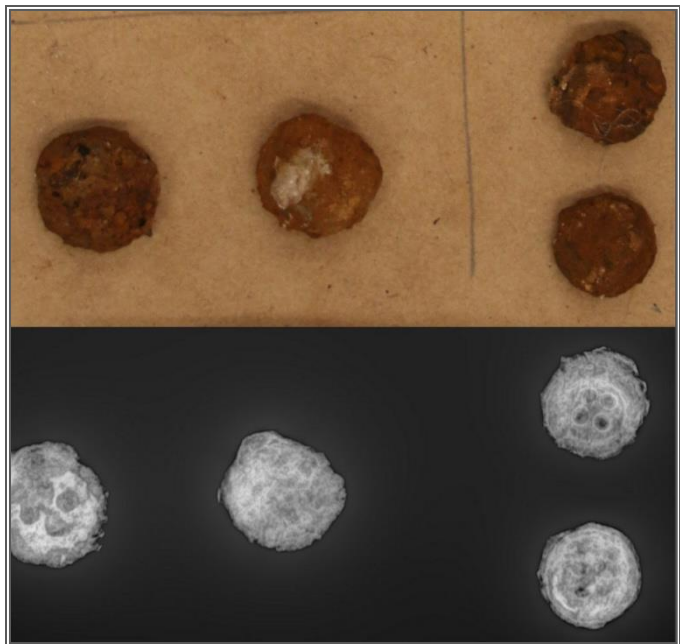


ARTEFACT REPORT

PENITENTIARY LAUNDRY AREA 2016 ARCHAEOLOGICAL INVESTIGATIONS

PAHSMA Archaeological Project PA2016-05

PORT ARTHUR HISTORIC SITE, TASMANIA



Prepared by:

E. Jeanne Harris

Urban Analysts

For:

Port Arthur Historic Site Management Authority

June 2017

Contents

1	Introduction	4
1.1	Acknowledgements	4
1.2	Historical Context	4
2	Laboratory Procedures and Methods	6
2.1	Cataloguing	6
2.1.1	Cataloguing and stabilisation of metal artefacts	6
2.2	Minimum Item Count.....	6
2.3	Typology and Chronology	7
2.3.1	Ceramic Typology and Chronology	8
2.3.2	Glass	10
2.3.3	Metal.....	12
2.3.4	Faunal Remains	15
2.3.5	Buttons.....	16
2.4	Function	16
3	Characterisation of Artefact Collection	19
4	Artefact Analysis.....	21
4.1	Organisation of Analysis Results.....	21
4.2	Pre-Penitentiary Phase (1830–1856).....	24
4.3	Phase 1: 1856 - c.1862	25
4.3.1	Phase 1 Temporal Information	25
4.3.2	Phase 1 Functional Information.....	26
4.4	Phase 2: c.1862 - Settlement Close (1877)	27
4.4.1	Phase 2 Temporal Information	27
4.4.2	Phase 2 Functional Information.....	28
4.5	Post-Convict Phase (post 1877)	29
4.5.1	Post-Convict Phase Temporal Information	29
4.5.2	Post-Convict Phase Functional Information.....	29
5	Discussion	32
4.6	Activity Areas	32
4.6.1	Limitations	32
4.6.2	Spatial Analysis Results	33
4.6.3	Discussion of Spatial Analysis	35

Appendix A: Chronological and Functional Summary for Laundry Area Phases and Contexts 36

Appendix B: Relative Frequencies of All Contexts by Phase 42

LIST OF FIGURES

Figure 1.1: Lithograph by Captain Hext of the Kings Own Regiment, showing Port Arthur in Late 1842 or early 1843 5

Figure 1.2: 1856 Plan of Laundry Area and Ablutions Area 5

Figure 2.1: Tobacco pipe shapes common to the Penitentiary Laundry area (examples from Penitentiary Ablutions Block collection). 10

Figure 2.2: Example of fluted Tobacco Pipe Bowl from Penitentiary Laundry area (Context 0171). 10

Figure 2.3: 50th Anniversary of Battle of Waterloo Commemorative Pipe..... 11

Figure 2.4: Old Glory and Union Jack Pipe..... 11

Figure 2.5: Relative Frequencies of Functional Groups from the Penitentiary Laundry excavation area..... 18

Figure 4.1: 1856 Plan of Laundry Area Showing Spatial Organisation. 23

Figure 4.2: 1856 Plan of Laundry Area Showing Excavation Subdivisions. 24

Figure 4.3: Relative Frequencies of Functionally Classified Artefacts (excluding Architecture)..... 25

Figure 4.4: X-ray Image of Drafting Compass recovered from Phase 1, S1 [0271]..... 27

Figure 4.5: Relative Frequencies of Functionally Classified Artefacts from Post-Convict Era Deposits (post-1877) (excluding Architecture). 31

Figure 5.1: Spatial Distribution of Spot Find Artefacts across the Laundry Area 33

Figure 5.2: Spatial Distribution of Button Spot Finds in the Laundry Area..... 33

Figure 5.3: Spatial Distribution of Tobacco Pipe Spot Finds in the Laundry Area. 34

LIST OF TABLES

Table 2.1: Chronological and Temporal Data for Tobacco Pipes from Penitentiary Laundry Excavation. 9

Table 2.2 Chronological and Quantitative Information for Buttons from the Penitentiary Laundry Area. 16

Table 4.1: Summary Minimum Item Counts of Artefacts for Areas by Phase 22



Table 4.2 Chronological Data for Tobacco Pipe Manufacturers from Phase 2 Deposits.... 27

Table 5.1: Distribution of Buttons across the Laundry Area by Phase. 34

Table 5.2: Distribution of Tobacco Pipes across the Laundry Area by Phase..... 35

1 INTRODUCTION

This artefact report is for the artefact collection recovered during archaeological investigation of the Penitentiary Laundry Area by Port Arthur Historic Site Management Authority (PAHSMA) at the Penitentiary, Port Arthur Historic Site, Tasmania. In 2016, the Laundry Area was subject to a full-scale archaeological excavation as part of ongoing stabilization and interpretation of the Penitentiary Precinct.

1.1 Acknowledgements

The 2016 phase of archaeological investigations for the Penitentiary Laundry Area project could not have been achieved without the oversight, coordination and assistance of PAHSMA's archaeological staff. Dr David Roe's supervision and direction was paramount to the success of the project. Richard Tuffin's project management skills, meticulous records and his constant coordination between laboratory and field personnel were invaluable.

Other PAHSMA staff provided services not directly associated with the laboratory, cataloguing and curation of archaeological materials. Thanks to Michael Smith (Conservation Project Officer) for his expertise in the stabilisation of organic and metal artefacts, as well as his ability to solve innumerable logistical and equipment issues that arose during this project. Thanks to Jody Steele for providing invaluable advice and assistance.

PAHSMA would like to thank the Green Army Program participants for their involvement in the Green Armies first-ever heritage cooperative project and especially for their endless hours of artefact processing.

1.2 Historical Context

The earliest known structures in the Penitentiary Precinct were the workshops (1830–1842). Initially, these consisted of two weatherboard structures that housed a blacksmith and shoemaker workshops. By 1834 these structures were in a dilapidated state and were replaced by a new series of workshops completed in 1835. An 1843 illustration shows a Commissariat store south of the row of shops (Figure 1.1). In 1843 construction of a mill and store was undertaken, and when completed in June 1845 the complex included a water wheel, treadmill, mill race and granary store.

Between 1853 and 1858 the mill and granary complex was converted to prisoner accommodations. The following year a two-story bakehouse was completed at the western end of the Penitentiary building, which was constructed over the site of the 1830s workshops. In 1858 the Watchman's Quarters was completed at the east end of the structure. Between 1857 and 1877 the structure operated as a penitentiary until the closure of Port Arthur.

Within this convict timeframe the Laundry Area went through two phases of development. Phase 1 (1856–1862) was the construction of the laundry, including

laundry, receiving room, hot air drying room, bathing rooms, clothing and other stores. During Phase 2 (1862–1877) the laundry was extended eastward into the ablutions yard, there was alterations that changed the limited the access to the laundry to passage from only the ablutions block and alteration of part of the wood store to accommodate a boiler that provided hot water to the bathing rooms.

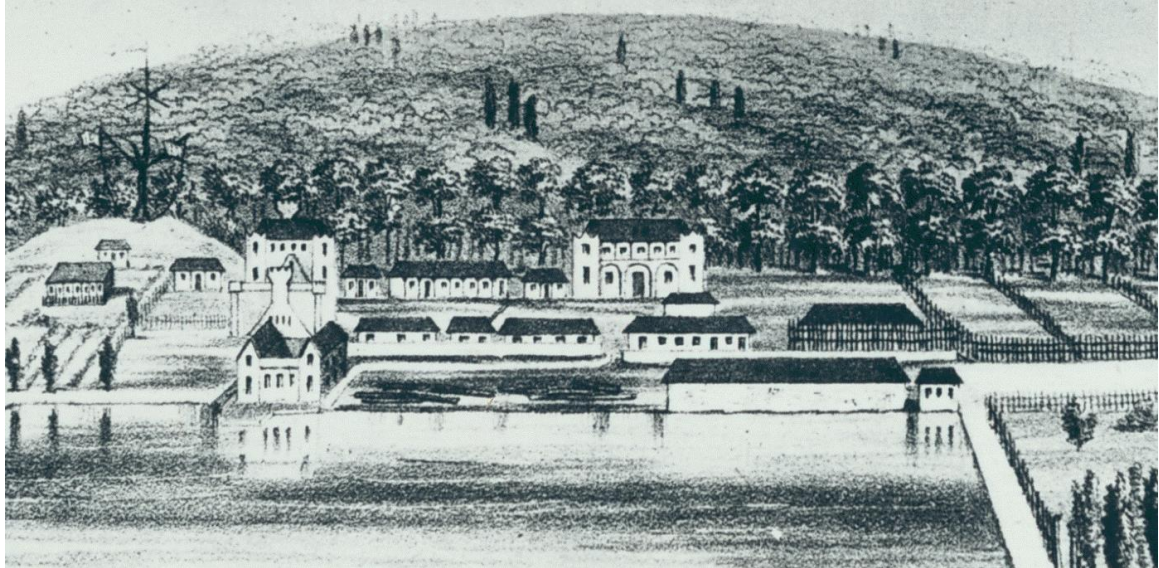


Figure 1.1: Lithograph by Captain Hext of the Kings Own Regiment, showing Port Arthur in Late 1842 or early 1843 ¹

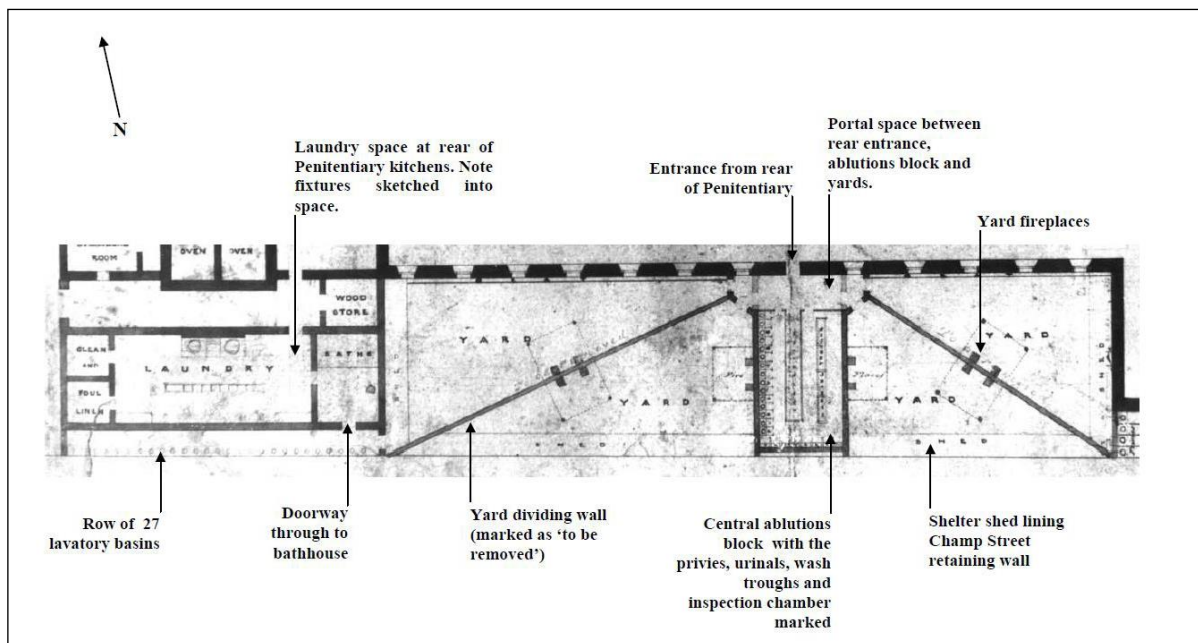


Figure 1.2: 1856 Plan of Laundry Area and Ablutions Area

¹ National library of Australia Plate 710/6 NK No 421/0).

