

Hunter Valley Operations Aboriginal Heritage Management Plans October 2021 Compliance Audit Inspections

Report prepared for
Hunter Valley Operations



November 2021

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HERITAGE SOLUTIONS



Introduction

The Hunter Valley Operations Joint Venture (HVOJV) manages the Hunter Valley Operations (HVO) mining complex and associated Biodiversity Areas located in the Hunter Valley. The HVOJV provides management services that include accountability for Aboriginal cultural heritage (ACH) and community consultation.

The development of HVO's mining operations has occurred through a process of expansion and acquisition, and as a result there are two separate development approvals that apply to the operation - HVO North (DA_450-10-2003) and HVO South (PA_06_0261). The mining & processing activities at HVO are geographically divided by the Hunter River, with movement of coal, overburden, equipment, materials and personnel between two operational areas.

Each consent contains a condition requiring the development of an Aboriginal Heritage Management Plan (AHMP). Such plans have been developed in consultation with the Aboriginal community through the HVO Cultural Heritage Working Group (CHWG) and approved for each operational area. Within each of these plans provision is made to conduct annual AHMP compliance inspections (biannual for HVO South) with members of the Aboriginal community throughout the life of operations. The purpose of the compliance inspections is to afford the Aboriginal stakeholders and the HVOJV:

- the opportunity to visit mine operations and mine areas to inspect the operational compliance with AHMP provisions and Ground Disturbance Permit procedures;
- to inspect and monitor the condition and management of various ACH sites; and
- to review the effectiveness and performance of AHMP provisions in the management of cultural heritage at the mine.

Due to the number of ACH sites within the AHMP areas & the time required to inspect all sites, it is not feasible to inspect every ACH site during the same field trip. Therefore, a regular, rolling program of compliance inspections has been implemented that will visit all sites periodically over a number of years. A record will be kept of each compliance inspection against each ACH site, so that it can be ensured that each site is inspected regularly.

Proposed Activity and Project Brief

The compliance inspections involved the following elements:

- An AHMP compliance inspection report pro-forma was completed for each ACH site or area visited;





- Photographs of the inspected ACH sites were also taken;
- The pro-forma noted the outcomes of the inspection including evidence of compliance or non-compliance with AHMP provisions, recommendations on improvements to management provisions and/or recommendations on corrective actions;
- Specific site condition monitoring inspection of CM-CD1, as per Schedule 15 of the HVO North HMP.

Timing & Personnel

The HVO 2021 H2 AHMP compliance inspection program was conducted between 27-29 October 2021. The personnel involved in these inspections were:

- Joel Deacon (Arrow Heritage Solutions Principal Archaeologist)
- Peter Bowman (HVO Environment and Community Officer)
- Allen Paget (CHWG Representative – Ungooroo Aboriginal Corporation)
- Adam Sampson (CHWG Representative – AGA Consultants)

Arrow Heritage Solutions were engaged as independent heritage consultants to conduct the AHMP compliance inspections, and Joel Deacon acted as technical advisor and author of this report. HVO's Environment & Community Officer Peter Bowman arranged the compliance inspection programs and escorted the field team.

HVO North AHMP Compliance Inspection

A total of 21 ACH sites were inspected across various areas at HVO North, including the HVO North conveyor, Farrells Creek at Lemington Road and the CM-CD1 area (see Maps 1-3). Although not active mining zones, these areas were selected for inspection for a variety of reasons. Some of the sites are located adjacent to mining pits or active infrastructure areas, while others were visited to obtain further information regarding their extent, contents and condition as the information contained in the HVO sites database was lacking in some regard.



