

## PAC Information Request – Wambo Mod 17

14 December 2017

### 1. Cumulative impacts

*Could the Department please provide a brief statement regarding cumulative impact across the assessment issues, and comment as to whether these impacts are considered acceptable or not.*

As the proposed modification is for underground mining, there are no discernible changes to noise or air quality emissions above those already approved. Therefore, cumulatively there is no change to the existing level of impact.

Water and subsidence impacts are largely limited to the footprint of the Wambo mine site and would not increase above those already approved. Particularly as the modification proposes single seam underground mining, predicted subsidence impacts in the new mining area are less than already approved for multi-seam mining.

Overall, the Department has considered the cumulative impacts of subsidence, (including on water resources) and noise and air quality emissions associated with the proposed modification and is satisfied that these impacts are either negligible or can be reduced to an acceptable level through mitigation.

### 2. Section 75W

*The Commission requests a statement of how the MOD is generally consistent with the original approved project in relation to the extension to the life of mine (7 years, 10 months), and increased area of impact.*

The development consent was granted under Part 4 of the EP&A Act. In accordance with clause 8J(8) of the *Environmental Planning and Assessment Regulation 2000*, and the transitional arrangements under Schedule 6A of the EP&A Act, the modification must be determined under the former section 75W of the EP&A Act.

Unlike section 96, section 75W does not require a modified development to be 'substantially the same' as the originally approved development. The Part 3A modification provisions require consideration of the proposed modification against the development currently approved (ie as most recently modified), rather than the development as originally approved.

It is noted, however that the modified proposal would:

- have essentially the same nature and character as that proposed in the original EIS (ie an underground and open cut coal mine); and
- has 'limited environmental consequences beyond those which had [previously] been the subject of assessment' (see *Barrick Australia Ltd v Williams* (2009)).

The viability of the modification relies on the proposed extraction immediately following the extraction of longwall panels within the existing South Bates underground mine, as it is not feasible as a standalone project and requires the existing Wambo underground mining equipment, coal handling and processing plant, and rail infrastructure.

The Department is satisfied that the proposed modification (including the extension to the life of mine) has limited environmental consequences and is generally consistent with the currently approved development (ie the consent as modified, including MOD 12).

### 3. Ground Water Monitoring Program - Condition 34(a)

*Existing condition 34(a) includes requirements for the Ground Water Monitoring Program including detailed baseline data on ground water levels and quality etc. The Commission requests details of this*

*baseline monitoring, including where it is up to, what it has shown and the relationship to the MOD area?*

**Figure 1** shows the existing groundwater monitoring locations across the Wambo mine site. This includes monitoring locations within the proposed modification area, established for a number of years.

The numerical groundwater model used to predict expected impacts from the proposed modification was calibrated using observed groundwater levels at 86 groundwater monitoring sites during the period January 2003 to December 2014 (ie 11 years of monitoring data).

The Department understands that WCPL provided further information (letter from WCPL dated, 13 December 2017) to the Commission outlining baseline monitoring.

#### **4. Department of Industry (CLWD) submission**

*Please can the Department clarify why the conditions requested have not been included?*

**Table 1** summarises CLWD's comments on the Department's recommended draft conditions and the Department's consideration of these comments.

