



Final report regarding the archaeological and ethnographic, work area clearance, heritage survey undertaken over VRX Silica Ltd's Arrowsmith North and Arrowsmith Central project areas undertaken by the Amangu representatives of Yamatji Nation and Yamatji Marlpa Aboriginal Corporation

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Spatial data and GIS

Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 15 m. Geographic co-ordinates in this report are based on the GDA 94 coordinate system, [Zone 50].

Contents

Tables.....	ii
Maps.....	ii
Plates.....	ii
1 Acknowledgements.....	1
2 Executive summary.....	3
2.1 Summary of results.....	4
3 Introduction.....	5
4 Desktop research.....	7
5 Survey area/s.....	9
6 Survey methodology.....	11
7 Results.....	14
8 Recommendations and considerations.....	21
9 Bibliography.....	22
DPLH site files.....	22
Appendix 2 – acronyms.....	23

Tables

Table 1: Summary of scope and results.....	3
Table 2: DPLH Registered Sites.....	8
Table 3: Summary of Results.....	16

Maps

Map 1: Location of survey areas (map provided by VRX).....	6
Map 2: Heritage survey results summary – overview map.....	17
Map 3: Arrowsmith North survey area – clear.....	18
Map 4: Arrowsmith River intersecting with L70-208 Access Route – not clear area.....	19
Map 5: Arrowsmith Central survey area – partially complete.....	20

Plates

Plate 1: Survey team (L-R); Anys Price, Philippa Hunter, Glenis Little, Reg Brockman, Faye Farrell, Noel Taylor, Barry Dodd, Stephen Morgan, Darren Callow.....	2
Plate 2: Vegetation in survey area.....	9
Plate 3: Vegetation in survey area.....	10
Plate 4: Very dense vegetation along the L70-208 Access Route survey area.....	10
Plate 5: Archaeological survey methodology – walking transects.....	12
Plate 6: Team debrief.....	13

1 Acknowledgements

Yamatji Marlpa Aboriginal Corporation (YMAC) would like to thank the following people who helped prepare or participated in the archaeological and ethnographic heritage survey from 20 October to 22 October 2020.

Amangu representatives	
Glenis Little	Faye Farrell
Reginald Brockman Snr	Noel Taylor
Barry Dodd	Darren Callow

VRX Silica Ltd representative	
David Reid	Exploration Manager

Yamatji Marlpa Aboriginal Corporation representatives	
Philippa Hunter	Archaeologist
Stephen Morgan	Senior Anthropologist
Anys Price	Community Liaison Officer



Plate 1: Survey team (L-R); Anys Price, Philippa Hunter, Glenis Little, Reg Brockman, Faye Farrell, Noel Taylor, Barry Dodd, Stephen Morgan, Darren Callow

2 Executive summary

This correspondence provides VRX Silica Ltd (VRX) with the final results of the archaeological and ethnographic work area clearance (WAC) completed on the Yamatji Nation Settlement (WC2019/008) on 19 October to 22 October 2020.

The heritage survey was undertaken in regards to VRX's scope of works which requested an archaeological and ethnographic WAC heritage survey of their Arrowsmith North (AN) and Arrowsmith Central (AC) project areas. These project areas and their completion status at the end of the survey are summarised in table 1 below.

The survey was undertaken with the full involvement of the Amangu representatives. These representatives were nominated by the native title group based on the most current selection processes endorsed by the appropriate Native Title Group Committee.

Table 1: Summary of scope and results

Name / ID	Size	Completion Status	Request
AN Access Road	0.49 ha (buffered to 2.5m either side of centre line)	Complete	Archaeological and ethnographic WAC survey
AN Services Corridor	8.7 ha	Complete	Archaeological and ethnographic WAC survey
L70-208 Access Route	27.2 ha	Complete, partially clear	Archaeological and ethnographic WAC survey
AN Production Area	55.4 ha	Complete	Archaeological and ethnographic WAC survey
AC Infrastructure Area	9 ha	Complete	Archaeological and ethnographic WAC survey
AC Production Area	50 ha	Partially complete	Archaeological and ethnographic WAC survey

2.1 Summary of results

- The **AN North Access Road, AN Services Corridor, AN Production Area** and **AC Infrastructure Area** are **clear** for the stated works to proceed;
- A section of **L70-208 Access Route** is not clear as it intersects the Arrowsmith River (DPLH ID 30068). Further consultation with the Southern Yamatji Corporation is required regarding this area.
- The **AC Production Area** is **partially clear** for the stated works to proceed;
- **No** isolated artefacts were identified in the project areas.