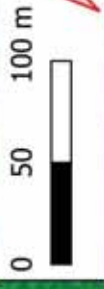


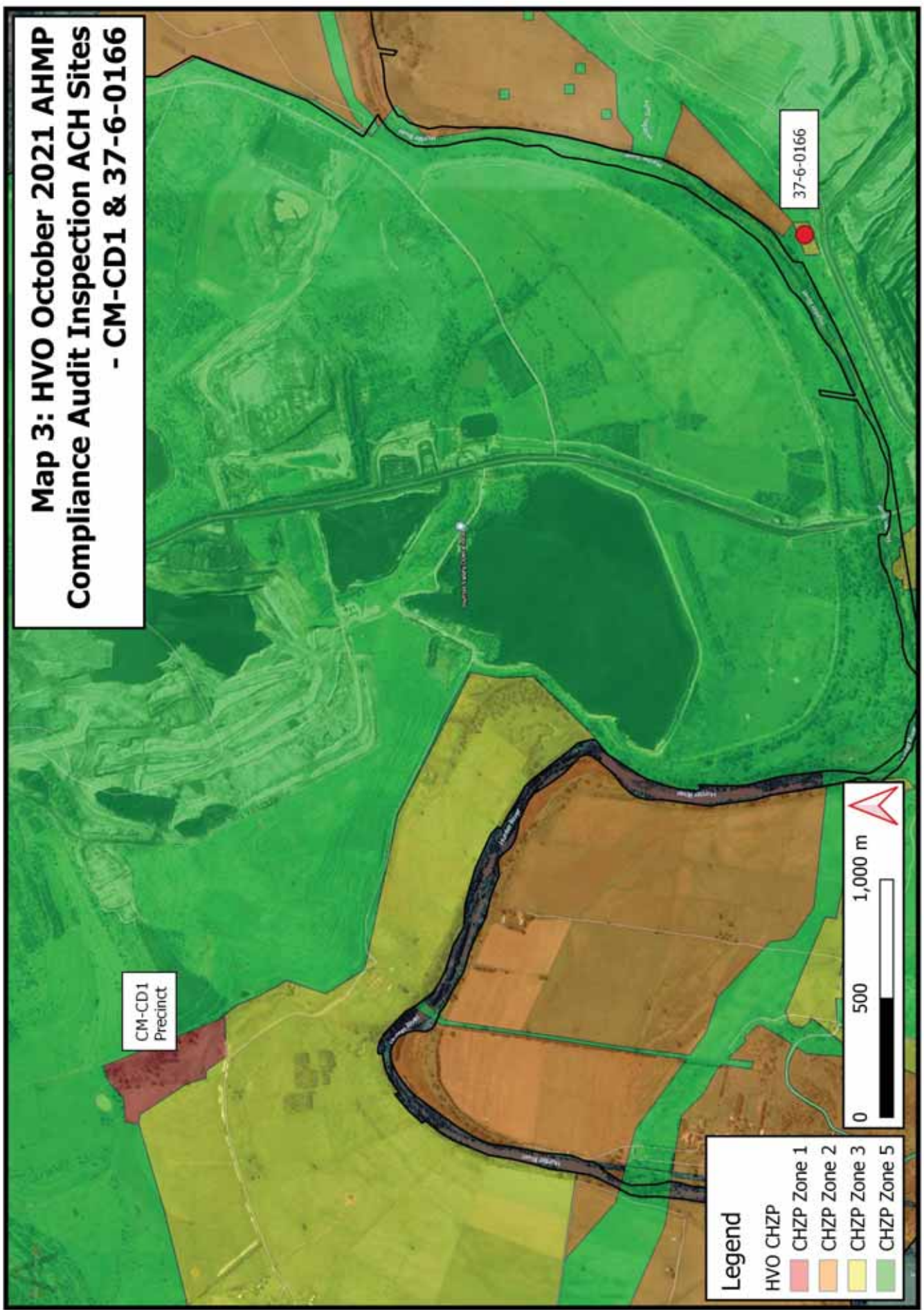
Map 2: HVO October 2021 AHMP Compliance Audit Inspection ACH Sites - Lemington Rd/Conveyor Corner



Legend

- ACH Audit Inspection Sites
- HVO Owned Land
- HVO CHZP
- CHZP Zone 3
- CHZP Zone 5





Results

Table 1 details the results of the HVO North compliance inspection and summarises the information recorded on the individual pro-forma inspection sheets. Using a mobile mapper pre-loaded with the GIS co-ordinates for each Aboriginal heritage site, the field team travelled to each locale and attempted to re-identify each site. Sometimes this was not possible due to poor ground surface visibility (GSV) arising from high vegetation cover, in which case the site was assessed to determine that the vicinity had not been inadvertently disturbed. Another factor affecting site re-identification was the age of the original recording and the level of data recorded. The presence and condition of barricading or fencing was noted, as well as the presence and nature of various potential site disturbing factors (e.g erosion, animal, human). General observations of each site were made if necessary, and, based on information provided for all of the above factors, management recommendations were discussed and agreed by the field team for each site.