2 LABORATORY PROCEDURES AND METHODS

2.1 Cataloguing

A total of 6,633 artefacts (4,301MIC) from the archaeological research excavations for the 2016 Port Arthur Penitentiary Laundry Area Excavation were catalogued in 2017. The general procedure carried out for processing and cataloguing was as follows:

1. Artefacts were systematically catalogued using the 2012 PAHSMA Archaeological Collections Database, a customised Microsoft Access database.
2. Artefacts were catalogued according to guidelines providing information on form, material, temporal placement, colour, count, weight, technomorphology (how something is made), completeness, size, patterns, products, manufacturer, place of manufacture, and date of manufacture.
3. Each artefact, or grouped artefacts, was allocated a Catalogue Number that was recorded on an archivally-stable (or Tyvek tag for metal and unstable organic material) context label and place in the bag with the artefact(s).
4. All efforts were made to assure that all diagnostic data for each artefact or class of artefacts was recorded.

2.1.1 *Cataloguing and stabilisation of metal artefacts*

During the artefact process phase of this project 3,176 metal artefacts were stabilized in a nitrogen environment in which individual or groups of metal artefacts from each contexts were sealed in polypropylene bags in which the oxygen (O) was replaced with nitrogen (N). For cataloguing purposes these metal artefacts were removed from their nitrogen environment and X-ray images of artefacts were taken. Cataloguing of these artefacts was conducted from visual inspection of 1:1 scale images of these X-rays. Metal artefacts were then returned to a nitrogen environment until the level of conservation for this material is determined.

2.2 Minimum Item Count

For any serious archaeological research purposes, artefacts need to be considered as objects rather than rubbish. For the purpose of this study, the assemblage is detailed by Minimum Number of Items (MNI – MNI or MIC? Not consistent through document). Artefacts must be quantified in such a way as to facilitate functional and temporal analyses². Furthermore, it is an essential requirement when comparing data from this

² Casey, M. 2004 "Falling Through the Cracks: Method and Practice at the CSR Site, Pyrmont," *Australasian Historical Archaeology*, Vol. 22, pp. 27–43.

study with contemporary archaeological sites.³ During cataloguing, designation of “single element” was assigned in a dedicated field to an artefact or artefacts that represent one item. The designation of “individual element” was assigned to a record for grouped fragments that represented multiple or indeterminate number of items, with notations made if the number of items could be determined. Subsequent to cataloguing, MNI were assigned for fragmented items and MNI are used throughout this report so that counts used in the following discussion represent whole, partial and fragmented items. Unless otherwise specified, the use of the term ‘artefact’ in this report is synonymous with ‘minimum number of items.’

A procedure was set for assigning minimum item counts to ball clay tobacco pipes fragments during the cataloguing of artefacts from the 2016 Penitentiary Ablutions Block excavations. For consistency the same procedure was applied to establishing minimum item counts for tobacco pipes from the 2016 Penitentiary Laundry Area artefacts:

For the smoking pipes, a pipe count was undertaken on a context by context basis, usually relying on counting the number of marked stem fragments, but sometimes – in the absence of any other fragments in a context – on the largest number of unique portions in a specific context. For example, if there was only one marked stem in a context, but two complete bowls in a context, then that particular context had a pipe count of 1. But the use of marked stems was the more frequent method.

Using a context by context count approach similar to that used for clay pipes, but using a combination of glass colour and diagnostic body portions (i.e., three body fragments of aqua glass in one context count as one bottle, but one body fragment and two complete bottle lips of aqua glass in the same context count as two bottles), then we arrive at a minimum of 26 glass bottles across the convict-era contexts.⁴

2.3 Typology and Chronology

Standard typologies were established for the assemblage as a prelude to chronological reconstruction. Artefacts were then assigned dates based on use-popularity date ranges (merchant records, advertisements and manufacturers’ records) and on technological advancements (patents and manufacturers’ records). In this manner, nails and glass provided a wealth of chronological information and a review of the typological and chronological ramifications of these material classes is included below.

The following discussion summarises typologies and their linked chronologies for key artefacts. All dated artefacts in this study have a *terminus post quem* (TPQ) or a date when the item was first manufactured and/or a *terminus anti quem* (TAQ) or an end date for manufacture. This nomenclature is used throughout this discussion to clarify temporal information. Data represented in the following discussion is a combination of all archaeological investigations conducted in the Ablutions Block.

³Davies, P. 2004 “Glass and Stoneware Containers” in *Casselden Place: 50 Lonsdale Street, Melbourne, Archaeological Excavations*, prepared by Godden Mackay Logan, La Trobe University and Austral Archaeology, Vol 4.

⁴Brooks, A 2004 Penitentiary Ablutions Block Artefact Report, p 2

2.3.1 Ceramic Typology and Chronology

Ceramic artefacts (223) represent approximately 5.2 per cent of the site's assemblage. Of this number 68 per cent are ball clay tobacco pipes discussed below. The remaining 32 per cent of ceramic artefacts, mostly representing vessel forms, that are grouped into basic categories: earthenware, stoneware and porcelain. Ceramic wares are defined by a number of factors, including firing technique and temperature, glaze, the type of clay and tempering agents. Generally, earthenware is made from naturally occurring clays that are fired at low temperatures, stoneware is made from a high-temperature fired clay and porcelain is a highly fired vitrified composite of kaolin, silica and feldspar.

The value of this analytical approach lies partly in the use of ceramics to date deposits. Dates for ceramic artefacts are derived primarily from researched use-popularity patterns. Ceramic use-popularity patterns for tableware reflect times during which ceramic wares, types, and/or decorative designs accomplished peak popularity in the consumer market. These patterns are expressed as date ranges and are established through research of merchants' and manufacturers' records.

Identification/dating of nineteenth century ceramics is also based on identifying gradual changes in paste [the body material] and glaze to accommodate shifting trends in the ceramic market. The value of this analytical approach is the dating of ceramic artefacts, in particular refined white-bodied earthenware, in the absence of datable decorative design techniques. Gradual changes occurred in decorative designs and design techniques on differing nineteenth-century ware types provide a chronology for dating decorated wares. Changes in ware type and decorative designs did not necessarily coincide. Therefore, separate chronologies for wares and decorative technologies were established for this study. During analysis, a combined date range was established that considered all of these variables.

Tobacco Pipes

Tobacco pipes represent the third largest type of artefacts in the collection (154). Using the convention to determine the MIC (or for tobacco pipes that was set forth by Brooks during analysis of tobacco pipes for the 2004 archaeological investigations of the ablutions area and for consistency and comparative analysis this procedure was applied to the cataloguing of tobacco pipes from the Laundry Area collection.⁵

Manufacturers' marks were the principal source of dating information for tobacco pipes (Table 2.1). Temporal information for tobacco pipes is derived from manufacturers' marks impressed on stems and impressed distributors' marks often located on stems or back of bowls. Marked and documented tobacco pipes do, however, provide a distinct time frame for use. For unlike household items, the use-life of a tobacco pipe was limited – simply put, they wore out. Therefore date information for documented tobacco pipe manufacture can provide, in some instances a date range for the use of the pipe. There are 42 marked pipes in the Laundry Area collection.

⁵ Brooks, A. 2004 Port Arthur Archaeological Summer Season 2003/2004; Penitentiary Ablutions Block, p2.

Also used to date tobacco pipe bowl shapes (59) from the Penitentiary Laundry excavations are the typologies of Aytos⁶ and Mallios.⁷ These two studies present chronologies of pipe shapes from the sixteenth century to the twentieth century. The most common pipe shapes (Figure 2.1) have a common 1850s–1910 date range. A total of 12 pipe bowls are assigned temporal ranges by use of these references.

Decorations on pipes were also recorded. For comparative purposes a 1979 tobacco pipe study from the 1977 excavation of the Port Arthur prisoner barracks was used and catalogue numbers for pipe types in that collection were noted for pipes from the Laundry area excavation.⁸ Fluted decoration is the most common decoration on pipes in the collection (5) (Figure 2.2), and most are similar to the Dane and Morrison Type P77204.

Table 2.1: Chronological and Temporal Data for Tobacco Pipes from Penitentiary Laundry Excavation.

Manufacturer	Location	Country	Date from	Date to
David Miller	Liverpool	England	1860s	1880
Duncan McDougall	Glasgow	Scotland	1846	1967
Thomas White	Edinburgh	Scotland	1832	1864
William Murray	Glasgow	Scotland	1830	1861

⁶ Ayto, E.G. (1987) *Clay tobacco pipes*. Shire Publications Ltd

⁷ Mallios, S 2005 "Back to the Bowl: Using English tobacco pipe bowls to calculate mean site-occupation dates" *Historical Archaeology* 39(2): 89-104.

⁸ Danes, Alexandra and Richard Morrison 1979 *Clay Pipes from Port Arthur 1830–1877*, Technical Bulletin No 2, Department of Prehistory, Australian National University.



Figure 2.1: Tobacco pipe shapes common to the Penitentiary Laundry area (examples from Penitentiary Ablutions Block collection).



Figure 2.2: Example of fluted Tobacco Pipe Bowl from Penitentiary Laundry area (Context 0171).

Amongst the clay tobacco pipes were fragments of few commemorative pipes which also provide temporal placement. There are bowl fragments of commemorative pipes for the 50th anniversaries of 1815 Battle of Waterloo and the War of 1812. (Figure 2.3 and Figure 2.4).

2.3.2 Glass

Until the late-nineteenth century Australia did not have a successful glassworks and Australia looked to Great Britain for its window glass and bottles.

Glass artefacts represent approximately seven per cent of the site’s collection. Glass artefacts consist of window glass, commercial containers (bottles, jars, vials, ampules, flasks) marbles, bottle stoppers, tableware, beads, lamp shades and buttons. Since manufacturing techniques are different for many of these forms, techno-morphological discussions for each will be discussed separately.

Bottles

For the purpose of this glass typology all commercial containers will be referred to as ‘bottles’. A typology for glass bottles is not simple. The innumerable combinations of the many technological attributes must be considered during the identification of individual bottles. For the purpose of this study these attributes are grouped into four basic diagnostic categories: mould type, emponfilling method, finishing techniques and colour. These attributes represent process used in bottle manufacture from the mid eighteenth century.



Figure 2.3: 50th Anniversary of Battle of Waterloo Commemorative Pipe.⁹



Figure 2.4: Old Glory and Union Jack Pipe.¹⁰

Chronological data for bottle glass are based on advancements and/or changes in manufacturing technology over time. Recognised bottle shapes enable identification of products consumed by the occupants of a site. Patented shapes and documented manufacturer and/or bottler embossments contribute chronological data.

Window Glass

There were three types of window glass manufactured in England during colonial times. Unlike other imported commodities, consumer choice for window glass was not based on quality, but rather was influenced by the British weight-based excise duties placed on glass. In Sydney, the thinner crown glass was not well suited for the frequent hail storms in Sydney and surrounds and by the 1870s broad glass and the new and improved cylinder glass had gained preference over crown glass and by the 1880s crown glass had all but disappeared from the Sydney market.

In Tasmania, crown glass recovered from dated deposits during archaeological excavations suggests that the importation and predominant use of the thinner crown glass continued throughout the nineteenth century.¹¹ Further research on the use-popularity patterns of window glass types in Tasmania needs to be conducted before a date range can be established for the use of crown window glass in Tasmania.

Prismatic glass was a common feature used to illuminate factory and workshop interiors from the early 1800s.¹² Early prismatic glass was made by cutting parallel rows of grooves along one surface of the window glass pane. James Hartley's 1840s patented

⁹ Harris, E. Jeanne 2016 PA2016-01 Port Arthur Penitentiary Project: Artefact Report, p 14.

¹⁰ Harris, E. Jeanne 2016 PA2016-01 Port Arthur Penitentiary Project: Artefact Report, p 14.

¹¹ Harris, E. J. 2011a *Goulburn, Barrack and Liverpool Streets, Hobart: Analysis of Artefacts*, prepared for Austral Tasmania.

Harris, E. J. 2011b *Sawpits Excavations (03/02) – 2009–2011*, prepared for PAHSMA, Port Arthur.

¹² Neumann, D. 1995 "Prismatic Glass", in *Twentieth Century Building Materials, History and Conservation*, ed. By T. C. Jester, National Park Service, MCGraw Hill., p188.

plate glass allowed for the grooves to be impressed into thinner cast-rolled plate glass.¹³ All prismatic window glass recovered during excavations of the penitentiary exhibited pressed parallel grooves.

2.3.3 Metal

Metal items represent 59.5 per cent of the project's artefact collection (7086 MNI), with over 157 identified forms/types: most notably nails (6027). Nails represent the majority of artefacts (50.6%) in the entire collection and are subject below to discussion of manufacturing technologies and datable use-popularity patterning.

Nails

Nails are one of the most commonly found artefacts on archaeological sites. The identification of various nail types is useful in both temporal and functional analyses and therefore, merits their own discussion. There are three basic technological stages apparent in nail typology: wrought nails, cut nails and wire-drawn nails. Hand-forged wrought nails were the primary construction fasteners in the seventeenth and eighteenth centuries. Their use effectively ended with the introduction of cut nails.¹⁴ Cut nails were introduced to the hardware market in the 1790s. While cut nails had very little impact in Australian construction practices before 1820, they have been found in dated Australian contexts from the late 1790s. Not until technological advancements around the 1840s produced a totally machine-made version did cut nails begin to replace wrought nails as primary construction fasteners.¹⁵ Wrought nails continued to be used by cabinet makers and for larger fastenings as spikes. Wire-drawn nails were first introduced from Europe c.1850 and use of wire nails for colonial building construction occurs as early as the 1860s.¹⁶

There are three steps to identifying a nail: the material, the manufacturing technique and the type of nail. The identification of various nail types is useful in both temporal and functional analyses and since they represent the majority of artefacts recovered during excavations associated with this study, nails therefore merits an in depth discussion. There are 6027 nails in the collection. Of this number 509 nails are too corroded for manufacture to be identified. Nails for which manufacture is determine consist of wrought (51), cut (3819), Ewbanks type (47) and wire-drawn (31).

