



FREMANTLE PRISON, KNUTSFORD STREET RAMP ARCHAEOLOGICAL WATCHING BRIEF AND EXCAVATION RESULTS

for

Philip Griffiths Architects and Fremantle Prison

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INTRODUCTION

This report details the results of an archaeological watching brief and excavation that was conducted by Eureka Archaeological Research and Consulting UWA (Eureka) at the Knutsford Street Ramp, Fremantle Prison in June 2011.

BACKGROUND

Fremantle Prison is located in the City of Fremantle, Western Australia, and was constructed between 1852 and 1859. Upon its construction it was utilised as a public works prison, convict distribution depot, convict workshop and the main site of Imperial convict administration in Western Australia. The site was designed by Captain Henderson, Comptroller General of the Swan River Colony, and was located on a raised coastal limestone scarp, clearly visible from the sea. This imposing limestone building dominated the town of Fremantle in the early nineteenth century. The prison complex is bound by the present-day street system of Hampton Road, Fothergill Street, Knutsford Street and The Terrace (Plate 1). The complex occupies 4.86 hectares of land, and 23 substantial extant structures existed within the perimeter walls at the time of its closure as a prison in 1991 (Bavin 1990). The Fremantle Prison complex is a World Heritage Site with multiple uses including as a tourist destination, museum and function venue. Previous archaeological work undertaken by Eureka at Fremantle Prison includes watching briefs and assessments of features exposed during development work (such as the renovation of Number 14, The Terrace in 2009 / 2010) and archaeological assessments made in the context of proposed re-developments (such as the Prison parade ground and visitor centre's café in 2009). A detailed historical background to the Fremantle Prison complex is provided in Eureka's prison parade ground excavation report (Burke *et al.* 2009), with a summary of key historical dates provided in Table 1 below.

Plate 1: Oblique aerial photograph of Fremantle Prison, view East (Gore 1935). The arrow overlies the Knutsford Street ramp, which runs in a north / south direction.

