



INSITE HERITAGE
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**Archaeological Assessment
Longwalls 205-208 Extraction Plan
Ashton Coal Project
Camberwell NSW**

Report to

Ashton Coal Operations Ltd

July 2020

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Sensitive Cultural Information

Sections of this report (Figures 1 & 2) contain information pertaining to the location of Aboriginal objects and are included to satisfy reporting conditions. These sections should be excluded from public display if the report is to be released for public review and comment.

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1.0 Introduction

1.1 Project Information

Ashton Coal Operations Ltd (ACOL) engaged Insite Heritage Pty Ltd to prepare an Archaeological Assessment for inclusion into an Extraction Plan for mining of Longwalls 205 to 208 (LW 205-208), Upper Lower Liddell Seam, of the Ashton Coal Project (ACP).

The following background information has been provided by ACOL:

The ACP is located approximately 14 km northwest of Singleton in the Hunter Valley region of New South Wales. The project includes an open cut mine, an underground mine, a Coal Handling and Preparation Plant and associated rail siding and infrastructure.

The ACP was granted consent on 11 October 2002 by the Minister of Planning pursuant to the provisions of the Environmental Planning and Assessment Act 1979 (DA 309-11-2001-i). The mine is approved to produce up to 5.45 million tonnes per annum (Mtpa) of run of mine (ROM) coal and operate until 2023. The consolidated consent has been modified on ten occasions, with the most recent on 12 December 2012.

The underground mine is approved for multi-seam longwall extraction, targeting four coal seams in descending order Pikes Gully (PG), Upper Liddell (ULD), Upper Lower Liddell (ULLD) and Lower Barrett (LB). Development of the underground mine commenced in December 2005 and is accessed through the southern wall of the Arties Pit under the New England Highway. Mining of LW 205-208 is to be completed in the ULLD Seam and is planned to commence in 2021. This will be the third coal seam extracted by ACOL.

A plan of the LW205-208 project area is provided in Figure 1 below.

1.2 Management of Archaeological Sites

Aboriginal archaeological sites across the ACP are currently managed under two Aboriginal Heritage Impact Permits (AHIPs) and a Heritage Management Plan (HMP). The two current AHIPs held over the ACP area are:

- AHIP #1131017 issued on 23 December 2011, for longwall panels: LW1, LW2, LW3, LW4 and;
- AHIP #1130976 granted by the NSW Land and Environment Court in August 2011, encompassing longwall panels LW5, LW6A, LW6B, LW7A, LW7B and LW8, and the Bowmans Creek diversion project.

The HMP received approval from the Department of Planning and Environment (DP&E), formerly Department of Planning and Infrastructure (DP&I) in July 2012 and was prepared in accordance with the then Condition 3.36 (now Condition 3.34) of the development consent DA 309-11-201 (granted December 2010). The HMP has been subject to a number of reviews and minor administrative changes by ACOL, the current approved version is dated 10th October 2017. The plan considers the potential impacts of the workings associated with LW 101-108 in the ULD Seam and LW 201-208 in the ULLD Seam on cultural heritage and outlines ACOL's statutory requirements relating to monitoring and management of subsidence impacts on cultural heritage sites within the underground operations, as well as consultation, monitoring and reporting requirements.

2.0 Archaeological Resource

2.1 European Heritage Sites

Three European heritage sites as listed by local and state government agencies have been identified in proximity to the ACP:

- St Clements Anglican Church, Lot 103 DP 738182, located to the west of Camberwell Village is an item of local significance as listed on the Singleton Council Local Environmental Plan (LEP) 2013 (Item No. I12).
- Camberwell Community Hall, Lot 2 Section 13 DP 758214, located south of the New England Highway is an item of local heritage significance as listed in the Singleton Council LEP 2013 (Item No. I13).
- Camberwell Glennies Creek Underbridge located at 252.613km Main Northern Railway Line is listed under Section 170 of the Heritage Act 1977. The item curtilage includes the bridge structure and a surrounding area of 20m in all directions.

These items are located outside of the LW 205-208 project area and will not be impacted by underground mining at the ACP.

Two additional sites of historic occupation have been identified within the ACP overlying Longwall 8. These sites are within the project area and will be impacted by mining of LW 205-208.

