

# **Attachment AF**

Conservation Management Plan (2010)



Canberra Brickworks  
Denman Street, Yarralumla, Canberra

Conservation Management Plan



Date	Document status	Prepared by
April 2010	Final	Lovell Chen
March 2010	Final draft	Lovell Chen

Canberra Brickworks  
Denman Street, Yarralumla, Canberra

## Conservation Management Plan

Prepared for  
Land Development Agency

April 2010

**LOVELL CHEN**

ARCHITECTS & HERITAGE CONSULTANTS

35 LITTLE BOURKE STREET MELBOURNE 3000 AUSTRALIA  
TEL +61 (0)3 9667 0800 FAX +61 (0)3 9662 1037 enquiry@lovellchen.com.au



## TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Background and brief	1
1.2	Overview of methodology	2
1.3	Report structure	2
1.4	Limitations	3
1.4.1	Historical Research	3
1.4.2	Technology	3
1.4.3	Comparative Analysis	4
1.4.4	Physical survey	4
1.4.5	Scope	4
1.5	Location	4
1.6	Heritage listings and controls	5
1.6.1	ACT Heritage Register (ACT Heritage Act)	5
1.6.2	National Heritage List & Commonwealth Heritage List (Commonwealth Environment Protection and Biodiversity Conservation Act)	5
1.6.3	Register of the National Estate	5
1.6.4	National Trust of Australia (ACT)	6
1.7	Site documentation	6
1.7.1	Numbering	6
1.8	Terminology	10
2.0	THE PROCESS OF BRICK PRODUCTION	13
2.1	Introduction	13
2.1.1	Quarrying	13
2.1.2	Crushing, Grinding and Pressing	13
2.1.3	Firing	13
2.1.4	Transport off site	13
2.2	Operation of the Canberra brickworks, 1913-1940s	14
2.3	Operation of the Canberra Brickworks, 1950s-1976	17
2.4	Major brick kiln types in Australia	18
2.4.1	Intermittent kilns	18
2.4.2	Continuous kilns	21
3.0	HISTORY & PHYSICAL ANALYSIS: ESTABLISHMENT PHASE, 1911-1920	33
3.1	Historical background	33
3.1.1	Establishing the National Capital	33
3.1.2	Commonwealth Brickworks	35

3.1.3	The development of 'Westridge' (Yarralumla)	44
3.2	Datasheets for Establishment Phase elements	47
3.3	Demolished structures	70
3.3.1	'Temporary' kilns	70
3.3.2	Brickworks Hostel / Accommodation Village	70
3.3.3	Cottage complex	70
3.3.4	Explosives store	70
3.3.5	Weatherboard cottage	71
3.3.6	Carpenters shed	71
4.0	HISTORY & PHYSICAL ANALYSIS: EXPANSION PHASE 1921-1940	75
4.1	Historical background	75
4.1.1	Interwar Canberra	75
4.1.2	Canberra Brickworks revived	80
4.2	Datasheets for Expansion Phase elements	85
5.0	HISTORY & PHYSICAL ANALYSIS: POST-WW II PHASE 1944-1976	99
5.1	Historical background	99
5.1.1	Post-war Growth (1944-1963)	99
5.1.2	Decline	101
5.2	Datasheets for Post-WWII phase elements	107
6.0	HISTORY & PHYSICAL ANALYSIS: POST CLOSURE PHASE 1976-2010	159
6.1	Introduction	159
6.1.1	A.R. Marr redevelopment proposals (1976-84)	159
6.1.2	Hooker projects proposal (1988)	160
6.1.3	Local Area Planning Committee proposal (1998)	162
6.2	Datasheets for Post-closure phase elements	165
6.3	Demolished structures	170
6.3.1	Clay storage shed	171
6.3.2	Coal storage bunker	171
6.3.3	Former forklift shed	171
7.0	ASSESSMENT OF SIGNIFICANCE	173
7.1	Introduction	173
7.2	Comparative analysis	173
7.2.1	Late 19th and 20th century urban brickworks in Australia	173
7.2.2	Conclusion	194
7.3	Historic value	195



7.4	Scientific value	197
7.4.1	Introduction	197
7.4.2	Geological significance	197
7.4.3	Technological significance	201
7.4.4	Conclusion	202
7.5	Aesthetic value	203
7.5.1	Conclusion	206
7.6	Social value	206
7.6.1	Assessing social value	206
7.6.2	Yarralumla Residents Association	207
7.6.3	Yarralumla Neighbourhood Plan	207
7.6.4	Conclusion	208
7.7	Assessment against the ACT Heritage Significance Criteria	208
7.8	Assessment against National Heritage List criteria	211
7.9	Statement of significance	213
8.0	CONSERVATION POLICY AND MANAGEMENT PLAN	217
8.1	Introduction	217
8.2	Policy objectives	217
8.3	Implications of the assessment of significance	217
8.4	Significant site elements	221
8.4.1	Core elements	223
8.4.2	Supporting elements	225
8.4.3	Incidental elements	228
8.5	Options for the management of core and supporting elements	228
8.5.1	Discussion	228
8.5.2	Option 1 - whole of site conservation	229
8.5.3	Option 2 - partial site conservation	230
8.5.4	Conclusion	231
8.6	General conservation policies	232
8.6.1	Setting and curtilage	232
8.6.2	Care of Significant Fabric	236
8.6.3	Reinstatement/ reconstruction works	238
8.6.4	Relocation	239
8.6.5	Plant and machinery	239
8.6.6	Ephemera	240
8.6.7	Archaeology	240

8.6.8	Landscape elements	241
8.6.9	Use and public access	241
8.6.10	Views and vistas	243
8.6.11	Adaptation	246
8.6.12	Site development and new works	248
8.6.13	Site presentation	249
8.6.14	Access and circulation	250
8.6.15	Site recording	252
8.6.16	Site interpretation	253
8.6.17	Risk Management	254
8.6.18	Statutory constraints	255
8.6.19	Adoption and Review	262
8.7	Specific policies for core elements	262
8.7.1	Quarry (01)	262
8.7.2	Power House (03)	263
8.7.3	Staffordshire Kiln (04)	263
8.7.4	Fan House for Staffordshire Kiln (05)	264
8.7.5	Chimney stack for Staffordshire Kiln (06)	264
8.7.6	Offices (07)	264
8.7.7	Hardy patent kiln I (08)	265
8.7.8	Hardy patent kiln fan houses (09)	265
8.7.9	Chimney Stack for Hardy patent kiln I (10)	265
8.7.10	Chimney Stack for Hardy patent kiln II (13)	266
8.8	Specific policies for supporting elements	266
8.8.1	Amenities block (11)	266
8.8.2	Hardy patent kiln II (12)	266
8.8.3	Machine Bay I for Staffordshire Kiln and Downdraught Kilns (14)	267
8.8.4	Machine Bay II for Hardy patent kiln I (15)	267
8.8.5	Machine Bay III for Hardy patent Kiln II (16)	267
8.8.6	Workshop (17)	268
8.8.7	Small Crusher House (Crusher House I) (18)	268
8.8.8	White Pan Room (Large Crusher House II) (19)	268
8.8.9	Primary Crusher House (Crusher House III) (20)	268

8.8.10	Elevator/Conveyor (21)	269
8.8.11	Downdraught kilns and associated enclosure (22)	269
8.8.12	Downdraught kiln control room	269
8.8.13	Chimney Stack for Downdraught kilns (24)	269
8.9	Incidental elements	269
	SELECT BIBLIOGRAPHY	271
	APPENDIX A ACT HERITAGE REGISTER ENTRY & RNE CITATIONS	
	APPENDIX B – CONSERVATION WORKS SCHEDULES	



## LIST OF FIGURES

Figure 1	The location of the Canberra Brickworks site.	5
Figure 2	Extent of Heritage Register entry	6
Figure 3	Site plan showing location of elements	7
Figure 4	Site plan, 6 April 1926. On this plan, the processes occurred from east to west (right to left on this plan); the quarried material was transported via a tramway to machinery shop to be crushed, ground and pressed in the machinery shop in the centre and then to the kilns on the left. The plan shows both the existing Staffordshire Kiln and the proposed Hardy patent kiln to its north; it also shows the power house and office.	15
Figure 5	View from the north-east towards the brick processing buildings, c. 1927	16
Figure 6	Another view, c. 1927. Note the excavated quarry on the left.	16
Figure 7	Aerial view, c.1976, at the time of the closure of the Canberra works. At this date, the raw materials had for many years been brought onto the site but the process continued to occur moving from east to west across the site. The 'spine' of process buildings (grinding, crushing, pressing) was located east of the kilns (between the kilns and the quarry).	18
Figure 8	Sketch diagram of site operation c. 1960.	19
Figure 9	Detail of 'Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916'. Note the four clamp kilns ('Old Kiln') below the 'Dormitories' to the south-east of the Power Station.	20
Figure 10	Sections through a clamp kiln, c. 1850, demonstrating the typical arrangement of bricks and fuel.	23
Figure 11	Sketch of Scotch kiln: roofless with three permanent walls to direct the draught upwards.	24
Figure 12	Scotch kiln at Canberra (right), 1926. The first Hardy patent kiln is under construction at the rear of the picture.	24
Figure 13	Section through a Downdraught kiln.	25
Figure 14	Downdraught kilns numbers 3 and 4 at Canberra Brickworks (Building 22).	25
Figure 15	Section through a circular Hoffman kiln prepared by the office of Friedrich Hoffman, Berlin in 1875.	27
Figure 16	Plan of a rectangular 14-chamber Hoffman kiln.	27
Figure 17	Hoffman kiln at the former Standard Brickworks, Box Hill (Victoria)	28
Figure 18	Cross section of the first Hardy patent kiln at Canberra Brickworks (Building 8), 1926.	28
Figure 19	Drawing of 20-chamber Hardy patent kiln (Building 12), and stack (Building 13) at Canberra Brickworks, 1953.	29
Figure 20	Hardy patent kiln, Canberra brickworks	29

Figure 21	View into the firing chamber of one of the Hardy patent kilns at the Canberra brickworks. Note the wickets (openings) on the right from which the bricks were loaded and unloaded, and the firing holes in the ceiling/walls.	30
Figure 22	Interior of the firing floor to one of the Hardy patent kilns at the Canberra Brickworks	30
Figure 23	Plan, sections, front elevation and details of a Staffordshire kiln.	31
Figure 24	Staffordshire kiln at the Canberra Brickworks	31
Figure 25	Interior of one of the chambers in the Staffordshire kiln.	32
Figure 26	Walter Burley Griffin's winning competition entry (1912), overlaid on the contour map prepared by C R Scrivener.	36
Figure 27	Plan prepared by Griffin to accompany his 'Report Explanatory' of 1913.	38
Figure 28	Site survey, c. 1911, showing the dimensions of the 38ha site acquired in 1912.	39
Figure 29	Contour plan with the layout of the brickworks as proposed in c. 1911, showing three Staffordshire kilns and the location of brick making plant.	40
Figure 30	Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916. Note the locations of the clamp kilns below the 'Dormitories' to the south-east of the Power Station.	42
Figure 31	Staffordshire kiln under construction, c. 1915	43
Figure 32	Constructing the transverse arches of the Staffordshire kiln, c. 1915.	43
Figure 33	The Staffordshire kiln pictured in c. 1917.	44
Figure 34	Detail of <i>Plan (of City and Environs)</i> , 1918. The 'Westridge Residences' may be the location of the Brickworks Camp.	45
Figure 35	Excerpt from Detail Survey, 20 December 1916: it has not been established whether the 'Dormitories' on the site of the 'Old Kiln' was built.	46
Figure 36	Location of elements surviving from the Establishment Phase. Refer to the larger scale site plan in Chapter 1 for more detail.	47
Figure 37	View of the quarry showing the narrow gauge tramway used to transport shale to the crusher, 1921.	48
Figure 38	Detail of a 1976 aerial photograph showing the clay storage shed and an unknown smaller structure to the right (both demolished).	48
Figure 39	Detail of site landscaping plan prepared by A R Marr Pty Ltd showing the reflection pond and the location of the model railway, c. 1977.	49
Figure 40	View of the Quarry looking south-west from adjacent to the site boundary to Bentham Street.	49
Figure 41	Looking north across the quarry floor, the site of the reflection pool, developed as part of the A R Marr Pty Ltd proposal. The dividing wall in	

	the centre of the image marks the location of a walkway which traversed the pool.	50
Figure 42	Quarry looking north towards Bentham Street.	50
Figure 43	The approximate site of the clay storage shed, demolished after the closure of the works, is indicated by the arrow.	51
Figure 44	Detail from 1916 Survey Plan, with the concrete retaining wall highlighted.	53
Figure 45	Retaining wall to the rear of the Workshop (Building 17).	53
Figure 46	The north end of the concrete wall.	54
Figure 47	The Power House is the tile roofed building in the centre of the image. The office building (Building 7) adjoins it to the right and the small cream brick structure is the Downdraught kiln control room (Building 23).	55
Figure 48	From left: South elevation and entry; interior showing retained plant.	56
Figure 49	The Staffordshire kiln, fan house and stack, photographed in 1917 by Harry Connell. Note that in this view the kiln verandah does not extend to the west elevation.	58
Figure 50	The west elevation today.	59
Figure 51	The east elevation, photographed by Harry Connell in 1917.	59
Figure 52	The north elevation, photographed prior to the rebuilding of the verandah to support a first floor enclosed verandah structure.	60
Figure 53	View of the west elevation from the 1920s showing the later two-level verandah structure.	60
Figure 54	North elevation showing modified kiln entrances.	61
Figure 55	Kiln interior.	61
Figure 56	Interior of the upper floor of the kiln looking west across the firing floor.	62
Figure 57	Fan house with stack behind.	65
Figure 58	Interior of fan house. The tangential fan is mounted on the rear wall.	66
Figure 59	Another view showing the entry to the tunnel / flue connecting the fan house with the Staffordshire kiln.	66
Figure 60	The full extent of the stack, with a smaller near-contemporary kiln adjoining to the right.	68
Figure 61	Left: Detail of a photograph of c.1926. The kiln abutting the stack is indicated by the arrow (Source: National Archives of Australia). Right: Interior of the chimney stack.	69
Figure 62	Detail of a 1929 photograph of the brickworks looking south-west showing the accommodation village buildings (indicated).	71

Figure 63	Looking south along the kiln 'road', the Staffordshire kiln at left, 1929. The mess hall building and the roofs of several of the sleeping quarters are visible in the background.	72
Figure 64	The remains of the accommodation village today, looking north-east.	72
Figure 65	Detail of a 1976 aerial photograph with the then car park, thought to be the site of the former carpenter's shed indicated.	73
Figure 66	The married quarters camp (background), built to the south-west of the Brickworks in 1927.	76
Figure 67	Forestry School, Banks Street, Yarralumla, built 1927.	76
Figure 68	Westridge House, Yarralumla, built 1927/28.	77
Figure 69	Plan of Canberra, 1933, showing the Brickworks to the west of the camp at 'Westridge' (Yarralumla).	77
Figure 70	Plan of Yarralumla, 1927. The street layout (pictured right), derives from Griffin's scheme and was not fully realised.	78
Figure 71	Plan of Canberra with the Brickworks Railway (broken lines) superimposed.	78
Figure 72	Aerial view of Canberra Brickworks, 1961. Note the railway cutting to the west of the site. The route of the railway east towards the city is also evident.	79
Figure 73	Detail of 1947 site plan, indicating the location of the two 'temporary' Downdraught kilns, to the south of the Staffordshire kiln ('No. 1 Kiln'). Source: National Archives of Australia.	83
Figure 74	The Machine Shop (left), pictured mid-1920s.	83
Figure 75	Hardy patent kiln under construction, 1926. Note Scotch kiln to right of picture.	84
Figure 76	Hardy patent kiln under construction, c. 1926.	84
Figure 77	Location of elements surviving from the Expansion Phase. Refer to the larger scale site plan in Chapter 1 for more detail.	85
Figure 78	Detail from the Canberra Brickworks site plan, April 1926. The present office building (right), subsequently extended, and the original office (left), later demolished, are highlighted.	86
Figure 79	Detail of a photograph of the Brickworks site in 1929 taken from the quarry area, showing the original form of the office building to the east of the Power House (foreground). Note that at this date, the main entrance to the Power House is from the north. The married quarters camp is in the background.	87
Figure 80	South elevation. Part of the Power House (Building 3) is visible at left.	87
Figure 81	East and north elevations, showing the extent of the additions. The only portion of the original two-roomed structure, not enclosed by additions is indicated by the arrow.	88



Figure 82	Office extension, consisting of a two roomed addition to the south and a lavatory/washroom infilling the space between the original structure and the Power House, 1953.	88
Figure 83	The first Hardy patent kiln (left) and the Staffordshire kiln in 1928.	90
Figure 84	The Hardy patent kiln showing the west and part of the north elevation.	90
Figure 85	Interior of the Hardy patent kiln. The kiln is divided in two by a non-original brick wall.	91
Figure 86	Kiln wickets – the opening at left has been altered to enable forklift access and the bricked-up the opening at right is as originally built.	91
Figure 87	Interior of the firing floor, showing remnants of a commercial fitout dating from the late 1970s.	92
Figure 88	Section through the fan house for the Hardy patent kiln constructed in 1955.	94
Figure 89	The fan house at right is the earlier of the two (1927). The fan house on the left was added in 1955.	94
Figure 90	Interior of the 1927 fan house.	95
Figure 91	Ducts connect through to the chimney stack.	95
Figure 92	Left: North elevation. Right: South elevation with the 1955 fan house adjoining.	97
Figure 93	Site plan, 1947.	102
Figure 94	Layout of the site, 1954.	103
Figure 95	Aerial view of the brickworks, 1950. Note the new 'Brickworks Hostel' to the south of the site.	104
Figure 96	Plans for the Hardy patent kiln (Building 12) and stack (13), built 1954-55.	105
Figure 97	Cross section through machine bay for Hardy patent kiln (Building 12) showing brick press below, and conveyor in the gable.	105
Figure 98	Grinding Pan House General Arrangement 1956 (Red Pan Room, demolished).	106
Figure 99	Location of elements surviving from the Post-WWII Phase. Refer to the larger scale site plan in Chapter 1 for more detail.	108
Figure 100	Amenities Block floor plans, 1947.	109
Figure 101	The Amenities Block viewed from the west.	109
Figure 102	Section through wicket chamber and flue of the second Hardy patent kiln, 1953.	111
Figure 103	The Hardy patent kiln, showing the west end and part of the south elevation. Note the verandah cladding has been removed and the kiln wall part removed, presumably for improved access to the kiln interior.	111

Figure 104	Left: view from east. Right: West elevation, base of stack.	113
Figure 105	The Chimney stack viewed from across Yarramundi Reach, Lady Denman Drive.	113
Figure 106	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay I is indicated by a larger font.	115
Figure 107	From left: the truncated south end of Machine Bay 1, showing location of former headgear housing; interior of the loft space.	116
Figure 108	Interior of the Machine Bay shop floor, presently used by a timber recycling business.	116
Figure 109	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay II is indicated by a larger font.	118
Figure 110	The rear (east) wall of Machine Bay II. The adjoining building (to the north) is Machine Bay III.	119
Figure 111	Interior of the Machine Bay II shop floor, looking north.	119
Figure 112	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay III is indicated by a larger font.	121
Figure 113	Canberra Brickworks Press Building III, 23 November 1954. Cross-sections showing internal structure and machinery installation, Machine Bay III.	122
Figure 114	Canberra Brickworks Press Building III, 23 November 1954. Longitudinal sections showing internal structure and machinery installation, Machine Bay III.	122
Figure 115	Machine Bay III, east elevation, with the remains of the conveyor in the foreground.	123
Figure 116	Machine Bays II (left) and III (right), looking west, showing the conveyor 'bridge' and open walkway between the two structures.	123
Figure 117	From left: north end Machine Bay III showing remains of headgear housing for the loft conveyor; interior with remnants of the Anderson brick machinery at north end.	124
Figure 118	Interior of the Machine Bay III shop floor, looking north.	124
Figure 119	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Workshop is indicated by a larger font.	126
Figure 120	Canberra Brickworks Layout of new Workshop – Store Building, 1955.	127
Figure 121	Interior of Workshop	127
Figure 122	West elevation showing entry.	128
Figure 123	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Small Crusher House is indicated by a larger font.	129
Figure 124	Small Crusher House viewed from the north.	130

Figure 125	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The White Pan Room is indicated by a larger font.	132
Figure 126	The White Pan Room viewed from the east. The shed in the foreground is Building 34.	133
Figure 127	Interior of the White Pan Room looking west. The site of the now-removed hoppers is in the foreground.	133
Figure 128	South elevation showing the high-level connection to Machine Bay I, which is shown at left.	134
Figure 129	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Primary Crusher House is indicated by a larger font.	136
Figure 130	The Primary Crusher House viewed from the west. The concrete footings in the foreground supported the now demolished conveyor which transported crushed material to the Red Pan Room (also demolished) for further refining.	137
Figure 131	1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Conveyor is indicated by a larger font.	138
Figure 132	Extant section of the elevator/conveyor looking north-east.	139
Figure 133	Looking south-west. Machine Bay III (Building 16) is in the background.	139
Figure 134	Detail from a 1929 photograph of the brickworks, with the chimney of the temporary draught kilns highlighted.	141
Figure 135	Interior of enclosure showing the north elevation of two of the three kilns.	141
Figure 136	Kiln roof with brick walkway to sides.	142
Figure 137	Kiln entry showing stepped side wall.	142
Figure 138	Side elevation showing steel framing and fireholes.	143
Figure 139	From left: interior of kiln showing entry and deteriorating fire bricks; interior of kiln showing later cement paving.	143
Figure 140	The draught kiln control room is the cream brick building adjoining the larger terracotta-tiled Power House (Building 3).	145
Figure 141	Chimney stack viewed from the north-west.	146
Figure 142	The toilet facility is indicated by the arrow.	148
Figure 143	From left: the amenities block is the small red brick building at right; entry.	149
Figure 144	Substation/control room building, showing north elevation.	150
Figure 145	The former boiler house and adjoining substation/control room, photographed from the site of the former extrusion plant. The substation building is at left.	150

Figure 146	Former boiler house building showing east entry and later verandah addition.	152
Figure 147	The former boiler house and adjoining substation/control room, viewed from the site of the former extrusion plant. The boiler house is at right.	152
Figure 148	The storage building, adjoining the site of the brick extrusion plant site.	154
Figure 149	Detail of a 1976 aerial photograph showing the extrusion plant and overhead conveyor (indicated).	155
Figure 150	Brick extrusion plant site, looking north-east.	156
Figure 151	The ancillary storage building is sited behind the former offices (Building 7).	157
Figure 152	Storage shed.	158
Figure 153	The A R Marr proposed for Canberra Brickworks, c. 1977.	161
Figure 154	Ground level plan of Hooker Project's proposal for the Canberra Brickworks, 25 November 1988. North is at top.	163
Figure 155	Location of elements surviving from the Post-closure Phase. Refer to the larger scale site plan in Chapter 1 for more detail.	165
Figure 156	Detail of a 1976 aerial photograph, with the brick component of Building 33 – at that time a storage bunker - indicated.	166
Figure 157	Exterior, showing the south and east elevations. The brick wall is an earlier element incorporated into the workshop building.	167
Figure 158	Detail of a 1976 aerial photograph, with the site of Building 34 – at that time an oil storage facility - indicated.	168
Figure 159	Exterior, showing east and north elevations.	169
Figure 160	Aerial photograph, 1976, with the following later site elements indicated; clay storage shed (red star); coal storage bunker (red/green star) and former forklift shed (red/yellow star).	170
Figure 161	The approximate site of the former forklift shed indicated by the arrow.	171
Figure 162	The Holroyd Gardens redevelopment at the former Goodlet and Smith Brickworks, pictured 2008.	175
Figure 163	Interpretive signage and industrial relics at the former Goodlet and Smith Brickworks, pictured 2008.	175
Figure 164	Letterhead for Bedford Brick Works, 1929.	176
Figure 165	Surviving brickworks in Australia with continuous kilns dating to the late 19th and early 20th century. Note, there are no sites in northern WA, the Northern Territory and northern Queensland.	177
Figure 166	Stacks of the former Bedford Brick Works, with Sydney Park in the foreground, pictured 2008.	179
Figure 167	Brookvale Brickworks prior to redevelopment (undated).	180

Figure 168	The adapted/redeveloped kiln and truncated stack at Brookvale Brickworks.	180
Figure 169	Continuous kilns at State Brickworks, pictured 1957.	182
Figure 170	Continuous kilns at State Brickworks, pictured 1957.	182
Figure 171	Recent aerial view of Eastwood Brickworks (fmr).	183
Figure 172	Recent aerial view of Bowral Bricks.	184
Figure 173	Panorama of Newmarket, c. 1925, with brickworks chimney visible to the left.	185
Figure 174	Hoffman stack at the former Newmarket Brickworks.	185
Figure 175	Hallett Brickworks (undated).	186
Figure 176	Brickworks Market (January 2010).	187
Figure 177	Brickworks Market (January 2010).	187
Figure 178	Hoffman Brickworks, 1930s.	188
Figure 179	Former Hoffman works at Brunswick, pictured January 2010.	189
Figure 180	Former Hoffman works at Brunswick, pictured January 2010.	189
Figure 181	Hoffman kiln at the former Standard Brickworks, pictured in January 2010.	190
Figure 182	Former machinery sheds at the former Standard Brickworks, January 2010.	190
Figure 183	Armadale brickworks c. 1905.	192
Figure 184	Maylands Brickworks, 1950s.	193
Figure 185	Recent shot of the Hoffman kiln and integrated stack at the former Maylands works.	193
Figure 186	Kingston Power House, with brickworks railway in foreground.	196
Figure 187	Parliament House prior to rendering (1926), with brickworks railway in foreground.	197
Figure 188	ACT Heritage Register plan of the site, showing the location of the specified geological features, 12A-12D.	200
Figure 189	Formations A (left) and B (right).	200
Figure 190	View of site from crest of hill on Denman Street.	204
Figure 191	Distant view towards Canberra Brickworks from Telstra Tower, Black Mountain.	204
Figure 192	Detail view.	205
Figure 193	Canberra viewed from the north bank of Lake Burley Griffin. The 1953 stack at Canberra Brickworks and Parliament House are highlighted.	205
Figure 194	Site plan showing location of elements	219

Figure 195	Significant site elements	222
Figure 196	View west of the complex in 1929, including part of the quarry, the kilns and their stacks (albeit the Staffordshire kiln obscured), and the office and Power House (on left). The original crushing and pressing buildings (now demolished) are in the centre of this view, to the left of the Hardy patent kiln and in the background (far left) is the Brickworks Camp complex, now demolished.	232
Figure 197	Heritage curtilage and management zones	234
Figure 198	View of the brickworks, looking south-west toward the new Hardy patent kiln, c. 1927. Note the young conifers in the foreground.	242
Figure 199	Hardy patent kiln under construction, looking north-east. Note the plantings on the ridge.	243
Figure 200	View westward from within the quarry, late 1920s, showing the earlier machine bays and the newly constructed Hardy patent kiln on the right.	244
Figure 201	Current view to the south-west from within the quarry.	244
Figure 202	Another view westward into the site.	245
Figure 203	View southward between the kilns and their associated fan houses.	245
Figure 204	1926 site plan.	250
Figure 205	Site plan 1947.	251
Figure 206	Aerial view of the brickworks, 1950.	251
Figure 207	Aerial view, 1976.	252
Figure 208	Plan of the National Capital showing the inner hills. The Brickworks is highlighted.	258
Figure 209	Designated land within the National Capital Plan. The Canberra Brickworks (highlighted) is excluded, but land to the south, north and west is included as part of the National Capital Open Space system.	259
Figure 210	Land use plan (Territory Plan), with the Brickworks highlighted. Orange is Suburban (RZ1), dark green is Restricted Access Recreation (PRZ2) and blue is Leisure and Accommodation (CZ6).	260

Consultants

This report was prepared by:

Peter Lovell

Kate Gray

Emma Hewitt

Michael Galimany

Adam Mornement

## Acknowledgements

Lovell Chen would like to acknowledge the assistance of the following:

Fiona du Toit, Senior Project Manager, Land Development Agency

Adam Fowler, City of Sydney

Kristi Jorgensen, Senior Project Manager, Land Development Agency

Robyn Mullens, Heritage Victoria

Peter Ozols, ATC Property Group, Territory and Municipal Services

Ron Ringer, author of, *The Brickmasters, 1788-2008*, Dry Press Publishing Pty Ltd, NSW (2008)

Tania Shaw, Assistant Manager, Property Asset Management, ATC Property Group, Territory and Municipal Services

Des Strusz, formerly of Geoscience Australia

Stephen Wall, NSW Manufacturing Manager, Austral Brick Co Ltd

Ian Wood-Bradley, General Manager, Land Development Agency

Gerhard Zatschler, Manager, Heritage Unit



## Executive Summary

### *Background*

This Conservation Management Plan (CMP) for the former Canberra Brickworks site and complex in Yarralumla has been commissioned by the Land Development Agency (LDA), Canberra. The subject site is currently included in the ACT Heritage Register pursuant to the *Heritage Act, 2004* (Part 3).

The CMP has been developed in accordance with the *Australia ICOMOS Burra Charter, 1999*, (as adopted by Australia ICOMOS) and its guidelines.

The Commonwealth Government established the Canberra Brickworks in order to support the development of Canberra as the new Federal Capital. The project was announced in 1910 and work began on the development of the complex in 1913. The complex supplied the bricks for the construction of buildings in Canberra in the early period of the establishment of the capital, including Canberra's major public buildings of the 1920s. Bricks and other specialty lines were produced at the site from this time until the closure of the complex in 1976. Production capacity at the site varied in response to fluctuations in demand for bricks and the Brickworks was expanded in a number of key phases, notably in the 1920s and the 1950s.

Following closure of the plant in the mid-1970s, the site was adapted for a range of uses (of varying duration) but other than for the subdivision of land and associated residential development on the perimeter of the site, relatively little physical change has occurred since this time. The surviving complex includes brick manufacturing infrastructure including kilns, stacks and ancillary buildings, with a quarry (brickpit) to the east. Currently, part of the complex is occupied by a timber recycling company.

This Conservation Management Plan builds on work previously undertaken by Lester Firth & Associates in 1986 (*Old Canberra Brickworks Conservation Plan*). In particular, the CMP incorporates historical and other research from the earlier Lester Firth study, acknowledging this material as is appropriate. The CMP includes an updated and expanded history, including detailing the recent history of the site (1986-2010) and updates the physical and descriptive material based on a detailed site survey.

While referencing this early work and other assessments as appropriate, in all other respects, this CMP constitutes a 'first principles' review and assessment of the heritage values of the Brickworks and, based on this, establishes a conservation planning framework (comprising conservation policies and management strategies) for the place. The policies in this CMP recognise and accept the challenge of establishing compatible and feasible long-term use or uses for complex redundant industrial heritage sites such as this one, and allow for the consideration of different approaches within the overall conservation management framework. This conservation management framework should be a key consideration in the future management of the place and in assessing any proposal for adaptation and/or redevelopment works.

### *Assessment of Significance*

The assessment of significance for the site as a whole and for its component parts (refer to Chapter 7) was undertaken with reference to the Burra Charter values, and was also underpinned by a comparative analysis of other surviving brickworks across Australia.

