Train Support Facility, Greta, New South Wales

HISTORICAL HERITAGE ASSESSMENT

- Authors: Peter Holmes, Rose Reid, Monique Jacob and Joseph Brooke,

- Final Report Version 4
- 11 May 2010

Train Support Facility, Greta, New South Wales

HISTORICAL HERITAGE ASSESSMENT

- Final Report Version 4
- 11 May 2010

Sinclair Knight Merz
ABN 37 001 024 095
590 Orrong Road, Armadale 3143
PO Box 2500
Malvern VIC 3144 Australia
Tel: +61 3 9248 3100
Fax: +61 3 9500 1180
Web: www.skmconsulting.com

Executive Summary

Introduction

Sinclair Knight Merz Pty Ltd (SKM) have been contracted by Pacific National to address historical heritage assessment and reporting requirements issued by the Director-General as part of the Environmental Assessment (EA) for the proposed Greta Train Support Facility (TSF), in Greta, New South Wales. The project is being conducted under Part 3A of the *Environment Planning and Assessment Act* 1979.

The Greta TSF is a major rail development project for New South Wales and is considered to be critical major infrastructure. The TSF will include rail infrastructure, a site office and access road. The TSF is required to service and provision trains for the Pacific National coal freight business. The proposed works will include earthworks throughout the project area for the preparation of the site and construction of the infrastructure required to service locomotives and wagons as well as an administration facility and ancillary development associated with the project. The project will also include connection of the rail tracks within the TSF to the Main Northern Railway.

This Historical Heritage Assessment documents the results of background research, a field assessment (surface and sub-surface), an assessment of heritage significance and an impact assessment for features located within the TSF project area as well as an assessment of impacts to historical heritage places within 1km of the proposed TSF.

Project Scope

The scope of this Historical Heritage Assessment includes the following:

- Review of relevant State and Commonwealth legislation pertaining to the proposed works;
- Background research including review of heritage lists, identification of historical themes and development of a predictive model of sites types and distribution;
- Presentation of results of the field investigation including survey and archaeological excavation (sub-surface testing);
- Interpretation and discussion of the results of the field program;
- Assessment of the heritage significance of identified features within the project area and within the local region (1km radius of project area);
- Assessment of impacts to heritage items, both within and in close proximity to the project area; and
- Provision of recommendations of the appropriate management of historical heritage for the duration of the proposed works.

Historical Context

The assessment comprised a review of background information and historical research, register searches of statutory and non-statutory databases, surveys of the project area and sub-surface testing.

Searches of the Australian Heritage Database (Commonwealth Department of Environment and Water Resources (DEWR)), the State Heritage Register and State Heritage Inventory (NSW Heritage Council), the Register of the National Trust (NSW) and the relevant REP and LEP identified one registered heritage item within the project area (remains of 11 "Miners Cottages"), and an additional 21 items located within 1km of the project area.

Pastoralists and free settlers commenced settlement in the region in the 1820s following the declaration of Newcastle to be a free settlement (Cessnock City Council Website 2004; Convict Trail Project 2007).

Coal mining is the dominant historical theme of the region. Numerous collieries have been active in and around Greta since the 1860s. William Farthing was the pioneer of the coal industry in the Greta area and, in 1861, one of the earliest extractions of coal was from a small 10 acre area where he had proved a coal seam. He subsequently obtained a lease from Samuel Clift on the area known as Anvil Creek, south of the present town of Greta. The lease, dated 20 December 1861, was the catalyst for generating further land settlement for the community around Greta and Anvil Creek.

Historical records indicate that the underground workings for mines in the Anvil Creek area extended underneath the project area. However, based on available historical data surface features associated with the mines are most likely located outside the current project area. A map from 1873 clearly shows a collection of 11 dwellings located parallel to the railway line opposite the Old Anvil Creek Colliery within the project area. Anecdotal evidence suggests that there were German miner's cottages.

Rail is one of the secondary historical themes of Greta and the project area is located adjacent or near to the Main Northern Railway and Greta Railway Station identified as items of significance. The Greta Railway Station Group (State Heritage Register (SHR) 01156) is considered to be the best surviving example of a late 19th Century group of built station features with its significance enhanced by its intactness and completeness. The Greta Railway Station Group was assessed by the Heritage Council of NSW to be a historically, scientifically, archaeologically and socially rare heritage item.

Field Program

The field program included an initial site inspection to determine the nature of the project area, and conduct a walkover of the proposed works. This was followed by a detailed archaeological survey to determine the presence of surface archaeological finds and identify any potential for subsurface deposits.

Twenty-four shallow pit features with shallow drystone retaining walls were identified in the project area, predominantly around the central part region, and all within approximately 100 m of the railway line. The majority of these features were associated with small piles of what appeared to be ash and coal, and small scatters of domestic historic artefacts. Additionally, numerous other non-lined depressions, which may or may not have originally been lined in the past, are now overgrown subsided shallow pits.

Similarly the artefact scatters identified during the survey did not appear to be aligned with any known historical features such as the "Miners Cottages". Surface scatters of historical artefacts identified in conjunction with some of the pit features were apparently associated with recent excavation activity undertaken possibly by "relic hunters" who may have been looking for historic dump site items. Other exposed artefact scatters were associated with recent grader activity in the Trotting Track area.

From the results of the survey it is clear that further methodical sub surface investigation of the "Miners Cottage", is necessary to identify additional archaeological evidence such as artefact concentrations or features such as post holes arising from miners occupation of the area. There was no evidence to indicate that the "Miners Cottages" had more permanent masonry or rock structural features that could leave a significant footprint for non invasive sub surface testing.

Based on the nature of the ground visibility (low) and the degree of ground disturbance, intrusive archaeological testing was recommended. The disturbance of the soil in many areas and the shallow depth to sandstone bedrock as evidenced by rock outcrops, would exclude the use of Ground Penetrating radar (GPR) as a means of identifying the location of archaeological features, as the GPR signal would be distorted by the previous ground disturbance.

Evidence from the historical background and the analysis of artefacts from sub surface testing and the excavation of features indicates historical activity linked to the discard of domestic artefacts within the project area and provides an approximate time frame of the mid to late 1800s for the deposition of the artefacts.

Significance Assessment

The assessment of cultural heritage significance seeks to develop an understanding as to why a project area, place or item is considered important and what values it has to the community. Assessments of cultural heritage significance help to formulate and guide management policy and strategies. Cultural heritage significance may be derived from the fabric of a place, association with a place, or the research potential of a place.

The heritage assessment criteria endorsed by the Heritage Branch, (Department of Planning, NSW) encompasses the four values identified in the Australia ICOMOS Burra Charter definitions:

- Historical significance;
- Aesthetic significance;
- Social significance; and
- Scientific significance.

The Heritage Branch(Department of Planning, NSW) has developed the publication *Assessing Significance for Historical Archaeological Sites and Relics* (2009). These criteria are summarised below:

- Archaeological Research Potential (NSW Heritage Criterion E).
- Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D).
- Aesthetic or technical significance (NSW Heritage Criterion C).
- Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).

The pit features identified during the survey program, and the sample of pit features excavated during sub-surface testing did not provide any explanatory archaeological evidence relating to their form, function or origin. In particular no archaeological evidence indicated any link to historical mining activities in general or to the Old Anvil Creek Colliery operating between 1861 and 1864 on the other side (eastern side) of the railway from the project area. Consultation with mining heritage specialists (D. Cameron, pers. comm. 26/11/2009) did not shed any further light on the function of these features.

The artefacts and features identified during the field program have been assessed as having little heritage significance, and therefore are not considered significant on a Local or State scale. As such, in accordance with the *Heritage Act* 1977 (Section 4(1) the artefacts and features found in the project area are not considered to be ‘relics’.

Therefore the archaeology within the project area is considered to be of little heritage significance since it does not fulfil the criteria for local or State listing as a heritage place. The project area has revealed sparse archaeological data and provides little research potential and no evidence to suggest that further testing, such as enlarging the sample of features for excavation will present a data set to adequately answer the questions regarding their origin and possible links to historical industrial activity documented for the area and the features.

All features identified were considered to be of little heritage significance with no or low archaeological research potential, and no sites were assessed as having State heritage significance.

Impact Assessment and Management Recommendations

1) Greta Railway Station Group

   The Greta Railway Station Group (SHR01156) is adjacent to but isolated from the project area by private property providing a buffer on the western side of the rail lines and will be circumvented by the access road and relatively isolated from the main construction zone which is located at the north end of the project area (see Appendix A). There will be a period of heavy traffic during the construction phase and continuing lighter traffic during the operational phase, however this does not constitute a threat to the Greta Railway Station Group and accordingly no heritage management recommendations are considered necessary.

   If rail traffic increases significantly past the Greta Railway Station Group as a result of the TSF construction or operations, then the long term effects of vibration on the structural integrity of the Station buildings should be considered. Certain safeguards for the buildings if required could include vibration monitoring and regular structural checks prior to and after an increase in rail traffic so corrective strategies such as in ground barriers if necessary can be evaluated against recognised standards for the potential for building damage (Hunaidi, 2000).

   In contrast to structural heritage concerns, the current viewshed available while approaching the Greta Railway Station Group along Nelson Street is not threatened by the proposed structures associated with the TSF since they have been located at the northern end of the project area. The development of the site for rail facilities is considered sympathetic to the continued transformation and modification of the industrial landscape with a history of mining and rail activities surrounding the project area.

2) “Miners Cottages”

   The area containing the row of 11 no longer extant historic “Miners Cottages” has the potential to yield further archaeological information regarding domestic life in an industrial context. Features or artefact deposits in this area may be exposed by large scale ground surface clearance during the preparation of the site prior to construction. The following heritage

management recommendations are provided in order to capture and document this information:

- This area is marked accordingly on all construction plans including those issued to contractors.
- If artefacts or structural features such as circular post moulds for example are exposed, then work in the immediate vicinity should stop, and a qualified archaeologist should be consulted.
- Work should only commence once the features have been photographed and documented by an archaeologist.

3) Pit Features

In the light of the results from the archaeological testing, the pit features identified within the project area appear to be related more to opportunistic discard given their shallow depth to bedrock and the disturbed stratigraphy, rather than industrial activity such as mining and therefore are considered of little significance and no further sub-surface investigation is recommended. However, given the apparent uniqueness of this collection of pit features, it is recommended that the remaining un-recorded features are fully recorded prior to work commencing on the site to provide an archival record for future heritage reference. This recording would be non-invasive, be undertaken by a qualified archaeologist, and comprise the recording of relevant dimensions, associated features and/or artefacts, and photographs according to NSW Heritage Council Guidelines.

In the unlikely event that unexpected or significant archaeological remains not identified as part of this study are discovered within the project area (for example during works associated with the construction of the new surface infrastructure facility), all works in the immediate area should cease, the remains and potential impacts should be assessed by a qualified archaeologist and, if necessary, the Heritage Branch(Department of Planning, NSW) be notified.

Contents

Tables

Figures

Abbreviations

AHC	Australian Heritage Council
AHIMS	Aboriginal Heritage Information Management System
CHL	Commonwealth Heritage List
DECCW	Department of Environment, Climate Change and Water
EA	Environment Assessment
GPR	Ground Penetrating Radar
LEP	Local Environment Plan
m	metre
NHL	National Heritage List
NSW	New South Wales
PAD	Potential Archaeological Deposit
REP	Regional Environment Plan
SHR	State Heritage Register
STP	Shovel Test Pit
TP	Test Pit
RNE	Register of the National Estate

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
V1	2/02/10	Vanessa Edmonds	Vanessa Edmonds	03/02/10	Practice Review
V2	10/02/10	Brian Watson	Brian Watson	10/02/10	Project Director Review
Final	02/03/10	Joseph Brooke	Joseph Brooke	02/03/10	Project Manager Technical Review
Final	03/03/10	Brian Watson	Brian Watson	03/03/10	Project Director Review
Final V2	03/05/10	Rose Reid	Rose Reid	03/05/10	Technical Review
Final V3	07/05/10	Rose Reid	Rose Reid	10/05/10	Technical Review
Final V3	11/05/10	Vanessa Edmonds	Vanessa Edmonds	11/05/10	Practice Review

Distribution of copies

Revision	Copy no	Quantity	Issued to
V2	Electronic	1	Monteath and Powys
V2	Electronic	1	Pacific National
V2	Electronic and Hard Copy	7	Registered Stakeholders
Final V3	Electronic	1	Monteath and Powys
Final V3	Electronic and Hard Copy	2	Pacific National
Final V3	Electronic	7	Registered Stakeholders
Final V4	Electronic	1	Monteath and Powys

Printed:	11 May 2010
Last saved:	11 May 2010 03:21 PM
File name:	\\skmconsulting.com\melprojects\VWES\Projects\VW04784\Deliverables\Historical Report\Final Baseline Heritage Assessment- Train Support Facility, Greta.Technical review V1.docx
Author:	Peter Holmes, Monique Jacobs ,Joseph Brooke
Project manager:	Joseph Brooke
Name of organisation:	Pacific National
Name of project:	Train Support Facility, Greta
Name of document:	Heritage Assessment: Train Support Facility, Greta
Document version:	Final Report V3
Project number:	VW04784

1. Introduction

Sinclair Knight Merz Pty Ltd (SKM) have been contracted by Pacific National to address historical heritage assessment and reporting requirements issued by the Director-General as part of the Environmental Assessment (EA) for the proposed Greta Train Support Facility (TSF), in Greta, New South Wales. The project is being conducted under Part 3A of the *Environment Planning and Assessment Act* 1979.

The Director-General's requirements include (but are not limited to), *non-indigenous heritage, inlcuding archaeology items and areas of local, State aqnd National heritage significance on the site and within the surruunding area (*Application MP09-0233).

The Greta TSF is a major rail development project for New South Wales and is considered to be critical major infrastructure. The TSF will include rail infrastructure, a site office and access road. The TSF is required to service and provision trains for the Pacific National coal freight business. The proposed works will include earthworks throughout the project area for the preparation of the site and construction of the infrastructure required to service locomotives and wagons as well as an administration facility and ancillary development associated with the project. The project will also include connection of the rail tracks within the TSF to the Main Northern Railway.

This Historical Heritage Assessment documents the results of background research, a field assessment (survey and sub-surface testing) and the assessment of heritage significance for features located within the TSF project area as well as an assessment of impacts to historical heritage places within 1km of the proposed TSF.

1.1. Project Location

Greta is situated within the Cessnock City Council local government area located within the Hunter region of New South Wales (NSW). Greta is situated approximately 27 km north-east of the city of Cessnock, approximately halfway between Singleton and Maitland.

The project area is identified as the parcel of land running along the western side of the Main Northern Railway Line, in a north-west direction from Greta Railway Station, bounded to the west by the proposed F3 Freeway to Branxton (refer to map in Appendix A).

1.2. Scope of Historical Heritage Assessment

The scope of this Historical Heritage Assessment includes the following:

- Review of relevant State and Commonwealth legislation pertaining to the proposed TSF;

- Background research including review of heritage lists, identification of historical themes and development of a predictive model of sites types and distribution;
- Presentation of results of the field investigation including site inspection, survey and archaeological excavation (sub-surface testing);
- Interpretation and discussion of the results of the field program;
- Assessment of the heritage significance of identified features within the project area and within the local region (1km radius of project area);
- Assessment of impacts to heritage items, both within and in close proximity to the project area; and
- Provision of recommendations of the appropriate management of historical heritage for the duration of the proposed works.

This Assessment has been undertaken in accordance with the requirements of the following NSW Heritage Council Guidelines:

- *Archaeological Assessment Guidelines* 1996;
- *How to Prepare Archival Records of Heritage Items, Heritage Information Series* 1998;
- *Guidelines for Assessing Heritage Significance* 2002;
- *Photographic Recording of Heritage Items Using Film or Digital Capture* 2006; and
- *Assessing Significance for Historical Sites and Relics* 2009.

1.3. Project Team

Peter Holmes (Historical Archaeologist) planned and coordinated the historical assessment with assistance in the field during survey and sub-surface testing provided by Vanessa Edmonds (Principal Archaeologist), Monique Jacobs and Joseph Brooke (Project Archaeologists). Peter Holmes and Rose Reid (Archaeologist are the primary authors of this report.

Vanessa Edmonds (Principal Archaeologist) provided direction and technical advice during the project. Rose Reid (Archaeologist) conducted a technical review of the report content.

1.4. Report Structure

This contains the followings sections:

Section 2 describes the relevant State and Commonwealth legislation and the heritage approvals process required for this project.

Section 3details the proposed works to be conducted for the Greta TSF project, including all major facilities to be constructed onsite.

Section 4 provides details on the historical context of the project area and the greater region, identifies historical themes and summarises the results of heritage register searches for 1km radius of the project area.

Section 5 details the field program including the methodology, results and conclusions.

Section 6 provides further interpretation and discussion of the field result, historical context and other background information.

Section 7 includes the assessment of heritage significance of the features identified within the project area during this assessment.

Section 8 assesses the impacts on heritage items both within the project area and within 1 km radius of the project area.

Finally Section 9 provides recommendations for managing the heritage items during and after construction.

2. Legislation Review

2.1. State Legislation

The proposed Greta Rail Train Support Facility is considered to be critical major infrastructure to which Part 3A of the *Environmental Planning and Assessment Act* 1979 applies. As such, approvals and permit requirements under the the *Heritage Act* 1977 and environmental planning instruments, such as Local and Regional Environment Plans, do not apply to the project. However, as the same general processes must be followed, the requirements under the *Heritage Act* 1977 and relevant planning proecsses are summarised below.

2.1.1. *Heritage Act* 1977

Historical sites and relics of State heritage significance in New South Wales are primarily protected by the provisions of the *Heritage Act* 1977. The aim of this Act is to conserve the heritage of the State, in relation to a 'place, building, work, relic, moveable object or precinct' of historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance for the State (s. 4A). It is the role of the New South Wales Heritage Council to ensure that these sites are protected through making recommendations regarding sites and places of State heritage significance.

The site protection measures available under the *Heritage Act* 1977 are the 'State Heritage Register' for places identified as having State heritage significance, and 'Interim Heritage Orders', for the protection of places of local or suspected State heritage significance.

