight structural damage occurs -roofing dislodged; larger branches break off.</td> </tr> <tr> <td>10</td> <td>Storm</td> <td>88-102km/h</td> <td>Seldom experienced inland; trees uprooted; considerable structural damage.</td> </tr> <tr> <td>11</td> <td>Violent Storm</td> <td>103-117km/h</td> <td>Very rarely experienced - widespread damage</td> </tr> <tr> <td>12+</td> <td>Hurricane</td> <td>118km/h or more</td> <td>Very rarely experienced - widespread damage</td> </tr> </tbody> </table>	Beaufort Scale Number	Descriptive Term	Unit	Description on Land	0	Calm	0	Smoke rises vertically	1-3	Light winds	19km/h or less	Wind felt on face; leaves rustle; ordinary vanes moved by wind.	4	Moderate winds	20-29km/h	Raises dust and loose paper; small branches are moved.	5	Fresh winds	30-39km/h	Small trees in leaf begin to sway; crested wavelets form on inland waters	6	Strong winds	40-50km/h	Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty.	7	Near gale	51-62km/h	Whole trees in motion; inconvenience felt when walking against wind.	8	Gale	63-75km/h	Twigs break off trees; progress generally impeded.	9	String gale	76-87km/h	Slight structural damage occurs -roofing dislodged; larger branches break off.	10	Storm	88-102km/h	Seldom experienced inland; trees uprooted; considerable structural damage.	11	Violent Storm	103-117km/h	Very rarely experienced - widespread damage	12+	Hurricane	118km/h or more	Very rarely experienced - widespread damage	Principal Contractor/ Subcontractors	CoA F1, F21(g) (i) (ii) (iii)
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MM04	<p>Construction activities shall be undertaken in a manner that minimises dust emissions from the Site, including wind-blown and traffic generated dust and tracking of material onto public roads. All Project related activities on the Site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time in relation to the Project works, identify and implement all feasible and reasonable dust mitigation measures, including the cessation of relevant works as appropriate until such time visible emissions from the Site have ceased.</p>	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)																																																



ACTIVITY	DESCRIPTION	REFERENCES	
MM05	<p>Appropriate use of access tracks, roads and works areas will involve:</p> <ul style="list-style-type: none"> <li>• Authorised Project vehicles entering the site only, there is no access to private vehicles within the Project area</li> <li>• All vehicles delivering materials, plant and equipment shall be registered and are required to maintain appropriate emission controls, delivery drivers shall be temporarily inducted to the Project</li> <li>• Construction traffic shall travel at safe speeds as sign posted, and</li> <li>• Speed limits may be reduced in dusty conditions.</li> </ul> <p>Maintain good housekeeping at project access points and remove mud and dirt accumulating at entrances and exits. A 1000L pressure washer water furphy will be made available at Project site entrances / exits and Project personnel inducted to ensure vehicles including tyres and the undercarriage are clean prior to exiting the site onto public roads. In the low likely event, mud and dirt is tracked onto a public road, the debris and mud shall be pressure washed from the road under traffic control and a pre-start alert circulated to all work fronts highlighting the project controls in place to minimise future occurrences shall be communicated via the Project Supervisors and Superintendent.</p> <p>Prior to entry onto the Project site, all vehicles, plant and equipment must be checked for cleanliness and certified weed free before release by an authorised Project representative. The majority of plant, vehicle and equipment checks will be conducted at the Project main compound located off Errowanbang Road. A weed and seed declaration and sticker placed on the windscreen of all vehicles will be issued post inspection in order to identify the plant, equipment and vehicles which have been deemed weed and seed free. Delivery vehicles to other areas of the Project will only be authorised to enter the site on presentation of a weed and seed free declaration for the vehicle or plant. The Project induction, tool boxes and pre-starts will also be used as forums to communicate vehicle, plant and equipment cleanliness requirements.</p>	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM06	<p>Dust controls will be implemented across the Project area using reasonable and appropriate measures such as:</p> <ul style="list-style-type: none"> <li>• Management of stockpiles (height, orientation and stabilisation through covering or use of sterile grasses etc.)</li> <li>• Use of suppressants including water spraying and use of water carts as required.</li> <li>• Maintenance of access roads and tracks to include rolling, watering and capping using gravel</li> <li>• All material delivery trucks will ensure loads are covered appropriately</li> <li>• Use of approved wetting agent to exposed soil during dry and windy periods</li> <li>• Where necessary, placement of stockpiles in locations sheltered from wind and surface water flows, and</li> <li>• Restoration /rehabilitation of disturbed areas as soon as possible</li> <li>• Dedicated watercarts actively wetting construction areas to suppress the risk of dust emissions from the Project site, and</li> <li>• Reduced speed limits in areas which have the potential to generate dust.</li> </ul>	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM07	Drilling and blasting where utilised will incorporate dust filters and or mist sprays and blast mats.	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM08	All machinery will be fitted with manufacturer's standard emissions control equipment and maintained in accordance with the manufacturers' specifications.	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM09	No burning of cleared vegetation.	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM10	In the event dust emissions are reported to be visible outside the Project Site in relation to the Project works, works in this area must cease and the Project Manager advised immediately.	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)
MM11	<p>Suitable location of the rock crushing activities in relation to prevailing wind direction and landowner proximity.</p> <p>The primary and secondary crushing equipment will include a dust suppression system which will feed from water storage tanks connected to the crushers. The dust suppression system will spray the processed material as it is ejected from the conveyors substantially reducing dust emissions. Processed material stockpiles shall be wetted intermittently in accordance with MM06.</p>	Principal Contractor/ Subcontractors	CoA F1, F21(g) (iii)