¹³ Boow, J. 1991 *Early Australian Commercial Glass: Manufacturing Processes*, The Heritage Council of NSW p108.

¹⁴ Nelson, L H 1963 'Nail Chronology as an Aid to Dating Old Buildings.' *American Association of State and Local History*. Technical Leaflet 15.

¹⁵ Varman, RVJ 1993 *Bricks and Nails: Building Materials as Criteria for Dating in Sydney and Environs from 1788 – A Documentary Survey and Assessment of Dating Potential*. A thesis submitted in fulfilment of the requirements for a degree of Doctor of Philosophy, Department of Prehistoric and Historical Archaeology, University of Sydney, pp 143–144

¹⁶ Lewis, M. n.d. *Australian Building: A Cultural Investigation*, <http://www.mileslewis.net/australian-building/pdf/> 8.06.14

Iron Nails

There are 2936 iron/steel nails in the Laundry Area collection, including cut (1727), wrought (231) and wire-drawn (157). The majority of nails (95%) are identified through the use of X-ray imaging, but 22 per cent of nails (654) are too corrosion and fragmentation for identification beyond general form. The use of X-ray images furthered identification, enabling the identification of nail types, such as brads (38), clouts (13), roofing (3) and Ewbanks type nail (47).

There are three basic technological stages apparent in nail typology; wrought nails, cut nails and wire-drawn nails. The earliest nails were fashioned by blacksmiths cutting and shaping nails from square-section nail rod. While wrought nails are still manufactured today, they are used primarily for restoration and reproduction purposes. Hand-forged wrought nails were the primary construction fasteners in the seventeenth and eighteenth centuries. Their use effectively ended with the introduction of cut nails.¹⁷

Cut nails were introduced to the hardware market in the 1790s. These nails initially had a machine-cut body with a hand-made head. While cut nails had very little impact in Australian construction practices before 1820, they have been found in dated Australian contexts from the late 1790s. Not until technological advancements around the 1840s produced a totally machine-made version did cut nails begin to replace wrought nails as primary construction fasteners.¹⁸ Wrought nails continue to be used by cabinet makers and for larger fastenings such as spikes.

Cost of manufacture was main reason for the increase popularity of cut nails over wrought nails. The saving cost of fuel was greater than 80 per cent. In 1810, Massachusetts nail manufactures estimated that 1,700 of the 2,000 tons nails produced nails were cut nails (85%).¹⁹

First patented in Britain by J J Cordes & Co of the Dos Works in Newport, Monmouthshire, Ewbanks nails are machine-wrought nails with a characteristic tapered shank and a chisel point (also referred to as flat or spade point) that was popular in Australia because it could cope with Australia's hard eucalypt hardwoods ²⁰ (eucalypt,

¹⁷ Nelson, L H 1963 'Nail Chronology as an Aid to Dating Old Buildings.' *American Association of State and Local History*. Technical Leaflet 15.

¹⁸ Varman, RVJ 1993 Bricks and Nails: Building Materials as Criteria for Dating in Sydney and Environs from 1788 – A Documentary Survey and Assessment of Dating Potential. A thesis submitted in fulfilment of the requirements for a degree of Doctor of Philosophy, Department of Prehistoric and Historical Archaeology, University of Sydney,, pp 143 – 144

¹⁹ Bishop, J L, E T Feedley and E Young 1864 *A History of American Manufactures, from 1608 to 1860*. Sampson Low, Son & Co, London.p 154

²⁰ How, C & M Lewis 2009 "The Ewbanks Nail", Proceedings of the Third International Congress on Construction History, Cottbus, May 2009, p 829

Tasmanian Oak, Blackwood, Jarrah, etc.). Ewbanks patented nails were introduced into Australia by J J Cordes & Co about 1838.²¹

Though described as ‘pressed’ or ‘wrought’, the Ewbank nails were made by machinery, and in the Australian market in particular they largely supplanted hand-forged nails.²² The success of Ewbanks nail was due to the fact it had resilient quality of a wrought nail that could be driven into hardwoods without splitting the timber or fracturing the nail, yet had the cost efficiency of a machine cut nail.²³

Wire-drawn nails were first introduced from Europe c.1850. These earlier wire nails were used primarily for box construction, such as those for tack, blankets, bibles or scientific equipment. The use of wire nails for building construction occurs as early as the 1860s.²⁴ The first known importer of nails was Lasseter, at about this time. By the 1890s, the architectural use of wire nails in Australia had superseded all other nail types.²⁵ Unlike the British, Australians were not prejudiced against the wire nail, because it was a better fastener for native hardwoods than cut nails. Although some builders prefer cut nails today, they were replaced almost universally by the wire nail by the turn of the twentieth century.

Copper Nails

Copper nails were introduced to ship building in the early 1500s and was used on British ships from the early 1600s to attach lead sheathing to clad the underside of ships.²⁶ Whilst the general shape of cast copper nails have changed little from the 1600s²⁷ the chemical formula for the copper alloy changed over time. Muntz metal was an alloy formed by bonding copper (60%) and zinc (40%) and by the 1850s was used for cast nails by both British and foreign shipping. The use of this metal represents a technological innovation that would clearly separate the artefacts by their chemical signature.²⁸ Most of the copper nails in this study are of cast copper alloy manufacture, but no chemical analysis was conducted to determine if they are indeed made of Muntz metal. Whilst information on moulds for casting copper nails was not obtained during this study, the classification of

²¹ Young, D. 1996 *Making Crime Pay: The Evolution of Convict Tourism in Tasmania*, Tasmanian Historical Research Association, Hobart, p138.

²² Ball, Ephraim, 1866 “The Hand-made Nail Trade” published in the *Birmingham and Midlands Hardware District*, p 112

²³ How & Lewis 2009, pg 829

²⁴ Lewis n.d. p. 8.06.14

²⁵ Varman 1993, p. 162

²⁶ Ball, Ephraim, 1866 “The Hand-made Nail Trade” published in the *Birmingham and Midlands Hardware District*, p 103

²⁷ <http://finds.org.uk/database/artefacts/record/id/195109>

²⁸ Viduka, A and S Ness 2004 “Analysis of Some Copper-alloy items from HMAV Bounty wrecked at Pitcairn Island in 1790”, in *Proceeding of Metal 2004*, National Museum of Australia, Canberra,, p 161

cast copper nails was achieved by the identification of mould seams. There are 18 copper nails in the collections and 10 are of cast manufacture.

Hoop Iron

Hoop iron is flattened iron in long thin strips. The name is derived from its use for binding together the staves of casks or tubs. However, in colonial time hoop iron had many other uses. Early nail-cutting machines were designed to produce 4-penny nails from hoop iron²⁹ and throughout the 19th century hoop iron was used for bonding in brickwork.³⁰ In the 21st century hoop-iron strapping is defined as “thin strips of iron or steel used for diagonal bracing, for reinforcing masonry and brickwork, and as a connection between building elements.”³¹

According to Miles Lewis the use of hoop iron in brickwork was fairly widespread in Australia.³² During the second quarter of the 19th century onwards lengths of hoop iron as metal bonding were built into brick walls to fulfill the same purpose as earlier bond timbers. As a type of re-enforcement these flat bars of wrought iron were often dipped in tar and sand and laid at regular intervals in a wall such as every 4th or 6th course.³³ It was also important in the evolution of ties for cavity walling.³⁴ From the mid-19th century a series of improved patents for structural hoop iron were registered. Patented hoop iron or “hoop iron bond” was far superior to ordinary hoop iron and though the cost was higher, was preferred and recommended by the Australian government officials.³⁵ There are 41 fragments of strapping in the collections, ranging in width from 20–40mm.

2.3.4 Faunal Remains

There are 24 faunal remains retained in the collections. Bone (533) was identified using references designed for use in archaeological research.³⁶ Shell (8) was classified using

²⁹ <http://www.monticello.org/site/plantation-and-slavery/nailery>

³⁰ Jenkins, M 2014 *Short Guide to Scottish Traditional Brickwork*, Historic Scotland, National Conservation Centre, Edinburgh, p 32.

³¹ https://www.macquariedictionary.com.au/features/word/search/?word=hoop+iron&search_word_type=Dictionary

³² Lewis n.d. 6.00.1

³³ Jenkins, M 2014 *Short Guide to Scottish Traditional Brickwork*, Historic Scotland, National Conservation Centre, Edinburgh.

³⁴ Lewis, n.d. 6.00.2

³⁵ Lewis, n.d. 6.00.2

³⁶ Hillson, Simon 1992 *Mammal Bones and Teeth: An Introduction to Methods of Identification*, Institute of Archaeology, University College, London; Green, R. H. 1983 *Skulls of the Mammals in Tasmania, Queen Victoria Museum and Art Gallery*, Launceston; Fillios, Melanie and Natalie Blake 2015 *Animal Bones in Australian Archaeology*, University of Sydney Press, Sydney.

references specific to Australia and Tasmania.³⁷ Most shell is identified as snail (6), one is an oyster shell and one is a collectable top shell from South Australia.

2.3.5 Buttons

A total of 302 buttons were recovered from the Penitentiary Laundry Area. George’s 1999 study of buttons from convict and whaling sites in Tasmania includes clothing from Port Arthur. The study provides information on use of various button types by material, as well as the temporal ranges for each.³⁸ As Table 2.2 shows, the majority of buttons were bone 3- or 4-hole sew through types (76%). Approximately 12 per cent of buttons (36) were metal buttons and for 91 per cent of metal buttons types were identified through the use of X-rays. Other materials used for buttons include ceramic (2), glass (5) and wood (10).

Table 2.2 Chronological and Quantitative Information for Buttons from the Penitentiary Laundry Area.

Button type	Material	Type Series	MIC	Date from	Date to
Button, sew-through (1 hole)	bone	TS 1	1	1700	1840
Button, sew-through (3 holes)	bone	TS 5	78	1700	1900
Button, sew-through (3 holes)	bone	TS 6	20	1700	1900
Button, sew-through (4 holes)	bone	TS 8	15	1790	1930
Button, sew-through (4 holes)	bone	TS 9	69	1790	1930
Button, sew-through (4 holes)	bone	TS 10	1	1700	1900
Button, sew-through (4 holes)	Shell	TS 14	1	1700	1930
Button, sew-through (4 holes)	Shell	TS 15	1	1700	1930
Button, sew-through (4 holes)	Copper alloy	TS 30	2	1794	1900
Button, sew-through (4 holes)	Iron	TS 30	15	1794	1900
Button, sew-through (4 holes)	Opaque glass	TS 39	3	1870	1910
Button, sew-through (4 holes)	Porcelain	TS 39	1	1840	1910
Button, shanked	Glass/Copper alloy	TS 38	1	1870	

2.4 Function

Artefacts recovered from the Penitentiary Laundry Area were also examined on the basis of function or original intended use. For the purpose of functional classification, artefacts are clustered into groups so that statistical analysis of these clusters provides interpretive data on the site.

³⁷ Wilson, Barry 2002 *A Handbook to Australian Seashells*, Reed New Holland; Grove, Simon and Rob de Little <http://www.molluscsoftasmania.net/>

³⁸ George, Sam 1999 *Unbuttoned: Archaeological Perspectives of Convicts and Whalers’ Clothing in Nineteenth Century Tasmania*, Honours Thesis, La Trobe University, p 43

Creating a classificatory system that will select for the variables of interest for the research design is an approach that historical archaeologists worldwide have employed for decades to assist in site interpretation and creating a system that will appropriately classify these variables of interest is a problem that has plagued historical archaeologists for decades. In the 1977, Stanley South set forth one of the first attempt to classify artefacts according to functional taxonomic groups. His Carolina Pattern is designed to aid in the statistical interpretation of eighteenth British Colonial sites.³⁹ While South's classification was the first attempt to establish the signature of "normal" Euro-American artefact assemblages, it was found not to be applicable on sites that originated in other areas of the United States and nineteenth century and subsequent twentieth century sites.

In the 1990s, Australian institutions, such as The University of Sydney's Archaeological Computing Laboratory, began to set the framework for artefact cataloguing of artefacts for Australia's historical sites, which included functional classification. More recently, there has been a call for standardisation of terminology and categories, but given the wide variety of type sites investigated, be it residential, commercial or industrial, the feasibility of creating one national classification system would be a daunting task.⁴⁰

The classification system used in this study is organised around data based upon behavioural activity groups identified for general cultural and social frameworks. It allowed for the subdivision of each group into subcategories, or functions, that further assist in use interpretation during the analysis and reporting phases of this study. This system does allow for statistical comparison of relative frequencies within the site and the results of other local, regional and national archaeological investigations.

Functional analysis classified approximately 43 per cent of the collection (1847) into 16 identified groups. The remaining 57 per cent were too fragmented and/or corroded for more than material to be determined. Figure 3.1 represents the functionally identified groups. The majority of artefacts (97.8%) were classified into four categories: Architecture (1158), Clothing (317), Food (176) and Recreation (156).

⁴⁰ Crook, P, S. Lawrence, and M. Gibbs 2002 "The Role of Artefact Catalogues in Australian Historical Archaeology: a Framework for Discussion, *Australasian Historical Archaeology*, Vol. 20, pp. 26–38.