Reference has been made to applicable criteria including those for the National Heritage List (under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) and the Australian Capital Territory Heritage Register (under the *Heritage Act 2004*).

The conclusion of this assessment is that the Canberra Brickworks is of a relatively high order of significance, with its heritage values variously assessed as either at a State/Territory level or a local level.

The place has been assessed as having historical, scientific (geological and technological), aesthetic and social values as summarised in the table below.

Burra Charter Value	Level
<i>Historic</i>	
<ul style="list-style-type: none"> <li>• Role in the early history of Canberra</li> <li>• Commonwealth brickworks – first Territory based industrial facility</li> </ul>	State/Territory
<ul style="list-style-type: none"> <li>• Role in the history of the local Yarralumla area</li> </ul>	Local
<i>Scientific</i>	
<ul style="list-style-type: none"> <li>• Geological</li> </ul>	State/Territory
<ul style="list-style-type: none"> <li>• Technological</li> </ul>	
Kiln design	State/Territory
Extensive surviving brickworks complex	State/Territory
<i>Aesthetic</i>	
<ul style="list-style-type: none"> <li>• Industrial complex</li> </ul>	State/Territory Local
<i>Social</i>	
<ul style="list-style-type: none"> <li>• Focus of local interest and action and broader community sensitivity</li> </ul>	Local
<i>Spiritual</i>	N/A

The ACT Heritage Places Register Statement of Significance has been reviewed and a new Statement of Significance prepared for the Brickworks based in part on the existing statement but expanded and recast based on the analysis and assessment in this CMP.

#### *Conservation Policy and Management Plan*

The conservation policies and management strategies contained in this CMP (refer to Chapter 8) are wide-ranging and address issues related to the conservation of significant fabric, those related to curtilage and setting, the care and conservation of significant fabric, maintenance and repairs, adaptive reuse and site development. The policies are focussed on the physical conservation and retention of key heritage values of the place but are also directed at

providing a framework within which possible future uses and development associated with the site can be considered and assessed.

The principal objectives of the conservation policy are:

- The conservation (preservation, restoration, reconstruction and adaptation) of fabric of core and supporting significance, within a policy framework that is robust, easily understood, and consistent in its approach;
- to ensure that future works to the site are compliant with Burra Charter principles and responsive to the statutory heritage constraints;
- to maintain an understanding of the original function of the site; and
- in support of a sensitive approach to potential future change and the implementation of an adaptive reuse and redevelopment strategy that is both feasible and will support the long-term conservation of the core heritage values of the place.

Given the multiple values associated with the site, it is recognised that in addressing the conservation policy objectives, there will be options for future management, including for restoration and reconstruction, demolition, adaptation and site development.

It is also recognised that various elements on the site can be identified on the basis of their role in the history, operation and development of the place and/or on the basis of their contribution to particular values associated with the place or with the individual elements themselves.

The elements have variously been identified as 'core' or 'supporting' elements, and 'incidental' elements. These designations recognise that:

- A group of elements is associated with the establishment and operation of the Canberra Brickworks in the period 1915-1940. These elements are central to an understanding and appreciation of the operation and history of the site in this early period including its relationship with the early history and development of Canberra. These are generally designated as core elements.
- A number of elements are of individual scientific (geological or technological) significance in their own right. These have also been designated as core elements.
- A group of elements relate to the further development of the brickworks complex as it was expanded and evolved from the 1940s through to the 1970s and are able to demonstrate aspects of this expansion and the operation of the site in this period. These elements are generally designated as supporting elements.
- A further group has been designated as incidental elements. This group comprises buildings of the post-WWII period which while related to the expansion of the complex, were originally minor in nature, reflect ancillary uses rather than core manufacturing processes and/or are altered. In addition this group includes a small number of buildings that were introduced to the site following its closure as a brickworks.

The policies reflect and make reference to these designations. Specific policies are provided for individual core and supporting elements. For each of these elements, both a conservation policy and a comment on adaptation are provided.

Another key recommendation of the CMP is the establishment of Heritage Management Zones. These zones reflect the analysis of the key heritage issues of curtilage and setting as

they apply on this site and on land immediately abutting, and identify areas of greater or lesser significance and sensitivity. Explicit reference is made to these zones in the CMP policies for site development and new works, and it is recommended these are considered in any assessment of development proposals within or directly abutting the site.

The CMP also includes policies that address matters relating to the management of the place including statutory frameworks and other matters of a more practical nature which have the potential to impact on heritage significance and values.

## 1.0 INTRODUCTION

### 1.1 Background and brief

This Conservation Management Plan for the Canberra Brickworks, Canberra has been commissioned by the Land Development Agency (LDA), Canberra. The Brickworks is designated Block 1, Section 102 in the Territory Plan. The document also has regard for land adjacent to the Brickworks: Blocks 7 and 20, Section 102 in the Territory Plan.

The Canberra Brickworks includes former brick manufacturing infrastructure, comprising kilns, stacks and ancillary buildings, with a quarry to the east. In general, the manufacturing infrastructure and quarry (also referred to as 'brickpits') are referred to collectively as Canberra Brickworks or 'the Brickworks' throughout this document.<sup>1</sup>

The Canberra Brickworks has been the subject of numerous development and adaptive re-use proposals since it was decommissioned in 1976. A scheme to develop the site as a tourism and retail facility with housing to the east and north was partially realized in the early 1980s. The site is presently occupied by a timber merchant and a number of artists. The quarry is a secure area.

This CMP constitutes an update of the *Old Canberra Brickworks Conservation Plan*, prepared by Lester Firth Associates Pty Ltd (1986). The 1986 *Conservation Plan* provides a history of the Brickworks; datasheets for the individual site components, with an emphasis on history rather than physical analysis; and an assessment of significance for the site. In addition it identifies potential future uses for the Brickworks, and constraints and opportunities related to development and adaptive re-use. It also includes a limited Conservation Policy (Section 4) and Conservation Plan (Section 5.).

The content of the 1986 *Conservation Plan* that relates to the history and operation of the Brickworks has been drawn upon for this CMP, with additional information and detail provided by Lovell Chen. In addition, the limited descriptive detail in the datasheets (Appendix 2) has been used as a guide for the updated datasheets in this CMP. The sections that reference research by Lester Firth Associates are identified throughout, including original sources where cited.<sup>2</sup>

The CMP also follows other reports on the site and the adjacent land, including:

- National Capital Development Commission, *Canberra Brickworks, South Canberra, Policy Plan*, October 1988;
- Connell Wagner Pty Ltd, *The Old Canberra Brickworks and Environs Development Control Plan*, February 2001; and
- Susan Conroy & Munns Sly Architects, *The Yarralumla Brickworks & Environs Planning Review*, March 2005.

---

<sup>1</sup> The Brickworks have also been referred to as Old Canberra Brickworks, Westridge Brickworks, the Commonwealth Brickworks, the Government Brickworks and Yarralumla Brickworks. Throughout this document the site is referred to as the 'Canberra Brickworks' or the Brickworks.

<sup>2</sup> Lester Firth Associates Pty Ltd, *Old Canberra Brickworks Conservation Plan* (1986) is an unpaginated document. References are cited by Section.

An Adaptive Reuse and Development Strategy for the Canberra Brickworks is also to be prepared. The Strategy, prepared by Lovell Chen Architects & Heritage Consultants, will address the potential of the site for adaptive reuse and development, and will provide guidance on the practical issues which will be confronted in the future use of the site.

## 1.2 Overview of methodology

This CMP broadly follows the format of the Australia ICOMOS (International Council on Monuments and Sites) guidelines for the preparation of conservation plans<sup>3</sup> and the principles set out in the *Australia ICOMOS Burra Charter*, 1999, adopted by Australia ICOMOS to assist in the conservation of heritage places.

As noted, this CMP follows the 1986 Lester Firth Associates' *Conservation Plan* and much of the material contained in that report has been reviewed, updated, and re-presented, with appropriate attribution to the original authors of that report. Where required, additional historical research was undertaken. A detailed physical survey was undertaken of the site to update and expand the information contained in the earlier study. The physical survey included an inspection of the exteriors and interiors of all buildings (with some minor exceptions) and a detailed review of the broader site.

The assessment of significance for the site as a whole and for its component parts was undertaken with reference to the Burra Charter values and was underpinned by a comparative analysis of other surviving brickworks across Australia. Reference has been made to applicable criteria including those for the National Heritage List (under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999) and the Australian Capital Territory Heritage Register (under the *Heritage Act* 2004).

The conservation policies and management strategies contained in this CMP are wide-ranging and address issues related to the conservation of significant fabric, those related to curtilage and setting, adaptive reuse and development. The policies are focussed on the physical conservation and retention of key heritage values of the place but are also directed at providing a framework within which possible future uses for the site can be considered and assessed. In developing the conservation policies, consideration has been given to the existing Heritage Register documentation for the site prepared by the ACT Heritage Council.

## 1.3 Report structure

*Introduction* (Chapter 1)

*The Process of Brickmaking* (Chapter 2)

This chapter provides a brief overview of the main processes involved in brickmaking, including a description of these processes as they occurred at this site. Chapter 2 also provides an overview of different brick kiln designs and types including those found on this site.

*History and Physical Analysis* (Chapters 3-6)

To reflect the primary phases in the evolution of the Canberra Brickworks, the History & Physical Analysis is divided into four chapters:

---

3 J S Kerr. *The Conservation Plan*. passim.

- Chapter 3: Establishment Phase, 1911-1920
- Chapter 4: Expansion Phase, 1921-1940
- Chapter 5: Post-War World II Phase, 1944-1976
- Chapter 6: Post-Closure Phase, 1976-present

Chapters 3-6 each comprise an historical overview followed by datasheets for each extant building or element built during each of the four main phases. The location of these buildings and elements are shown on site plans included for each chapter. Demolished components from each phase are also described briefly at the end of each chapter.

Chapters 3-6 draw on the material in Section 2.1 ('Development of the Brickworks') of Lester Firth Associates' *Conservation Plan* (1986). In addition, detail in relation to specific site components draws on the datasheets that comprise the second appendix in the 1986 *Conservation Plan*. Additional information and detail is provided by Lovell Chen. References are included throughout.

#### *Assessment of Significance* (Chapter 7)

This chapter assesses the place for its historical, technical, aesthetic, social and scientific values. The ACT Heritage Places Register statement of significance has been reviewed and a new statement of significance prepared based in part on the existing statement but expanded and recast as considered appropriate.

The site is also assessed against the ACT heritage significance criteria (under the *Heritage Act 2004*) and the National Heritage List criteria (under the *Environment Protection and Biodiversity Conservation Act 1999* and its Regulations).

#### *Conservation Policy and Management Plan* (Chapter 8)

This chapter provides conservation policies and management recommendations for the site as a whole and for individual elements.

### 1.4 Limitations

#### 1.4.1 *Historical Research*

As noted above, this CMP relies in large part on historical material from the 1986 Lester Firth Associates' *Conservation Plan*. Limited additional historical research was undertaken by Lovell Chen where this was considered to be required.

In many instances, the Lester Firth Associates material is not specifically referenced in a conventional manner to original documentary or other sources, however it was beyond the scope of this CMP to revisit all original primary source documents used in the 1986 study to confirm the findings of the 1986 study.

While there clearly is considerable scope to undertake further historical research in relation to this site, it is considered that sufficient research has been undertaken to inform the analysis, assessment and development of policies in this CMP.

#### 1.4.2 *Technology*

As part of the preparation of this CMP, additional historical and other research has been undertaken into the processes and technologies associated with brickmaking, both in a

general sense and specifically as they occurred on this site. This research is sufficient as to allow for a broad understanding of brickmaking on the site, including the sequence of processes as they occurred across the site and in different areas and buildings within the complex. The research is, however, limited in its scope. No detailed research or assessment has been undertaken in relation to the machinery that was used on the site and has subsequently been removed, or in relation to the provenance of the limited remnants of plant and equipment that remain on site. Recommendations are made in the CMP for further investigation of the brickmaking technologies used on this site including the potential for undertaking an oral history with former employees.

#### 1.4.3 *Comparative Analysis*

A comparative analysis has been undertaken in the course of preparing this CMP, with the objective of identifying other surviving urban brickworks complexes of comparable type, scale and age. This comparative analysis was predominantly desktop-based. While a small number of comparative sites were inspected, the majority were not.

#### 1.4.4 *Physical survey*

There were some relatively minor limitations to access during the survey phase of the CMP. Access was not available to the interior of office complex (Building 7) and the upper level of the second Hardy patent kiln at the north of the site (Building 12) was not inspected due to OH & S concerns.

#### 1.4.5 *Scope*

The scope of this CMP does not include a consideration of Aboriginal cultural heritage issues.

Consideration has been given to non-Aboriginal (post contact) archaeological issues in this CMP and a number of recommendations are made for further investigation of the archaeological potential of the site and abutting sites. The CMP does not in itself include a detailed predictive assessment of the archaeological potential of the sites.

Consideration has been given to the possibility of the place having social value to particular individuals or groups and this issue is discussed in Chapter 6 of the report. No detailed social value study has been undertaken in the course of the study.

### 1.5 Location

The Canberra Brickworks is located approximately 5km west of the Parliamentary Triangle in central Canberra. The site is bounded to the north and east by low density residential development (Woolfs Street, Banks Street, Bentham Street and Lane-Poole Place). To the west, the site is bordered by the Royal Canberra Golf Course and Westbourne Woods, and to the south by open space. The Brickworks covers an area of approximately 9.6 hectares.





Figure 1 The location of the Canberra Brickworks site.  
Source: Land Development Agency.

## 1.6 Heritage listings and controls

### 1.6.1 *ACT Heritage Register (ACT Heritage Act)*

Canberra Brickworks (Block 1, Section 102) is included in the ACT Heritage Register, maintained by the ACT Heritage Council, pursuant to the *Heritage Act, 2004* (Part 3). The entry to the Heritage Register is attached (Appendix A).

### 1.6.2 *National Heritage List & Commonwealth Heritage List (Commonwealth Environment Protection and Biodiversity Conservation Act)*

Neither the Canberra Brickworks nor the quarry are included in the National Heritage List or the Commonwealth Heritage List.

### 1.6.3 *Register of the National Estate*

Canberra Brickworks (Place ID 13318) was included in the Register of the National Estate as a registered place in 1982. The 'Yarralumla Brickpits' was also registered at this time (ID 13319), see Appendix A. The 1982 citation for the brickworks was amended in 1999, to take account of the site's landscape setting and its relationship with the surrounding area. The brickworks was subsequently re-listed as Yarralumla Brickworks Extended Area (Place ID 101439). The revised Statement of Significance expanded on the site's historical and aesthetic values (see Appendix A). The registered area was increased from approximately 8ha to 9.6ha, the additional area comprising the land to the west of the western alignment of

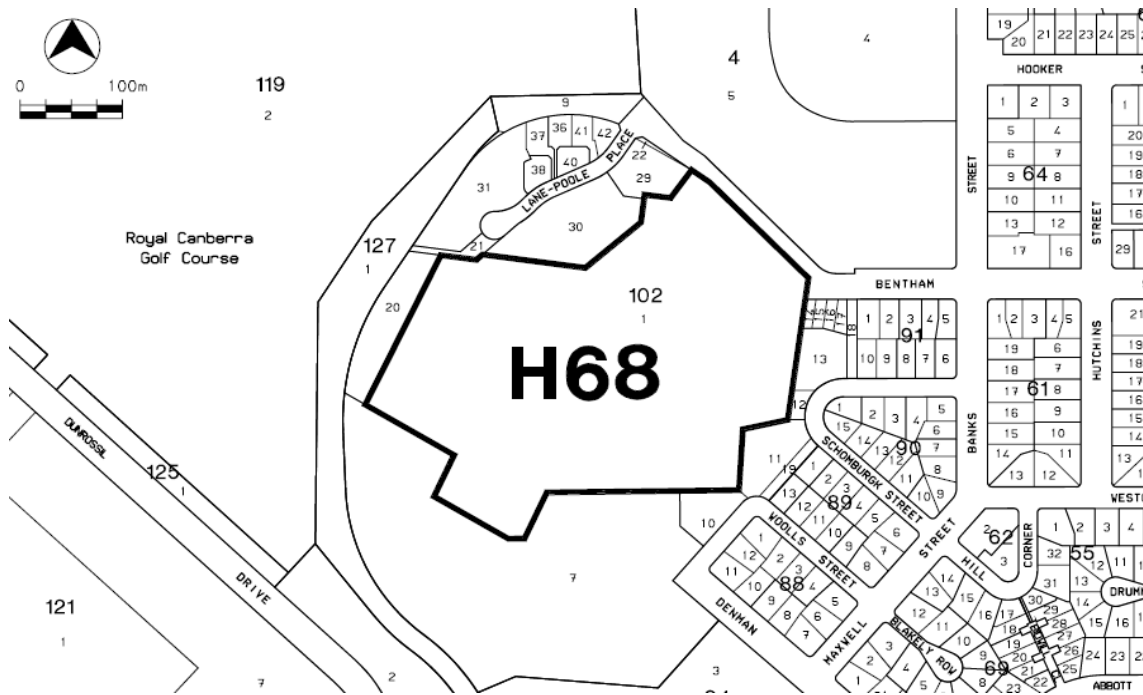


Figure 2 Extent of Heritage Register entry  
Source: ACT Heritage Register

the fan house chimneys, and the land surrounding the former worker’s hostel to the south-west of the site.

Following amendments to the *Australian Heritage Council Act 2003*, the RNE was frozen on 19 February 2007, meaning that no new places have been added or removed since that date. From February 2012, the RNE will cease to exist as a ‘register’ but will be retained by the Australian Heritage Council as a publicly accessible archive.

There are no statutory requirements relating to Canberra Brickworks as a consequence of these listings. Copies of the entries from the RNE are attached at Appendix A.

#### 1.6.4 National Trust of Australia (ACT)

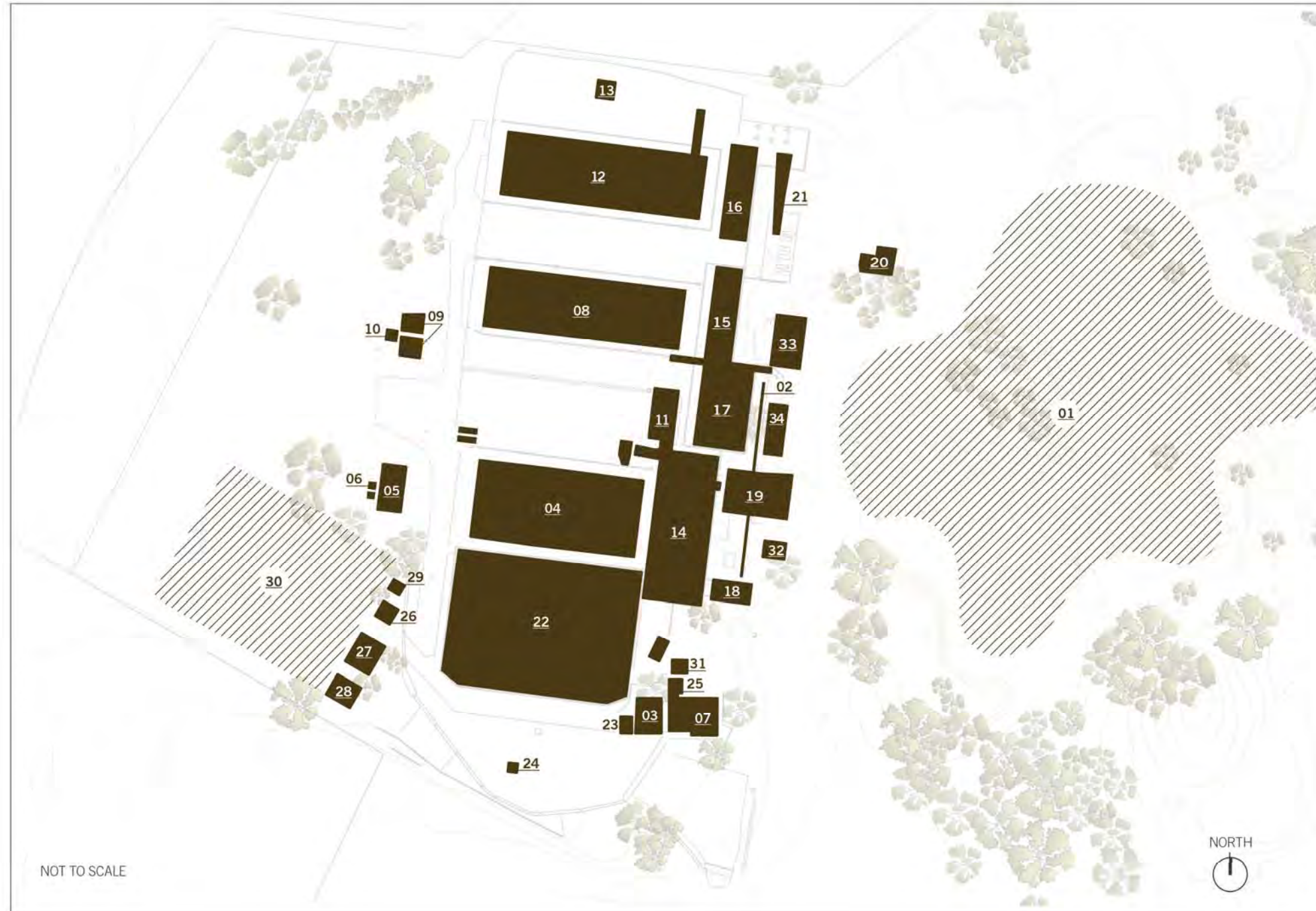
The ‘Canberra Brick Works’ was identified as a ‘Classified’ place by the National Trust of Australia (ACT) on 20 July 1981. The National Trust of Australia (ACT) does not maintain files or reports for classified places. There are no statutory requirements as a consequence of this classification.

### 1.7 Site documentation

#### 1.7.1 Numbering

A new chronologically based numbering system has been used in this CMP. The following table includes the numbers of buildings/ elements in the CMP (left column), and the number (if applicable) of the corresponding building/ element in the ACT Heritage Places Register (H68).

The plan at Figure 3 shows the location of these site elements.



Number	Element
01	Quarry
02	Concrete retaining wall
03	Power House
04	Staffordshire Kiln (Kiln 1)
05	Fan house for Kiln 1
06	Chimney stack for Kiln1
07	Offices
08	Hardy patent Kiln (Kiln 2)
09	Fan house for Kiln 2
10	Chimney stack for Kiln 2
11	Amenities block
12	Hardy patent Kiln (Kiln 3)
13	Chimney stack for Kiln 3
14	Machine Bay I for Kiln 1
15	Machine Bay II for Kiln 2
16	Machine Bay III for Kiln 3
17	Workshop
18	Small Crusher House (Crusher House I)
19	Large Crusher House (White pan room / Crusher House II)
20	Primary Crusher House (Crusher House III)
21	Elevator / Conveyor
22	Downdraft Kilns (Kiln 4-6)
23	Downdraft kiln control room
24	Chimney stack for Kilns 4-6
25	Toilet block
26	Amenities block
27	Substation/control room
28	Boiler house
29	Ancillary storage building
30	Remnant of Extrusion plant (concrete pad)
31	Ancillary storage building
32	Storage shed
33	Model railway workshop
34	Model railway storage shed

Figure 3 Site plan showing location of elements



SITE ELEMENTS TABLE

No. in CMP (2010)	No. in ACT Heritage Places Register	Building/ Element	Date/ s of construction
01	11 (Geological features A-D, item 12)	Quarry	Extraction from c. 1913 until c. 1940
02	–	Concrete retaining wall	c.1915-16
03	14	Power House	1915-16
04	1	Staffordshire Kiln (Kiln 1)	1914-15
05	2	Fan house for Kiln 1	1914-15
06	7	Chimney stack for Kiln1	1914-15
07	13	Offices	c. 1925
08	3	Hardy patent Kiln (Kiln 2)	c. 1926, c. 1955
09	4	Fan house for Kiln 2	c. 1927, c.1955
10	8	Chimney stack for Kiln 2	c. 1927
11	–	Amenities block	c. 1950, c. 1977
12	5	Hardy patent Kiln (Kiln 3)	c. 1953
13	9	Chimney stack for Kiln 3	c. 1953, c. 2005
14	15	Machine Bay I for Kiln 1	c. 1955
15	16	Machine Bay II for Kiln 2	c. 1955
16	17	Machine Bay III for Kiln 3	c. 1955
17	18	Workshop	1955
18	21	Small Crusher House (Crusher House I)	c. 1958
19	19	Large Crusher House (White pan room/ Crusher House II)	c. 1955
20	20	Primary Crusher House (Crusher House III)	c. 1955
21	22	Elevator / Conveyor	c. 1955
22	6	Downdraft Kilns (Kilns 4-6)	c. 1960-3
23	–	Downdraft kiln control room	c. 1963

No. in CMP (2010)	No. in ACT Heritage Places Register	Building/ Element	Date/ s of construction
24	10	Chimney stack for Kilns 4-6	c. 1950s
25	–	Toilet block	c. 1960s
26	–	Amenities block	c. 1960s
27	–	Substation/control room	c. 1971
28	–	Boiler house	c. 1971
29	–	Ancillary storage building	c. 1971
30	–	Extrusion plant (remnants)	c. 1971
31	–	Ancillary storage building	c. 1960s
32	–	Storage shed	c. 1960s
33	–	Model railway workshop	c. 1979
34	–	Model railway storage shed	c. 1979
–	23	Remains of Brickworks Accommodation Village	1945

## 1.8 Terminology

The conservation terminology used in this report is of a specific nature, and is defined within The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the *Burra Charter*) as endorsed by all statutory and national heritage bodies (See Appendix A). The terms most frequently referred to are: place, cultural significance, fabric, conservation, preservation, restoration, reconstruction, adaptation and interpretation. These terms are defined in the revised charter as follows:

*Place* means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

*Cultural significance* means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

*Fabric* means all the physical material of the place including components, fixtures, contents and objects.

*Conservation* means all the processes of looking after a place so as to retain its cultural significance.

*Maintenance* means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.

*Preservation* means maintaining the fabric of a place in its existing state by removing accretions or by reassembling existing components without the introduction of new material.

*Restoration* means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

*Reconstruction* means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

*Adaptation* means modifying a place to suit the existing use or a proposed use.

Use means the functions of a place, as well as the activities and practices that may occur at the place.

*Compatible* use means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

*Setting* means the area around a place, which may include the visual catchment.

*Related* place means a place that contributes to the cultural significance of another place.

*Related* object means an object that contributes to the cultural significance of a place but is not at the place.

*Associations* mean the special connections that exist between people and a place.

*Meanings* denote what a place signifies, indicates, evokes or expresses.

*Interpretation* means all the ways of presenting the cultural significance of a place





## 2.0 THE PROCESS OF BRICK PRODUCTION

### 2.1 Introduction

A number of processes and elements related to brick production are common to large twentieth century brickworks. These are summarised below:

#### 2.1.1 *Quarrying*

Because of the cost of transporting raw materials in both nineteenth and early twentieth century brickworks, the raw materials for brickmaking (clay, shale) were typically quarried close to the brickworks themselves.

In the case of the Canberra works, until c. 1940 the shale was quarried on site (though clay is thought to have been brought onto the site for tilemaking from the early 1920s). From c.1940, all raw materials were quarried elsewhere and delivered to the site.<sup>4</sup>

#### 2.1.2 *Crushing, Grinding and Pressing*

Raw materials, quarried in lumps, were crushed to a manageable size in a crusher. In some brickworks, crushers might be located at the point of quarrying, with the material then conveyed to another location (closer to the brick presses) where it would pass through grinding mills and pugmills (and further refined, worked and mixed). The material was then fed into the brick presses themselves.

A series of conveyors and hoppers moved the materials between and within buildings and through the different stages of the process. In the nineteenth century the presses and other machinery were powered by steam, but this changed to the use of electricity in the twentieth century (electricity was the only source of power used for machinery at the Canberra brickworks).

#### 2.1.3 *Firing*

Once pressed, the bricks were transported to the kilns (the means of transport varied on different sites) where they were loaded into the kilns. The loading was done by hand until the mid- to late-twentieth century, when the use of forklifts began (often necessitating the widening of the wicket openings to the kiln chambers).

In terms of the firing process itself there were a number of different kiln types used in Australian brickworks of the late nineteenth and twentieth centuries. Refer to section 2.4 below.

#### 2.1.4 *Transport off site*

Once fired, bricks were rarely stored for any length of time or in large quantities, but rather, were generally transported off site relatively quickly. At many brickworks the bricks were transported by rail. At the Canberra Brickworks the bricks were transported for a period by

---

<sup>4</sup> Unlike their nineteenth century counterparts, the scale and investment required in twentieth century brickworks meant that they were able to survive the expiration of available raw materials on site. This occurred at Canberra, which imported raw materials from c. 1935 to 1976.

traction engine, and in the 1920s by a dedicated light rail line to the major construction sites in the centre of Canberra.

## 2.2 Operation of the Canberra brickworks, 1913-1940s

(The following section is from the *Conservation Plan* prepared by Lester Firth Associates, section 2.2 (Elements and Aspects), amended and with additional research by Lovell Chen.)

At the beginning of operations at Yarralumla, the raw material for brick making was obtained on site, primarily by levelling a knoll comprised a hard yellow shale to the north of the 'temporary' works. Minor quarrying also occurred on the western side of the site. Due to variety in the shale, material from various seams was mixed thoroughly to achieve a uniform colour in the bricks. Quarrying at the site was reported to be a complex process, and more costly than the average brickworks due to numerous seams of unusable material such as limestone and sandstone.

After spalling, the shale was conveyed to the works in tip trucks running on small gauge rails. It first passed through a jaw crusher that reduced the material to 75mm and then raised by bucket elevator to an overhead storage bunker. From the storage bunker, the crushed material was taken in one cubic yard truck leads to grinding mill hoppers. After grinding to pass through a fine mesh screen, the shale was elevated by bucket to a loft immediately above the brick presses and moved by gravity to the presses. Owing to the comparatively high lime content of the shale, a 'semi-plastic' pressing process was employed. The pressed bricks were then transported to the kilns for firing.

A description of the kilns, presses and output in the 1930s is given below:

1. 30 compartment 'Staffordshire,' with an output capacity of 125,000 per week [note this kiln had 20 not 30 chambers].
1. 'Hoffman' continuous kiln (Hardy Patent), with an output of 120,000 per week.
2. Single compartment down-draft kilns, with a capacity of 30,000 each per week.

The downdraft kilns were used almost exclusively for the production of face and special bricks. The bricks presses were the 'New Era' semi-plastic type, made by Messrs Whittaker Bros, England.

There were six brick making units, three for each of the two large kilns, and each unit consisting of a 10ft grinding mill, a 'New Era' brick press, and pug mixer, driven by a 150hp electric motor. The output of each unit is approximately 1,500 bricks per hour. Two units are required to serve each kiln, the third unit being a spare.

In addition to ordinary bricks, wire-cuts and specials were made, and the attractive colour range which was produced was the subject of favourable comment from many quarters.<sup>5</sup>

---

<sup>5</sup> Cited as 'Ref.I.E. Aust. October 1938,' in Lester Firth Associates, 1986, Section 2.2.1.

