

**Appendix F**  
***Acoustics Assessment***



23 June 2015

Ref: J0130-102-L1

Hansen Bailey Pty Ltd  
P.O. Box 473  
SINGLETON NSW 2330

**Attn: Mr Jason Martin**

Dear Jason,

## **RE: BENGALLA MINE DEVELOPMENT CONSENT MODIFICATION - ACOUSTICS**

Bengalla Mining Company Pty Limited (BMC) owns and operates Bengalla Mine (Bengalla) located approximately 4 km south east of Muswellbrook in the Upper Hunter region of NSW. BMC is seeking approval from the NSW Minister for Planning or delegate for a modification to SSD-5170 under section 96(2) of the *Environmental Planning and Assessment Act* (EP&A Act) for the following:

- Alterations to various water management infrastructure components including:
  - Utilisation of the Satellite Pit as a temporary dirty water catchment dam;
  - Relocation of the Staged Discharge Dam Hunter River Salinity Trading Scheme (HRSTS) staged discharge release point;
  - Construction of clean water diversion levees in locations other than those already approved; and
  - Revised locations for the proposed relocation of the Hunter River and Washery Dams.
- Additional (possible alternative) location for the Explosives Storage Facility; and
- The placement of fill from the excavation of Clean Water Dam 1 (CW1) immediately adjacent to it.

Proposed Modification components are shown in the attached figures. No changes are proposed to other details such as annual production rate, mining area, mining equipment, quantity of overburden handled or workforce limit. This report describes results from an assessment of acoustic issues, including construction and operational noise and vibration, associated with the Modification.

## **REFERENCES**

The following documents are referred to in this assessment:

Hansen Bailey (2013) *Continuation of Bengalla Mine Environmental Impact Statement* (Bengalla EIS) including *Continuation of Bengalla Mine Acoustic Impact Assessment* (Bridges Acoustics, 2013) (Bengalla EIS Appendix H).

Department of Planning (2015) *Project Approval SSD-5170* (Development Consent).

## **CONSTRUCTION NOISE**

The Bengalla EIS determined construction noise levels due to various construction activities relevant to the Modification including:

- Excavation of CW1 using a large earthmoving fleet with an average sound power level of 127 dBA;
- Installation of the CW1 Pipeline from CW1 to the west then south to terminate west of the existing Mine Access Road, using a smaller earthmoving fleet producing an average sound power level of 115 dBA; and
- Excavation of various dams adjacent to the western boundary of the then proposed (now approved) mining area including the Raw Water Dam and Washery Dam. Each dam was assumed to be excavated using an earthmoving fleet producing an average sound power level of 122 dBA.

Each component of the Modification is assessed in the following sections.

### **Satellite Pit used as a catchment dam**

Use of the approved Satellite Pit as a catchment dam is not expected to involve any additional acoustically significant activities as no additional construction work is required and any pumps (if required) to dewater the dam would produce insignificant noise compared to nearby mining activity.

### **Relocation of the Staged Discharge Dam HRSTS Release Point**

The Modification includes relocation of the HRSTS discharge point to an alternative location approximately 400 m west. The discharge point is at least 3 km from any privately owned receptor, therefore any construction noise associated with the pipeline or discharge point would be inaudible at all receptors and insignificant compared to operating noise from adjacent mining activity.

### **Clean Water Diversion Levees**

Construction of Clean Water Diversion Levees is proposed generally east and west of CW1 on the northern side of Wybong Road. The levees would be constructed using a small excavator or similar earthmoving machine, with subsequent shaping using a small grader or similar machine if required. Construction machines would produce a sound power level of less than 115 dBA and would therefore produce a similar or lower sound power level than the nearby CW1 Pipeline construction fleet.

The nearest privately owned receptor is Residence 168 located approximately 1.8 to 2.5 km west of the construction site. A sound power level of 115 dBA is expected to produce a noise level in the range 39 to 42 LAeq,15min which is lower than the construction noise level of 44 LAeq,15min predicted in the EIS at this receptor. No significant change to the construction noise impacts predicted in the EIS is therefore expected.