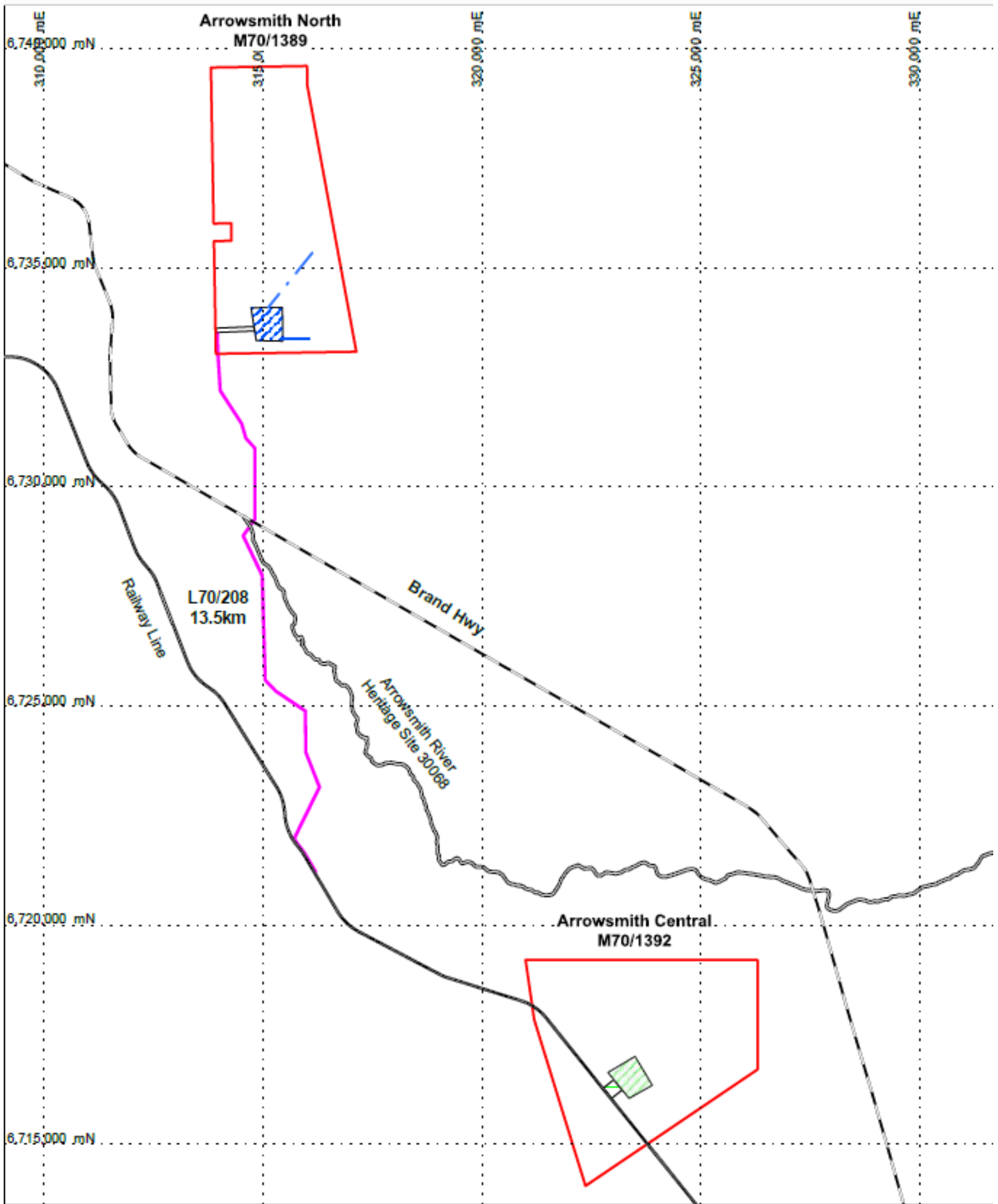
3 Introduction

VRX intends to use land contained within the Yamatji Nation Settlement (WC2019/008) for the development of infrastructure, such as access roads, infrastructure areas and production areas, to support the mining of silica sand at its Arrowsmith North and Arrowsmith Central project areas.

To meet their obligations under the heritage agreement and the *Aboriginal Heritage Act 1972* (the AHA) VRX contacted YMAC as the heritage service provider of the Southern Yamatji native title group to request an archaeological and ethnographic WAC heritage survey over their Arrowsmith North and Arrowsmith Central project areas.

Map 1 below, provided by VRX, outlines the location of the survey areas.

Map 1: Location of survey areas (map provided by VRX)



4 Desktop research

Prior to undertaking the fieldwork the heritage team completed desktop research of the project areas. The spatial data was entered into the Department of Planning, Lands, and Heritage's (DPLH) Aboriginal Heritage Enquiry System (AHIS) to identify any registered Aboriginal sites, other heritage places (OHPs), prior surveys and associated reports relevant to the project area. Unpublished heritage reports and relevant academic resources were also consulted. These site files and reports were requested from the DPLH and reviewed prior to mobilisation. The summaries of any sites that were revisited as part of the scope are presented in Table 2 below.

Registered Aboriginal sites are sites that have been reported to the DPLH and assessed by the Aboriginal Cultural Materials Committee (ACMC) as meeting the criteria of a site under section 5 and section 39 of the AHA. These sites are added to the permanent register of Aboriginal sites and are protected under the AHA.