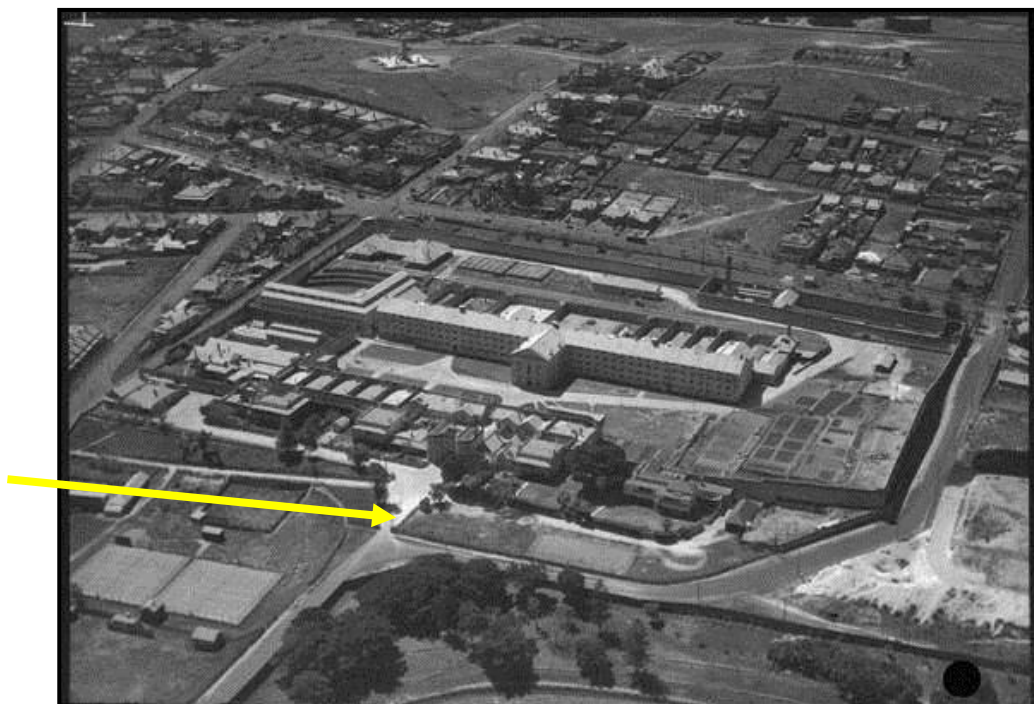


Table 1: Summary of key dates in the history of Fremantle Prison

| <i>Event</i> | <i>Date</i> |
|--|------------------------------|
| Construction began on an Imperial Convict Establishment | 1852 |
| First convict occupation of the prison | 1855 |
| Cessation of convict transportation to Western Australia | 1868 |
| Imperial Convict Establishment is renamed Fremantle Prison | 1867 |
| Transfer of prison management to colonial government | 1886 |
| First female prisoners | 1886 |
| Use as a military gaol and internment centre during both World Wars | World War I and World War II |
| Female prisoners moved out of Fremantle Prison | 1970 |
| Fremantle Prison closed as a prison | 30 November 1991 |
| Establishment of Fremantle Prison Trust | 1992 |
| Fremantle Prison becomes a tourist attraction | 1992 |
| Fremantle Prison attains World Heritage Listing with other Australian convict-era heritage sites | 2010 |

Fremantle Prison is listed on a number of local, State and federal heritage registers, including the Register of Heritage Places, National Heritage Register, Register of the National Estate, City of Fremantle – Municipal Heritage Inventory and the National Trust of Western Australia. The Prison is also part of a consortium of convict-era heritage sites which attained World Heritage listing in 2010.

At its western approach, Fremantle Prison has a terrace of stone buildings that form the public façade. These buildings, either side of the main gate house, comprised the original accommodation for the senior prison officers. The Terrace is bordered by a steeply inclined grassed area with a retaining wall at the west, below which is the pedestrian access ramp from the City of Fremantle's Parry Street Car Park; running north to south, from Knutsford Street (north) on a gentle incline to the crest of the hill (south) in front of the main entrance to the prison at Fairbairn Street / Fothergill Street (Figure 1 and Plate 2).

Figure 1. Plan of Fremantle Prison in 1856, with existing ramp shaded in green.