### **Revised location for the Hunter River and Washery Dams**

The Hunter River Dam and Washery Dam are approved to be relocated to the western side of the Bengalla Link Road to avoid being intercepted by the advancing mining area by approximately Year 8. This Modification includes construction of these dams at alternative locations to those presented in the Bengalla EIS. The Modification proposes to construct these dams adjacent to the future Staged Discharge Dam.

The EIS construction noise assessment included a dam construction fleet producing a sound power level of 122 dBA at the approximate location of the proposed dams. The EIS therefore adequately considered this component of the Modification.

### **Alternative Location for the Explosives Storage Facility**

The Explosives Storage Facility is currently located on the natural surface west of the mining area and is approved to be relocated to the Overburden Emplacement Area (OEA) or within a recently rehabilitated area to avoid the advancing mine. This Modification will result in construction of the Explosives Storage Facility within an envelope west of its current location.

Construction work would require one or two small earthmoving machines to level and grade a suitable area and to spread hardstand gravel, plus a few trucks to transport gravel to the site. Fencing, portable buildings and similar infrastructure would then be installed for each facility. A maximum sound power level of 115 dBA is expected to be produced by construction machines which is similar to the noise produced by one large mining truck operating on the adjacent out-of-pit OEA. Noise associated with construction of the facility is therefore insignificant compared to mining noise.

### **Placement of Clean Water Dam 1 fill adjacent to the dam**

The EIS construction noise assessment included a dam construction fleet producing a sound power level of 127 dBA at the location of the proposed dam and assumed all earth material excavated from the dam would be used to form the wall and spillway. No fill material was assumed to be transported a significant distance from the excavation area.

The Modification includes placement of fill material immediately adjacent to the dam. The Modification therefore proposes some of the fill material be deposited at a slightly higher elevation than was assumed in the EIS noise assessment, which would result in an insignificant noise increase of less than 1 dBA at any receptor. The EIS therefore adequately considered this component of the Modification.

### **OPERATIONAL NOISE**

The Modification has limited potential to affect operational noise levels as all Modification components related to water management infrastructure do not produce audible noise at any receptor. Vehicles intermittently accessing the Explosives Storage Facility would generally include light vehicles and on-road trucks which produce a sound power level of up to 108 dBA and would therefore be at least 7 dBA quieter than heavy mining trucks operating within the mining area. The Modification would therefore produce insignificant noise at all receptors compared to approved mining activity.

### **OTHER ACOUSTIC ISSUES**

The Modification is not expected to affect other acoustic issues including sleep disturbance, road or rail traffic noise, low frequency noise or blasting.

### **NOISE MANAGEMENT**

Construction and operational noise levels are expected to remain similar to and consistent with the noise levels reported in the EIS. Construction noise management measures recommended in the EIS continue to be recommended for the Modification.

### **CONCLUSION**

This assessment indicates the Modification would produce a minor and insignificant change to short term construction noise levels at all receptors, with no appreciable change to operational noise levels or to other acoustic issues such as low frequency noise or sleep disturbance.