Former Dairy Sheds

This site relates to the earlier agricultural history of the holding, and is a standing ruin comprising of a timber shed and yard area. This structure is a timber frame weatherboard clad shed on a concrete slab with a corrugated iron gable roof and adjacent corrugated iron water tanks. The yard area consists of a small timber post and wire enclosure.

These structures were assessed by Umwelt (2010) as not forming part of any identified significant grouping of rural farm buildings and are not heritage listed items. Umwelt concluded that these items have nil to low significance and no research potential. No management of the site is proposed, other than to secure the site and prevent injury during/ following subsidence as per the Built Features Management Plan and Public Safety Management Plan.

A photographic recording of the structures was undertaken by Insite Heritage in 2012.

Shepherd's Hut Archaeological Site

The second site was identified in November 2011 by Insite Heritage as a possible shepherd's hut/outstation located on the Ashton Coal mine lease. The known site elements are a probable chimney and small area of brick floor. The site is likely to be associated with the original Ashton property dating to the late 19th/early 20th Century.

In 2012 ACOL received an Excavation Exemption from the NSW Heritage Division to allow for subsurface testing of the site in order to determine an accurate site boundary for future management. These investigations are required to be undertaken prior to further subsidence under the structures. There is no date of expiration of the permit, however the Heritage Division will be contacted prior to commencement of test investigation works to ascertain the validity of the Section 139 permit. The test investigation works will identify if further excavation works are required to be made under a Section 140 permit in order to allow for the salvage of any identified archaeological features in accordance with the *Heritage Act 1977 (as amended)*. Any additional archaeological salvage works will also need to be undertaken prior to the commencement of mining works in longwall panel LW 208.

2.2 Aboriginal Heritage Sites – LW 205-208 Project Area

Known Aboriginal archaeological sites within, and in close proximity to, the LW 205-208 project area are outlined in Figure 1 above. These sites were identified by archaeological assessments undertaken for the ACP Environmental Impact Assessment (Witter 2002, Hardy 2002) and subsequent inspections.

The majority of Aboriginal archaeological sites located within the LW205-208 project area have been subject to management measures resulting from longwall mining of the previous two seams; Pikes Gully and Upper Liddell (LW105 and LW106A), and associated activities in accordance with AHIP #1130976. The current status of Aboriginal archaeological sites within the LW 205-208 project area is provided in Table 1 below.

There are two identified sites of particularly high scientific and cultural significance in proximity to the LW 205-208 project area:

1. Waterhole Site (37-3-0500).
2. Oxbow Site (37-3-501,37-3-502, 37-3-503, 37-3-0511 & 37-3-0006).

The Waterhole site is to be retained with no disturbance from underground mining activities. The Oxbow site is largely contained within the footprint of longwall panel LW4, and is located outside of the LW205-208 project area.

Additionally, in 2011, two areas of subsurface archaeological deposits containing high concentration of artefacts associated with the Bowman's Creek Terrace (37-3-0496) site, were identified during the course of archaeological salvage works undertaken for the Bowman's Creek Diversion (BCD) project (Insite Heritage 2016). Due to the concentration of artefacts recovered from these locations the proposed impacts, a temporary Haul Road, was diverted around these locations to allow for site conservation. The location of these two areas are shown in Figure 1 below. Both locations lie outside of the predicted area of subsidence cracking and ponding for LW207A and LW208 as presented in SCT Operations (2020). Should predicted impacts at these locations change during the course of mining activities, archaeological salvage works will be required to be undertaken in accordance with the conditions of AHIP#1130976 and the HMP.

Table 1 Aboriginal archaeological sites within / in immediate proximity to LW 205-208 project area.