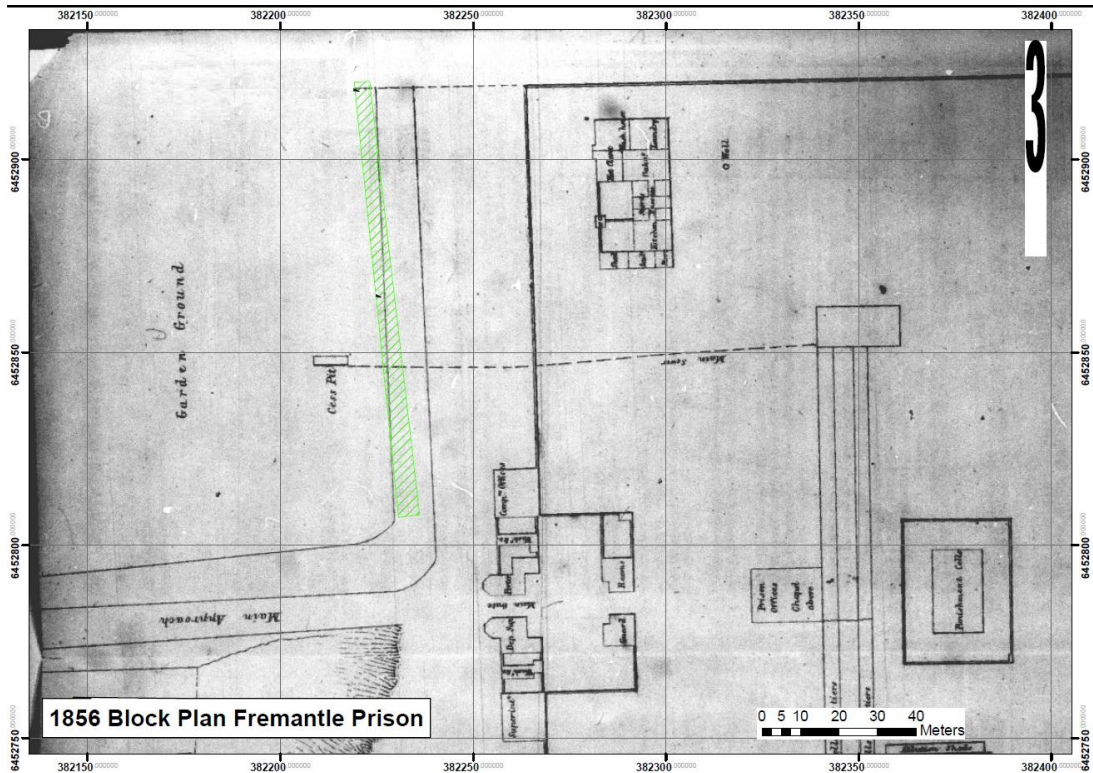
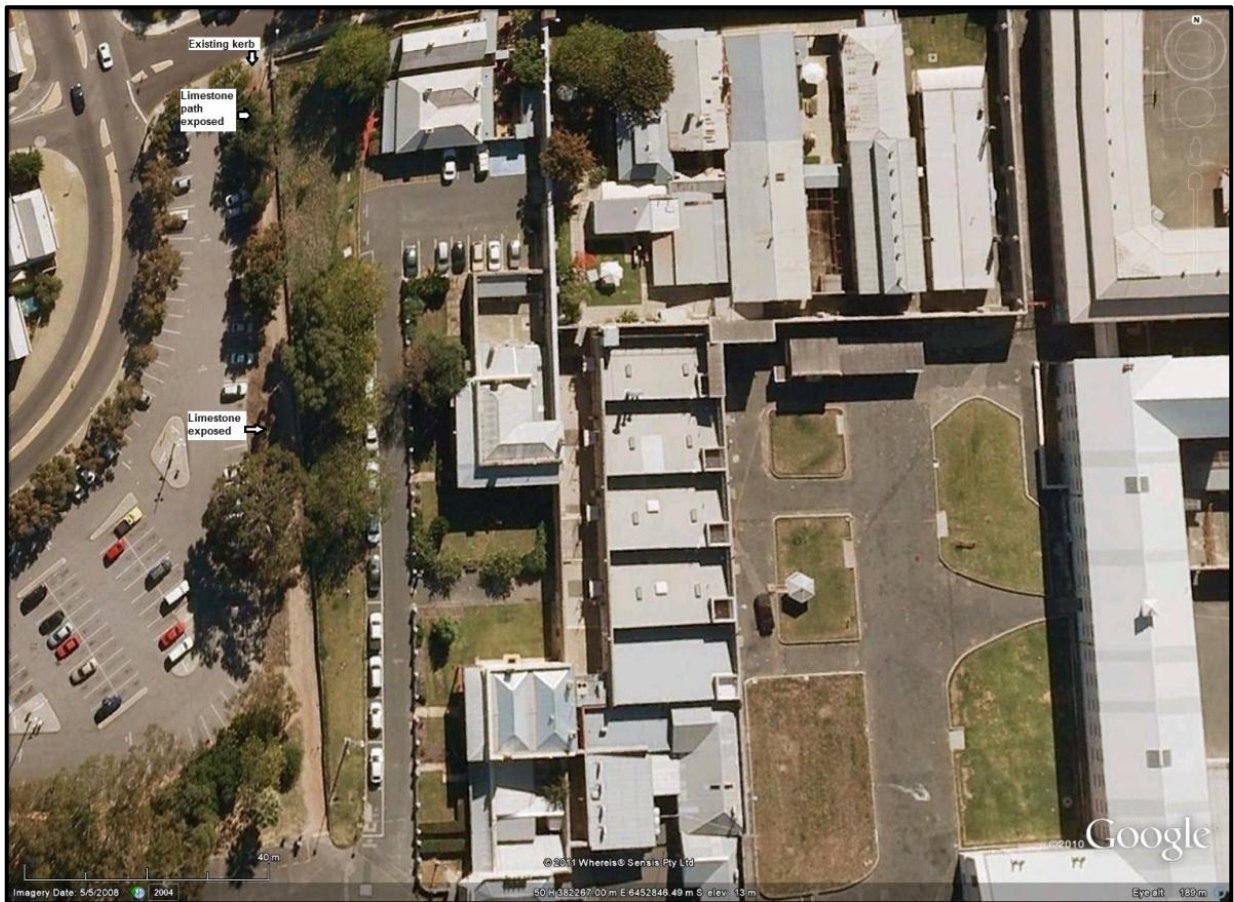


Plate 2: Google Earth image showing existing Knutsford Street Ramp and locations of parts of the original limestone pathway exposed.



Building development works are continuing in the Fremantle Prison heritage precinct to improve functionality of the space and enhance and conserve the site's historical integrity.

As part of the ongoing development, plans for upgrades to public access to the Prison were made, and the resurfacing of the ramp from Knutsford Street was proposed in 2011. Fremantle Prison reviewed earlier archaeological reports focussing on the management of features outside the main prison complex, in particular the Knutsford Street Ramp (McIlroy 1990; Burke 2009). These reports highlight the significance of the original crushed limestone ramp as an important surviving element of the early convict establishment, and recommend monitoring of any ground disturbing work with the potential to impact upon the original ramp surface, estimated to be 500-1000mm below the present ground surface.

