1. Introduction

Anthropologist Dr Bill Day, for the Gumala Aboriginal Corporation (GAC), was required to conduct a work clearance ethnographic survey over the proposed Pre-Feasibility Study Area to record ethnographic comment on any archaeological sites within the study area and identify any other Aboriginal sites that may exist. The study should conform to the Department of Indigenous Affairs (2002) Guidelines for Aboriginal Heritage Assessment in Western Australia. The survey was planned to examine three proposed developments at Pilbara Iron’s Yandicoogina Mine (AML70/274) and an additional low impact Ground Resistivity Survey:

- **Water Monitoring Bores.** As part of the Yandicoogina Mine Junction South East Pre-Feasibility Study, Pilbara Iron Pty Ltd (PI) needed to research the impact of any future development at its Yandicoogina Operations on the creeks and underground aquifers in the area. To facilitate this research, PI Hydrologists proposed the sinking of up to seven shallow water monitoring bores in the Weeli Wolli Creek floodplain in the Billiards target area. Drilling and construction of the Weeli Wolli bores are planned to depths generally less than 20 metres. The bores will be drilled and cased with 50mm UPVC casing to allow water level monitoring and water quality sampling only. The completed bores are designed to measure groundwater levels and monitor the responses of the ground water systems in the alluvium, calcrete and sandy materials of the modern day Weeli Wolli Creek alluvial aquifer.
• **Junction South East Project Area.** As part of the Yandicoogina Junction South East Pre-Feasibility Study, heritage surveys were required over an area of up to 20 square kilometres approximately six kilometres by six kilometres about two kilometres south-east of the current Yandi Mine. The Project Area is to allow for the design of a proposed mine layout and infrastructure including crushing facilities, an overland conveyor system, sampling and screening plant, train loading facilities, haul roads, mine pits, waste dumps, a bore field, light vehicle creek crossings and other associated structures.

• **Quail Siding.** The Pre-Feasibility Study includes the proposed Quail Rail Siding approximately seven kilometres by 200 metres wide in an area of approximately 14 square kilometres within BHP’s tenement (AM70/00270) subject to the HI Yandi Land Use agreement. The proposed siding would be between the 427 kilometre and 434 kilometre chainage marks along the existing Yandicoogina railway line, approximately twelve kilometres west of the Yandi rail loop.

• **‘Low Impact’ Ground Resistivity Survey.** According to Pilbara Iron, the purpose of conducting the Resistivity Survey is to gather data that will assist with determining the thickness of ‘over-burden’ (non ore body material) sitting on top of potential iron ore deposits. The proposed ‘Low Impact’ program consists of securing three separate cables to the ground with 10 cm pegs (spaced at 10 meters intervals). It is also proposed to place steel pegs with flagging tape along each line (spaced at 100 meter intervals) to provide a visible guide. All equipment will be put in place by people on foot and removed on completion of the survey (duration is expected to be one week). The proposed timing for the survey work is mid October 2004.

According to the PI Manager of Community Affairs, at the conclusion of the Pre-Feasibility Study, the Rio Tinto Executive Committee will make a decision as to whether the project will move to the next phase of development (Feasibility Study) and thereafter into mine development and expansion.
2. Indigenous Consultants

Together with GAC Aboriginal Liaison Officer Greg Tucker, the Indigenous Consultants on the ethnographic survey from October 5-7, 2004, were:

- Wobby Parker - Banyjima
- Peter Parker - Banyjima
- Alec Tucker - Banyjima
- Pat Long - Banyjima/Nyiyaparli
- Henry Long - Banyjima/Nyiyaparli

All these men are authorised to speak for the area and gave their permission for their names to be used in an open report. Wobby Parker, Alec Tucker, Pat Long and Henry Long, the four older men, worked on Marillana station for up to ten years (see McDonald 2004:3). Peter Parker’s father had been the spokesman for the area until his death in 2000 (see Tonkinson and Veth 1986:11; O’Connor 1996:14)

3. Ethnographic Background and Previous Ethnographic Research

According to Clark and Smith (1982:6):

The Pandjima and Niabali presently perceive their territories as adjoining in the … area between Weeli Wolli Creek and the prominent peaks [to the east]. Within this boundary area, their interests are shared rather than clearly demarcated, requiring a consensus between the two groups.