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information
37-3-0006 (includes: 37-3-0501, 37-3-0502, 37-3-0503, 37-3-0511)	Oxbow Site	Artefacts Scatter & PAD	High	Located along two tributary lines of Bowman's Creek. Outside of LW 205-208 project area. Site partially salvaged as part of LW 203-204 and LW 103-104 works.
37-3-0495	MOIF3	Isolated find	Low	Salvaged Collected by Xstrata 2011
37-3-0496 (includes: 37-3-0542, 37-3-0543, 37-3-0556)	EWA 82	Open camp site with PAD PAD extends from LW 4.3 in south to New England Highway.	The site varies from low significance to potential high significance in the area of the possible Pleistocene PAD.	Site comprises 2nd (pre European) terrace with 20% visibility. Includes lenses of artefacts and isolated finds. The recording includes an area of potential late Pleistocene, early Holocene landform. Site has been tested and found to be deflated older surface with Holocene artefacts overlying deposit. Status – eastern portion partially salvaged by ACOL and western portion salvaged by Xstrata 2011
	LW 4.1			
	LW 5.2			
	LW 4.2			
	LW 4.3			
	LW 4.4			
	LW 5.1			
EWA 80	Isolated find			
EWA 81	Isolated find			
EWA 89	Isolated find			
	PAD	Potential Archaeological Deposit	Potential High	Potential late Pleistocene, early Holocene PAD located immediately west of Brunkers Lane and north of the New England Hwy. Site subject to archaeological test investigations. Tested, found to be Holocene artefacts over colluvium. Status Partially salvaged
37-3-0499	ASH 3	Artefact Scatter	Low	Collected by ACOL
37-3-0500	Waterhole Site	Grinding Grooves, Artefact Scatter	High	Extant. Site located outside longwall mining works. Site to be conserved.
37-3-0516	Ash 20	Artefact Scatter	Moderate	Salvaged
37-3-0535	EWA 97	Artefact scatter	Moderate	Terrace with <10% visibility. Partially salvaged
37-3-0545	EWA 51	Artefact scatter	Low	Partially salvaged

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information
37-3-0544	EWA 50	Artefact scatter	Low	Partially salvaged
37-3-0546	EWA 52	Isolated find	Low	Salvaged
37-3-0548	EWA 57	Isolated find	Low	Partially salvaged. Loci within ULD subsidence crack zone salvaged
37-3-0798	Liddell EW 15	Artefact scatter	Low	Salvaged Located in Macquarie Generation land in 3mx3m eroded area on ridge top. Collected by ACOL
37-3-0799	LW 2.1	Artefact scatter	Moderate	Terrace in exp with 50% visibility. Partially salvaged
37-3-1015	REA 143	Artefact Scatter	Moderate	Salvaged Collected by Xstrata 2011 and collection and test pits by ACOL
37-3-1016	REA 144	Artefact Scatter	Moderate	Salvaged Partial collection Xstrata 2011 Remainder collected by ACOL
37-3-1017	REA 145	Artefact Scatter	Moderate	Salvaged Partial collection Xstrata 2011 Remainder collected by ACOL
37-3-1018	REA 146	Artefact Scatter	Moderate	Collected by Xstrata 2011
37-3-1142	AFA25, AFA26, AFA59 AFA60	Artefact Scatter	Low	Extant
37-3-1144	AFA45, AFA46, AFA47	Artefact Scatter	Low	Extant
37-3-1143	AFA 44	Artefact Scatter	Low	Extant
37-3-1145	AFA48, AFA49, AFA58	Artefact Scatter	Low	Salvaged
37-3-1146	AFA50	Artefact Scatter	Low	Salvaged
37-3-1148	AFA 55	Isolated Artefact	Low	Partially Salvaged
37-3-1153	AFA 51	Artefact Scatter	Low	Extant

3.0 Subsidence & Impacts to Heritage Items

3.1 Predicted Subsidence Impacts

The ULLD Seam is the third seam to be extracted in the approved multi seam ACP. An assessment of subsidence impacts has been prepared for mining in the ULLD Seam LW 205-208 by SCT Operations (2020).

Incremental subsidence of 2.2m to 2.8m is expected following completion of mining the ULLD Seam in LW 205-208. Cumulative subsidence of 3.1m to 5.8m is expected, and is consistent with forecasts from previous subsidence assessments undertaken for ACP approval modifications and extraction plans (SCT Operations 2020:4). Maximum cumulative subsidence of 5.8m is expected where there is overlap of the center of longwall panels for the PG, ULD and ULLD Seams (SCT Operations 2020:4).