There are two types of OHPs, lodged OHPs and 'not a site' OHPs:

- Lodged OHPs are sites that have been reported to the DPLH but have not yet been assessed by the ACMC. While they are pending assessment they are entered onto the temporary register. Potentially they are sites and disturbance to these places could invite prosecution under the AHA. Lack of knowledge as a defence under section 62 of the AHA does not apply to Lodged places; and
- 'Not a site' OHPs are either sites that have met the criteria of the AHA but have been so disturbed that the heritage values are no longer present or places that have been assessed by the ACMC and were found not to meet the criteria of the AHA.

The respective tenements containing the work program areas were checked against the Aboriginal site records held by the Department of Planning, Lands and Heritage. There were no registered Aboriginal sites or other heritage places in the tenements containing the Arrowsmith North or Arrowsmith Central work program areas. However the proposed access route L70-208 briefly intersects the northern section of the Aboriginal mythological site *ID 30068 Arrowsmith River* at GPS point 314700E 6729115N in Zone 50. This location is approximately six kilometres west of OHP Aboriginal site *ID 5217 Beharra Springs*.

DPLH ID 30068 Arrowsmith River

This place has special significance in Aboriginal mythology and the source of fresh water is listed as a Registered Site, meaning that it meets the Section 5 criteria of the AHA. The entirety of the river is mapped as significant to Aboriginal people. According to information provided by the Widi Mob in previous heritage survey reports -all waterways are interconnected in the Bimarra creation story.

The results of the desktop research over VRX's project areas are presented in table 2 below.

Table 2: DPLH Registered Sites

Project area	DPLH site ID / OHP ID	Name	Type	Restrictions
L70-208 Access Route	30068	Arrowsmith River	Mythological, Water Source	No

5 Survey areas

The survey area is located approximately 25km south of Dongara in the Midwest region of Western Australia. It is characterised by undulating, sandy terrain and coastal heath. Apart from the Arrowsmith River most drainage is through a series of minor tributaries which descend into swamps and lakes along the Swan Coastal Plain.

Access to the survey areas was generally good, with some areas accessible from the Brand Highway as well as numerous tracks, drill lines and firebreaks running east-west and north-south throughout the tenements. Ground surface visibility in the undisturbed portions of the survey area ranges greatly; from 10% in patches of very dense vegetation to approximately 80% in more open patches (see Plate 2). The vegetation comprises primarily of a Heath understory in an Open Low Woodland. Thickets of York Gum, *Banksia* sp. and *Allocasuarina* sp. characterise a mosaic of larger trees in an area otherwise dominated by dwarf species and coastal heath (see Plate 3). Vegetation along the L70-208 Access Route was extremely dense and provided little or no visibility of the ground surface (see Plate 4).

Plate 2: Vegetation in survey area



Plate 3: Vegetation in survey area



Plate 4: Very dense vegetation along the L70-208 Access Route survey area



6 Survey methodology

The archaeological and ethnographic heritage survey was undertaken to a WAC standard. WAC heritage surveys are designed to inform proponents where they can and cannot undertake works within a survey area (see Plate 5).

These types of survey usually occur in the very early stages of project planning and exploration. WAC surveys are undertaken when the proponent has not identified the precise location of proposed works. When heritage places are identified they are given a boundary and delineated as not clear. The proponent can then plan their work program to avoid heritage places, or, if avoidance is not possible then they can proceed to site identification recording of the effected heritage places. A site identification survey is the minimum standard required by YMAC to submit a site for consideration to the Department of Planning, Lands, and Heritage (DPLH) or to apply for a permit (s16 and s18) under the Act.

The minimum recording standards for YMAC WAC archaeological surveys are:

- Pedestrian transection at a spacing of no greater than 20 m;
- If spacing of greater than 20 m is required for safety reasons, this must be discussed with and agreed to by the Traditional Owner representatives. It is expected that this will be noted in the report where it occurs along with an explanation of why the increased spacing was deemed necessary, accompanying photographs of the terrain and the names of the Traditional Owner representatives that endorsed the change of methodology;
- Recording of outer lines or central lines using tracks on hand held global positioning system (GPS) devices with a minimum accuracy of +/- 5 m;
- Intensive pedestrian transection to determine the extent of heritage values of any identified sites;
- Accurate delineation of a boundary with a suitable buffer to account for GPS accuracy;
- On WAC surveys a deviation may be required by the proponent, these should provide a sufficient buffer around any heritage places;
- Flagging of the boundary using pink and black heritage tape. Please note that some Traditional Owner representatives may request that sites are not flagged to reduce visibility and potential visitation by non-authorised persons. In this instance, the wishes of the Traditional Owner representatives supersede this standard;
- Recording of survey progress by archaeologist / anthropologist using a field notebook; and
- An appropriate photographic record of the survey

The ethnographic component of the heritage survey was conducted at the same time as the archaeological survey with the anthropologist participating and observing the Amangu representatives during the pedestrian transects of the various survey areas. Ethnographic comments from the Amangu representatives were obtained during field inspections and in transit between each of VRX's survey areas. The anthropologist observed by taking photographs and GPS location reference points, while recording comments and answers to questions about the importance and significance of the cultural landscape and specific places in a field notebook. These comments include statements on what makes each place significant or important and any management or avoidance options.