Following this advice, Philip Griffiths Architects planned to remove 100mm from the existing ramp surface using a *Bobcat*. A new surface of bitumen stabilised fill, compacted with a 2.5 tonne roller and topped with fine limestone (in keeping with the aesthetics of the complex), would then be laid. Philip Griffiths Architects engaged Eureka to undertake a watching brief on the excavation of the ramp, to begin on Monday 20 June 2011.

Contrary to expectations, the original compacted limestone ramp surface was identified less than 100mm below the existing ground surface at the northern end of the ramp. On the slope 40 metres to the south of the footpath kerb at the northern end of the ramp, the original ramp surface was identified at a depth of approximately 100mm (Plate 3).

Work was stopped in these areas, and continued across the remainder of the ramp under close monitoring by an archaeologist. No further sections of the original ramp surface were revealed during the removal of 100mm of material, although in places occasional limestone fragments (<50mm in size) were observed amongst blue metal fill, suggesting either previous disturbance to the original crushed limestone surface, or that limestone rubble was mixed with blue metal to form the later surface.

Following discussion with Philip Griffiths Architects, Bill Bowker and Bevan Bevis (Fremantle Prison) and Kate Morse (Eureka) it was agreed that the southern section of the original ramp surface would be photographed and planned, then covered with stabilised soil to protect it from further damage resulting from exposure to rain and pedestrian activity. It was also agreed that the northern part of the ramp surface would be cleared by the archaeologist to determine the extent of the crushed limestone surface. When the extent of the surface was established it was decided that the entire section would be exposed and recorded before being preserved by reburying it. The archaeological records of the original ramp surface will be incorporated into future management planning strategies.

PROJECT AIMS

The aim of the archaeological watching brief was to ensure that the removal of 100mm from the surface of the Knutsford Street Ramp was conducted in a controlled fashion, with minimum impact to any underlying archaeological features. Following the discovery of parts of the original crushed limestone ramp surface, and after consultation with Philip Griffiths Architects and the Fremantle Prison management, the watching brief evolved into an archaeological excavation. The principal aims of the excavation were to:

- archaeologically record two sections of the crushed limestone ramp surface, exposed and identified during the watching brief;
- determine and record in detail the extent of the northern section of exposed crushed limestone surface;
- determine the depth of the crushed limestone surface and identify the surface onto which it was laid down;
- package all cultural materials recovered during the monitoring and excavation for future analysis; and
- produce a short report detailing the work undertaken, that can be used in future management and planning of the archaeological resource at Fremantle Prison.

ARCHAEOLOGICAL WATCHING BRIEF AND EXCAVATIONS

PESONNEL

| <i>Team Member</i> | <i>Position</i> | <i>Institution</i> |
|--------------------|------------------------|--------------------|
| Jane Fyfe | Archaeologist | Eureka |
| Jeremy Ash | Senior Archaeologist | Eureka |
| Dr Kate Morse | Director | Eureka |
| Ben Riley | <i>Bobcat Operator</i> | Cpd Group |

METHODOLOGY

The Knutsford Street Ramp is approximately 100m long (north/south) and ranges in width from the retaining wall to the edge of the garden beds between 11m to 5.6m. The archaeological Watching Brief was conducted by Jane Fyfe, with ongoing consultation with Kate Morse. Following an initial inspection of the ramp and in discussion with the *Bobcat* operator, it was agreed that the ramp surface would be scraped in two 50mm increments, and that the archaeologist would signal for cessation of the work.

Following the identification of sections of the crushed limestone ramp surface, archaeological excavation was initially undertaken using trowels and brushes. All subsequent excavation of the exposed southern section of ramp surface was conducted in this way. This section of the ramp was photographed and planned using the corner of the Knutsford Street wall / staircase as the datum point, with a baseline along the retaining wall to the east.

Initially, the exposed northern section of ramp surface was also excavated using trowels and brushes. This was completed on the first day, exposing a substantial area of the crushed limestone surface. The east and west parallel borders of a pathway were visible, as was the north/south extent of the intact surface, at approximately 100mm depth. The remainder of the pathway was uncovered using hand shovels, trowels, brushes and a yard broom. The exposed surface was photographed and a baseline plan drawn and levels recorded from a datum point located on the northeast corner of the second brick step, where it meets the retaining wall, at 7° and 15.8m from the point of measurement.