**Table 1:** *The Department's consideration of CLWD's comments on draft conditions for Wambo MOD 17*

<b>CLWD comments of Wambo Mod 17 draft conditions (November 2017)</b>	<b>Department's consideration and recommendation</b>
<b>Condition 34(a) – Groundwater Monitoring Program</b>	
<ul style="list-style-type: none"><li>under the AIP, modelling for a mining project should be based on a minimum of 2 years of baseline data.</li></ul>	<p>The locations of groundwater monitoring sites at the Wambo mine site are shown in <b>Figure 1</b>. Within the proposed modification area there are three groundwater monitoring bores (GW16 and GW17 where bimonthly monitoring commenced in December 2009, and N5 where continuous monitoring commenced in August 2015).</p> <p>The Groundwater Impact Assessment provided in the EA for MOD 17 considered data collected from these locations in the groundwater modelling.</p> <p>This existing monitoring provides baseline data for the proposed modification area, in addition to monitoring locations within the adjacent and already approved South Bates underground mine.</p> <p>To address CLWD's concerns about baseline data, the Department has recommended condition 34B. This requires that clustered monitoring bores (located close to potential groundwater dependent vegetation) and vibrating wire piezometers are installed in the modification area within 12 months of approval.</p> <p>Given likely mine scheduling, this would provide, (in addition to existing monitoring data), in excess of 2 years of baseline data within the contentious part of the proposed modification area. The Department notes that the longwall panels of concern to CLWD (LW23-25) would be the last panels extracted.</p> <p>WCPL has advised that on 21 November 2017 it established four permanent monitoring bores (including installing piezometers) across two sites to allow long term recording of groundwater levels</p>

	<p>around North Wambo Creek, above proposed LW 25 (see <b>Figure 2</b>).</p> <p>The installation of these monitoring bores would provide an even longer period of baseline data within the modification area. As the longwall panels proposed in this location would be some of the last extracted (LWs 23-25).</p> <p>As part of the same program WCPL also completed investigative drilling to measure groundwater levels in the unconsolidated sediments.</p> <p>The Department understands that WCPL has received correspondence from CLWD that supports this drilling campaign and requested additional drill holes.</p> <p>The existing Extraction Plan condition (condition 22C) also requires that sufficient baseline data is collected to inform future Extraction Plans.</p> <p>The Department considers that adequate baseline data either is or would become available for each element of the proposed modification.</p>
<b>Condition 36A – Groundwater Dependant Ecosystem Study</b>	
<ul style="list-style-type: none"> <li>• Add a requirement to determine sufficient baseline data for: <ul style="list-style-type: none"> <li>– Water levels;</li> <li>– Water quality;</li> <li>– Flow; and</li> <li>– Vegetation health.</li> </ul> </li> </ul>	<p>The proposed Groundwater Dependant Ecosystem Study is to investigate whether any vegetation within the proposed modification area is groundwater dependent. This investigation would also apply data already collected through existing monitoring conditions.</p> <p>The existing Groundwater and Surface Water Monitoring Programs (conditions 33 and 34) require baseline data on water levels, quality and flow and apply to the entire mine site, and as shown in <b>Figure 1</b>.</p> <p>WCPL has provided information on current vegetation health in the EA.</p> <p>Condition 33 requires a program to monitor vegetation in riparian zones adjacent to North Wambo Creek. This would apply to the proposed modification area.</p> <p>Condition 34B, as recommended by the Department, requires the installation of additional monitoring locations within the proposed modification area. Given likely mine scheduling, in excess of 2 years of baseline data would be collected within the contentious part of the proposed modification area.</p> <p>This data would inform the Groundwater Dependant Ecosystem Study which, in turn, would provide recommendations to revise the existing Groundwater Monitoring Program. The Department considers that condition 34B would ensure sufficient data is available for the Groundwater Dependant Ecosystem Study.</p> <p>In late November 2017, WCPL completed investigative drilling to measure groundwater levels</p>