Under the 'relics provisions' of the *Heritage Act* 1977 (Section 139), an excavation permit is required for works intended to discover or expose a relic at a place not protected by an interim or permanent protection order, as in the case of an exploratory archaeological excavation. As the Greta Rail Depot will be assessed under Part 3A of the *Environmental Planning and Assessment Act* 1979 (details below), approvals under Part 4 of the *Heritage Act* 1977 (section 139), as well as approval by local council, are not required. Despite this, works would need to be undertaken in accordance with the general process of the Act.

Under Section 170 of the *Heritage Act* 1977, the Heritage Council maintains a register of State-owned or controlled heritage assets (the State Heritage Register). The nomination of individual sites to the register is conducted by outside agencies or individuals using a pro forma application, though currently this is undertaken by the Heritage Council on the basis of information provided to them in report format.

2.1.2. *Environmental Planning and Assessment Act* 1979

The *Environmental Planning and Assessment Act* 1979 provides a framework for environmental planning and assessment in New South Wales. The *Environmental Planning and Assessment Act* 1979 requires proponents to examine and take into account the impact of its projects on Aboriginal and Historical cultural heritage.

Under the *Environmental Planning and Assessment Act* 1979 local and State government authorities prepare local and regional environmental planning instruments, known as Local Environmental Plans (LEP) and Regional Environmental Plans (REP) to give statutory force to planning controls. These documents may include specific provisions for the conservation and management of historical and archaeological sites. In addition Development Control Plans (DCP) can be developed to specify constraints on development in the vicinity of these sites.

The project area is located in the Cessnock City Council local government area, consequently, the proposed works should consider the provisions of the Hunter REP 1989 (Heritage), the Cessnock Environmental Plan 1989 and the Draft Cessnock LEP 2008.

The Greta Train Support Facility project is being undertaken under Part 3A of the *Environmental Planning and Assessment Act* 1979 . Part 3A allows criticial infrastructure projects to be reviewed and approved by the State Minister, and as such exempts the project from local planning requirements. When an application is made for the Minister's approval for a project, the Director-General is to prepare environmental assessment requirements having regard to relevant guidelines in respect of the project. The Director-General then notifies the proponent of the environmental assessment requirements. The Director-General may modify those requirements by further notice to the proponent.

The Director-General's requirements include (but are not limited to), *non-indigenous heritage, inlcuding archaeology items and areas of local, State aqnd National heritage significance on the site and within the surruunding area (*Application MP09-0233).

Under Part 3A, Section 75U some approvals for approved projects[1] are not required including:

- Part 4 approvals and Section 139 permits under the *Heritage Act* 1977 (relating to approvals from local council); and
- Environmental planning instruments, such as Local and Regional Environment Plans, do not apply to approved projects (Part 3A, Section 75R)

[1] Approved project here refers to any investigative or other activities that are required to be carried out for the purpose of complying with any environmental assessment requirements in connection with an application for approval to carry out the project or of a concept plan for the project.

2.1.3. *Local Government Act* 1993

Under the *Local Government Act* 1993 councils may also prepare local approvals policies which set out specific matters for consideration in relation to applications for demolition, building and works. Historical and archaeological sites and places could be considerations under such a policy.

2.2. Commonwealth Heritage Legislation

Environment and Heritage Legislation Amendment Act (No. 1) 2003

Australian Heritage Council Act 2003

Australian Heritage Council (Consequential and Transitional Provisions) Act 2003

Together the above three Acts provide protection for Australia's natural, Indigenous and non-Indigenous heritage. The key features of these Acts include:

- A National Heritage List of places of national heritage significance.
- A Commonwealth Heritage List of heritage places owned or managed by the Commonwealth.
- The creation of the Australian Heritage Council, an independent expert body to advise the Minster on the listing and protection of heritage places.
- Continued management of the Register of the National Estate.

The *Environment and Heritage Legislation Amendment Act (No. 1)* 2003 amends the *Environment Protection and Diversity Conservation Act* 1999 to include 'national heritage' as a new matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List and the Commonwealth Heritage List.

The *Australian Heritage Council Act* 2003 establishes a heritage advisory body, the Australian Heritage Council (AHC), to the Minister for the Environment and Heritage and retains the Register of the National Estate (RNE).

The *Australian Heritage Council Act* 2003 repeals the *Australian Heritage Commission Act* 1975, amends various *Acts* as a consequence of this repeal and allows the transition to the new heritage system.

The following is a description of each of the Heritage Lists and the protection afforded them.

2.2.1.1. National Heritage List (NHL)

The NHL is a list of places with outstanding heritage value to our nation, including places overseas. So important are the heritage values of these places that they are protected under the Commonwealth's the *Environment Protection and Diversity Conservation Act* 1999 (EPBC Act).

This means that a person cannot take an action that has, will have, or is likely to have, a significant impact on the national heritage values of a national heritage place without the approval of the Australian Government Minister for the Environment and Heritage. It is a criminal offence not to comply with this law and there are significant penalties.

2.2.1.2. Commonwealth Heritage List (CHL)

The CHL is a list of places managed or owned by the Australian Government. The list will include places, or groups of places, that are in Commonwealth lands and waters or under Commonwealth control, and are identified by the Minister as having Commonwealth heritage values. These places will be protected under the EPBC Act, which requires actions:

- Taken on Commonwealth land which are likely to have a significant impact on the environment will require the approval of the Minister;
- Taken outside Commonwealth land which are likely to have a significant impact on the environment on Commonwealth land will require the approval of the Minister;
- Taken by the Australian Government or its agencies which are likely to have a significant impact on the environment anywhere will require the approval of the Minister.

As the definition of 'environment' in the EPBC Act includes the heritage values of places, these provisions of the Act in the context of their operation, provide protection for the values of Commonwealth Heritage places.

2.2.1.3. Register of the National Estate (RNE)

The RNE is an evolving record of Australia's natural, cultural and Aboriginal heritage places that are worth keeping for the future. The AHC compiles and maintains the RNE under the *Australian Heritage Council Act* 2003. Places on the RNE that are in Commonwealth areas, or subject to actions by the Australian Government, are protected under the EPBC Act) by the same provisions that protect Commonwealth Heritage places (see above).

Following amendments to the *Australian Heritage Council Act* 2003, the RNE was frozen on 19 February 2007, which means that no new places can be added, or removed. The Register will continue as a statutory register until February 2012. During this period the Commonwealth Minister for the Environment, Heritage and the Arts is required to continue considering the Register when making some decisions under the EPBC Act. This transition period also allows State, Local and Commonwealth Government to complete the task of transferring places to appropriate heritage registers where necessary and to amend legislation that refers to the RNE as a statutory list.

From February 2012 all references to the Register will be removed from the EPBC Act and the AHC Act. The RNE will be maintained after this time on a non-statutory basis as a publicly available archive.

3. Greta Train Support Facility Project

The Greta TSF Project will include infrastructure required to service locomotives and wagons as well as an administration facility and ancillary development associated with the project. The project will also include connection of the rail tracks within the facility to the Main Northern Railway. The location of the eastern boundary of the project area is being finalised by Australian Rail and Track Corporation (ARTC) as a result of the proposed third track.

The construction and operational elements of the project will be undertaken in three stages. Once all stages are completed the following facilities would be provided on site:

- Five rail tracks, including three provisioning tracks and two maintenance tracks.
- Locomotive maintenance facilities, including the provisioning and inspection facility; a service facility; a locomotive wash facility; and a wheel lathe facility.
- Wagon maintenance facilities, including a wagon maintenance hard stand area; wagon maintenance support facility; and rolling stock in ground wheel lathe facility.
- Administration facilities, including administration and office facilities equipped with a canteen and amenities facilities.
- Road vehicles service centre, including truck and vehicle storage; store room; amenities; and lunch room.
- Ancillary facilities, including fuel farm containing diesel tanks; electrical infrastructure; service vehicles garage; water storage and water treatment facilities; fencing, including security fencing along the western boundary; car parking and access roadways; lighting; and landscaping.

The location of each of these facilities is indicated on the map provided in Appendix A.

4. Historical Context

4.1. Historical Context

Several heritage items, such as the Greta Public School, Courthouse and Church that are included in the Draft Cessnock LEP 2009 as well as the Hunter REP 1989 (Heritage), relate to the history of European development in the Hunter region in response to the development of coal mining, such as rail, road and town infrastructure.

4.1.1. Settlement

Pastoralists and free settlers commenced settlement in the region in the 1820s following the declaration of Newcastle to be a free settlement (Cessnock City Council Website 2004; Convict Trail Project 2007).

The Great North Road, consisting of 264 km of roadway, linked the Hawkesbury and Hunter Valleys in response to demands for better communication lines between Sydney and the north (Kass 2006:15). The nearby township of Cessnock was already established in the 1850s before the discovery of the Greta Coal Seam, but quickly expanded due to the growth of the coal mining industry (Kass 2006: 11). Greta expanded with the growth of coal mining, and the current town of Greta is actually the conglomeration of several smaller settlements that built up around coal mines. Town growth and prosperity was linked directly to the market fortunes of the coal mining industry (Tonks 2009).

4.1.2. Coal Mining

Coal mining is the dominant historical theme of the Hunter region. Numerous collieries have been active in and around Greta since the 1860s.

William Farthing was the pioneer of the coal industry in the Greta area and, in 1861, one of the earliest extractions of coal was from a small 10 acre area where he had proved a coal seam. He subsequently obtained a lease on the area known as Anvil Creek from Samuel Clift, being Portion 197 of the Parish of Branxton, just south of the present town of Greta. The lease was dated 20 December 1861, and was the catalyst for generating further land settlement for the community around Anvil Creek (Pike & Walker 1994: 6) and was probably the reason for the development of the two streets of "Miners Cottages" as shown on Figure 4-1. This seam of coal was exhausted toward the end of 1864, however by October 1864 Farthing had purchased another block of land for a new mine.

The Reverend William Purves, a friend and associate of Farthing, made an agreement with him on the 10 October 1864 for the purchase of Portions 61 and 192 of Reverend Purves land in the Parish

of Branxton (Newcastle Regional Museum). This also became known as the Anvil Creek Colliery and continued successfully until 27 February 1871 when an underground fir e broke out temporarily closing the mine until 1872 when an unsuccessful attempt to restore production also failed. This site for the Anvil Colliery is located further south from the original lease and as such does not contribute historically to the development of the project area but further details concerning this transaction between the Reverend Purves and Farthing can be referenced in the collected papers of the Purves Estate (NSW State Library).

The original mine of 1861 was the first in this region of the Hunter Valley, and was alternatively known as 'Farthings Pit' and later became known as the 'Old Anvil Creek Colliery' with the establishment of the new Anvil Creek Colliery (which later became generally known as the Anvil Creek Colliery) to the south of Greta Railway Station. The original Old Anvil Creek Colliery was located a short distance north of the Greta Railway Station on the eastern side (Figure 4-1).

On 25 April 1908 the Old Anvil Creek Colliery had been leased and was re-opened and worked as Central Greta Colliery; owned by Central Greta Colliery Co. Ltd. An early map (1901) of the Anvil Creek and Central Greta Collieries, shows extensive underground mine workings extending from Sawyers Creek in the south, beneath the current project area and north and east to the outskirts of Greta Township.

An examination of Department of Mines Reports for the period 1913 to 1924 revealed the following (Newcastle Regional Museum 2009)

- Report of spontaneous heating during 1913, 1918 and 1920;
- Inrush of water during 1913. Miner John J Callaghan killed by a fall of coal resulting from the inrush;
- Boiler explosion during 1915. No deaths or injuries were recorded in consequence of this accident;
- Installation of fan in 1924;
- Early in March 1927 most of the workers were dismissed from Central Greta Colliery. "The employees of Central Greta Colliery finished there on Friday. The company expects to be able in six months to replace all the men. They are keeping on one pair of miners to drive a place through into the solid area, also a shift man and a wheeler"; and finally,
- On 23 May 1927 the Central Greta Colliery line at Greta was put out of use.

According to the Newcastle Regional Museum Archives records (2009), there is little remaining archaeological evidence of the early Anvil Creek Colliery, apart from coal and chitter spill over various parts of the property.

- **Figure 4-1 Excerpt of plan showing the Old Anvil Creek Colliery, Greta town, 1873 (courtesy National Library of Australia, Reference F80A)**

By 1886 the Government Surveyor, T.W. Edgeworth David, had mapped the entire coal-field. These mines spawned the towns of Telarah, East Greta, Heddon Greta, Stanford Merthyr, Pelaw Main, Kurri Kurri, Weston, Abermain, Neath, Kearsley, Abernethy, Kitchener, Aberdare, Paxton, Pelton and Bellbird. Only Cessnock had existed before the field was opened and it, in turn, quickly grew to accommodate the burgeoning mining population (Newcastle Regional Museum, 2009)

Mining became the principal industrial base and source of employment in the Greta area for the first half of the century with the establishment of collieries throughout the region (NSW Rail Net

website www.nswrail.net). The production of coal peaked in the 1920s, but the depression in the 1930s caused high unemployment along with a downturn in coal production.

The village of Greta suffered following the depression and the slump in the coal industry with the Whitburn, New Greta and Central Greta Collieries all closing (Newcastle Regional Museum Archives website, 2010).

The Hodges family set up the Greta Extended Colliery in 1937 and then after that was sealed commenced mining at the Greta Extended No. 2 Colliery from 1938 until production ceased in August 1946 (Newcastle Regional Museum 2009)

Historical records indicate that the underground workings for the Anvil Creek and Central Greta Collieries extended underneath the project area (1901 Map of Greta Workings). Additionally, geotechnical investigations undertaken for the Greta TSF project show that some form of underground mine workings are present within the project area. There is no indication on this map of surface features associated with the Collieries, with the exception of the "Miners Cottages", within the project area. Any surface features associated with the Old Anvil Creek Colliery and the new Anvil Creek/Central Greta Mine would be outside the current project area.

A map from 1873 (Figure 4-1) clearly shows a collection of 11 dwellings located parallel to the railway line opposite the Old Anvil Creek Colliery. Anecdotal evidence suggests that there were German miner's cottages within the project area (Greta Historical Museum, V. Randall, pers. comm. 28/012010). It is possible these could be associated with mining related activities within the project area.

Table 4-1 Selected Chronology of Coal Mining in the Greta Area (after Tonks, 2009)

Date	Event
1861-1864	General period of operation of the first mine operated by William Farthing. This mine was later referred to as Old Anvil Creek. This mine was located north of Greta Railway Station.
1863-1873	Anvil Creek Mine – this is the second mine operated by William Farthing. This operation was located south of Greta Railway Station. The location of this new mine later formed part of the Village of Illalong.
1869	6 September, Greta Railway Station opened as "Farthings" to "Greta" in 1878 (State Rail Authority 1984)
1871	March; fire causes significant damage to the workings of Anvil Creek Colliery located to the south of "Farthings" (Newcastle Chronicle 4 March 1871). Anvil Creek Coal Mining Company formed. Survived until 1885
1873	Greta Coal and Shale Company had been formed
1874	January; Sinking of shaft of Greta Colliery stopped pending the erection of a pumping engine. Greta Colliery located on the opposite side of the Great Northern Railway from Farthing's Old Anvil Creek Mine. (Miners Advocate 10 Jan 1874). February; First half year meeting of the Anvil Creek Coal Mining Company (Limited).Meeting held in Sydney. Positive report on progress. J.B. Winship appointed as Colliery Viewer (Miners Advocate 28 February 1874).

Date	Event
	July: Directors of the Greta Coal and Shale Company travelled by special train from Newcastle to inspect work in progress.
1875	April; Greta Company sinks new pit (Miners Advocate 24 April 1875).
1878	December; Application lodged to wind up Greta Coal and Shale Company (Miners Advocate 11 December 1878).
1886	Formation of New Anvil Creek Coal Company. Lasted until 1902 (John A Harris). Formation of Greta Coal Company. Operated on same site as Greta Coal and Shale
1888	Leconfield Colliery commenced operations. Ceased about 1902. This colliery reportedly operated a two foot tramway around the hill near its workings and was connected by a line of railway to the Greta Colliery (G. Kingswell 1890).
1898	August; The Greta Coal Mine was offered for sale. The highest bid was nine thousand pounds but the property was withdrawn from sale (Brisbane Courier 6 August 1898).
1890	September; Industrial troubles stop production at Greta and New Anvil Creek Collieries. Threat of strike breakers arriving to work Greta Colliery. (Newcastle Morning Herald 29 September 1890).
1892	May: Tenders called for the purchase of the New Anvil Creek Colliery, adjoining Greta. As well as the freehold, plant and equipment, 35 eight ton, almost new, hopper wagons were up for sale (NMH 5 May, 1892).
1900	5 December; underground fire at Greta Colliery. Five mine workers killed. Mine sealed before bodies could be recovered. 9 December; mine re-entered. 10 December; mine resealed due to re-ignition of fire.
1901	16 April; Greta Colliery reopened. Re-ignition of fire. Mine resealed 19 April.
1902	6 January; Greta Colliery reopened. 4 February; Two bodies of the five killed were recovered. 5 February; Two victims of the Greta Colliery fire, Edwin Buck and Walter Fuller interred in Greta Cemetery (NMH 8 Feb 1902). 26 February; Fire again in Greta Colliery. Subsequently resealed on 1 March. 7 October; Seals removed from Greta Colliery but coal getting did not resume. 31 December: Recovery work on Greta Colliery suspended.
1903	1 January; Greta Colliery abandoned. Mrs Jane Cowlishaw, trading under the name of Greta Coal Mining Company was no longer the proprietor of the colliery. May; Removal of Greta Colliery's plant and equipment. Fan to go to Great Northern Colliery at Teralba. Town of Greta in sad state; more houses being pulled down. Closure of the mine meant a loss of 400 workers who had sustained a town of some 1800 inhabitants. Suggestion of a tombstone at the mouth of the mine in memory of the three men lost in the fire of 5 December 1900 and whose bodies remained entombed. (NMH 25 May 1903). North Greta Colliery opened by Mark North and J. Rylatt. Later sold to Newcastle Coal Mining Company and worked as Whitburn Colliery (John A Harris).
1907	Newcastle Coal Mining Company purchased North Greta Colliery and renamed it Whitburn. Greta was to become the major focus of the company's mining operations instead of the Merewether area. Many families relocated from Merewether to Greta. Merewether area subsequently worked on tribute. Whitburn Colliery ceased in November 1928. Re-opened in 1936 and closed in 1945. Sealed in 1948
1908	25 April; Old Anvil Creek Colliery had been leased and intended to reopen as Central Greta Colliery.
1930	July; Closure of Central Greta Colliery (NMH 13 Nov 1937).
1936	April; Pit top buildings of Central Greta sold at auction on 30 April (NMH 13 Nov. 1937)

Date	Event
1937	Greta Extended Colliery. Closed 1938 November; Newcastle Coal Mining Company began developmental work to establish a small colliery to work the lower seam of the old Whitburn Colliery holdings. Work supervised by Mr G F Thomas, formerly manager of the Whitburn Colliery (NMH 13 Nov 1937). This article also relates Greta's economic well being to the operation and prosperity of local area coal mines. Greta, clearly a single function township.
1938	Greta Extended No. 2 Colliery. Operated until 1945 (John A Harris).
1942	Greta Extended No. 3 Colliery. Operated until 1945 (John A Harris).
1948	New Greta Colliery – Open Cut . Operations commenced on 30 November 1948. Name changed to Newfield Open Cut on 24 December 1948. Abandoned 17 November 1953
1953	November; Newfield Open Cut abandoned (John A Harris).