On the first day of the heritage survey the heritage team facilitated a detailed brief. During the brief the heritage team discussed the scope of works, proposed use of the land, and the WAC survey methodology. The Amangu representatives had the opportunity to discuss and comment upon the proposed survey methodology and gave their consent to the proposed WAC methodology. Field briefings were completed every morning to ensure ongoing consent and engagement with the project.

At the end of the fieldwork the heritage team facilitated a debrief meeting. During the debrief meeting the team discussed the results of the survey, sought feedback, and collected recommendations and considerations for the sites and project area (see Plate 6).

Plate 5: Archaeological survey methodology – walking transects



Plate 6: Team debrief



7 Results

This section details the final results of the archaeological and ethnographic WAC heritage survey of VRX's project areas.

The ethnographic heritage survey of all the proposed work areas was completed at the same time as the archaeological survey. During the survey the anthropologist collected ethnographic comment from the Amangu representatives of the Yamatji Nation Settlement in relation to each of the survey areas. There were no significant ethnographic places identified by the Amangu representatives within the proposed production or access work areas for Arrowsmith North or Arrowsmith Central. However the service corridor between L70-208 and the AN project area passes nearby to Arrowsmith Lake, close to the Brand Highway. The Arrowsmith Lake remains an area of ethnographic interest to the Amangu representatives, due to the frequent water source and bird life present and the connection their ancestors had with the place. The VRX representative explained the proposed works involving some burning to clear the land, seed collection to assist rehabilitation and removing feral animals. The Amangu representatives expressed an interest in these activities and ongoing management of the project as VRX moves into a project development phase and prepares for mining.

Near the Brand Highway the proposed works in the area of the L70-208 Access Route the VRX representative explained the proposed works will involve laying a 200ml polypipe under the highway and across the significant mythological place Arrowsmith River (Site ID 30068) (see plate). The Amangu representatives discussed the impact to the Arrowsmith River and stated that further consultation with representatives from the Southern Yamatji Corporation would be required if the works proceed in this area. However the Amangu representatives requested that monitors are engaged during construction of the polypipe across the Arrowsmith River and during the initial mulching of the thick vegetation along much of the access route in L70-208.

The heritage survey within the Arrowsmith Central Production Area is partially complete. Due to time constraints and very thick vegetation in other survey areas, this area was not able to be completed. VRX has been advised that this area is only partially complete and partially clear, and will require a heritage survey to complete the remaining area.