Site Name	Date Inspected	Site re-identified?	Site intact?	Site fenced/barricaded?	Fencing/barricading intact?	Natural erosion	Livestock damage	Human disturbance	Animal disturbance	Pests & weeds	General observations	Management recommendations
37-2-0806 CUM-42	28/10/21	Yes	Yes	Yes	Yes	Yes – eroding into gully	No	Yes- track	Yes	Yes		Install coir logs to stop erosion into gully
37-2-0807 CUM-43	28/10/21	Yes	Yes	Yes	Yes	Yes – eroding into gully	No	Yes- track	No	No	Barricaded by Ravensworth North	Install coir logs to stop erosion into gully
37-2-1504 CM 1	28/10/21	No	Yes	Yes	Yes	No	No	No	No	No		Nil
37-2-1505 CM 2	28/10/21	No	Yes	No	-	No	No	No	No	No	Within CM-CD1 fence	Nil
37-2-1506 CM 3	28/10/21	No	Yes	Yes	Yes	No	No	No	No	No	Within CM-CD1 fence	Nil
37-2-1544 CM 41	28/10/21	No	Yes	Yes	Yes	No	No	No	No	No	Within CM-CD1 fence	Nil
37-2-1926 CK23	28/10/21	No	Yes	Yes	Yes	No	No	No	No	No	Barricaded by Ravensworth North	Nil
37-2-1927 CK22	28/10/21	No	Yes	No	-	No	No	No	No	No		Confirm site extent and barricade
37-2-2710 RW13	28/10/21	Yes	Yes	Yes	Yes	No	No	Yes – old track	No	No	Barricaded by Ravensworth North	Extend barricade to include additional artefact at 311309e 6407079n
37-2-2711 RW14	28/10/21	No	Yes	Yes	Yes	No	No	No	No	No		Nil
37-2-2715 RW32	28/10/21	No	Yes	Yes	Yes	No	No	Yes – old track	No	No	Barricaded by Ravensworth North in two distinct locales	Nil
37-2-2721 RW60	28/10/21	No	Yes	Yes	Yes	No	No	Yes – old track	No	No	Site mainly on Ravensworth North land	Nil
37-2-5055 HVO-1127	28/10/21	No	Yes	Yes	Yes	No	No	Yes – from conveyor construction	No	No	No ground surface visibility	Nil

37-2-5056 HVO-1128	28/10/21	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes – from conveyor construction	No	No	No	No	No	Nil
37-2-5061 HVO-1133	28/10/21	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes – prickly pear	Yes – prickly pear	No	No	Nil
37-2-5062 HVO-1134	28/10/21	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Nil
37-2-5063 HVO-1136	28/10/21	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Nil
37-2-5064 HVO-1138	28/10/21	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Nil
37-2-5065 HVO-1139	28/10/21	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Nil
37-2-5315 HVO-1135	28/10/21	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes – burrowing evidence	Yes – burrowing evidence	Yes - galenia	Yes - galenia	Yes - galenia	Nil
37-2-5316 HVO-1137	28/10/21	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	Nil

Table 1: Results of the October 2021 HVO North Aboriginal Sites Compliance Inspection



Aboriginal Site Management Recommendations

Management recommendations were provided for four of the ACH sites visited. The nature of these recommendations are described below.

Update site extent and amend barricading

Site: 37-2-2710

37-2-2710 has been barricaded in the past. It was noted during the current inspection that artefactual material extended beyond the extent of the current barricading. The newly identified site extents should be updated on the HVO ACH GIS system and barricading extended to include the new material.

Fencing of site

Site: 37-2-1927

This site is located within close proximity to a mulched power-line easement. A thorough inspection failed to re-locate any artefactual material, therefore, it is recommended that the site card and original report be revisited to ascertain an appropriate site extent and that the site be barricaded to protect it from inadvertent future disturbance.

Install erosion control measures

Sites: 37-2-0806; 37-2-0807

Both of these sites are located adjacent to an eroding gully. During the current inspection, it was noted that artefactual material was located within the erosion zone and in danger of being impacted. Although some previous erosion control measures had been implemented, these have not been entirely successful. It is recommended that structures incorporating coir sediment control logs be installed to help halt erosion and capture sediments prior to their removal by fluvial action.





Example of erosion at site 37-2-0806

CM-CD1

The HVO North HMP (Schedule 15) contains a specific Plan of Management for Aboriginal site CM-CD1 (AHIMS ID 37-2-1877) that includes a description of measures that would be implemented to protect, monitor and manage potential impacts on the site by HVO North's mining operations and associated activities. As shown in Map 4, CM-CD1 includes an area c.450m long and up to 25m in width and is located immediately to the west of HVO Carrington Pit and c.900m north of the Hunter River.