A rectangular slot was also excavated at the western border of the limestone pathway. The slot measured approximately 550mm x 430mm and commenced at 177mm to 595mm depth below the datum point in the southeast corner (a total depth of 418mm). The slot was excavated stratigraphically, photographed and the east and north sections were drawn. A Harris Matrix was completed to show the relationship of the stratigraphic layers (Figure 3).

Bulk samples of the excavated material were retained for future analysis. Artefacts and other cultural materials were collected from the top of the ramp surface, the layer above the exposed northern section, the excavation along the borders of the exposed northern section and the excavated slot. Samples were labelled according to location, date and context but not sorted or classified; this could be part of a future study by archaeology students or Prison curatorial staff.

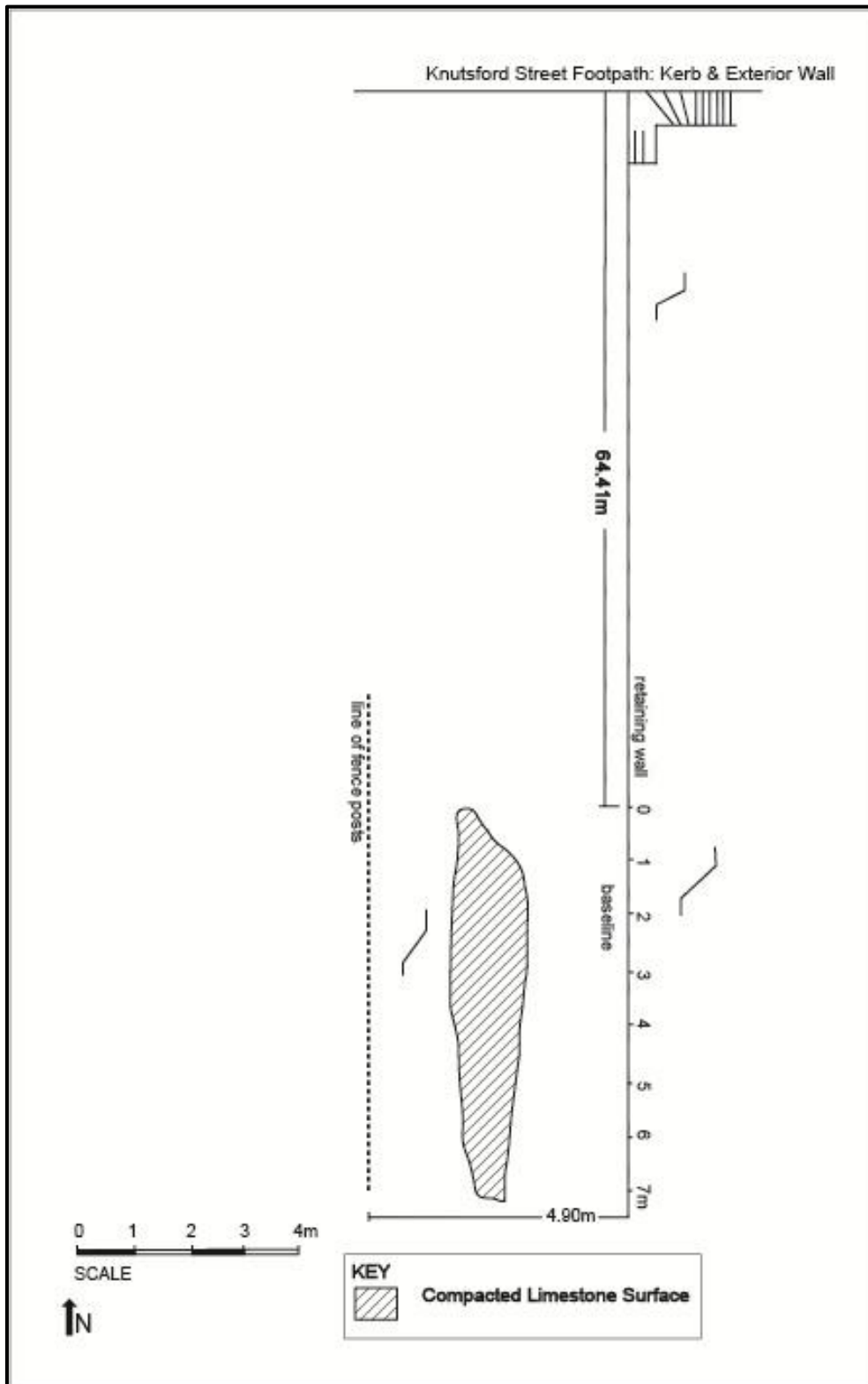
RESULTS

Exposed ramp surface: southern section

The crushed limestone surface that was exposed on the Knutsford Street Ramp was highly deteriorated (Figure 2). The surface comprises patchy and crumbling pieces of limestone interspersed with medium grey soil and porous crumbling pieces of brick. Only three small pieces of brick were observed in this limestone surface. Also present were eight pieces of freshly broken slate, ranging from 30mm to 40mm in length; the breakage was the result of the initial scraping of the surface by the *Bobcat*. The slate was left *in situ*.