Tindale (1953) noted the Banyjima boundaries to be:

…along the Hamersley scarp to the range across the Fortescue River (South Branch) from Kudaidari (Goodaidarrie) Hills. Mandjina (Munjina of maps) Pool was a Pandjima water. They went east to the headwaters of Janikudjina (Yandicoogina of maps) Creek. On the south they visited Juno (Juna) Downs Station, Perry’s Camp.

Steve Brown (1987:14) says the Weeli Wolli area was a ‘transitional boundary’ between Banyjima and Nyiyaparli:

At the eastern end on the plateau were the Niabali and the central plateau was Pandjima territory (Fig.3). The boundary between the two groups lay west of Weeli Wolli Creek. Brandenstein (1967:2) notes that this was also a linguistic
boundary, as Niabali is the westernmost member of the large Western desert group of languages, and Pandjima belongs to the Pilbara Tablelands linguistic group. Recent information indicates that this boundary area was transitional rather than clearly demarcated, and that both bordering groups recognised a joint ownership of the area and its resources.

In 1974, Tindale’s description of Banyjima territory, cited below, also suggests that Weeli Wolli Creek is the boundary between Banyjima and Nyiyaparli:

Upper plateau of the Hamersley Range south of the Fortescue River; east to Weediwolli [sic] Creek near Marillana; south to Rocklea, on the upper branches of Turee Creek east to the Kunderong Range. In the later years under pressure form the Kurama, they moved eastward to Yandicoogina and the Ophthalmia Range forcing the Niabali eastward. They also shifted south to Turee and Prairie Downs driving out the Mandara tribe, now virtually extinct ['Punduwana], a native place not yet located, was their main refuge water in very dry times; other refuges were in Dales Gorge and at ['Mandjima] (Mungina Creek on maps) (Tindale 1974:255).

Clark and Smith (1982:7) describe the Banyjima as living in Onslow and the Nyiyaparli as living in Marble Bar, where their departure from tradition lands had led to loss of knowledge and a break in transmission of information to younger generations. The traumatic break occurred in the late 1960s:

Almost overnight Aboriginal people were moved off stations, which fractured their daily relationship with the traditional lands. Not only had Aboriginal lands been appropriated by the industry, the people were now physically and later, it would be argued, legally dispossessed from country. Impact on traditional life was and continues to be immeasurable. The success and viability of the pastoral industry had depended on Aboriginal labour for over one hundred years and many felt as though they left without recognition (NNTT 2002:38).

In the 1990s, the homeland movement resulted in a remarkable exodus back to tribal lands, the reopening of old Law grounds and establishment of communities assisted by agreements made between native title claimants and the mining industry. The
connection to traditional lands has been remarkably resilient amongst a dwindling group of older men and women who have been able to pass on much of their knowledge to interested younger members of their language groups. Heritage work for mining companies has played a significant role in continuing this connection to land.

4. An account of the ethnographic survey conducted on October 6, 2004

On Tuesday October 5, 2004, Greg Tucker and Bill Day picked up Banyjima elder, Wobby Parker at his daughter’s house in Tom Price. We then drove to Auski Roadhouse to meet Banyjima elder Alec Tucker. Apparently Greg had arranged to meet Nyiyaparli elders Gordon Yuline, David Stock and Richard Yuline at Auski but a telephone call to the GAC South Hedland Office confirmed that the three elders were on another job and would not be attending. I then drove to Youngaleena to collect Henry Long and Peter Parker. Joel Deacon, the Pilbara Iron Archaeologist, arrived from Dampier with Henry’s brother Pat Long. Both brothers identify as Nyiyaparli-Banyjima. As the ethnographic survey was to be almost exclusively on the western side of Weeli Wolli Creek, the five elders available were deemed sufficient. The two vehicles proceeded to Yandi Village where we stayed the night. Aboriginal Liaison Officer, Greg Tucker describes the itinerary the following day:

After breakfast we met Gary from the water monitoring area explained to us and showed us on his map where the monitoring bores are going to go along the Willi Wolli creek (sic), after the map show we headed out with Gary to see four of the bores which was put down around the 1998 year, there he explained Hamersley Iron will be doing the same bore work as 1998 but not as deep… We then went and saw some cave sites where the survey participants found when walking. There were about 3 caves, which one had a grinding stone, one a scatter and flake. We also went across to show the elders a grave site which Joel Deacon, Mick [Chawula] and I put up the fence around the graves.

