BOVIS LEND LEASE

ARCHAEOLOGICAL RECORDING
AND EXCAVATION

FORMER AGL SITE

38 HICKSON ROAD SYDNEY

ROCK SHELF AT REAR

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1.0 INTRODUCTION

1.1 Purpose of This Report

This is a report for Bovis Lend Lease (BLL) to the NSW Heritage Office on the results of archaeological monitoring and excavation of a rock shelf site directly to the east of a building at 38 Hickson Road Sydney. At the time of writing the whole area has been excavated by machine many metres into bedrock in preparation for a residential building to be constructed there. The area is part of a larger development by Bovis Lend Lease of the whole of No. 30-38 Hickson Road (See Figures 1.4 and 1.5) which was originally a large part of the site of the Australian Gas Light Company (AGL).

The Excavation Permit Application to the NSW Heritage Office of April 2002 was for the whole of the BLL development site, which was divided into three areas: commercial, historic, and residential (See Figure 1.5). This report will deal only with the Residential site and those AGL buildings directly related to the archaeology there. The archaeological report on the Commercial site which will discuss the results of monitoring the uncovering of the annulus of one of the gasholders will cover the technology of gasmaking used on the site, and the development of the AGL Company there.

1.2 Background

Geological boring cores had shown the soil profile of the Study Area (See Figure 1.3). There was a few metres of fill of soil and rubble and then solid sandstone bedrock for many metres below.

Bovis Lend Lease’s plan was to remove all of this to the level of the base of No. 38 Hickson Road so the whole area became one level site for the new building. The Excavation Permit was for monitoring, and excavation where necessary.

The first part of the monitoring process was to brief the construction firm’s field team on what sort of remains to look for, then if they find anything relevant I was on call to come out, assess it, and if it was significant record it and excavate it so that it could be removed from the site. The type of artefacts one would expect to find were those related to gasmaking. Those known at the commencement of work were Buildings A and B, adjoining sandstone buildings facing Jenkins Street, which were known to have been offices for AGL.

One of the geological boreholes to investigate the soil profile and the characteristics of the rock to be removed, RW1, after going through 1 metre of rubble fill, bored down through 3 metres of sandstone until it struck brick, and then a void of 1.2m (Figure 1.3). The engineer who reported on it didn’t consider the structure found to be a drain, so it was thought to be a structure which was part of the gasmaking process, but it wasn’t known why it would be located under 3 metres of sandstone bedrock.
1.2.1 Previous Names Used for Parts or the Whole of the Development Site

The Hickson Road site being developed by BLL has had previous functions and owners and was known by previous names. The difference in the names reflects the site's history in that it was owned by AGL and by the Maritime Services Board (MSB) in the past. In the interests of clarity these previous names will be listed here.

The two stone buildings on Jenkins Street next to the Study Area known in this Report as Building A and Building B are known on the NSW Heritage Council’s State Heritage Inventory as MSB Stores Complex. The other names it is given in the Inventory entry are MSB Office and Store; AGL Company Stores and Offices. Their address is given as 2-4 Jenkins St. The Conservation Plan by Rod Howard in association with Rosemary Broomham (n.d. but post 1992) is called MSB Supply Stores at 2-4 Jenkins Street, Millers Point. Rosemary Broomham’s History which is Appendix 1 to the Conservation Plan is called MSB Stores, 2-4 Jenkins Street, Millers Point.

The Archaeological Assessment of 1999 by Godden Mackay Logan refers to the BLL site as Former AGL Site, Hickson Road. The Conservation Management Plan of the area dated April 2000 by Godden Mackay Logan is called 30-38 Hickson Road, Sydney. My Excavation Permit Application for this site is called 30-38 Hickson Road, New Development on Part of Former AGL Site.

1.1 The Study Area

The Study Area was a roughly triangular shaped wasteland on a high rock shelf adjoining Jenkins St. (See Figure 1.2). It was a derelict area of weeds with a few self-sown trees, and a visible surface of rubble, soil, and rubbish. Figure 4.1 shows the Study Area looking north, with most of the rubbish and trees removed. All of the archaeological remains were found at the northern end of the Study Area (Figure 1.6). Figure 4.2 shows the northern end with a vertical section of the fill before removal left leaning against the south face of Building B. To the west of the measuring staff is a broken brick structure, part of what was to be identified as a sewer vent, vertically sectioned by the backhoe clearing during the removal of the rubble fill.