4.1.3. Rail Infrastructure

Rail is one of the secondary historical themes of Greta and surrounds and, with the Main Northern Railway and Greta Railway Station identified as items of significance. The Greta Railway Station Group (SHR01156) is considered to be the best surviving late 19th Century station group with its significance enhanced by its intactness and completeness. The Greta Railway Station Group was assessed by the NSW Heritage Council to be a historically, scientifically, archaeologically and socially rare heritage item.

There was an Anvil Creek Colliery Branch Line that was reopened in 1908 that consisted of two rail tracks diverting from the main Great Northern Railway 440 yards south from the present Greta Railway Station (Newcastle Regional Museum 2009).

Greta was also the location of the Whitburn Colliery Railway Branch that serviced three other collieries located closer to the town centre of Greta and the New England Hwy (Newcastle Regional Museum , 2009).

4.1.4. Land Tenure

William Farthing obtained the lease on the area known as Anvil Creek from Samuel Clift, being Portion 197 of the Parish of Branxton, just south of the present town of Greta. The lease was dated 20 December 1861, and was the catalyst for generating further land settlement for the community around Anvil Creek (Pike & Walker 1994: 6) and was probably the reason for the development of the two streets of "Miners Cottages".

The original Crown land grant (Crown Plan 333.663) for portion 197 including the project area had been sold by auction to a Leslie Duguid for the sum of one hundred pounds sterling in 1837. Duguid had major land holdings during this period but appears to have been an absentee owner continuing to reside in Sydney. Sometime between 1837 and 1861 the Duguid property was

purchased by Samuel Clift Senior, possibly around the time Duguid lost a considerable amount of bank profits and was subsequently suspended and subject to insolvency proceedings in 1847.

Leslie Duguid was twenty years old when he arrived in Australia in October 1822 on board the *William Shand*. He had been recommended as a free settler and was made a grant of 2,000 acres of land, the first of several grants. He gained permission to visit Newcastle and the Hunter river area and proceeded there in the *Minerva*. Leslie Duguid received one of the earliest land grants in the district in Lochinvar, east of Greta in 1823. The village of Lochinvar was out in 1840 on part of Duguid's land. After returning to England for a brief time Duguid settled in NSW in 1825, being employed at the Bank of Australia. Although he did not live permanently at his country property, he regularly visited. A cottage was built on Duguid's Lochinvar estate and maintained by an overseer.

Samuel Clift leased the 10 acre block to William Farthing in 1861 which was the first coal mine in this region of the Hunter Valley, and was known as 'Farthings Pit', and later became known as the 'Old Anvil Creek Colliery' with the establishment of the new Anvil Creek Colliery (which later became generally known as the Anvil Creek Colliery) to the south of Greta Station. The original Old Anvil Creek Colliery was located a short distance north of the Greta Railway Station on the eastern side. This seam of coal however was exhausted toward the end of 1864 but by October of the same year Farthing had purchased another block of land for a new mine venture.

The Reverend William Purves, a friend and associate of Farthing made an agreement with him on the 10 October 1864 for the purchase of Portions 61 and 192 of Reverend Purves land in the Parish of Branxton (Newcastle Regional Museum, 2009). Purves had purchased the 125 acres of Crown land on the 31 December 1862 for the sum of one hundred and twenty five pounds. This portion was located on the southern boundary of the Duguid grant. It had been unsuccessfully put up for sale by public auction in Sydney on the 14 October 1846, the sale to William Purves was finally recorded on the 14 October 1863. This also became known as the new Anvil Creek Colliery and continued successfully until 27 February 1871 when an underground fire broke out temporarily closing the mine until 1872 when an unsuccessful attempt to restore production also failed. This site for the Anvil Colliery is located further south from the original lease and as such does not contribute historically to the development of the project area but further details concerning this transaction between the Reverend Purves and Farthing can be referenced in the collected papers of the Purves Estate (NSW State Library).

On 25 April 1908 the Old Anvil Creek Colliery had been leased and intended to re-open and to be worked as Central Greta Colliery, owned by Central Greta Colliery Co. Ltd.

4.2. Historical Themes

The Department of the Environment and Water Resources (DEWR) (formerly the Australian Heritage Commission) and the NSW Heritage Manual of the Heritage Branch (Department of Planning, NSW) provide guidance on Historical Themes relevant to Australia in general and NSW in particular, which provide historical context within which the heritage values of a place can be examined and assessed.

A number of themes are relevant to the project area including settlement, pastoral development, agricultural production, mining infrastructure (including rail and roads) and the abandonment of farms. Historical themes relevant to the project area are summarised in Table 4-2.

- **Table 4-2 - Relevant Historical Themes for the Project Area**

National Theme Groupings	National Themes	National Sub Themes	State Themes	Local Themes	Heritage Items
3. Developing local, regional and national economies	3.3 Surveying the continent	3.3.4 Looking for land with agricultural potential 3.3.5 Laying out boundaries	Agriculture Transport Pastoralism Dairying Land Tenure	Agriculture Pastoralism Dairying Land Tenure	Great Northern Road Main Northern Railway
	3.4 Utilising Natural Resources	3.4.3 Mining	Mining	Coal Mining	Anvil Creek Colliery
	3.5 Developing Primary Production	3.5.1 Grazing stock 3.5.2 Breeding animals 3.5.3 Developing agricultural industries	Agriculture Pastoralism Dairying	Agriculture Pastoralism Dairying	
	3.8 Moving goods and people	3.8.5 Moving goods and people on land 3.8.6 Building and maintaining railways 3.8.7 Building and maintaining roads	Transport	Road and rail transport	Great Northern Road Main Northern Railway
4. Building settlements, towns and cities	4.5 Making settlements to serve rural Australia; 4.6 Remembering significant phases in the development of settlements, towns and cities.	4.1.1 Selecting township sites	Land Tenure Towns Suburbs and Villages	Land Tenure	
5. Working	5.8 Working on the land; Organising workers and workplaces.	No sub themes in this category	Labour	Agriculture Pastoralism Dairying Mining	

4.3. Heritage Register Listings

This section outlines the results of a search of the relevant local, State and Commonwealth heritage registers. The registers were searched for historical heritage or archaeological sites or items located within 1km of the project area, and the results are summarised in Table 4-3.

4.3.1. State Heritage Register

The State Heritage Register is maintained by the Heritage Branch(Department of Planning, NSW). A search of the State Heritage Register (SHR) returned one item listed within 1km of the project area.

The Greta Railway Station Group (SHR 01156), is located adjacent to, but not within the project area. The Greta Railway Station located on the Main North Line was first opened with the name of Farthing in 1869 and renamed Greta in 1878. The Greta railway Station Group represents historic themes consistent with the development of Greta and surrounds and the rail and mining industries in the Hunter region. The Statement of significance for this site states:

> *Greta station group is perhaps the best late 19th century station group surviving from the period before the introduction of standard and economical construction methods around 1890. Its significance is enhanced by its intactness and completeness. The station building and residence...are particularly fine buildings and the residence appears to be of unique design. The station building is the only surviving example of its kind without significant alteration. The site exhibits layering of different periods and styles, largely due to duplication and the need for additional buildings at that time. As new buildings were constructed at each stage and buildings were not extended (with the exception of the awning on the signal box) it displays a range of unaltered structures from various periods co-existing at one location. The footbridge, signs, lights, fencing and other details of the site add to the significance and completeness of the site and help create what is a unique small country railway station group.* (NSW State Heritage Register).

4.3.2. Local and Regional Environmental Plans

The project area is located in the Cessnock City Council local government area, consequently, the Hunter REP 1989 (Heritage), the Cessnock Environmental Plan 1989 and the Draft Cessnock LEP 2008 were searched for listings within the project area.

Hunter Regional Environmental Plan (REP) 1989 (Heritage)

Within 1km of the area of proposed works the Hunter REP 1989 lists three items of regional environmental heritage (Schedule 2), three items of local environmental heritage (Schedule 3) and

10 items requiring further investigation (Schedule 4). All of these items are summarised in Table 4-3. Of the 10 sites requiring further investigation, four sites are located in or adjacent to the project area.

- Whitburn Colliery - The Whitburn Colliery (formerly the North Greta Colliery) began operations in 1902 and closed in 1948. The pit-top was on the eastern side of Anvil Creek, between the creek and Greta Township with entry tunnels running in a north westerly direction. It therefore is situated adjacent to but outside the project area.
- Water Storage Tanks - This refers to the concrete remnants of overflow walls from the Whitburn Colliery dam in Anvil Creek and is located outside the project area.
- Anvil Creek Colliery - The Anvil Creek Colliery was also situated north of the Railway station on the eastern side (Figure 4-1) and is outside the project area.
- Street of "Miners Cottages" - Part of a street of "Miners Cottages" identified in Figure 4-1 extends within the project area and also outside the project area to the north east.

Items required further investigation identified in Schedule 4 of the Hunter REP 1989 (Heritage) are afforded some protection in that they cannot be demolish without the consent of the local council. In addition the council shall not give consent to a development to an item in Schedule 4 unless an assessment has been made of its condition and significance

Cessnock Local Environmental Plan 1989

Schedule 3 of the Cessnock LEP revealed no items of environmental heritage within 1km of the project area.

Draft Cessnock Local Environmental Plan 2009

Schedule 5 of the Draft Cessnock LEP 2008 lists two environmental heritage complexes and 15 items (sites) of environmental heritage within 1km of the project area. These are summarised in Table 4-3.

4.3.3. National Heritage List and Commonwealth Heritage List

The NHL and CHL comprise a framework for the listing and protection of natural and cultural heritage places across Australia. These registers were searched in relation to the project area, and no heritage items were found within 1km of the project area.

4.3.4. Register of the National Estate

Before the introduction of the NHL and CHL, the RNE was the Australian Government's nation-wide heritage list. This list still exists as a comprehensive register of heritage places around the

country. One item was listed on the RME within 1km of the project area. This is summarised in Table 4-3.

4.3.5. National Trust Register

The Greta Railway Station Precinct is listed on the NSW National Trust's Historic Items Conservation Register. The National Trust listing offers no statutory protection, but it does offer a widely recognised authoritative statement of the cultural significance of an item or place, and reinforces the State significance of the station precinct.

4.3.6. Summary of Heritage Listings

One registered heritage item is located within the project area (the street of "Miners Cottages"), and an additional 21 items are located within 1km of the project area.

SINCLAIR KNIGHT MERZ
SKM

- **Table 4-3 Summary of Heritage Register Listings within 1km of the project area**

Heritage Place	Heritage Register and ID	Level of Significance	Distance from Proposed works
Greta Railway Station Group, including Station and Station Masters House, Off Nelson St, Greta	National Trust State Heritage Register (NSW) SHR (01156) Draft Cessnock LEP 2009 (I114)	State State Local	Approx 200m
Great Northern Railway Network	Draft Cessnock LEP 2009 (I251)	State	Borders eastern and northern extent of project area
Police Station, Lock up and Residence, 1 Water St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I115)	Regional Local	Approx 750m
Median Strip Group including War Memorial and Bandstand, High St between Water and Wyndham Sts, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I111)	Regional Local	Approx 800m
Greta Courthouse (former)	Register of the National Estate (1219) Hunter REP 1989 Draft Cessnock LEP 2009 (I108)	Local Local Local	Approx 700m
Greta Public School, Wyndham St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I116)	Local Local	Approx 600m
Masonic Hall (former) 67 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I103)	Local Local	Approx 800m
Methodist Church, High St, Greta	Hunter REP 1989	Local	Approx 900m
St Marys Anglican Church, Anvil St, Greta	Draft Cessnock LEP 2009 (I99)	Local	Approx 900m
Greta Uniting Church, 43 High St, Greta	Draft Cessnock LEP 2009 (I102)	Local	Approx 900m
Inn (former), 72 High St, Greta	Draft Cessnock LEP 2009 (I104)	Local	Approx 800m
Tattersalls / Greta Hotel, 88 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I105)	Requires further investigation Local	Approx 700m
Greta Post Office (former), 94 High St, Greta	Hunter REP 1989	Requires further investigation	Approx 700m

Heritage Place	Heritage Register and ID	Level of Significance	Distance from Proposed works
	Draft Cessnock LEP 2009 (I106)	Local	
Greta Council Chambers (former), 96 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I107)	Requires further investigation Local	Approx 700m
Two storey shop, 110 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I109)	Requires further investigation Local	Approx 700m
Horse Trough, within road reserve, Greta	Draft Cessnock LEP 2009 (I110)	Local	Approx 800m
Sandstone kerbs, gutters, drains and dam in High, Anvil, Wyndham, Bell, Chapman and Waters Streets and New England Highway, Greta	Draft Cessnock LEP 2009 (I112)	Local	Approx 700m
Greta Bridges Group, including bridges on Anvil, Hunter, Leconfield, Nelson and Wyndham Streets and Wilderness Rd.	Draft Cessnock LEP 2009 (I248)	Local	Closest is on Nelson Rd approx 300m
Anvil Creek Colliery	Hunter REP 1989	Requires further investigation	Approx 300m
Water Storage Tanks	Hunter REP 1989	Requires further investigation	Approx 300m
Street of “Miners Cottages”	Hunter REP 1989	Requires further investigation	Within project area

5. Field Program

5.1. Aim

The field program was undertaken in three phases. The first phase consisted of a site inspection and preliminary reconnaissance of the project area. The second phase included a pedestrian survey of the project area. The results of this survey informed the methodology of the third phase of the field program which comprised sub-surface testing and sample excavations of items (surface features) identified during the survey. The results of these three phases are presented below.

5.2. Phase 1: Site Inspection

On 28 September, 2009, a brief inspection of the project area was undertaken by SKM archaeologists Vanessa Edmonds (Principal Archaeologist) and Joseph Brooke (Project Archaeologist) for a preliminary assay of the existing conditions and present and potential cultural heritage values.

During the site inspection a number of features possibly associated with mine subsidence were noted. Several rock-lined features, potentially air shafts to the mine, were also noted within the project area. Additionally, numerous unfrogged (possibly hand-made) bricks were found scattered across parts of the study area.

Additional historic artefacts were discovered scattered in parts of the southern half of the project area, though no discrete concentrations were observed. Artefacts observed included green bottle-glass fragments (e.g. Figure 5-1), occasional ceramic fragments (e.g. Figure 5-2), a more recent concrete cricket pitch (e.g. Figure 5-3), and an item thought to be a brass or bronze belt buckle (e.g. Figure 5-4). The distribution of these artefacts was scattered and appeared to be unrelated to any of the pit features.

- **Figure 5-1 – Glass bottle base.**

- **Figure 5-2 -Ceramic fragment.**

- **Figure 5-3 – Concrete cricket pitch, located south of Sawyers Creek.**

- **Figure 5-4 – Possible belt buckle; green oxidisation suggests brass or bronze composition.**

5.3. Phase 2 - Pedestrian Survey

The aims of the survey were to:

- Identify and record historical heritage features (of non-Aboriginal origin).
- Identify the potential for historic archaeological deposits, particularly in the area identified from a historic map reference as the site of "Miners Cottages" (Figure 4-1).

5.3.1. Timing and Personnel

A field survey was undertaken on 4 and 5 November, 2009, by Joseph Brooke (Project Archaeologist, SKM) and Vanessa Edmonds (Principal Archaeologist, SKM).

5.3.2. Conditions

Conditions ranged between sunny and overcast, presenting no restriction to the survey.

5.3.3. Methodology

The survey was conducted in approximately 10m wide pedestrian transects. Ground surface visibility was noted. Any features or artefacts found were photographed, and their location and, where appropriate, their extent recorded using a Trimble GeoXH differential GPS, which gives <1metre accuracy. Once recorded, artefacts and features were left undisturbed *in situ*.

5.3.4. Visibility

Visibility was variable across the project area, with visibility generally good (60%) on the southern side of Sawyers Creek due to the presence of an eroding trench, a vehicle track, other vehicle movement outside this, and other works (e.g. Figure 5-8). Ground surface visibility was poorer (15%) on the northern side of Sawyers Creek, (e.g. Figure 5-9) and generally very low (less than 5%) further north due to the presence of heavy vegetation (e.g. Figure 5-10).

5.3.5. Results

Twenty-four shallow pit features with drystone retaining walls (e.g. Figure 5-5) were identified in the project area, predominantly around the central part of the study area, and all within approximately 100m of the railway line. The majority of these features were accompanied by small piles of what appeared to be ash and coal (e.g. Figure 5-6), and small scatters of domestic historic artefacts (e.g. Figure 5-7). Additionally, numerous other non-lined depressions, that may or may not have originally been lined in the past, are now overgrown shallow pits some subsided beyond recognition.