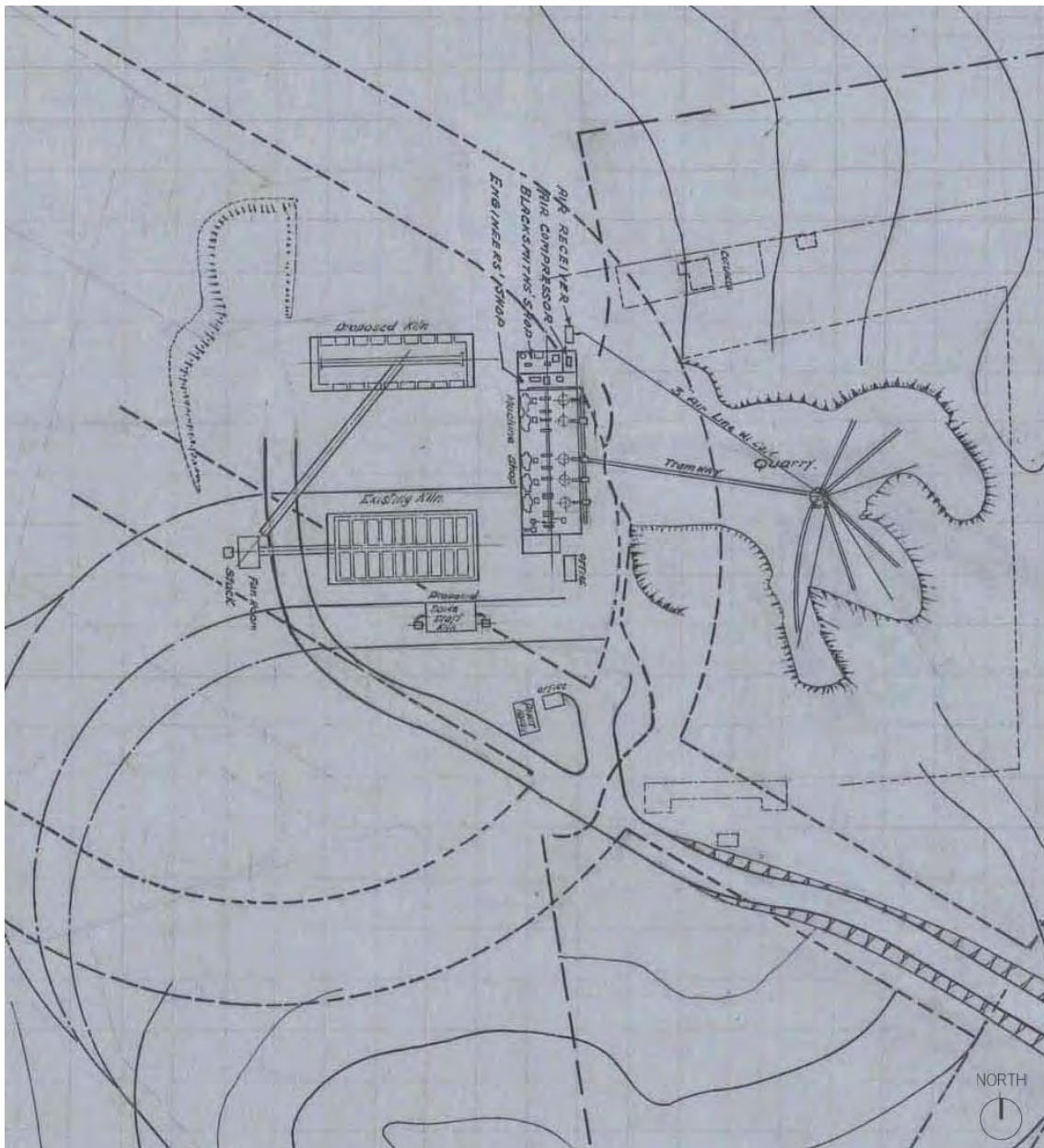


Figure 4 Site plan, 6 April 1926. On this plan, the processes occurred from east to west (right to left on this plan); the quarried material was transported via a tramway to machinery shop to be crushed, ground and pressed in the machinery shop in the centre and then to the kilns on the left. The plan shows both the existing Staffordshire Kiln and the proposed Hardy patent kiln to its north; it also shows the power house and office.

Source: National Archives of Australia.



Figure 5 View from the north-east towards the brick processing buildings, c. 1927  
Source: National Library of Australia.



Figure 6 Another view, c. 1927. Note the excavated quarry on the left.  
Source: National Library of Australia.

Aspects of the brickmaking process as it occurred in this phase of the site's history remain legible through the overall site layout and key buildings and site elements remaining from the establishment and expansion periods (1913-1940s), however the early crushing, grinding and pressing buildings have all been removed as has much of the associated plant.

### 2.3 Operation of the Canberra Brickworks, 1950s-1976

While the major brick kilns on the site were retained, the major expansion of the Brickworks that occurred in the 1950s saw the replacement of other early plant and buildings (see Figure 8). The early machine shop was replaced with a series of brick press buildings (machine bays) and a workshop, all of which remain today. The Brickworks was also equipped with a series of new crushers and 'pan rooms' connected to a conveyor system.

A Hazemag crusher (Crusher House 1, Building 18) was located closest to the office building and was connected by a conveyor to the 'White Pan Room' (Building 19) where 10'6" diameter grinding pans were used to further reduce the shale. The White Pan Room could also be fed directly from the quarry area and had two hoppers. Material was crushed, elevated, sorted, re-crushed and then conveyed across to the brick press at the top conveyor level where it could be subsequently directed southwards into hoppers above the individual brick presses which were gravity fed.

The primary crusher house (Building 20) was located further to the north. This building had two hoppers, a Ross feeder and a 'grissly feeder,' with rail bars across the opening to allow manual crushing. A Jacques swing jaw crusher was located under the Ross feeder. Material was then fed by conveyor to a 'Pan Building' for further processing. Only the foundations of this building remain today. From this Pan building material was elevated by conveyor (partially demolished, Building 21) and could be stored in massive bins or taken into the northern end of the brick press buildings for distribution throughout the plant. The material was conveyed along the length of the press buildings on conveyors and could be manually diverted into hoppers directly above the brick presses. The conveyor system, hoppers, control panels and chutes remain today. The southern brick press building was subsequently extended by two structural bays to service the 1970s extrusion plant.

Brick presses in use from the 1950s were Anderson double re-press semi plastic presses. Bricks were pressed twice for additional strength. No brick presses survive at the site. It is possible that they were removed to the new brickworks at Mitchell following the closure of the Canberra Brickworks in 1976.<sup>6</sup>

To the extent that the majority of process buildings on the site from the 1950s through to the 1970s still remain, more substantial evidence remains of the brick making processes as they occurred on the site in this later period, when compared with the earlier phase of the site's history. Accepting this, the complex as it existed in this period is not complete (the Red Pan Room and the conveyor linking this with the Primary Crusher have been demolished). Critically, while sections of the conveying system and associated hoppers remain in the

---

<sup>6</sup> Lester Firth Associates Pty Ltd, at Section 2.1.4 (Post War Growth) of the *Old Canberra Brickworks, Conservation Plan*, June 1986, notes that following the closure of the Brickworks, 'All useable material was moved to the new site [Mitchell] and the remainder offered for sale'. It has not been established whether the 'useable material' included the brick presses.



Figure 7 Aerial view, c.1976, at the time of the closure of the Canberra works. At this date, the raw materials had for many years been brought onto the site but the process continued to occur moving from east to west across the site. The 'spine' of process buildings (grinding, crushing, pressing) was located east of the kilns (between the kilns and the quarry).

Source: ACT Heritage Library

Machine Bays, the ability of the complex to demonstrate the processes themselves is limited following the removal of the majority of manufacturing plant itself (crushing and pressing machinery).

## 2.4 Major brick kiln types in Australia

### 2.4.1 *Intermittent kilns*

Prior to the 1870s all kilns in Australia were intermittent, which is to say the fires went out after each burning.

#### Clamp kilns

The earliest kilns were clamps, an ancient technique used the world over in which stacks of unfired (green) bricks with fire holes below are sealed, perhaps with mud, and fired in the open air (see Figure 10). In clamps, heat distribution is extremely uneven, and brick wastage unavoidably high. Clamps typically leave little archaeological residue, apart from a shallow depression in the ground, although channels and flues have survived in the more

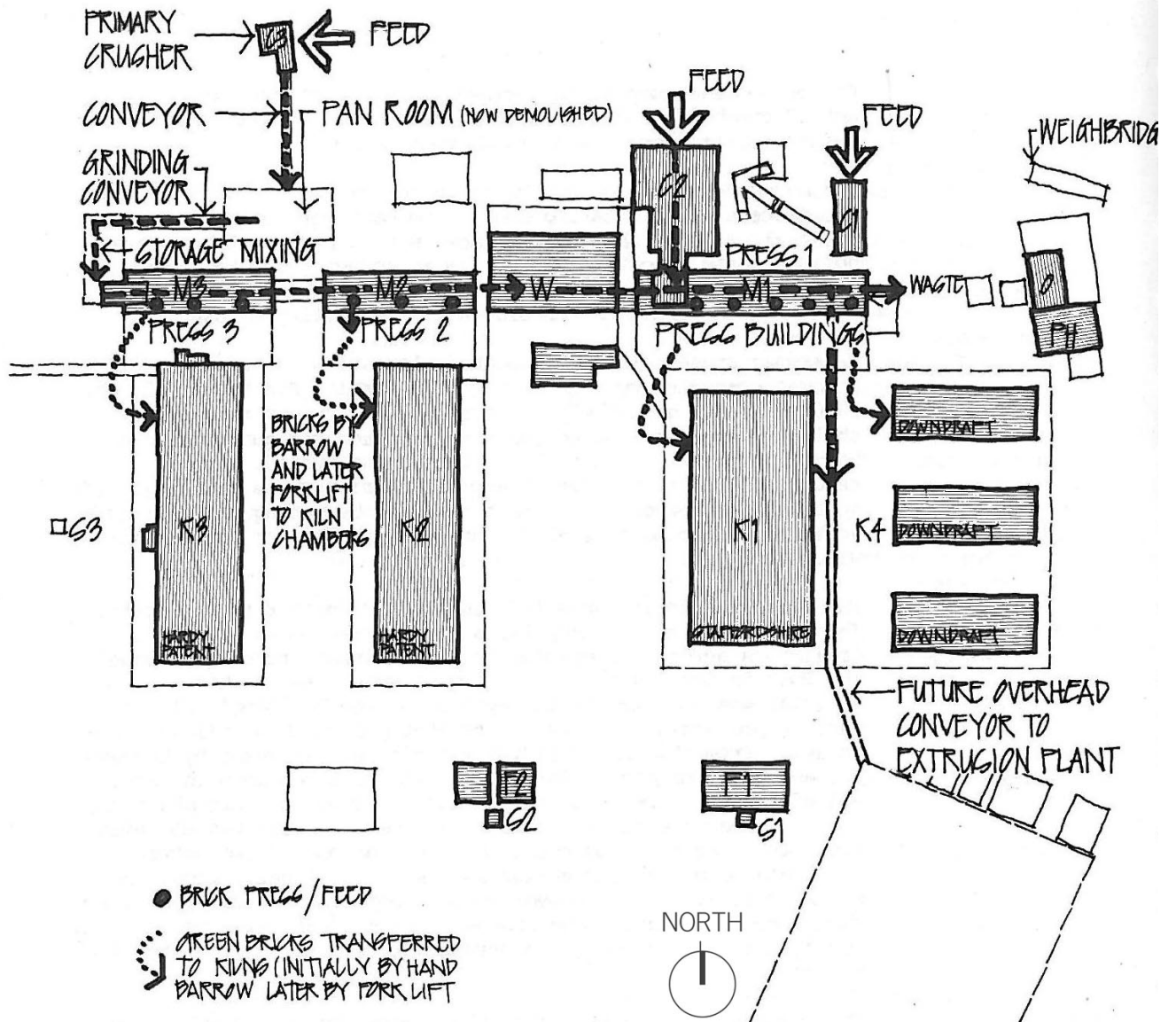


Figure 8 Sketch diagram of site operation c. 1960.  
 Source: Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, 1986, Section 2.2.1.

sophisticated examples.<sup>7</sup> Four clamp kilns were built at the Canberra Brickworks as part of the 'temporary' works, and these were operational by August 1913. The clamp kilns were located south-east of the present office building (see Figure 9).

<sup>7</sup> Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, June 1986, Section 2.1.1 (Brick Firing Kilns).

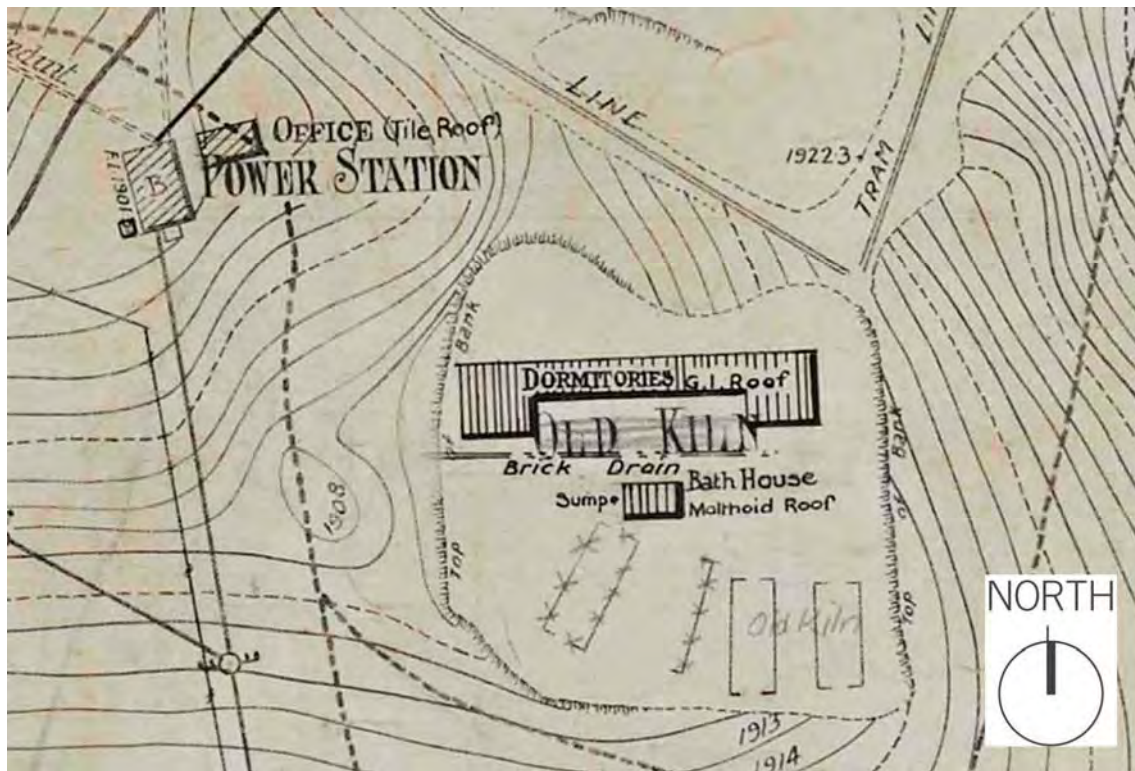


Figure 9 Detail of 'Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916'. Note the four clamp kilns ('Old Kiln') below the 'Dormitories' to the south-east of the Power Station.

Source: National Archives of Australia.

#### Scotch kilns

Among the first permanent kiln types to be constructed in Australia were 'Scotch' kilns, roofless constructions with three permanent walls and one temporary wall, which would be erected after the green bricks were placed in the kiln and demolished after firing (see Figure 11). The permanent walls directed the draught upwards. A Scotch kiln was in operation at Canberra during the mid-1920s (see Figure 12).

#### Downdraught kilns

The last of the broad typologies of intermittent kiln used in Australia was the Downdraught. Downdraught kilns are typically circular or rectangular in plan, with fire holes and wickets in the walls. Inside the single chamber the fire gases are funnelled to the roof through flues built against the side walls, and channelled out through underground flues to a detached chimney stack (see Figure 13). Two temporary Downdraught kilns were built at the Canberra Brickworks in 1925 (demolished 1958), close to the site of the present Downdraught kilns (Element 22), prior to the construction of the first of the Hardy-Patent kiln (Building 8). The present Downdraught kilns at the Canberra Brickworks (completed in 1963) are barrel vaulted, although circular kilns with domed roofs were also common. As occurred at Canberra, it was typical to build Downdraught kilns in groups, to enable consistent use through rotation.

Downdraught kilns were common prior to World War II, particularly in small country works. The three extant examples at Canberra are relatively late examples of the typology.



### 2.4.2 Continuous kilns

Continuous kilns are fired consistently, to enable full-time use and production. This is achieved through the principle of continuous burning around a fire passage, typically circular or rectangular. The passage accommodates a series of chambers, each with an opening (or wicket) through which the bricks were loaded and unloaded, and a branch flue leading to a main flue and chimney stack. The chambers can be set, burnt, cooled and emptied independently, with excess heat within the kiln used to dry green bricks prior to firing.

One of the earliest continuous kilns, and arguably the best-known, is the Hoffman kiln, designed by German Friedrich Hoffman in 1856, and patented in 1858 (Figure 15, Figure 16).<sup>8</sup> The Hoffman kilns in Australia are generally oval in form with straight sides and semi-circular ends, each kiln contains a continuous vaulted annular firing chamber which was filled with bricks for firing through wickets along the outer walls of the kiln. As for other continuous kiln types, Hoffman kilns are fired from above with the fire holes located in the roof of the vault and controlled from a first floor level above. Originally coal was dropped through the firing holes but later the kilns were adapted to use oil and subsequently gas, still from the firing holes.

The first Hoffman kiln in Australia was built in 1870 by the Hoffman Patent Brick and Tile Company at its works on Albert Street, Brunswick, Melbourne.<sup>9</sup> By the 1890s the Hoffman Company was claimed to be the largest enterprise of its kind in the Australian colonies.<sup>10</sup>

From the 1880s, multiple variations on the Hoffman concept were developed around the world. These are generally known as 'patent kilns', and involved subtle variations on the original Hoffman model. Modifications were related to achieving more even heat distribution, avoiding brick discolouration and more efficient regulation of heat to allow greater certainty about the quality of products.

Numerous patent kilns were developed in Australia in this period. In 1889, a patent for an 'improved kiln' was taken out by Isaac Button, Edward Peters and John Wesley Goodsell, all of Sydney. This was the 'Centennial Kiln,' which was built at the Croydon Brickworks in Sydney. Architectural historian Miles Lewis has described the form of the Centennial Kiln:

Compared with the Hoffman kiln, [the Centennial kiln] was rectangular in plan, and consisted of two rows of chambers in parallel, none of them sweeping around at either end. The chambers were separately barrel vaulted, running in at right angles to the length of the kiln as opposed to the continuous vault of the Hoffman, and they were large enough for a dray or truck to be driven right into them for loading and unloading. Fuel was fed through holes in the top. The chambers at either end continued right across the kiln, with provision to divide them, but the rest were

---

<sup>8</sup> Martin Hammond, *Bricks and Brickmaking*, Shire Publications Ltd, Buckinghamshire, England, 1981, p. 23.

<sup>9</sup> 'Former Victorian Brickworks,' 72-106 Dawson Street, Brunswick, Victorian Heritage Database, [vhd.heritage.vic.gov.au](http://vhd.heritage.vic.gov.au), accessed 18 January 2010; and G J R Line, *Industrial Awakening: A Geography of Australian Manufacturing 1788-1890*, ANU Press, Canberra, 1979, p. 265.

<sup>10</sup> Nigel Lewis & Associates, *Brunswick Conservation Study*, Prepared for the City of Brunswick and the Australian Heritage Commission, Melbourne, 1982, p. 26.

separated by a relatively long and narrow 'smoke chamber' along the spine, which connected with flues from either end of each chamber, and discharged to a stack. The kiln as built at Croydon had eighteen chambers, held 35,000 bricks, and was reckoned to turn out 200,000 bricks in a fortnight.<sup>11</sup>

Evidence indicates that the Centennial kiln was typically constructed with a long chimney or flue at one end of the main chamber.

Another variation on the Hoffman format was known as the 'Hardy patent' which was developed at around the same time as the Centennial kiln. From 1889 patent records in New South Wales and Victoria indicate that three Sydney men, Samuel Kirk, Thomas Kirk and John Richardson Hardy, had also developed an improved brick kiln design, specifically described as 'Improvements in the construction of kilns for burning bricks, tiles, pottery or other analogous materials,' for which they were seeking a patent.<sup>12</sup>

On 4 December 1891, the specifications of their application were accepted and the patent granted in Victoria.<sup>13</sup> The following year the men attempted to register the patent in New South Wales and Queensland.<sup>14</sup>

---

<sup>11</sup> Miles Lewis, *Australian Building: A Cultural Investigation*, see section 6.02.12, <http://mileslewis.net/australian-building/>.

<sup>12</sup> Refer to correspondence with applicant Samuel Kirk, Thomas Kirk and John Richardson Hardy concerning invention entitled, 'Improvements in the construction of kilns for burning bricks, tiles, pottery or other analogous materials,' 1889, Series A4617/2, barcode 5150233, and 'New South Wales Letters Patent. Improvement in the construction of kilns for burning bricks, tiles, pottery or other analogous materials, Specification by Samuel Kirk and Thomas Kirk, item listing in series A4617/2, Barcode 4195049, National Archives of Australia. Samuel and Thomas Kirk, both of Croydon, in Sydney, were brick burners, while Hardy himself was listed as a contractor. See *Supplement to the Victorian Government Gazette*, 27 November 1891, p. 4658.

<sup>13</sup> The patent was granted by Thomas Prout Webb, the Commissioner of Patents. See *Victorian Government Gazette*, 4 December 1891, p. 4683.

<sup>14</sup> Application for Letters Patent by Samuel Kirk, Thomas Kirk and John Richardson Hardy titled - Improvements in the construction of kilns for burning bricks tiles pottery or other analogous materials, in Applications for Registration of Queensland Patents - Second system, Series A12572, barcode 7666027, National Archives of Australia.

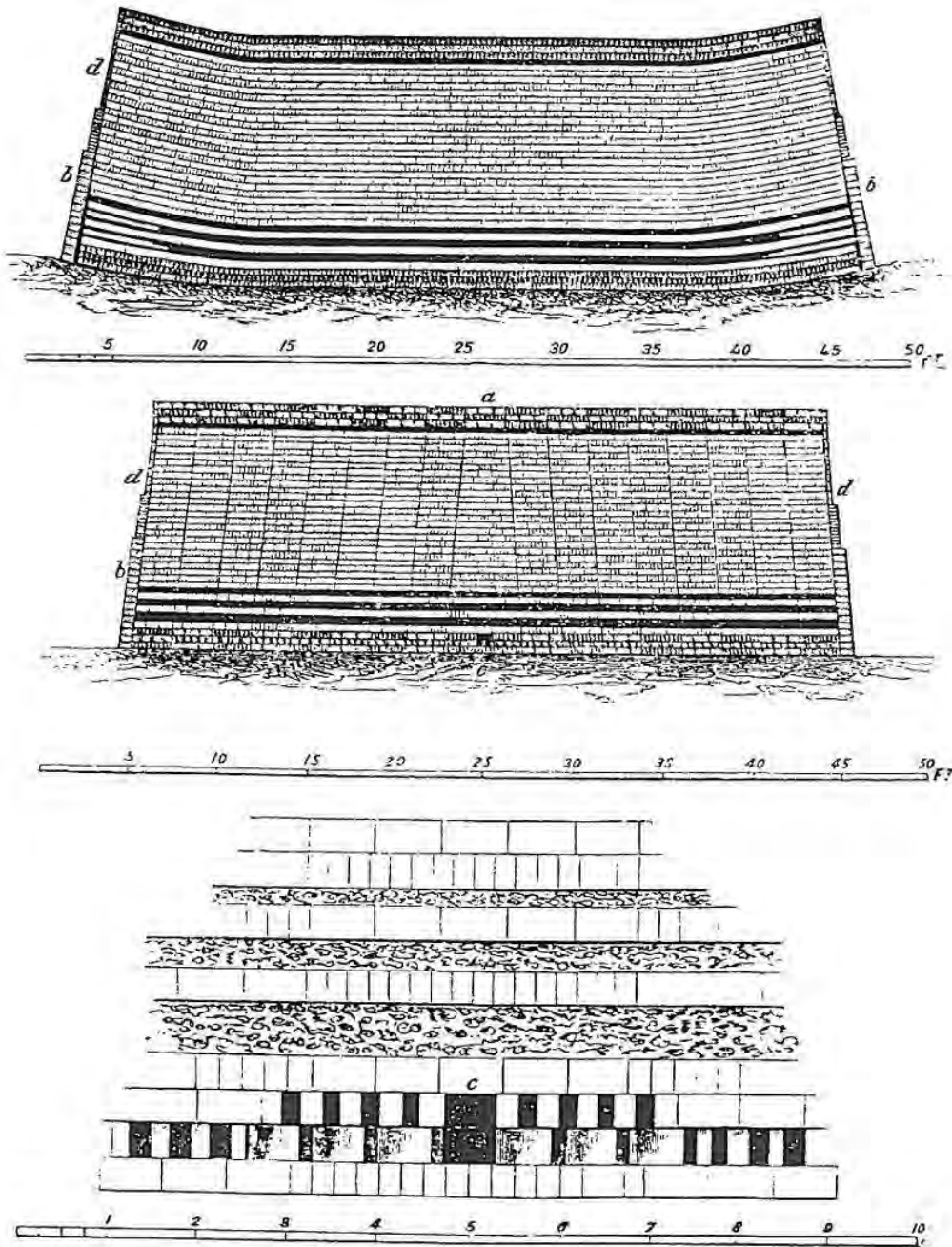


Figure 10 Sections through a clamp kiln, c. 1850, demonstrating the typical arrangement of bricks and fuel.

Source: Edward Dobson, *Rudimentary Treatise of the Manufacture of Bricks and Tiles*, 1850, copied from John Warren, *Conservation of Bricks*, 1999, p. 24.

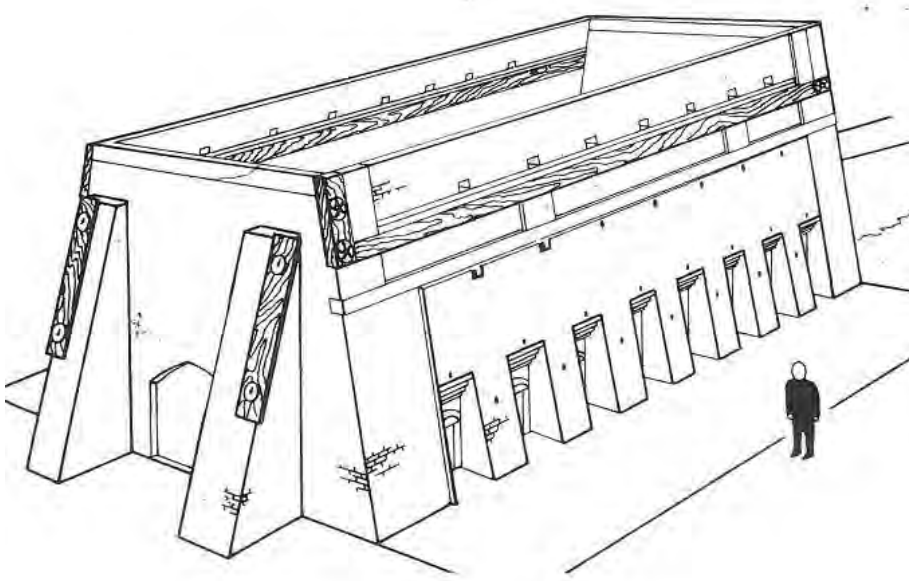


Figure 11 Sketch of Scotch kiln: roofless with three permanent walls to direct the draught upwards.  
Source: Alan Cox, *Brickmaking: A History and Gazetteer*, 1979, p. 26.



Figure 12 Scotch kiln at Canberra (right), 1926. The first Hardy patent kiln is under construction at the rear of the picture.  
Source: National Archives of Australia.

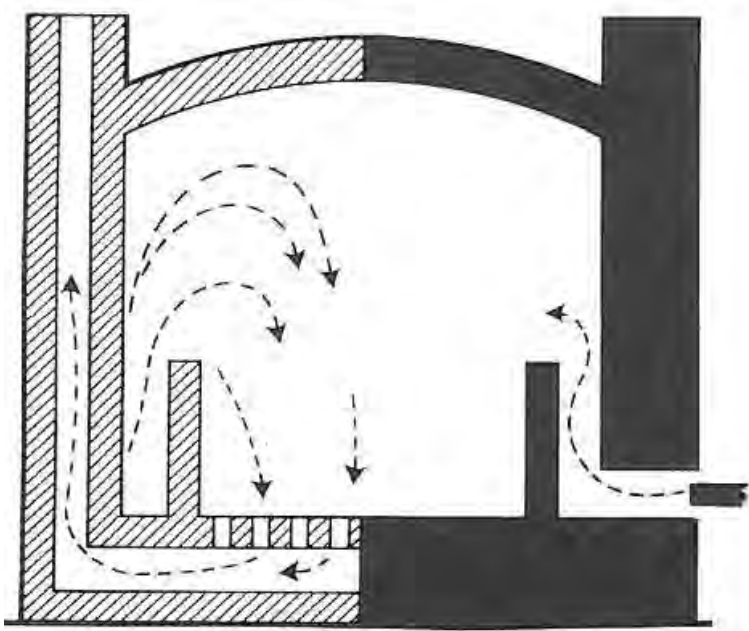


Figure 13 Section through a Downdraught kiln.  
 Source: Alan Cox, *Brickmaking: A History and Gazetteer*, 1979, p. 26.



Figure 14 Downdraught kilns numbers 3 and 4 at Canberra Brickworks (Building 22).

Hardy patent kilns are distinguished by freestanding stacks, as opposed to the integrated and centralised stack of the standard Hoffman kiln.

Two Hardy patent kilns were constructed at the Canberra Brickworks. Both are associated with major expansions of the Brickworks. The first (Building 8, and its stack and fan house, respectively Buildings 9 and 10) was built in 1926-27, as part of the drive to double the output of the plant ahead of the relocation of Parliament and public servants to Canberra.<sup>15</sup> The second (Building 11 and its associated stack, Building 13, see Figure 19) was constructed in 1953 as part of the post-World War II expansion of the site.

Another variation to the Hoffman model of continuous kiln was developed in the 1890s, when the capacity of the kilns was increased through the introduction of transverse arches. The maximum arch span of Hoffman kilns previously had been around 5.5m; orientating the arches so that they lay across the flow of fire allowed the length of arches to be increased without increasing the distance that the fire was required to travel in a circuit.<sup>16</sup>

In 1904, Dean and Hethrington of Lancashire, England, patented the 'Staffordshire kiln,' incorporating transverse arches, a detached chimney stack and a complex system of flues and dampers (see Figure 23). This enabled combinations of chambers to be used at any time, thereby allowing the simultaneous production of a range of products, bricks, tiles and pipes.

It was on this model that the first of the permanent continuous kilns at the Canberra Brickworks was built in 1915 (Building 4), along with its associated fan-house and stack (Buildings 5 and 6). The fan induced draught of the Canberra example enabled even greater temperature control, and obviated the requirement for a tall stack.