1.4 Limitations of the Study

There were no limitations to the study as far as liaison and working with the BLL field crew. They did all they could to facilitate the archaeological work and were assiduous in calling me in to assess anything that they thought might be of significance.
The only limitation was the normal one when working on a functioning building site - the pressure of time to complete the recording and excavation so that the field crew could continue with their allocated projects.

1.5 Authorship and Research

This report has been written by Anne Bickford, except for Chapter 7 which is by Dr. George Gibbons. Dr. Gibbons is a valued colleague who is a geologist specialised in mining, and a materials science specialist with expertise in colonial brick and stone structures. I invited him to the site several times, to inspect and discuss the archaeological remains and their relation to the bedrock, and I requested him to record his observations for this report. As he is a specialist scientist Gibbons' report has been included unedited into this Report, even if there may be some repetition of information in the text of the Report as a whole.

1.6 Liaison

The client for this Report is Bovis Lend Lease Pty Ltd. The liaison officers are Nick Demetriou and Catherine Hart of Bovis Lend Lease, Level 7, Tower Building, Australia Square, Sydney 2000.

1.7 Acknowledgments

This report has relied for the history of the site on Rosemary Broomham’s excellent detailed November 1991 History which was Appendix 1 of the Rod Howard et al Conservation Plan for MSB Supply Stores at 2-4 Jenkins St.

I would also like to acknowledge George Gibbons' assistance in coming to the site promptly, and in preparing a report on his observations, Chapter below.

The BLL staff were very helpful to work with in the field, and gave every assistance that was requested.
FIGURE 1.1 Location Map
FIGURE 1.2 The Study Area
FIGURE 1.3 Borehole RW1 Showing Brick and Void at Over 4m Depth
FIGURE 1.4 The Bovis Lend Lease Development Area from Hickson Road. Arrow points to the Study Area

FIGURE 1.5 Plan of Bovis Lend Lease Development Area 30-38 Hickson Road
FIGURE 1.6 Plan of Remains in Study Area
Drawn by FJ Reidel

Sandstone building

Brick arch in wall above trench

Trench cut

Dry pressed bricks

Barrel drain

Brick shaft to ovoid drain

Ovoid drain

Concrete in trench, to 0.5m above top of drain

Concrete buttress, to 1.5m above top of drain

approx. 2 metres

Jenkins Street

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FIGURE 1.7 Section Drawing of Shaft, with Ovoid Drain Beneath
Drawn by FJ Reidel

Sandstone cover

Level of excavation
(16/8/02)

Segment of shaft made
of sandstone blocks
(three courses)

Section through
brick shaft and
ovoid drain
(looking north)

Ovoid Drain

Bedrock

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FIGURE 1.8 Section Drawing of Barrel Drain
Drawn by FJ Reidel

FIGURE 1.9 Section Drawing of Ovoid Drain
Drawn by FJ Reidel

Section through barrel drain

Section through ovoid drain

Bedrock
FIGURE 1.10 Photograph of Barrel Drain

FIGURE 1.11 Photograph of Barrel Drain with Ovoid Drain below
FIGURE 1.12 Sketch of South Wall of Building B
Drawn by GS Gibbons
2.0 METHODOLOGY

The ultimate aim of this part of the Residential development was to dig away the sandstone bedrock down to the level of the rock surface at the Hickson Road level.

The first aim of the development in the Study Area was to dig away all of the fill and sandstone bedrock identified in the borehole until the brick and void structure 4m below the surface was encountered.

The rubble/soil/rubbish fill identified in the borehole core was removed using an excavator starting at the south end of the site. Anne Bickford was informed by the site manager of archaeological observations within this area, and came to the site to assess them. Each archaeological structure was trowelled clean and excavated with hand tools until the research questions about the structure were appropriately answered. Such research questions concerned what the structure was, when it was built, how it was constructed, and what its function was. As part of this process each structure was recorded in detail by technical notes, scale drawings and photographs. Once this procedure was completed the client was given permission to remove the structure and continue the site clearing operation.