The subsidence assessment outlines that general background levels of tilts and strains observed in the ULD Seam were of similar magnitude to those observed in the PG Seam despite the greater vertical subsidence (SCT Operations 2020:63). However, monitoring of the ULD Seam has identified that tilts and strains are significantly higher than the general background in areas of stacked goaf edges. At stacked goaf edges transient tilts and strains have been observed as double the maximum background level where the deeper seam has undercut the upper seam (SCT Operations 2020:64).

Preliminary modelling of subsidence impacts from ULLD Seam mining in LW201-203 have shown to be consistent with previous forecasts and generally less than the maximum forecast (SCT Operations 2020:66). Minor unconventional subsidence effects have been observed during mining in the PG and ULD Seams but have been relatively minor in nature (SCT Operations 2020:66). Impacts to the general surface terrain are expected to be similar to those observed in previous areas of multi seam mining (SCT Operations 2020: i).

3.2 Mechanisms for Impact to Heritage Items

The potential impacts to Aboriginal archaeological sites within the LW 205-208 project area will generally arise via the following mechanisms (ACOL 2018:11):

Cracking and or crack remediation: The ground may crack as a result of the underground goaf collapse. Cracking associated with mining the ULLD Seam is predicted to require remediation. Generally where cracking requires repair this is achieved with ripping of the crack with a bulldozer or grader. Figure 2 below, details the locations of known Aboriginal archaeological sites in relation to the predicted subsidence crack zone for mining LW 205-208 in the ULLD Seam.

The subsidence assessment outlines that high tilts and strains are expected at locations of stacked goaf edges resulting in perceptible changes in elevation, large cracks and local steep grades (SCT Operations 2020:22). Remediation measures will need to be undertaken in these locations.

Knick points and rilling: Changes in slope can cause changes in erosion patterns and may hasten the movement of knick points upslope.

Ponding: Ponds may develop where subsidence forms depressions. The subsidence assessment prepared for the LW 205-208 Extraction Plan has identified a number of potential ponding areas. Potential ponding areas comprise enlargement of existing farm dams, enlargement of existing depressions formed during mining of the PG and or ULD Seams, or new ponding locations resulting from ULLD mining (SCT Operations 2020:28). ACOL will manage the effects of ponding as mining progresses via an adaptive management strategy, potential remediation measures may include formation of drainage lines to allow overflow into existing

watercourses or landform reshaping work (SCT Operations 2020:30).

Development & Maintenance of Surface Infrastructure: To facilitate the underground mining operations the installation of various types of surface infrastructure will be required. These may include gas drainage bores and associated infrastructure, access tracks, dewatering facilities, ventilation shafts etc. (ACOL 2018:11).

As mining progresses in the LW 205-208 project area, monitoring and management measures will be undertaken to manage the effects of subsidence on existing infrastructure including maintenance of access tracks, buried pipelines, electricity transmission lines, and telecommunications cables, particularly in areas of stacked goaf edges. Any required remediation works on existing infrastructure is considered to have minimal impact on heritage items given the existing level of disturbance in these locations.

3.2.1 Predicted Subsidence Impact & Aboriginal Archaeological Sites

As outlined in Section 3.2 above, impacts to Aboriginal archaeological sites from mining LW 205-208 in the ULLD Seam will generally occur from remediation measures required to manage subsidence cracks and ponding. The Development Consent for the ACP requires that underground mining will have no greater subsidence impact or environmental consequences than approved under a permit issued under section 90 of the *National Parks and Wildlife Act 1974*. The Development Consent also details that there is to be negligible impact on the Waterhole Site at the completion of mining and no construction within 70m of the grinding grooves located at this site (DA 309-11-2001 MOD 6 Condition 3.9, Statement of Commitments 11.3).

The current AHIPs issued under section 90 of the *National Park and Wildlife Act 1974* held for the ACP allow for impacts to those parts of Aboriginal archaeological sites to be affected by subsidence, subsidence remediation measures, longwall mining and associated infrastructure, rehabilitation activities, and upgrade and maintenance of access tracks within the approved AHIP area. The whole of Waterhole Site must not be harmed.

For mining of LW 205-208 in the ULLD Seam, impacts to Aboriginal archaeological sites are consistent with the approved impacts outlined in the Development Consent and AHIP. There will be no impacts to the Waterhole Site which lies outside of the ULLD LW 205-208 project area. For the remainder of Aboriginal archaeological sites within the LW 205-208 project area, impacts will mainly result from the implementation of subsidence remediation measures.