Gary Clarke, the hydro-geologist from Liquid Earth, and the party drove over the ore deposit, passing a hill marked on the maps as ‘Backfill Hill’ (Plate 2). It was explained that the hill was to eventually be used as backfill for the proposed Junction
South East open cut.\textsuperscript{1} At the banks of the Weeli Wolli Creek the party inspected a 60-metre-deep bore previously put down to test the water levels in the iron deposit. Seven locations had been selected to drill water monitoring bores ten to thirty metres deep to test water levels in alluvial deposits. The bores are to assist in designing a strategy to overcome any impacts of dewatering from the proposed Junction South East extensions to Yandi Mine. The elders passed an operational drilling rig and were reassured that the water monitoring pads would be smaller at about 10 metres by 10 metres and only take ‘a couple of hours to drill.’ One solution to any lowering of the water table could be similar to the three discharge points into Marillana Creek discharging about 20 megalitres a day. At least one bore on the map shown to the elders (Map 3) would need to be moved and others would not be needed, leaving possibly four or five holes to drill. It was noted that some of the proposed bore holes are inside what was agreed to be the ‘Weeli Wolli Creek Exclusion Zone.’

It is ironical that drill holes are already proposed inside an ‘exclusion zone’ (see next section of this report). After reassurance that there would be a physical barrier between the mine and the creek and that the bores were to protect the creek, the Aboriginal Consultants expressed no opposition to the proposed water monitoring bores. All of the elders have worked on heritage surveys for Hope Downs who propose similar solutions to potential draw down of water levels resulting from open cut dewatering within the upper reaches of the Weeli Wolli Creek alluvial aquifer. There was some concern about the overall effect on the river system if both mines proceed. Greg Clarke also expressed the concern that putting too much water back into the creek systems might create an artificial environment.\textsuperscript{2}

Hydro-Geologist Greg Clarke explained that ‘if we find we are getting responses in the alluvials here, we may want to do a re-injection trial’ using a polythene pipe. After Greg Clarke’s presentation, which was recorded on video tape by Bill Day, the Aboriginal Consultants approved the proposed water monitoring, which was planned to begin ‘within the coming weeks.’

\textsuperscript{1}There appeared to be no objection to using the substantial hill as backfill but is recommended that a more sympathetic name be given to this physical feature.
\textsuperscript{2}During the lunch stop (Plate 3) the consultants observed the artificial oasis formed by the BHP dewatering outlet into Marillana Creek (see also the videorecording Day 2004b).
In the creekbed, Greg Clarke illustrated how the Weeli Wolli Creek had cut into the iron deposit which continues under the creek. He reassured the party that there was no plan to mine the creek and that the Billiards deposit, which is a continuation of the Junction South East deposit, would be mined as a separate mine on the eastern side of the creek.

The vehicles were then driven to the Billiards area to observe the 80 metre-deep diamond drilling outside the exclusion zone as agreed in Day (2004a). It was pointed out that these pads are considerably larger in area than required for the water monitoring bores. Returning to Weeli Wolli Creek crossing, the group listened to an explanation by Joel Deacon of the proposed ‘Low Impact’ Ground Resistivity Survey. The exercise would take about a week and involve light cables laid across the ground in three lines with ground contact points every ten metres. There was comment that Gumala representatives could observe the operation which was ‘likely to start soon;’ however, Joel Deacon gave an assurance that the work would have little surface impact.

Joel then discussed the map of the Junction South East area and the archaeological sites recorded within the surveyed areas. He thought it would be possible to avoid the sites, in particular three rock shelters in the sides of the hill which is surrounded by the proposed mining infrastructure. The conveyor belt to the south of the hill would require far less than the surveyed kilometre-wide strip. The party then drove to the crest of the slopes of the range which overlooks the proposed mine site and heritage clearance survey areas.

The proposed works were explained to the consultants who expressed sorrow for the disturbance to the country but accepted reassurances that the rock shelters and a possible grave site would be protected.

After inspecting the protective fencing and signage at grave site P02175 (Plate 4. See Campbell 2004; Day 2004a; McDonald 2003a), the remaining two vehicles drove through hilly terrain to the proposed Quail Siding. After driving the eight-kilometre length of the survey area, the Aboriginal Consultants declared the area ‘clear.’ Joel Deacon noted that no sites had been found in the area and that five grinding patches
previously recorded when the rail line was surveyed in 1996 (Y96-33) could not be found at their recorded location in either 1997 or 1999. O’Reilly and Di Lello (2004) also failed to find the sites. They state: ‘searches of [creeks] during the course of the archaeological survey of the Quail Siding Project Area did not locate any grinding patches’ (p.9). An engraving site on the northern side of the railway and to the east of the siding area has been signposted and fenced and should not be affected.