3.0 LIST OF STRUCTURES RECORDED AND EXCAVATED

In chronological order of appearance during the BLL excavation work on the site, not in order of archaeological significance:

3.1 Architecture
3.1.1 South wall of Building B
3.1.2 Remnant engaged walls of demolished Building C
3.1.3 Semicircular brick arch at base of South wall of Building B

3.2 Archaeology
3.2.1 Shaft
3.2.2 Ovoid drain
3.2.3 Fill above ovoid drain
3.2.4 Barrel drain
3.2.5 Foundation trench of barrel drain

3.3 Artefacts
Ceramics, glass, bricks, bone
4.0 FIELDWORK

Fieldwork took place on:

Saturday 17 August 2002  Recording and photographing the shaft and its relation to the south wall of Building B with Franz Reidel archaeologist and planner

Wednesday 11 September 2002  Photographing the ovoid drain

Thursday 12 September 2002  Excavating and recording the ovoid drain with Tim Hill and George Gibbons
Excavating and recording the barrel drain with Tim Hill and George Gibbons

Saturday 5 October 2002  Photographing the site once archaeological work was completed and the ovoid drain had been cut off at its junction with the south wall of Building B, and the south end filled with concrete. A water pipe was inserted into the drain to carry off the groundwater which continued to flow in the drain.
FIGURE 4.1 Study Area looking north during clearing of rubble fill. Note 'shadow' of Building C against the stone wall.

FIGURE 4.2 North end of site showing the shaft surrounded by rubble fill.
FIGURE 4.3 Barrel drain showing sandstone base and brick top half. Note mortar soft and clayey.

FIGURE 4.4 Inside the barrel drain showing stone boulders blocking western end.
FIGURE 4.5 Inside the shaft looking north showing top of ovoid drain. Note grey cement mortar.

FIGURE 4.6 Looking north cleaning out fill in shaft. Note shaft and ovoid drain built in cut in bedrock.
FIGURE 4.7 Artefacts from construction trench in barrel drain.

FIGURE 4.8 Close up of 1830s transfer printed pottery showing Exotic Scenes.
FIGURE 4.9 Glass from fill above ovoid drain. Gold patina on 2 fragments at left shows these are probably from a French wine bottle.

FIGURE 4.10 Bricks from fill above ovoid drain. Showing frogs of hearts, rectangle, and gravestone shape – square base and rounded top.
FIGURE 4.11 George Gibbons near the junction of Buildings A and B, looking west from Gas Lane. He is standing at the location for the north end of the ovoid drain.

FIGURE 4.12 George Gibbons in the ovoid drain crawling north. Note bottom third of drain is cut sandstone.
FIGURE 4.13 Looking along the curve of the ovoid drain

FIGURE 4.14 Looking north to the south wall of Building B showing the continued excavation of the sandstone bedrock. Note semicircular brick arch, the drain trench, and the ovoid drain with pipe fitted to take away the water which still runs along it.
5.0 HISTORY OF THE SITE IN RELATION TO THE EXCAVATED STRUCTURES

5.1 The historical information used for this report all comes from the History by Rosemary Broomham for the Conservation Plan for 2-4 Jenkins Street by Rod Howard in association with Rosemary Broomham and Clark Knox and Associates.

5.2 1844 - Early 1850s

The buildings known in this report as Buildings A and B 2-4 Jenkins Street were built in 1844-45 as the office and store for the AGL Company whose first gasworks was built immediately below them on the shores of Darling Harbour. A response to tender for a warehouse, offices, and a dwelling house included 7 pounds 10 shillings for a water closet Broomham considers that the cottage and office/warehouse were two independent structures, but adjoining each other. In April 1845 Morris, the builder, was asked to estimate the cost of a cesspool and in May he built a closet and urinal for the use for the office staff. There is no evidence for where the cesspool and water closets were located.

Other works he carried out were repairs to an existing barrel drain that collapsed in July 1846. There is no indication in the records or plans of the location of this drain on the gasworks site.