The surface was photographed, planned and covered with 50mm of a stabilised soil mixture. The plan was drawn using fixed features as reference points – i.e. measurements were taken from the corner of the retaining wall and the exterior wall on Knutsford Street. A baseline, running from 64.41m to 75m from this point was used and is shown in Figure 2. The process of recovering the limestone surface was closely monitored to ensure that the machinery did not impact upon the archaeology. The recovered ramp surface was not compacted with the roller at this stage.

Figure 2: Plan showing exposed section of limestone surface on Knutsford Street Ramp, Fremantle Prison



Exposed ramp surface: northern section

At a depth of approximately 120mm the *Bobcat* uncovered a compacted limestone surface with small to medium sized limestone cobble inclusions. At two locations within the exposed surface, porous, crumbling brick fragments were noted. This compact surface that is likely to be the limestone ramp surface identified in earlier historical and archaeological research (McIlroy 1990; Burke 2009). Further excavation revealed that the surface, or pathway, has well-defined edges. At the southern end of this section of pathway, its eastern edge was found to be 30-40mm deeper than elsewhere, illustrating that it was not an even surface. This was confirmed when levels were taken and the variation from the north end to the south averaged 147mm.

On 27 June 2011 further archaeological work was undertaken to reveal the full extent of the limestone surface, its thickness and the surface on which it was laid. A slot measuring approximately 550mm x 430mm was excavated approximately 3m along the western edge of the exposed surface. At its northern end, the edge of the surface was found to be uneven, suggesting that the original edge may have been damaged by traffic, water erosion or during later construction works (Plate 3). However, whilst the edge appeared to be truncated, it was relatively even horizontally, with a variation of less than 70mm between the east and west borders.

The eastern edge of the surface initially appeared to be well-defined and straight, but further excavation revealed less compact limestone continuing towards the retaining wall, approximately 20mm below the eastern edge. This continued for almost four metres of the eastern side of the surface. A 400mm section was excavated up to the retaining wall, exposing a mixed, uneven, loosely compacted deposit of small cobble sized pieces of limestone and a smooth sided brick fragment. The brick showed little deterioration and maintained a sharp corner and smooth exposed surface.

The nature of the deposit was characteristic of a loose rubble fill that may have been laid to assist drainage, perhaps when the retaining wall was constructed.

Plate 3: Northern edge of exposed limestone surface at north end of Knutsford Street Ramp



At its southern end the limestone surface was less well preserved, particularly on the western side where the garden beds and car park are located, where it was characterised by smaller limestone cobbles in a crumbly soil matrix. At the south-eastern side of the pathway the hard, compact surface continued, and is likely to extend beneath a layer of blue metal to the south and continue up slope along the ramp.

The western edge of the limestone surface was well defined and follows a straight line for more than six metres. For this reason, the test slot was excavated along this edge. Initial investigations at the northern end of the surface indicated a depth of approximately 120mm.

The rectangular test slot measured approximately 550mm x 430mm and was excavated to a depth of 450mm. The limestone surface was found to range in depth from 200mm to 260mm and overlay a layer of compact yellowish white sand with limestone inclusions (Figure 4). The area to the west comprised more mixed deposits, with the intrusion of topsoil from the garden beds (context #3), and a thin humic layer (context #4) above the same compact yellowish white sand found under the limestone surface. In addition, a probable cut and fill (context #5) was sealed by this layer, suggesting further cultural activity prior to this possible foundation layer (Figure 5).

Inspection of the exposed surface after rain showed a flat, compact, well drained surface made up of medium sized limestone cobbles with well defined edges on the east and west (Plate 3).

The small number of artefacts recovered during the excavation were collected, bagged and labelled. They were not sorted or classified and no analysis has been undertaken, although there is no evidence to suggest particular cultural connections, other than a few pieces of roofing slate suggesting colonial architectural use.