Final discussions about the planned siding were held at a lunch stop beside the BHP Yandi dewatering outlet (Plate 3). The elders were in agreement that they had no knowledge of any sites, mythologies or other ethnographic obstacles to any of the proposed extensions to the Yandi Mine and infrastructure.

Plate 1: Hydro-geologist discusses water monitoring with Indigenous consultants, beside Weeli Wolli Creek, October 6, 2004
Plate 2: ‘Backfill Hill’ in the surveyed area (see Map 1).

Plate 3: Joel Deacon explains plans for Quail Siding to Indigenous Consultants at the survey lunch stop beside the BHP Yandi water outlet, October 6, 2004.
5. Further Comment on the Weeli Wolli Creek Exclusion Zone and Proposed Water Monitoring Bores

After an ethnographic heritage survey of the Billiard Deposit area, Anthropologist Bill Day (2004:14) recommended ‘that drilling in the Billiards Project area should exclude a zone bounded by both banks of the Weeli Wolli Creek where the ground falls away into the creek bed as shown in Map 3.’ The agreed exclusion zone was drawn from an aerial photograph and is shown on Map3 of this report. The comments by Aboriginal consultants in Day (2004a) clearly show that their understanding of an ‘exclusion zone’ was an area where there would be no drilling.

A letter from PI Archaeologist Joel Deacon (September 7, 2004) has since suggested that an Exclusion Zone is that area where permission to drill is required from the Traditional Owners. The letter to Gumala Aboriginal Corporation states:

Pilbara Iron is very aware of the cultural significance placed on the Yandicoogina waterways by Bunjima and Niapaili Traditional owners, and as a result have placed drilling Exclusion Zones around the major creeks, such as the one recently placed around Weeli Wolli Creek. Therefore, we would like to request further consultation with the key Elders involved with the establishment of the Weeli Wolli Creek Exclusion Zone regarding the construction of the proposed Water Monitoring Bores.

The letter notes: ‘The completed network of alluvial monitoring bores within the Weeli Wolli Creek are highly likely to become compliance monitoring bores as part of the approvals conditions for the potential mining of Junction South East.’

In February 2003, Eddie McDonald from McDonald Hales and Associates wrote to the ATAL Specialist Archaeologist, Sue Smalldon, expressing concerns of Banyjima and Nyiyaparli elders at the effects of geotechnical drilling in Phils Creek at the Yandi Mine. The consultants in the January 2003 heritage survey were the same five men who participated in the survey on October 5-7, 2004, with the addition of Mervyn Parker and Eric Parker. Dr McDonald (2003e) wrote:
The Aboriginal consultants expressed grave concerns regarding the proposed drilling programme, particularly in respect of what are perceived as potential primary and secondary impacts to the local hydrological regime. The Aboriginal consultants indicated that they had expressed opposition to drilling within the creekbed in 2001 when previously consulted about an evaluative drilling programme. This opposition stems largely from a more general concern with the maintenance of creeks and other drainage features intersected by the ore bodies. While many of these creeks have not been formally identified as sites per se, they are considered to represent foci for camping, ceremonies and other activities. Indeed, the Aboriginal consultants observed that it was possible historically to dig soaks in the creeks at virtually any point and obtain potable water. There is a general perception amongst the Aboriginal consultants that drilling within the creekbed may significantly alter local hydrology, which in turn may negatively impact other water sources (including places reported as ‘sites’ in the strict sense) as well as flora and fauna.

Dr McDonald (2003e) described the creeks in the Yandi area as part of a ‘cultural landscape’. He continued:

… there are precedents for the view that indirect impacts on water sources such as springs that have been listed as sites could be considered to fall under the provisions of Section 17 of the [Aboriginal Heritage Act (1972)] where this ‘destroys, damages, conceals or in any way alters any Aboriginal site.’ It is also the case that the creeks could be considered to constitute part of a ‘cultural landscape’ through their interconnections with habitation, ceremonial and other sites in the area.

Dr McDonald (2003e) listed three conditions before geotechnical evaluation drilling be allowed at Phils Creek:

1. That Aboriginal community representatives be allowed to monitor the drilling programme;
2. That the Aboriginal monitors be able to halt the drilling programme should it be deemed at any time culturally inappropriate, and;
3. That the data derived from the geotechnical drilling programme be made available to the community (preferably in both ‘technical’ and ‘plain language’ formats).