Plans drawn in the early 1850s all show a single building in Jenkins St. All these plans show the southern end of the building in line with Gas Lane. This is the 6 storey stone building called in this report Building A (See Figures 5.2 and 5.3).

5.3 Mid 1850s

Broomham reports that in the mid 1850s a barrel drain collapsed several times. It twice damaged the works entry road, and on one occasion fell against one of the gasholders preventing it from working. The roadway wall crossed an existing barrel drain. Broomham details two accounts of the bursting of the barrel drain There are two reports of the bursting of the barrel drain. In April 1854 its collapse caused part of the ‘roadway wall’ to fall down and in April 1858 the road’s retaining wall collapsed again, this time falling on the adjacent gasholder, rendering it useless.

1 Broomham p.1
2 Broomham p.20
3 Broomham p.21
4 Broomham p.22
5 Broomham p.32
6 Broomham p.33
The AGL requested the City Council to pay for the repair of the April 1854 collapse of the drain, but the Council obfuscated for two years, so the Company paid for the repair itself.

This is an important point as it indicates that the barrel drain was built by the City Council. It was not a private structure built by AGL to operate only on its own land. This reinforces our theory that the barrel drain ran down Gas Lane taking away stormwater and sewage from houses there, did a turn to the south and ran along the front of Building A taking up stormwater and sewage from it, and then turned again at the north side of the AGL roadway, followed the slope downhill, and discharged into Darling Harbour.

After the second rupture of the drain, (April 1858) the Company decided to replace it immediately by doing the work at their own expense. Again the Council refused compensation.  

5.4 Construction Dates for Barrel and Ovoid Drains

The barrel drain is first discussed in July 1846 (5.1 above). It collapsed and was repaired several times in the mid 1850s. In 1858 the Company immediately replaced it when it collapsed again. This gives us the evidence for the construction of the two drains found in the Study Area excavation.

The barrel drain was built in the first half of the 1840s (and the ceramics excavated in its construction trench reinforce this evidence.)

The ovoid drain with its attached shaft was built in 1858.

5.5 Construction Dates for Buildings A, B, and C

Building A, whose southern end is about in line with the north side of Gas Lane, first appears on the 1850 plan (See Figure 5.2). It is still there by itself in the 1854 (Figure 5.3), and 1857 plans (5.4), but on the 1868 plan (5.5) the Jenkins Street complex of buildings extends past Gas Lane right up to the boundary road (See below).

The historical records show that in June 1868 an addition was added to the offices in Jenkins Street. Broomham says that it is the last record of any alterations to the structure in the AGL's period of occupancy of the site. Therefore this must be Building C. In 1868 buildings A and B had reached their final form. A short time after this a one storey building, Building C, was added at the southern end. This

7 Broomham p.33

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addition appears in a photo of the area in about 1875. The 1880 Plan (Figure 5.6) shows that it was a one storey square addition. It is not known when Building C was demolished, but its engaged walls founded on the bedrock can be seen extending from the south face of Building B (See Figures 4.2, 4.6, 4.14).

5.6 The Road on the Southern Boundary of the AGL Site

The Road at the southern boundary of the AGL site first appears in a plan of the site in 1842 (Figure 5.1). This road appears on several plans but it is not named. For ease of discussion it will be known in this report as AGL Road. AGL Road commences at right angles to Jenkins Street and travels straight in a westerly direction from Jenkins Street to the edge of Darling Harbour. It appears in all historic plans in this report – 1842, 1850, 1854, 1857 up until 1868. On the next chronological plan, the 1880 Plan (Figure 5.6) it has disappeared.

The existence of AGL Road, travelling down the steep slope to Darling Harbour, explains why the barrel and ovoid drains turns so sharply west when they do. The barrel drain ran along the north side of the road down the slope to discharge into the water, while the ovoid drain, which replaced it, was constructed down the centre of the road. As described above, the barrel drain collapsed several times, causing part of the ‘roadway wall’ which was above it to tumble over several times as well. By locating the ovoid drain in the middle of the road, no structures were over it if it did collapse, so it would have been much easier to repair.

On the 1880 plan the road no longer exists as the AGL site has expanded south and AGL Road and the boundary wall were removed. The location of the top of the road can still be seen on the 1880 plan as the gap between Building C and the Blacksmith’s complex of buildings fronting Jenkins Street to the south.