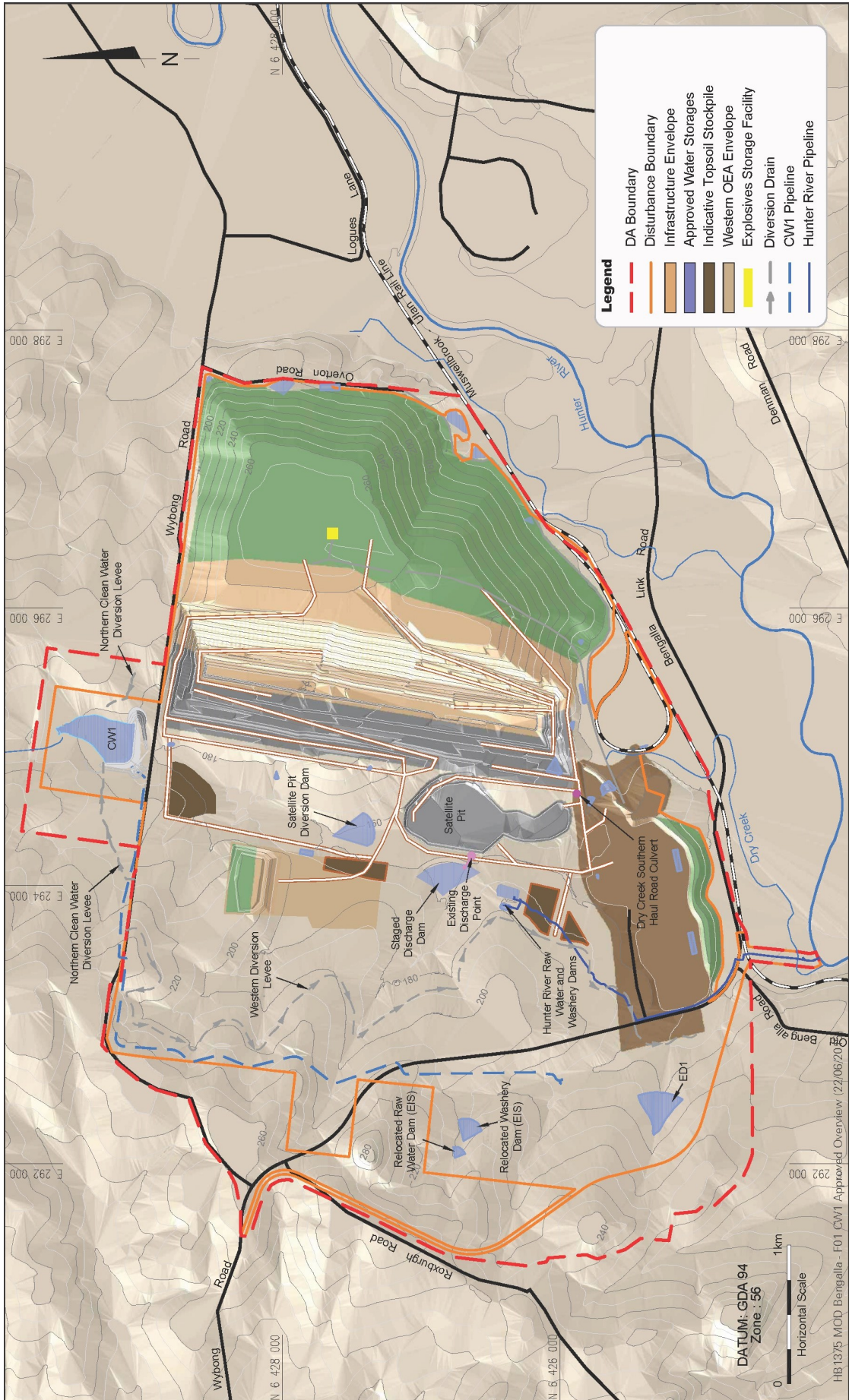
The current noise management plan should be revised to consider the proposed construction activities and operational noise sources with a focus on any work proposed to be completed during the evening and night, as recommended in the EIS.

Based on the results of this assessment, the Modification is unlikely to have a significant effect on noise levels from the Project and is therefore considered acceptable. We trust this report presents sufficient information regarding acoustic issues associated with the proposed Modification. Please contact the undersigned for any further information or discussion.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'M Bridges', written in a cursive style.