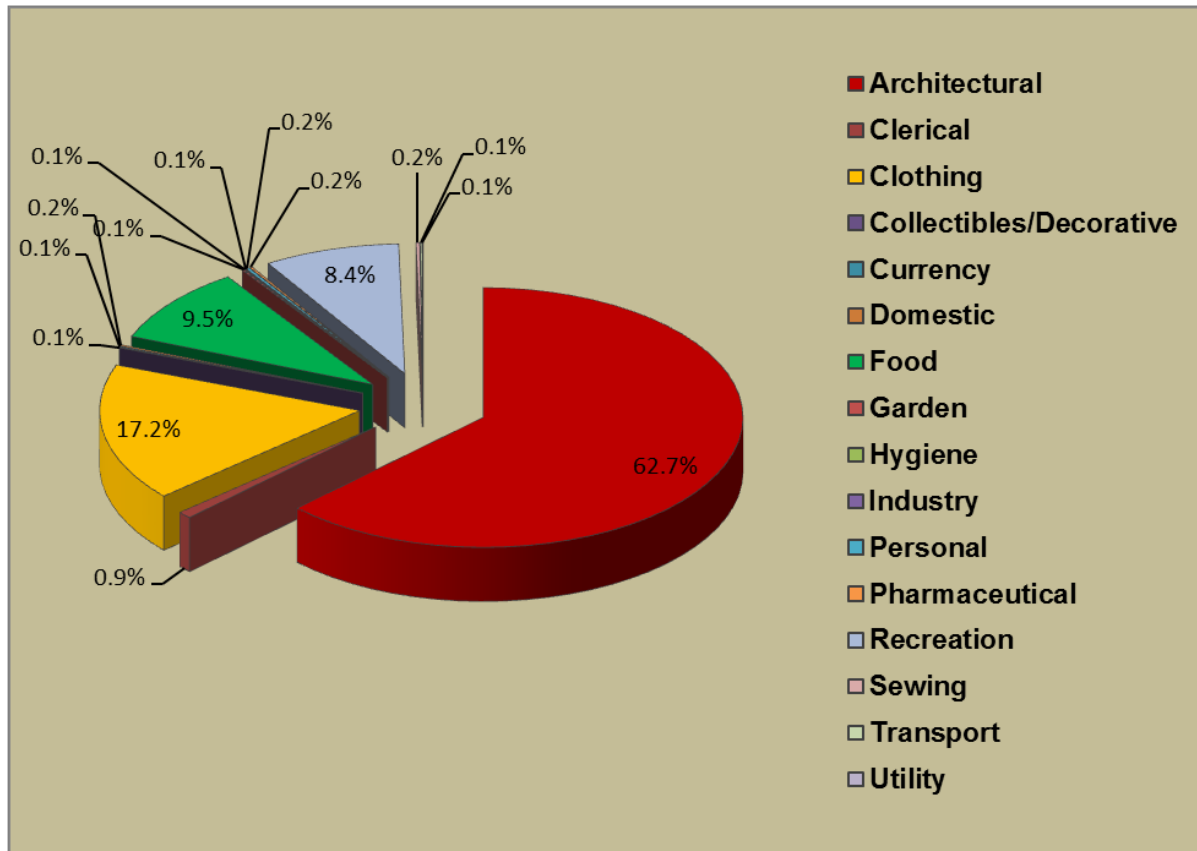


Figure 2.5: Relative Frequencies of Functional Groups from the Penitentiary Laundry excavation area.

3 CHARACTERISATION OF ARTEFACT COLLECTION

For the following discussion all dated artefacts in this study have a *terminus post quem* (TPQ) or a date when the item was first manufactured and/or a *terminus anti quem* (TAQ) or an end date for manufacture. This nomenclature is used throughout this discussion to clarify temporal information.

Beyond context identification numbers, the analysis results presented below include several forms of statistical information (quantities, percentages, ratios) and various types of dates (artefact technomorphology, use-popularity, manufacturers and products). For clarity of reporting, the following standards will be used:

- all context numbers are presented in brackets []
- all artefact quantities and MIC are represented in digital format.
- where applicable, dates will be followed by TPQ or TAQ,
- relative frequencies/percentages will be followed by the % symbol.

There were 134 discrete deposits that produced artefacts. These contexts are identified and a summary of quantitative, chronological and functional information for each are presented in table format in Appendix A. Relative frequencies for functionally-categorised artefacts are shown for each deposit in Appendix B. This large number of contexts precludes in depth analysis for each context, therefore analysis focuses on identification of temporal and functional patterns, in particularly within four categories of artefacts: Architectural remains, Food-related artefacts, Recreation-related artefacts and Clothing related artefacts. Temporal analysis served to date the deposits through the use of chronological data on use-popularity types, technological advancements and manufacturers' marks. Functional analysis was undertaken to identify activity areas within the Laundry Area. Locational data for select artefact types (mostly buttons and tobacco pipes) were acquired during a systematic spot find recordation across the site and were then uploaded into a GIS program that allows the production of digital maps of the excavation area and showing the locations and distribution of these artefact types.

The architectural remains are subject to temporal analysis to determine the date range for associated construction periods of associated structures. There are two artefact types which contribute to temporal placement for building construction – window glass and nails; General observations on these artefact types are:

- The majority of window glass (89%) is crown type, 8% is prismatic glass and 3% is broad type. Whilst crown type window glass was used in Tasmania throughout the nineteenth century Hartley patented prismatic glass was developed the 1840s.
- Manufacturing technology was identified for 76.3% of nails (2150). The majority of identified nails (61.3%) are cut manufacture with an additional 1.2% specifically identified as Ewbanks type cut/forge nail that were distinguished due to their facility in temporal placement.. Also identified are wrought nails (8.2%) and wire-drawn nails (7.4%).

Architectural debris represents the highest relative frequency of functionally classified artefacts for the whole Laundry Area and for each area/yard. These artefacts will be

discussed in regards to their temporal placement within the site, but will not be discussed during site-use interpretation.

Food-related artefacts represent 4% of the collection (176MIC). The majority of food-related artefacts are alcohol bottles (98) and food-service tableware (44). The faunal assemblage from the Laundry Area totals only 22 MNI and of this number only 9 are food remains; identified remains include an oyster shell, a bird long bone, a cow rib and sheep tooth.

Recreation-related artefacts are crucial in temporal and functional analyses of this site. Tobacco pipes are the principal artefact type used for temporal analysis. The established chronologies for pipe shapes and/or manufacturers provided the most concise date ranges for 22% of deposits (29). For most tobacco pipes precise location was recorded and spatial distribution of these artefacts help to identify activity areas within the site.

Clothing items, in particular buttons (301) are subject to functional analysis with particular emphasis on identification of convict versus non-convict button types and spatial analysis to identify activity areas within the Laundry Area.

Analysis of tobacco pipes and clothing artefacts is undertaken to assist in site interpretation and a better understanding of convict life. The aim of this study is to identify convict activities and specific activity areas within the Laundry Area for different phases of site occupation.

4 ARTEFACT ANALYSIS

4.1 Organisation of Analysis Results

The area of archaeological investigation consists of a 270m² area located between the Penitentiary bakehouse and the Champ Street retaining wall.⁴¹ Removal of the topsoil layer, revealed the structural footings of a complex of 11 rooms and/or areas that were consistent with the historical record. To be consistent with Tuffin's technical report on excavations in the Laundry Area, the artefact analysis results are organized by 'phase', with discussion of analysis results for each 'area' and where appropriate results of 'area' subdivisions (units) if significant pattern similarities or differences are noted for artefacts recovered from the units.⁴² Historic phases include:

- **Pre-penitentiary: 1830–1856** – From early settlement until the penitentiary was constructed workshops, a granary and a bakehouse were located on the western portion of what was later to be the Ablutions Block.
- **Phase 1: 1856 - c.1862** – The renovation of the old granary and flour mill to make way for more convict housing. Completed in 1857 was a complex of buildings including a laundry, receiving room, hot air drying room and stores for clothing and other items.⁴³
- **Phase 2: c.1862 - Settlement Close (1877)** – A major overhaul of the Ablutions Block yards and central penitentiary building necessitate changes to the laundry with its east wall moved eastward into the Ablutions Block. A passage area along the Champ Street retaining wall was converted to a 'bath room' (S10). The old wood store was extended and converted to a boiler housing (S6).
- **Post-Convict Phase** – Shortly after the closure of the penal colony there was a land sale of various building associated with the site, however, no one bought the penitentiary. Disuse and neglect resulted in the gradual deterioration of the penitentiary and associated structures and the 1897 bush fire gutted the structure. With the sale of properties on the site at the time of closure the post-convict community of Carnarvon and from soon after closure the site became a thriving community as well as a tourist destination.

Areas within the site were assigned alphanumeric designations starting with the letter 'S' (Figure 4.1). A focus of artefact analysis is the identification of activity areas within the Laundry Area. Research from historical documents and results of archaeological

⁴¹ Tuffin, Richard and David Roe 2017 Technical Report for 2016 Archaeological Investigations of the Penitentiary Laundry Area Port Arthur Tasmania, PAHSMA Archaeology Project PA 2016/05.

⁴² Tuffin, Richard and David Roe 2017 Technical Report for 2016 Archaeological Investigations of the Penitentiary Laundry Area Port Arthur Tasmania, PAHSMA Archaeology Project PA 2016/05, p 34-38.

⁴³ Commandant to Comptroller General, 4 January 1855, B.P.P., Transportation, 'Further Correspondence on the subject of Convict Discipline and Transportation', 1854-5.

excavations contributed to the following brief explanations of the intended use of each area:

- **S1** – Pre-penitentiary foundations for the bakehouse and drains are located in this area. It was open to the elements with an entryway into the Overseers office during penitentiary phases.
- **S2 & S3** – During Phase 1 and Phase 2 these areas are shown on 1856 and 1863 plans as linen stores.
- **S4** – During Pre-penitentiary convict era occupation the northern edge of this area was footings for the bakehouse. During Phase 1 and Phase 2 the area served as a throughway between the penitentiary and the laundry,
- **S5** – During Phase 1 and Phase 2 S5 served as the laundry proper.
- **S6** – Pre-Penitentiary - the north eastern extent of the space is defined by footing for the flour mill and granary. Phase 1 footing for the bakehouse along northern edge and use of the area was as a wood store; Phase 2 boiler base
- **S7, S8 and S9** – During Phase 1 and Phase 2 S7 and S8 served as bathing rooms.
- **S9** – Phase 2 push-out of Laundry Area into the West Yard of the Ablutions Block, creating an extension to the bathing rooms.
- **S10** – Create by the Phase 1 rebuild of the Champ Street wall. Served as a passageway between the Ablutions Block and the Laundry Area
- **S11** – Phase 2 push-out of Laundry Area into west yard of ablutions block and served as an entry into the laundry from the ablutions block.

Unit subdivisions within each area were assigned alphanumeric designations starting with either an 'A' or 'B' (Figure 4.2). These subdivisions were used during analysis to identify discernible patterns of use within an area. Minimum Item Counts (MNI) for each area are shown by occupation phase in Table 4.1.

Table 4.1: Summary Minimum Item Counts of Artefacts for Areas by Phase

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	
PHASE												TOTAL
Pre-Penitentiary		43	35	5	8		1	8	2			102
Phase I	85			23	54	16	125	8	12			323
Phase I/Phase II					3		73					76
Phase I/Post-1877			526						1			527
Phase II	12	17		1	13	18	236	1129	761		2	2189
Phase II/Post-1877	13	93					65					171
Post-1877	17				150	6	22	530	128	1	50	904
TOTAL												4292

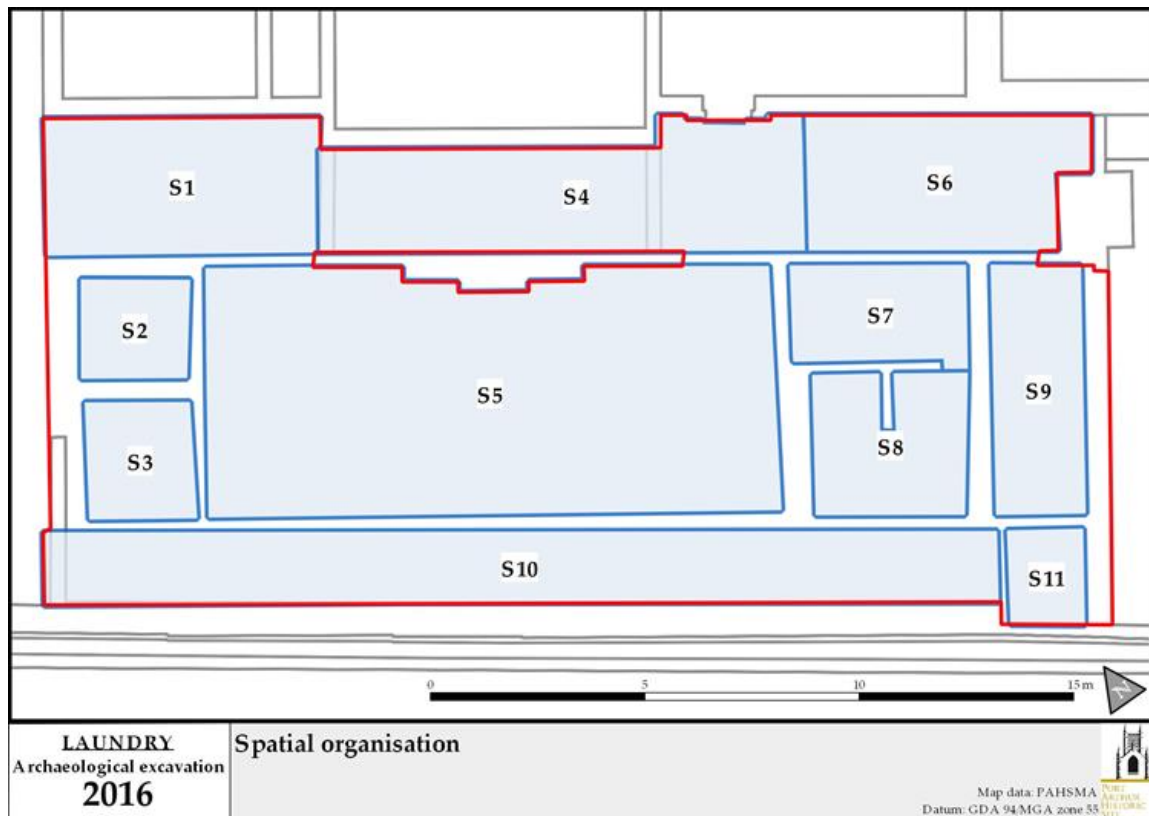


Figure 4.1: 1856 Plan of Laundry Area Showing Spatial Organisation.⁴⁴

Since the majority of artefacts are architectural elements (nails) discussion of each phase will first summarise temporal information for architectural debris, noting consistencies and inconsistencies with assigned phases. Analysis then focuses on temporal information for other classes of artefacts – artefact that are associated with the occupants of the site, rather than the structure(s) itself. After nails, buttons are the second most abundant artefact type, however, date ranges for most button type spans the entire Convict Era (Table 2.2). Therefore only those buttons with narrower date ranges contribute to temporal placement for a deposit.