The HMP details four categories of potential subsidence impacts:

High – Definite potential for cracking, ponding or surface erosion to occur that will require remediation.

Medium – Subsidence will be experienced but only a moderate chance that impacts requiring remediation will occur.

Low – Subsidence may be experienced at the site however there is a low chance that repair work will be required.

No Impact – No impacts on sites will occur as they are located outside the subsidence zone / areas of impact.

Table 2 below identifies the predicted level of impact to each known Aboriginal site within the

LW205-208 ULLD Seam project area. Figure 2 details the area of predicted surface cracking and ponding which may require remediation works and locations of Aboriginal archaeological sites.

The subsidence assessment prepared for the ULLD Seam will be incorporated into future reviews of the HMP and Aboriginal archaeological sites will continue to be managed in accordance with the relevant AHIP and the HMP.

4.0 Management Recommendations

For management purposes the HMP and ACP AHIPs anticipate that archaeological sites overlying the ACP extraction area will be impacted, to varying degrees, by the remediation of subsidence. All remediation such as ripping of cracks, filling of ponding or earthworks to control erosion, will be reassessed for its potential to impact sites prior to implementation of management measures in accordance with the HMP and the relevant AHIP. Further details regarding subsidence remediation is outlined in the Extraction Plan main document.

Table 2 below details the known Aboriginal archaeological sites which are likely to require salvage works prior to implementation of subsidence remediation measures for mining LW 205-208.

In addition to the requirements of the HMP and AHIP, prior to any remediation works or surface disturbance works undertaken onsite, ACOL operate a permit to disturb system across the ACP area. This includes the investigation of any archaeological issues such as 'no go'/exclusion areas or requirements for any archaeological investigations prior to the commencement of any surface disturbance works.

The potential for previously unidentified Aboriginal objects to occur in the LW 205-208 project area is a possibility; however, the sites that have been recorded have been sufficient to identify the probable character of any additional sites, and any newly identified sites are likely to be associated with known sites due to the landform site classification implemented in the original archaeological assessment undertaken by Witter (2002). The salvage methodologies have therefore been designed to be applicable to both known and unknown sites, unless a previously unknown site is identified as significant at which time special conditions within the relevant AHIP will be implemented.

Table 2 Predicted subsidence impacts and management measures.

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information	Predicted Impact	Management Measures
37-3-0006 (includes: 37-3-0501, 37-3-0502, 37-3-0503, 37-3-0511)	Oxbow Site	Artefacts Scatter & PAD	High	Located along two tributary lines of Bowman's Creek. Outside of LW 205-208 project area. Site partially salvaged as part of LW 203-204 and LW 103-104 works.	Outside of LW 205-208 project area	Managed in accordance with HMP and AHIP#1131017
37-3-0495	MOIF3	Isolated find	Low	Salvaged Collected by Xstrata 2011	N/A	Managed in accordance with AHIP #1130976 and Ravensworth CHMP.
37-3-0496 (includes: 37-3-0542, 37-3-0543, 37-3-0556)	EWA 82	Open camp site with PAD PAD extends from LW 4.3 in south to New England Highway.	The site varies from low significance to potential high significance in the area of the possible Pleistocene PAD.	Site comprises 2nd (pre European) terrace with 20% visibility. Includes lenses of artefacts and isolated finds. The recording includes an area of potential late Pleistocene, early Holocene landform. Site has been tested and found to be deflated older surface with Holocene artefacts overlying deposit. Status – eastern portion partially salvaged by ACOL and western portion salvaged by Xstrata 2011	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
	LW 4.1					
	LW 5.2					
	LW 4.2					
	LW 4.3					
	LW 4.4					
	LW 5.1					
EWA 80	Isolated find					
EWA 81	Isolated find					
EWA 89	Isolated find					
	PAD	Potential Archaeological Deposit	Potential High	Potential late Pleistocene, early Holocene PAD located immediately west of Brunkers Lane and north of the New England Hwy. Site subject to archaeological test investigations. Tested, found to be Holocene artefacts over colluvium. Status Partially salvaged	High Impacted by LW7 and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
37-3-0499	ASH 3	Artefact Scatter	Low	Collected by ACOL	N/A	Managed in accordance with AHIP #1130976
37-3-0500	Waterhole Site	Grinding Grooves, Artefact Scatter	High	Extant. Site located outside longwall mining works. Site to be conserved.	Nil impact	Managed in accordance with HMP
37-3-0516	Ash 20	Artefact Scatter	Moderate	Salvaged	N/A	Site has been salvaged
37-3-0535	EWA 97	Artefact scatter	Moderate	Terrace with <10% visibility. Partially salvaged	Medium - High Will be impacted by	Managed in accordance with HMP and AHIP #1130976.