As part of the brief for the HVO North AHMP compliance inspection audit, the consultant was also required to audit the current condition of CM-CD1 with reference to the management measures outlined in Schedule 15 of the HVO AHMP. It should be positively noted that the elements of the management regime identified in previous compliance audits continue to be robustly applied. The maintenance of these management processes will be the ongoing focus of compliance audits at CM-CD1:

1. A disturbance exclusion buffer area will be maintained around Aboriginal cultural heritage site 37-2-1877 (CM-CD1) of not less than 20m from the boundary of the recorded extent of the CM-CD1 site and incorporating the Older Stratum.

During the October 2021 inspection of CM-CD1 no unauthorised ground disturbance was noted within the disturbance exclusion buffer area (as depicted in Map 4 and the co-ordinates in Point 2 below). It should be noted, however, that the archaeological excavation pits that had been recently conducted as part of studies for the HVO North Continuation project remain open and should be filled in as soon as possible.



Open excavation pit within CM-CD1.





2. The CM-CD1 disturbance exclusion buffer area will be aligned within the following coordinates (MGA 94):
 - i. North-East corner at E308805 and N6403833
 - ii. North-West corner at E308696 and N6403791
 - iii. South-West corner at E308861 and N6403341
 - iv. South-East corner at E308996 and N6403355

See Point 1.

3. The CM-CD1 disturbance exclusion buffer area is to be zoned as a Zone 1 Restricted Access Area within the HVO North Cultural Heritage Zoning Scheme (CHZS). All development disturbance activities are to be excluded from within the buffer area.

The CM-CD1 exclusion area is zoned as Zone 1 in the HVO North CHZS.

4. The CM-CD1 disturbance exclusion buffer area will be delineated with stock-proof fencing and appropriate signage denoting that the area is a Restricted Access Area and no ground disturbance is authorised within the buffer area except where such ground disturbance is authorised under the provisions of this Plan of Management. Ground disturbance, such as for archaeological investigations, may require a consent under relevant legislation.

The entirety of CM-CD1, including a substantial buffer, has been delineated with stock-proof fencing and adequate Cultural Heritage Site signage is visible on the fence.

5. Access within the CM-CD1 disturbance exclusion buffer area will be limited to authorised personnel and visitors only either on foot (e.g. for monitoring inspections) or in light vehicles (e.g. for pest, weed and fire management) for the purposes of implementing the management provisions approved under this Plan of Management.

No evidence was noted to suggest the contrary has occurred, and recent vegetation control has been conducted on foot with hand tools.

6. An annual site condition monitoring inspection will be conducted by HVO personnel with representatives of the CHWG and the results of the inspection reported as an element of the HVO North DA 450-10-2003 Annual Environmental Management Report. The results of the inspection will also be



reported to Aboriginal community stakeholders through the CHWG and/or other relevant Aboriginal community consultation forum.

This report documents the 2021 annual site condition inspection.

7. A series of condition and disturbance monitoring photo points will be established within the CM-CD1 disturbance exclusion buffer area and condition monitoring images taken during the course of the annual monitoring inspection. **Five photographic monitoring points have been established from where disturbance monitoring photographs of CM-CD1 are taken. These points are located in the north-west, north-east, south-west and south-east of the site, as well as the centre. These photographs and their locational information are contained in Appendix A of this report.**
8. HVO will determine the nature and risks of potential impacts of blasting activities upon site CM-CD1 as an element of the HVO North blast management plan. Consistent with the results of the risk assessment process used to inform the development of the HVO North blast management plan, HVO will implement appropriate management measures to protect site CM-CD1 from any adverse impact that may be caused by blasting in a manner consistent with the provisions of this Plan of Management. In accordance with Schedule 4 of Condition 40 of the Approval, regular visual monitoring will be undertaken to confirm that impacts have not been caused by blasting vibration or from flyrock impacts. **No evidence of any blasting-related disturbance or flyrock impacts were noted during the site inspection. Indeed, blasting activity in the Carrington Pit ceased on the 17th October 2018 and mining and blasting activity was been focused on the eastern side of the Carrington Pit in the years leading up to the cessation of blasting.**
9. As mining, and related blasting activities, approach the CM-CD1 disturbance exclusion buffer area, regular visual monitoring to confirm that impacts have not been caused by blasting vibration will be conducted by HVO personnel. Damage to CM-CD1 caused by flyrock is considered a very low risk, however, if it is evident, through regular monitoring, that this risk profile may increase in the future, protective management measures will be considered. **See above Point 8.**

10. A variety of land management activities will be required to maintain the cultural and environmental values of the CM-CD1 disturbance exclusion buffer area. Land management activities approved under this HMP are as follows.
- i. Hand or light vehicle spraying of weeds.
 - ii. Brush cutting by hand to control weeds and vegetation.
 - iii. Prescribed burning and fire protection management.
 - iv. Maintenance of fencing including replacement of posts as required.