⁴⁴ Tuffin, Richard and David Roe 2017 Technical Report for 2016 Archaeological Investigations of the Penitentiary Laundry Area Port Arthur Tasmania, PAHSMA Archaeology Project PA 2016/05, p 29.

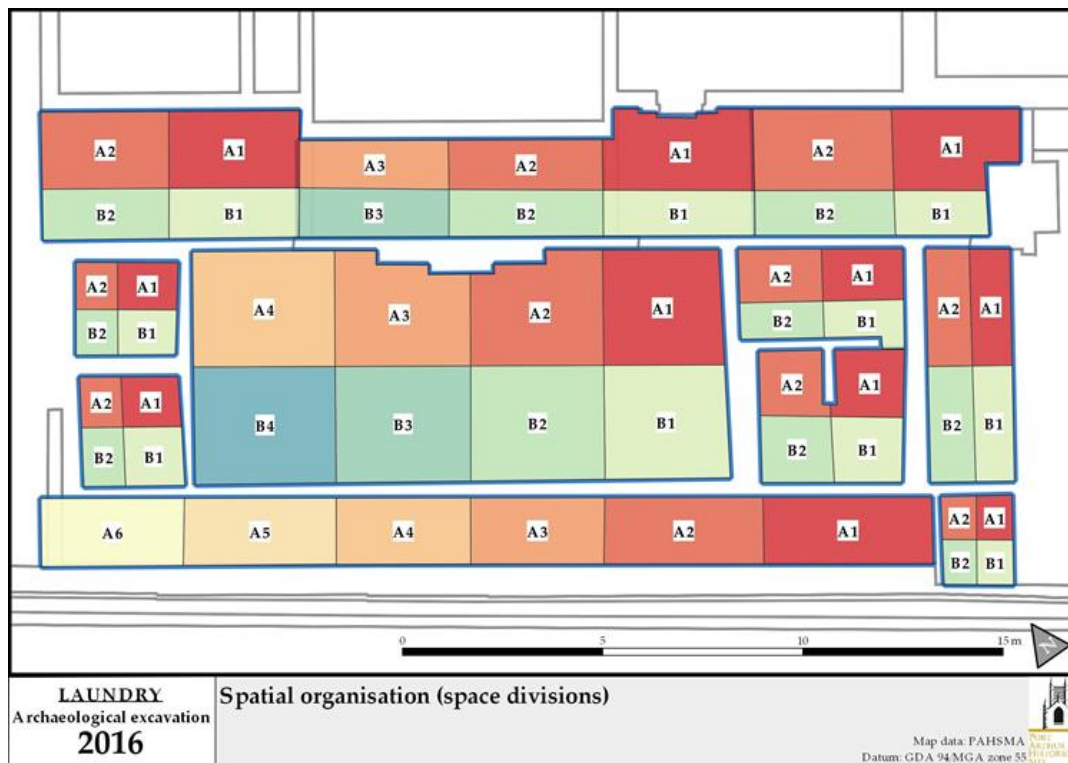


Figure 4.2: 1856 Plan of Laundry Area Showing Excavation Subdivisions.⁴⁵

Finally, analysis will look for any patterns for activities or use of a particular area as demonstrated by functionally classified artefacts left behind. As Figure 4.3 shows Clothing, Food and Recreation represent the majority of artefacts associated with activities at the site. Concentrations or clusters of these artefact types serve further assist in interpretation of the day-to-day activities within the Laundry Area.

4.2 Pre-Penitentiary Phase (1830–1856)

Deposits representing pre-penitentiary occupation of the site were identified in Areas S1–S5 and S7–S9. Temporal information for architectural elements is consistent with pre-penitentiary construction with the noted exception of one artefact recovered from a context in S3, A1. An occupation deposit [0206] contained wire-drawn nails (1860TPQ), not used in the colonies before 1860. Other temporal information is derived from metal buttons that have a date range that spans almost the entire colonial convict era (1794–1900).

Beyond two buttons ([0023] and [0206]) and two shoe heel plates ([0127]) there is little in the pre-penitentiary contexts that denote activities on site during this phase. A segment of a hack saw was recovered from S2 [0050], which may be associated with the pre-

⁴⁵ Tuffin, Richard and David Roe 2017 Technical Report for 2016 Archaeological Investigations of the Penitentiary Laundry Area Port Arthur Tasmania, PAHSMAS Archaeology Project PA 2016/05, p 30.

penitentiary works shops. Furthermore, the only food-related items from this phase were fragments of a dark green alcohol bottle.

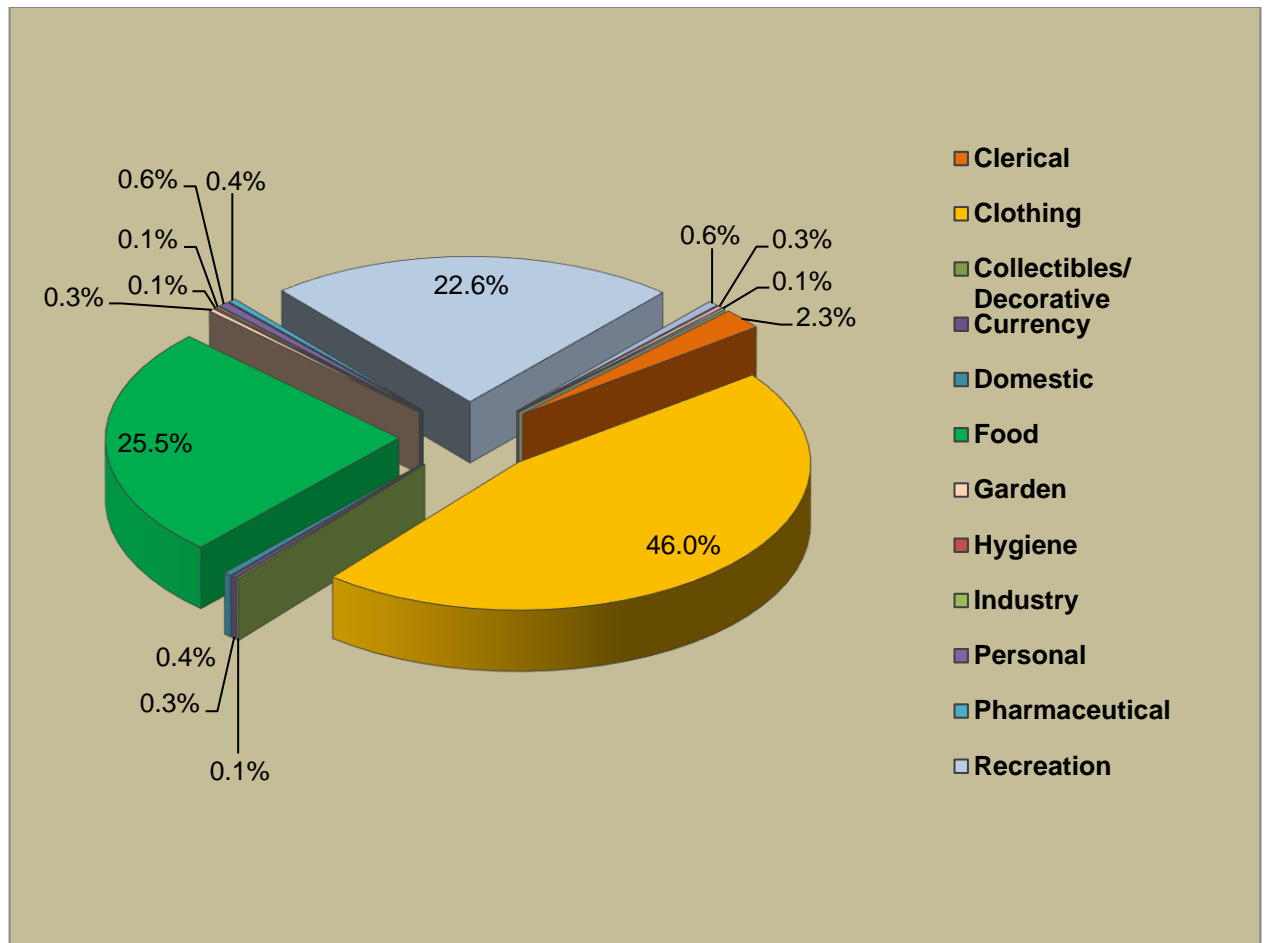


Figure 4.3: Relative Frequencies of Functionally Classified Artefacts (excluding Architecture).

4.3 Phase 1: 1856 - c.1862

Artefacts from Phase 1 site occupation were recovered from contexts in Areas S1 and S4–S9. Temporal information for architectural elements is consistent with Phase 1 construction activities. Of note for this phase is the introduction of the Ewbanks type machine-cut nail (1838TPQ) that became popular in Australia due to its ability to cope with Australian hardwoods. Also Phase 1 contexts had the highest relative frequency of architectural strapping (S1, S4, S5 and S7) of all site phases which is consistent with construction of the penitentiary during this time period.

4.3.1 Phase 1 Temporal Information

Buttons (3), tobacco pipes (2) and ceramic tableware (6) are the main sources of temporal information for non-architectural items. Temporal indicators for these and other artefact types include:

- Temporal information is derived from bone buttons that have a date range that spans almost the entire colonial convict era (1794–1900).

- Two William Murray ball-clay tobacco pipes (1830–1861) from Area S1 consistent with this phase of site occupation.
- Flow black decorated ceramic tableware items (1845TPQ) from S5, S7 and S8 are consistent with Phase 1 site occupation.
- One pearlware ceramic tableware (1780–1830) from S7 [0255] pre-dates any phase of site occupation.
- One champagne type bottle from Area S5 has an 1800–1830 date range and while this date range pre-dates the occupation of the site, it indicates bottle reuse practices in the colony.

4.3.2 *Phase 1 Functional Information*

Functional analysis is used here to identify possibly localised activity areas within the Laundry Area. Patterns for key artefact types include:

- Buttons (6) and a buckle are clothing-related items recovered from bathing rooms S7, S8 and S9. Their presence in deposits suggests these items were lost during ablution activities.
- Tobacco pipes were recovered from the common laundry proper (S5) the western entry way (S1), and S9, which was part of the ablutions block during Phase 1.
- Copper offcuts were recovered from a brick and mortar debris S1 [0271], as was one copper nail from a mixed clay and rubble deposit S1 [0279]. Also recovered from the brick and mortar debris S1 [0271] is a drafting compass, identified from X-ray (Figure 4.4). These deposits may represent redeposited fills associated with earlier workshop activities.
- A possible hafted bone knife handle was also recovered from the entryway S1 [0295]. This handle is possibly convict made with crudely carved rows of half chevrons along length. Recovered from one of the clay and rubble deposits that overlaid the drain in this area, it is inconclusive if this artefact is associated with Phase 1 occupation or a product of earlier workshop activities.

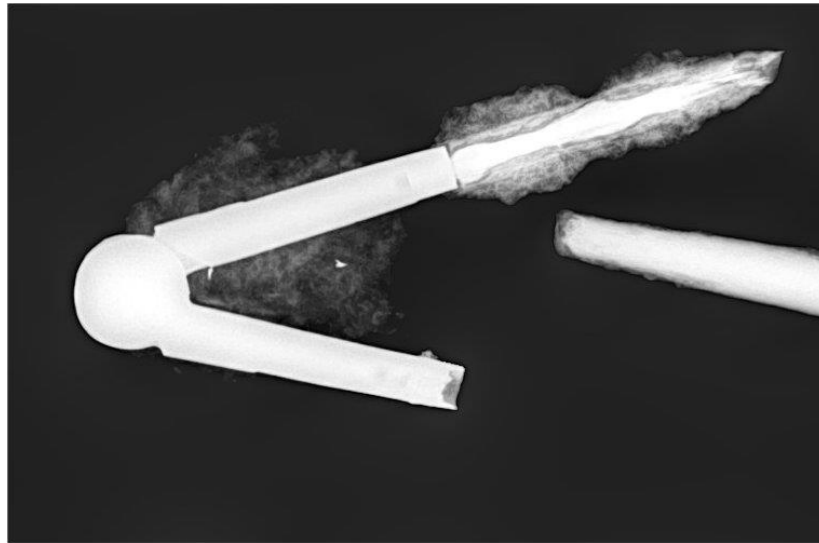


Figure 4.4: X-ray Image of Drafting Compass recovered from Phase 1, S1 [0271].