The construction of a Staffordshire kiln at Canberra was commissioned in 1913, less than a decade after the model was patented (1904) by Dean and Hethrington of Lancashire, England (the kiln was completed and brought into service in 1915). At the time, Staffordshire kilns were at the leading edge of brick burning technology, offering the potential for firing multiple types of products simultaneously. Given its isolation from the major urban centres and suppliers of construction materials, this flexibility was ideally suited to the requirements of the nascent Federal Capital.

---

<sup>15</sup> As noted in Chapter 3, the Hardy patent kiln (Building 7) failed and was substantially re-built in 1955.

<sup>16</sup> Martin Hammond, *Bricks and Brickmaking*, p. 24.

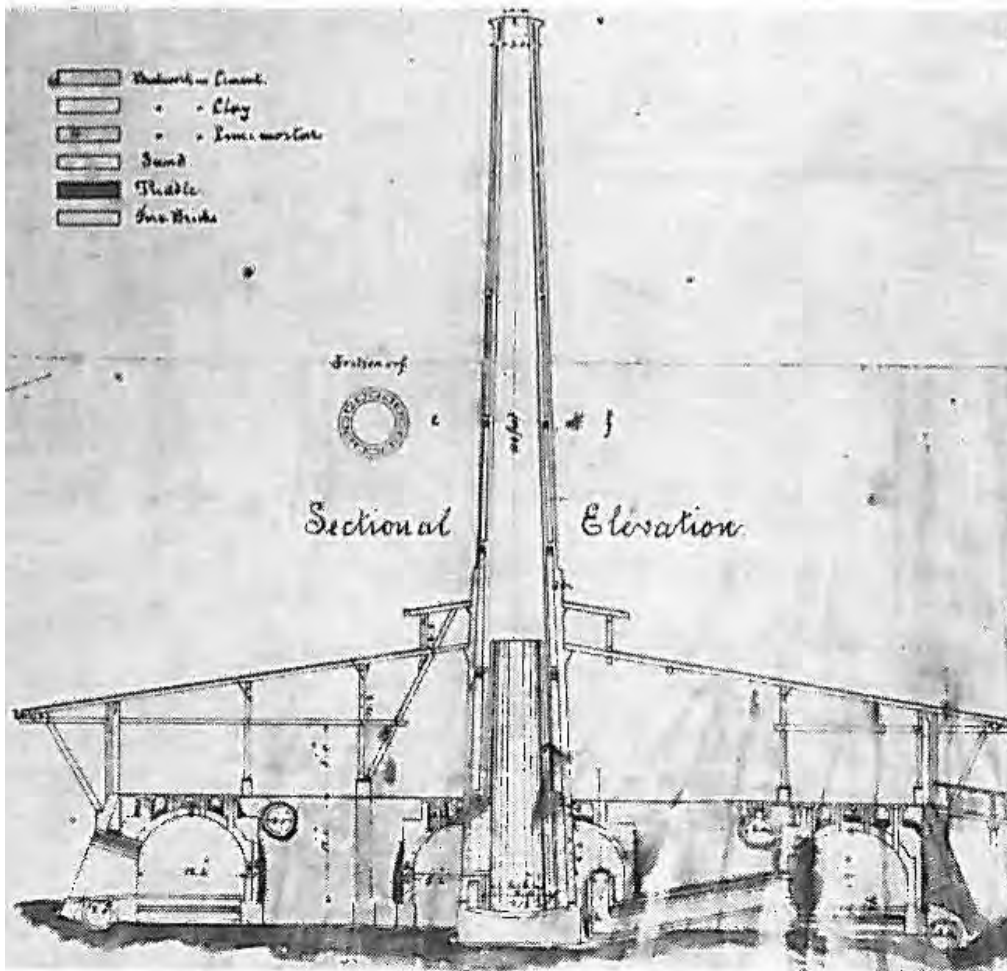


Figure 15 Section through a circular Hoffman kiln prepared by the office of Friedrich Hoffman, Berlin in 1875.  
 Source: Martin Hammond, *Bricks and Brickmaking*, p. 23.

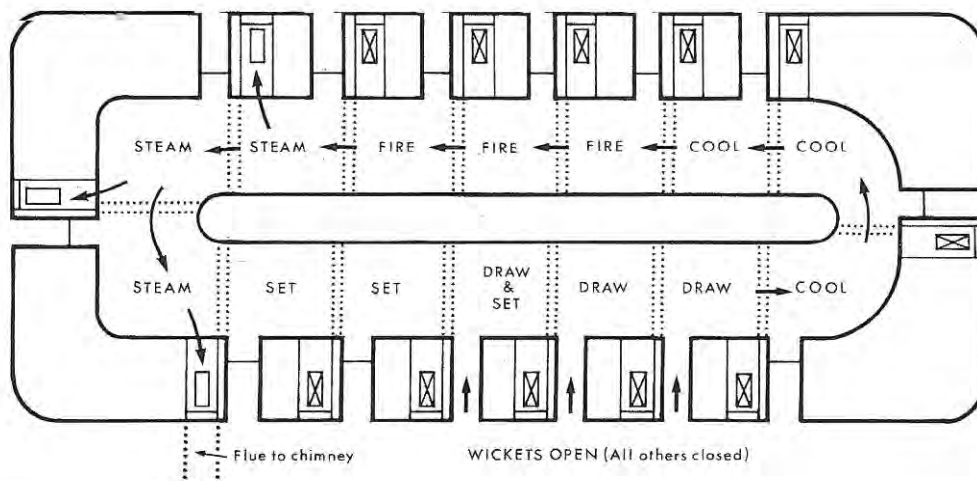


Figure 16 Plan of a rectangular 14-chamber Hoffman kiln.  
 Source: Alan Cox, *Brickmaking: A History and Gazetteer*, 1979, p. 43.



Figure 17 Hoffman kiln at the former Standard Brickworks, Box Hill (Victoria)  
Source: Lovell Chen, January 2010

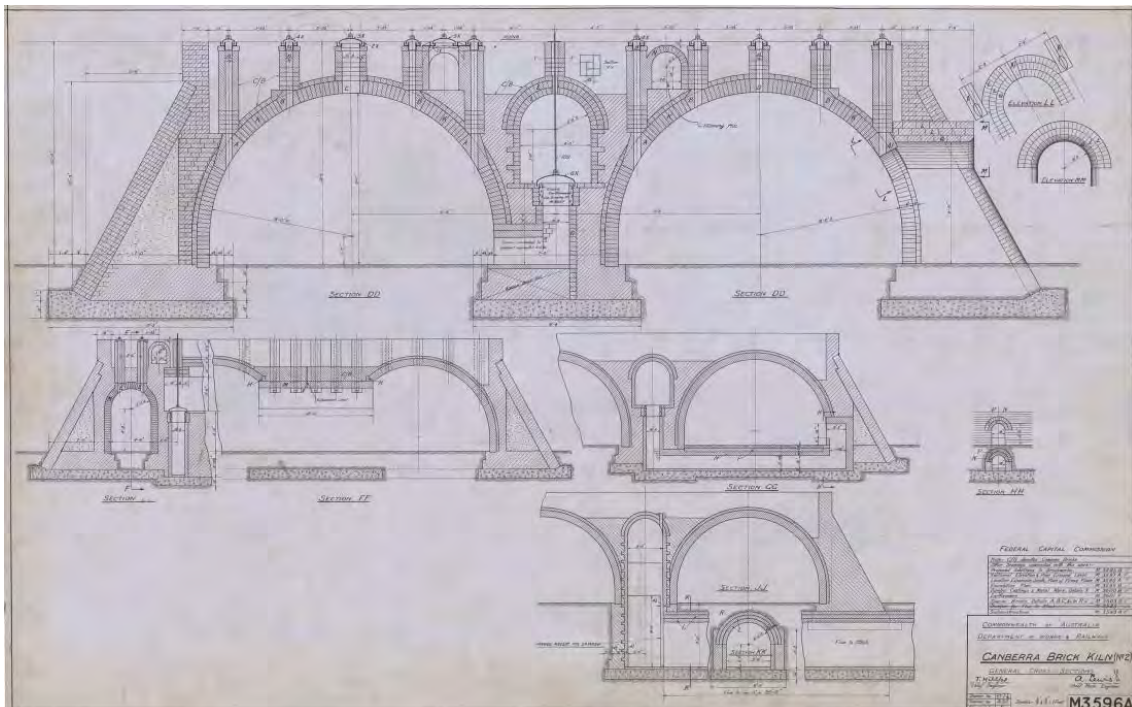


Figure 18 Cross section of the first Hardy patent kiln at Canberra Brickworks (Building 8), 1926.  
Source: National Archives of Australia.



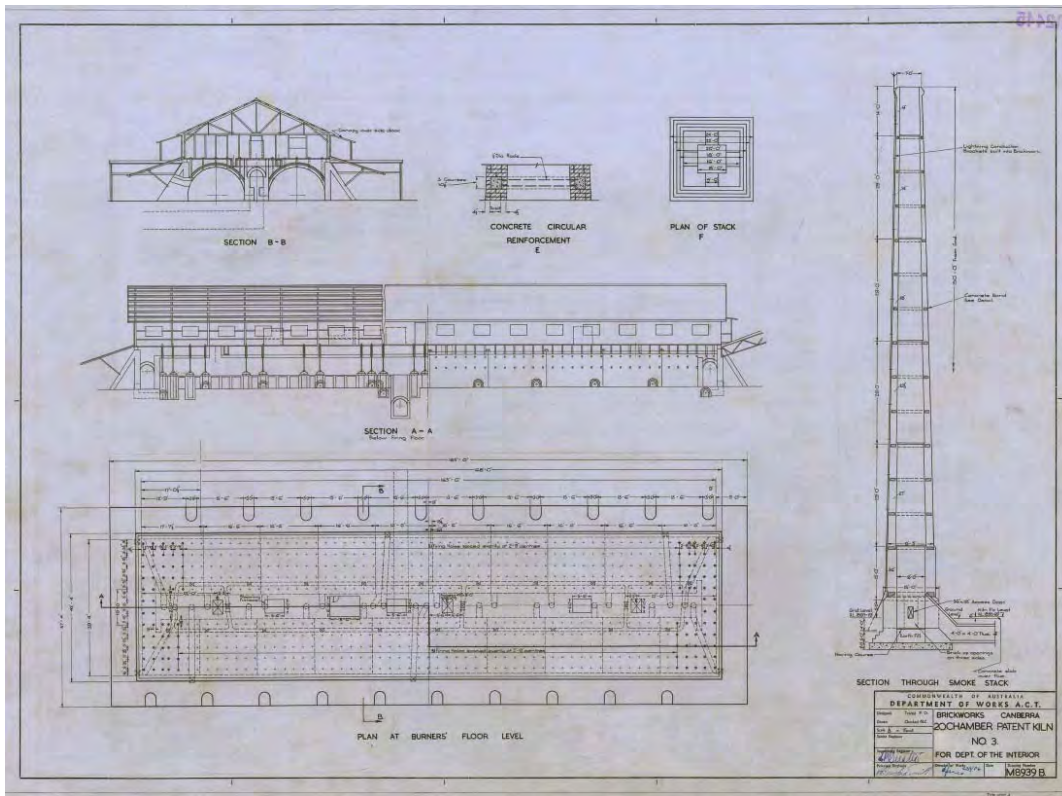


Figure 19 Drawing of 20-chamber Hardy patent kiln (Building 12), and stack (Building 13) at Canberra Brickworks, 1953.  
Source: National Archives of Australia.



Figure 20 Hardy patent kiln, Canberra brickworks



Figure 21 View into the firing chamber of one of the Hardy patent kilns at the Canberra brickworks. Note the wickets (openings) on the right from which the bricks were loaded and unloaded, and the firing holes in the ceiling/walls.



Figure 22 Interior of the firing floor to one of the Hardy patent kilns at the Canberra Brickworks

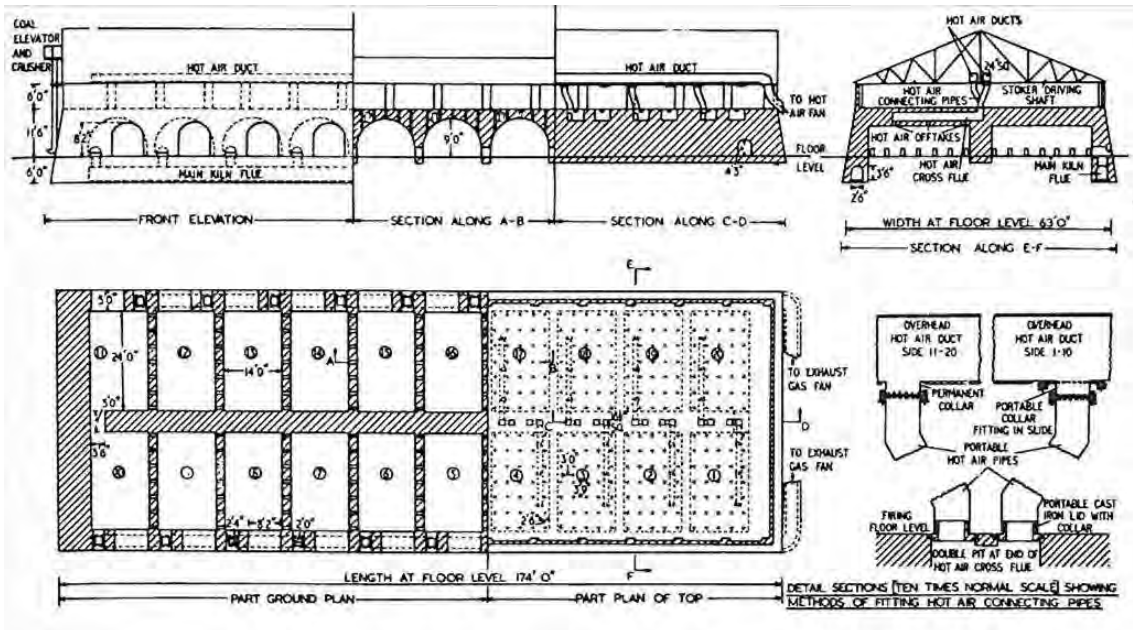


Figure 23 Plan, sections, front elevation and details of a Staffordshire kiln.  
 Source: Martin Hammond, *Bricks and Brickmaking*, p. 25.



Figure 24 Staffordshire kiln at the Canberra Brickworks



Figure 25 Interior of one of the chambers in the Staffordshire kiln.

Tunnel kilns (also referred to as car tunnel kilns) are a contemporary form of continuous kiln, albeit with eighteenth century origins. The model, used by the French Royal Porcelain Factory in 1751, comprises a pair of tunnels linked by flues.<sup>17</sup> Green bricks are set on cars and passed through the first tunnel, which is divided into zones for preheating, firing and cooling. Clean hot air from cooling zone of the kiln is channelled to the parallel drying tunnel. In England, until the 1970s, tunnel kilns were considered expensive to build and beset by technical problems, which outweighed the benefits of fuel saving and improved working conditions. Subsequent revisions have improved the model, which is now commonly used in industrial brick production, with kilns as large as 1.8m wide by 120m long.<sup>18</sup>

A tunnel kiln was planned and partially built at Canberra after World War II, before being abandoned in 1952. The foundations were incorporated into the second Hardy patent kiln completed in 1953 (Building 12).<sup>19</sup>

---

17 Martin Hammond, *Bricks and Brickmaking*, p. 25-6.

18 Martin Hammond, *Bricks and Brickmaking*, p. 25-6.

19 Department of Works, 'Canberra Brickworks No. Kiln, 20 Chamber Hardy Kiln Layout Plan,' drawing M8713c, National Archives of Australia.

### 3.0 HISTORY & PHYSICAL ANALYSIS: ESTABLISHMENT PHASE, 1911-1920

#### 3.1 Historical background

##### 3.1.1 *Establishing the National Capital*

The location of the capital of a federated Australia was debated for at least ten years before Federation was achieved (1901). The matter was raised at the Australian Federation Conferences (Melbourne, 1890 and Sydney 1891), and the National Australasian conventions of 1897-98.<sup>20</sup> The debates over the location of the capital were dominated by inter-colonial rivalries, although a broad consensus was reached on the requirement for an inland location (to obviate the perceived security risk presented by a coastal location). It was eventually decided that the decision on the location of the future capital would be taken by the new Parliament following Federation.<sup>21</sup>

The Australian Constitution of 1900 included direction to hold land for the National Capital:

(125) The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.

Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefore. The Parliament shall sit at Melbourne until it meets at the seat of Government.<sup>22</sup>

At least 40 districts were proposed for the National Capital, of which 23 were inspected by parliamentarians, a Commission and a Royal Commission. In 1904 a *Seat of Government Act* was introduced, nominating Dalgety in New South Wales. However, the New South Wales State Government objected and refused to release the land to the Federal Government.<sup>23</sup> Finally, on 8 October 1908 – following the repeal of the 1904 *Act* – it was determined that the site would be in the Yass-Canberra district. The New South Wales District Surveyor, C R Scrivener, was dispatched to Yass-Canberra to determine the precise location of the future city. His brief was as follows:

---

<sup>20</sup> Lovell Chen, *Nomination of Canberra to the National Heritage List: An examination of the merits*, prepared for the National Capital Authority, April 2008, pp. 42-43.

<sup>21</sup> The National Capital Development Commission, *Tomorrow's Canberra: Planning for Growth and Change*, Australian National University Press, Canberra, 1970, pp. 3-7; and Lovell Chen, *Nomination of Canberra to the National Heritage List: An examination of the merits*, prepared for the National Capital Authority, April 2008, pp. 42-43.

<sup>22</sup> Commonwealth of Australia Constitution Act, Chapter VII.

<sup>23</sup> The National Capital Development Commission, *Tomorrow's Canberra*, p. 3.

The Federal Capital should be a beautiful city, occupying a commanding position with extensive views, and embracing distinctive features ... consequently the potentialities of the site will demand careful consideration from a hygienic stand-point, with a view to securing picturesqueness, and also with the object of beautification and expansion.<sup>24</sup>

Scrivener's choice was an elevated site straddling the Molonglo River, with mountains and hills to the north-west, north-east, east and south. The 1909 *Seat of Government Surrender Act* (NSW) and 1909 *Seat of Government Acceptance Act* (Commonwealth) officially named Yass-Canberra as the site of the Federal capital. The site was formally handed over to the Commonwealth on 1 January 1911.

In April 1911, King O'Malley, Minister for Home Affairs for the standing Labor Government initiated an international competition for designs for the layout of the new city. The conditions of the competition stated that, 'The premiated [sic] Designs shall become the property of the Government for its unrestricted use ... Any claim for further remuneration by ... the authors ... will not ... be recognised ...'<sup>25</sup> In May 1912, a proposal by architect Walter Burley Griffin (1876-1937) with drawings by his architect wife Marion Mahony Griffin (1871-1961), of Chicago, was awarded first prize (see Figure 26). Second prize was awarded to Eliel Saarinen of Helsinki (Helsingfors), Finland and third prize to Alf Agache of Paris, France.<sup>26</sup> The emphasis of the Griffin's proposal, largely determined by topography, combined a number of specialised centres (for administration, government, the capitol etc) in circular, octagonal and hexagonal street systems. The centres were linked by the primary axes, which were aligned to the surrounding hills and mountains.

In November 1912, O'Malley established a Departmental Board to review the three winning schemes. The Board prepared a new plan incorporating aspects of all of them. The composite 'Departmental Plan' was accepted by O'Malley in January 1913, and the foundation stone of the city was laid on 12 March 1913. The city was formally named Canberra at the ceremony.<sup>27</sup>

A change of government stalled progress, and led to Walter Burley Griffin being invited to Australia to advise on the development of the city. The new Minister for Home Affairs, W H Kelly, subsequently disbanded the Departmental Board and appointed Griffin as Federal Director of Design and Construction for the National Capital, a position that he held from 1913 to 1920.<sup>28</sup>

---

<sup>24</sup> Quoted in David Headon, *The Symbolic Role of the National Capital: From colonial argument to 21<sup>st</sup> century ideals*, Commonwealth of Australia (National Capital Authority), ACT, p. 36.

<sup>25</sup> *Preparation of Competitive Designs for the Federal Capital City*, National Archives of Australia, A1818/12, quoted in Alasdair McGregor, *Grand Obsessions: The Life and work of Walter Burley Griffin and Marion Mahony Griffin*, Lantern (Penguin), Australia, 2009, p. 121.

<sup>26</sup> The National Capital Development Commission, *Tomorrow's Canberra*, p. 6.

<sup>27</sup> The National Capital Development Commission, *Tomorrow's Canberra*, p. 6.

<sup>28</sup> The National Capital Development Commission, *Tomorrow's Canberra*, p. 6; and Alasdair McGregor, *Grand Obsessions*, pp. 197-204 and 321-41.

In October 1913 Griffin submitted a revised version of his plan ('Preliminary Plan', see Figure 27), with a report expanding on his ideas for the development of the city ('Report Explanatory'). Parliamentary factions and funding cutbacks caused by World War I contributed to the slow progress in the development of the National Capital in the following years.

### 3.1.2 Commonwealth Brickworks

In 1910, King O'Malley announced Government plans for the construction of a brickworks to serve the Federal Capital.<sup>29</sup> Other industries considered essential for the inland city included a power station, and a dam and pumping station (respectively the Kingston Power House and Cotter Dam).

Various experiments on shale in the region were carried out in early 1911. Two potential sites were investigated, one at the Duntroon Station and the other on Frederick Campbell's Yarralumla property. Samples from both sites were sent for testing.<sup>30</sup> Reports concluded that samples from Yarralumla produced bricks of excellent quality, equal to the best commercially produced bricks for hardness and porosity, while those produced from the Duntroon sample produced bricks of a better colour, but the material was 'little in weight, its absorption is greater and it has not burnt too well'.<sup>31</sup> The Yarralumla site was selected on this basis. Frederick Campbell agreed to the acquisition of approximately 38 acres of his land holding (see Figure 28). The area was gazetted on 27 July 1912, and development of the site began in 1913.<sup>32</sup>

As originally proposed the permanent Commonwealth Brickworks was to include three Staffordshire kilns, one rock breaker, five American Ring Pulverisers, five Whittaker mixing pans and ten Whittaker presses (see Figure 29). The kilns were to have induced draft fans in place of high chimneys. It was proposed to convey the bricks by aerial ropeway to a city depot.<sup>33</sup>

At this time (c. 1911–12) no other kilns of the Staffordshire type had been constructed in Australia, although the New South Wales State Brick Works at Homebush, west of Sydney, had announced plans for the imminent construction of several.<sup>34</sup>

---

<sup>29</sup> Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, June 1986, Section 2.1.1, citing the *Queenbeyan Age*, 23 February 1910.

<sup>30</sup> Lester Firth Associates (Section 2.1.1) state that 1,000 test bricks were fired at the Hoffman Brick Co., Melbourne.

<sup>31</sup> National Archives of Australia, Series A110/FC 1913/1055, in Ian Carnell, 'Canberra's Cornerstone,' *Canberra Historical Journal*, no. 5, March 1990, cited by Lester Firth Associates, 1986, section 2.2.1.

<sup>32</sup> Ann Gugler, *The builders of Canberra, 1909-1929. Part one, Temporary camps & settlements*, Canberra, CPN Publications, 1994, p. 77.

<sup>33</sup> National Archives of Australia, Series A110/FC 1913/1985, cited in Lester Firth and Associates, 1986, Section 2.1.1.

<sup>34</sup> Lester Firth and Associates, 1986, Section 2.1.1, source uncited. It has not been confirmed if Staffordshire kilns were constructed at the State Brick Works at Homebush, which was developed from 1911 (see Chapter 6). However, the Royal Commission on Federal

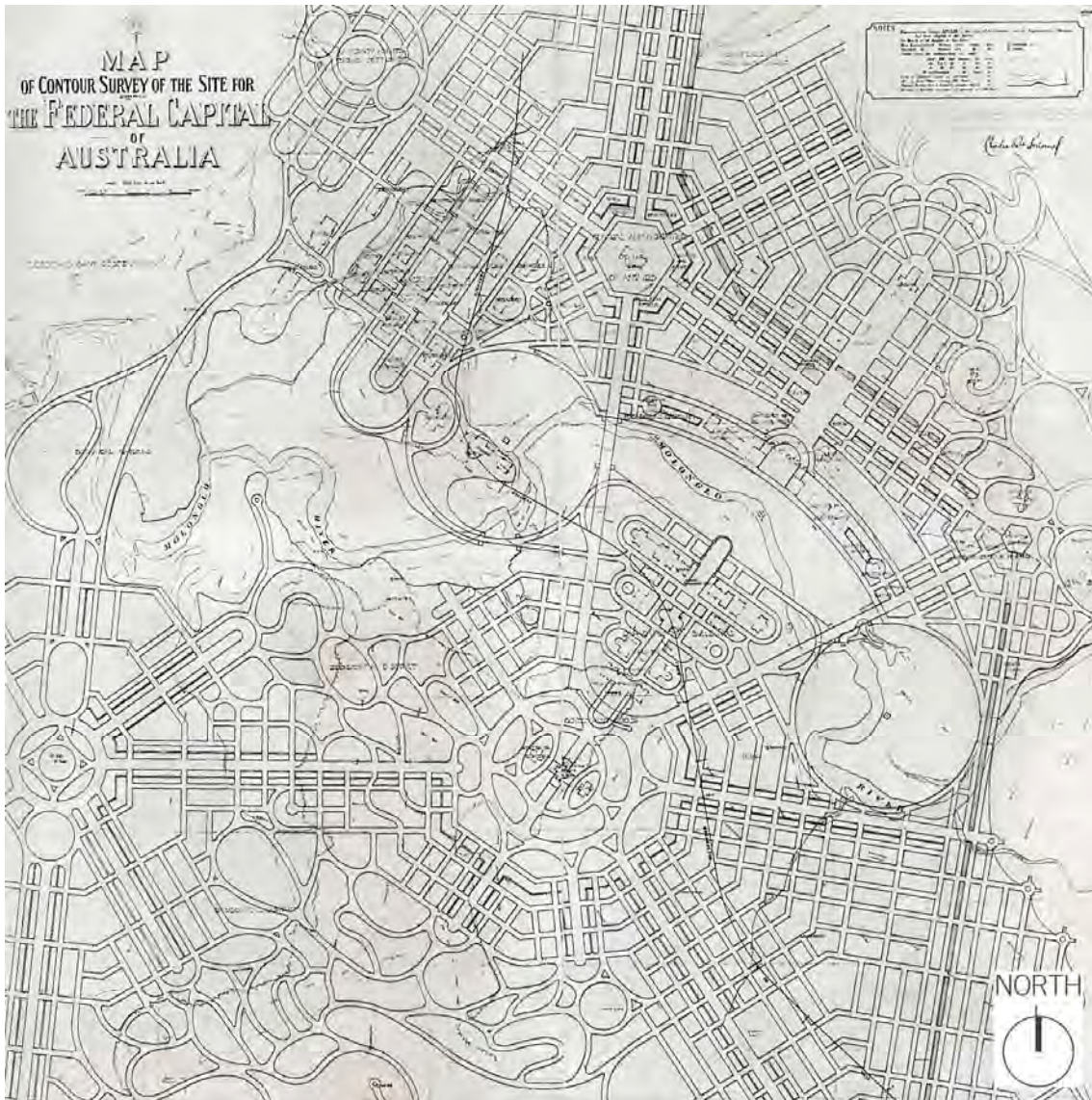


Figure 26 Walter Burley Griffin's winning competition entry (1912), overlaid on the contour map prepared by C R Scrivener.

Source: National Archives of Australia (A710, 36-37).

A temporary plant was established and operational by 19 June 1913.<sup>35</sup> This comprised a grinding pan, brick making machine and elevator made by Geo. Foster and Sons, Sydney, and a portable steam engine. By contrast the permanent plant was to be electrically driven, with power from the 'Central Generating Station' (Kingston Power House), then under construction. By August 1913, four open kilns were in use at the temporary plant (see

---

Capital Administration (RC No. 378), which ran from June 1916 to 14 June 1917, found that the Staffordshire kiln at the Canberra brickworks was the first constructed in Australia.

<sup>35</sup> National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1. See also, Ann Gugler, *The builders of Canberra, 1909-1929. Part one, Temporary camps & settlements*, Canberra, CPN Publications, 1994, chapter 2. Copy viewed at ACT Heritage Library, Woden, ACT, Woden.



Figure 30), with plans for a fifth.<sup>36</sup> The temporary brickworks plant had an output of between 44,000 and 50,000 bricks per week.<sup>37</sup> Bricks were being produced for the construction of the kilns at the permanent brickworks,<sup>38</sup> and the Kingston Power House complex.<sup>39</sup>

The first stage of the construction of the permanent Brickworks, which comprised a single Staffordshire kiln, was approved on 1 December 1913 by P T Owen, the Director-General of Works.<sup>40</sup> It was proposed to use this kiln to produce bricks for the construction of a further two kilns.

The decision to build the Staffordshire kiln type at the site was based on the recommendations of Andrew Christie, a consulting engineer, who together with Owen had inspected 'the latest equipment' at the State Brickworks in Homebush. In correspondence dated 24 July 1911 Christie noted in relation to the Staffordshire that:

..all drying, burning and cooling temperatures are under perfect control and high class goods of perfect colouring is the result. The kiln can also be for fancy and facing bricks, finials, pipes, etc., as well as ordinary bricks, the use of draught kilns is dispensed with and the cost of fuel materially reduced'.<sup>41</sup>

---

<sup>36</sup> Four open kilns are indicated on the survey plan of 1916, but newspapers reports refer to only three open kilns. *Queanbeyan Observer*, 18 February 1913, cited in Lester Firth and Associates, 1986, Section 2.1.1.

<sup>37</sup> National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1.

<sup>38</sup> By September 1913, some 250,000 bricks had been produced for construction of the main kilns. *Queanbeyan Observer*, 9 September 1913, cited in Lester Firth and Associates, 1986, Section 2.1.1.

<sup>39</sup> The Kingston Power House is a steel framed structure with roughcast concrete walls. It was designed by John Smith Murdoch, Chief Architect of the Department of Works and Railways, and completed in 1915. As originally envisaged, the building was to be portable. As such the steel frame was to be clad in galvanized steel. When a permanent site was found for the power house it was decided to change the cladding to brick. A total of 1.5 million bricks were manufactured at the Canberra Brickworks for the task. However, the bricks produced at the temporary works disintegrated before they could be used on the Power House. As a cost-effective solution, the steel frame was clad in unreinforced in situ concrete made with river gravel. The Power House was adapted to the Canberra Glassworks visitor centre in 2005-07 by Tanner Architects. Pers comm., Jocelyn Jackson, Project Director/Architect for the adaptive reuse of the Kingston Power House, Tanner Architects, and Adam Mornement, Lovell Chen, 3 February 2010. See also, Peter Freeman Pty Ltd, *Kingston Power House Precinct, Kingston, ACT, Conservation Management Plan Review*, 2001, Volume 1 of 2, pp. 18-20.

<sup>40</sup> National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1.

<sup>41</sup> National Archives of Australia, Series A110 FC 1913/1055, 24 July 1911, cited in Lester Firth and Associates, 1986, Section 2.1.1.



Figure 27 Plan prepared by Griffin to accompany his 'Report Explanatory' of 1913.  
Source: National Archives of Australia (A1, 1917/7242).