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information	Predicted Impact	Management Measures
					subsidence remediation and surface mine infrastructure.	
37-3-0545	EWA 51	Artefact scatter	Low	Partially salvaged	Medium - High Will be impacted by subsidence remediation and surface mine infrastructure.	Managed in accordance with HMP and AHIP #1130976.
37-3-0544	EWA 50	Artefact scatter	Low	Partially salvaged	High. Site located within subsidence crack zone for ULLD	Managed in accordance with HMP and AHIP #1130976.
37-3-0546	EWA 52	Isolated find	Low	Salvaged	Medium - High Will be impacted by subsidence remediation and surface mine infrastructure.	Managed in accordance with HMP and AHIP #1130976.
37-3-0548	EWA 57	Isolated find	Low	Partially salvaged. Loci within ULD subsidence crack zone salvaged	High Site located within subsidence crack zone for ULLD. Parts of site may also be affected by predicted ponding	Managed in accordance with HMP and AHIP #1130976.
37-3-0798	Liddell EW 15	Artefact scatter	Low	Salvaged Located in Macquarie Generation land in 3mx3m eroded area on ridge top. Collected by ACOL	Medium - High Will be impacted by subsidence remediation and surface mine infrastructure.	Managed in accordance with HMP and AHIP #1130976.
37-3-0799	LW 2.1	Artefact scatter	Moderate	Terrace in exp with 50% visibility. Partially salvaged	Medium - High Will be impacted by subsidence remediation and surface mine infrastructure.	Managed in accordance with HMP and AHIP #1130976.
37-3-1015	REA 143	Artefact Scatter	Moderate	Salvaged Collected by Xstrata 2011 and collection and test pits by ACOL	N/A	Where impacts are associated with the Ravensworth project - to be managed in accordance with the Ravensworth CHMP.
37-3-1016	REA 144	Artefact Scatter	Moderate	Salvaged Partial collection Xstrata 2011 Remainder collected by ACOL	N/A	Managed in accordance with AHIP #1130976 and where impacts are associated with the Ravensworth project managed in accordance with the Ravensworth CHMP.

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information	Predicted Impact	Management Measures
37-3-1017	REA 145	Artefact Scatter	Moderate	Salvaged Partial collection Xstrata 2011 Remainder collected by ACOL	N/A	Managed in accordance with AHIP #1130976 and where impacts are associated with the Ravensworth project managed in accordance with the Ravensworth CHMP.
37-3-1018	REA 146	Artefact Scatter	Moderate	Collected by Xstrata 2011	N/A	Where impacts are associated with the Ravensworth project managed in accordance with the Ravensworth CHMP.
37-3-1142	AFA25, AFA26, AFA59 AFA60	Artefact Scatter	Low	Extant	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
37-3-1144	AFA45, AFA46, AFA47	Artefact Scatter	Low	Extant	Medium Moderate chance that impacts requiring remediation will occur.	Managed in accordance with HMP and AHIP #1130976.
37-3-1143	AFA 44	Artefact Scatter	Low	Extant	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
37-3-1145	AFA48, AFA49, AFA58	Artefact Scatter	Low	Salvaged	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
37-3-1146	AFA50	Artefact Scatter	Low	Salvaged	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.
37-3-1148	AFA 55	Isolated Artefact	Low	Partially Salvaged	High Outside of LW 205-208 project area. Will be impacted by subsidence remediation and	Managed in accordance with HMP and AHIP #1130976.