Plate 7: Survey team discussing proposed works on the Arrowsmith River

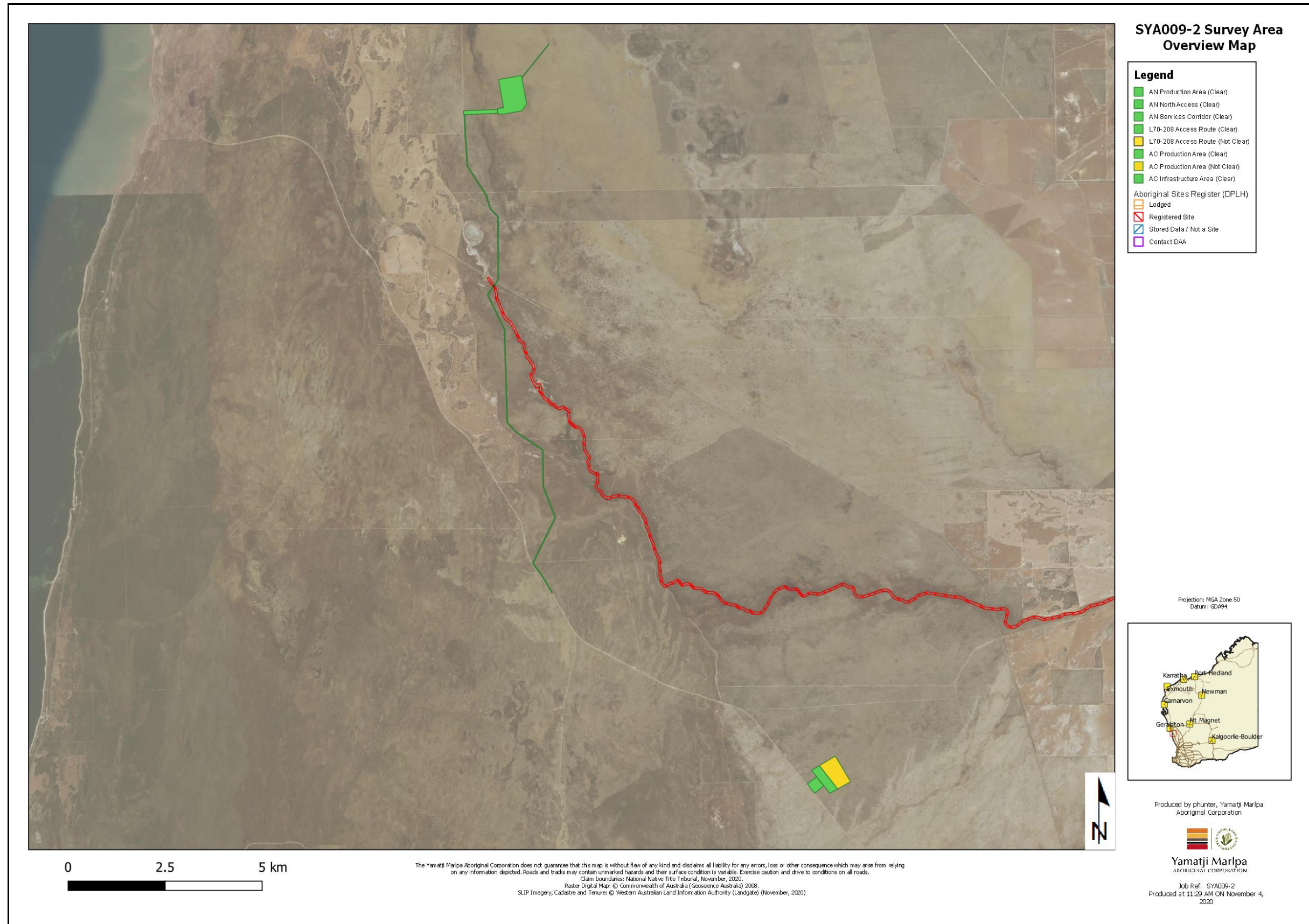


These results are summarised in Table 3 below. Please refer to Map 2 below for a visual representation of the heritage survey results. The spatial data for the clear and not clear areas has been provided with the preliminary advice. No isolated artefacts were identified during the heritage survey.