The decision to build the Staffordshire kiln type at the site was based on the recommendations of Andrew Christie, a consulting engineer, who together with Owen had inspected 'the latest equipment' at the State Brickworks in Homebush. In correspondence dated 24 July 1911 Christie noted in relation to the Staffordshire that:

..all drying, burning and cooling temperatures are under perfect control and high class goods of perfect colouring is the result. The kiln can also be for fancy and facing bricks, finials, pipes, etc., as well as ordinary bricks, the use of downdraught kilns is dispensed with and the cost of fuel materially reduced'.<sup>42</sup>

<sup>42</sup> National Archives of Australia, Series A110 FC 1913/1055, 24 July 1911, cited in Lester Firth and Associates, 1986, Section 2.1.1.

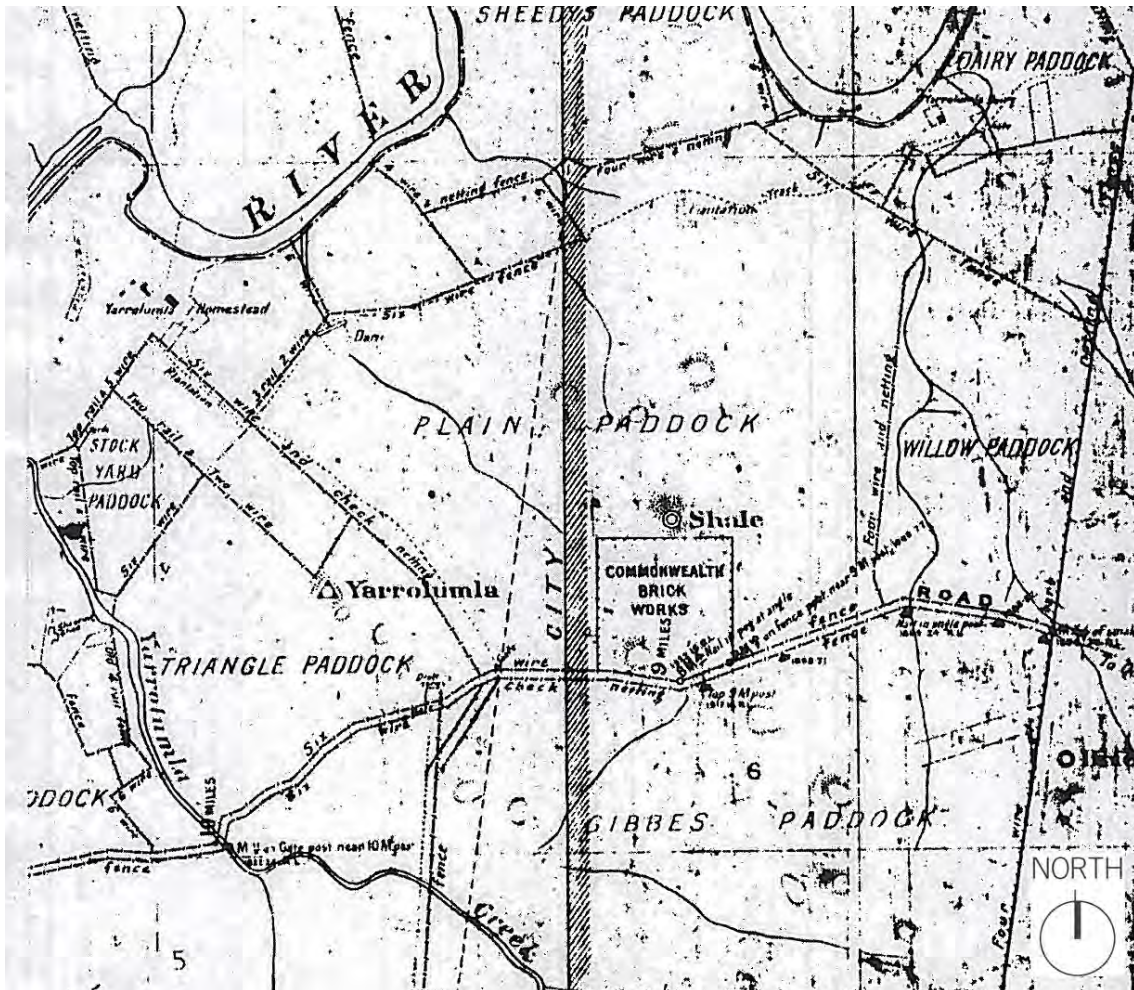


Figure 28 Site survey, c. 1911, showing the dimensions of the 38ha site acquired in 1912. Source: Lester Firth Associates, section 2.1.1. Original source not cited.

Plans for the Staffordshire kiln were purchased in early 1914 from the Australian agent of the patentees, R E Odd, and Christie prepared plans for machinery sheds to be constructed adjacent to the kiln. Tenders were accepted in March 1915 for major plant, equipment and materials for the permanent works. Messrs Jaques Bros of Richmond tendered for three rotary rockbreakers (cost £502); Messrs Timmings and Gardiner of Sydney for two grinding mills (£834); George Foster for ironwork for the Staffordshire kiln (£842); and George Weymouth of Melbourne for electric motors (£494).<sup>43</sup>

<sup>43</sup> Lester Firth Associates 1986, section 2.1.1, sources uncited.

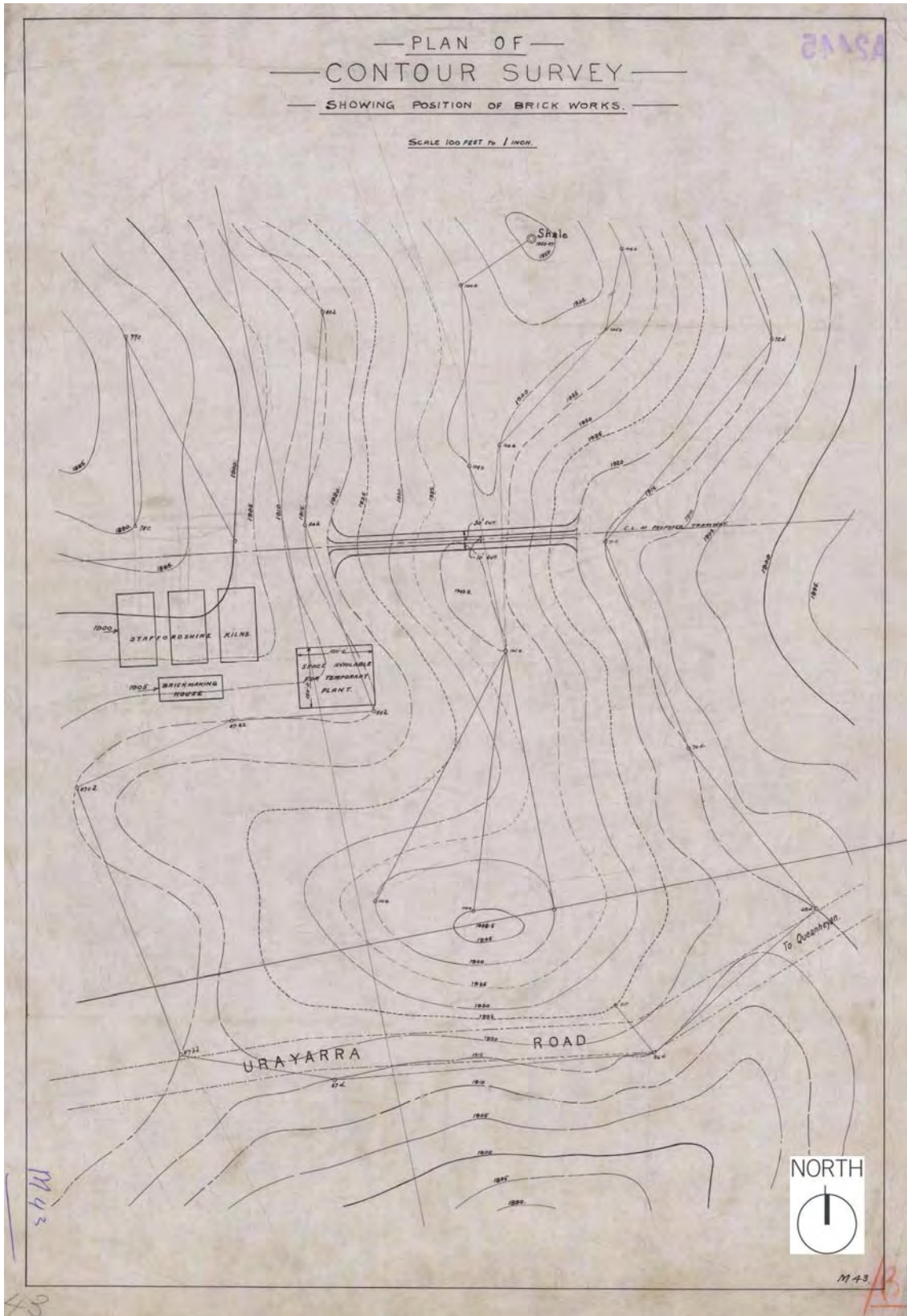


Figure 29 Contour plan with the layout of the brickworks as proposed in c. 1911, showing three Staffordshire kilns and the location of brick making plant. Source: National Archives of Australia.

In September 1915 the brickwork for a 20 chamber Staffordshire kiln was nearing completion (see Figure 31, Figure 32 and Figure 33).<sup>44</sup> The internal chamber bricks, shaped to provide the arched form, were imported from England together with the steel work trusses in the kiln loft. Three burners are also believed to have been imported from England.<sup>45</sup>

A Survey Plan of the site, dated 20 December 1916 (see Figure 30), shows a small galvanised iron office building close to the 'Machine Shop', and a galvanised iron 'Cottage' with associated coal store and stable to the north-east of the site. Other features shown on the plan include the temporary 'Old Kiln' area with four kilns (shown in outline on the plan, with 'Dormitories' immediately to the north), a coal stage, a long concrete retaining wall separating the quarry zone and the working areas, water storage tanks on a high knoll, a remote powder depot, three detached WCs south of the kiln, an elevated gangway connecting the coal stage to the kiln and overhead electrical connections linking the 'Power Station' to the 'Fan Room,' and the 'Power Station' to the 'Machine Shop' and 'Cottage'. A tram line is indicated linking the quarry to the machine shop. The 2ft (610mm) gauge line was laid so that loaded trucks ran downhill to the works, and the empty trucks were pushed uphill by manpower. The tram lines could be relocated as the quarry face advanced.<sup>46</sup>

Elements shown on the 1916 plan and remaining on the site today are the 'Power Station,' the Staffordshire kiln (without verandahs to the north and south), the 'Fan Room' and 'Stack' and the long concrete retaining wall.

The Staffordshire kiln together with crushing, processing equipment and brick presses was ready for production in early 1916. However, the commitments of World War I, and consequent restrictions on the works program for Canberra, together with a coal strike, saw the brickworks close in December 1916.<sup>47</sup>

In 1917, the Royal Commission on Federal Capital Administration considered the Brickworks at Canberra.<sup>48</sup> Walter Burley Griffin had complained that the Brickworks were a 'nullification' of his plan and that they were 'established without any consultation with him'. It was found that this charge was not fairly made since the Brickworks were established while the Departmental Plan was in force, and before Griffin came to Australia.

---

44 *Queanbeyan Age*, 14 September 1915, cited in Lester Firth and Associates, 1986, Section 2.1.1.

45 Lester Firth Associates 1986, section 2.1.1, sources uncited.

46 Walter M Shellshear, author of Chapter 2 (Railways) in W C Andrews, Alan Fitzgerald et al, *Canberra's Engineering Heritage*, Institution of Engineers, Australia, Canberra Division. 1983, viewed online (unpaginated) at, [www.engineer.org.au](http://www.engineer.org.au), accessed 29 January 2010. The side-tipping trucks used at the brickworks were manufactured by Francis Theakston Ltd., Light Railway Engineers, Crewe Works, 66 Tufton Street, London.

47 Lester Firth Associates 1986, section 2.1.1, sources uncited.

48 The Royal Commission on Federal Capital Administration (RC No. 378) ran from 14 June 1916 until the Report was tabled on 14 June 1917. The Commissioner was W Blacket and matters examined included issues relating to Mr. Griffin; accounts and finance at Canberra; wasteful expenditure at Canberra; sewerage at Canberra; brickworks at Canberra and water supply, power. References to the Royal Commission are from the, *Report of the Royal Commission on Federal Capital Administration*, Victoria (1917), and Lester Firth Associates, 1986, section 2.1.1. The source is uncited.

The Royal Commission also established that the 250,000 bricks made at the temporary plant were of poor quality and not suitable for major building work. Instead they were used for filling and lining drains, and for the Staffordshire kiln. The Commission also found that construction of the Staffordshire kiln was begun in November 1914; that it was *the first Staffordshire kiln built in Australia* [emphasis added]; and that there was evidence of construction errors in estimating and design. (The findings of the Royal Commission are confusing when compared with the report in which Andrew Christie recommended the use of a Staffordshire kiln following an inspection of the works at Homebush, which suggests a Staffordshire in operation there. This anomaly in the historical record has not been resolved.)

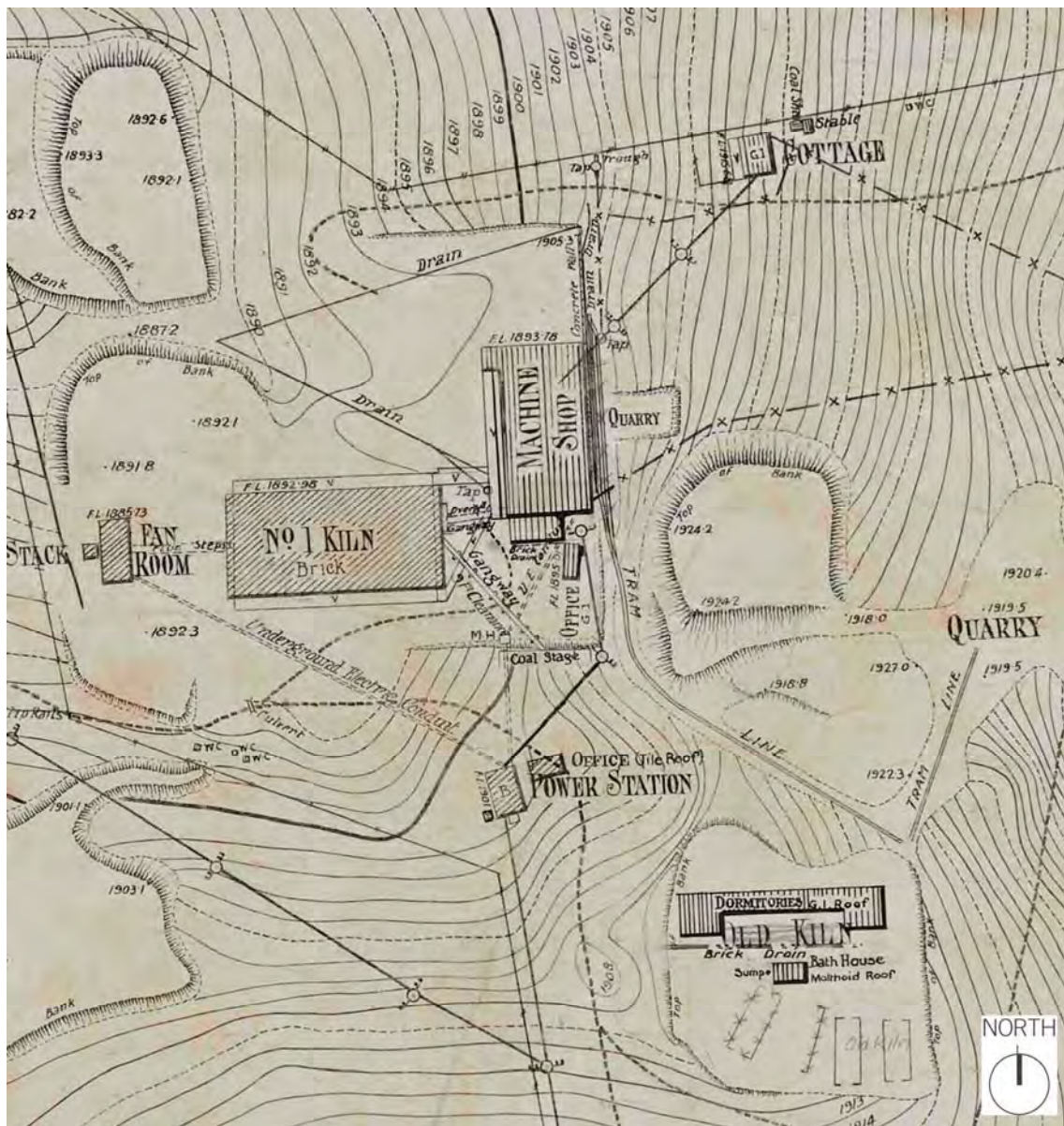


Figure 30 Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916. Note the locations of the clamp kilns below the 'Dormitories' to the south-east of the Power Station.

Source: National Archives of Australia.



Figure 31 Staffordshire kiln under construction, c. 1915  
Source: National Library of Australia.



Figure 32 Constructing the transverse arches of the Staffordshire kiln, c. 1915.  
Source: National Library of Australia.



Figure 33 The Staffordshire kiln pictured in c. 1917.  
Source: National Library of Australia.

### 3.1.3 *The development of 'Westridge' (Yarralumla)*

Walter Burley Griffin envisaged the area to the west of the 'Capitol Centre' as a lake front suburb. The *Plan (of City and Environs)* of 1918, which was the last plan signed by Griffin during his tenure as Federal Capital Director of Design and Construction,<sup>49</sup> shows a broadly triangular area extending from the 'Capitol Centre' in the west, and defined by 'Adelaide Avenue' to the south, 'Westlake Esplanade' to the north and 'Mountain Way' to the west (see Figure 34).

Some elements of this plan were developed, including Adelaide Avenue and the southern section of 'Mountain Way,' which is on the approximate alignment of the present Novar Street. 'West Lake,' which is the western element of the waterway now known as Lake Burley Griffin, was formed in 1963, following the construction of the Scrivener Dam. Griffin named the suburb 'West Lake'. The area to the west of this proposed suburb, now Yarralumla, was popularly known as 'Westridge'.

Two enterprises underpinned the development and identity of the area between the city boundary and the west of Griffin's proposed layout for 'Westlake'. The first, operational from June 1913, was the Canberra Brickworks. The second, established in 1914, was Westbourne Woods Arboretum (also known as Westbourne Woods), which was a proving ground for the suitability of native and exotic plants to the Canberra climate. The Arboretum is associated with Charles Weston, the first Superintendent of Park and Gardens for the National Capital.

---

<sup>49</sup> Paul Reid, *Canberra Following Griffin: A Design History of Australia's National Capital*, National Archives of Australia, Canberra, 2002, p. 16.





Figure 34 Detail of *Plan (of City and Environs)*, 1918. The 'Westridge Residences' may be the location of the Brickworks Camp.  
Source: State Library of Victoria.

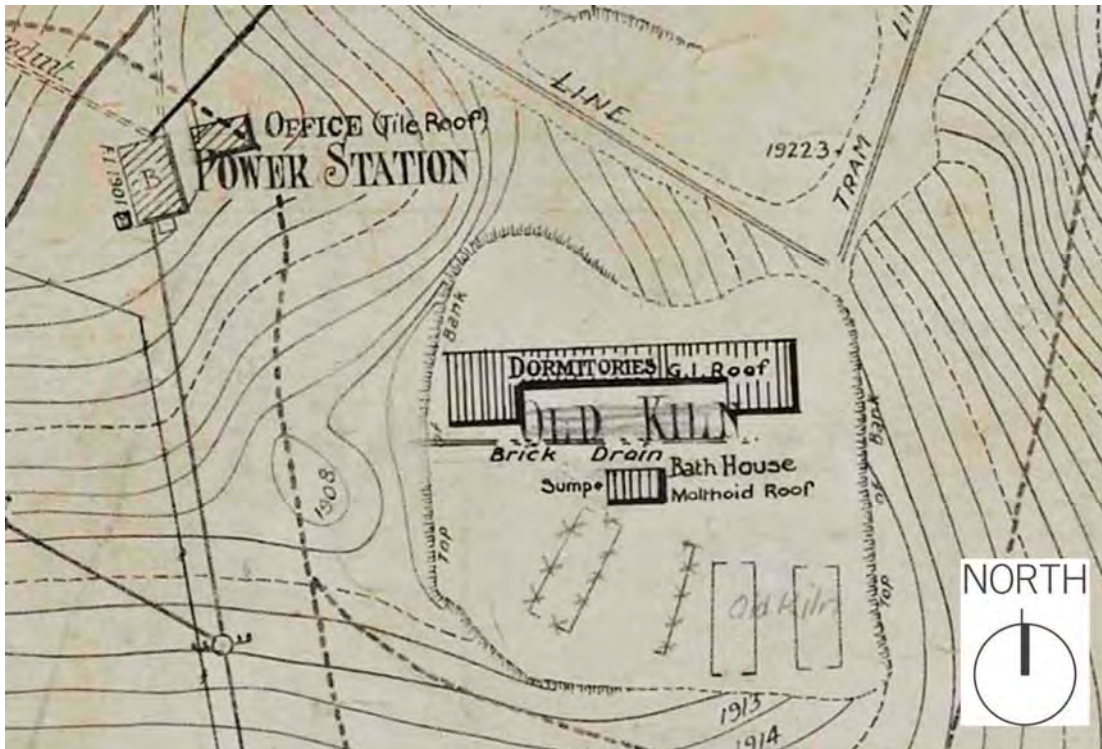


Figure 35 Excerpt from Detail Survey, 20 December 1916: it has not been established whether the 'Dormitories' on the site of the 'Old Kiln' was built.  
Source: National Archives of Australia.

Since 1960, much of the site has been incorporated into the grounds of the Royal Canberra Golf Course.<sup>50</sup>

During the Establishment Phase of the Canberra Brickworks, prior to its closure from late-1916 until 1920, workers were accommodated in two camps of tents; one for married couples, the other for single men. The camps were located on Banks Street, near the present Forestry School (see Figure 34).<sup>51</sup> The census of 31 December 1913 recorded a total of 62 residents of Westridge (Yarralumla), comprising 37 men and 25 women, the majority of whom were employed at the Brickworks.<sup>52</sup>

A dormitory block is shown on the site of the 'Old Kilns' on later versions of the 1916 Survey Plan (see Figure 35). It has not been established whether this was built. The first recorded permanent dwellings for workers at the Yarralumla works were constructed in the 1920s, at the top of Denman Street (single men's camp), and to the south-west of the Brickworks (married quarters).<sup>53</sup> (See also Chapter 4.)

<sup>50</sup> Register of the National Estate, Westbourne Woods Area, Place ID 13337.

<sup>51</sup> Ann Gugler, *The builders of Canberra, 1909-1929, Part one*, chapters 2 and 3.

<sup>52</sup> Ann Gugler, *The builders of Canberra, 1909-1929. Part one*, p. 77.

<sup>53</sup> The single men's camp had been abandoned by 1928. Ann Gugler, *The builders of Canberra, 1909-1929. Part one, Temporary camps & settlements*, Canberra, CPN Publications, 1994, chapter 2.

3.2 Datasheets for Establishment Phase elements

No	Name/ Description	Date of construction
01	Quarry	Shale extraction from 1913 until c. 1940
02	Concrete retaining wall	c. 1913-16
03	Power House	1915-16
04	Staffordshire kiln	1914-15
05	Fan house for Staffordshire kiln	1914-15
06	Stack for Staffordshire kiln	1914-15



Figure 36 Location of elements surviving from the Establishment Phase. Refer to the larger scale site plan in Chapter 1 for more detail.

Name	Quarry	Reference No	01
Historical Phase	Establishment and Expansion phases (1911 – c. 1940)	Survey Date	3 December 2009
		Date	Shale extraction from 1913



Figure 37 View of the quarry showing the narrow gauge tramway used to transport shale to the crusher, 1921.  
Source: National Archives of Australia.



Figure 38 Detail of a 1976 aerial photograph showing the clay storage shed and an unknown smaller structure to the right (both demolished).



Figure 39 Detail of site landscaping plan prepared by A R Marr Pty Ltd showing the reflection pond and the location of the model railway, c. 1977.  
Source: ACT Heritage Library, Woden, ACT.



Figure 40 View of the Quarry looking south-west from adjacent to the site boundary to Bentham Street.



Figure 41 Looking north across the quarry floor, the site of the reflection pool, developed as part of the A R Marr Pty Ltd proposal. The dividing wall in the centre of the image marks the location of a walkway which traversed the pool.



Figure 42 Quarry looking north towards Bentham Street.

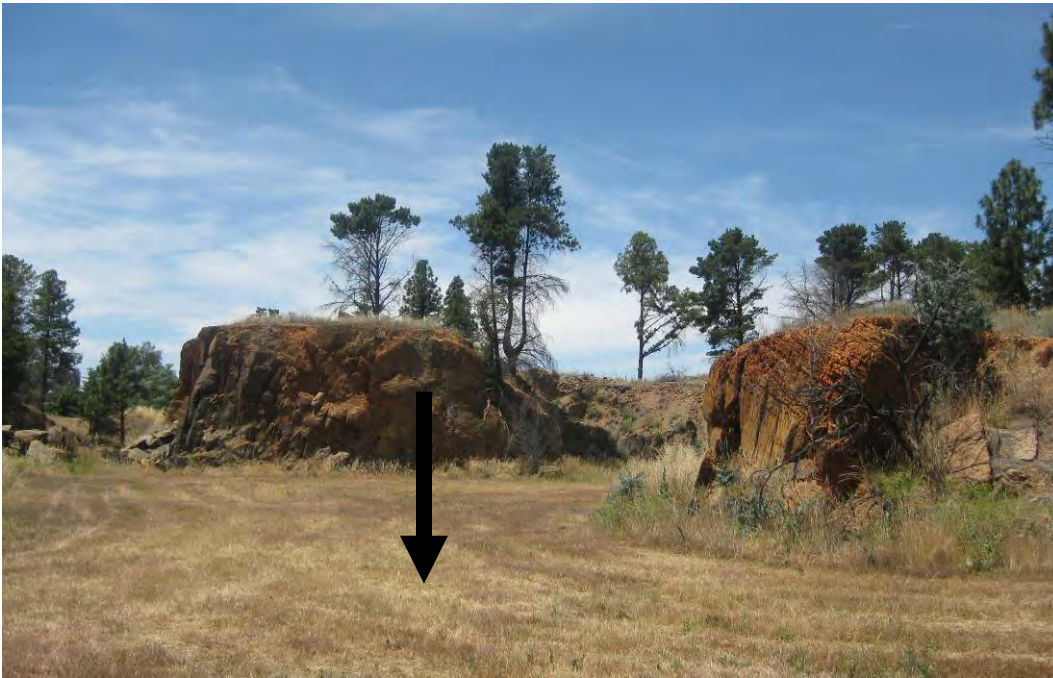


Figure 43 The approximate site of the clay storage shed, demolished after the closure of the works, is indicated by the arrow.

#### Historical background

The geology of Canberra consists of a range of both sedimentary and volcanic rock types which are relatively common in south-east New South Wales. The main rock types are:

- Deep water sediments of late Ordovician and early Silurian age
- Shallow water sediments of middle to late Silurian age
- Volcanic rocks of middle Silurian to early Devonian age

There are also minor outcrops of recent river gravels and stream deposits.

The deep water sediments (mudstone and siltstone) of the early Silurian age (424-423 million years ago) are present as what is known as the Yarralumla Formation. The Yarralumla Formation comprises shale - a very fine-grained sedimentary rock – which is fossiliferous in places.

The selection of the site for the ‘Commonwealth Brickworks’ on Frederick Campbell’s Yarralumla property followed tests on shale samples which produced bricks of good hardness and porosity (though the quality proved not to hold over time).

The raw material quarried for the ‘temporary’ works from 1913 was a hard yellow shale which was obtained by levelling a knoll to the east of the works. The shale varied greatly in quality and material from the various seams had to be mixed thoroughly to secure uniform colour in the bricks, increasing production costs.<sup>54</sup> As noted at Section 3.1.2, the raw materials were transported to the brickworks by a narrow gauge tramway, which was constructed so that trucks ran downhill to the works and empty trucks were returned to the

---

<sup>54</sup> Lester Firth Associates (Quarry datasheet, Appendix 2). The sources for the information in this paragraph are not cited.

quarry area using manpower. The tram lines could be relocated as the quarry face advanced (see Figure 37).

From the mid-1930s, raw materials were brought in from outside the works. Quarrying at the site was reported to be a complex process, and more costly than the average brickworks due to seams of unusable material such as limestone and sandstone.

Levelled areas of the quarry floor were subsequently used to house brickworks-related facilities, including an open-sided roofed enclosure for clay storage (since removed). It is shown in an aerial photograph of the site taken in 1976 (see Figure 38, see also Figure 43). Another smaller structure, located further east is also shown, although its purpose is not known.

After the closure of the Brickworks, the site development proposal prepared by A R Marr Pty Ltd proposed the construction of a narrow gauge railway and a 'reflection pool' in the former quarry (see Figure 39, and Figure 41). However, the pool failed to retain water and was frequently dry.

#### Description & Integrity

Other than for the works undertaken by Marr, the quarry appears to be little altered since the closure of the brickworks in the 1970s. It retains a series of rock outcrops which presumably contained unsuitable material, with quarrying continuing around them. It is not clear the extent to which sections of the quarry floor may have been modified and filled since the 1970s.

A concrete dividing wall, capped with stone paving at the quarry floor is a remnant of the A R Marr 'reflection pool', being a walkway across the pool. The railway has been dismantled.

There are areas of grass and the quarry and its edges are lightly treed, predominantly by self-seeded conifers.

The quarry is secured by a cyclone wire fence, due to safety concerns regarding the eroding quarry face, though access is available to residents whose properties back onto it.



Name	Concrete retaining wall	Reference No	02
Construction	Off-form concrete cast in situ	Survey Date	17 February 2010
Historical Phase	Establishment phase 1911-1920	Date	c.1913-16;

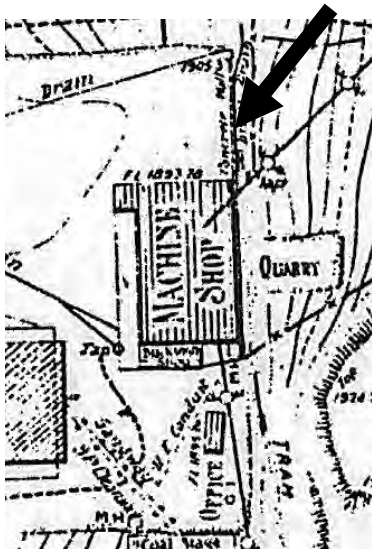


Figure 44 Detail from 1916 Survey Plan, with the concrete retaining wall highlighted.



Figure 45 Retaining wall to the rear of the Workshop (Building 17).



Figure 46 The north end of the concrete wall.

#### Historical background

A concrete retaining wall separating the quarry and the working area is shown on the 1916 Survey Plan. It is probable that it was constructed as part of the permanent works, during 1915-16. At its southern end, the wall returned to form the 'Coal Stage,' also shown on the 1916 Survey Plan. The wall extended to the north, approximately to the concrete base of the demolished Pan Room, where it returned to the east (see Figure 46). The rear of the original 'Machine Shop' abutted the retaining wall (see Figure 44).