Figure 3: Harris Matrix for slot excavated through northern section of exposed ramp surface

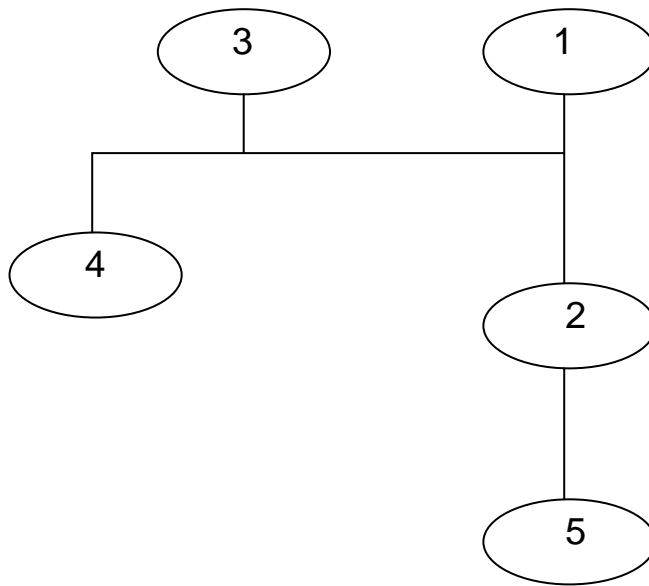


Figure 4: East section drawing, excavated slot, Knutsford Street Ramp

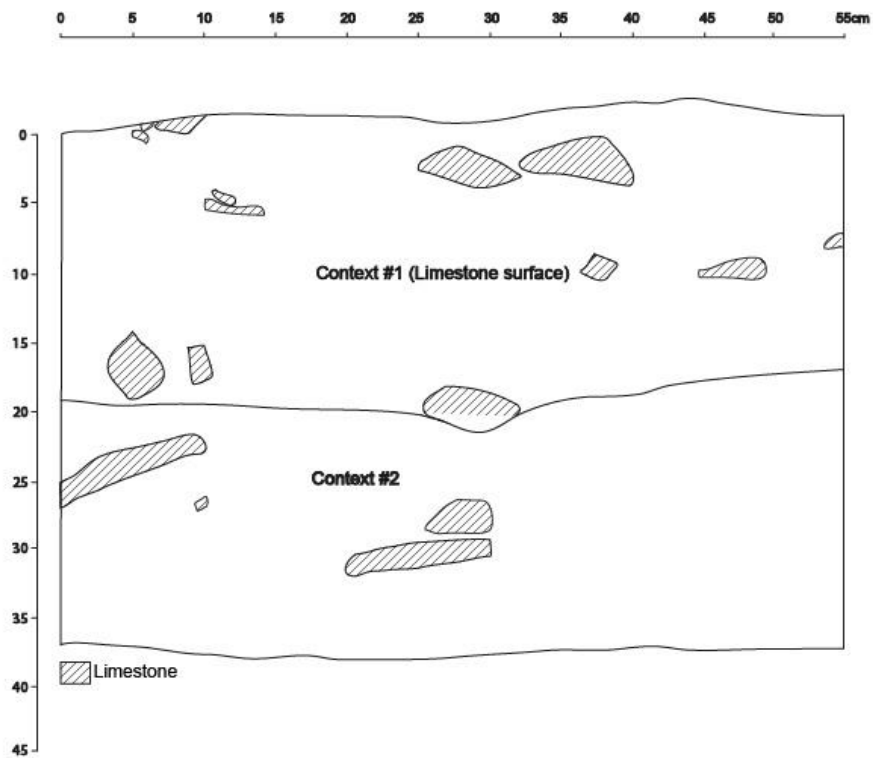
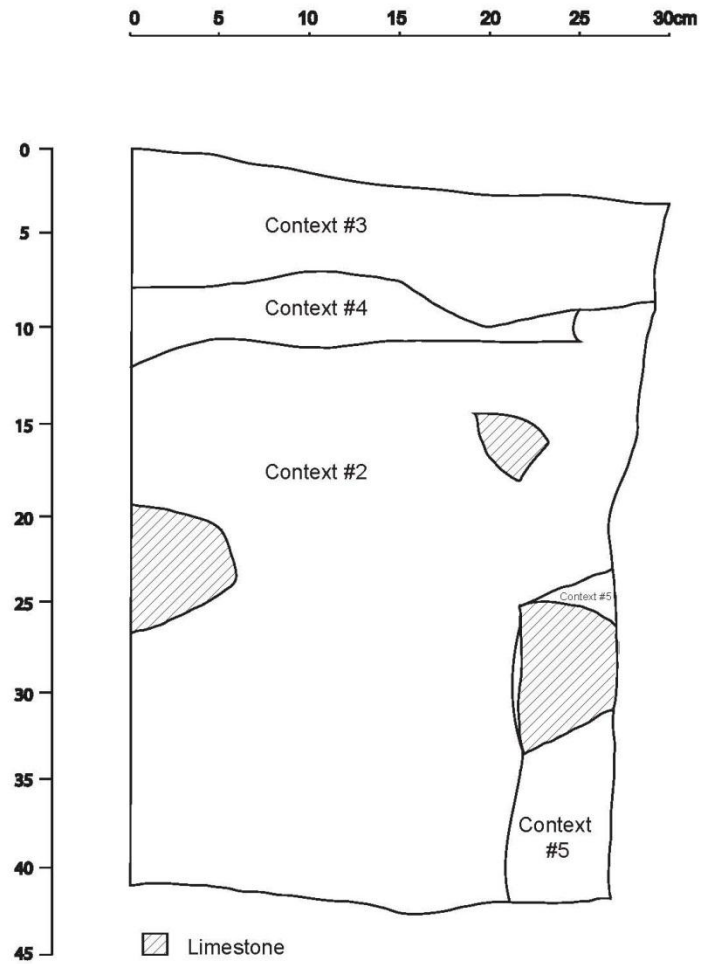