Table 5-1 Locations of shallow pit features identified during survey program

Ref Number	MGA Zone	MGA Easting	MGA Northing	Comments
6001	56	347672.4	6383628.1	3.0 m diam
6002	56	347706.7	6383574.8	2.5 m diam
6003	56	347730.3	6383552.8	4.0 m diam, rubbish
6004	56	347725.9	6383539.4	4.0 m diam, rubbish
6005	56	347761.6	6383522.6	3.0 m diam
6006	56	347857.4	6383490.1	4.0 m diam, rock retaining wall
6007	56	347856.3	6383467.2	subsidence
6008	56	347845.0	6383434.3	subsidence
6009	56	347833.8	6383364.1	subsidence
6010	56	347847.0	6383394.5	subsidence
6011	56	347870.0	6383434.5	4.0 m diam, rock retaining wall
6012	56	347904.7	6383401.1	4.0 m diam
6013	56	347930.0	6383381.3	4.0 m diam, rock retaining wall
6014	56	348012.0	6383341.6	3.0 m diam
6015	56	348131.5	6383115.5	4.0 m diam, rock retaining wall
6016	56	348187.0	6383091.9	4.0 m diam
6017	56	348211.9	6383069.3	3.0 m diam
6018	56	348210.9	6383042.3	4.0 m diam
6019	56	348210.4	6383012.8	subsidence
6020	56	348204.8	6382987.1	subsidence
6021	56	348207.9	6382961.0	subsidence
6022	56	348250.4	6382959.3	4.0 m diam
6023	56	348271.0	6382918.9	3.0 m diam
6024	56	348322.6	6382801.6	6.0 m diam
A19	56	348207.4	6382999.5	Potential quarry site
A23	56	348202.9	6382977.8	Potential quarry site

5.3.6. Conclusion

There were no features or structural remnants identified within the project area that could be directly related to mining activity. However a number of apparently shallow pit features identified (Figure 5-5) may have been the result of mining activity related to the Old Anvil Creek Colliery located to the east (outside the project area) as underground mining activities did extend west beneath the project area (Greg Hawkins, Douglas Partners, pers comm., 20/01/2010). Examination of the surface remains of these features did not provide conclusive evidence regarding their former use. The features would require further investigation to determine their origin and possible link to mining activities.

Similarly the artefact scatters identified during the pedestrian survey did not appear to be aligned with any known historical features such as the "Miners Cottages". Surface scatters of historical artefacts identified in conjunction with some of the pit features were apparently associated with recent excavation activity undertaken possibly by "relic hunters" who may have been looking for historic dump site items. Other exposed artefact scatters were associated with recent grader activity in the Trotting Track area.

There was no discernible evidence detected during the field survey for underground mine workings in the project area. However, information from geotechnical investigations in the area indicates that extensive underground mine workings are present beneath the project area.

From the results of the survey it is clear that further methodical sub-surface investigation of the "Miners Cottage" area (Figure 5-37) shown on the 1873 map, is necessary to identify additional archaeological evidence such as artefact concentrations or features such as post holes arising from miners occupation of the area. There was no evidence to indicate that the "Miners Cottages" had more permanent masonry or rock structural features that could leave a significant footprint for non invasive sub surface testing, in fact the short life of the Old Anvil Creek Colliery would tend to indicate some type of temporary accommodation existed for the miners which may not provide conclusive archaeological remains.

Based on the nature of the ground visibility within the project area (low) and the heavy degree of ground disturbance, intrusive archaeological testing was recommended. The disturbance of the soil in many areas and the shallow depth to sandstone bedrock as evidenced by rock outcrops, would exclude the use of Ground Penetrating radar (GPR) as a means of identifying the location of archaeological features beneath the ground, as the signal GPR would return would be distorted by the ground disturbance.

- Figure 5-5 – Example of Pit Feature (feature 6011).

- Figure 5-6 – Example of coal mound associated with rock-lined features.

- Figure 5-7 – Domestic artefacts associated with rock-lined feature (at feature 6018).

- **Figure 5-8 Disturbance and high visibility south of Sawyers Creek.**

- **Figure 5-9 Example of low visibility north of Sawyers Creek.**

- **Figure 5-10 Very low visibility north of Sawyers Creek.**

5.4. Phase 3 Sub-surface Testing

The sub-surface testing program was undertaken contemporaneously with the Aboriginal field investigation during the 11 to 14 January 2010 and the 28 and 29 January 2010. The field work was undertaken together as an area of Aboriginal potential archaeological deposit (PAD) overlapped historic surface scatters to some extent in the trotting track area (Figure 5-37).

5.4.1. Timing and Personnel

The sub-surface testing was undertaken by Peter Holmes (Senior Historical Archaeologist, SKM) over two site visits, the first on the 11 to 14 January, and the second on the following week, 28th and 29 January 2010. Two site visits were necessary due to unexpected difficulties encountered in gaining access to the site for a large excavator.

Some assistance in the historical sub-surface survey was given by Aboriginal Community representative Luke Hickey during the first site visit as the PAD areas associated with historic and Aboriginal artefact scatters overlapped.

The second site visit was confined to the excavation and investigation of historical features and was undertaken with the assistance of Greg Hawkins (Geologist, Douglas Partners) and Toby Cairnes (Geotechnical Engineer, Douglas Partners) on the 28 and 29 January, 2010.

5.4.2. Methodology

The sub-surface archaeological investigation comprised a series of gridded transects of the project area shown on the Figure 5-37 with 25cm shovel test pits (STP) spaced at 20m intervals (Figure 5-11). This is an area associated with a surface scatter of artefacts already exposed by grader activity used to form a trotting track oval which may potentially be related to the "Miners Cottages" delineated in a detail from the 1873 historical map (Figure 4-1, Figure 5-37).

Those STPs identified as containing cultural material were further tested by four radial STPs at 10m intervals to determine the extent of the archaeological deposit or feature. The transect extent from the eastern rail boundary was determined by the western extent of the project area.

Artefacts recovered during the first week of testing were recorded, cleaned analysed, catalogued archivally bagged and returned to Val Randall(Curator, Greta Historical Museum). Artefacts identified during the feature excavations were not removed from the project area, but recorded onsite for later analysis.

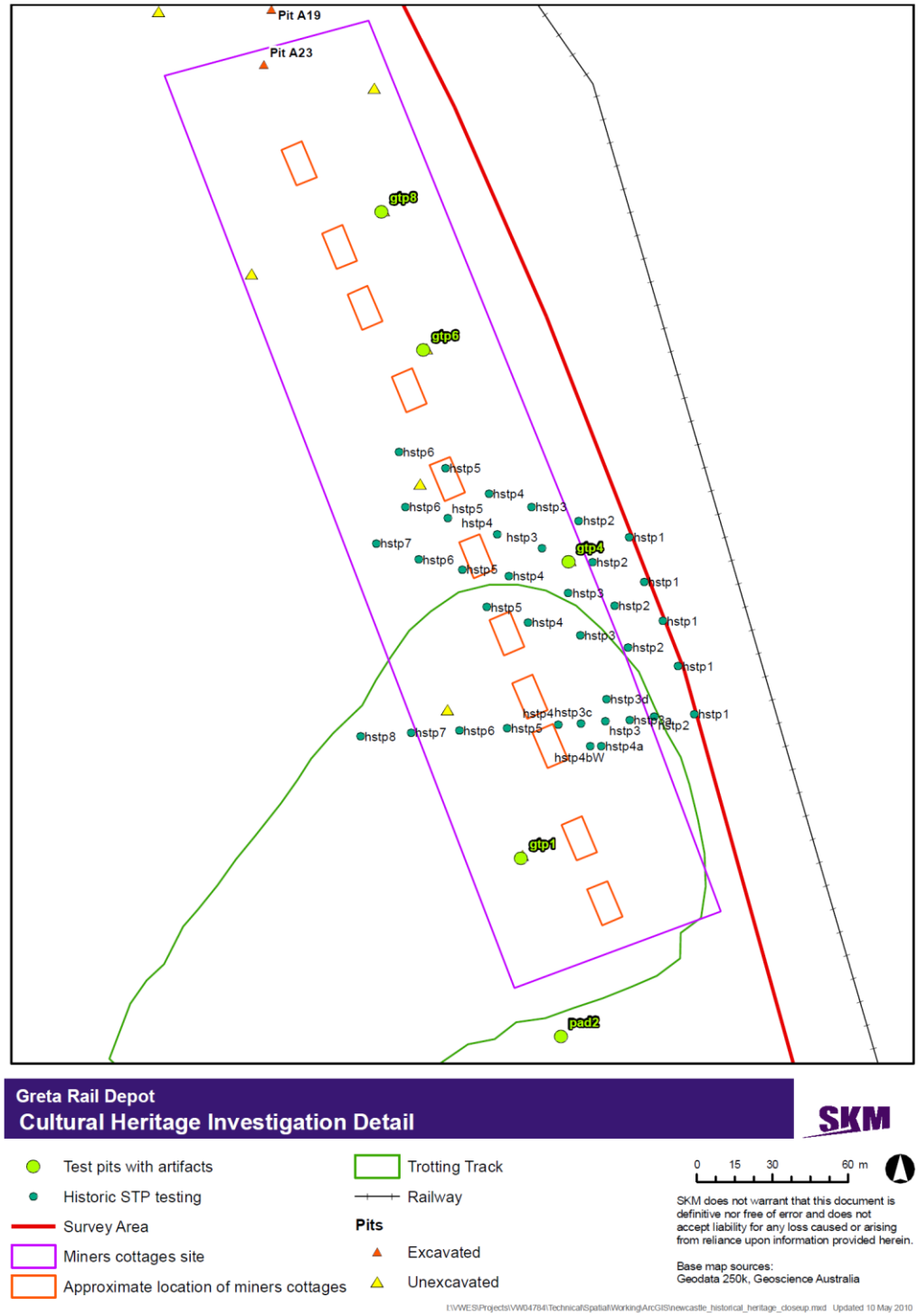
After some consultation between SKM and Douglas Partners, the client, Pacific National accepted a joint geo-technical and archaeological methodology to determine the nature of the historic features encountered during the survey phase.

Of the total of 24 pit features identified, it was proposed that five of the features would comprise a suitable sample of the types of circular pit features encountered. Features 6003, 6011 and 6022 as well as the more open pits A19 and A23; were selected from plans and survey listing for sub-surface testing.

In general, the sub-surface testing procedure included;

- Identification and inspection of features previously marked /pegged by surveyors;
- At least one of the features is to include a drystone wall;
- Toolbox meeting prior to each excavation to discuss and confirm safety and heritage matters;
- Remove drystone wall and stockpile nearby;
- Excavate a trench through each feature, 4-5m long by 0.9-1.0m wide;
- Remove material from the trench in approximately 30cm levels and stockpile to one side;
- The trench will be discontinued when bedrock is encountered or when evidence of a deep open void is or pothole is encountered.
- Each trench will be backfilled on completion of geotechnical and archaeological recording and sampling. Compaction of the fill will be completed by the excavator.
- The drystone wall will not be reinstated.

Further site inspection of the features however revealed a large tree within the inside of feature 6003 which would create difficulties for excavator access therefore feature 6022 was selected instead.



- **Figure 5-11 Detail of approximate location of the "Miners Cottages" sites showing distribution of STP with artefacts (red) and artefact distribution recovered from Indigenous STP (green).**

5.4.3. Results

5.4.3.1. Shovel Test Pit Excavation Summary

Five transects of STPs were completed inside the project area comprising a total of 38 excavated STPs, not including radials to the north of the designated Aboriginal PAD area. STPs were not excavated in disturbed areas such as the formed perimeter of the trotting track.

The transects were numbered from the south end of the baseline which was marked by the boundary fence of the current rail corridor (Figure 5-11, Figure 5-12, Figure 5-37). The distribution of artefacts recovered appears to be roughly aligned with the railway and the approximate locations of the former "Miners Cottage" sites.

Aside from the occasional isolated glass fragments that were noted but not collected, the excavated STPs contained little cultural material, with the exception of a small bronze bell recovered from STP2 in Transect 2 (Figure 5-15) which also included a small collection of ceramics and glass inside.

The total of historical artefacts recovered (n = 87). The balance of artefacts recovered included ceramics, glass and metal from the domestic, architectural and agricultural classes were recovered during Aboriginal cultural heritage testing and excavation and are examined in the results below. A typical soil profile is shown in Figure 5-22 and the full artefact catalogue is shown in Appendix B.

Of the 38 STPs excavated, six contained cultural material (Table 5-4), including the south radial of STP3 on Transect 1 where a semi intact bottle was exposed on top of a grey clay sub soil at 28 cm (Figure 5-14). The soil in this STP was an unusual very dark greyish brown (10YR3/2). The bottle was not recovered. The surrounding radials at 5m from this STP were all negative and the soil showed a marked change to a brown silty loam (7.5YR5/3).

- **Table 5-2 Total artefacts recovered by class**

Total Artefacts Recovered by Class		
Classes	**Weight (gm)**	**Count**
Agricultural	268	1
Architectural	8	5
Clothing	1	1
Domestic	675	80
Total	**952**	**87**

- **Figure 5-12 View north along the baseline.**

- **Figure 5-13 View south along the baseline**

- **Table 5-3 Artefacts recovered by class and material**

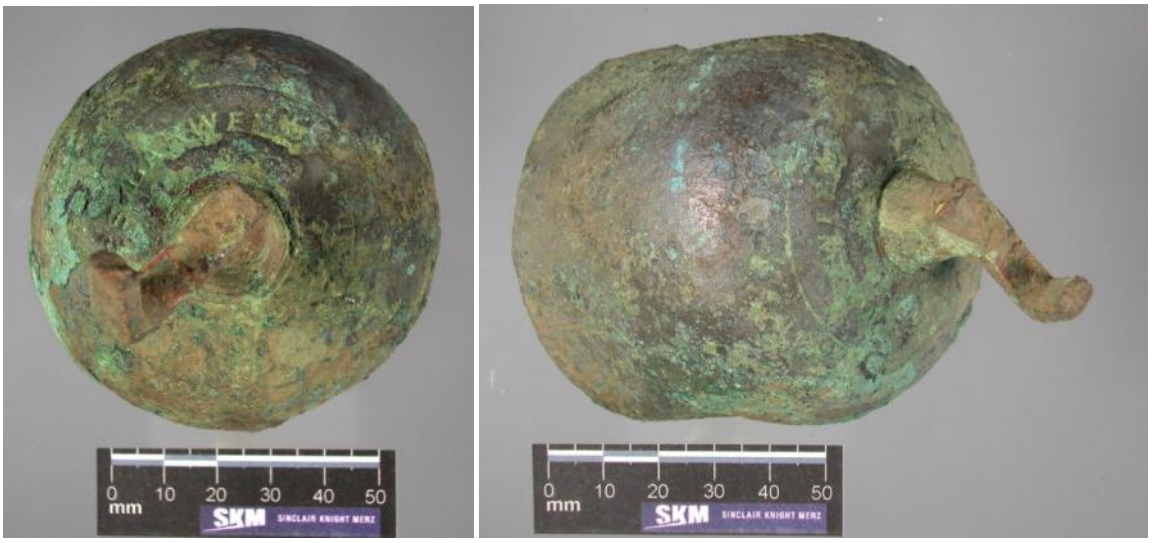
Class and Material	Weight (gm)	Count
agricultural		
bronze	268	1
architectural		
glass	3	4
iron	5	1
clothing		
ceramic	1	1
domestic		
ceramic	183	37
glass	492	43
Total	**952**	**87**

- **Table 5-4 Provenience of artefacts by weight and count**

Artefact Provenience B weight and count		
Provenience	**Weight (gm)**	**Count**
STP 6	23	7
STP1	121	44
STP4	253	19
STP8	14	6
TP2	240	5
Tr1/STP3 south radial	0	0
Tr2/STP2	301	6
Total	**952**	**87**

- **Figure 5-14 The south radial, Transect 1, STP 3 showing the base of a bottle in a dark soil matrix, adjacent to a piece of ironstone on a clay sub soil.**

At STP 2 on Transect 2, a bronze bell was partially exposed on the trotting track, it was recovered and cleaned to reveal a makers mark, "James Barwell Birmingham" cast into the top section. The top of the bell is distinguished by a rectangular hanger characteristic of English cast cow bells of the period 1870 – 1920.



- **Figure 5-15 Plan view and profile of the bronze cow bell, marked James Barwell, Birmingham (1870 – 1920)**

Transects to the north of Transect 2 were all found to be negative except for the occasional isolated glass fragment which were noted but not collected.

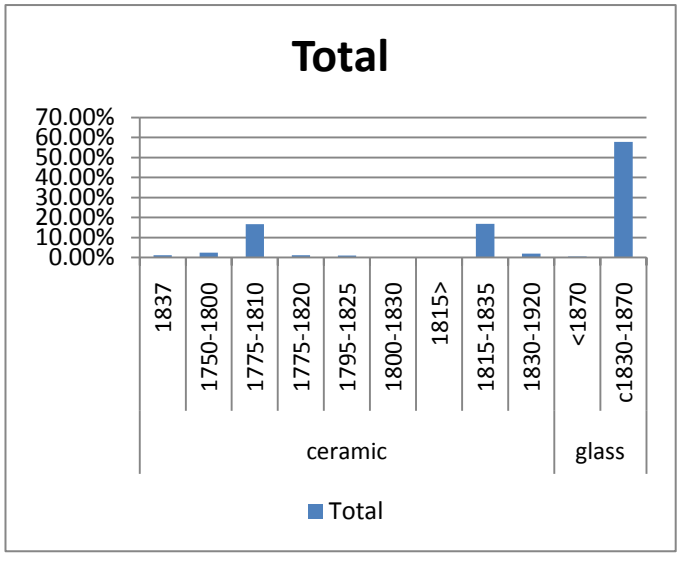
The following STPs were excavated during Aboriginal cultural heritage testing and artefacts were recovered from 0-10cm. A typical soil profile is shown in Figure 5-22.