#### Description & Integrity

The cast in-situ off-form concrete wall is approximately three metres high. Its depth has not been established. The original extent of the wall remains legible, although the former Coal Stage has been demolished. The crusher houses (Buildings 18 and 19) and the east and north brick walls of the model railway workshop (Building 33) are built on top of the wall. It also carries the pedestrian bridge that provides access to the firing floor of the first Hardy patent kiln (Building 8), see Figure 46.

Notwithstanding some deterioration at the top, and the impacts of buildings 18, 19 and 33, the wall is generally in sound condition.

---

Name	Power House	Reference No	03
Construction	Brick with terracotta tiled roof	Survey Date	3 December 2009
Historical Phase	Establishment phase 1911-1920	Date	c.1915-16;



Figure 47 The Power House is the tile roofed building in the centre of the image. The office building (Building 7) adjoins it to the right and the small cream brick structure is the Downdraught kiln control room (Building 23).



Figure 48 From left: South elevation and entry; interior showing retained plant.

#### Historical background

Prior to the commissioning of the Central Generating Station (Kingston Power House) in 1915, the Canberra Brickworks was powered by a steam driven donkey engine. When the Kingston Power House came on line in July 1915, the high voltage supply was broken down by transformers to lower voltages and distributed across the site. This was achieved by three overhead cables connected to the purpose-built Power House, described as the 'Power Station' on the Survey plan of December 1916 (see Figure 30). The locations of the original entry points for the cables are visible on the south elevation.

It is possible that the openings in the south elevation have undergone alteration.<sup>55</sup>

#### Description & Integrity

The Power House is built of face red brick, has a gable roof clad in terracotta tiles with timber vents within the gable to both the south and north end. Access is via paired ledged and braced timber doors to the south and north ends of the building. At present, the paired doors to the south elevation are in use and those to the north are secured internally by timber battens nailed across the doors. Highlight windows to the east wall and three access

---

55 A drawing dated 17 December 1953, (ref. Canberra Brickworks Proposed extension to Office Building Sketch-plans, National Archives of Australia) detailing additions to the adjoining office refers to the north elevation of the Power House as the 'front' and the south elevation as the 'rear'. The drawing details the doors to the north elevation but does not detail any openings to the south, possibly implying that the openings to the south are not original. No original drawings of the Power House have been located to confirm or refute this evidence, but a visual inspection of the fabric suggests that the door opening and the cable access points are original details or alterations of long standing, predating the 1953 drawing.

points for transmission cables in the south wall are bricked up and there are two non-original multi-paned metal-framed windows in the west wall.

Internally, the Power House has a concrete floor and the ceiling is lined with a narrow profile painted corrugated iron. Some early electrical equipment is still *in situ* within the building, including circuit breakers, ammeters, watt meters and distribution boards and some is in still in use, providing power for tenants. Other early high voltage switchgear and transformers are thought to have been removed. The original connection high up in the south wall has been discontinued and power is now relayed underground from a power pole in close proximity to the structure.

The building is in fair condition. Efforts to secure the building against illegal entry and vandalism have had a detrimental impact on its physical condition and presentation. The terracotta roof tiling and the soffit are both in poor condition. The entry doors are damaged with some of the boards removed and the highlight windows above are broken and sheeted over. Graffiti is also evident.

Openings to the east and south walls are bricked up.

The extension of the adjoining office block to the east and the siting of the small service building to the immediate west have had an adverse impact on the presentation of the building.

---

Name	Staffordshire Kiln	Reference No	04
Construction	Brick with corrugated steel roof	Survey Date	3 December 2009
Historical Phase	Establishment phase 1911-1920	Date	c. 1916



Figure 49 The Staffordshire kiln, fan house and stack, photographed in 1917 by Harry Connell. Note that in this view the kiln verandah does not extend to the west elevation.

Source: National Library of Australia.



Figure 50 The west elevation today.



Figure 51 The east elevation, photographed by Harry Connell in 1917.  
Source: National Library of Australia.



Figure 52 The north elevation, photographed prior to the rebuilding of the verandah to support a first floor enclosed verandah structure.  
Source: National Archives of Australia.



Figure 53 View of the west elevation from the 1920s showing the later two-level verandah structure.  
Source: National Archives of Australia.





Figure 54 North elevation showing modified kiln entrances.



Figure 55 Kiln interior.



Figure 56 Interior of the upper floor of the kiln looking west across the firing floor.

#### Historical background

An overview of the history, planning and construction of the Staffordshire kiln is included in Chapter 2.

Plans for the Staffordshire kiln were purchased in early 1914 from Robert E Odd, the Australian holder of the patent for the 'Staffordshire' and 'Manchester' continuous brick kilns. The Staffordshire kiln, a variation on the Hoffman model, had been patented by Dean and Hetherington of Accrington, Lancashire (England) in 1904. The continuous tunnel of the Hoffman kiln was replaced by a series of separate side by side chambers, in this case 20 chambers. This allowed a single chamber to give special treatment to its contents; such as terracotta tiles or pipes which could therefore be produced alongside brick firing. Previously, separate kilns were required.

Fans accommodated in a separate fan house are used to draw the heat through the kiln tunnel to be dispersed through a short brick stack, rather than a high chimney. The Lester Firth Conservation Plan notes this aspect of the design of this particular Staffordshire kiln was pursued to avoid the visual impact of a higher stack in the Canberra area. No documentary evidence has been located to substantiate this claim, though there is some evidence that Staffordshire kilns constructed elsewhere may have had taller stacks.<sup>56</sup>

---

<sup>56</sup> See, for example, the online views of a Staffordshire kiln at the Dunaskin Brickworks in the UK, <http://www.scran.ac.uk/database/record.php?usi=000-000-481-395-C>.

Construction of the kiln began in November 1914, and it was operational from early 1916. However, the brickworks closed within a year, a reflection of a reduced works program in Canberra during World War I, and the coal strike of November-December 1916.

The Staffordshire Kiln was the first permanent kiln structure to be constructed at Canberra and the only example of its type to survive in Australia today.<sup>57</sup>

#### Description & Integrity

As originally constructed, the Staffordshire kiln was a two-storey structure with a brick base, brick upper walls and a galvanised steel roof. It contained 20 chambers. The internal fire bricks were imported from England, and some were apparently numbered to show construction sequence. Truss work in the loft was also imported with steel beams stamped 'Frodingham England', indicating their manufacture by the Appleby-Frodingham Steel Co. A single level verandah, supported on timber posts enclosed the north and south elevations (see Figure 51 and Figure 52). By the mid 1920s, this structure had been removed and a more robust structure enclosed the north, south and west walls at first floor level with a timber enclosed verandah structure, thought to have been open to the firing floor internally (ie the brick walls having been demolished, see Figure 53). There is some evidence that this expanded upper level to the Staffordshire kiln may have been used for the drying of tiles, presumably those produced in the tile-making plant which is understood to have been added to the site in this period (at the south end of the Machine Shed)<sup>58</sup>. A 1925 plan showing proposed alterations at the site indicates two 'tile lifts' located adjacent to the Staffordshire kiln.<sup>59</sup> According to Lester Firth Associates, the first floor level to the verandah was demolished in the A E Marr period and the brick walls at first floor level were rebuilt in their original position at this time, but without the openings as in the original (refer to Figure 52).<sup>60</sup>

Today the Staffordshire kiln comprises the 20 kiln chambers to the ground floor with a firing floor above, enclosed by non-original brick side walls and original brick end walls, with a gable roof form, clad in corrugated steel. The gable to the west end is infilled with corrugated steel and timber louvres, which are thought to be the original treatment. A 1917 photograph shows that the same scheme was in place at the east end, now obscured by the skillion roof structure that later enclosed the yard area between the machine bays and the kiln (see Figure 51).

Significant rebuilding works took place in the mid 1950s, when the 1927 Hardy Patent kiln (Building 8) was also upgraded and extended, and a further Hardy patent kiln (Building 12) was constructed. At this time the kiln chamber entrances were enlarged to permit forklift access. The individual kiln numbers, originally painted above the centre of each of the arched entrances are today incised in a rendered 'pad' to the right side of each of the

---

57 Up to three Staffordshire kilns were constructed at the State Brickworks, Homebush Bay Strathfield NSW in 1911-12, but since demolished.

58 Lester Firth Associates 1986, Section 2.1.2

59 Commonwealth of Australia, Department of Works and Railways: Proposed Additions to Brickworks, 18 November 1925, M3495B, National Archives of Australia, cited in Lester Firth Associates 1986, Section 2.1.2.

60 Lester Firth Associates, 1986, Datasheet appendix.

openings. To the south elevation, one of the kilns at the eastern end has been infilled with brickwork and a single door opening installed, enabling the space to be secured for storage. The first floor level of the verandah has been demolished and the supporting verandah is only extant in areas to the north, east and west ends, and is in an advanced state of deterioration.

Internally, between the kiln chambers, there are a number of 'trace-holes' which could be closed by dampers, which were raised and lowered from the firing floor above. Within the kiln arches the feedholes and hot air off-takes are still apparent. A number of the kilns have been paved internally with cement tiles, a modification which occurred after the closure of the plant, and for the accommodation of antiques stalls, part of the tourism concept for the site developed by A R Marr Pty Ltd in the late 1970s.

The upper floor and verandah of the Staffordshire Kiln has also been modified a number of times including the enclosing of the verandah with corrugated iron, bringing the line of the upper floor out to the edge of the original verandah. This modification was later reversed by A R Marr Pty Ltd when new brick walls were constructed on the line of the original building wall, with the intention of refitting the space as a commercial facility in line with a proposal to establish a tourist park. The roofing was also replaced at this time.

Several of the kiln linings are bulging and brickwork is loose in places. The first floor remnant verandah structure is in very poor condition and the former firing floor space is in poor condition.

---

Name	Fan house for Staffordshire kiln	Reference No	05
Construction	Brick with corrugated steel roof	Survey Date	3 December 2009
Historical Phase	Establishment phase 1911-1920	Date	c. 1916



Figure 57 Fan house with stack behind.

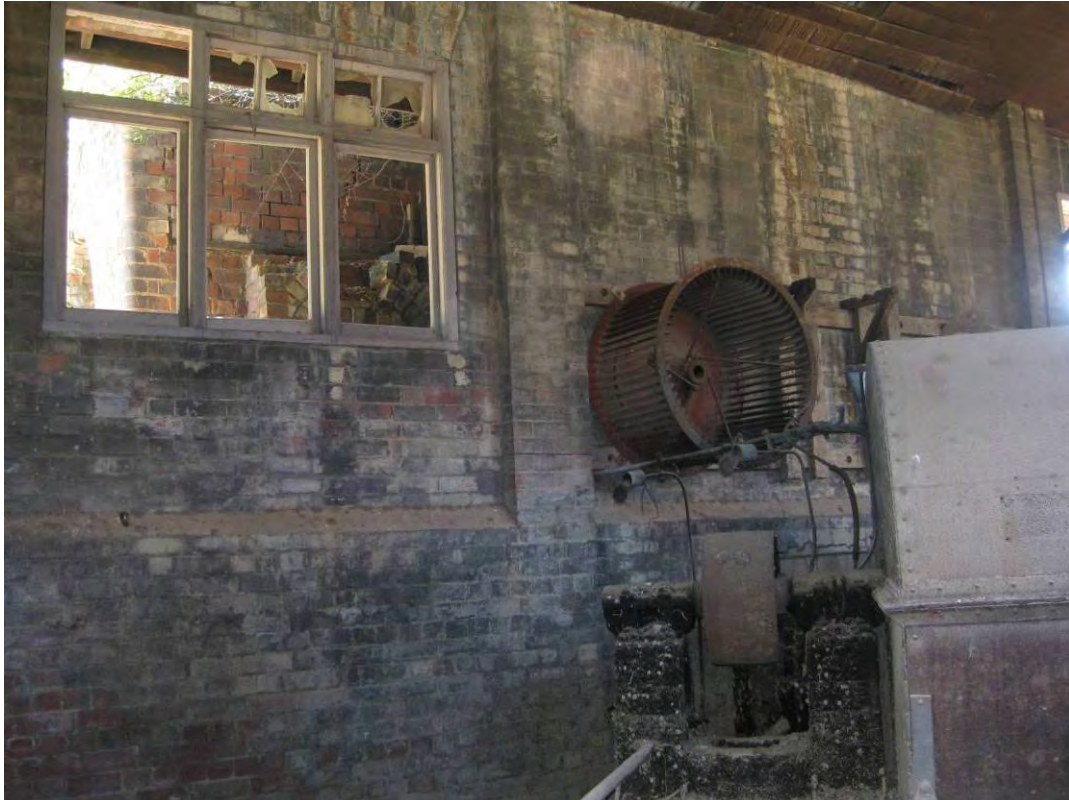


Figure 58 Interior of fan house. The tangential fan is mounted on the rear wall.



Figure 59 Another view showing the entry to the tunnel / flue connecting the fan house with the Staffordshire kiln.

### Historical background

An unusual feature of the design of the Staffordshire kiln was the use of fans to help dissipate heat and burnt fuel. The use of fans compensated for the greater draw or suction a taller chimney would have provided, and allowing for the use of a lower brick stack.

The fan house, constructed of brick and roofed in corrugated steel, is located approximately 20 metres west of the Staffordshire kiln. It was constructed in conjunction with the kiln in c. 1915-16, and housed the machinery to induce the drafts required to disperse heat and burnt fuel through the stack.

### Description & Integrity

The fan house is constructed of face red brick, laid in English bond with a Dutch gabled roof clad in of corrugated steel, recently renewed. The fan house presents as a single-storey building, but has a lower floor level internally. There is a central double door entrance in the east (front) elevation (door leaves removed), flanked by tripartite timber-framed casement windows with awning toplights, set on sloping sills of bullnose bricks. The windows are broken and some of the glazing bars to the toplights have been knocked out. Additional windows are centrally placed in the north and south end walls. The west wall has windows placed directly opposite the windows that flank the entrance. The rainwater goods, soffits and fascias to the roof have all been removed.

Internally the ceiling is lined in beaded painted timber boards, some of which are damaged. The walls are of brickwork, heavily stained by soot. Within the building there is a diamond-shaped concrete apron to the entry with metal ladder from stairs to a lower floor level to either side of the apron. There is a metal guardrail around the apron. The apron sits over the entry to the kiln draught tunnel and the tunnel to the stack. One of two fan motors remains (albeit in a dilapidated state) within the basement area and the concrete engine mounts are also intact. The fan housings are partly intact with the dampers in-situ and one of the tangential fans hanging on the rear wall. The ductwork which carries the exhaust to the stack is carried below ground.

The building is unsecured and in poor condition with evidence of the effects of vandalism including broken windows, missing entry doors and graffiti to the exterior brickwork. The replacement of the roof cladding is a positive action which is preventing further deterioration of the interior ceiling lining.

The bulk of the plant appears to have been removed, and what remains is in a dilapidated state. Remnants remain of the tangential fans, partially dismantled motor housing and components of one of the electric motors remain. The dampers to the kiln tunnel are also extant.

---

Name	Chimney stack for Staffordshire Kiln	Reference No	06
Construction	Brick	Survey Date	3 December 2009
Historical Phase	Establishment phase 1911-1920	Date	c. 1916



Figure 60 The full extent of the stack, with a smaller near-contemporary kiln adjoining to the right.





Figure 61 Left: Detail of a photograph of c.1926. The kiln abutting the stack is indicated by the arrow (Source: National Archives of Australia). Right: Interior of the chimney stack.

#### Historical background

In the case of the Staffordshire kiln, fans were used help dissipate heat, allowing for the use of a lower brick stack. The heat and burnt fuel was pushed by the fans through a subterranean duct to the stack, from which it was dissipated.

To its south, the stack abuts a small brick kiln, referred to in the 1986 *Conservation Plan* as an experimental kiln. While this element is not shown in a 1917 photograph of the works, it is clearly visible in a photograph taken in c. 1926 indicating it is an early site element (Figure 61).

#### Description & Integrity

The chimney stack, constructed of face red brick is adjacent to the Staffordshire kiln fan house and located approximately 30 metres west of the kiln building. A gravelled roadway separates the kiln from the stack and fan house. The stack is capped with several courses of corbelled brickwork and then surmounted by nine rows of brickwork. Metal bracing to the corners of the section above the stepped brickwork is partly intact. There is evidence of rebuilding of some of the upper courses and a lightning conductor has also been installed since the 1986 *Conservation Plan* was completed. An arched opening in the west face of the stack has been infilled with brickwork. Within the stack iron rungs have been installed on a diagonal to provide internal access.

To the right, a small brick kiln abuts the stack. It has an arched opening in both its west and south faces. The kiln is in a partially ruinous state and vegetation is impacting on the structure.

### 3.3 Demolished structures

The 1986 *Conservation Plan* provides background information, with varying degrees of detail, on a number of now demolished structures associated with the development of the Canberra Brickworks. Several of these relate to the establishment phase of the site and are addressed below. It is noted that there are structures relating to the post-war phase of development, including a clay storage shed, carpenter's workshop, oil and coal bunkers, weighbridge and a forklift shed, demolished since the 1986 *Conservation Plan*, are discussed in brief in Chapter 6.

#### 3.3.1 'Temporary' kilns

The precise location of the temporary kilns (possibly clamps), delineated as four structures on the 1916 Survey Plan (see Figure 30), is unclear. While it would appear that little discernible evidence of the structures were visible at the date of the compilation of the 1986 *Conservation Plan*, the site of the kilns and associated works would be of archaeological potential and this should be assessed prior to any proposed major disturbance to the site (refer to Chapter 8).

#### 3.3.2 *Brickworks Hostel / Accommodation Village*

Initially workers were housed in tents along the ridge to the east of the works. Permanent dwellings for workers at the Yarralumla works were constructed in the 1920s, at the top of Denman Street (single men's camp), and to the south-west of the Brickworks (married quarters). The single men's camp was disused by 1928 (see also Chapter 4). The buildings that comprised the married quarters are shown in a detail of a 1929 photograph of the works, as well as in an image of the kiln 'road', running north-south between the kilns and fan houses, also of 1929 (see Figure 62, Figure 63). The married quarters were removed during World War II, and replaced by a new Brickworks Hostel (1945, demolished in the early 1970s). Little evidence of the former residential accommodation is visible, with revegetation resuming much of the area (Figure 64). Again, the site of the accommodation village, as well as its earlier temporary site would be of archaeological potential and this should be assessed prior to any proposed major disturbance of the site.

#### 3.3.3 *Cottage complex*

This complex of buildings – refer to 1986 *Conservation Plan* datasheet NE4, Appendix 2 – apparently comprised a cottage with outbuildings located to the north of the second Hardy patent kiln and stack (Buildings 8 and 10). Set above the complex, the site today has been redeveloped as part of Lane Poole Place and is outside the study area. The archaeological potential of this site is considered to be very limited.

#### 3.3.4 *Explosives store*

The explosives store was relocated from a site c. 180 metres south of the Power House to the opposite side of the brickworks, behind the brick extrusion plant – refer to 1986 *Conservation Plan* datasheet NE-3. Both locations should be examined to determine their archaeological potential prior to any proposed major disturbance of the site.

### 3.3.5 *Weatherboard cottage*

A cottage and stable building are delineated on the 1916 Survey Plan, sited to the north-east of the quarry – refer to 1986 *Conservation Plan* datasheet NE6 – with its approximate site within the present day bounds of the quarry.

### 3.3.6 *Carpenters shed*

This structure was located approximately 50 metres south-east of the Power House –refer to 1986 *Conservation Plan* datasheet NE8. Its date of construction is not known and it was removed during the 1960s with the site later used as a car parking area – refer to detail of the 1976 aerial photograph at Figure 65. Prior to any redevelopment of the site of the former carpenters shed, the potential for archaeological significance should be assessed.



Figure 62 Detail of a 1929 photograph of the brickworks looking south-west showing the accommodation village buildings (indicated).  
Source: National Archives of Australia.



Figure 63 Looking south along the kiln 'road', the Staffordshire kiln at left, 1929. The mess hall building and the roofs of several of the sleeping quarters are visible in the background.

Source: National Archives of Australia.



Figure 64 The remains of the accommodation village today, looking north-east.



Figure 65 Detail of a 1976 aerial photograph with the then car park, thought to be the site of the former carpenter's shed indicated.  
Source: ACT Heritage Library, Woden, ACT.



## 4.0 HISTORY & PHYSICAL ANALYSIS: EXPANSION PHASE 1921-1940

### 4.1 Historical background

#### 4.1.1 *Interwar Canberra*

At the end of 1920, following the end of World War I, the Hughes Government decided to proceed with the construction of Canberra. Major works completed in the 1920s included the Provisional Parliament House, Sydney and Melbourne Buildings, Albert Hall, Forestry School, Hotel Canberra, Hotel Ainslie and the Capital Theatre, as well as housing at Ainslie, Reid, Forest and elsewhere. Residential construction peaked in 1927, the year that Parliament first sat at Canberra, and just prior to the transfer of public servants to the National Capital in May 1928.

During the 1920s, the population of Canberra was approximately 3,000, the majority being construction workers (the influx of public servants effectively doubled the population of the city).<sup>1</sup> The construction workers were housed in 'barrack-like camps'<sup>2</sup> located around the edges of the evolving city. One of these camps was built on Stirling Ridge, elevated ground to the east of the Brickworks. 'Westridge' (as Yarralumla was then known) was also the location of Canberra's night soil depot, located on Adelaide Avenue, close to the present-day Kent Street-Novar Street overpass.<sup>3</sup>

When the Canberra Brickworks was reactivated (see Section 4.1.2), accommodation was required to attract workers to Canberra. In 1921/22, seven timber tenements and a number of brick cottages were constructed adjacent to the Brickworks Camp, near the present Forestry School on Banks Street. These were among the first permanent dwellings at Westridge. At around this time, a recreation ground and tennis courts were also constructed for the benefit of the workers at the Brickworks Camp. Further development in Westridge followed during the 1920s, including the construction of 62 timber cottages for workers on the Provisional Parliament House.

The next phase of residential development at the Brickworks began in February 1927, when a new single men's camp was constructed on the south side of Denman Street, close to the entrance to the site. New married quarters were located to the south of the Brickworks in the same year (see Figure 66).<sup>4</sup>

In 1925, Yarralumla was selected as the site of the Australian Forestry School (see Figure 67). A new building, designed in the Interwar Stripped Classical style by J H Kirkpatrick of the Federal Capital Commission (FCC), was completed in 1927. This was followed in 1928 by Westridge House, a house designed by Melbourne architect Harold Desbrowe Annear in collaboration with the noted interior designer, Ruth Lane Poole, as the premises of the

---

<sup>1</sup> Paul Reid, *Canberra Following Griffin: A Design History of Australia's National Capital*, National Archives of Australia, Canberra, 2002, p. 193.

<sup>2</sup> Paul Reid, *Canberra Following Griffin*, p. 193.

<sup>3</sup> Ann Gugler, *The builders of Canberra, 1909-1929. Part one, Temporary camps & settlements*, Canberra, CPN Publications, 1994, chapter 3.

<sup>4</sup> Dates and details in this paragraph are from, Ann Gugler, *The builders of Canberra, 1909-1929. Part one*, chapters 2 and 3.



Figure 66 The married quarters camp (background), built to the south-west of the Brickworks in 1927.

Source: National Archives of Australia.



Figure 67 Forestry School, Banks Street, Yarralumla, built 1927.

Source: National Archives of Australia.





Figure 68 Westridge House, Yarralumla, built 1927/28.  
Source: National Archives of Australia.



Figure 69 Plan of Canberra, 1933, showing the Brickworks to the west of the camp at 'Westridge' (Yarralumla).  
Source: National Library of Australia, G8984 C3 G45 1933 NLA.



Figure 70 Plan of Yarralumla, 1927. The street layout (pictured right), derives from Griffin's scheme and was not fully realised.  
 Source: Ann Gugler, *The builders of Canberra, 1909-1929*, chapter 3.

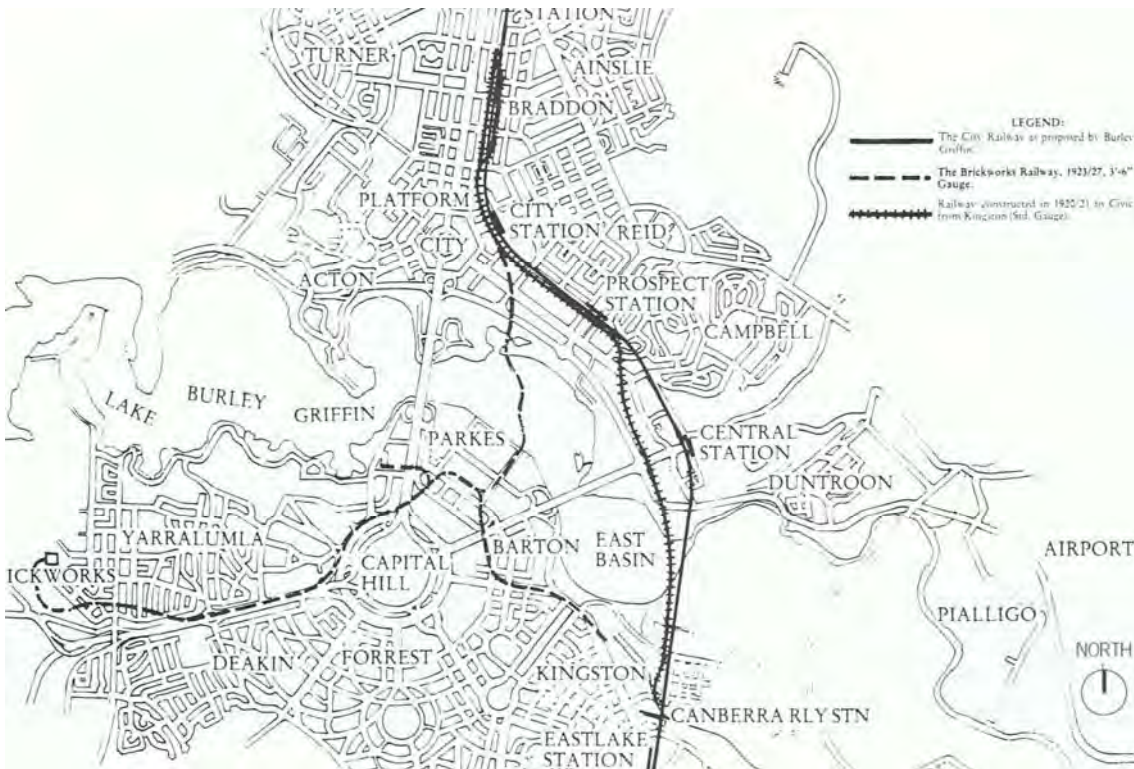


Figure 71 Plan of Canberra with the Brickworks Railway (broken lines) superimposed.  
 Source: Canberra's Engineering Heritage ([www.engineer.org.au](http://www.engineer.org.au))



Figure 72 Aerial view of Canberra Brickworks, 1961. Note the railway cutting to the west of the site. The route of the railway east towards the city is also evident.  
Source: ACT Planning and Land Authority.

Principal of the Forestry School, Charles Lane Poole (see Figure 68).<sup>5</sup> The property survives, and the Lane Poles are remembered in the name of the residential street to the north of the Brickworks.<sup>6</sup> Also in 1927/28, 27 'lined cubicles' and 'mess, recreation and ablution areas' for students were constructed in the grounds of the Forestry School.<sup>7</sup>

In the late 1920s, Westridge was an isolated outpost of the emerging National Capital. The area was not recognised as a suburb until October 1935, following complaints from local residents that they had been overlooked by the authorities (see Figure 69 and Figure 70).<sup>8</sup>

<sup>5</sup> 'Westridge House,' viewed at uncommonlives.naa.gov.au, accessed 31 January 2010.

<sup>6</sup> Lane Poole Place was developed during the 1980s, following the decommissioning of the Brickworks (1976), and subsequent re-zoning of the site (1979). See Chapter 6.

<sup>7</sup> Ann Gugler, *The builders of Canberra, 1909-1929. Part one*, chapter 3.

<sup>8</sup> Ann Gugler, *The builders of Canberra, 1909-1929. Part one*, p. 77.

#### 4.1.2 *Canberra Brickworks revived*

Repairs to machinery at the Canberra Brickworks were made in 1920, and the complex was re-opened early in 1921, with Mr W K Newbold as manager and a staff of only 35.<sup>9</sup>

A tile making plant was installed in 1922, located to the south of the 'Machine Shed'. In 1925, Dr Wunderlich of the Wunderlich Tile Company, Sydney reported to the Government that £5,000 had been expended on a small tile making plant, and that tiles were of poor quality. He recommended a £15,000 upgrade, however the Government decided to spend £2,000 on improving the product.<sup>10</sup>

By the end of 1923, five million bricks and 50,000 tiles had been produced at the plant by a workforce of 53.<sup>11</sup> The bricks produced at Yarralumla in this period were generally regarded as being of high quality. In 1925, Dr Wunderlich reported that, 'the Canberra Brickworks has been turning out a brick of remarkably fine quality; in fact a quality unnecessary for ordinary construction work'.<sup>12</sup>

Initially, bricks were transported from the Brickworks to the construction sites in the emerging city centre by traction engine. However, the machines were able to make only two daily round trips. To speed the process a light railway was constructed, leading from the south-west of the brickworks site, before aligning with the present Denman Street and heading east to the construction sites (see Figure 71). A bridge was constructed to carry the trains over the Molonglo River to the Civic Centre (now known as Civic). The 3' 6" (1,067mm) gauge steam powered railway was operational by the end of 1923.<sup>13</sup>

The 'branch lines' of the light railway were removed prior to the opening of the Provisional Parliament Building in May 1927 and the remaining sections of the railway were removed in 1929. From the late 1920s, bricks were transported by truck. The route of the railway is shown on a 1961 aerial view of the site (see Figure 72). It is believed that the only remaining evidence of the light rail network is the formation between Denman Street and the west side of the Brickworks.<sup>14</sup>

To cope with increased demand during the 1920s, two 'temporary' downdraught kilns and an associated stack were constructed in October 1925. These were oriented east-west and located close to the site of the three 1960s Downdraught kilns that remain today (see Figure

---

<sup>9</sup> Lester Firth and Associates, 1986, Section 2.1.2. Sources are not cited.

<sup>10</sup> National Archives of Australia, File no. 25/15958, cited in Lester Firth and Associates, 1986, Section 2.1.2.

<sup>11</sup> Dates and figures in this paragraph are taken from Lester Firth and Associates, 1986, Section 2.1.2. Sources are not cited.

<sup>12</sup> *Queanbeyan Age*, 16 July 1925, cited in Lester Firth and Associates, 1986, Section 2.1.2.

<sup>13</sup> Walter M Shellshear, author of Chapter 2 (Railways) in W C Andrews & Alan Fitzgerald, *Canberra's Engineering Heritage*, Institution of Engineers, Australia, Canberra Division, 1983, viewed online (unpaginated) at, [www.engineer.org.au](http://www.engineer.org.au), accessed 29 January 2010.

<sup>14</sup> Walter M Shellshear, author of Chapter 2 (Railways) in W C Andrews & Alan Fitzgerald, *Canberra's Engineering Heritage*, viewed online at, [www.engineer.org.au](http://www.engineer.org.au), accessed 29 January 2010.