ACTIVITY	DESCRIPTION	REFERENCES
MM12	<p>Complaints of dust or odour will be promptly investigated and appropriately addressed through the Project complaints management system. Dust and odour complaints and the strategies put in place to address the complaint will also be included in the Complaints Register.</p> <p>Details of contact point(s) to which community complaints and enquiries may be directed will be available on the Project website, which will become live prior to the commencement of construction and remain live for the life of the Project. Dust and or odour complaints and enquiries from the community may be registered through this forum. The Project will provide a response in a timely manner to any Project complaints raised by the community through the Project life cycle.</p>	<p>Principal Contractor/ Subcontractors</p> <p>CoA F1, F21(g) (v)</p>
MM13	Undertake monitoring of works in accordance with Section 8.1	<p>Principal Contractor/ Subcontractors</p> <p>CoA F1, F21(g) (iv) (v)</p>
<b>7. COMMUNICATION, CONSULTATION AND INCIDENTS</b>		
7.1 Internal Communications	<p>The immediate day-to-day responsibility for communication of air quality impacts during construction lies with the CPP-Nacap Site Project Management Team.</p> <p>The following internal communication forums will occur during the execution of works:</p> <ul style="list-style-type: none"> <li>• Inductions</li> <li>• SWMS Workshops</li> <li>• Daily Pre-start meetings</li> <li>• Field based awareness talks regarding specific aspects and known heritage sites</li> <li>• Regular toolbox meetings (project workforce), and</li> <li>• Weekly construction management team meetings.</li> </ul>	-
7.2 External and Third Party Communications	Regular consultation with stakeholders/landholders is expected to be undertaken during construction activities. All significant stakeholder/landholder issues not readily resolved by construction personnel shall be directed to the Supervisor who will notify the Project Manager who will escalate as required to the FCWFPL representative.	-
7.3 Media Protocol	<p>If any Project personnel have any contact with a media representative, they will:</p> <ul style="list-style-type: none"> <li>• Respond in a polite and courteous manner, and</li> <li>• Inform the media representative that they are not the authorised spokesperson and provide contact details of the Flyers Creek Wind Farm Project spokesperson or media contact.</li> </ul>	-
7.4 Incident Management	<p>FCWFPL shall develop and implement a compliance tracking program which will operate for the life of the Project. This program will include mechanisms for recording environmental incidents during construction, and actions taken in response to those incidents.</p> <p>In the event of an incident, a first reporting step will be the provision of a Heads-Up Notification (an Initial Report and Notification via email) detailing brief facts about the incident to be circulated to an agreed list of Project management personnel. This will be done as soon as practicable but no later than two (2) hours after the incident to enable notification and reporting requirements in accordance with CoA E6 and E7 requiring notification to DPIE in writing to <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a></p> <p>The subsequent Incident Report will include:</p> <ul style="list-style-type: none"> <li>• Date, time and location details</li> <li>• A description of the incident and root cause</li> <li>• Whether the incident resulted in harm or regulatory Non-Compliance and requires reporting to Regulator or Third Party</li> <li>• Actions for resolution / close out, and</li> <li>• Corrective actions to assist in preventing recurrence.</li> </ul> <p>Upon completion of an investigation, the findings and recommendations shall be distributed to the relevant work crews for discussion at prestart meetings.</p> <p>If the root cause analysis provides justification for amended work practices or processes a review and reissue of relevant documents (such as this CAQMP, CEMP, SWMS and Form 2) will be undertaken. Any updates to the CAQMP will be required to be approved by DPIE in accordance with CoA F20.</p>	-
<b>8. INSPECTIONS, MONITORING, AUDITS AND CHMP REVIEW</b>		
8.1 Inspections and Monitoring	<p>The Lands Environment and Cultural Heritage (LECH) Manager or delegate shall coordinate inspections and monitoring of works during construction activities to check and record compliances with works procedures and this CAQMP.</p> <p>Inspections and Monitoring will include:</p> <ul style="list-style-type: none"> <li>• Daily visible monitoring of the active works area to ensure works are conducted in compliance with this CAQMP.</li> </ul>	-
8.2 Audits	Audits will be undertaken in accordance with details and frequency outlined in Section 10.2 of the CEMP.	-
8.3 Review	A review of this CAQMP will be undertaken annually and whenever there are significant changes in the scope of work, subsequent changes to construction methodologies and/or complaints regarding visible emissions outside the	-