5.4.3.1.1. STP1

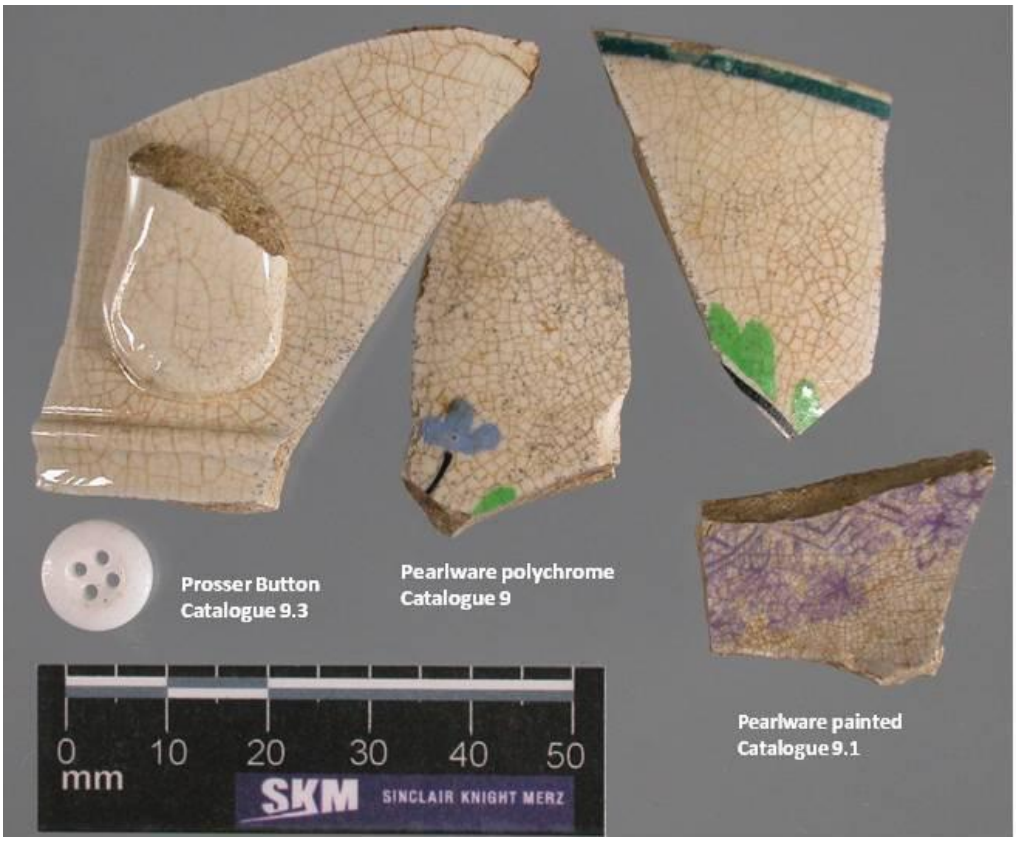
The total artefacts from STP1 (n = 44) comprised ceramics and a collection of green, amber and aqua bottle glass fragments (Table 5-5).

- **Table 5-5 STP1 artefacts by class and material**

STP 1 Artefacts by Class and Material		
Class and Material	**Weight (gm)**	**Count**
Ceramic		
Clothing	1	1
Domestic	77	20
Total	78	21
Glass		
Domestic	43	23
Total	**121**	**44**



- **Figure 5-16 STP1 artefact distribution by type and period**



- **Figure 5-17 Dateable ceramics shards and button recovered from STP1.**

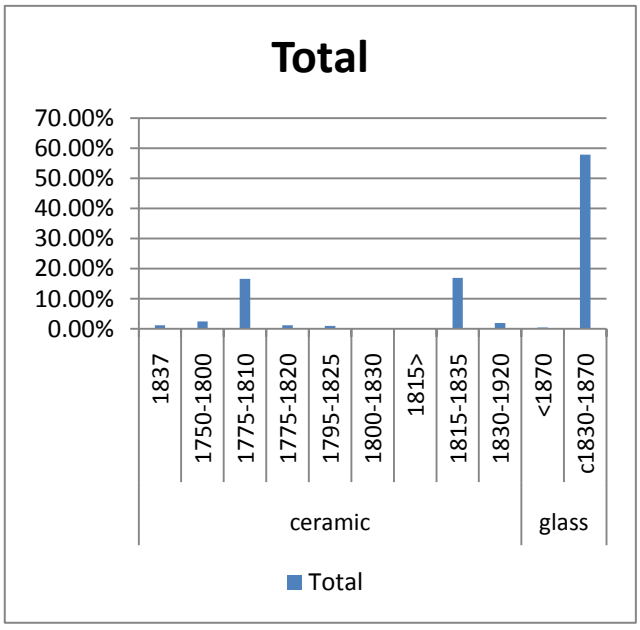
5.4.3.1.2. STP4

Artefacts recovered from STP4 (n= 19) (Table 5-6) also comprised ceramics and clear glass fragments, including a portion of a small hand mirror with a bevelled edge and architectural crown window glass arriving in Australia before 1870 (Boow 1991).

- **Table 5-6 The distribution of STP4 artefacts by class and material**

The Distribution of STP4 Artefacts by Material and Class		
Material and Class	**Weight (gm)**	**Count**
ceramic		
domestic	63	5
glass		
architectural	2	3
domestic	188	11
Total	**190**	**14**
Total	**253**	**19**

- **Figure 5-18 STP4 dateable ceramic types 1795 – 1835**



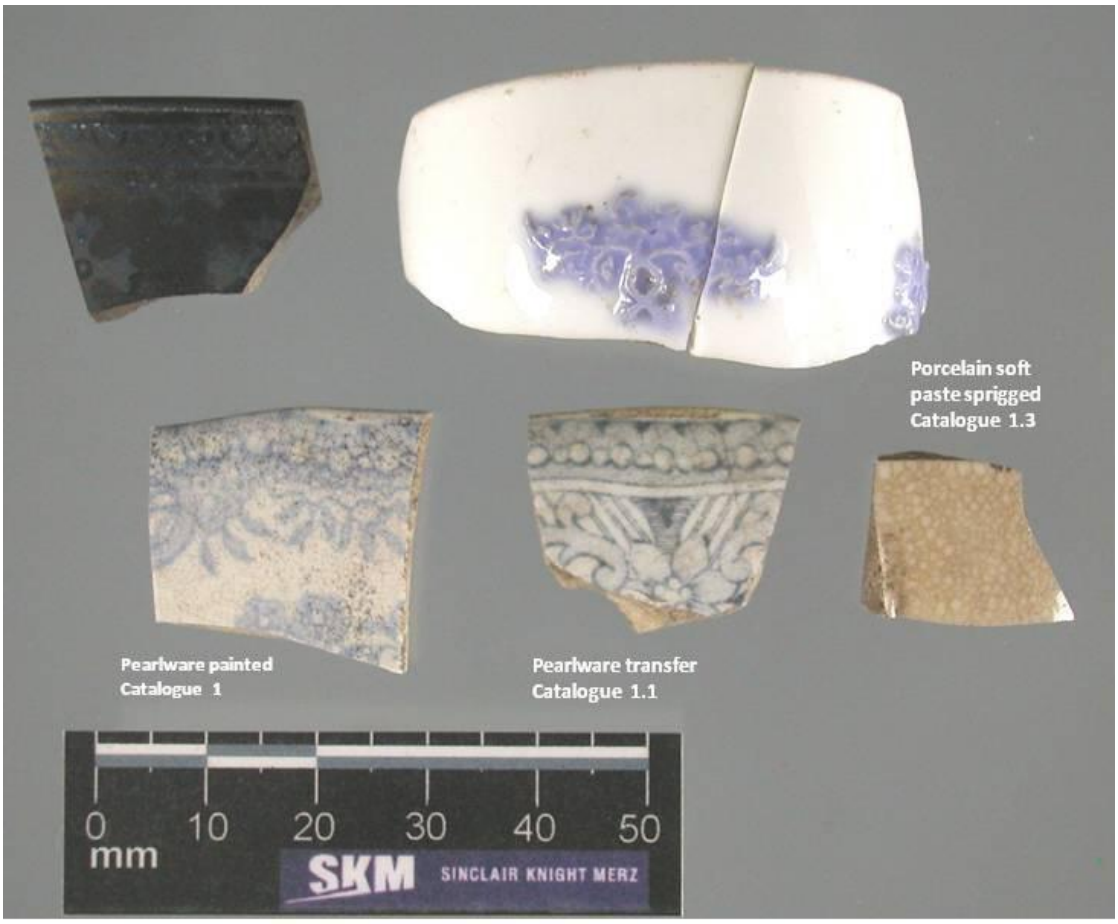
- **Figure 5-19 The distribution of STP4 ceramics by period**

5.4.3.1.3. STP6

STP6 artefacts (n=7) comprised an assemblage of earthenware and soft-paste porcelain ceramics (Figure 5-20) and a green bottle glass fragment (Table 5-7).

- **Table 5-7 The distribution of STP6 artefacts by class and material**

The Distribution of STP6 Artefacts by Class and Material		
Class and Material	**Weight (gm)**	**Count**
domestic		
ceramic	22	6
glass	1	1
Total	**23**	**7**



- **Figure 5-20 STP6 dateable ceramics labelled, 1815-1920**

The dateable ceramics span a manufacturing period from 1815 – 1920. One blackened shard in this assemblage was burnt indicating that it was probably burnt off site prior to its association with the STP6 assemblage.

5.4.3.1.4. STP8

The total artefacts recovered from STP8 (n = 6) were essentially modern in character and not significant (Table 5-8). The architectural items comprised a 50mm (2 inch) finishing nail and clear window glass. Similarly the domestic items were not significant comprising modern glass and unidentified earthenware.

- **Table 5-8 The distribution of STP8 artefacts by class and material.**

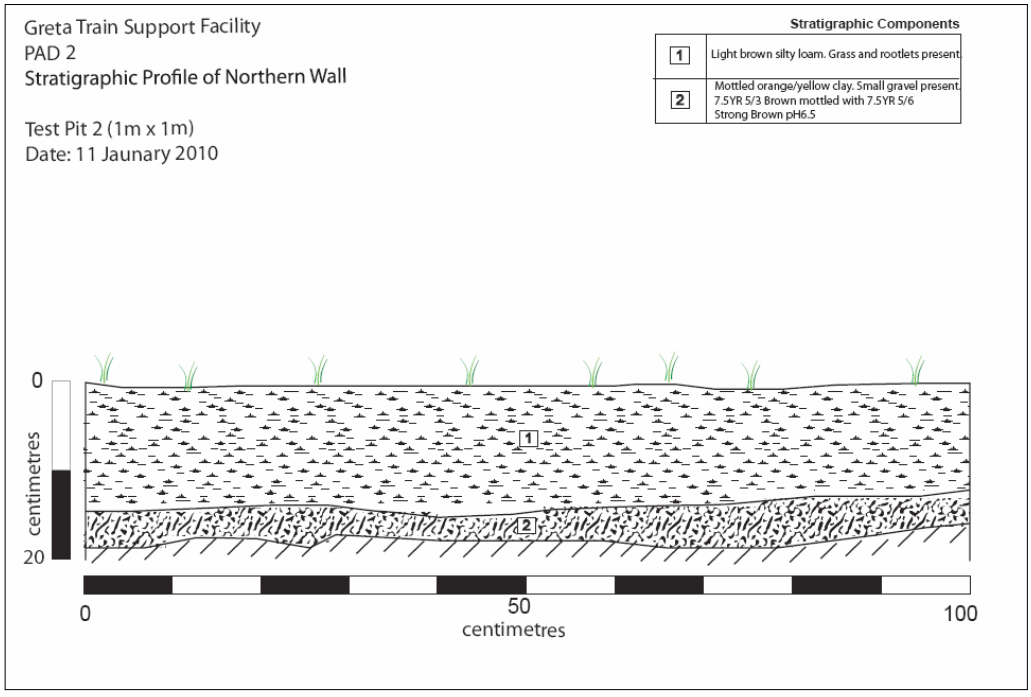
The Distribution of STP8 Artefacts by Class and Material		
Class and Material	**Weight (gm)**	**Count**
architectural		
glass	1	1
iron	5	1
Total	**6**	**2**
domestic		
ceramic	4	3
glass	4	1
Total	**8**	**4**
Total	**14**	**6**

5.4.3.1.5. TP2

TP2 was a 1m x1m excavation (Figure 5-22) undertaken during Aboriginal cultural heritage testing and an intact box bottle base was the only artefact recovered (Figure 5-21). The base was marked by a grooved pontil indicating a manufacturing date of 1830 – 1870 (Boow 1991).

A typical soil profile observed across the project area from the TP2 excavation is shown in Figure 5-22.

- **Figure 5-21 Grooved pontil mark forming the push up (1830 – 1870)**



- **Figure 5-22 Test Pit 2 (TP2) west wall stratigraphy.**

5.4.3.2. Feature Excavations

Following the methodology outlined above, five pit features were excavated as a representative sample of the type of feature (Figure 5-37)**.** The final features selected included a slight change from the original locations. Feature 6003 was found to have a large, well-established gum tree occupying the pit which would have prevented clear excavator access therefore feature 6022 was selected as a replacement. Features marked A19 and A23 (**Error! Reference source not found.**) were also subject to a trench excavation.

5.4.3.2.1. Feature 6022

This feature was located near the grassed over trotting track and was difficult to discern against background foliage. At the top edge it was approximately 2.5m across and roughly circular with a small mound of back dirt, 0.7m high extending 3.9m along the eastern edge of the rim. This may or may not have been associated with the original excavation and could have been the result of looting and the partial excavation an existing feature. The sides sloped steeply at approximately 35 degrees down to the bottom approximately 1 -1.2m across with no sandstone blocks or drystone walls evident beneath the grass.

A 0.8 – 0.9m wide trench was cut on the north side beginning just below the rim down to a finishing depth of 1.8m on sandstone bedrock below the surface of the feature, or approximately 3m below ground surface.

Several fragments of gauged hardwood, wrought iron and a green bottle were recorded at 1.2m below top of the trench. More of this material was also found at 1.5m, altogether comprising a small assemblage of unidentified wooden debris between 0.6 – 1. m.

Close examination of the profile was not possible due to depth of the trench, but it would appear that the artefact assemblage was located in fill.

Among the artefacts of interest recovered:

- An intact handmade solid brick was recovered at 1.5m below the top of the trench (Figure 5-24).
- An intact green bottle base with a circular iron pontil mark generally associated with more luxury bottled products such as carbonated drinks, preserved fruits and used c. 1845-1870. This was recovered approximately 0.9m below the top of the trench (Figure 5-25) (Boow 1991).
- Lengths of corroded wrought iron bar and rod were recovered from below the bottle, at about 1.2m (Figure 5-26).

- Glass bottles included a "Watts Pectoral Oxymel of Caragreen of Irish Moss", the base was embossed "A & C B Co" and was made between 1865 and 1885 by Aire & Calder Co. London for export, so it was produced for the Australian market but made by English glassmakers (Figure 5-27).
- A semi intact two piece moulded bottle was also recovered from approximately the same depth. Ribbed and decorative moulding in this example was commonly used for sauce bottles in the late 1800s (Figure 5-28).
- Two firm dates relatively close together for this site, 1845-1870 and 1865-1885 would seem to place this assemblage in the period 1850-1880s. Since the deposit is close to the base of the original pit, it provides an indication that the pit was excavated and possibly used for domestic discard around that time.

- **Figure 5-23 Feature 6022 in profile with excavated trench, view south east, scale bar 1.8m**

- **Figure 5-24 Intact solid brick with makers mark, probably a convict brick.**

- **Figure 5-25 Circular iron pontil mark**

- **Figure 5-26 Various lengths of corroded wrought iron recovered from Feature 6022**

- **Figure 5-27 Aire & Calder Co Irish Moss bottle, made in England, 1865-1885**

- **Figure 5-28 Unidentified bottle, aqua glass, late 1800s**

5.4.3.2.2. Feature 6011

The dimensions of this pit feature were well defined by a drystone wall that has remained essentially intact except for a 1.5m section on the eastern side that appears to have subsided. The feature is approximately 2.7m inside diameter with the drystone wall 1m high. From the top of the wall the original ground surface is battered by 0.3-0.4m. The trench was started behind the south side of drystone wall and cut down to bedrock prior to removing a section of drystone to extend the trench into the feature. The drystone wall was approximately 0.6m thick and extended down on to a base of compact clay. No artefacts were recovered from the trench either from outside or inside the feature.

Weathered sandstone bedrock behind the wall was located 2.2m down from the top of the ground surface. When the trench was extended into the feature, bedrock appeared at 2.9m below ground surface. A distinct shelf appeared at the edge of the feature where the sandstone had been excavated approximately 0.7m into the bedrock. Three strata were identified inside the feature:

- A shallow layer of dry litter on a layer of silty loam, 0.05-0.1m thick.
- A layer of dark brown silty loam, 0.3-0.5m thick.
- A deep layer of wet blue grey silty clay on top of sandstone bedrock.

- **Figure 5-29 View south beginning excavation outside Feature 6011**

- **Figure 5-30 Final view of the trench through Feature 6011, view east**

5.4.3.2.3. Feature 6018

This was the northernmost feature excavated. Past farming activity in the area was evident from used fencing wire together with bottles, plastic and other discarded domestic items in a relatively shallow depression that marked the feature and perhaps provides an indication of previous use (Figure 5-31). The feature is an elongated pit with the main axis oriented east west and is approximately 8m by 4.7m wide. A similar pit is located approximately 6m to the south west and also contains old fencing wire and a scatter of amber bottles.

There was no evidence of historic artefacts among the items scattered around the perimeter or within the feature itself.

A 22m outcrop of bedrock was exposed 14m to the south of the feature indicating the shallow nature of bedrock in this area and reflects the difference in the shape and depth of this particular feature compared to Features 6011 and 6022.

When the feature was cleared a trench was excavated on the longer east west axis slightly off centre, leaving the south wall to show a profile through the centre of the feature. At approximately 0.6m below the top of the trench, artefacts including a bottle, iron, and ceramics were observed insitu about 0.2-0.4m above a layer of scattered charcoal deposits in a loose fill matrix of grey and red brown silty clay (Figure 5-33). This fill extended down to 1.05m to the underlying sandstone bedrock with no evidence of artefacts and a further 0.85m was excavated for geotechnical purposes.