4.4 Phase 2: c.1862 - Settlement Close (1877)

Contexts representing Phase 2 occupation of the site were identified in Areas S1–S2, S4–S9 and S11. Temporal information for architectural elements, which was derived mostly from the nail assemblage, is consistent with the Phase 1 and Phase 2 construction on the site. Ewbanks machine-cut nails (1838TPQ) were recovered from S6–S9. The increased use of Ewbanks nails in Phase 2 construction is consistent with their increased popularity during this time period. Wire-drawn nails (1860TPQ) were recovered from S7–S9. The introduction of wire-drawn nails during this phase of site development is consistent with use patterns demonstrated for colonial structures during this time period.

4.4.1 Phase 2 Temporal Information

Bottles (13), buttons (161) and tobacco pipes are the main sources of temporal information for non-architectural artefacts. Temporal indicators for these other artefact types include:

Temporal information is derived from bone and metal buttons. The majority of buttons have date ranges that span the entire colonial era (1794–1900). However there is a bone button that have an 1840–1900 date range (S8 [0275] and three glass buttons (S8 [0139] and S7 [0327]) that have an 1870–1910 date range (S7 [0327] and S8 [0139]).

There are 24 Tobacco pipes from four different manufacturers (Miller, Murray, McDougall and White) were recovered from 12 deposits in S6–S9 and date ranges are consistent with Phase 2 site occupation (Table 4.2). Also there is a fragment of a Wellington/Napoleon tobacco pipe commemorating the 50th anniversary of the battle of Waterloo (1860s) recovered from S9 [0171].

Table 4.2 Chronological Data for Tobacco Pipe Manufacturers from Phase 2 Deposits.

Area	Context	Tobacco Pipe Maker	Date from	Date to	MIC
S7	0025	Thomas White & Company, Edinburgh	1825	1870	1

S9	0033	Duncan McDougall, Glasgow	1846	1957	2
S9	0033	William Murray, Glasgow	1830	1861	1
S8	0124	Duncan McDougall, Glasgow	1846	1957	1
S8	0124	William Murray, Glasgow	1830	1861	1
S8	0139	David Miller, Liverpool	1860S	1880	1
S8	0139	William Murray, Glasgow	1830	1861	2
S9	0158	Duncan McDougall, Glasgow	1846	1957	2
S9	0171	David Miller, Liverpool	1860S	1880	2
S9	0171	Duncan McDougall, Glasgow	1846	1957	2
S9	0173	Duncan McDougall, Glasgow	1846	1957	2
S9	0173	William Murray, Glasgow	1830	1861	1
S6	0178	Duncan McDougall, Glasgow	1846	1957	1
S9	0181	Duncan McDougall, Glasgow	1846	1957	2
S8	0275	Duncan McDougall, Glasgow	1846	1957	1
S7	0327	Duncan McDougall, Glasgow	1846	1957	1
S7	0327	William Murray, Glasgow	1830	1861	1

Other artefacts that contributed to Phase 2 temporal placement include:

- Tapered screws (1850TPQ) were recovered from three deposits in S8 ([0124], [0285] and [0289])
- Beer/wine bottle dating from the first half of the nineteenth century were recovered from silty underfloor deposits in S9 ([0138] and [0171]). However deposit [0171] also contained Waterloo tobacco pipe, which had a later 1865TPQ.

4.4.2 Phase 2 Functional Information

Functional analysis is used here to identify possibly localised Phase 2 activity areas within the Laundry Area. Patterns for key artefact types include:

- Clothing-related items consist of buttons (214) and forged shoe heel plates (8). Buttons are from Areas S7 (12), S8 (117) and S9 (85). One third of the buttons are bone 3-hole sew-through type (George's Type Series 5 and 6) and one thirds are bone 4-hole sew-through type (George's Type Series 8 and 9).⁴⁶ Heel plates are also from Areas S7, S8 and S9.

In S9 the buttons were recovered from silty underfloor deposits ([0158], [0138], [0171], [0173] and [0181]). In S8 buttons were recovered from mixed silty/rubble deposits that were over and abutting flagging and brick footings ([0139], [0124], [0256], [0275] and [0285]). In S7 buttons were found in the end drain deposit [0327] and in the black silt that overlaid flags and drain.

- Glass ink bottles (2) and pencils (4) were recovered from four contexts in S9 ([0033], [0158], [0171] and [0173]). These artefacts denote recordation of some

⁴⁶ George, Sam 1999 Unbuttoned: Archaeological Perspectives of Convicts and Whalers' Clothing in Nineteenth Century Tasmania, Honours Thesis, La Trobe University.

manner on permanent papers, whilst the writing slates (3), recovered from S5 [345] and S8 [0139], are more likely to represent temporary recordation, such as a daily roster or check list.

Other observation on general activity patterns include:

- Approximately 65% of screws from the entire excavation were found in four deposits from Phase 2, S8 and represent all but one screw from Phase 2 deposits.
- An increase in smoking across the area is noted during Phase 2. Twenty-four (50%) Phase 2 deposits contained tobacco pipe fragments which is a 24% increase over Phase 1 deposits.
- Alcohol bottles were recovered from areas of activity (S5 – S9), but not found in deposits from the linen stores (S2 and S3) or passage ways (S1, S10 and S11).

4.5 Post-Convict Phase (post 1877)

Artefacts from the Post-Convict Phase of site occupation were recovered from Areas S1, S2 and S5–S11. Temporal information for architectural elements is consistent with Phase 2 construction on the site with comparable relative frequencies of wrought, cut, Ewbanks and wire-drawn nail types.

4.5.1 *Post-Convict Phase Temporal Information*

Approximately 14 per cent (97) of non-architectural artefact provided temporal information. Included in this number are buttons, ceramic tableware and bottle glass that have wide date ranges that span the entire convict-era occupation of the site and beyond. There are a number of artefacts from the Phase 2 site occupation and from post-convict era activities at the site that narrow the temporal placement of deposits.

Late convict era (Phase 2) artefacts include:

- Two 1875TPQ Cascade Brewery glass aerated water bottles (S6 [0009] and S8 [0052])
- Two R. J. Edwards Honey-dew pipe bowls (1850TPQ) (S8[0034])

Post-convict era artefacts include:

- A 1918 Australian penny (S5 [0016]).
- An 1887 Victoria Jubilee token ([0028])
- An 1880–1915 Cannington Shaw Glassworks aerated water bottle (S8 [0034])
- One 1882TPQ Cascade Brewery's Dandelion Ale stoneware bottle (S8 [0034])

4.5.2 *Post-Convict Phase Functional Information*

For all phases of occupation the majority of non-architectural artefacts are functionally categorised as Clothing, Food and Recreation, but unlike convict-era phases of site occupation, the relative frequency of food-related artefacts in the Post-Convict Phase

represents more than half (55%) of the functionally categorised artefacts (Figure 4.4). The rise in the relative frequency of food-related artefacts is due in most part to the increase number of glass bottles in Post-Convict deposits. These bottles (71) are principally alcohol types (55), including gin/schnapps (36) and beer/wine (11) and spirits (4). Other food-related bottles consist of aerated water (6) and condiment (7) types. There are two factors that contribute to the increase of food-related bottles in deposits from this phase of site use. First, during previous phases convicts did not have access to alcohol packaged in commercial containers, but rather obtained any ration of 'rum' from cask/barrels distributed by their overseers. Second, informal and formal tourism was the principal post-convict era activity across the entire penal colony which commenced soon after the closure of the institution. And finally, the establishment of the community of Carnarvon around the ruins, which for the most part served to support tourism activities.

The association of these deposits with tourism and town development is further supported by a number of artefacts that have Hobart origins. These are items that would have could have arrived with tourists from Hobart only to be lost or discarded during their visit. These items include:

- the Victoria Jubilee token that commemorated the celebration in Hobart;
- Cascade Brewery bottles, and
- tobacco pipes from R. J. Edwards Hobart tobacconist shop

There are also other items in these deposits that are not associated with the convict era. Examples include:

- A bottle of sewing machine oil was recovered from S8 [0034] and it is unlikely that convicts had access to such a modern convenience.
- During the Convict Era, medicine doses were dispensed by the medical officer or his junior, so it is unlikely that the medicine bottles from (S8 [0034] and S5 [0016]) are from convict-era activities.
- A top shell from the South Australia coast is most likely souvenir or collectable item, which is an item unlikely to be a possession of a convict.

There are also remnants of the convict era occupation in these deposits. A lead-glazed lavatory basin was recovered from S1 [0146]. This type of basin was used by convicts for their ablutions and remnants of these basins were found in deposits from the adjacent ablutions block.⁴⁷ Also most of the tobacco pipes are from the same manufacturers that made the majority of marked pipes in the site's convict-era phases.

⁴⁷ Harris, E. Jeanne 2016 PA2016-01 Port Arthur Penitentiary Project: Artefact Report, p 24.

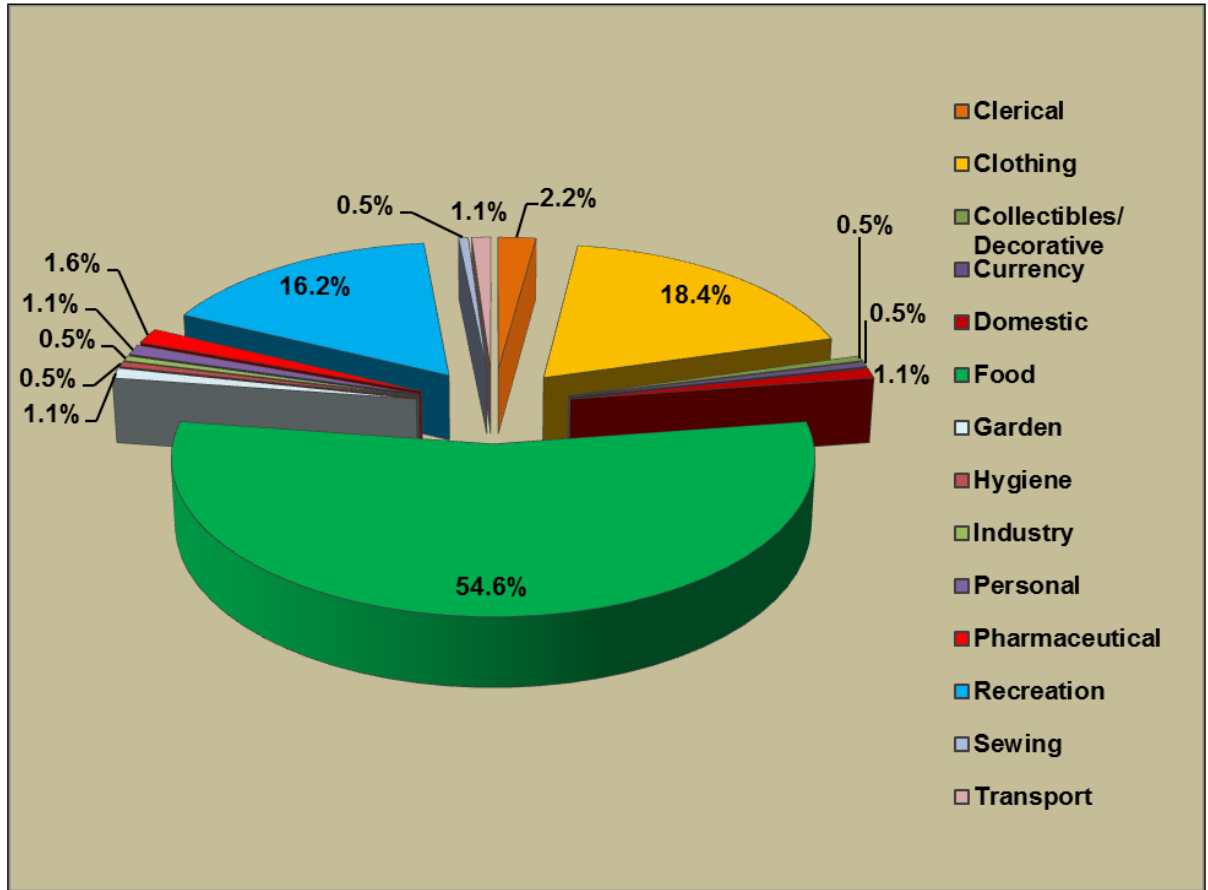


Figure 4.5: Relative Frequencies of Functionally Classified Artefacts from Post-Convict Era Deposits (post-1877) (excluding Architecture).

5 DISCUSSION

The focus of artefact analysis from the Penitentiary Laundry Area is twofold. The first stage is to establish temporal placement for deposits through the use of various dating resources. The second stage is to identify any areas within the site for which distinct activities are identified. Consideration of these two analyses together serves to identify activity areas within the site through the history of its occupation.