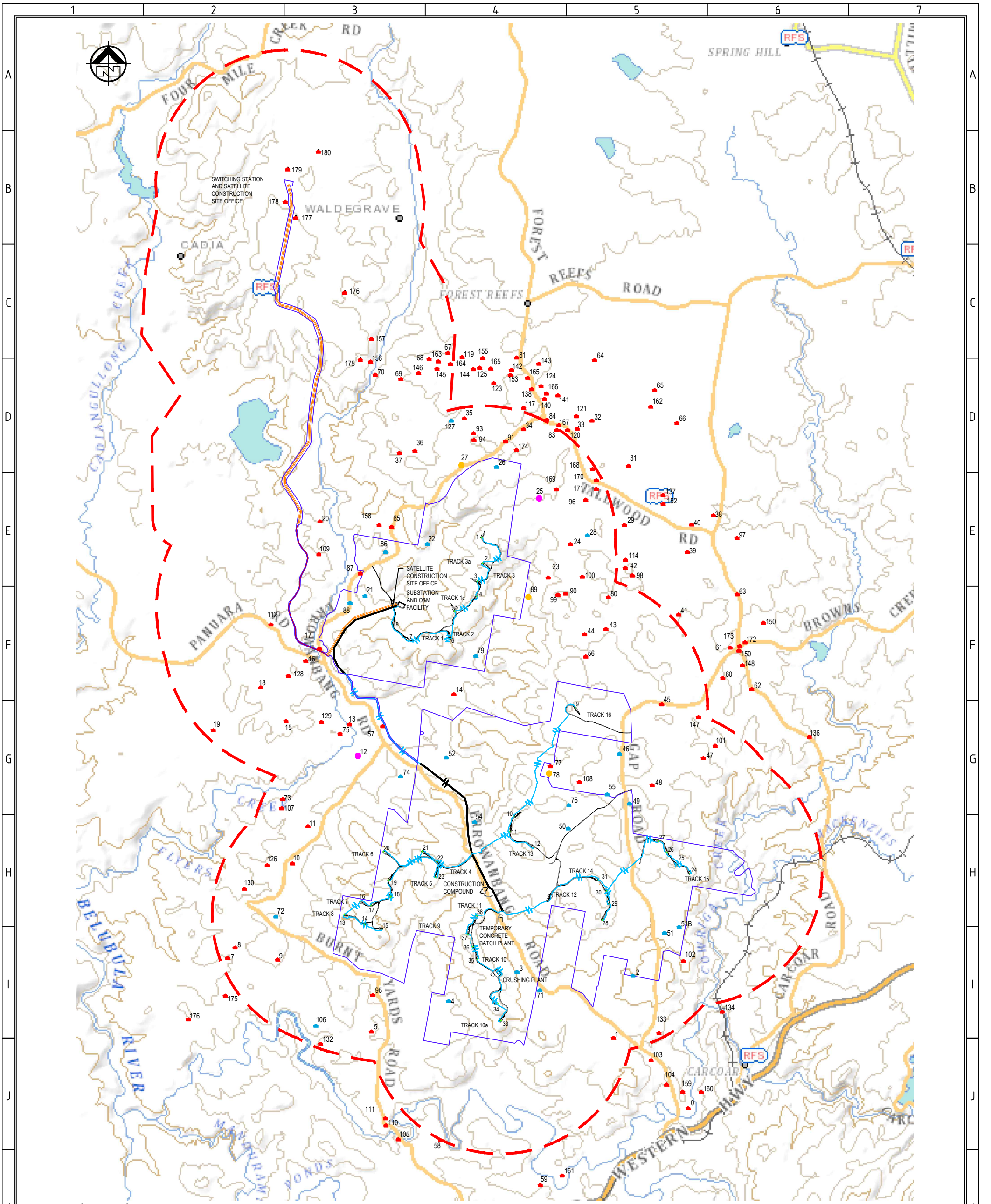


ACTIVITY	DESCRIPTION	REFERENCES
	<p>project site resulting from construction activities. Any updates to the CAQMP will be required to approved by DPIE prior to the administration of those updates.</p> <p>A copy of the updated plan and changes as approved by DPIE will be distributed to all relevant stakeholders and regulatory authorities.</p>	
<p>8.4 Continuous Improvement</p>	<p>This Plan will be subject to ongoing evaluation and continuous improvement as outlined in Section 10.7 of the CEMP. Any updates to the CAQMP will be required to be approved by DPIE in accordance with CoA F20.</p>	
<p><b>9. REPORTING AND RECORD KEEPING</b></p>		
<p>9.1 Record Keeping</p>	<p>The Project shall maintain a documentation and record system in support of this CHMP and monthly Project reporting requirements to enable review and auditing of management systems and procedures.</p> <p>The following records to be maintained:</p> <ul style="list-style-type: none"> <li>• Site Inspection Records</li> <li>• Complaints Register</li> <li>• Incident Reports</li> <li>• Incident Register, and</li> <li>• Consultation Log.</li> </ul>	<p>-</p>