Diagnostic artefacts recovered from the wall profile included (Figure 5-34);

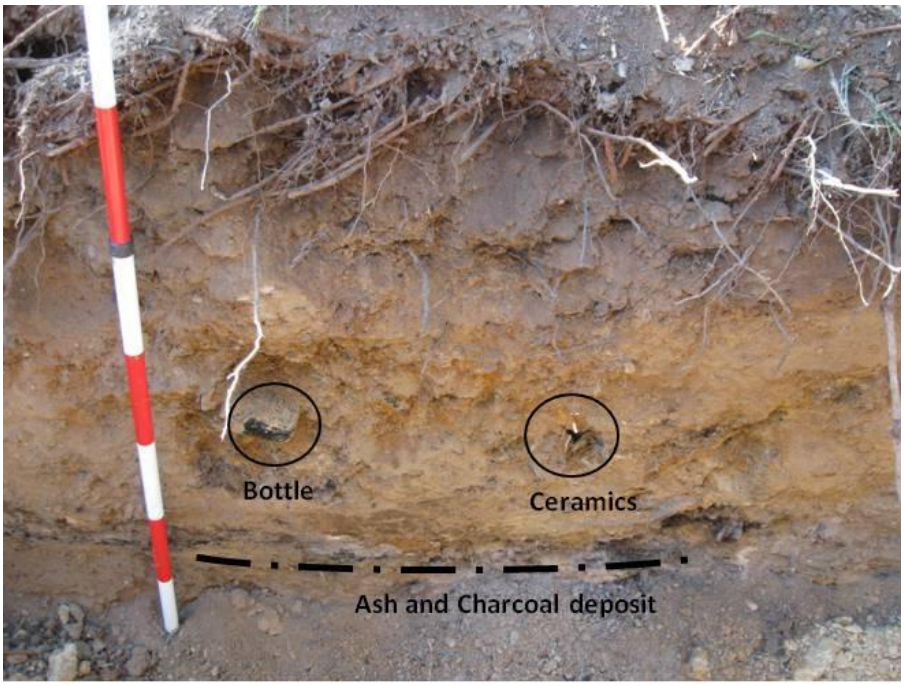
- A basal section of a whiteware vessel with brown transfer floral print decoration, 1810 – 1840.
- A smaller shard of simple blue banded whiteware, 1815 – present.
- An applied champagne finish of dark green glass, c. 1850.
- A “Lea & Perrins” Sauce bottle, manufactured after 1838

The ash and charcoal layer was the result of deposition since there was no evidence of heat alteration in the profile.

Additional wrought iron artefacts were also recovered during excavation of the fill layer including a heavy iron ring or pipe section (10cm in diameter) and a large industrial grade drilled right angle bracket, approximately 20cm x 50cm x 0.5cm.

- **Figure 5-31 Feature 6018 view west with discarded fencing wire and other agricultural and domestic items**

- **Figure 5-32 Outcrop of sandstone bedrock (22m long) with Feature 6018 highlighted, view west**



- **Figure 5-33 Feature 6018, profile of south wall with artefacts and charcoal /ash layer *in situ* in fill**

- **Figure 5-34 Artefacts recovered from the south wall profile of Feature 6018, not collected**

5.4.3.2.4. Features A19 and A23

Features A19 and A23 were surveyed points to mark the terminating north and south sections respectively of a cutting approximately 40 m long and 9 m wide with the base about 2 m below the ground surface (Figure 5-35). Another well-defined 5 m pit feature was located 8 m east from the north end of the cutting with a scatter of historic artefacts exposed on the rim (Figure 5-5). Despite the proximity of the pit, it does not appear to be any link with the cutting and would appear to represent two distinct activities although they may have been contemporaneous.

A north-south trench was excavated at A23 next to the survey peg to a total depth of 0.95 m. The east wall profile exposed 38 cm of silty loam fill over highly weathered sandstone comprising a silty clay and sandstone rubble overlaying hard sandstone bedrock. No artefacts were recovered from this trench.

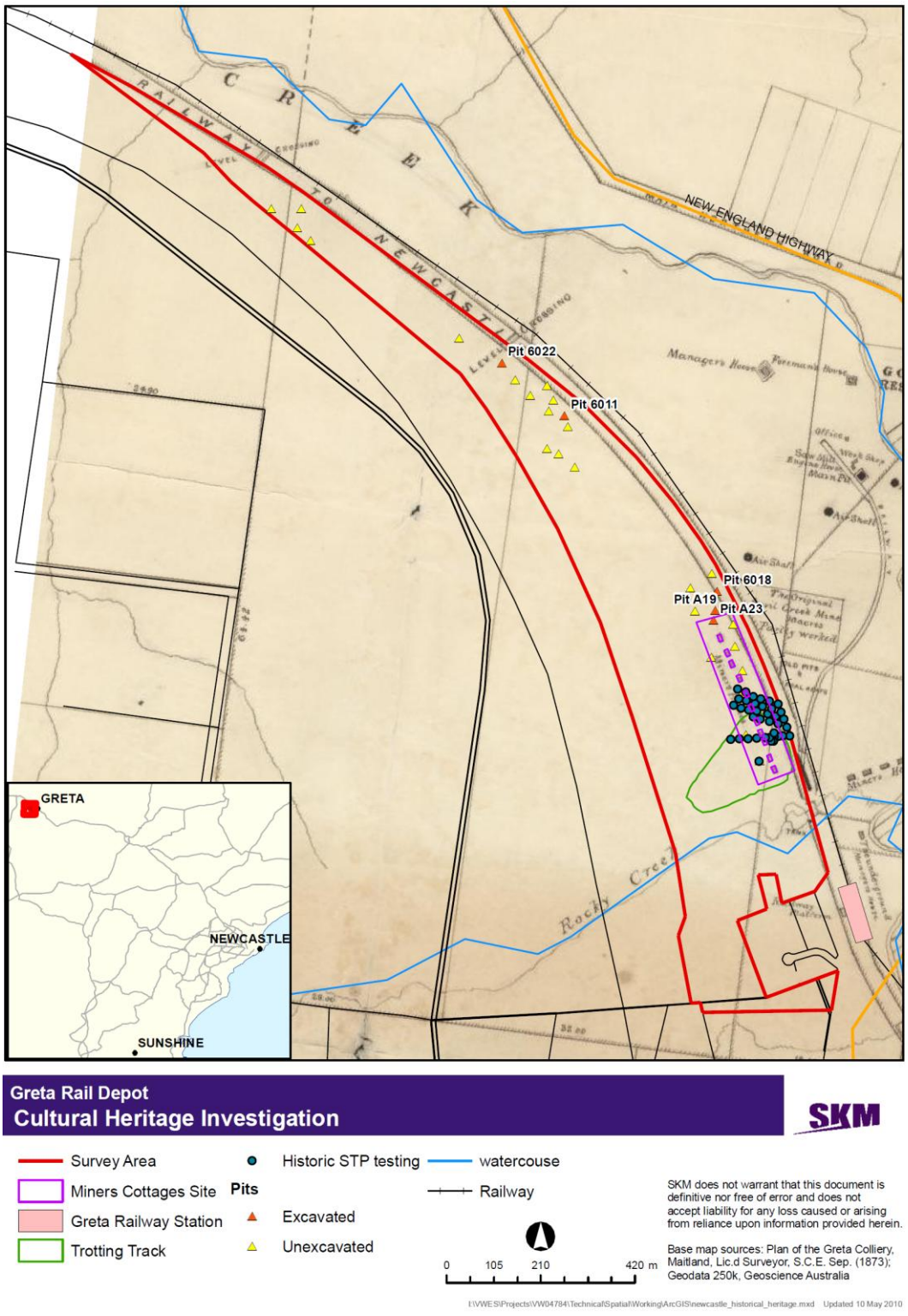
The A19 trench was also excavated in a north south direction exposing a similar profile to A23. No artefacts were recovered but several large sandstone blocks were present in the fill among a sandstone rubble and sandy clay matrix.

Although the blocks provided no evidence of tool marks associated with quarrying activity and no bedding planes were evident either which suggests they had been discarded as too difficult to downsize. The sandstone rubble in this instance was around 0.1 m to 0.15 m and with suitable sandstone blocks would have been available for use in the construction of small drystone retaining walls such as those found with Feature 6011.

Additional machine excavation was also carried out at A23 with Greg Hawkins (Geologist, Douglas Partners) to determine if there was any evidence of an shaft or access adit in this area that may have provided additional access to the Old Anvil Creek workings, however there was no geotechnical or archaeological evidence for this type of activity.

- **Figure 5-35 View north of cutting from A23 to A19 showing exposed bedrock.**

- **Figure 5-36 Finishing depth of trench at A19, 0.95 m below surface, showing a large buried rock in the fill matrix of sandy clay and rubble in the east wall.**



- **Figure 5-37 Locations of sub-surface testing and feature excavations**

6. Interpretation and Discussion

6.1. Shovel Test Pit Excavations

The archaeological evidence tends to indicate opportunistic use rather than long term occupational use of the trotting track area. The scatter of artefacts located during testing and excavation do not provide sufficient archaeological evidence to demonstrate occupation of the site especially since no substantial structural evidence such as brick footings, chimney falls or post moulds were found. The small fragments of architectural items recovered from STP in association with domestic artefacts and their shallow depth (0-10cm) effectively point to casual discard and subsequently scattered by agricultural activity. Artefacts recovered from sub-surface testing extending to the north of this area were confined to considerably deeper deposits within two sample features.

The manufacturing dates for the principal periods of ceramics and glass recovered from STP show a trend in deposition toward the mid to late 1800s (Figure 6-1) at a depth of 0-10cm.

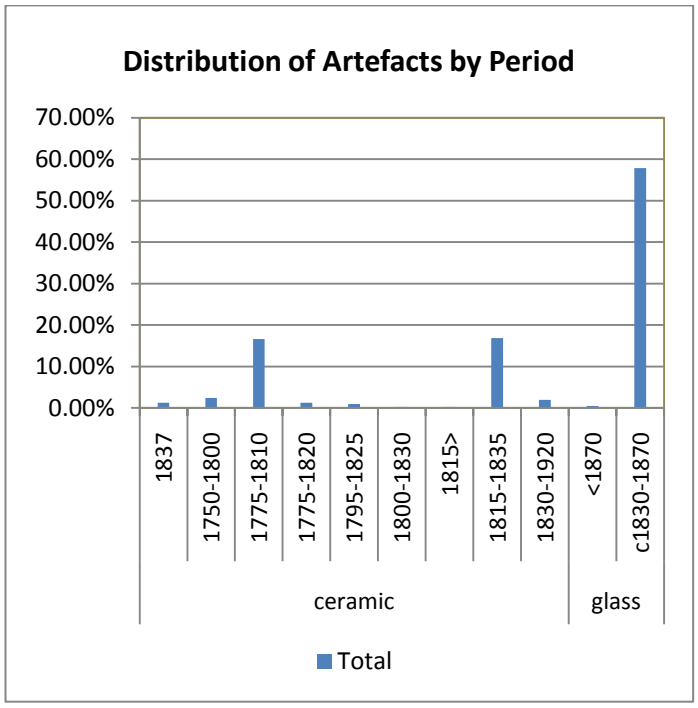
It should be pointed out that although geotechnical investigations have identified numerous underground mine tunnel and workings beneath the project area originating from the Old Anvil Creek Colliery (1861 -1864), these appear to have had little archaeological impact or link with surface features in the project area.

6.2. Features 6011, 6018 and 6022 Excavations

Ceramics and glass artefacts recovered from Features 6022 and 6018 both provide a similar time frame for deposition. Artefacts were recovered approximately 200 cm below ground surface in a fill matrix near the sandstone base of these two features. In contrast, Feature 6011 had a sandstone retaining wall but contained no artefacts and was clearly excavated approximately 70 cm into the sandstone bedrock. However a pit feature with a drystone retaining wall adjacent to A19 and A23 also appears to have contained artefacts (Figure 5-5) evident from the scatter observed on the rim. The similarity in artefact assemblages certainly indicate an overall time frame of mid to late 1800s for the formation of the features and general discard and deposition of ceramics, glass and metal throughout the project area. The features with no artefacts however may have been created at an earlier date with the occurrence of wash infill preventing their use for discard. The ceramic assemblage alone tend to reflect a slightly earlier period of use from the early to mid 1800s, but according to the Feature 6003 stratigraphy (Figure 5-33), the ceramics and glass were deposited around the same time.

The results from the feature excavations do not directly resolve the question of what the original purpose of the features might have been with the exception of sample Features A19 and A23, being located in a former quarry evidently excavated for that purpose. The use of the remaining sample

features however has involved either no artefacts or only a very limited amount of discarded ceramics, glass and metal items with no concentrations observed that would certainly confirm an intended use as rubbish pits. It suggests instead an opportunistic and random use of pits that were no longer useful and abandoned. This thin scatter of artefacts discarded in random features reflects the same manner and extent of discard in the open field of the trotting track area.



- **Figure 6-1 The percentage by weight distribution of dateable ceramic and glass artefacts recovered within the project area by period**

6.3. Summary

The results of archaeological testing and excavation of the project area demonstrate the presence of a widely dispersed scatter of surface and sub-surface archaeological deposits and features confined to an area roughly aligned with the rail tracks. However despite historical evidence of industrial activity adjacent to the project area and a row of "Miners Cottages" (Figure 4-1) alongside the rail boundary within the project area, no archaeological evidence was recovered during sub-surface testing which could be associated directly with mining activities within the project area.

6.3.1. Discussion

Evidence from the historical background and the analysis of artefacts from sub-surface testing and the excavation of features indicates historical activity linked to the discard of domestic artefacts within the project area (Figure 5-11) and provides an approximate time frame of the mid to late

1800s for the deposition of the artefacts and the formation of the five sample features with artefacts investigated. This scatter of domestic artefacts within the trotting track area may be related to the temporary occupation of the area by miners from 1861 – 1864 during the operation of the Old Anvil Creek Colliery (Figure 5-37).

Despite some superficial differences in construction between the pit features, those containing artefacts were used for discard at around the same time and could have been formed at a later stage than those with no artefacts and those tested were excavated down to bedrock. The excavated sandstone feature at Features A19 and A23 was probably in use when drystone retaining walls were being constructed for some features. As the size of the excavated sandstone feature would appear to far exceed the amount of stone required for the few drystone walls, this presupposes some alternative use for the stone or for the feature itself. Tonks (2009) identifies this feature as possibly a failed attempt at constructing a railway siding, potentially built to accommodate extension of the Colliery sidings, which never occurred.

It should be pointed out that although geotechnical investigations have identified numerous underground mine workings beneath the project area originating from the Old Anvil Creek Colliery to the east of the project area, no archaeological evidence was identified to link the pit features to mining activities. Information from geotechnical investigations indicates that the underground workings associated with the Old Anvil Creek Colliery are in a very poor condition, with a degradation of condition as a result of subsidence, burning of coal and underground support structures and flooding by groundwater. All of the underground workings are sealed up to prevent public access. There are no features evident within the project area that can be related to the Old Anvil Creek Colliery establishment or operations.

7. Assessment of Significance

The *Heritage Act* 1977 protects 'relics' regardless of their significance. However, it is important to undertake an assessment of significance to explain why a particular place/item is important and to enable the determination of appropriate site management.

Section 4(1) of the *Heritage Act* 1977 (as amended 2009) defines 'relic' as follows:

> ***relic*** *means any deposit, artefact, object or material evidence that:*
> *(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
> *(b) is of State or local heritage significance.*

7.1. Application of the Australia ICOMOS (The Burra Charter)

The assessment of cultural heritage significance seeks to develop an understanding as to why a project area, place or item is considered important and what values it has to the community. The concept of cultural heritage significance supports that a set of values, beyond financial benefits, is embodied within the place itself, its fabric, setting, use associations, meanings, records, related places and related objects. It can be both tangible and intangible and values may be associated with past, present or future generations (Burra Charter: Charter for Places of Cultural Significance, 1999). Assessments of cultural heritage significance help to formulate and guide management policy and strategies. Cultural significance may be derived from the fabric of a place, association with a place, or the research potential of a place.

The cultural heritage significance assessment criteria endorsed by the Heritage Branch(Department of Planning, NSW) heritage criteria encompasses the four values in the Burra Charter definitions:

- ***Historical significance*** considers the evolutionary or associative qualities of a site with aesthetics, science and society, identifying significance in the connection between a site and cultural development and change.
- ***Aesthetic significance*** addresses the scenic and architectural values of a site and/or the creative achievement that it evidences. Thus, a site achieves aesthetic significance if it has visual or sensory appeal and/or landmark qualities and/or creative or technical excellence.
- ***Social significance*** is perhaps the most overtly evolutionary of all classifications in that it rests upon the contemporary community appreciation of the cultural record. Evaluation within this classification depends upon the social spiritual or cultural relationship of the site with a recognisable community.

- ***Scientific significance*** involves the evaluation of a site in technical and/or research terms, considering the archaeological, industrial, and educational and/or research potential. Within this classification, sites have significance value in terms of their ability to contribute to the better understanding of cultural history or environment and their ability to communicate, particularly to a broad audience within a community.

7.2. Assessing Significance

7.2.1. Value Assessment of Heritage Sites

These values are expressed in NSW as seven criteria in more detailed form based on criteria used by the Australian Heritage Commission (NSW Heritage Manual, 2001):

Criterion A: *Importance to the course, or pattern, of NSW (or local area) cultural or natural history.*

Criterion B: *Special association with the life or works of a person, or group of persons, or importance in NSW (or local area) cultural or natural history.*

Criterion C: *Importance in exhibiting particular aesthetic characteristics and or a high degree of technical achievement in NSW (or local area).*

Criterion D: *Strong or special association with a particular community or cultural grouping NSW (or local area) for social, cultural or spiritual reasons.*

Criterion E: *Potential to yield information that will contribute to an understanding of NSW (or local area) cultural or natural history.*

Criterion F*: Possession of uncommon, rare or endangered aspects of NSW (or local area) cultural history.*

Criterion G*: Importance in demonstrating the principal characteristics of a class of NSW (or local area):*

- *cultural or natural places*
- *cultural or natural environments*

7.2.2. Value Assessment of Historical Archaeological Sites and Relics

The Heritage Branch (Department of Planning, NSW) has developed criteria for assessing significance of archaeological sites and relics. These are based on the Australian Heritage Commission criteria (provided in Section7.2.1 above) and are detailed in the Heritage Branch publication *Assessing Significance for Historical Archaeological Sites and Relics* (2009). These criteria are summarised below:

- *Archaeological Research Potential (NSW Heritage Criterion E).*

  Archaeological research potential is the ability of archaeological evidence, through analysis and interpretation, to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site and its 'relics'. The integrity of the site, the state of preservation of archaeological material and deposits will also be relevant.
- *Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D).*

  Archaeological remains may have particular associations with individuals, groups and events which may increase the significance of a place or item through the association with important historical occurrences or people.
- *Aesthetic or technical significance (NSW Heritage Criterion C).*

  Whilst the technical value of archaeology is usually considered as 'research potential' aesthetic values are not usually considered to be relevant to archaeological sites. Archaeological excavations which reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, may allow both professionals and the community to connect with the past through tangible physical evidence.
- *Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).*

  Archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation. They can demonstrate the principal characteristics of a place or process that may be rare or common

7.2.3. Ranking of Significance

A ranking system for assessing heritage significance can provide a simple method for determining the relative significance of individual items or places. In accordance with the NSW Heritage Council Guidelines *Assessing Heritage Significance* (2001), the following criteria have been adopted for ranking of significance.