**MARK BRIDGES BE (Mech) (Hons) MAAS**  
**Principal Consultant**

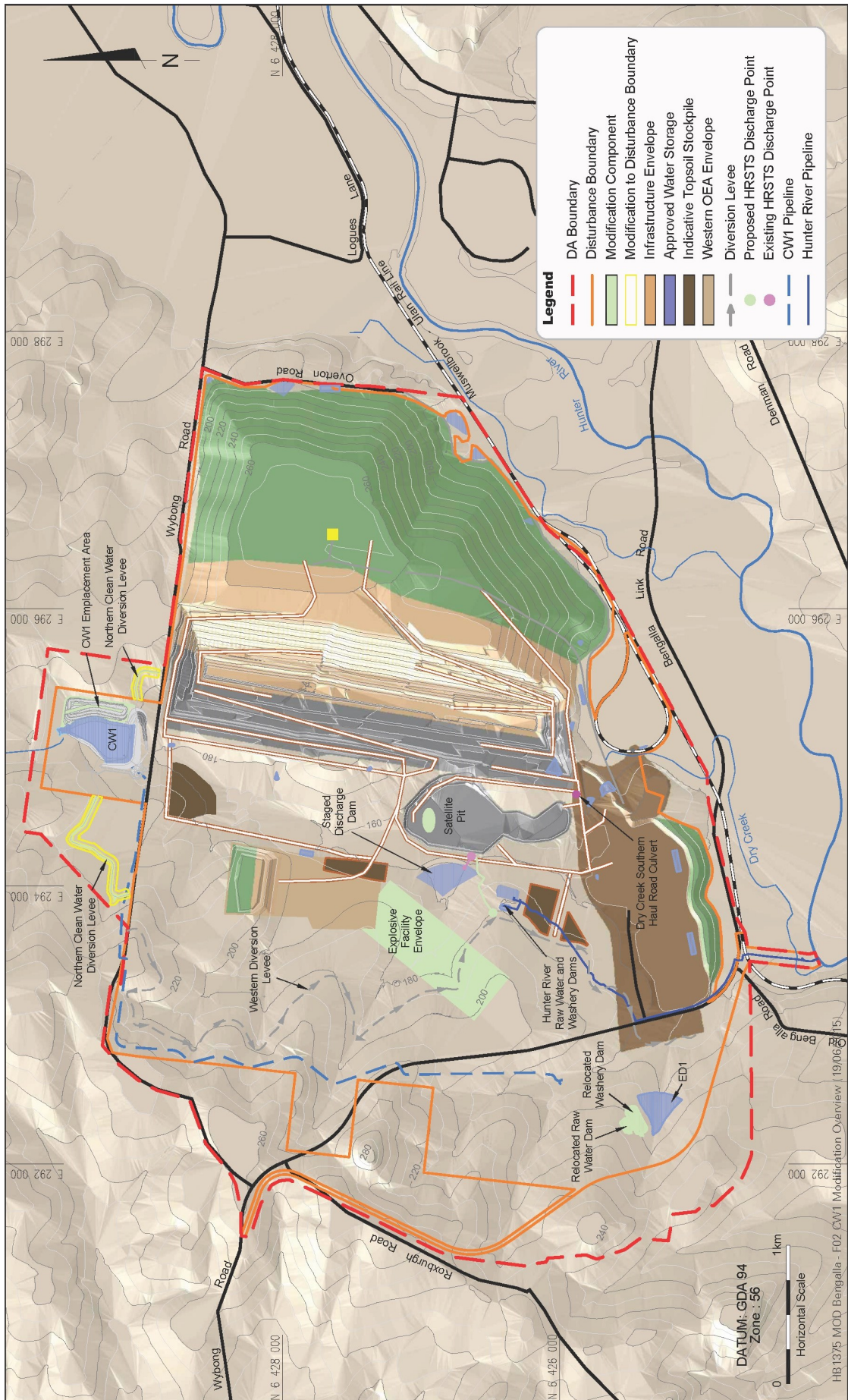


BENGALLA MINE

Approved Overview - Year 4 Mine Plan

**FIGURE 1**





BENGALLA MINE