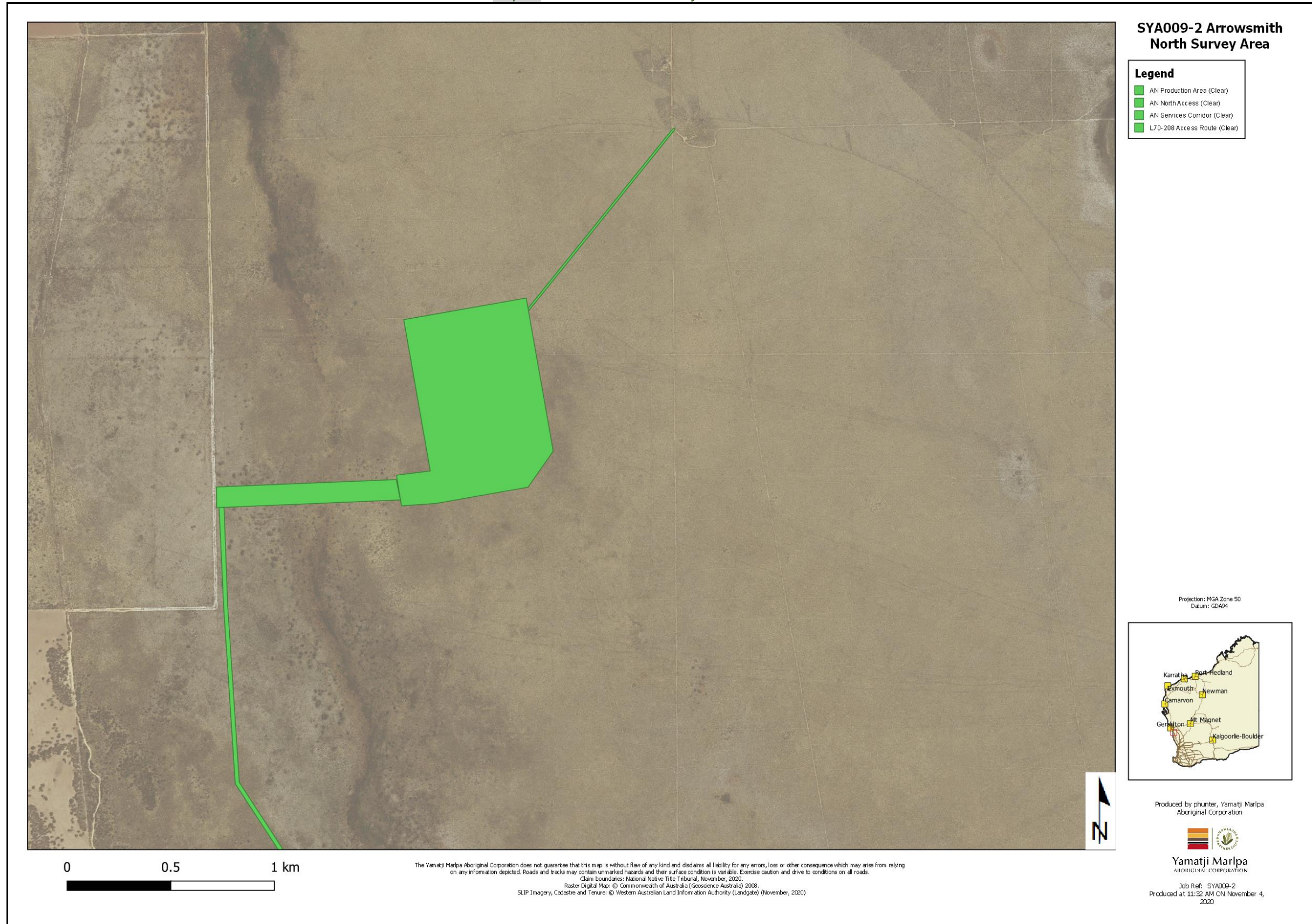
Table 3: Summary of Results

Scope # / Name	Completion status	Not clear area / Aboriginal heritage sites	DPLH Registered Aboriginal sites	DPLH other heritage places	Newly identified Aboriginal sites
AN Access Road	Complete	None	None	None	None
AN Services Corridor	Complete	None	None	None	None
AN Production Area	Complete	None	None	None	None
L70-208 Access Route	Complete, partially clear	None	Arrowsmith River (DPLH ID 30068)	None	None
AC Infrastructure Area	Complete	None	None	None	None
AC Production Area	Partially Complete	None	None	None	None

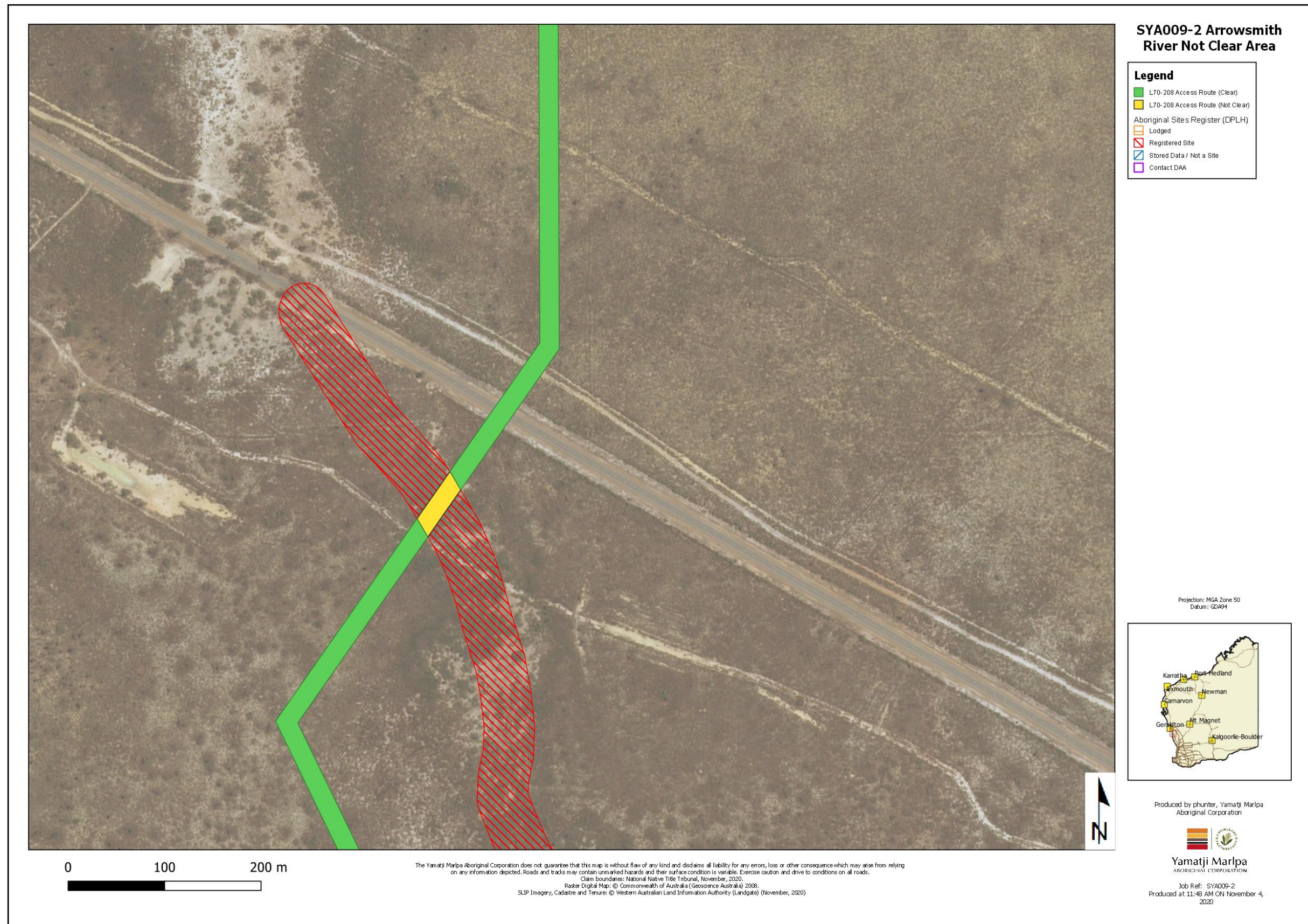
Map 2: Heritage survey results summary – overview map