73). However, the additional output was insufficient to cope with the demands of the National Capital construction program; during this period at least five million bricks were purchased from outside the Australian Capital Territory. In 1926, the *Canberra Times* reported that by October of that year additional plant capable of doubling the output of the Brickworks, was to be operational.<sup>15</sup>

In 1926 the existing 'Machine Shed' (see Figure 74), was expanded by two bays for two new New Era 'Whittaker' brick machines and grinding pans. A Hardy patent kiln (a modified Hoffman-type kiln with a detached stack) was built and in use by early 1927, located to the north of and parallel to the Staffordshire kiln (see Figure 75 and Figure 76).<sup>16</sup> This kiln remains today, albeit in extensively modified form. Also during this period, a 'Scotch' kiln was in operation to the north of the Staffordshire kiln (see Figure 75), and the original section of the present office building was constructed (see Figure 78). In January 1927, the *Canberra Times* commented on the expanded capacity of the works, noting that in addition to the new Hardy patent kiln of 18 chambers (with a potential annual output of six million bricks), a new down draft tile kiln was operating with an annual output of 420,000 tiles and a new Roman tile machine had a daily output of 2,000 tiles. It also noted that three hand presses had been installed (presumably in the Machine Shed) 'for all classes of special work'.<sup>17</sup>

Ironically, considering the scale of the expansion works, with the end of major building operations in the ACT, the demands on the Brickworks were greatly reduced. The 1927/28 Federal Capital Commission *Annual Report* noted that the plant at Westridge, which comprised one 'Hoffman' (the Hardy patent kiln), one Staffordshire and two Downdraught kilns, was capable of producing 12,000,000 bricks and 500,000 tiles per annum. The report also noted that extra crushing plant and equipment was installed at the quarry, and large supplies of material for road construction and use in building works had been obtained. The Joinery Shop, Mechanical and Electrical Workshops had operated during the year although the Joiner's Shop was to be closed due to lack of demand.<sup>18</sup>

Due to instability, quarrying was reportedly more difficult and costly at Yarralumla as compared to other Brickworks. A comparison of prices in 1929 showed that 1,000 common Canberra Bricks cost £6.11s while the State Brickworks in Sydney could supply 1,000 commons for £2.18s 6d. But freighting 1,000 bricks to Canberra cost £5.1s, almost as much as it cost to manufacture them at Yarralumla. In addition the Brickworks was operating at a loss, because of Commission policies to sell bricks to private enterprise at little above cost price to make building as cheap as possible. Bricks for public servant homes were sold below cost price to give further incentive for them relocate to Canberra.<sup>19</sup>

---

15 Cited in Lester Firth and Associates, 1986, Section 2.1.2. The date of the *Canberra Times* article is not included.

16 Lester Firth and Associates, 1986, Section 2.1.2, source uncited.

17 *Canberra Times*, 6 January 1927, p. 1.

18 Lester Firth and Associates, 1986, Section 2.1.2, citing the *Annual Report of the Federal Capital Commission*, 1927 and 1928.

19 Lester Firth and Associates, 1986, Section 2.1.2, citing the *Annual Report of the Federal Capital Commission*, 1929.

The 1929 Depression saw production severely curtailed. To minimise costs, timber was used for firing kilns instead of coal. Production eventually ceased altogether and the works closed in February 1931. Stockpiled bricks were used for essential construction purposes only. As the economy revived, Government funds were again available for office accommodation for public servant transfers to Canberra. Restricted production at the Canberra Brickworks began again in 1935. From this period problems with shale quality (limestone intrusion) meant that most material for brick production had to be brought to the site from elsewhere. Evidence of this limestone problem is evident in the rock outcrops in the quarry area.<sup>20</sup>

The late-1930s was a boom time for the construction of Canberra, and the Canberra Brickworks was unable to meet demand. On 19 October 1939 the *Canberra Times* reported that daily production at the brickworks was 45,800 bricks, and the average consumption in building operations was 50,280, a situation that required the purchase of 631,500 bricks from the Bowral works in New South Wales.<sup>21</sup> For the 12 months ending December 1940, the output of 7.25 million bricks was the highest since the boom days of the 1920s.<sup>22</sup>

World War II diverted peace time activity to works associated with the war effort, and saw the closure of the Brickworks once again. In April 1942 staff were laid off and a caretaker manager retained to issue bricks for essential works. At the time, three million bricks were in stock, some of which were used in the construction of the US Legation in Canberra.<sup>23</sup>

The range of products for building purposes produced at the Brickworks in the 1930s was enormous. A 1936 Stock Sheet of the Department of Interior lists all products and includes: 3" common bricks, 3" Face bricks (red), 3" Black bricks common, 2" Paving bricks, 2" Face bricks (red), 3" semi-glazed Face Bricks, 3" Chocolate Face bricks, 3" Pavers, 2" Common bricks, Squints, Ovolo Double return bricks, Special Mould bricks, Ovolo Type 8, Ovolo Type 17, Splay on End 3", 3" Splay on End Flat double, Angle Bricks, Scotia, Cornice, 3" Bull Nose Bricks, Plinth single Return, Double Return, Bull nose stops – single and double, Vents, Louvres, Air Bricks, kerbs, Tiles – Marseilles, Roman, with apex, ridge, starters and stops, paving tiles, chimney pots, fluted bricks and facing tiles.<sup>24</sup>

---

<sup>20</sup> Lester Firth and Associates, 1986, Section 2.1.2, source uncited.

<sup>21</sup> 'Canberra Bricks – Local Production Inadequate, Imports From Bowral,' *Canberra Times*, 19 October 1939, reproduced in Ann Gugler, *Canberra 1930-1943 & 1949, articles from the Canberra Times & other sources*, Mawson, ACT, 2002, p. 19

<sup>22</sup> *Canberra Times*, 17 January 1941, cited in Lester Firth and Associates, 1986, Section 2.1.2.

<sup>23</sup> Department of the Interior memo no. C480 16 April 1942, cited in Lester Firth and Associates, 1986, Section 2.1.2.

<sup>24</sup> Department of Interior, Stock Sheet, 1936, referenced in Lester Firth and Associates, 1986, Section 2.1.2.



Figure 73 Detail of 1947 site plan, indicating the location of the two ‘temporary’ Downdraught kilns, to the south of the Staffordshire kiln (‘No. 1 Kiln’). . Source: National Archives of Australia.



Figure 74 The Machine Shop (left), pictured mid-1920s. Source: National Library of Australia.



Figure 75 Hardy patent kiln under construction, 1926. Note Scotch kiln to right of picture.  
Source: National Archives of Australia.



Figure 76 Hardy patent kiln under construction, c. 1926.  
Source: National Archives of Australia.



4.2 Datasheets for Expansion Phase elements

No	Name/ Description	Date of construction
07	Offices	c. 1925
08	Hardy patent kiln	c. 1926-27 (rebuilt 1955)
09	Fan house for Hardy patent kiln	c. 1927 (second phase c. 1955)
10	Chimney stack for Hardy patent kiln	c. 1926-27



Figure 77 Location of elements surviving from the Expansion Phase. Refer to the larger scale site plan in Chapter 1 for more detail.

Name	Offices	Building No	07
Construction	Brick with terracotta tiled roof, brick additions roofed with steel sheet	Survey Date	3 December 2009
Historical Phase	Expansion phase 1921-1942	Date	c. mid 1920s, extended c. 1953 and 1970s

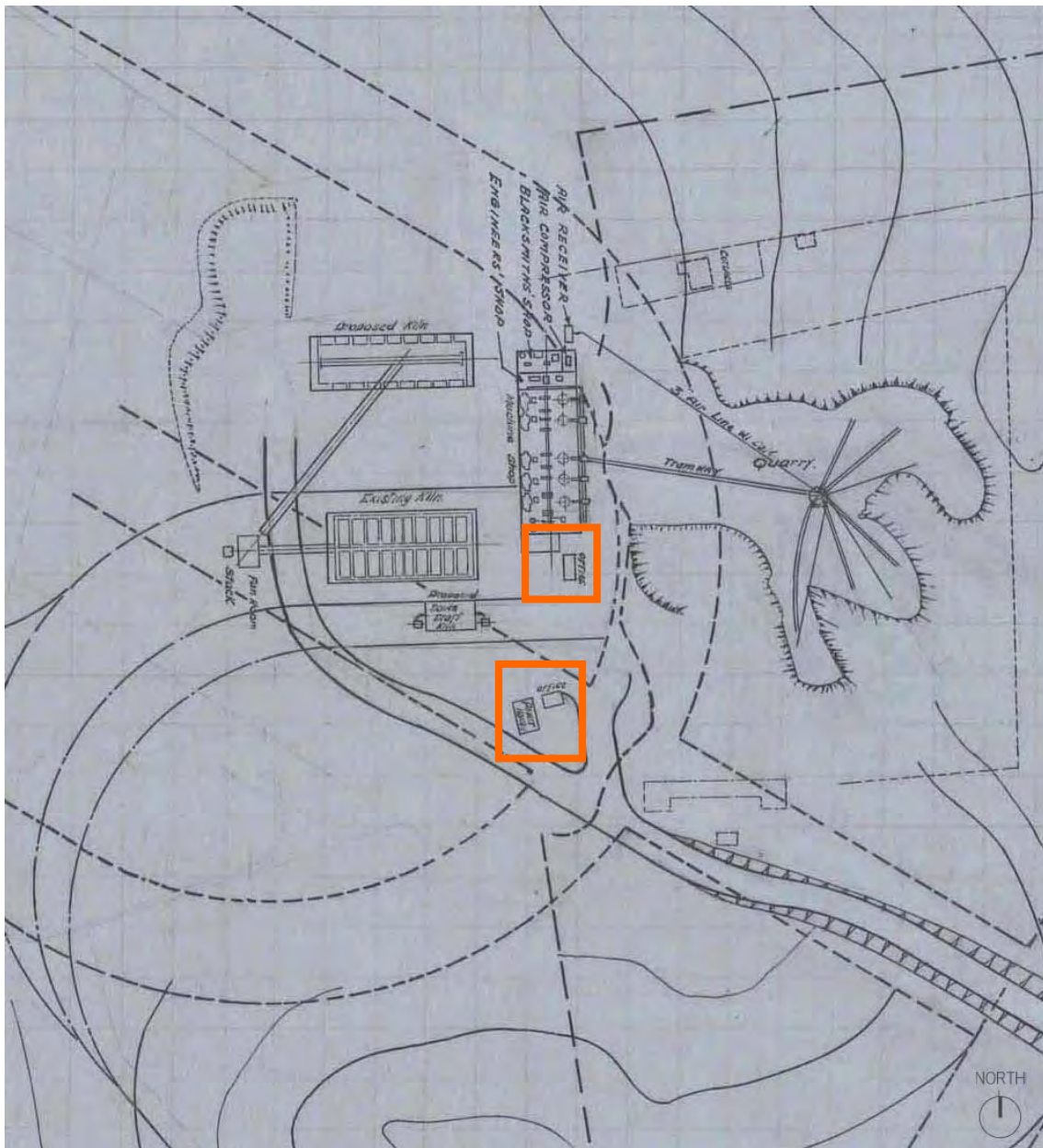


Figure 78 Detail from the Canberra Brickworks site plan, April 1926. The present office building (right), subsequently extended, and the original office (left), later demolished, are highlighted.

Source: National Archives of Australia.



Figure 79 Detail of a photograph of the Brickworks site in 1929 taken from the quarry area, showing the original form of the office building to the east of the Power House (foreground). Note that at this date, the main entrance to the Power House is from the north. The married quarters camp is in the background. Source: National Archives of Australia.



Figure 80 South elevation. Part of the Power House (Building 3) is visible at left.



Figure 81 East and north elevations, showing the extent of the additions. The only portion of the original two-roomed structure, not enclosed by additions is indicated by the arrow.

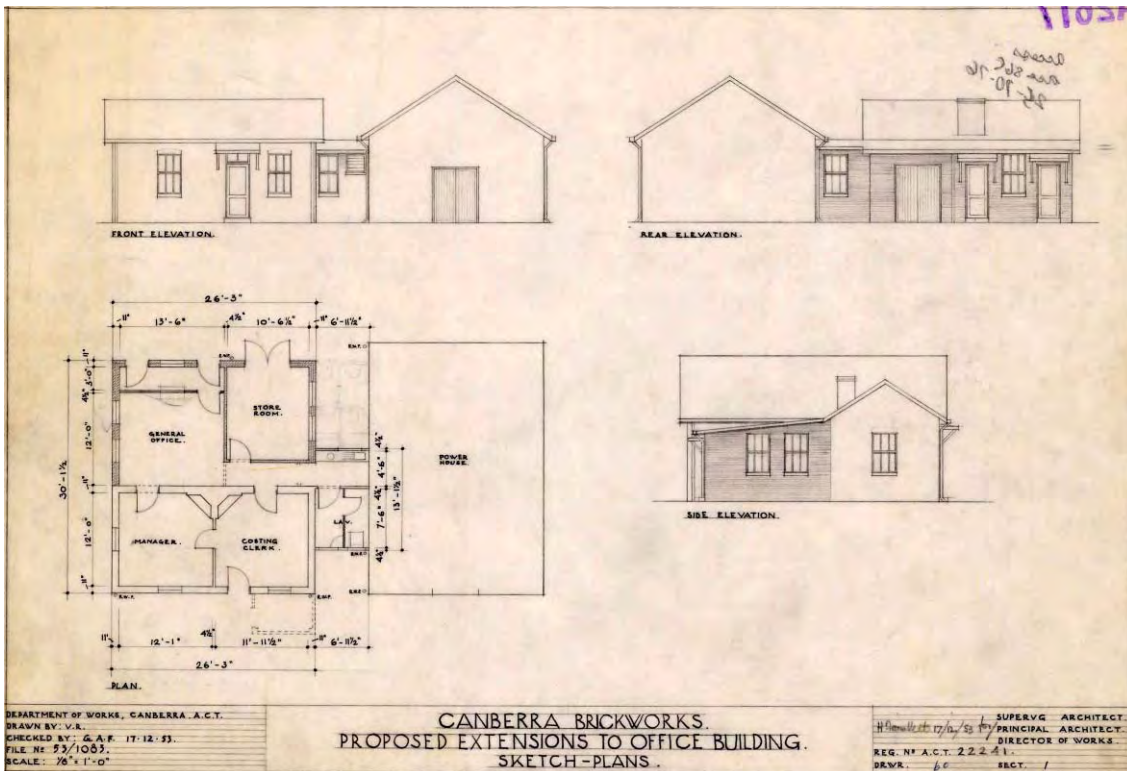


Figure 82 Office extension, consisting of a two roomed addition to the south and a lavatory/washroom infilling the space between the original structure and the Power House, 1953.  
Source: National Archives of Australia.

### Historical background

The Survey Plan of 1916 (see Figure 30) indicates a galvanised iron 'Office' located approximately 40 metres north of the present office building. This was subsequently removed and the site developed for the original Machine Shed. The date of construction for the original portion of the present offices – consisting of two rooms – has not been established. It is not indicated on a site plan dated September 1921, but is represented in outline on a site plan of April 1926 (see Figure 78).<sup>25</sup> It appears in a 1929 photograph, shown at Figure 79.

The offices have been extended in at least two phases, in 1953 and during the 1970s. The 1953 works doubled the size of the original building, extending the structure to the south to provide a General Office, office for the Manager and for a Costing Clerk, as well as a store room. A lavatory and washroom were located between the office and the Power House (Building 3) (Figure 82). The extension had a skillion roof of corrugated iron. A later extension, thought to have been built during the 1970s, extended the building to the east, and further altered the south elevation.

### Description & Integrity

As constructed in the mid-1920s, the office building was a small brick and tiled roofed gable ended building, sited immediately to the east of the Power House. A number of extensions have been made to the original building, with extant drawings prepared in both 1953 and 1958 for alterations and extensions to the original two-roomed structure. The 1958 works appear not to have gone ahead.<sup>26</sup> During the 1970s a brick addition to the east and a new verandah partially enclosed the remainder of the south elevation, abutting the Power House. In addition, a small brick extension was added to the rear (north) of the building, and small skillion roofed outbuildings were constructed to the east and north.

The subsequent alterations have diminished the integrity and obscured the presentation of the building.

It was not possible to inspect the interior of the building during the site visit. The building - including the interior, it is understood - has been extensively vandalised.

---

<sup>25</sup> Commonwealth of Australia. Dept. of Works and Railways. Canberra, Brickworks Layout. 14 September 1921, M1970C, National Archives of Australia; Federal Capital Commission. Commonwealth of Australia. Dept. of Works & Railways. Canberra Brickworks. Site Plan. 6 April 1926, National Archives of Australia respectively.

<sup>26</sup> Lester Firth and Associates, 1986, 'O Office complex' data sheet, Appendix 2, source uncited.

Name	Hardy patent kiln I	Building No	08
Construction	Brick, upper floor and roof of corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Expansion phase 1921-1942	Date	1926-27; substantially rebuilt in c. 1955



Figure 83 The first Hardy patent kiln (left) and the Staffordshire kiln in 1928.  
Source: National Archives of Australia.



Figure 84 The Hardy patent kiln showing the west and part of the north elevation.



Figure 85 Interior of the Hardy patent kiln. The kiln is divided in two by a non-original brick wall.



Figure 86 Kiln wickets – the opening at left has been altered to enable forklift access and the bricked-up the opening at right is as originally built.



Figure 87 Interior of the firing floor, showing remnants of a commercial fitout dating from the late 1970s.

#### Historical background

The Hardy patent kiln (Building 8) was built in 1926, and became operational in 1927. It was a critical component of the drive to double the output of the Brickworks in the build up to the relocation of the Parliament to Canberra (1927) and the transfer of public servants the following year.<sup>27</sup> Other components of the expansion of the Brickworks during the mid-1920s were two 'temporary' downdraught kilns (built in 1925, and demolished in the early 1960s), which were located close to the site of the present downdraught kilns, and a Scotch kiln (undated and demolished) located to the north of the Staffordshire kiln. The Hardy patent kiln fired continually in a clockwise cycle, and was able to produce up to 150,000 bricks per week (though in January 1927 the *Canberra Times* estimated annual output for the kiln as up to 6 million bricks).<sup>28</sup> A firing cycle lasted for 14 days.<sup>29</sup>

In the mid-1950s the partially collapsed kiln was extensively rebuilt. It was also extended at that time from 18 to 20 bays, though details of these works have not been located. Further works are understood to have been undertaken in the 1970s.<sup>30</sup>

---

<sup>27</sup> Cited in Lester Firth and Associates, 1986, Section 2.1.2. The date of the *Canberra Times* article is not included.

<sup>28</sup> *Canberra Times*, 6 January 1927, p. 1.

<sup>29</sup> Lester Firth and Associates, 1986, 'K2 Hardy patent' data sheet, Appendix 2, source uncited.

<sup>30</sup> Lester Firth and Associates, 1986, 'K2 Hardy patent' data sheet, Appendix 2, source uncited.



## Description & Integrity

The Hardy patent kiln is a two-storey structure of brick construction with a lighter-weight upper level clad in corrugated galvanised steel. The ground floor comprises 20 arched brick openings or 'wickets', which provide access to the two kiln chambers, which are oriented east-west. In the late 1960s each alternate wicket was widened to permit egress of forklifts. Other wickets have been infilled with brickwork. The outer walls of the kiln are battered at approximately 60 degrees. Wicket numbers are painted onto the brickwork next to each opening. A single-storey timber verandah roofed in corrugated galvanised steel extends around all sides of the building. The verandah is supported on timber props which extend at 45 degrees from the brickwork, as well as by a series of painted steel posts. To the east the verandah abuts the skillion roofed section of the corrugated steel machine bay to its east (Machine Bay 2, Building 15).

The first floor area (the firing floor), is of steel-framed construction, clad and roofed in corrugated sheet steel. As built, the walls to the north and south were interrupted at regular intervals by openings infilled with timber louvres, providing ventilation to the space.

Today the first floor retains part of a commercial fitout related to the development of the Brickworks by A R Marr from the late 1970s to the early 1980s, including the remains of insulation and lining boards to the ceiling and part-removed wall linings. There are a number of metal framed casement windows to the north and south walls. The position of these is unrelated to the original configuration of louvered openings and is thought to date from the rebuilding of much of the kiln structure in the 1950s. The floor retains a number of the firing holes and handles for opening and closing the flues. A portion of the floor area has been excavated and the form of the firing holes can be seen.

Originally, access to the west end of the firing floor was via a timber stair, which rose through the verandah to this elevation (see Figure 83). Today the re-cladding of the end wall and the present verandah form has removed any evidence of this access point. The east end has been modified with a walkway at first floor level extending from the south elevation and connecting the firing floor with the adjoining machine bay behind (the latter dating to the mid-1950s). Access to the firing floor is now through a single leaf ledged and braced timber door in the east wall.

The existing roof, first floor cladding and verandah roofing are thought to date from the early 1970s, when fire damaged the structure.<sup>31</sup>

The interiors of the kilns have been part floored in cement pavers, and divided by a non-original brick wall. These works were undertaken as part of the A R Marr post-closure development proposal.

---

<sup>31</sup> Lester Firth and Associates, 1986, 'K2 Hardy patent' data sheet, Appendix 2, source uncited.

Name	Fan houses for Hardy patent kiln I	Building No	09
Construction	Timber frame, corrugated steel cladding	Survey Date	3 December 2009
Historical Phase	Expansion phase 1921-1942	Date	c. 1926, 1955

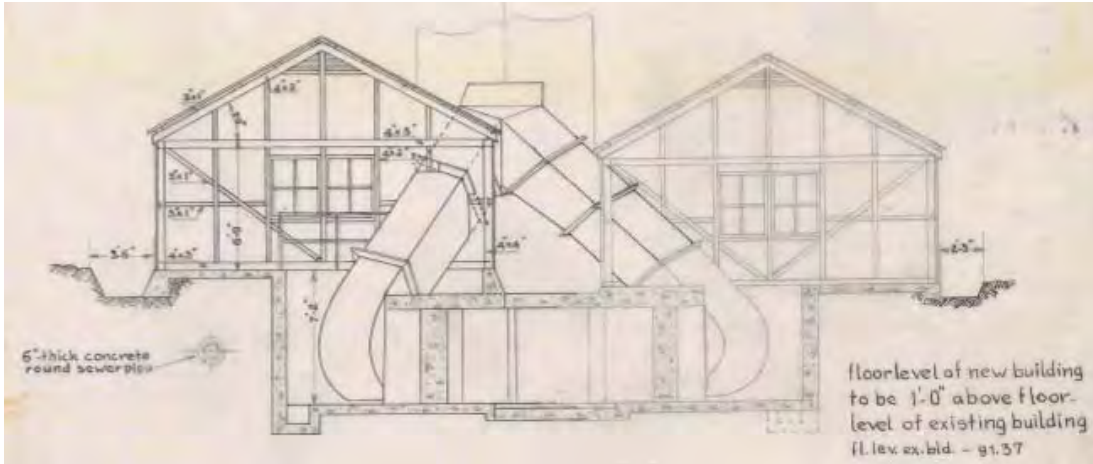


Figure 88 Section through the fan house for the Hardy patent kiln constructed in 1955. Source: National Archives of Australia.



Figure 89 The fan house at right is the earlier of the two (1927). The fan house on the left was added in 1955.



Figure 90 Interior of the 1927 fan house.



Figure 91 Ducts connect through to the chimney stack.

### Historical background

The first stage of the Hardy patent kiln fan house was constructed in c. 1926 and was a considerably more modest structure than that constructed to support the Staffordshire kiln. It is located approximately 20 metres west of the Hardy patent kiln.

In 1955, plans were prepared to provide additional exhaust capacity and the fan house was augmented by a near identical structure was constructed immediately to its south. This structure was set approximately 30 centimetres above the floor level of the earlier building. The need for additional capacity may have related to the rebuilding and extension works to the Hardy patent kiln which was expanded from 18 to 20 chambers in c. 1955.

### Description & Integrity

The fan house comprises two timber-framed sheds, with gabled roofs, clad and roofed in corrugated steel. There is an entry to the east elevation and windows in the rear and outer walls. Part of the wall cladding has been removed, and the glazing has also been broken and many of the glazing bars are missing. The entry doors have also been removed.

Internally, similar to the Staffordshire kiln fan house, the floor is below ground level and there is an entry apron with metal handrail. Evidence remains of the now removed fan machinery, the location of which is discernible by the pedestal mount of the fan machinery. The ducts connecting the fan house with the stack are *in-situ*, and unlike the Staffordshire kiln fan house, these are visible rising out of the rear wall of the fan houses and connecting to the east elevation of the stack at a height of approximately two metres (Figure 91).

The fan house is in an advanced state of disrepair and the c. 1926 structure is severely impacted upon by unchecked growth of blackberries.

Name	Chimney Stack for Hardy patent kiln I	Building No	10
Construction	Brick	Survey Date	3 December 2009
Historical Phase	Expansion phase 1921-1942	Date	c. 1926-27



Figure 92 Left: North elevation. Right: South elevation with the 1955 fan house adjoining.

#### Historical background

The brick stack was built to service the 1927 Hardy patent kiln. While the stack is virtually identical to the Staffordshire kiln stack, in this case ductwork linking the fan house to the stack is not placed below ground and adjoins the stack through an opening in the east elevation approximately two metres above the ground.

#### Description & Integrity

The chimney stack, constructed of face red brick, is adjacent to the fan house and located approximately 30 metres west of the kiln building. A gravelled roadway separates the kiln from the stack and fan house. The stack is capped with several courses of corbelled brickwork and surmounted by nine rows of brickwork. There is a significant crack in the north elevation of the brickwork above the stepped courses. There is an arched opening in the south face of the stack, infilled with brickwork.



## 5.0 HISTORY & PHYSICAL ANALYSIS: POST-WW II PHASE 1944-1976

### 5.1 Historical background

#### 5.1.1 *Post-war Growth (1944-1963)*

With the end of World War II in sight, the Canberra Brickworks reopened in September 1944, with production on a limited scale. From the late-1940s and into the 1950s output was stepped up to provide material to address the post-war housing shortage, resulting in a major expansion and redevelopment of the Brickworks (see Figure 93 and Figure 94).

Among the first post-war construction projects was the replacement of the Brickworks Camp (the married quarters, built during the 1920s), which had been removed by the Army during World War II. In the immediate post-War period a request for new quarters was made to attract more workers – recruitment of qualified and experienced workers was a problem during this period. The new 'Brickworks Hostel' was ready for occupation in 1945<sup>92</sup> and was located on the site of, or in close proximity, to the former married quarters (see Figure 95). Demolished in c. 1970, sections of the foundations of this structure survive. The Amenities Block (Building 11) also dates to the early post-War period of investment in staff facilities.

In 1952, plans for a new 'Tunnel' kiln were prepared, equipment was purchased and foundations were laid. However, the project was abandoned amid spiralling costs. The aborted Tunnel kiln project resulted in expenditure of £141,014. Department of Works records show that items of equipment purchased for the project were transferred to other sections of the Department (these items were valued at £39,193), and that redundant equipment to a value of £44,000 was still on site in 1956. A further £28,351 was lost on account of sales of redundant equipment, expenditure on site and compensation for equipment not received. Department records also note that a large prefabricated Marsden shed, which had been acquired to cover the kiln, was to be re-erected at Duntroon as a store for the Australian War Memorial.<sup>93</sup>

In July 1952, following the losses related to the Tunnel kiln project, responsibility for the Canberra Brickworks was transferred from the Department of Works to the Department of the Interior's Administration Branch.<sup>94</sup> Also in 1952, with demand for construction materials increasing, a C G D Butler of Melbourne advised the Department to build a 20-chamber 'Hoffman' kiln with a capacity of 20,000 bricks per chamber, to be located on the foundations of the Tunnel kiln (see Figure 96).<sup>95</sup> On 16 June 1954, the contract for the construction of a second Hardy patent kiln with loft, awning and tall stack was awarded to McDonald Bros & Co, of Lidcombe, Sydney.<sup>96</sup> This new kiln was to be lined with firebricks, equipped with the

---

<sup>92</sup> National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.

<sup>93</sup> National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.

<sup>94</sup> National Archives of Australia, File no. 171/8, cited in Lester Firth and Associates, 1986, Section 2.1.4.

<sup>95</sup> National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.

<sup>96</sup> National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.

latest system of hot air flues and wickets and large enough to permit free movement of fork lift trucks.<sup>97</sup> Its price was a relatively modest £43,455.

Unlike both of the existing continuous kilns at the Brickworks, the new Hardy patent type kiln was constructed utilising natural draught for firing, as opposed to being fan-induced. As a consequence a tall chimney stack was required (see Figure 96). Ironically, the natural draught process did not work efficiently and a fan was installed within about a year.

The expansion of the Brickworks in the 1950s saw a change in the process of brick making and in the machinery required for production at the Yarralumla works. The early machine shop, adjacent to the Staffordshire kiln, was replaced with a series of brick press buildings and a workshop. The Brickworks was also equipped with a series of new crushers and hoppers, an elevator and a 'Pan Building'; and a sequence of conveyor belts (see Figure 97 and Figure 98).<sup>98</sup> (The operation of the site during the 1950s is described in Chapter 2). In 1955 the existing Hardy patent kiln (Building 8) was also substantially rebuilt and enlarged by two bays.

By 1956, it was reported that progress had been made in re-organising the layout of the brickworks; that a large new kiln was in operation with other kilns being substantially reconstructed; and that all brick machines were of recent installation.<sup>99</sup>

In 1959, a report on the operations, management, equipment and economics of the Canberra Brickworks was prepared by an H H Macey (April 1959), to address concerns about the low productivity of the plant.<sup>100</sup> Macey found that the works were generally well planned and maintained; that the grinding was 'a little on the coarse side' resulting in bricks of moderate quality; and that a reliable supply of high quality clay at reasonable costs was a notable problem. He also expressed concerns about heat 'leakage' to the Staffordshire kiln, which he suggested could be addressed with minimal difficulty.<sup>101</sup>

Macey's conclusion with regard to the low productivity of the plant was:

The works is basically a good one and capable of a much greater output than at present. The essential cause of the low output is an ill-advised bonus payment [scheme] which not only provides no incentive towards greater output, but actually encourage a lack of production ... Provided that the men can be made to work steadily and regularly at reasonable

---

<sup>97</sup> The recommendation for wide wickets was not carried through. As built, the wickets of the Hardy patent kiln were only a metre wide. See drawing, 'Canberra Brickworks layout of firing holes for No. 3 Kiln for Dept. of the Interior, n.d. M8759B,' National Archives of Australia.

<sup>98</sup> Department of Works, Canberra Brickworks – Works Programme, 31 May 1955, drawing M8866D, National Archives of Australia.

<sup>99</sup> Lester Firth and Associates, 1986, Section 2.1.4. Original sources for the content of this paragraph are not cited.

<sup>100</sup> H H Macey, *Report on Canberra Brickworks*, April 1959. Copy supplied by the LDA.