No evidence was noted of any adverse impacts to CM-CD1 by any of the land management practices listed above, with no evidence of site disturbance arising from recent vegetation slashing.

However, it was noted that weed and vegetation growth throughout the CM-CD1 disturbance exclusion buffer area was very high. Also, feral pig activity was noted within the fenced area, but outside the disturbance exclusion zone buffer. Potential management measures were discussed with the field team and are presented as recommendations below.

Recommendations

CM-CD1 is being managed well, with no evident impacts to the site's cultural heritage values. All recommended actions from previous compliance inspections have been implemented. The following recommendations relate to land management activities that could be implemented to maintain the environmental values of the site:

- **The open archaeological pits should be backfilled as soon as possible, ensuring geofabric is in place to delineate the extent of the excavated layers**
- **Using a hand-held brush-cutter and proceeding on foot, the 20m CM-CD1 buffer area (shown Map 4) should be subject to weed and vegetation growth slashing;**
- **A fence should be installed around the area identified on Map 4 as the HVO_CMCD1 20m Buffer_2013;**
- **The boundary of the outer perimeter CM-CD1 fence should be reduced to align with the outline of the HVO CMCD1 Buffer Disturbance Exclusion shown on Map 4 as a yellow dotted line;**
- **Access between these fences is restricted to light vehicles and the management of vegetation and pasture-based fuel loads to be achieved through low impact intermittent grazing by livestock;**
- **The CM-CD1 area should continue to be targeted during HVO's vermin control program in order to reduce feral pig disturbance as much as possible.**



HVO South AHMP Compliance Inspection

A total of 21 Aboriginal heritage sites were inspected in the HVO South area, to the west and east of the Lemington South Park Pit (see Map 5). Although not active mining zones, these areas were selected for inspection as they are accessed by third party users, including for grazing activities. A site recorded 40 years prior - 37-6-0166 – was also revisited.

Results

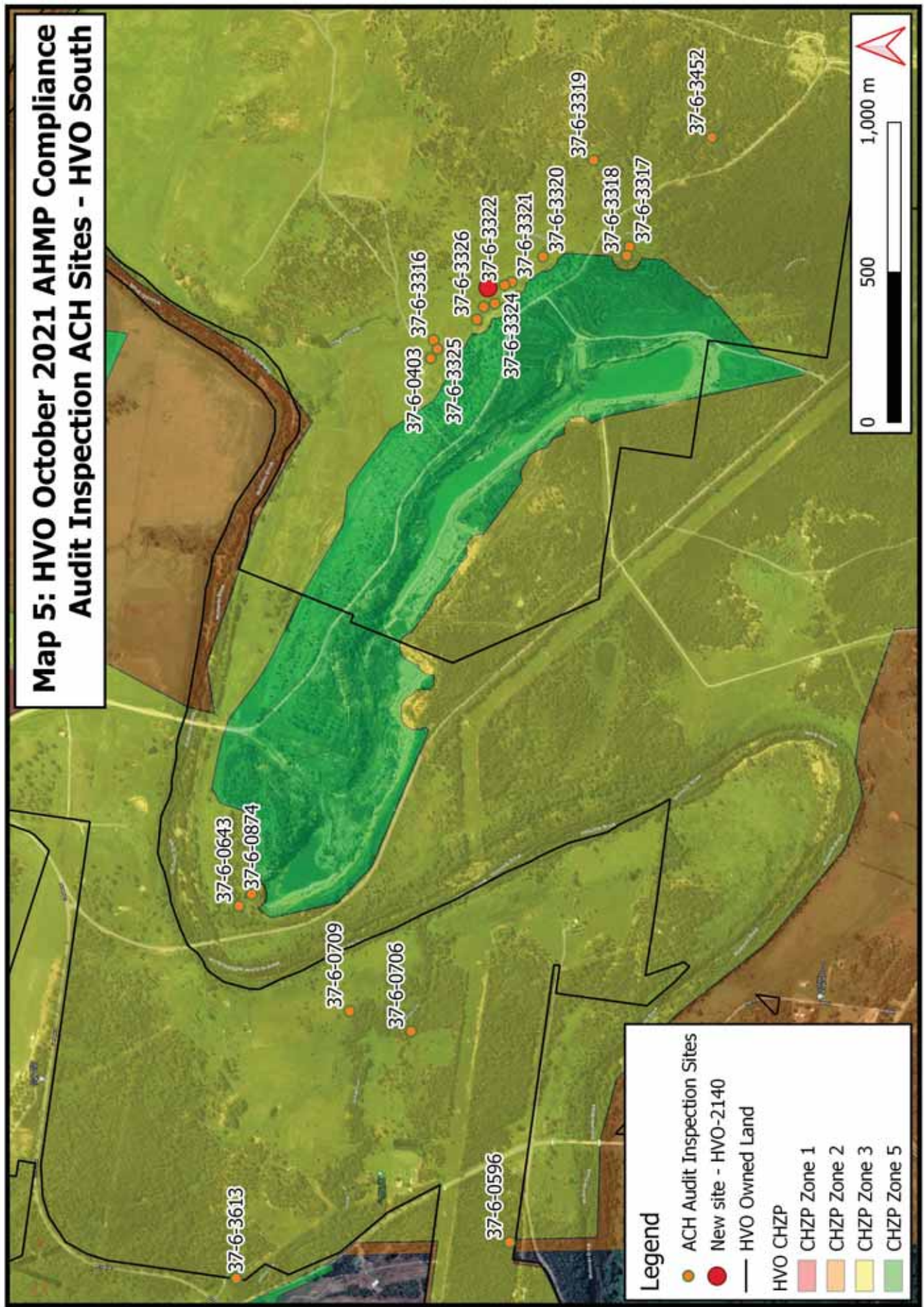
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One previously unrecorded ACH site was also located and added into the HVO ACH sites database.