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8 Broomham p.37-38
FIGURE 5.1 1842 Subdivision Plan showing the original layout of the Gasworks site. Arrow points to southern boundary road.
FIGURE 5.2 1850 Plan showing Building A on the Gasworks site.
FIGURE 5.3 1854 Plan showing Building A on the Gasworks site.
FIGURE 5.4 1857 Plan showing Building A on Gasworks site. Arrow points to the southern boundary road.
FIGURE 5.5 1868 Plan showing buildings A, B, and C on site, right up to the southern boundary road.
FIGURE 5.6 1880 Plan showing Buildings A, B, and C, with gap for the road to south of Building C.
6.0 INTERPRETATION

6.1 South Wall of Building B

The south wall of Building B was constructed after the barrel drain. The builders know that the barrel drain was there because just above the drain trench cut through the bedrock a relieving semicircular arch was built, to distribute some of the load of the stone wall when the sandstone footing had to span the trench (See Figures 4.6 and 4.14). The south wall in Figure 4.1 shows the ‘shadow’ of Building C in the wall, the rough stone walling of the basement compared with the smooth of the ground floor/ street level, and the engaged walls of the basement level founded on the bedrock.

6.2 The Barrel Drain

The barrel drain was constructed in a trench cut into the bedrock. The bedrock was cut with a horizontal base and then benched in and cut to form a semicircular shape. This was the bottom half of the drain. The top half of the drain was a semicircular arch of brick two courses thick. The mortar was weak, made of the soft natural yellow clay with small fragments of shell lime in it.

When it was decided to render the drain out of action and replace it with the ovoid drain the inside was blocked up with small sandstone boulders (Figure 4.4).

6.3 The Fill of the Foundation Trench for the Barrel Drain

Once the drain had been constructed in the trench the space on either side and on top of it was filled in with the dug out yellow clay. This is called in excavation terminology – the fill of the foundation trench. Artefacts which were lying around on the surface at the time got incorporated into this fill. These are shown in Figures 4.7 and 4.8. They are:
- ‘Black’ bottle bases and body sherds
- a broken nodule of flint
- a lamb bone
- a body and base fragment of a ginger beer/ blacking bottle
- four sherds of underglaze transfer printed pottery – three of blue and one of mulberry colour.

One of the sherds is part of the base of a plate and shows the classic willow pattern bridge and border.
There is a small rim sherd with an Oriental pattern
There are two body sherds of cups or bowls in what is known as Romantic or Exotic Scenes. The blue shows a palace or temple with four towers with foliage; the mulberry shows a Greek temple with foliage (4.8). These sorts of scenes were popular in the 1830s and 1840s.

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This ceramic evidence supports and corroborates the 1840s date for the drain given in the historical records.

6.4 The Ovoid Drain

The ovoid drain was constructed after the barrel drain and replaced it. The historical evidence shows that it was constructed in 1858, when the AGL decided to replace the barrel drain which had collapsed so often.

The shape of the ovoid drain was the outcome of the new technology of drains. The barrel/circular shape was refined and replaced by the ovoid shape with the head of the egg at the top and the point at the base. This narrowing of the shape to the base was thought to force the restriction of the water/sewage in the drain and cause it to flow faster.

The barrel drain was removed and the ovoid drain used its vertical trench cut along the west side of Jenkins Street before Buildings B and C were constructed. The trench was deepened and narrowed at the base. The ovoid drain was similarly constructed with the lower half of the drain of the natural bedrock and the upper part of brick.

The site plan and photographs show where the new section of the ovoid drain passes the remnant barrel drain and turns further to the south. It can also be seen that the ovoid drain was dug deeper than the barrel drain. The invert of the barrel drain is about 40 cm above that of the ovoid. Therefore it would have flowed only when it was full and the water was up to the barrel invert level.

The profile of the ovoid drain was the same as the barrel in that the top half was two courses of brick built on top of bedrock, and the bottom half carved out of the living rock. The mortar used was a stronger mix; it was grey in colour and included cement, making it harder (See Figure 4.5).