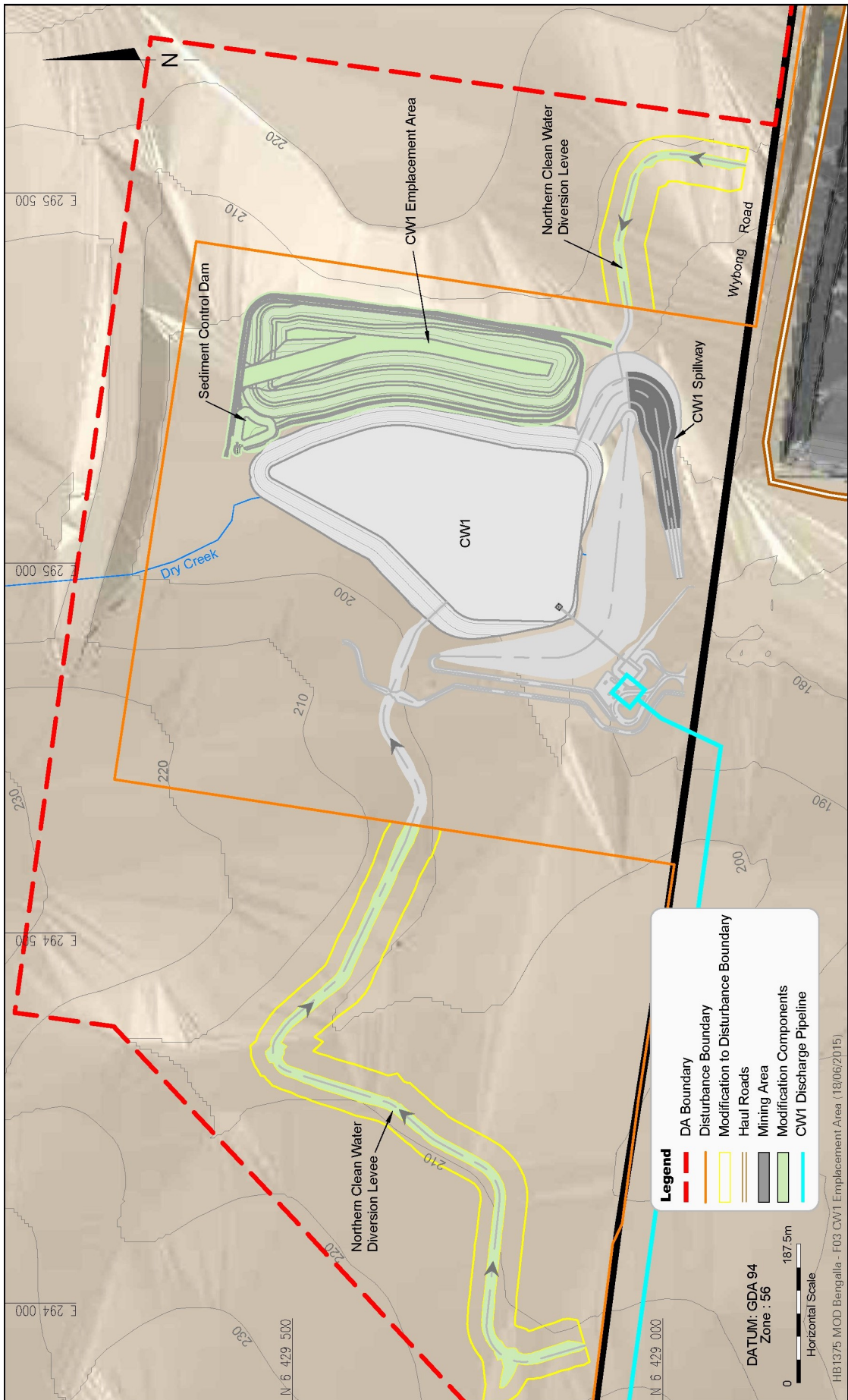
Modification Overview - Year 4 Mine Plan

**FIGURE 2**

Hansen Bailey  
 ENVIRONMENTAL CONSULTANTS







BENGALLA MINE

CW1 Emplacement Area

**FIGURE 3**