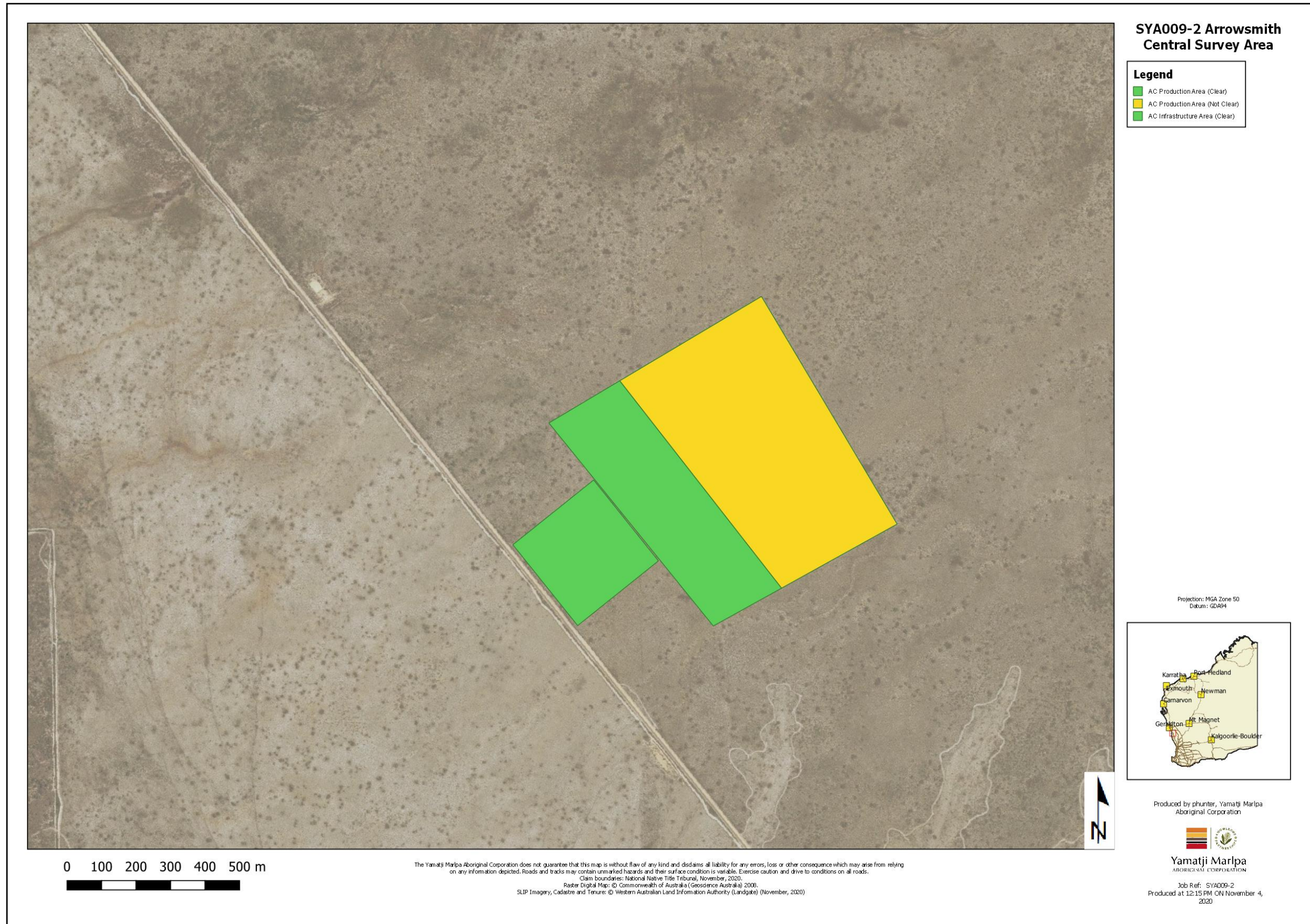
Map 3: Arrowsmith North survey area – clear



Map 4: Arrowsmith River intersecting with L70-208 Access Route – not clear area



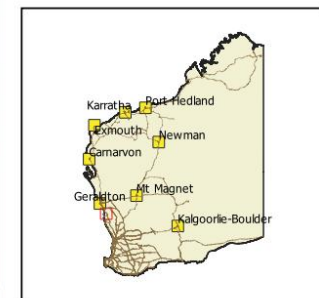
Map 5: Arrowsmith Central survey area – partially complete



SYA009-2 Arrowsmith Central Survey Area

- Legend**
- AC Production Area (Clear)
 - AC Production Area (Not Clear)
 - AC Infrastructure Area (Clear)