George Gibbons crawled right along the drain (Figure 4.12) and observed that the north end was blocked with sandstone boulders, similar in type to those blocking up the west end of the barrel drain.

The distance he crawled was 14.2 metres, and observed that the blocking up was about 5 metres further on. Figure 4.11 shows Gibbons standing at the place we estimate was the north end of the ovoid drain. Looking east is Gas Lane, and this is why we theorised that the drain was taking stormwater and sewage from houses in Gas Lane as well as from Buildings A, B, and C.

It was the ovoid drain which the engineers' borehole RW1 penetrated, and the hole can be seen in the photos, such as in Figure 1.11.
6.5 The Shaft

The shaft was attached to the ovoid drain (See Figures 1.7, 4.5 and 4.6). It was a square, mainly brick structure, with sandstone blocks forming part of it. Once the shaft was found, the interpretation of the structure underneath it as a drain was more certain, and shafts such as this were common in drainage systems.

The function of the shaft was to let out noxious gases from the drain, and also to act as a conduit for water to flush the drainage system if it was clogged up.

The shaft was found during clearing away of the rubble fill around it at the north end of the site. Not knowing it was there the backhoe machine sectioned the shaft. The top of the shaft had been covered over with a sandstone slab. The shaft would have penetrated into Building C at the basement level of Building B. The remains of the engaged wall of Building C can be seen to the east of the shaft. The shaft would have been covered over permanently when the ovoid drain was blocked up at its northern end, rendering the drainage system out of use.

6.6 The Fill Above the Ovoid Drain

During the clearing of the top of the ovoid drain to find out its extent, ceramics, glass and bricks were excavated. These are consistent with the date of the drain, 1858, as they are of the second half of the 19th century. The green, and light green/clear glass are of the last quarter of the 19th century (See Figure 4.9). The bricks show at least three different shapes for frogs – heart-shaped, rectangular, and gravestone-shaped – flat at the bottom with a curved top (See Figure 4.10).
7.0 NOTES ON DRAINS AND SHAFT SOUTH OF "BUILDING B"

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13 September 2002

7.1 Introduction

The first Sydney gasworks site was established on the eastern shore of Darling Harbour, on the west slope of a sandstone ridge. This ridge comprises the western half of the Sydney CBD, and the site is now being redeveloped for a second time.

On the eastern margin of the site are two nineteenth century, sandstone buildings once used as gasworks offices. The site of interest is an area about 7 metres square immediately south of these two buildings, on the west side of Jenkins St, Sydney. This small area contains two disused sandstock brick drains and a square, sandstock brick shaft above the roof of one drain, which also extends northward under the easternmost section of the two buildings.

The following notes summarise observations made on three visits to the site, on 2, 11 and 12 September 2002, for a total period of four hours.

7.2 The Sandstone Buildings

The two sandstone buildings have been designated Building A on the north and Building B on the south. Inspection of the junction on the Jenkins St frontage shows that Building A is earlier and the front wall of Building B has been imperfectly engaged with that of Building A.

Building B extends right on to the Jenkins St boundary but Building A is set back about a metre, with a porch or terrace sloping gently to the north. The porch is up to 1 metre below Jenkins St at the south end, but at street level at the north end. The retaining wall for the porch is of dry-pressed bricks (post-1878, and therefore much younger than Building A). This suggests that Jenkins St may have been built up later, perhaps to lower the grade of Gas Lane which runs up-slope from Jenkins St opposite Building A.

On the south wall of Building B is the outline of a smaller stone building or annex which appears from its well-engaged walls to be of the same age. There is a brick archway of four courses at a low level near the east side of the common wall, which seems unrelated to the base level of the annex. The area below this arch has been concreted up.

Based on the above observations and the building construction styles, and subject to documentary evidence, it is concluded that

a) Building A was built first, with a front porch at the then Jenkins St level.

b) Building B was added, together with its south annex.
6 Jenkins St was raised where Gas Lane joins it; this required a retaining wall to protect the Building A porch.