For the most part temporal information for artefacts from deposits associated with defined phases is consistent with the assigned time period. However, the relationship of deposits to phases of occupation is not always as clearly defined as the structural remains. Often the temporal information suggests a deposit represented an interface between two phase; disturbed; mixed phase deposits that were thought to belong to a distinct phase of occupation; or more often that deposits from later phases represent redeposited fill from earlier occupation and demolition.

A temporal mix of architecture-related artefacts in deposits is not unexpected, given the series of renovation/restructuring activities associated with the penitentiary, which was further disturbed by the 1897 bush fire that resulted in the collapse of roof and interior of the penitentiary. However, in some instances this disturbance penetrated down to the Pre-Penitentiary deposits, as exemplified in deposit S1 [0206] that contained wire-drawn nails and prismatic window glass, two artefact types not introduced to Australia until the 1860s.

4.6 Activity Areas

A wealth of data was recorded for over 314 individual artefacts, in that their exact location across the Laundry Area was digitally recorded (Figure 5.1). These data are termed 'spot finds'. The data included artefact identity (shape/form). For key artefact types spatial distribution was achieved through placement of data on plans of the Area.

For this study two artefact types have been emphasised: buttons and tobacco pipes, because these types are the most abundant non-architectural artefact types and they represent artefacts most closely associated with convicts, their personal effects and clothing, and their activities within the confines of the Laundry Area.

4.6.1 Limitations

Limitations to the use of this data consist of the discrepancies between in-field identification of spot finds and the identification made in the laboratory for the same artefacts. The most notable of these discrepancies is the field identification of highly corroded circular metal disks as buttons when X-ray images revealed that approximately 50 per cent of these disks were roofing nail heads.

During Phase 1, S9 and S11 were part of the West Yard of the Ablutions Block. No datable tobacco pipes were recovered from S9 or S11 Phase 1 deposits, however, all

datable pipes from S9 Phase 2 occupation are consistent with both Phase 1 and/or Phase 2 site occupations.

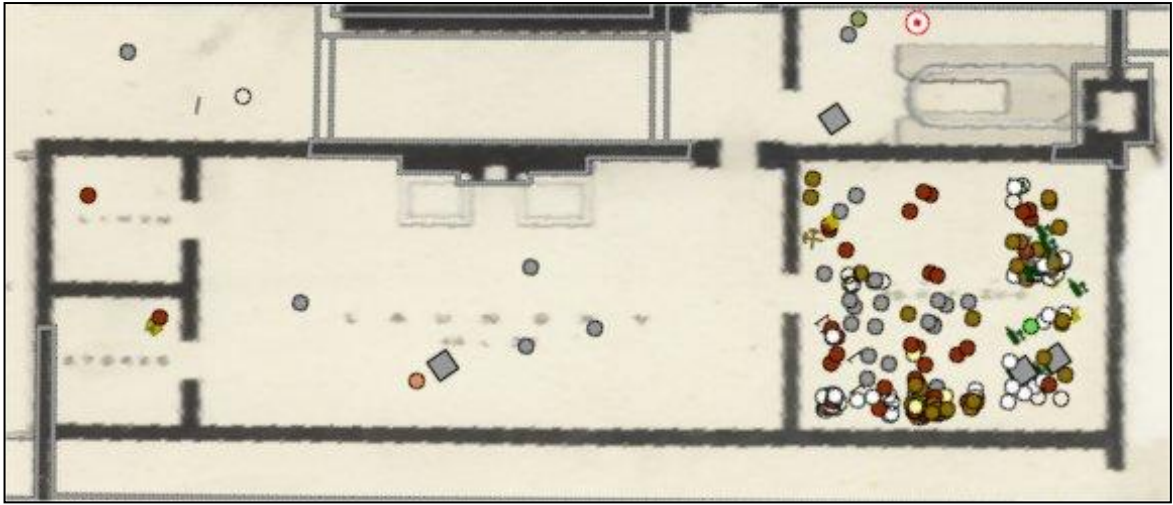


Figure 5.1: Spatial Distribution of Spot Find Artefacts across the Laundry Area.

4.6.2 Spatial Analysis Results

Buttons

Approximately 44% of buttons (133) were subject to spot-find recordation (Figure 5.2). Given the nature of site development and defined activity areas, the spot find data for buttons contributed little more than that that was obtained by a standard cross-tab table (Table 5.1). However, spot finds did produce clusters of buttons in S8 and S9 that may represent end-drain deposits with an implication that buttons were lost down the drain.



Figure 5.2: Spatial Distribution of Button Spot Finds in the Laundry Area.

Table 5.1: Distribution of Buttons across the Laundry Area by Phase.

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	
Phase												Total
Phase I							3	1	2			6
Phase I/Phase II					1		47					48
Phase II							11	116	86			213
Phase II/Post-1877		1										1
Post-1877	1				2		5	14			9	31
Pre-Penitentiary		1	1									2
Total	1	2	1	0	3	0	66	131	88	0	9	301

Tobacco Pipes

Approximately 42% of tobacco pipes were subject to spot-find recordation (Figure 5.3). A comparison with a cross-table table distribution of tobacco pipes by area demonstrates that while the spot-find recordation did demonstrate areas of concentrated smoking activities, it failed to accurately record all areas where smoking activities occurred (Table 5.2).



Figure 5.3: Spatial Distribution of Tobacco Pipe Spot Finds in the Laundry Area.

Table 5.2: Distribution of Tobacco Pipes across the Laundry Area by Phase.

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	
Phase												Total
Intermediate phase											1	1
Phase I	3				2				2			7
Phase I/Phase II							11					11
Phase I/Post-1877			4									4
Phase II		1			2	4	6	22	61		2	98
Phase II/Post-1877		3										3
Post-1877					4	3		11	6	1	4	29
Total	3	4	4	0	8	7	17	33	69	1	7	153

4.6.3 Discussion of Spatial Analysis

Unlike the spot-find analysis undertaken during archaeological investigations of the adjacent Ablutions Block, analysis results for the Laundry Area were not significantly enhanced by this type of data collection. The utility of this system of data collection in the wide spaces of the Ablution Block yards served to delineate areas for convict activities, such as smoking and gaming. However in the small structurally-defined areas of the Laundry Area, such methods added limited data to that which is obtained through standard statistical analysis.



APPENDIX A: CHRONOLOGICAL AND FUNCTIONAL SUMMARY FOR LAUNDRY AREA PHASES AND CONTEXTS

Phase	Area	Context	% Architecture	Main Non-Architectural Function	Architecture TPQ	TPQ	TAQ	MIC/MNI
Intermediate phase	S11	0130	0.0	Recreation		1830	1861	1
Phase I		0059	100.0					1
Phase I		0067	100.0					1
Phase I		0098	100.0					1
Phase I		0264	0.0	Recreation		1830	1861	1
Phase I	S1	0140	20.0	Recreation				5
Phase I	S1	0266	55.6	Unidentified	1820			36
Phase I	S1	0269	66.7	Unidentified	1820			3
Phase I	S1	0270	66.7	Recreation	1820			3
Phase I	S1	0271	42.9	Cleric	1834			7
Phase I	S1	0279	42.9	Unidentified	1820			7
Phase I	S1	0295	66.7	Recreation	1820			15
Phase I	S1	0298	0.0	Unidentified				3
Phase I	S1	0299	0.0	Recreation		1830	1861	1
Phase I	S1	0314	60.0	Unidentified	1820			5
Phase I	S4	0255	0.0	Unidentified				1
Phase I	S4	0270	66.7	Unidentified	1834	1820	1920	12
Phase I	S4	0308	50.0	Unidentified				2
Phase I	S4	0344	62.5	Unidentified	1834			8
Phase I	S5	0161	33.3	Food	1820	1820	1920	18
Phase I	S5	0183	90.0	Unidentified	1820			10
Phase I	S5	0185	40.0	Food	1820	1845		5
Phase I	S5	0245	66.7	Recreation				3
Phase I	S5	0262	50.0	Food				2
Phase I	S5	0312	0.0	Unidentified				1
Phase I	S5	0315	50.0	Food	1820	1800	1830	12
Phase I	S5	0333	0.0	Unidentified				3
Phase I	S6	0210	25.0	Unidentified				4
Phase I	S6	0224	50.0	Unidentified	1820			4
Phase I	S6	0243	83.3	Unidentified	1820			6
Phase I	S6	0265	50.0	Unidentified	1820			2
Phase I	S7	0155	0.0	Unidentified		1800		1
Phase I	S7	0255	28.4	Clothing	1820	1800		109
Phase I	S7	0310	22.2	Food	1820	1845		9
Phase I	s7	0311	0.0	Clothing				6
Phase I	S8	0128	0.0	Clothing		1700	1900	1
Phase I	S8	0212	0.0	Unidentified				5

Phase	Area	Context	% Architecture	Main Non-Architectural Function	Architecture TPQ	TPQ	TAQ	MIC/MNI
Phase I	S8	0316	50.0	Food	1840	1845		2
Phase I	S9	0132	100.0					1
Phase I	S9	0221	16.7	Clothing		1790	1900	6
Phase I	S9	0260	20.0	Recreation	1820			5
Phase I/Phase II	S5	0186	66.7	Clothing				3
Phase I/Phase II	S7	0188	5.5	Clothing/Recreation		1840	1861	73
Phase I/Post-1877	S3	0172	27.2	Recreation	1860	1850		526
Phase I/Post-1877	S9	0172	0.0	Unidentified				1
Phase II		0025	100.0					1
Phase II		0139	0.0	Clothing		1700	1900	1
Phase II	S1	0142	0.0	Unidentified				1
Phase II	S1	0143	66.7	Unidentified				3
Phase II	S1	0249	100.0		1820			2
Phase II	S1	0251	100.0		1820			1
Phase II	S1	0273	0.0	Unidentified				4
Phase II	S1	0277	100.0					1
Phase II	S11	0129	0.0	Recreation				2
Phase II	S2	0025	100.0		1834			2
Phase II	S2	0049	46.7	Food				15
Phase II	S4	0273	100.0					1
Phase II	S5	0162	25.0	Food/Recreation		1850	1870	4
Phase II	S5	0202	100.0					1
Phase II	S5	0345	12.5	Clerical/Personal				8
Phase II	S6	0048	14.3	Food		1820		7
Phase II	S6	0138	0.0	Recreation				1
Phase II	S6	0178	0.0	Recreation		1846	1957	3
Phase II	S6	0193	0.0	Recreation				3
Phase II	S6	0204	0.0	Recreation				0
Phase II	S6	0208	66.7	Unidentified				3
Phase II	S6	0217	100.0					1
Phase II	S7	0025	22.8	Clothing/Recreation		1825	1870	114
Phase II	S7	0241	40.0	Clothing	1820	1700	1900	5
Phase II	S7	0242	29.9	Clothing	1860			77
Phase II	S7	0327	40.0	Recreation	1820	1846	1861	40
Phase II	S8	0032	100.0					1
Phase II	S8	0124	26.8	Clothing/Recreation	1840	1850	1861	328

Phase	Area	Context	% Architecture	Main Non-Architectural Function	Architecture TPQ	TPQ	TAQ	MIC/MNI
				on				
Phase II	S8	0134	100.0					1
Phase II	S8	0139	22.0	Clothing/Recreation	1860	1850	1910	446
Phase II	S8	0166	6.7	Clothing		1700	1900	15
Phase II	S8	0256	25.0	Clothing		1850	1900	40
Phase II	S8	0258	0.0	Unidentified				1
Phase II	S8	0275	3.2	Clothing		1840	1900	62
Phase II	S8	0285	28.4	Clothing	1820	1850		141
Phase II	S8	0288	28.6	Unidentified	1820			7
Phase II	S8	0289	20.9	Unidentified	1820	1850		43
Phase II	S8	0290	80.0	Unidentified				5
Phase II	S8	0292	56.4	Unidentified	1840			39
Phase II	S9	0032	100.0					2
Phase II	S9	0033	19.0	Clothing	1820	1840	1860	137
Phase II	S9	0096	0.0	Clothing				1
Phase II	S9	0138	25.0	Clothing	1834	1820	1850	76
Phase II	S9	0158	23.0	Clothing/Recreation	1860	1846	1900	187
Phase II	S9	0171	25.3	Clothing/Clerical	1834	1865	1870	158
Phase II	S9	0173	31.0	Clothing/Recreation	1820	1850	1861	87
Phase II	S9	0181	12.1	Clothing/Recreation	1820	1850	1910	91
Phase II	S9	0196	0.0	Recreation		1860	1870	2
Phase II	S9	0200	14.3	Clothing/Recreation		1850	1870	14
Phase II	S9	0222	50.0	Food				2
Phase II	S9	0232	0.0	Clothing/Recreation		1790	1930	3
Phase II	S9	0238	0.0	Recreation		1846	1957	1
Phase II/Post-1877	S1	0354	0.0	Clerical		1934		13
Phase II/Post-1877	S2	0022	46.7	Unidentified	1820			15
Phase II/Post-1877	S2	0024	35.9	Food	1820	1850	1920	78
Phase II/Post-1877	S7	0024	36.9	Unidentified	1860			65
Post-1877		0009	0.0	Unidentified				1
Post-1877		0028	0.0	Personal		1887		1
Post-1877	S1	0014	50.0	Unidentified	1820			2
Post-1877	S1	0125	25.0	Unidentified				4