**Map 5: HVO October 2021 AHMP Compliance
Audit Inspection ACH Sites - HVO South**





Site Name	Date Inspected	Site re-identified	Site intact?	Site fenced/barricaded?	Fencing/barricading intact?	Natural erosion	Livestock damage	Human disturbance	Animal disturbance	Pests & weeds	General observations	Management recommendations
37-6-0166 Malabar Site I; Biramwood	29/10/21	No	Yes	Yes	Yes	No	No	No	No	Yes - overgrown	Hard fenced	Revisit with site card once vegetation is denuded
37-6-0403 HVO-1208	29/10/21	No	Yes	Yes	Yes	No	No	No	No	No	-	Nil
37-6-0596 Red Pow 2	29/10/21	No	Yes	No	-	No	No	No	No	No	-	Nil
37-6-0643 WB 6	29/10/21	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Artefacts noted within fenced area and just outside at 315013e 6396195n	Investigate sites card and report to refine area, and also include new finds within barricading
37-6-0706 WB 17	29/10/21	No	Yes	Yes	Yes	No	No	No	No	No	-	Nil
37-6-0709 WB 15	29/10/21	No	Yes	Yes	Yes	No	No	No	No	No	-	Nil
37-6-0711 WB 13	29/10/21	Yes	Yes	Yes	Yes	No	No	No	No	No	-	Nil
37-6-0874 Woodland 6	29/10/21	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Artefacts noted within fenced area and just outside at 315013e 6396195n	Investigate sites card and report to refine area, and also include new finds within barricading
37-6-3316 HVO-1198	29/10/21	No	Yes	No	-	No	Yes - in gateway	No	No	No	In heavy traffic area	Recommend salvage
37-6-3317 HVO-1199	29/10/21	Yes	Yes	No	-	Yes	No	No	No	No	-	Recommend salvage
37-6-3318 HVO-1200	29/10/21	Yes	Yes	No	-	No	No	No	No	No	-	Nil
37-6-3319 HVO-1201	29/10/21	Yes	Yes	Yes	Yes	No	No	No	No	No	-	Nil
37-6-3320 HVO-1202	29/10/21	No	Yes	No	-	No	No	Old track diverted to avoid	No	No	-	Nil
37-6-3321 HVO-1203	29/10/21	No	Yes	No	-	No	No	No	No	No	-	Nil

37-6-3322 HVO-1204	29/10/21	No	Yes	No	-		No	No	No	No	No	No	-		Nil	
37-6-3323 HVO-1205	29/10/21	No	Yes	No	-		No	No	No	No	No	No	-		Nil	
37-6-3324 HVO-1207	29/10/21	Yes	Yes	No	-		No	No	No	No	No	No	-		Nil	
37-6-3325 HVO-1209	29/10/21	No	Yes	No	-		No	Yes	Yes – in access way	No	No	No	-		Recommend salvage	
37-6-3326 HVO-1206	29/10/21	Yes	Yes	No	-		No	No	No	No	No	No	-		Nil	
37-6-3452 HVO-1309	29/10/21	Yes	Yes	No	-		No	No	No	No	No	No	-		Nil	
37-6-3613	29/10/21	Yes	Yes	Yes	Yes		No	No	No	No	No	No	-		Nil	

Table 2: Results of the October 2021 HVO South Aboriginal Sites Compliance Inspection



Newly Recorded Aboriginal Site

During the course of the current audit, an additional previously unrecorded ACH site was located by the field team (shown on Map 5), which will be registered on AHIMS.