	<p>in unconsolidated sediments around North Wambo Creek, including installing four piezometers.</p> <p>Vegetation health would also be considered as part of the Groundwater Dependant Ecosystem Study.</p>
<ul style="list-style-type: none"> <li>• Add a requirement to include proposed mitigation actions, based on demonstrated evidence of efficacy, to limit or prevent a significant or unacceptable impact, including potential reduction of the mining area.</li> </ul>	<p>The Department has included new condition 36B requiring that the findings of the Groundwater Dependant Ecosystem Study must be taken into account in any Extraction Plan for the South Bates Extension Area.</p> <p>The Department has recommended that this Study must be submitted to the Secretary within 12 months of approval. Any outcomes from the Study would inform the Extraction Plan for any longwalls within the proposed modification area that may cause impacts on groundwater dependent ecosystems (see new condition 36B).</p> <p>Both the Study and the Extraction Plan process require consultation with CLWD and would consider the data collected through conditions 34B and 36A.</p> <p>Any significant impact or proposed mitigation measures would be considered during the Extraction Plan process, based on the data collected. The Department considers this satisfactorily addresses CLWD's comment.</p> <p>Additionally, the Extraction Plan condition requires:</p> <ul style="list-style-type: none"> <li>- revised predictions of potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this consent; and</li> <li>- description of the measures that would be implemented to ensure compliance with the performance measures in Tables 14A and 14B, and to manage or remediate any impacts and/or environmental consequences;</li> </ul> <p>The Extraction Plan also requires a separate Water Management Plan that must be prepared in consultation with CLWD and includes:</p> <ul style="list-style-type: none"> <li>- management measures for potential impacts and/or environmental consequences of the proposed second workings on surface water resources, groundwater resources and flooding; and</li> <li>- surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality.</li> </ul>
<ul style="list-style-type: none"> <li>• Amend 36A(b) to read "be developed to the satisfaction of Crown Lands &amp; Water."</li> </ul>	<p>It is not the Department's practice to recommend conditions that require the satisfaction of other Government agencies in respect of key post-approval requirements. The condition requires the Applicant to develop the Groundwater Dependant Ecosystem Study 'in consultation with' CLWD.</p> <p>The Extraction Plan is also required to be prepared in consultation with CLWD.</p> <p>The Department has also included an additional condition that requires evidence of consultation</p>

	<p>prior to any approval by the Secretary including details of the consultation undertaken, and any outstanding issues.</p>
<ul style="list-style-type: none"> <li>Under the AIP it is considered that modelling for a mining project should be based on a minimum of 2 years of baseline data. Condition 36A should be amended to reflect this timeframe.</li> </ul>	<p>The proposed Groundwater Dependent Ecosystem Study is to investigate whether any vegetation within the proposed modification area is groundwater dependent. This investigation would apply data collected from the Groundwater Monitoring Program.</p> <p>Condition 34B, as recommended by the Department, requires the installation of additional monitoring locations within the proposed modification area. Given likely mine scheduling, in excess of 2 years baseline data would be collected within the contentious part of the proposed modification area. This would provide baseline data to inform the Groundwater Dependent Ecosystem Study.</p> <p>WCPL has also recently installed four piezometers within the proposed modification area (see <b>Figure 2</b>). For these reasons, the Department considers that there are appropriate levels of baseline data from the existing monitoring network. The longwall panels of concern noted by CLWD (LW23-25) would be the last panels extracted. In this case there would be more than 2-3 years of data gathered prior to any Extraction Plan submitted for these panels.</p> <p>This Study would also be used to inform the ongoing Groundwater Monitoring Program and any Extraction Plan for longwall panels in the proposed modification area.</p> <p>Additionally, the existing Extraction Plan condition requires that a program is developed to collect sufficient baseline data for future Extraction Plans.</p> <p>Refer also to the previous responses.</p>
<b>Condition 22 – Subsidence Performance Measures</b>	
<ul style="list-style-type: none"> <li>Table “14A: Subsidence Impact Performance Measures” should be amended to include, under “Water”: <ul style="list-style-type: none"> <li>North Wambo Creek – Negligible subsidence impacts, negligible environmental consequences.</li> </ul> </li> </ul>	<p>The Department does not support the inclusion of performance measures for North Wambo Creek, which is noted to be a small and ephemeral stream.</p> <p>The watercourse is highly modified through the diversion and previous agricultural disturbance and has been subject to subsidence impacts through previous approved mining.</p> <p>The Department has recommended an additional condition (condition 33A) requiring pre-subsidence surveys of North Wambo Creek bed and a geomorphic context statement within the proposed modification area, in addition to existing conditions.</p>
<b>Condition 22C – Extraction Plan</b>	
<ul style="list-style-type: none"> <li>Include a requirement that the proponent must prepare subsidence management and rehabilitation plans to the satisfaction of Crown Lands &amp; Water. <ul style="list-style-type: none"> <li>The plans should include: <ul style="list-style-type: none"> <li>Installation of a flow gauge upstream of the diversion cutting, to allow comparison of flow</li> </ul> </li> </ul> </li> </ul>	<p>It is not the Department’s practice to recommend conditions that require the satisfaction of other Government agencies in respect of significant management plans. The Extraction Plan and Rehabilitation Management Plan must be prepared in consultation with CLWD.</p> <p>The Department has recommended (condition 33A) that an up-stream flow gauge must be installed in North Wambo Creek.</p>