Phase	Area	Context	% Architecture	Main Non-Architectural Function	Architecture TPQ	TPQ	TAQ	MIC/MNI
Post-1877	S1	0144	0.0	Unidentified				3
Post-1877	S1	0146	5.0	Hygiene				2
Post-1877	S1	0301	0.0	Food		1850	1920	1
Post-1877	S1	0307	100.0		1820			2
Post-1877	S1	0309	66.7	Clothing		1794	1920	3
Post-1877	S10	0002	0.0	Recreation		1860	1880	1
Post-1877	S11	0018	26.5	Food/Clothing	1820	1850	1913	49
Post-1877	S11	0042	0.0	Recreation				1
Post-1877	S2	0334	0.0	Unidentified				
Post-1877	S5	0016	0.0	Food/Currency		1918		4
Post-1877	S5	0037	34.4	Food	1860	1850	1910	61
Post-1877	S5	0126	58.3	Recreation	1820			12
Post-1877	S5	0184	48.8	Food/Clothing	1850	1840	1861	41
Post-1877	S5	0205	61.5	Food	1820	1840	1920	13
Post-1877	S5	0334	73.7	Unidentified	1820			19
Post-1877	S6	0009	0.0	Clothing		1860	1920	2
Post-1877	S6	0021	0.0	Unidentified				2
Post-1877	S6	0179	0.0	Recreation				2
Post-1877	S7	0009	26.7	Clothing	1834			15
Post-1877	S7	0168	14.3	Clothing		1700	1900	7
Post-1877	S8	0034	23.0	Food	1840	1880	1915	122
Post-1877	S8	0036	100.0					1
Post-1877	S8	0052	17.9	Food/Clothing	1860	1850	1910	407
Post-1877	S9	0029	38.2	Food/Clothing	1834	1850	1920	76
Post-1877	S9	0030	26.9	Recreation	1860	1850	1920	52
Pre-Penitentiary	S2	0023	18.2	Clothing	1820	1794	1900	11
Pre-Penitentiary	S2	0050	20.0	Unidentified	1820			30
Pre-Penitentiary	S2	0051	0.0	Unidentified				1
Pre-Penitentiary	S2	0127	0.0	Clothing	1820			1
Pre-Penitentiary	S3	0050	0.0	Unidentified				1
Pre-Penitentiary	S3	0127	66.7	Clothing	1820			6
Pre-Penitentiary	S3	0206	46.4	Clothing	1860	1794	1900	28
Pre-Penitentiary	S4	0313	100.0		1820			2
Pre-Penitentiary	S4	0355	100.0		1820			1



Phase	Area	Context	% Architecture	Main Non-Architectural Function	Architecture TPQ	TPQ	TAQ	MIC/MNI
Pre-Penitentiary	S4	0357	100.0					2
Pre-Penitentiary	S5	0324	83.3	Unidentified	1820			6
Pre-Penitentiary	S5	0356	100.0		1820			1
Pre-Penitentiary	S5	0357	0.0	Unidentified				1
Pre-Penitentiary	S7	0371	0.0	Unidentified				1
Pre-Penitentiary	S8	0317	14.3	Unidentified				7
Pre-Penitentiary	S8	0318	0.0	Unidentified				1
Pre-Penitentiary	S9	0313	0.0	Unidentified				2



APPENDIX B: RELATIVE FREQUENCIES OF ALL CONTEXTS BY PHASE



PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Intermediate phase	S11	0130	1													100.0%				
Phase I		0059	1	100.0%																
Phase I		0067	1	100.0%																
Phase I		0098	1	100.0%																
Phase I		0264	1													100.0%				
Phase I	S1	0140	5	20.0%															80.0%	
Phase I	S1	0266	36	55.6%															44.4%	
Phase I	S1	0269	3	66.7%															33.3%	
Phase I	S1	0270	3	66.7%												33.3%				
Phase I	S1	0271	7	42.9%	14.3%														42.9%	
Phase I	S1	0279	7	42.9%															57.1%	
Phase I	S1	0295	15	66.7%												6.7%			26.7%	
Phase I	S1	0298	3																100.0%	
Phase I	S1	0299	1													100.0%				
Phase I	s1	0314	5	60.0%															40.0%	
Phase I	S4	0255	1																100.0%	
Phase I	S4	0270	12	66.7%															33.3%	
Phase I	S4	0308	2	50.0%															50.0%	
Phase I	S4	0344	8	62.5%															37.5%	
Phase I	S5	0161	18	33.3%						11.1%									55.6%	
Phase I	S5	0183	10	90.0%															10.0%	
Phase I	S5	0185	5	40.0%						40.0%									20.0%	

PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Phase I	S5	0245	3	66.7%												33.3%				
Phase I	S5	0262	2	50.0%						50.0%										
Phase I	S5	0312	1																100.0%	
Phase I	S5	0315	12	50.0%						8.3%						8.3%			33.3%	
Phase I	S5	0333	3																100.0%	
Phase I	S6	0210	4	25.0%															75.0%	
Phase I	S6	0224	4	50.0%															50.0%	
Phase I	S6	0243	6	83.3%															16.7%	
Phase I	S6	0265	2	50.0%															50.0%	
Phase I	S7	0155	1																100.0%	
Phase I	S7	0255	109	28.4%		2.8%				0.9%									67.9%	
Phase I	S7	0310	9	22.2%						22.2%									55.6%	
Phase I	S7	0311	6			16.7%													83.3%	
Phase I	S8	0128	1			100.0%														
Phase I	S8	0212	5																100.0%	
Phase I	S8	0316	2	50.0%						50.0%										
Phase I	S9	0132	1	100.0%																
Phase I	S9	0221	6	16.7%		33.3%										16.7%			33.3%	
Phase I	S9	0260	5	20.0%						20.0%						20.0%			40.0%	
Phase I/Phase II	S5	0186	3	66.7%		33.3%														



PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
						3%														
Phase I/Phase II	S7	0188	73	5.5%	1.4%	64.4%										15.1%	2.7%		11.0%	
Phase I/Post-1877	S3	0172	526	27.2%						0.6%						0.8%	0.2%		71.3%	
Phase I/Post-1877	S9	0172	1																100.0%	
Phase II		0025	1	100.0%																
Phase II		0139	1			100.0%														
Phase II	S1	0142	1																100.0%	
Phase II	S1	0143	3	66.7%															33.3%	
Phase II	S1	0249	2	100.0%																
Phase II	S1	0251	1	100.0%																
Phase II	S1	0273	4																100.0%	
Phase II	S1	0277	1	100.0%																
Phase II	S11	0129	2													100.0%				
Phase II	S2	0025	2	100.0%																
Phase II	S2	0049	15	46.7%												6.7%			46.7%	
Phase II	S4	0273	1	100.0%																
Phase II	S5	0162	4	25.0%						25.0%						25.0%			25.0%	
Phase II	S5	0202	1	100.0%																
Phase II	S5	0345	8	12.5%	12.5%									12.5%		12.5%			50.0%	
Phase II	S6	0048	7	14.3%						57.1%									28.6%	
Phase II	S6	0138	1													100.0%				

PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Phase II	S6	0178	3													100.0%				
Phase II	S6	0193	3							33.3%									66.7%	
Phase II	S6	0204	1													100.0%				
Phase II	S6	0208	3	66.7%															33.3%	
Phase II	S6	0217	1	100.0%																
Phase II	S7	0025	114	22.8%		5.3%				0.9%						1.8%			69.3%	
Phase II	S7	0241	5	40.0%		20.0%													40.0%	
Phase II	S7	0242	77	29.9%															70.1%	
Phase II	S7	0327	40	40.0%		15.0%				2.5%						10.0%			32.5%	
Phase II	S8	0032	1	100.0%																
Phase II	S8	0124	328	26.8%		2.1%				0.3%						1.2%			69.5%	
Phase II	S8	0134	1	100.0%																
Phase II	S8	0139	446	22.0%	0.4%	14.8%				0.7%						2.9%			59.2%	
Phase II	S8	0166	15	6.7%		53.3%				6.7%						6.7%			26.7%	
Phase II	S8	0256	40	25.0%		42.5%										2.5%			30.0%	
Phase II	S8	0258	1																100.0%	
Phase II	S8	0275	62	3.2%		29.0%										4.8%			62.9%	
Phase II	S8	0285	141	28.4%		0.7%													70.9%	



PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Phase II	S8	0288	7	28.6%															71.4%	
Phase II	S8	0289	43	20.9%															79.1%	
Phase II	S8	0290	5	80.0%															20.0%	
Phase II	S8	0292	39	56.4%															43.6%	
Phase II	S9	0032	2	100.0%																
Phase II	S9	0033	137	19.0%	0.7%	8.8%				5.1%						4.4%			62.0%	
Phase II	S9	0096	1			10.0%														
Phase II	S9	0138	76	25.0%		9.2%		1.3%	1.3%	11.8%						3.9%			47.4%	
Phase II	S9	0158	187	23.0%	0.5%	23.0%				0.5%						4.3%			48.7%	
Phase II	S9	0171	158	25.3%	1.9%	8.2%				1.9%				0.6%		12.7%			49.4%	
Phase II	S9	0173	87	31.0%	1.1%	5.7%				8.0%						10.3%			42.5%	1.1%
Phase II	S9	0181	91	12.1%		6.6%				1.1%						9.9%			70.3%	
Phase II	S9	0196	2													100.0%				
Phase II	S9	0200	14	14.3%		28.6%				21.4%						14.3%			21.4%	
Phase II	S9	0222	2	50.0%						50.0%										
Phase II	S9	0232	3			33.3%										66.7%				
Phase II	S9	0238	1													100.0%				
Phase II/Post-1877	S1	0354	13		7.7%					7.7%									84.6%	



PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Phase II/Post-1877	S2	0022	15	46.7%															53.3%	
Phase II/Post-1877	S2	0024	78	35.9%		1.3%				17.9%						3.8%			41.0%	
Phase II/Post-1877	S7	0024	65	36.9%															63.1%	
Post-1877		0009	1																100.0%	
Post-1877		0028	1											100.0%						
Post-1877	S1	0014	2	50.0%															50.0%	
Post-1877	S1	0125	4	25.0%															75.0%	
Post-1877	S1	0144	3																100.0%	
Post-1877	S1	0146	2	50.0%								50.0%								
Post-1877	S1	0301	1							100.0%										
Post-1877	S1	0307	2	100.0%																
Post-1877	S1	0309	3	66.7%		33.3%														
Post-1877	S10	0002	1													100.0%				
Post-1877	S11	0018	49	26.5%		18.4%	2.0%		2.0%	20.4%				2.0%	2.0%	8.2%			18.4%	
Post-1877	S11	0042	1													100.0%				
Post-1877	S2	0334	2																100.0%	
Post-1877	S5	0016	4					25.0%		25.0%			25.0%		25.0%					
Post-1877	S5	0037	61	34.4%	1.6%					18.0%						1.6%		1.6%	42.6%	

PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Post-1877	S5	0126	12	58.3%												8.3%			33.3%	
Post-1877	S5	0184	41	48.8%		7.3%				9.8%						4.9%			29.3%	
Post-1877	S5	0205	13	61.5%						15.4%									23.1%	
Post-1877	S5	0334	19	73.7%															26.3%	
Post-1877	S6	0009	2													100.0%				
Post-1877	S6	0021	2																100.0%	
Post-1877	S6	0179	2							50.0%						50.0%				
Post-1877	S7	0009	15	26.7%		26.7%													46.7%	
Post-1877	S7	0168	7	14.3%		14.3%													71.4%	
Post-1877	S8	0034	122	23.0%	1.6%	2.5%				18.0%	1.6%				0.8%	3.3%	0.8%	0.8%	47.5%	
Post-1877	S8	0036	1	100.0%																
Post-1877	S8	0052	407	17.9%	0.2%	2.9%				10.6%						1.7%			66.6%	
Post-1877	S9	0029	76	38.2%		1.3%			1.3%	6.6%						5.3%			47.4%	
Post-1877	S9	0030	52	26.9%						1.9%						3.8%			67.3%	
Pre-Penitentiary	S2	0023	11	18.2%		9.1%				9.1%									63.6%	
Pre-Penitentiary	S2	0050	30	20.0%															80.0%	
Pre-Penitentiary	S2	0051	1																100.0%	
Pre-Penitentiary	S2	0127	1			100.0%														

PHASE	AREA	CONTEXT	TOTAL	ARCHITECTURE	CLERIC	CLOTHING	COLLECTABLE	CURRENCY	DOMESTIC	FOOD	GARDEN	HYGIENE	INDUSTRY	PERSONAL	PHARMACY	RECREATION	SEWING	TRANSPORT	UNIDENTIFIED	UTILITIES
Pre-Penitentiary	S3	0050	1																100.0%	
Pre-Penitentiary	S3	0127	6	66.7%		16.7%													16.7%	
Pre-Penitentiary	S3	0206	28	46.4%		3.6%													50.0%	
Pre-Penitentiary	S4	0313	2	100.0%																
Pre-Penitentiary	S4	0355	1	100.0%																
Pre-Penitentiary	S4	0357	2	100.0%																
Pre-Penitentiary	S5	0324	6	83.3%															16.7%	
Pre-Penitentiary	S5	0356	1	100.0%																
Pre-Penitentiary	S5	0357	1																100.0%	
Pre-Penitentiary	S7	0371	1																100.0%	
Pre-Penitentiary	S8	0317	7	14.3%															85.7%	
Pre-Penitentiary	S8	0318	1																100.0%	
Pre-Penitentiary	S9	0313	2																100.0%	