Figure 5: North section drawing, excavated slot, Knutsford Street Ramp



INTERPRETATION AND CONCLUSION

The nature of this watching brief and subsequent test excavation provided limited scope for thorough archaeological investigation and interpretation. The principal conclusion that can be drawn is the existence of sections of a compacted limestone pathway below the existing overburden.

The limestone surface is between 200-250mm thick and indicates a substantial construction similar to that used in tracks throughout the prison complex and recorded by other archaeological excavations (Burke, Paterson & Fleming 2009). The layer below the surface is typical of levelling, or foundation layers observed in excavations in other parts of the Fremantle Prison complex, most recently on the south lawn of the Chaplain's House at 8 The Terrace, for which the depth has not yet been determined (Eureka 2011).

The thickness of the limestone layer and the probable levelling layer below suggests that this pathway was constructed using similar techniques to other structures within the Prison complex, identified as having been designed by the Royal Engineers and constructed by convicts. Consequently it is likely that the exposed limestone surface is the original ramp pathway constructed by convicts, possibly as early as 1864, where a limestone path is visible in a water colour by Thomas Henry Johnson Browne, or 1859 in a watercolour by Henry Wray (Burke 2009).

The likely continuation of the surface on the eastern side, parallel with the retaining wall, suggests that there may be substantially more of the pathway intact beneath the overburden.

As an integral part of the early colonial architecture and the Fremantle Prison complex, the existence of an intact, convict constructed limestone pathway is highly significant. That fact that this is closer to the ground surface than suggested in earlier archaeological work (McIlroy 1990) suggests that either the ramp has been substantially deteriorating (weather, storm damage and continued use over 21 years) or that the area in which the archaeologist identified crushed limestone at 500-1000mm was actually the levelling layer shown in Figure 4, and that the pathway had been demolished at that location. The proximity of the pathway to the surface of the ramp further reinforces Burke's advice of 2009 that 'Care should be [taken] to avoid disturbing [the surface] as much as possible' (Burke 2009).

RECOMMENDATIONS

- The exposed section of limestone pathway should be covered with stabilised soil mixture to a depth of 100mm and compacted to protect and conserve it pending further discussion and investigation.
- The results of this report should be incorporated into an Archaeological Management Plan (AMP) for Fremantle Prison.
- A suitably qualified and experienced archaeologist should be involved in the planning for any development at and around the Prison complex prior to that work being undertaken, and involved in monitoring any ground disturbance works.
- Where archaeological features or deposits are uncovered during monitoring or construction works, work must cease and an archaeologist must assess the significance of the findings and determine the best course of management. Provision for this, costs involved and contractual variation with architects and building/construction companies should be built into any development contracts to provide for the conservation and integrity of the Prison complex in view of its significance to Western Australia, Australia's colonial and convict history and its World Heritage listing.
- Care must be made to ensure that development design does not have an adverse impact on the significant heritage values of the Fremantle Prison complex as a whole.
- Consultation with the Heritage Council of Western Australia must be undertaken as part of the planning process associated with the redevelopment of the Fremantle Prison complex, as part of the *Heritage Act of Western Australia* 1990.
- Further archaeological investigation of the northern section of the Knutsford Street Ramp and limestone pathway be planned for the future.

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