Considering all of the above, it is recommended that Aboriginal Liaison Officer Greg Tucker and Anthropologist Bill Day or other GAC representatives with a Pilbara Iron hydrologist conduct an inspection of the water monitoring, dewatering and re-injection systems, present and proposed, at and around Yandi Mine. A video tape of the recommended inspection made available to Aboriginal consultants would assist consultations in future heritage surveys of the area.

6. Further Comment on the Junction South East Expansion

McDonald (2003a:16, 21) found no ethnographic sites in the Junction South East Mine Expansion Area (lighter shade on map) enclosed by the wider area which is the subject of this report (darker shade on map). After extensive consultations and meetings, Tonkinson and Veth (1986:11) wrote: ‘I am satisfied that there are no Aboriginal ethnographic sites of significance in the area of the proposed [Yandi] development – at least, not in the opinion of the Aborigines widely acknowledged to ‘speak for’ this particular area.’ According to O’Connor, at a meeting held near the Yandicoogina/Marillana Creeks junction on 24 February, 1995, a Nyiyaparli elder stated ‘From this point to Weeli Wolli Creek is all clear.’ The senior Banyjima elder present stated: ‘Yes, that’s alright, No problems.’ (Minutes transcribed in O’Connor 1996:15; see also Barber 1996:36). McDonald (2003c:8) also states: ‘No ethnographic sites, with the exception of Pinnapinna, were reported by the Aboriginal consultants within the Billiards survey area.’ However, McDonald (2003a) specifically commented on ‘drilling in the creeks’ (pp.16, 21). He noted (p.16):

The Aboriginal consultants again requested that no drilling occur in the creeks in the area (eg Weeli Wolli, Marillana and Yandicoogina). However, if any impacts were necessary on the creeks, such as for water monitoring bores, groundwater dewatering discharge that specific consultation be undertaken as had previously occurred in respect of previous developments (see for example, McDonald 2003b).

Tonkinson and Veth (1986:12) noted the concern of the Aboriginal Consultants that ‘the Barimunya (three hills) site’ be left undisturbed (see also O’Connor 1996:13). They also asked that disturbance to two Aboriginal campsites be minimal.
The Indigenous consultants who assisted McDonald in August 2003 did not think that Site P02175 contained a burial but suggested ‘if the Aboriginal man who thought he had found burial markers in the area was still convinced about the presence of a burial, then further investigations should be undertaken and include the use of such technology as ground probing radar’ (McDonald 2003a:22). As noted in Day (2004) and Campbell (2004), a ground radar investigation was done and recommendations subsequently made. As a result, Pilbara Iron has fenced the suspected burial area, as shown in Plate 4.

7. Comments on the Conduct of Ethnographic Heritage Surveys at Yandi Mine.

Pilbara Iron representatives were exceedingly cooperative and informative during this survey (see Day 2004b). However, it is my understanding that an ethnographic study requires more comprehensive input. During the above survey, it was noticeable that the elders are becoming increasingly infirm and hard of hearing. It is respectfully suggested that a new generation of Aboriginal leadership would be better able to assess the impact of such large scale proposed developments. Interviews with women also confirm that they also have stories about the land and should be able to comment. It can be argued that consulting only with the men is an artificial and Westernised interpretation of Aboriginal society (see Turner 1990).

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4 For example, Bonny Tucker has been a key informant for the story and song associated with the Three Sisters hills at Yandi.
Plate 4: Protective measures at possible grave site P02175, October 2004.

Plate 5: A view over the Junction South East Pre Feasibility Survey Area.
8. Recommendations:

- There are no apparent ethnographic impediments to the Weeli Wolli Water Monitoring Bores, Quail Siding, Low Impact Ground Resistivity Survey and Junction South East Extensions to Pilbara Iron’s Yandi Mine.

- A Pilbara Iron hydrologist should meet with Gumala Aboriginal Corporation representatives to detail the extent of water monitoring, dewatering and water re-injection at all sites, including Phils Creek, within the Yandi Mine project.

- If agreed to by the claimant groups, female representatives of the traditional owners should be given the opportunity to have input in ethnographic heritage surveys over areas where developments will severely impact of their country, either separately or in conjunction with the men.

- If agreed to by the claimant groups, future ethnographic surveys should have a mix of elders and next-generation acknowledged tribal leaders.
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