HVO-2140

317128E 6395401N (GDA94z56)

This site consists of c.10 flakes of silcrete located adjacent to an existing track under a tree. The site extends c.10x10m. Several artefact sites are located in the vicinity.



Examples of artefacts found at HVO-2140

Aboriginal Site Management Recommendations

Management recommendations were provided for some of the ACH sites visited, however, as the majority of sites were located on intact landforms with very low risk of future disturbance, the field team were satisfied with the current passive management regime. The nature of those recommendations that were forthcoming are described below.





Investigate site extent and amend barricading

Sites: 37-6-0643; 37-6-0874

Both site records likely refer to the same site. An extensive fence has been erected, however, it appears that the majority of the area has been previously heavily disturbed. It is recommended that the site cards and original reports be revisited to ascertain whether the current site extent is accurate and, if need be, amend the barricading to better reflect the actual site location. An exposure of artefacts located just outside the current fence was also located and this should be included within the new fence.

Reassess during future audit

Site: 37-6-0166

This site has been fenced but the area is currently infested by a thick covering of weeds and grasses. The site is an old recording and it is unclear whether the current fencing is arbitrary or accurately reflects the site's extent. It is recommended that the site is revisited with the report and site cards when vegetation levels are much lower so that better attempts can be made to relocate its contents.



View of vegetation cover across 37-6-0166





Salvage of sites

Sites: 37-6-3316; 37-6-3317; 37-6-3325

The first two of these sites are located around gateways that experience heavy livestock and vehicular traffic, while the third site is located along the banks of an eroding gully. In order to stop further damage from occurring to these sites, it is recommended that they be salvaged by representatives of the CHWG under the auspices of the HVO South AHMP

Recommendations from the October 2021 AHMP Audit

The following ACH management recommendations are provided as a result of the November 2020 AHMPs Compliance Audit.

1. **Increase the barricading around sites 37-2-2710, 37-6-0643 & 37-6-0874 to include recent finds.**
2. **Using site cards & original reports, ascertain accurate locations & extents of sites 37-2-1927, 37-6-0643 & 37-6-0874, & install/modify barricading.**
3. **To prevent further damage from erosion, install control measures, such as coir logs, at sites 37-2-0806 & 37-2-0807.**
4. **Reassess site 37-6-0166 when vegetation levels are much lower to ascertain actual location of site & amend fencing accordingly.**
5. **Salvage sites 37-6-3316, 37-6-3317 & 37-6-3325 under the auspices of the HVO South AHMP.**
6. **The open archaeological pits located at CM-CD1 should be backfilled as soon as possible, ensuring geofabric is in place to delineate the extent of the excavated layers.**
7. **Weed and vegetation growth in the HVO_CMCD1 20m Buffer_2013 area should be managed by operators entering on foot using hand-held power brush-cutting implements.**
8. **A fence should be installed around the HVO_CMCD1 20m Buffer_2013 area, and the outer perimeter CM-CD1 fence should be brought in to align with the disturbance exclusion buffer. Access between these areas is to be restricted to light vehicles between the fences, however, cattle can be permitted temporary access in order to keep vegetation levels down.**