<p>persistence and volumes above and below the cumulative subsidence zone.</p> <ul style="list-style-type: none"> <li>– Development of options and response measures to alteration in channel form and incision arising from mining-induced subsidence.</li> <li>– Selection of appropriate management actions and rehabilitation techniques for a slug affected, sand bed river.</li> <li>– Provide timeframes and actions to prevent and address incision, channel form alteration or avulsion occurring following mining passes under North Wambo Creek. This should include description relating to techniques and actions to arrest any incipient subsidence development, and should be provided with adequate timeframe to allow assessment and construction prior to substantial channel alteration occurring.</li> </ul>	<p>Two flow monitoring sites (FM1 and FM2) and two surface water monitoring sites (SW04 and SW05) are located within the proposed modification area. Flow records are available from January 2014 – July 2016 and water quality records from July 2003 – June 2016.</p> <p>Condition 33A also requires a geomorphic context statement, pre-subsidence survey and energy profile analysis for North Wambo Creek.</p> <p>Existing condition 33 requires a program to monitor bank and bed stability in North Wambo Creek. This condition encompasses the section of North Wambo Creek within the proposed modification area.</p> <p>The Rehabilitation Management Plan and Extraction Plan require detailed performance and completion criteria for rehabilitation and remedial measures.</p>
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## 5. Conditions

**Table 2** addresses the PAC's requests for clarification and /or redraft of the recommended draft conditions.

**Table 2:** Departments consideration of PAC comments on draft conditions

PAC request for clarification and/or redraft of conditions	Department's consideration
Condition 36A – should the condition specify the minimum timeframe for modelling, based on a minimum of 2 years of baseline data, as per CLWD's comment	The Department considers that the condition does not need to refer to this timeframe, see <b>Table 1</b> .
Condition 36B – should the condition specify the need for 2 years of monitoring GDE's for LW panels 23-25, prior to any Extraction plan being prepared/submitted for these LW panels.	The Department considers that the condition does not need to refer to this timeframe, see <b>Table 1</b> .
Condition 22 (table 14A) – clarify why performance measures are not included for North Wambo Creek (as per CLWD submission), as has been done for Wollombi Brook.	The Department considers that these measures are not necessary, see <b>Table 1</b> .
Condition 22 (table 14A) – Low Level Cliffs – Department to clarify how the recommended performance measure was developed (5% of total face area of such features). The Commission is concerned with how the condition is drafted and is seeking to redraft to make the condition clearer.	<p>The Department understands WCPL has concerns with this condition. Similar conditions are used for other mine sites and the Department considers this is an achievable performance measure.</p> <p>The intent of the proposed performance measure is to manage potential impacts on the cliffs located above or adjacent to (if there were any) the proposed longwalls. WCPL's assessment is that 3 - 5% of the area of the low-level cliffs may be affected.</p> <p>The greatest area of risk is that to the immediate southeast of the chain pillar between LW 21 and LW 20, where tilts are likely to be greatest.</p>