<p>9.2 Reporting</p>	<p>Monthly Reporting includes information on relevant data, summary and includes the reporting of any incidents and non-conformance.</p>	<p>-</p>



APPENDIX A – ASSOCIATED AND NON-ASSOCIATED RESIDECIES

Note – Preliminary layout subject to minor amendments during detailed design and consultations.



**SITE LAYOUT**



**LEGEND**

- ASSOCIATED RECEIVER
- NON-ASSOCIATED RECEIVER
- NOISE LOGGER
- NOISE LOGGER & WEATHER STATION
- 3km BUFFER AREA
- WTG 1
- TURBINE NUMBER
- ACCESS TRACK
- PROJECT BOUNDARY
- 132 kV TRANSMISSION LINE UG
- 132 kV TRANSMISSION LINE OH
- 33 kV CABLING LINE UG
- 33 kV CABLING LINE OH
- HARDSTAND / LAYDOWN AND CRANE PAD OPTIONS

PRELIMINARY LAYOUT SUBJECT TO FINAL DESIGN



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REV	DETAIL	DATE	APP	CHK	DRN
1	FOR APPROVAL	18.03.2020	J.C.	F.H.	M.C.
2	FOR APPROVAL	06.03.2020	J.C.	F.H.	M.C.

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PROJECT <b>FLYERS CREEK WIND FARM</b>	DRAWING STATUS <b>PRELIMINARY</b>
TITLE <b>PROJECT OVERALL ASSOCIATED AND NON-ASSOCIATED RESIDENCIES</b>	SCALE <b>AS SHOWN</b>
PROJECT No. <b>18-070</b>	SIZE <b>A3</b>
DRAWING No. <b>FCWF-DWG-0291-2</b>	REV. <b>B</b>



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