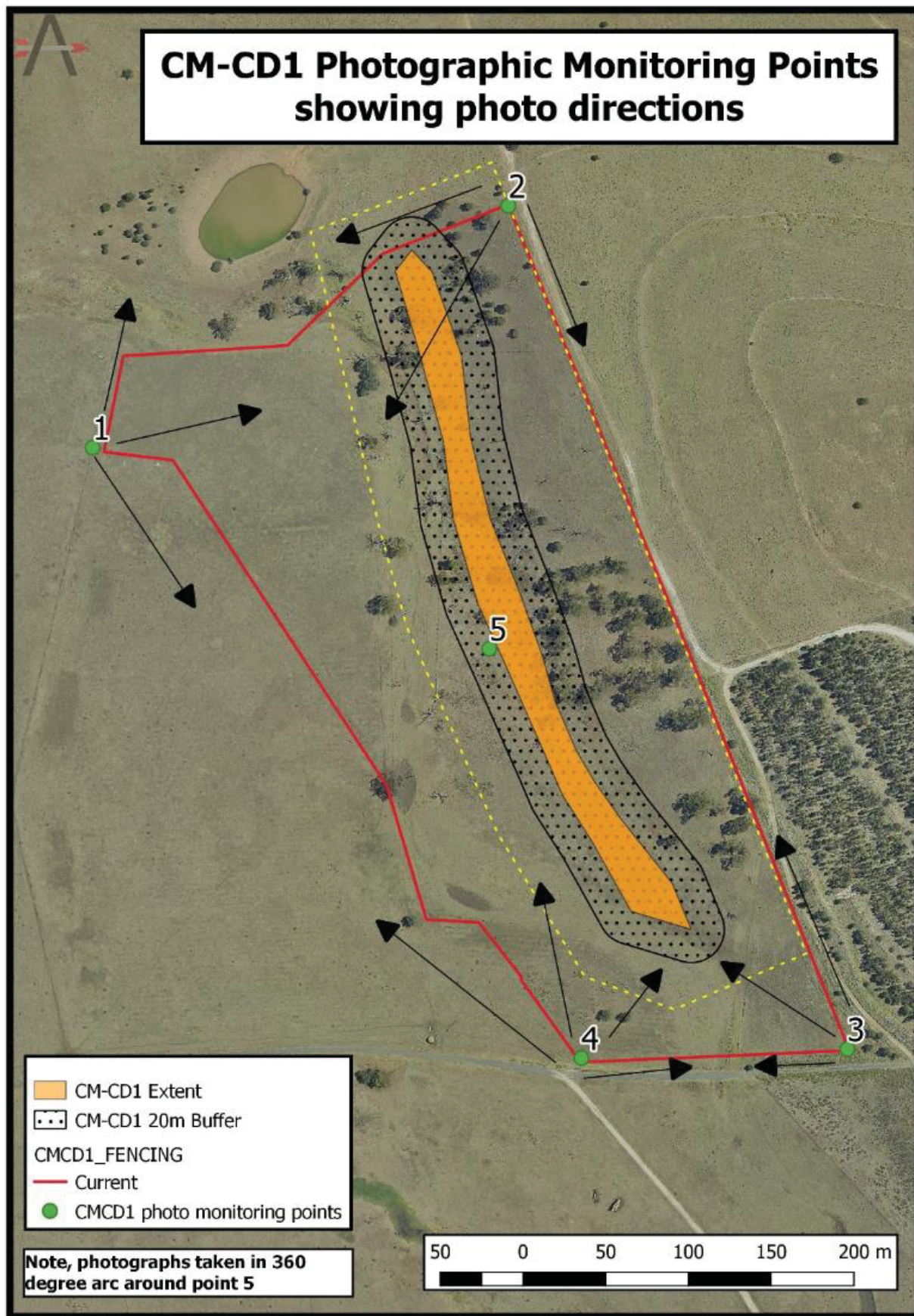
9. The CM-CD1 area should continue to be targeted during HVO's vermin control program in order to reduce feral pig disturbance as much as possible.
10. Register the new ACH site HVO-2140 on the AHIMS database.

APPENDIX A – CM-CD1 PHOTO MONITORING RESULTS

Photo Point #	Location at CM-CD1	Easting	Northing
1	North-west	308614	6403653
2	North-east	308814	6403807
3	South-east	309022	6403297
4	South-west	308860	6403290
5	Centre	308809	6403513

Co-ordinates (GDA94, z56) for CM-CD1 photo monitoring points





Location of CM-CD1 photo monitoring points





CM-CD1 Monitoring Point 1 Panorama – October 2019









CM-CD1 Monitoring Point 2 Panorama – October 2021



CM-CD1 Monitoring Point 3 Panorama – December 2018



CM-CD1 Monitoring Point 3 Panorama – October 2019





CM-CD1 Monitoring Point 3 Panorama – October 2021



CM-CD1 Monitoring Point 4 Panorama – December 2018



CM-CD1 Monitoring Point 4 Panorama – October 2019





CM-CD1 Monitoring Point 4 Panorama – October 2021



CM-CD1 Monitoring Point 5 Panorama – December 2018: (L-R: north through east through south)



CM-CD1 Monitoring Point 5 Panorama – December 2018 (L-R: south through west through north)



CM-CD1 Monitoring Point 5 Panorama – October 2019



CM-CD1 Monitoring Point 5 Panorama – November 2020



CM-CD1 Monitoring Point 5 Panorama – October 2021: (L-R: north through east through south)



CM-CD1 Monitoring Point 5 Panorama – October 2021 (L-R: south through west through north)