AHIMS No.	Site Name	Site Type	Archaeological Significance	Site Status & Additional Information	Predicted Impact	Management Measures
					surface mine activities associated with LW 104, 204 mining and Bowman's Creek Diversion works.	
37-3-1153	AFA 51	Artefact Scatter	Low	Extant	High Will be impacted by subsidence remediation and surface mine activities.	Managed in accordance with HMP and AHIP #1130976.

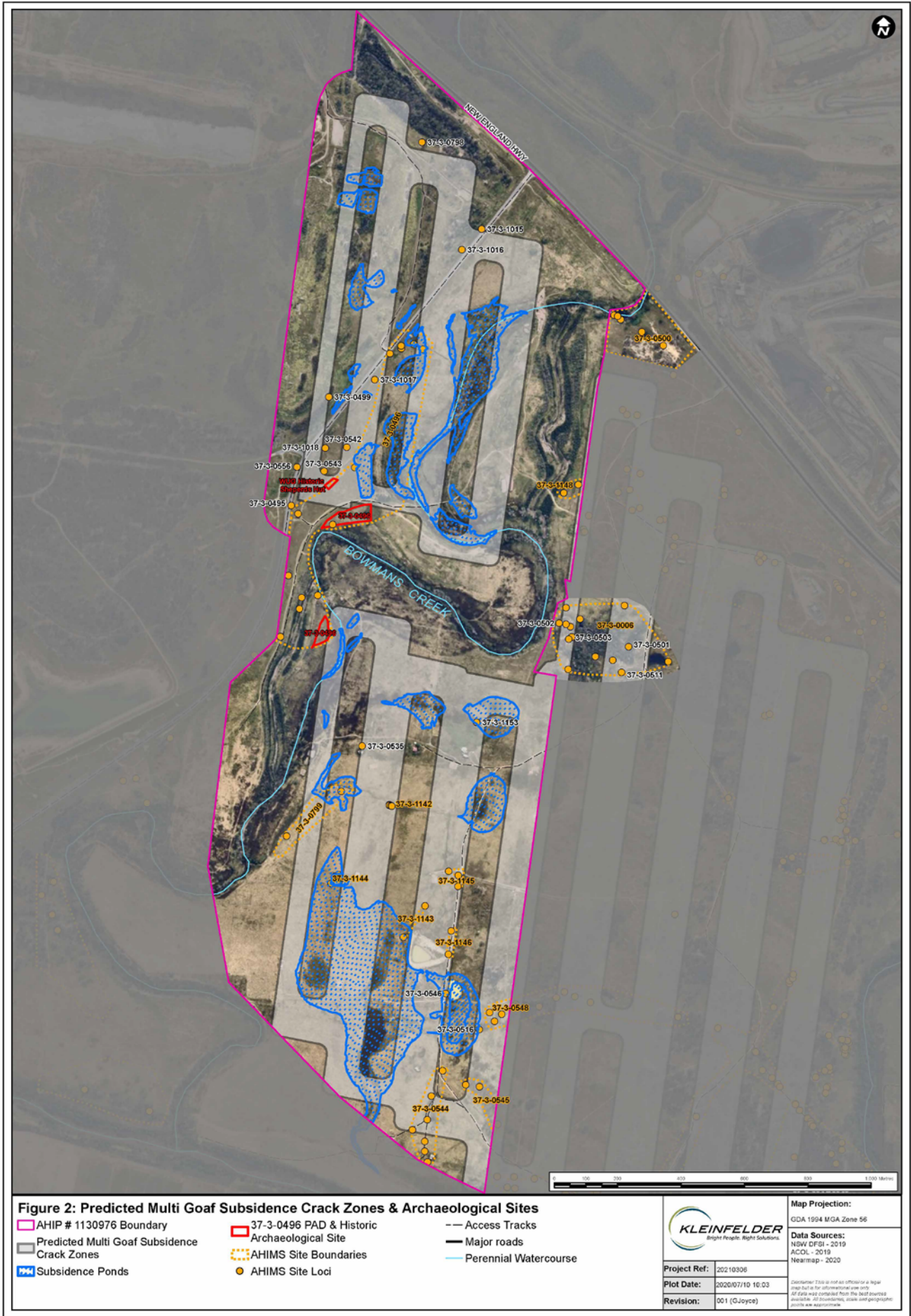


Figure 2 Predicted subsidence crack zones, areas of ponding and Aboriginal archaeological sites.

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