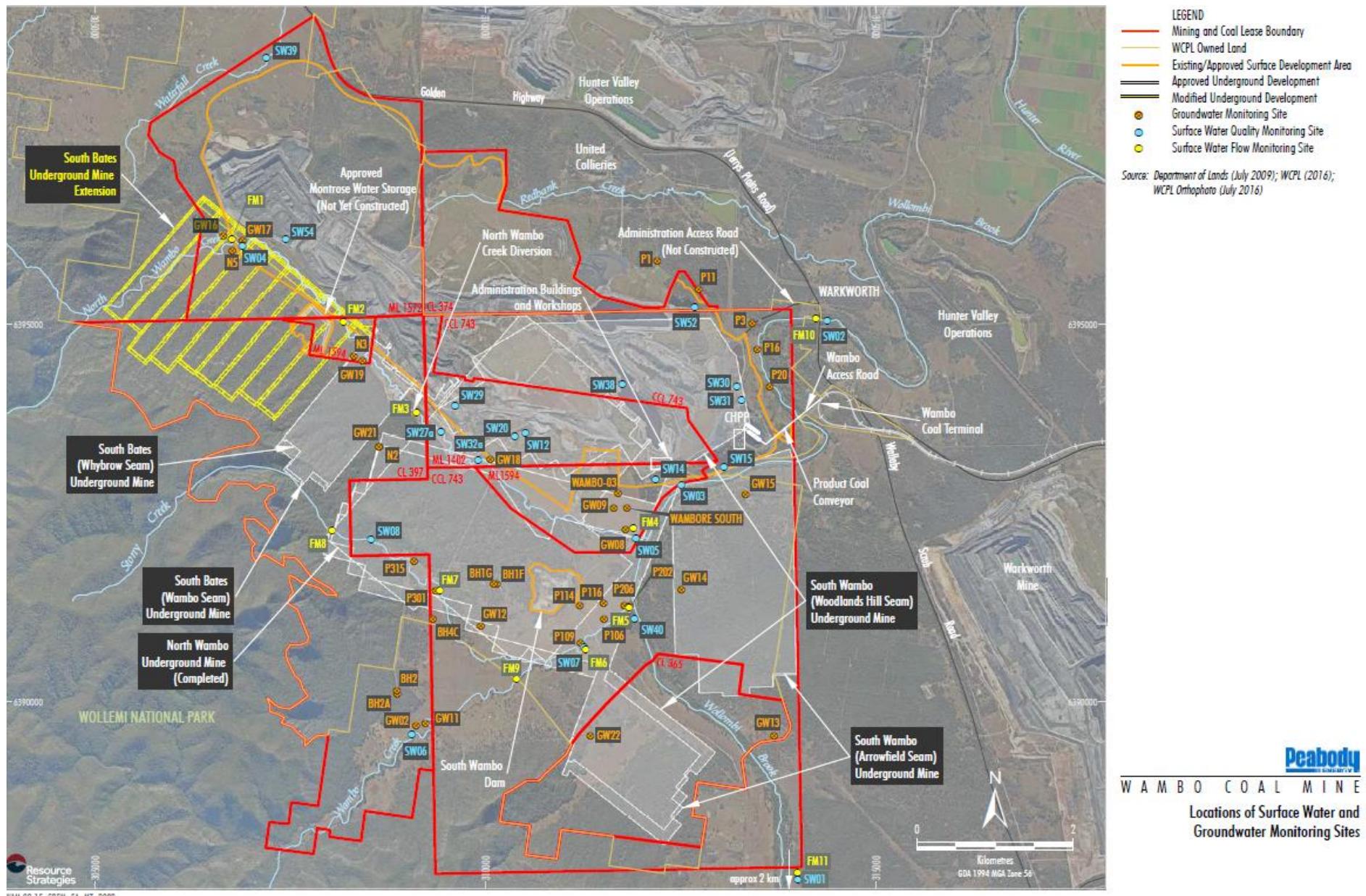
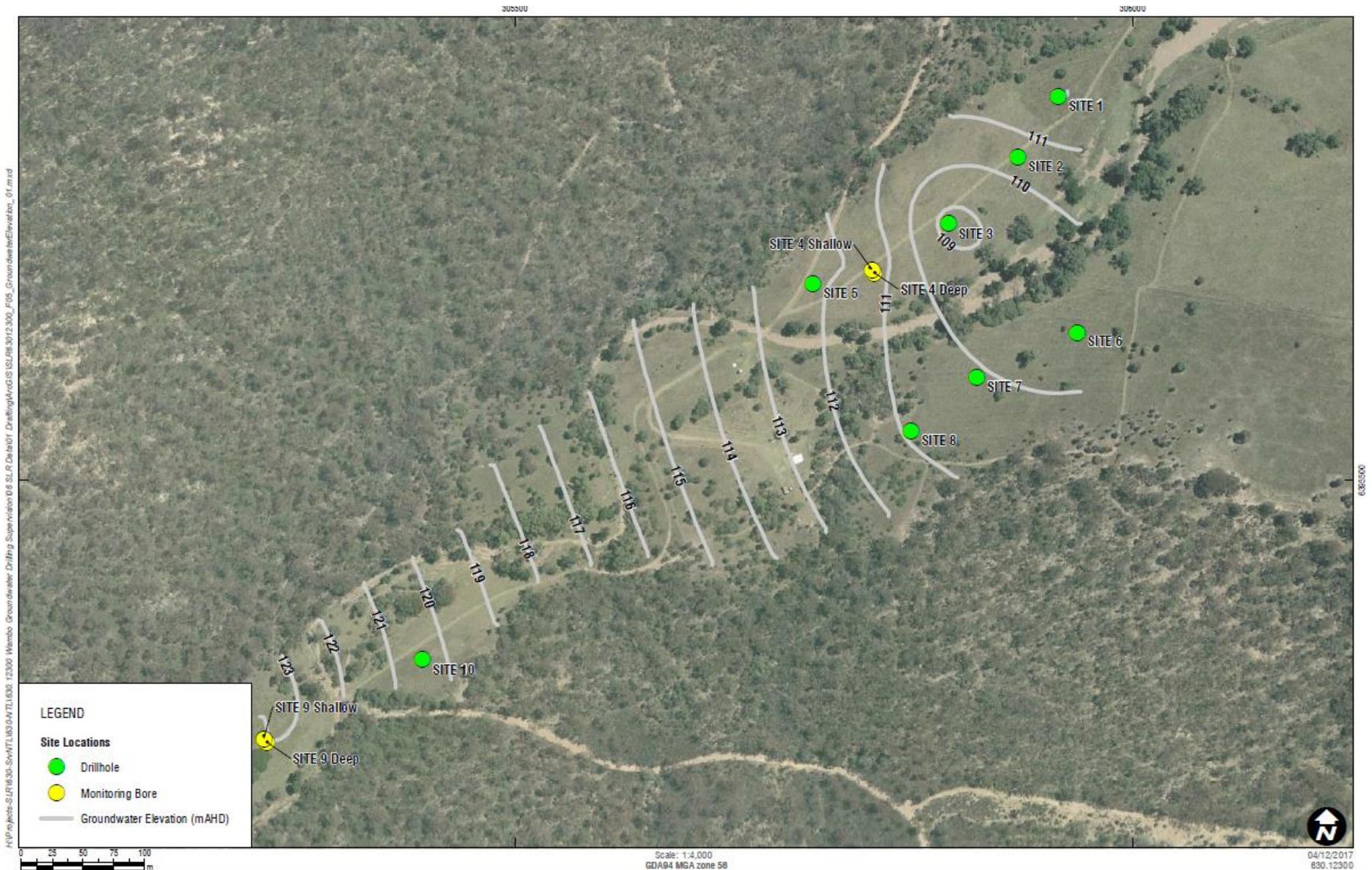


Figure 1: Wambo mine surface and groundwater monitoring locations



**Figure 2:** Plan of recent bores drilled adjacent to North Wambo Creek