- **Table 7-1 Guidelines for Ranking Significance (NSW Heritage Council, 2001)**

Grading	Justification	Status
Exceptional	Rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily.	Fulfils criteria for local or State listing
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the item's heritage significance	Does not fulfil criteria for. Local or State listing

7.2.4. Level of Significance

Two levels of significance exist in the NSW heritage management system; local and State, these are defined as follows:

'State heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item. (Heritage Act 1977, Section 4A).

'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item (*Heritage Act* 1977, Section 4A).

7.3. Cultural Heritage Significance Assessment

The significance assessment utilises the value criteria from Section 7.2.2, the ranking criteria from Section 7.2 3 and the level criteria from Section 7.2.4 to provide a statement of significance. This is broadly based on the context comprising an industrial landscape modified by mining and rail activities and undergoing periods of transformation and development in response to resource depletion and changing technology. The significance assessment applies to the entirety of the project area and the historical archaeological features identified within.

- **Table 7-2 Statement of Significance for Historical Archaeological Sites within Project Area**

NSW Heritage Criteria	Statement of Significance	Level of Significance
Archaeological Research Potential (NSW Heritage Criterion E).	A high degree of intactness in the archaeological resource is necessary before a substantive contribution can be made to the research potential and hence, the ability of the archaeological resource to answer research questions for the site. The pit features identified during the survey program, and the sample of pit features excavated did not provide any explanatory archaeological evidence relating to their use or manner of origin. In particular no archaeological evidence indicated any link to historical mining activities in general or to the Old Anvil Creek Colliery operating between 1861 and 1864 on the other side (eastern side) of the railway from the project area. Therefore the project area is considered of little heritage significance since it does not fulfil the criteria for local or State listing as a heritage place as it has revealed little archaeological or research potential and has provided no evidence to suggest that further testing, such as enlarging the sample of features for excavation will present a data set to adequately answer the questions regarding their origin and possible links to historical industrial activity documented for the area and the features. Despite the paucity of archaeological evidence from survey and testing of the project area there remains a possibility that large scale surface clearance of top soil from the approximate location of the row of “Miners Cottages” may reveal some additional archaeological evidence pointing to occupation of the “Miners Cottages” during the brief operational life of the Old Anvil Colliery. However, the degree of ground disturbance in this area as a result of the formation of the trotting track, may mean that alterations detract from the original fabric and would make the site difficult to interpret. However, the “Miners Cottages” area is still considered to have some minor potential to yield archaeological information. The sample of pit features investigated have revealed little archaeological or research potential and therefore do not meet the criterion (E)	None
Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D).	From the results of the initial pedestrian survey and historical records the project area was considered of historical significance with pit features and historical artefact scatters identified. Accordingly, a sub-surface testing program was undertaken to establish the significance of the historical artefact assemblage and the wider project area context of local mining and economic developments. However, the results of the	None

NSW Heritage Criteria	Statement of Significance	Level of Significance
	sub-surface testing were inconclusive and did not provide evidence that would associated the pit features or historical artefacts with the Old Anvil Colliery or other mining activities. The row of historic "Miners Cottages" is no longer extant and the pit features have no clearly defined evidential association with the local community or interest groups. The underground mine works could possibly have provided a link to historical events of importance, such as one of the first coal mines in the Hunter Valley region. However, the condition of the underground workings associated with the Old Anvil Creek Colliery are very poor with a degradation of condition as a result of subsidence, burning of coal and underground support structures and flooding by groundwater. All of the underground workings are sealed up to prevent public access. There are no features evident within the project area that can be related to the Old Anvil Creek Colliery establishment or operations. It is considered therefore that there are unsubstantiated connections with historically important mining activities or historically important people and therefore the archaeology within the project area does not meet the guidelines of the significance criterion (A), (B) or (D).	
Aesthetic or technical significance (NSW Heritage Criterion C).	The row of historic "Miners Cottages" is no longer extant and the collection of pit features does not meet the criteria (C) because they have revealed no evidence of any type-defining characteristics.	None
Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).	Survey and sub-surface testing provided no definitive evidence for an archaeological signature of the former "Miners Cottages" indicated on the 1873 map (Figure 4-1) except for an estimated date of an artefact scatter of the mid to late 1860s which corresponds to the period the Old Anvil Creek Colliery was operational. Given the short operational life of 1861-1864 for this Colliery the "Miners Cottages" are likely to have been very temporary, transient structures and have left little if any archaeological evidence of their existence. Similarly, the sample of pit features excavated did not provide any archaeological evidence of attributes defining a specific function or linking their origin to the early pioneering coal mining activities in the area.	None

7.4. Condition and Integrity

Condition and integrity of historical archaeological sites will combine with the assessment of significance to allow the validation of the heritage impact assessment. *Condition* is defined as the physical state of the fabric of the archaeological resource and its potential for survival. *Integrity is* defined as the degree to which the residual material evidence is an appropriate representation of the site/relic/object in its original form.

The sample of pit features excavated and assessed during the sub-surface testing were in ruined condition; that is the material evidence is incomplete and insufficient to allow a full archaeological reconstruction of its features, construction and purpose. The pit features have undergone major

modification, to the extent that discernment of the original form, design or function is difficult or impossible to achieve, therefore their integrity is low.

The artefact assemblages identified during survey and sub-surface testing were located in a variety of locations; found in association with the pit features and also as isolated scatters of artefacts across the project area. The condition of the artefact assemblages is poor, with little or no stratification in a highly disturbed setting. The artefacts assemblages have undergone major modification and therefore the integrity of these deposits is low.

7.5. Summary of Significance Assessment

The pit features identified during the survey program, and the sample of pit features excavated during sub-surface testing did not provide any explanatory archaeological evidence relating to their form, function or origin. In particular no archaeological evidence indicated any link to historical mining activities in general or to the Old Anvil Creek Colliery operating between 1861 and 1864 on the other side (eastern side) of the railway from the project area.

Therefore the archaeology within the project area is considered to be of little heritage significance since it does not fulfil the criteria for local or State listing as a heritage place. The project area has revealed sparse archaeological data and provides little research potential and no evidence to suggest that further testing, such as enlarging the sample of features for excavation will present a data set to adequately answer the questions regarding their origin and possible links to historical industrial activity documented for the area and the features.

The artefacts and features identified during the field program have been assessed as having little heritage significance, and therefore are not considered significant on a local or State scale. As such, in accordance with the Heritage Act 1977 (Section 4(1) the artefacts and features found in the project area are not considered to be 'relics'[2] as a'relic' must of of State or local heritage significance.

[2] Section 4(1) of the *Heritage Act* (as amended 2009) defines 'relic' as follows:

> ***relic*** *means any deposit, artefact, object or material evidence that:*
> *(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
> *(b) is of State or local heritage significance.*

8. Heritage Impact Assessment

This section provides a heritage impact statement identifying the potential impact of the Great TSF project on all known and potential historical heritage items identified within the project area. The majority of the heritage features identified during the search of heritage registers are located within the township precinct. Based on the distance from the project area and the nature of the proposed works, impact to these items is considered highly unlikely as a result of the proposed works.

The remaining heritage items listed in Table 4-3 are within the project area or located within 500m. Impacts to these items vary. Notable heritage sites within 500m of the project area include the Great Railway Station Group, the Great Northern Railway and the Old Anvil Creek Colliery. Heritage impacts to these three major items are considered to be minimal and are discussed below:

- Great Railway Station Group – The Great Railway Station group includes the railway buildings, station masters house, signal box, railway platforms and the footbridge. The Railway Station is located about 200m south east of the start of the project area, with a new access track to the project area being constructed to the south west of the station buildings. Other major features of the proposed works including buildings and additional tracks are located out of sight of the railway station buildings, which are at least 500m further to the north-west of the Railway Station Group. Impacts to the heritage of the Station Group during construction will be minor.
- Great Northern Railway – The proposed works are located immediately adjacent to the Great Northern Railway. However, as the nature of the proposed works is in keeping with the use of the Great Northern Railway, the impact to the heritage of the Railway is considered to be minimal.
- Old Anvil Creek Colliery – The surface workings of the Old Anvil Creek Colliery are located on the other side of the railway line to the project area and therefore there are no impacts to remaining surface features as a result of these proposed works. However, the possibility of intact underground workings and the significance of these workings have been assessed. Based on the poor and damaged condition of underground workings (Greg Hawkins, Geologist, Douglas Partners, pers comm. 10/05/2010) they have been assessed as having little or no significance. The impacts to the workings beneath the project area during the proposed works are likely to be caused by grouting, filling or stabilising the workings. Although this would result in the damage or destruction to some of the workings, the fact that there are many other examples of underground coal mines in the region, and more specifically in Greta, indicates that if impact were to occur to these workings, there would still be many other examples of underground workings in better condition within the region.

Table 8-1 Summary of Impacts to Heritage Items (listed in order of Level of Significance)

Heritage Item	Heritage Register and ID	Significance Assessed in this Report	Level of Significance	Distance from Project Area	Likely Heritage Impact	Management Strategy
Greta Railway Station Group	National Trust State Heritage Register (NSW) SHR (01156) Draft Cessnock LEP 2009 (I114)	No	State State Local	Approx 200m	Impacts unlikely. Potential impacts if rail traffic is increased	Monitor increases if rail traffic and protect structures if necessary.
Great Northern Railway Network	Draft Cessnock LEP 2009 (I251)	No	State	Borders eastern and northern extent of project area	Not impacted	None
Police Station, Lock up and Residence, 1 Water St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I115)	No	Regional[3] Local	Approx 750m	Not impacted	None
Median Strip Group	Hunter REP 1989 Draft Cessnock LEP 2009 (I111)	No	Regional Local	Approx 800m	Not impacted	None
Greta Courthouse (former)	Register of the National Estate (1219) Hunter REP 1989 Draft Cessnock LEP 2009 (I108)	No	Local Local Local	Approx 700m	Not impacted	None
Greta Public School, Wyndham St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I116)	No	Local Local	Approx 600m	Not impacted	None
Masonic Hall (former) 67 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I103)	No	Local Local	Approx 800m	Not impacted	None
Methodist Church, High St, Greta	Hunter REP 1989	No	Local	Approx 900m	Not impacted	None
St Marys Anglican Church, Anvil St, Greta	Draft Cessnock LEP 2009 (I99)	No	Local	Approx 900m	Not impacted	None

[3] "Regional" is no longer used as a level of significance in NSW assessments.

Heritage Item	Heritage Register and ID	Significance Assessed in this Report	Level of Significance	Distance from Project Area	Likely Heritage Impact	Management Strategy
Greta Uniting Church, 43 High St, Greta	Draft Cessnock LEP 2009 (I102)	No	Local	Approx 900m	Not impacted	None
Inn (former), 72 High St, Greta	Draft Cessnock LEP 2009 (I104)	No	Local	Approx 800m	Not impacted	None
Tattersalls / Greta Hotel, 88 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I105)	No	Local	Approx 700m	Not impacted	None
Greta Post Office (former), 94 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I106)	No	Local	Approx 700m	Not impacted	None
Greta Council Chambers (former), 96 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I107)	No	Local	Approx 700m	Not impacted	None
Two storey shop, 110 High St, Greta	Hunter REP 1989 Draft Cessnock LEP 2009 (I109)	No	Local	Approx 700m	Not impacted	None
Horse Trough,	Draft Cessnock LEP 2009 (I110)	No	Local	Approx 800m	Not impacted	None
Sandstone kerbs, gutters, drains and dam	Draft Cessnock LEP 2009 (I112)	No	Local	Approx 700m	Not impacted	None
Greta Bridges Group	Draft Cessnock LEP 2009 (I248)	No	Local	Closest is on Nelson Rd approx 300m	Not impacted	None
Anvil Creek Colliery (surface features)	Hunter REP 1989	No	Requires further investigation	Approx 300m	Not impacted	None
Water Storage Tanks	Hunter REP 1989	No	Requires further investigation	Approx 300m	Not impacted	None
Street of “Miners Cottages” (outside of project area)	Hunter REP 1989	No	Requires further investigation	Approx 100m	Not impacted	None
Street of “Miners Cottages” (in project area)	Hunter REP 1989	Yes	None	Within project area	Impacted during TSF construction. The approximate area of the “Miners Cottages” will be within the	Archaeological monitoring during construction phase recommended.

Heritage Item	Heritage Register and ID	Significance Assessed in this Report	Level of Significance	Distance from Project Area	Likely Heritage Impact	Management Strategy
					construction area.	
Pit features within project area	Not registered	Yes	None	Within project area	Impacted during TSF construction Some of the pit features will be destroyed .	Archaeologist to document all pit features prior to construction
Underground mine workings associated with Old Anvil Creek Colliery	Not registered	Yes	None	Within project area	None	None

9. Management Recommendations

Heritage items located within the project area or within 1km of the project area are summarised in Table 8-1. Impacts to most of the heritage as a result of the proposed works are considered to be minimal. The exceptions are discussed below:

4) Greta Railway Station Group

The Greta Railway Station Group (SHR01156) is adjacent to but isolated from the project area by private property providing a buffer on the western side of the rail lines and will be circumvented by the access road and relatively isolated from the main construction zone which is located at the north end of the project area (see Appendix A). There will be a period of heavy traffic during the construction phase and continuing lighter traffic during the operational phase, however this does not constitute a threat to the Greta Railway Station Group and accordingly no heritage management recommendations are considered necessary.

If rail traffic increases significantly past the Greta Railway Station as a result of the TSF construction or operations, then the long term effects of vibration on the structural integrity of the Station buildings should be considered. Certain safeguards for the buildings if required could include vibration monitoring and regular structural checks prior to and after an increase in rail traffic so corrective strategies such as in ground barriers if necessary can be evaluated against recognised standards for the potential for building damage (Hunaidi, 2000).

In contrast to structural heritage concerns, the current viewshed available while approaching the Greta Railway Station Group along Nelson Street is not threatened by the proposed structures associated with the TSF since they have been located at the northern end of the project area. The development of the site for rail facilities is considered sympathetic to the continued transformation and modification of the industrial landscape with a history of mining and rail activities surrounding the project area.

5) "Miners Cottages"

The area containing the row of 11 no longer extant historic "Miners Cottages" has the potential to yield further archaeological information regarding domestic life in an industrial context. Features or artefact deposits in this area may be exposed by large scale ground surface clearance during the preparation of the site prior to construction. The following heritage management recommendations are provided in order to capture and document this information:

- This area is marked accordingly on all construction plans including those issued to contractors.

- If artefacts or structural features such as circular post moulds for example are exposed, then work in the immediate vicinity should stop, and a qualified archaeologist should be consulted.
- Work should only commence once the features have been photographed and documented by an archaeologist.

6) Pit Features

In the light of the results from the archaeological testing, the pit features identified within the project area appear to be related more to opportunistic discard given their shallow depth to bedrock and the disturbed stratigraphy, rather than industrial activity such as mining and therefore are considered of little significance and no further sub-surface investigation is recommended. However, given the apparent uniqueness of this collection of pit features, it is recommended that the remaining un-recorded features are fully recorded prior to work commencing in the project area to provide an archival record for future heritage reference. This recording would be non-invasive, be undertaken by a qualified archaeologist, and comprise the recording of relevant dimensions, associated features and/or artefacts, and photographs according to NSW Heritage Council Guidelines.

Finally the management recommendations outlined above are not compulsory requirements under the *Heritage Act* 1977 but are put forward as precautionary measures in line with the best heritage protection and practice on site.

In the unlikely event that unexpected or significant archaeological remains not identified as part of this assessment are discovered within the project area (for example during works associated with the construction of the new surface infrastructure facility), all works in the immediate area should cease, the remains and potential impacts should be assessed by a qualified archaeologist and, if necessary, the Heritage Branch (Department of Planning, NSW) be notified.

10. References

10.1. Reports, Journals, Publications and Unpublished Reports

Biosis Research 2003 *An archaeological survey of historic sites for the Hunter Valley Project, North Rothbury.*

Boow, J., 1991. *Early Australian Commercial Glass: Manufacturing Processes*, Heritage Council of New South Wales.

Davies, E and E Tonks 1993, 'The Development of the Greta Coal Measures of New South Wales', in *Centenary Conference Proceedings*, Melbourne, The Australasian Institute of Mining and Metallurgy, pp 353–366.

Heritage Branch, NSW Department of Planning, 2009 *Assessing Significance for Historical Sites and Relics (*

Heritage Branch, NSW Department of Planning, 2006 *Photographic Recording of Heritage Items Using Film or Digital Capture*

Kass, T, 2006. *Roads and Traffic Authority Heritage and Conservation Register: Thematic History*, 2nd edition,.

Kingswell, G H 1890 *The Coal Mines of Newcastle. Their Rise and Progress.* Newcastle Herald Office

Newcastle Herald and Advocate 1879 *The Newcastle Directory and Almanac for 1880*. Newcastle 1879

NSW Heritage Council 2002 *Guidelines for Assessing Heritage Significance*

NSW Heritage Office, 1996 *Archaeological Assessment Guidelines* (

NSW Heritage Office, 1998 *How to Prepare Archival Records of Heritage Items.*

Pike, P, and Walker, M & Associates 1992. C*ity of Cessnock Heritage Study, Cessnock* (NSW Council), Sydney:

The Cultural Resource Group, Louis Berger & Associates, Inc., 1996. *Analytical Coding System for Historic Period Artifacts.*

Schmitz, C. 1988. *Output and Employment in the New South Wales Coal Industry 1805-1923*. Australian Reference Publications 1988.

Randall, V. 1993. *Greta The Town and its People 150 Years*

State Rail Authority of New South Wales 1984. *How and Why of Station Names.*

Tonks, E., 2009. *Coal Mining in the Greta Area*. Unpublished Report.