Projection: MGA Zone 50
Datum: GDA84



Produced by phunter, Yamatji Marlpa Aboriginal Corporation



Yamatji Marlpa
ABORIGINAL CORPORATION

Job Ref: SYA009-2
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The Yamatji Marlpa Aboriginal Corporation does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted. Roads and tracks may contain unmarked hazards and their surface condition is variable. Exercise caution and drive to conditions on all roads.
Claim boundaries: National Native Title Tribunal, November, 2020.
Raster Digital Map: © Commonwealth of Australia (Geoscience Australia) 2008.
SLIP Imagery, Cadastre and Tenure: © Western Australian Land Information Authority (Landgate) (November, 2020)

8 Recommendations and considerations

The scoped archaeological and ethnographic work area clearance survey of VRX's Arrowsmith North, Arrowsmith Central and L70-208 Access Route project areas is now complete. The proposed works are cleared to proceed subject to the following **recommendations**:

1. **It is requested** that Amangu people are engaged as monitors when works proceed in the L70-208 Access Route, and are informed when mulching work begins to ensure heritage values are not impacted.
2. **It is requested** that the Amangu representatives are present as monitors for the first Direct Vegetation Transfer process in the AN Production Area to ensure it will suitably preserve current flora.
3. **It is advised** that a section of L70-208 Access Route is not clear due to it intersecting DPLH registered site Arrowsmith River (DPLH (DPLH ID 30068)). Further consultation with the Southern Yamatji Corporation is required if these works are to proceed in this location, to identify the impact to the heritage values and significance of the Arrowsmith River heritage site.
4. **It is advised** that VRX should avoid the Grass Trees (*Xanthorrhoea* spp.) during the vegetation clearing stages of the work program. It is recommended that VRX undertake additional botanical studies in the AC Production Area to further understand this area.
5. **It is advised** that if human remains, skeletal materials that may be human, or materials that may belong to a human grave are discovered during exploration or resource evaluation within the cleared survey areas, VRX must follow the DPLH procedures and stop work immediately, and the materials and the area around them must be left undisturbed. The Western Australian Police must be informed immediately as well as Amangu traditional owners, through their representative, YMAC, as soon as practicable.
6. **It is recommended** that VRX employees and contractors executing the proposed works be informed of the contents of this report and their obligations under the *Aboriginal Heritage Act 1972*.
7. **It is recommended** that VRX maintain discussions with the Amangu people, regarding any future matters that may arise in relation to the areas surveyed, including any further proposed excavation or ground disturbance activities or access to uncleared proximate areas.

The following considerations concern were also raised during the heritage survey:

- Vegetation along the entire length of the L70-208 Access Route (13.5 km) was very thick and almost impassable in places. It is therefore advised that monitors are to be present when works begin in this area to ensure heritage values, which may not have been sited at the time of survey due to dense vegetation, are not impacted upon.

9 Bibliography

Aboriginal Heritage Act 1972 (WA)

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth.)

Anderson, K and Herrmann, C 2018, Final report regarding the archaeological and ethnographic, work program clearance heritage survey undertaken over VRX Silica's Arrowsmith North and Arrowsmith Central project areas undertaken by the Southern Yamatji representatives and Yamatji Marlpa Aboriginal Corporation.

Morgan, S. 2018 Report of an ethnographic section 18 consultation of seven bridges in the Midwest Gascoyne Region for Main Roads WA. Undertaken by the Southern Yamatji Claim Group Traditional Owner representatives and Yamatji Marlpa Aboriginal Corporation

2019, VRX Bankable Feasibility Study, Arrowsmith Central Silica Sand Project.

DPLH site files

DPLH SITE ID 30068 (Arrowsmith River)

Appendix 2 – acronyms

Acronym	Description
ACMC	The Aboriginal Cultural Materials Committee.
AHA	The <i>Aboriginal Heritage Act 1972</i> .
AHIS	The Aboriginal Heritage Inquiry System. The AHIS is used to search the DPLH's Register of Aboriginal Sites which records the location and other information concerning registered Aboriginal sites and other heritage places that have been reported to the DPLH.
Amangu representatives	Representatives of the Yamatji Nation native title holders. These representatives are selected by the native title group via the most up to date selection process endorsed by the relevant committee of the Yamatji Nation.
DPLH	The Department of Planning Lands and Heritage.
GIS	Geographical Information systems.
Heritage survey	A survey undertaken by representatives of the native title group in conjunction with suitably qualified heritage professionals (e.g. archaeologists and / or anthropologists), for the purpose of identifying and recording heritage sites and areas within a defined project area.
ILUA	Indigenous Land Use Agreement.
LAA	Land Access Agreement.
OHPs	Other heritage places. There are two types of OHPs, lodged OHPs and 'not a site' OHPs lodged OHPs are sites that have been reported to the DPLH but have not yet been assessed by the ACMC. While they are pending assessment they are entered onto the temporary register. 'Not a site' OHPs are sites which have been submitted to the DPLH and assessed by the ACMC as not meeting the criteria of a site under the AHA.
SID	Site Identification.
VRX	VRX Silica Ltd
WAC	Work area clearance.
WPC	Work program clearance.

Acronym	Description
YMAC	Yamatji Marlpa Aboriginal Corporation.