7.3 Drains Area

7.3.1 Ovoid Drain

The south wall of Building B sits on solid sandstone which extends further south. The sandstone surface is effectively a shelf extending 10 metres (average) westward from Jenkins St to the lip of a vertical man-made cliff, of which the upper half is encased in concrete which (until now) extended upwards as a retaining wall for fill above the shelf.

Within this shelf is a deep vertical cut running slightly west of south from the brick arch mentioned above for a distance of over two metres. The ovoid drain is at the base of this cut with its lower section (one third to one half) formed in the bedrock itself, and the upper section is of well-made two-course sandstock brickwork. The drain extends northward under the eastern section of Building B and then extends a further two or three metres under the narrow porch outside Building A.

In the other direction the ovoid drain kinks slightly more to due south, then curves (radius about four metres) to the west. It terminates against the north-south concrete retaining wall described above.

7.3.2 Barrel Drain

A second drain was found which appeared to be a westerly branch off the main drain, curving in a broadly similar fashion until cut off by the concrete retaining wall. However, closer examination showed that it was actually cut through by the ovoid drain, ie it was in fact part of an earlier system. Differences were:

   a) it was a brick barrel drain, i.e. of circular section,
   b) its diameter was less than any diameter of the ovoid drain,
   c) it had an extremely weak mortar with very fine puggy, yellowish aggregate (sand), whereas the other drain had strong, pale grey mortar,
   d) its invert was some 0.4m above the newer drain,
   e) where cut off by the concrete retaining wall it had been blocked off with dry-pressed bricks whereas the other was cut off by sandstone blocks.

Excavation of the fill around this drain showed that it occupied a cutting in the sandstone which curved gradually (radius about 3m) away from the retaining wall veering from due east to northeast, and then previously curving very sharply into the cutting running under Building B, but well above that cutting’s current base. The arch in the south wall of Building B, and the fact that this drain curved westward under the annex building, indicates that it predated both of those buildings.
7.3.3 Shaft

The brick shaft was of square section, with two sides precisely parallel to the cutting running under Building B. However it was very well engaged with the top of the ovoid drain and therefore a part of that system.

7.4 General Conclusions

1. Both drains originally ran southwards immediately west of Jenkins St.

2. Both then turned westward, down the slope towards Darling Harbour, before the cliff-face had been cut.

3. The arch in the south wall of Building B is well above the level of the drains, but may have simply been an arch support onto sandstone footings, built to bridge the soft fill in the pre-existing drainage trench.

4. The size of the drains, the quality of their construction, and their likely dates all suggest that they were sewerage lines, built at a time that sewers also took away surface runoff.

5. Both systems are too big for just Buildings A and B; and there are no junctions in the visible line. They must also have drained properties uphill, probably through a main which ran down Gas Lane.

6. The shaft is part of the ovoid drain system, almost certainly a venting shaft. If, as likely, it was built before about 1880 it may have been merely capped by a grating at street or ground level. Presumably the small building south of Building B was not there at the time.

7.5 Secondary Observations

1. Construction of the ovoid drain under Building B (and probably also the porch to Building A) would have required excavation of the barrel drain and also the overlying fill, together with cutting back of the sandstone at the base of the cut trench.

2. Although the two drains were probably cut by the concrete retaining wall at the same time, the barrel drain was closed off with dry-pressed bricks, the other with sandstone blocks. This may have been because the longer ovoid drain was more likely to build up a head of water.

3. The northern end of the ovoid drain was blocked with sandstone blocks similar to those at the southern end; the two closures may have occurred at the same time.
4. There is a straight steel cable running diagonally across the lower eastern section of the ovoid drain under Building B, approximately 15 metres north of the shaft. (The cable runs from low on the east wall to near the centre base of the drain.) It looks like a cable anchor from somewhere under Jenkins St to a point within or below Building B.

8.0 PERMANENT DISPLAY IN FOYER OF NEW BUILDING

A selection of the artefacts excavated, with photos, drawings, and historic plans would make an excellent display in the foyer of the new building and acknowledge the contribution of Bovis Lend Lease to archaeology and heritage in the city, in paying for the archaeological excavation, recording, and report.

9.0 BIBLIOGRAPHY


Anne Bickford Heritage Consultants 135 Catherine St Leichhardt NSW 2040 Ph02/95699672 Fax02/95500261