10.2. Acts, Legislation and Local Planning Instruments

Environmental Planning and Assessment Act 1979

Heritage Act 1977

Local Government Act 1993

Environment and Heritage Legislation Amendment Act (No. 1) 2003

Environment Protection and Diversity Conservation Act 1999

Australian Heritage Council (Consequential and Transitional Provisions) Act 2003

Australian Heritage Council Act 2003

Draft Cessnock Local Environmental Plan 2009

1989 Hunter Regional Environmental Plan

Cessnock Environmental Plan 1989

10.3. Websites

Cessnock Local Government Area Heritage Evaluation, viewed 9 March 2010, http://www.planning.nsw.gov.au/asp/pdf/07_0172_svillages_ea_appendixk_heritage_part3.pdf

Heritage Council of New South Wales 2001; *Historical Themes*, viewed 15 January 2010, http://www.heritage.nsw.gov.au/docs/themes2006.pdf

Hunaidi, O., 2000 *Traffic Vibrations in Buildings*, viewed 30 April 2010, https://www.nrc-cnrc.gc.ca/eng/ibp/irc/ctus/ctus-n39.html

Newcastle Regional Museum 2009, http://archive.amol.org.au/newcastle/greta/acreek.html viewed 26 February 2010,

Newcastle Regional Museum 2009 http://archive.amol.org.au/newcastle/greta/wb.html, viewed 9 March 2010,

Newcastle Regional Museum 1998 *A History of Greta Coal Measures* http://archive.amol.org.au/newcastle/greta/frames.html Viewed 8 May 2010.

Society of Historical Archaeology; viewed 15 January, 2010, http://www.sha.org/bottle/index.htm

Australian Dictionary of Biography. Vol 4 D-J 1851-1880. Melbourne University Press http://adbonline.anu.edu.au/adbonline.htm

10.4. Newspapers

Brisbane Courier, 6 August 1898

Miners Advocate, 10 Jan 1873; 28 Feb, 1874; 24 April, 1875; 11 December 1878.

Newcastle Chronicle, 4 March 1871.

Newcastle Morning Herald, 29 Sep 1890; 5 May 1892; 8 Feb 1902; 25 May 1903;

18 Oct 1912;16 Oct 1923; 7 March 1927; 29 April 1932; 13 Nov 1937; 16 Jan 1940.

11. Glossary

Adit	A nearly horizontal passage providing entry to an underground mine
Chitter	Waste rock broken during mining and picked or washed out from the coal
Crown glass	Early form of window glass flattened by spinning.
Frogged	Bricks which have an indented smaller rectangle in the top.
Pontil	A plain iron rod used to hold a vessel by the base during hand manipulation, which will leave a distinctive pontil mark when removed.
Viewshed	The total area visible from a point (or series of points along a linear transportation facility). Viewshed is typically evaluated both from the roadway and conversely of the roadway as viewed from the adjacent area.

Limitations

The sole purpose of this report and the associated services performed by Sinclair Knight Merz Pty Ltd (SKM) is to review the existing historic cultural heritage values of the proposed Greta Train Support Facility project area, in accordance with the scope of services set out in the contract between SKM and Pacific National. That scope of services, as described in this report, was developed with Pacific National.

In preparing this report, SKM has relied upon, and presumed accurate, certain information (or absence thereof) provided by the Client and other sources. Except as otherwise stated in the report, SKM has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

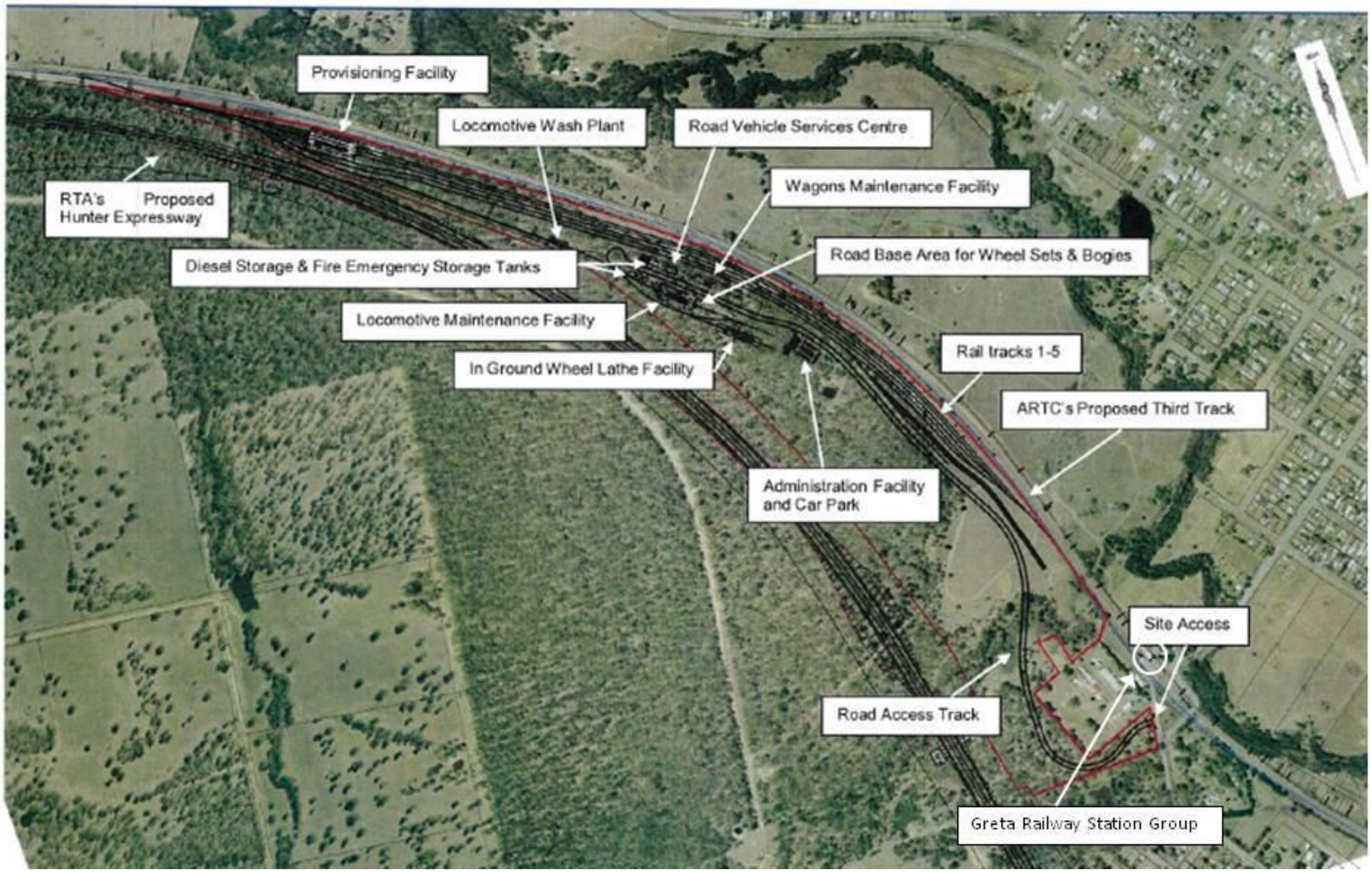
SKM derived the data in this report from a variety of sources. The sources are identified at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. SKM has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose of the project and by reference to applicable standards, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by SKM for use of any part of this report in any other context.

The report may contain inaccuracies which are inherent in the registers searched for cultural heritage items.

This report has been prepared on behalf of, and for the exclusive use of, Pacific National, and is subject to, and issued in connection with, the provisions of the agreement between SKM and Pacific National. SKM accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Appendix A Proposed Greta Train Support Facility.



Appendix B Historic Artefact Catalogue.

GRETA TRAIN SUPPORT FACILITY HISTORIC ARTEFACT CATALOGUE														
ARTEFACT ID #	WEIGHT gms	COUNT	CLASS	MATERIAL	ITEM	DESCRIPTION	COLOUR	TYPE	DECORATION	PERIOD	PHOTOGRAPH Y/N	PROVENIENCE	Depth cmbs	COMMENTS
1	5	1	domestic	ceramic	tableware	earthenware		pearlware	painted	1837	Y	stp 6	0-10	asiatic pheasant
1.1	4	1	domestic	ceramic	tableware	earthenware		pearlware	transfer	1815-1835	Y	stp 6	0-10	
1.2	4	1	domestic	ceramic	tableware	earthenware		unidentified			Y	stp 6	0-10	burnt
1.3	8	2	domestic	ceramic	cup	porcelain		softpaste	sprigged	1830-1920	Y	stp 6	0-10	
1.4	1	1	domestic	ceramic	unid	earthenware						stp 6	0-10	
2	1	1	domestic	glass	bottle		green					stp 6	0-10	
2.1	1	1	architectural	glass	window		clear					stp8	0-10	
3	4	3	domestic	ceramic	tableware	earthenware		unidentified				stp8	0-10	
4	4	1	domestic	glass	tableware		clear					stp8	0-10	moulded
5	5	1	architectural	iron	nail			finishing				stp8	10_21	50mm
6	240	5	domestic	glass	bottle		green			c1830-1870	Y	TP2	0-10	box bottle, base intact
7	49	3	domestic	ceramic	tableware	earthenware		pearlware	transfer	1815-1835	Y	stp4	0-10	
7.1	4	1	domestic	ceramic	tableware	earthenware		pearlware	painted	1795-1825	Y	stp4	0-10	
7.2	10	1	domestic	ceramic	tableware	earthenware		creamware	polychrome	1750-1800	Y	stp4	0-10	
8	171	10	domestic	glass	bottle		clear					stp4	0-10	
8.1	17	1	domestic	glass	mirror		clear				Y	stp4	0-10	bevelled edge, silver remnants
8.2	2	3	architectural	glass	window		clear			<1870		stp4	0-10	1.89 -2.04mm, crown glass < 2.8mm
9	69	16	domestic	ceramic	tableware	earthenware		pearlware	polychrome	1775-1810	Y	stp1	0-10	overglaze
9.1	5	2	domestic	ceramic	tableware	earthenware		pearlware	painted	1775-1820	Y	stp1	0-10	
9.2	1	1	domestic	ceramic	tableware	earthenware		whiteware		1815>	Y	stp1	0-10	
9.3	1	1	clothing	ceramic	button	porcelain		softpaste		1800-1830	Y	stp1	0-10	prosser button, 10.9 mm, 0.43 ins
9.4	2	1	domestic	ceramic	tableware	earthenware		rockingham				stp1	0-10	
10	7	1	domestic	glass	bottle	stopper						stp1	0-10	
10.1	19	12	domestic	glass	bottle		aqua					stp1	0-10	
10.2	6	4	domestic	glass	bottle		amber					stp1	0-10	
10.3	11	6	domestic	glass	bottle		green					stp1	0-10	
11	268	1	agricultural	bronze	bell					1870-1920	Y	tr2/stp2	0-10	exposed, marked " James Barwell Birmingham"
12	17	3	domestic	ceramic	tableware	earthenware		pearlware	transfer	1815-1835	Y	tr2/stp2	0-10	found inside the bell
13	5	1	domestic	glass	bottle		green				Y	tr2/stp2	0-10	
13.1	11	1	domestic	glass	bottle		aqua					tr2/stp2	0-10	

Appendix C Land Title Information

LAND PURCHASE.

William the Fourth, by the Grace of God, of the United Kingdom of Great Britain, and Ireland, King, Defender of the Faith, and so forth:—

To all to whom these Presents shall come, Greeting: WHEREAS at a Public Auction held in conformity with the Government Regulations made for the Sale of Crown Lands in Our Colony of New South Wales,

Lesslie Duguid of Sydney has become the Purchaser of the Land hereinafter described for the Sum of One hundred and ten pounds

Sterling; NOW KNOW YE, that in consideration of the said Sum of One hundred and ten pounds Sterling, by the said Lesslie Duguid to the Honorable the Colonial Treasurer of Our said Colony on Our behalf, well and truly paid before these Presents are issued, WE HAVE GRANTED, and in further consideration of the Quit Rent hereinafter Reserved, DO HEREBY GRANT unto the said Lesslie Duguid his Heirs and Assigns all that Piece or Parcel of Land, situate in the Parish of Branxton in the County of Northumberland in Our said Colony, containing by admeasurement One hundred Acres, be the same more or less, bounded

Portion 197

Commencing at the Northern extreme of the West boundary line of Mary Grainger's fifty acre Grant, and bounded on part of the East by six chains and fifty links of that boundary line bearing South, on the South by a West line of Nineteen chains, on the West by a North line of Eighty three chains to Anvil Creek, and on the North and the remainder of the East by Anvil Creek upwards to the Northern extreme of the West boundary line of Mary Grainger's fifty acre grant. Being the Land sold as Lot 28 in pursuance of the advertisement of 15th March 1837.

with the Appurtenances thereto belonging; TO HOLD unto the said Lesslie Duguid his Heirs and Assigns for ever, yielding and paying therefor yearly unto Us, Our Heirs and Successors, the Quit Rent of One Peppercorn, if demanded: SAVING AND RESERVING unto Us, Our Heirs and Successors, all such parts and so much of the same Land as may hereafter be required for a Public Way or Public Ways, in, over, and through the same, to be set out by the Governor for the time being of Our said Colony, or any Person lawfully authorised in that respect; AND ALSO the right of taking and removing all Stone, Gravel, and Indigenous Timber, and all other Materials, the produce of the same Land, which may be required at any Time for the construction and repair of Ways, Roads, or Bridges, for Naval Purposes, or for Public Works; AND ALSO SAVING AND RESERVING unto Us, Our Heirs and Successors, all Land within One Hundred Feet of High Water Mark, on the Sea Coast, and on every Creek, Harbour, or Inlet; AND ALSO all Mines of Gold, of Silver, and of Coals, with full and free liberty and power to search for, dig, and take away the same; ALSO SAVING AND RESERVING full and free ingress, egress, and regress for all the purposes aforesaid.

IN TESTIMONY WHEREOF, We have caused this Our Grant to be Sealed with the Seal of Our said Territory

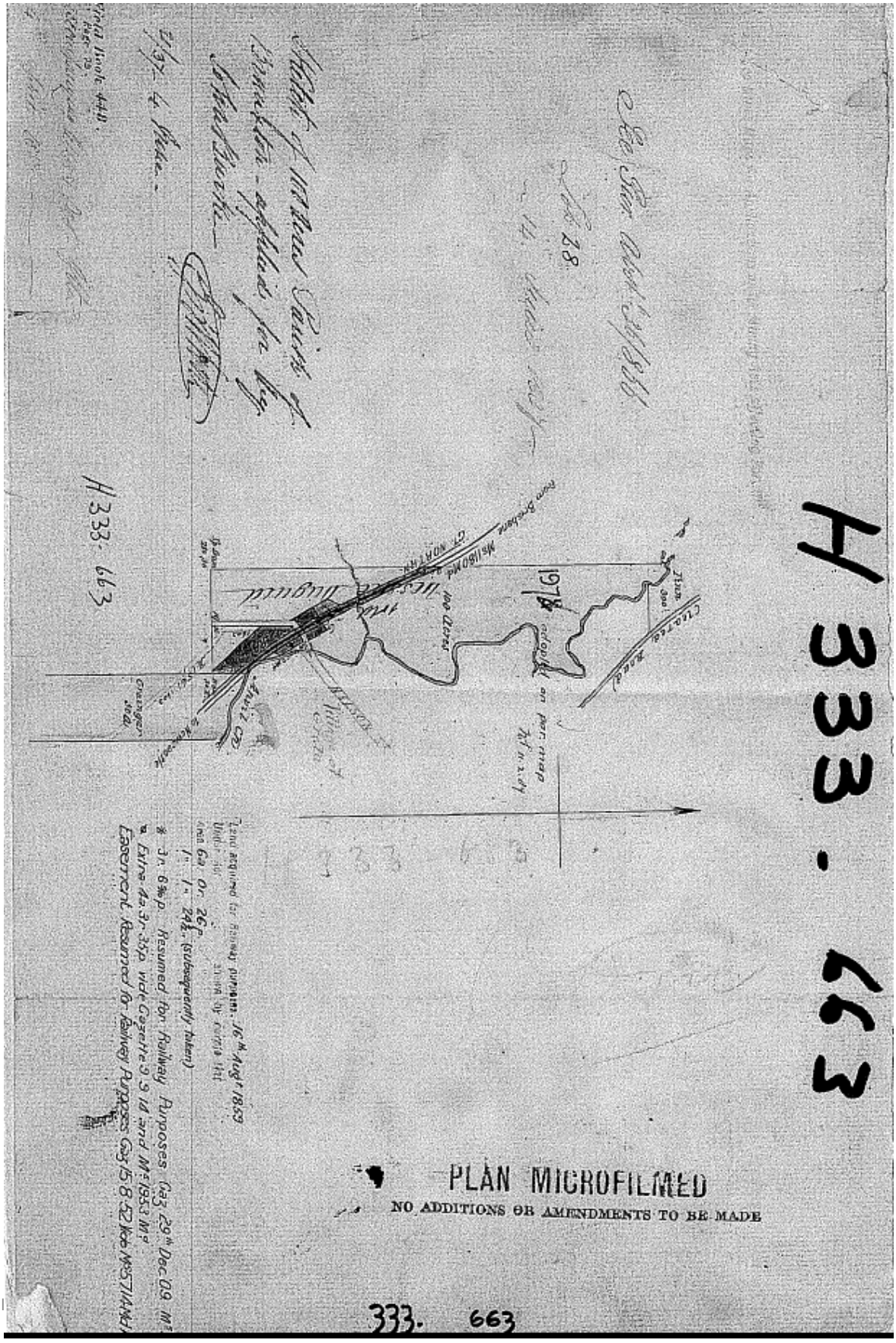
GIVEN under the Hand of Lieutenant General Sir Richard Bourke Knight Commander of the most Honorable Military Order of the Bath

Our Governor and Commander-in-Chief of Our said Territory and its Dependencies, at Government House, Sydney, in New South Wales, the Seventh *Day of* August *in the* Eighth *Year of Our Reign; and in the Year of Our Lord One thousand eight hundred and thirty seven*

Signed and Sealed in the Presence of

(Signed) G. K. Holden — L.S. — (Signed) Richd Bourke

ENTERED on Record by me, in the Register of Purchases of Land No 40 Page 285 *this* Fourteenth *day of* October *One thousand eight hundred and thirty seven*


H 333. 663
PLAN MICROFILMED
NO ADDITIONS OR AMENDMENTS TO BE MADE
333. 663