<sup>101</sup> H H Macey, *Report on Canberra Brickworks*, pp. 1-18.



rate common elsewhere, the works is capable of making a considerable profit.<sup>102</sup>

The development of Canberra received renewed attention with the creation of the National Capital Development Commission (NCDC) in 1958, following the *National Capital Development Commission Act, 1957*. To meet construction needs the two 'temporary' downdraught kilns (built c. 1925) were demolished to make way for three new downdraught kilns, which were reputed to be the longest in Australia.<sup>103</sup> These were constructed on the site of the former 'temporary' kilns in 1960-63 (Building 22), although oriented north-south rather than east-west. Each held 120,000 bricks; the process of loading, firing and unloading took seven days. With the completion of the downdraught kilns the Brickworks had a capacity of 800,000 bricks per week.<sup>104</sup>

During the 1960s, oil replaced coal as the fuel for firing the kilns, and modifications were made to the entrances of the three continuous kilns (the Staffordshire and two Hardy-patents) for the use of forklift trucks to set and remove bricks.<sup>105</sup>

### 5.1.2 *Decline*

In 1967, the ACT Health Services Branch inspected the Brickworks Hostel and reported that the buildings were in a state of disrepair. Late in 1970 it was reported that the hostel was to be demolished.<sup>106</sup>

In 1971, a large building to the west of the 1960s downdraught kilns was constructed to house drying kilns and machinery for making extruded bricks was installed (\$500,000.00 plant)<sup>107</sup> (Building 30). This operated until the closure of the works in 1976.

By 1973, the brickworks at Yarralumla were considered to be in need of extensive modernisation and proposals were prepared by Commonwealth Brickworks Pty Ltd for upgrading. These proposals were rejected by the NCDC on environmental grounds and a new site for a brickworks was released at Mitchell, north of Canberra. The *Canberra Times* cited the reasons for moving the brickworks as: the land being required for residential purposes; excessive use of neighbourhood roads by heavy traffic; and levels of air pollution incompatible with the amenity of residential development nearby.<sup>108</sup> The kilns at Yarralumla

---

<sup>102</sup> H H Macey, *Report on Canberra Brickworks*, p. 19.

<sup>103</sup> Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.

<sup>104</sup> Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.

<sup>105</sup> Lester Firth and Associates, 1986, Section 2.1.4. Dates and precise details relating to these modifications are not included, and sources are not cited.

<sup>106</sup> Lester Firth and Associates, 1986, Section 2.1.4. Original sources uncited.

<sup>107</sup> Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.

<sup>108</sup> *Canberra Times*, 18 June 1974, cited in Lester Firth and Associates, 1986, Section 2.1.4.

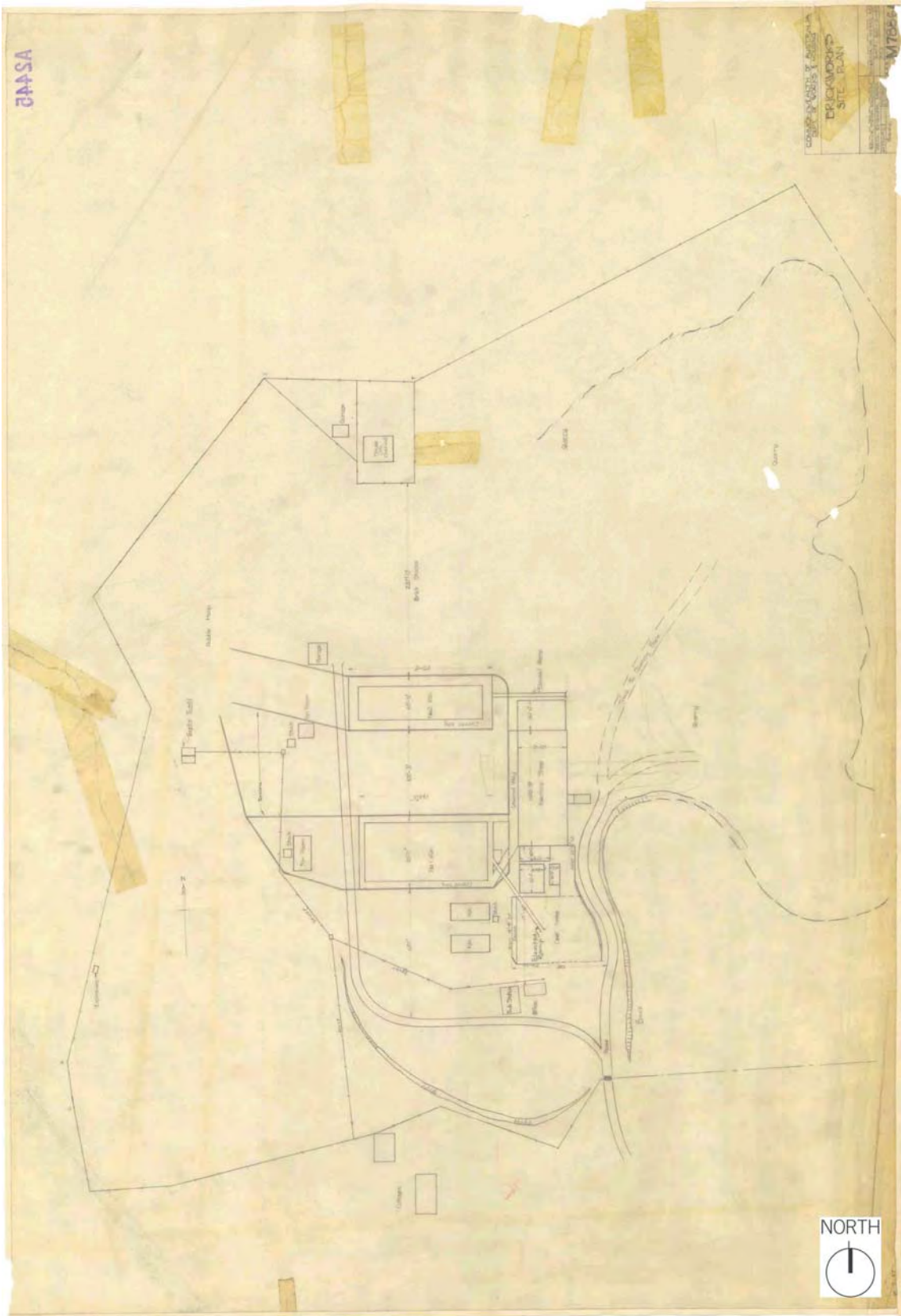


Figure 93 Site plan, 1947.  
Source: National Archives of Australia.

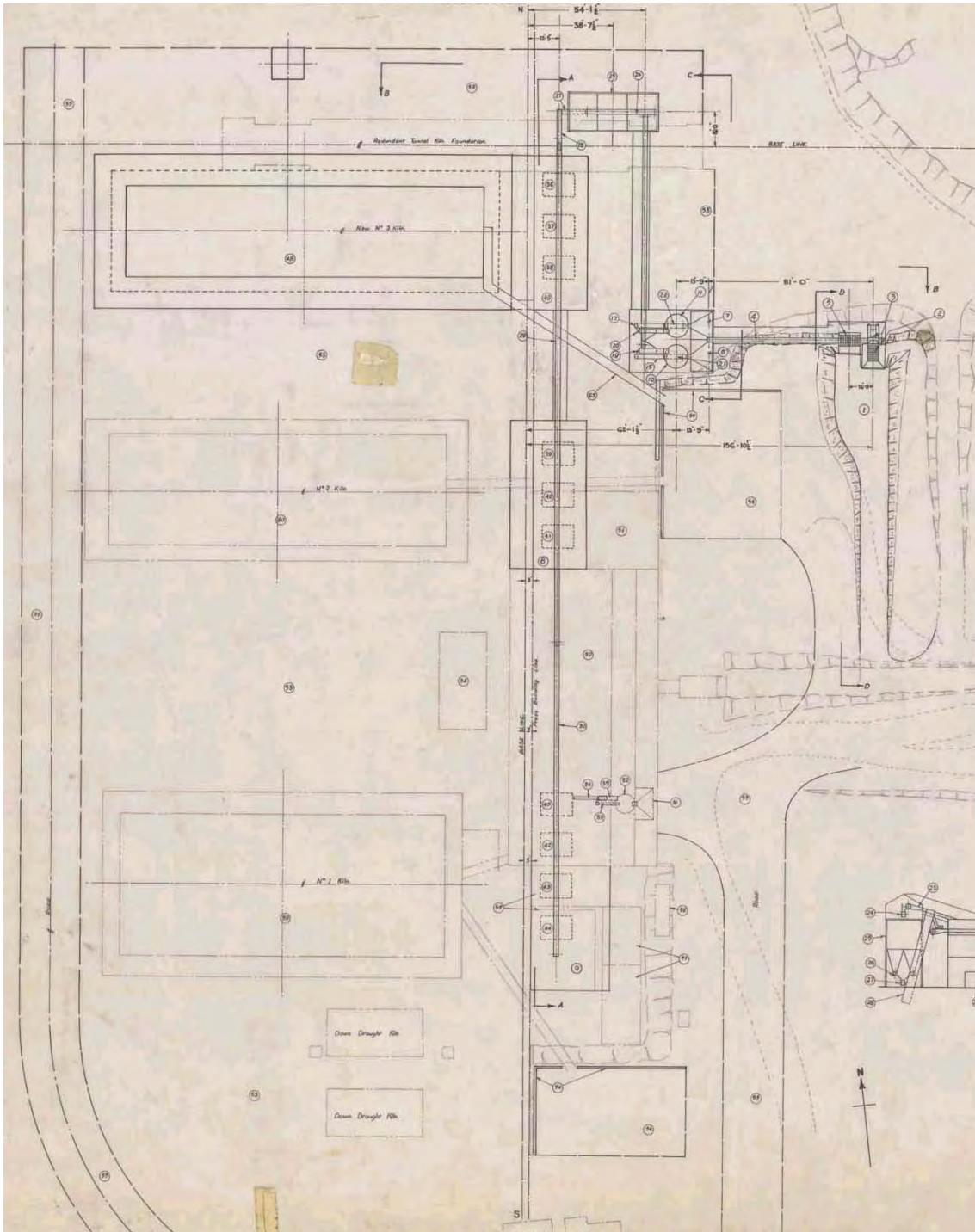


Figure 94 Layout of the site, 1954.  
Source: National Archives of Australia.



Figure 95 Aerial view of the brickworks, 1950. Note the new 'Brickworks Hostel' to the south of the site.

Source: ACT Planning and Land Authority.

were unloaded for the last time in August 1976. All usable material was moved to the new site and the remainder offered for sale.

By the time of its closure it was estimated that some 600 million bricks had been produced at the Canberra Brickworks.<sup>109</sup>

---

<sup>109</sup> Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.

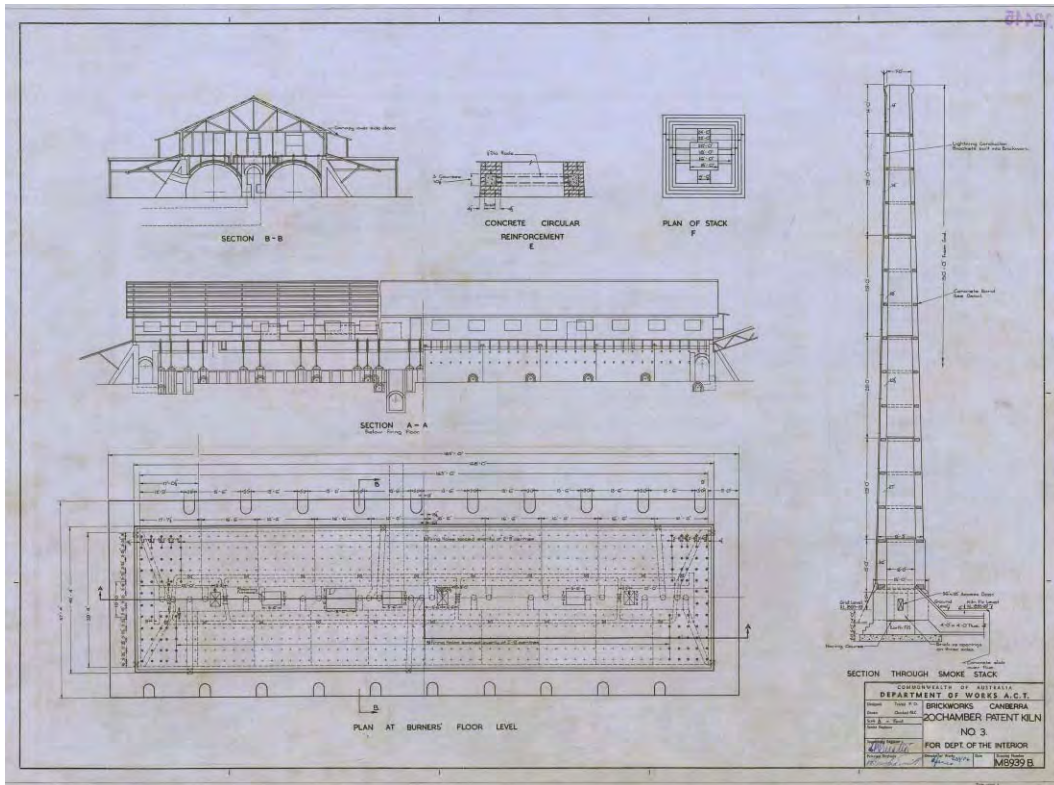


Figure 96 Plans for the Hardy patent kiln (Building 12) and stack (13), built 1954-55. Source: National Archives of Australia.

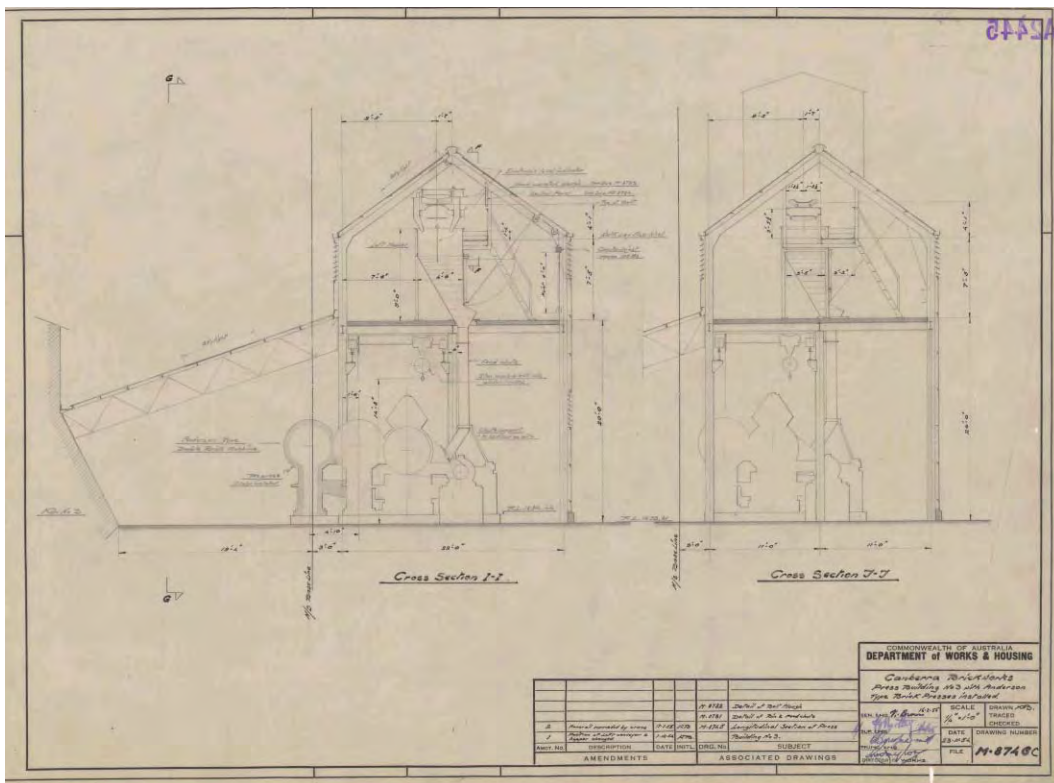


Figure 97 Cross section through machine bay for Hardy patent kiln (Building 12) showing brick press below, and conveyor in the gable. Source: National Archives of Australia.

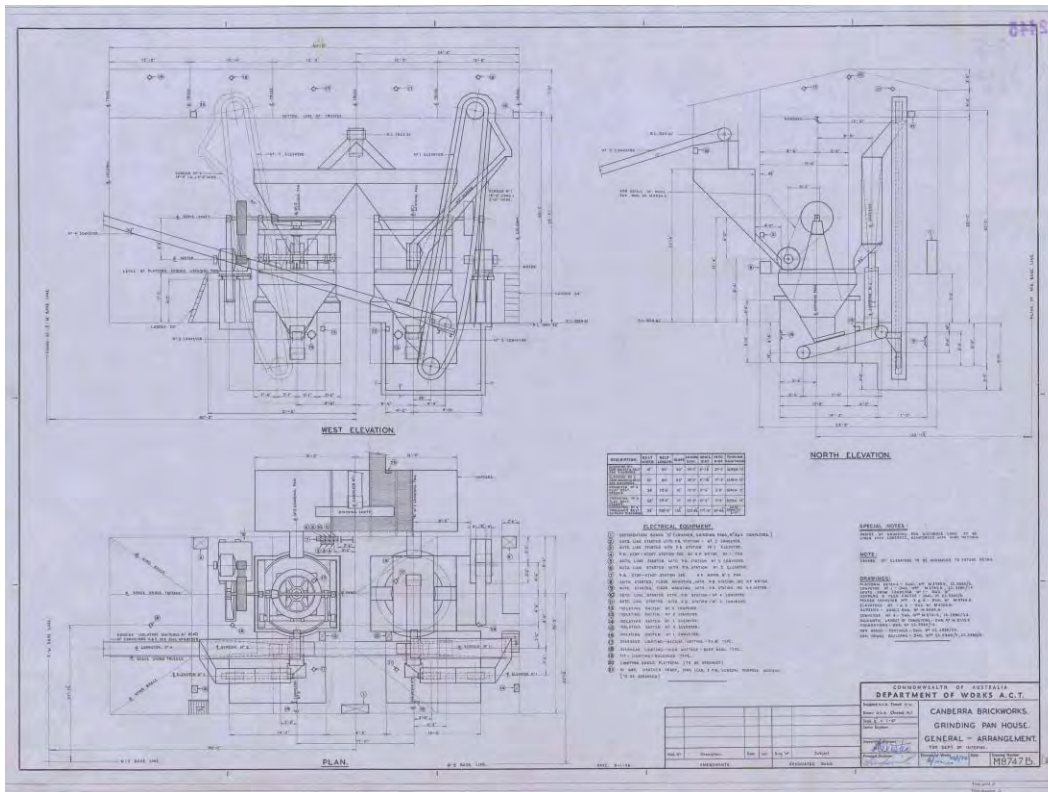


Figure 98 Grinding Pan House General Arrangement 1956 (Red Pan Room, demolished).  
Source: National Archives of Australia.

The Sixteenth *Annual Report* (1975-1976) of the Commonwealth Brickworks (Canberra) Limited recorded that the company received \$2.25 million from the Department of the Capital Territory as compensation upon having to vacate the Yarralumla site. This report also indicates that between 1972 and the closure of the works in 1976 the workforce had halved, from 106 to 53, and total brick sales reduced from \$22.25 million to \$12.76 million. Substantial operational losses made during this period were attributed to the imminent relocation of the plant and the depressed state of the economy.<sup>110</sup>

Bricks were first produced in the Mitchell plant in October 1976.

<sup>110</sup> The Sixteenth *Annual Report* (1975-1976) of the Commonwealth Brickworks. cited in Lester Firth and Associates, 1986, Section 2.1.4.

## 5.2 Datasheets for Post-WWII phase elements

No.	Name/ Description	Date of construction
11	Amenities block	c. 1950, c. 1977
12	Hardy patent kiln	c. 1953
13	Chimney stack for Hardy patent kiln (Building 11)	c. 1953, c. 2005
14	Machine Bay I for Staffordshire kiln (Building 3)	c. 1955
15	Machine Bay II for Hardy patent kiln (Building 7)	c. 1955
16	Machine Bay III for Hardy patent kiln (Building 11)	c. 1955
17	Workshop	1955
18	Small Crusher House (Crusher House I)	c. 1958
19	Large Crusher House (White Pan Room/ Crusher House II)	c. 1955
20	Primary Crusher House (Crusher House III)	c. 1955
21	Elevator / Conveyor	c. 1955
22	Downdraught kilns (x3)	c. 1960-3
23	Downdraught kiln control room	c. 1963
24	Chimney stack for downdraught kilns	c. 1950s
25	Toilet block	c. 1960s
26	Amenities block	c. 1960s
27	Substation/control room	c. 1971
28	Boiler house	c. 1971
29	Ancillary storage building	c. 1971
30	Extrusion plant	c. 1971
31	Ancillary storage building	c. 1960s
32	Storage shed	c. 1960s



Figure 99 Location of elements surviving from the Post-WWII Phase. Refer to the larger scale site plan in Chapter 1 for more detail.



Name	Amenities Block	Reference No	11
Construction	Brick, reinforced concrete, galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1950, c. 1977

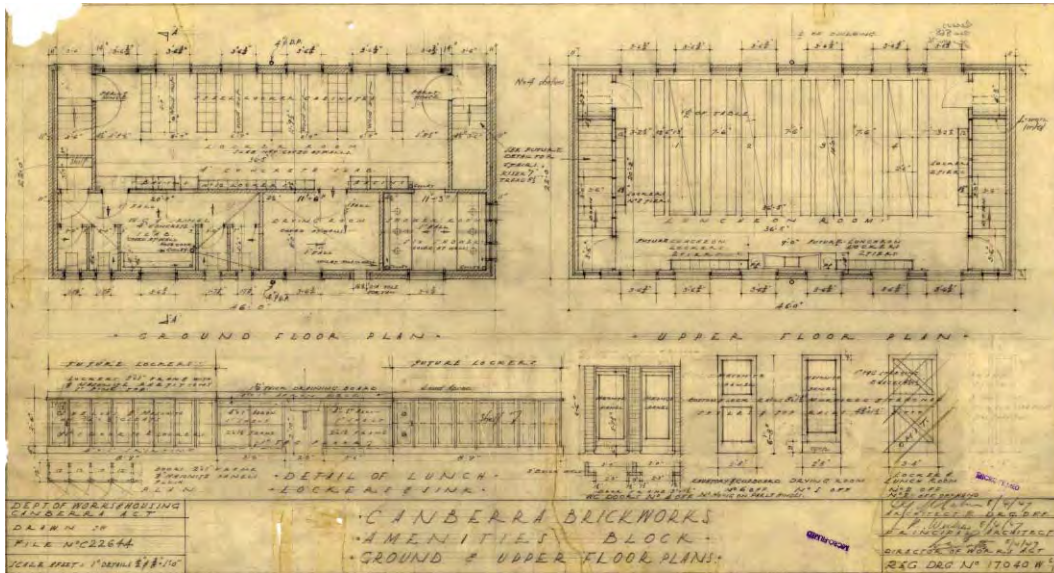


Figure 100 Amenities Block floor plans, 1947.  
Source: National Archives of Australia.



Figure 101 The Amenities Block viewed from the west.

### Historical background

The provision of a purpose-built amenities building, consolidating toilet, changing and lunch room facilities, was one of the first actions of the Brickworks administration in the years following World War II. It heralded an era of significant expansion and modernization and saw the provision of a modern up-to-date facility which centralized worker's amenities at the centre of the site.

### Description & Integrity

The amenities block is a two-storey building of face red brick, with a gable roof clad in corrugated galvanised steel. The first floor originally accommodated a lunch room with access from a concrete staircase to both the north and south ends of the east (front) elevation with toilet and changing facilities including showers, a drying room and a locker room located on the ground floor. The present entrances to the ground floor toilets were originally windows. The ground floor spaces were originally accessed from the stairwells. The date of these works has not been established. The building previously had a covered breezeway protecting the entry and there is a ramp access to both toilets. The white painted area to the ground floor façade indicates the scale of the breezeway enclosure, since removed.

Internally the former locker room, showers and drying room have been reconfigured. A wall has been constructed, dividing the ground floor in half, on an east-west axis to provide male and female washrooms and toilet facilities. These alterations were undertaken by A R Marr Pty Ltd as part of the conversion of the site to a tourist precinct in the later 1970s. The finishes are typical of the period – ceramic tile, modular basins, laminate partitions and mosaic tiled floors.

A single-storey first aid room was appended to the south end of the building at a later date. Access to this room is from the east.

The building is in a badly vandalized state with only a few toilets and basins intact and operable. Most of the glazing has been broken and the exterior of the building spray-painted with graffiti. Access to the first floor space was not obtained with one of the stairs secured by a metal grille and the door off the stair landing to the south end nailed shut internally.

Name	Hardy Patent Kiln II	Building No	12
Construction	Brick, corrugated steel and corrugated fibro cement sheet	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1953

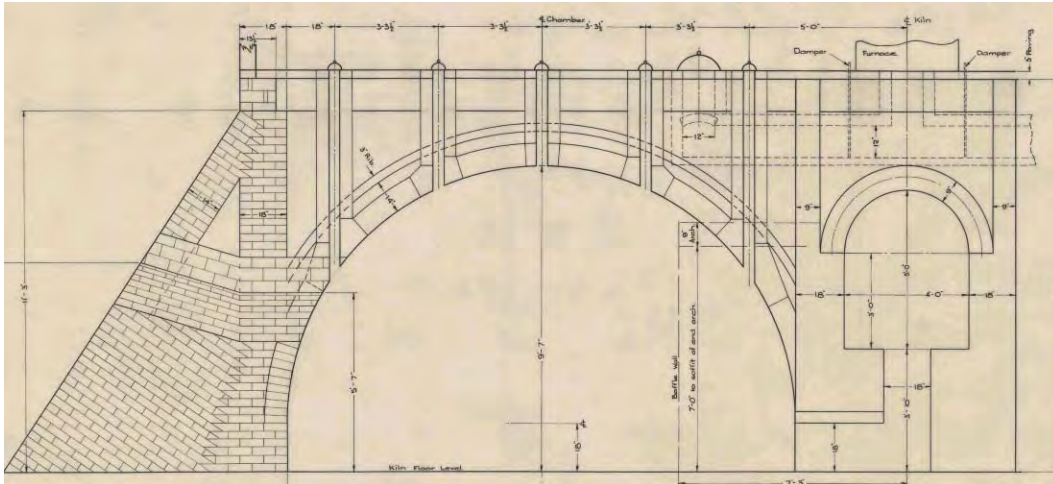


Figure 102 Section through wicket chamber and flue of the second Hardy patent kiln, 1953. Source: National Archives of Australia.



Figure 103 The Hardy patent kiln, showing the west end and part of the south elevation. Note the verandah cladding has been removed and the kiln wall part removed, presumably for improved access to the kiln interior.

## Historical background

After the decision to abort construction of the Tunnel kiln was taken in 1952, plans were prepared and tenders called to authorize the construction of a new 20-chamber Hardy patent kiln, 50 metre stack, kiln loft and awning to meet Canberra's post World War II needs (see also Section 5.1.1). The new Hardy patent kiln was constructed on the foundations of the Tunnel kiln.

The decision to not adopt the fan-induced model of the Staffordshire kiln and the first Hardy patent kiln and instead build a taller chimney stack did not result in the expected superior drawing power, and fans had to be installed to augment the draw shortly after completion. A recommendation to provide wider wickets to enable access for forklifts, was not followed. Plans held in the National Archives of Australia indicate that the wicket openings were originally only a metre in width.<sup>111</sup> A number of these openings were widened for fork lift use during the 1960s, including the west kiln end.

## Description & Integrity

The Hardy patent kiln is a two-storey structure. The ground floor comprises 20 arched brick openings or wickets, which provide the access points to the two east-west kiln chambers. Several of these – each alternate wicket – have been modified since construction, with the openings widened to permit access for forklifts. The outer walls are battered at approximately 60 degrees and the wicket numbers are painted directly onto the brickwork surrounding each opening.

A verandah roofed in corrugated steel extends around the all sides of the building, apart from the west where only the metal posts and support framing are intact. The removal of the verandah cladding may have occurred prior to the part removal of the brick end wall, where the two kilns are revealed in cross section –see Figure 103. To the east the verandah abuts the skillion roof that bridges the space between the corrugated steel machine bay to its east (Machine Bay 3, Building 16). The verandah structure here is of steel, extended at 45 degrees from the brickwork, supported on steel props as well as by a series of painted steel posts.

The first floor was not inspected internally due to OH&S concerns.<sup>112</sup> There are a number of metal-framed casement windows to the two long north and south walls and the west end wall.

The removal of the verandah flashing to the north elevation and the verandah to the west elevation have exposed the wall studs.

---

<sup>111</sup> *Canberra Brickworks layout of firing holes for No. 3 Kiln for Dept. of the Interior, n.d. M8759B*, National Archives of Australia.

<sup>112</sup> Refer Robson Laboratories Pty Ltd, *Survey to determine the extent and condition of hazardous building materials at Yarralumla Brickworks*, March 2006 and *Specification for the removal of asbestos materials from Yarralumla Brickworks*, October 2006.

---

Name	Chimney Stack for Hardy Patent Kiln II	Building No	13
Construction	Brick, steel cladding	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1953; c. 2005

---



Figure 104 Left: view from east. Right: West elevation, base of stack.



Figure 105 The Chimney stack viewed from across Yarramundi Reach, Lady Denman Drive.

### Historical background

The tall stack for superior drawing power was specified as part of the new Hardy patent kiln (Building 12) in 1952. This represented a break with tradition at the Canberra Brickworks; the two existing continuous kilns at the site were fan induced, and required only low stacks. However, the tall stack was not a success, and fans were installed to augment the draw shortly after completion.

The suggestion has been made that the stack was designed by architect Eric Nicholls (1902-1966) however this has not been confirmed. Nicholls had designed the much earlier and architecturally distinctive Canberra Incinerator (for the Reverberatory Incinerator and Engineering Company) in 1938-9.<sup>113</sup>

### Description & Integrity

The chimney stack comprises a brick plinth, a shaft and a 'crown' or capital of corbelled brickwork. It is constructed of face red brick laid in Colonial bond courses, and is approximately 150ft (45 metres) high. It is sited to the north of the second Hardy patent kiln (Building 12), and is surrounded by a large concrete slab. There is an arched brick entry hatch at ground level to all four elevations with the entry to the east elevation fitted with a secured wire mesh gate. To the west and north the openings are bricked up and to the south a concrete tunnel rises from underground indicating the location of the kiln tunnel. To the west elevation there is a large rectangular opening approximately 3.5 metres above the ground, secured by a metal grille. This may have been the location of ducts which linked the stack to a now demolished fan house facility, although this has not been confirmed. The chimney steps inwards, rising from a brick plinth, capped with brickwork laid on a 45 degree angle. A lightning conductor has been fixed to its south elevation. Sections of the upper courses of brickwork have been re-laid with new mortar visible. The opening has been part-capped with steel roofing as a part of a series of works undertaken c. 2005.

Internally the tunnel connection to the kiln is visible and there is a steel frame and timber work platforms installed within the stack. These were installed as part of the c. 2005 building works, which stabilized the structure, and repaired significant cracking and damage to the top of the structure.

---

<sup>113</sup> Ian Wood-Bradley, LDA, pers. com. Nicholls, Eric M, 1938, Exterior perspective view of incinerator, Canberra Incinerator, Westbourne Woods, Australian Capital Territory (picture), Eric Milton Nicholls, <http://nla.gov.au/nla.pic-vn3603884-s428>

Name	Machine Bay I for Staffordshire Kiln and Downdraught Kilns	Building No	14
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

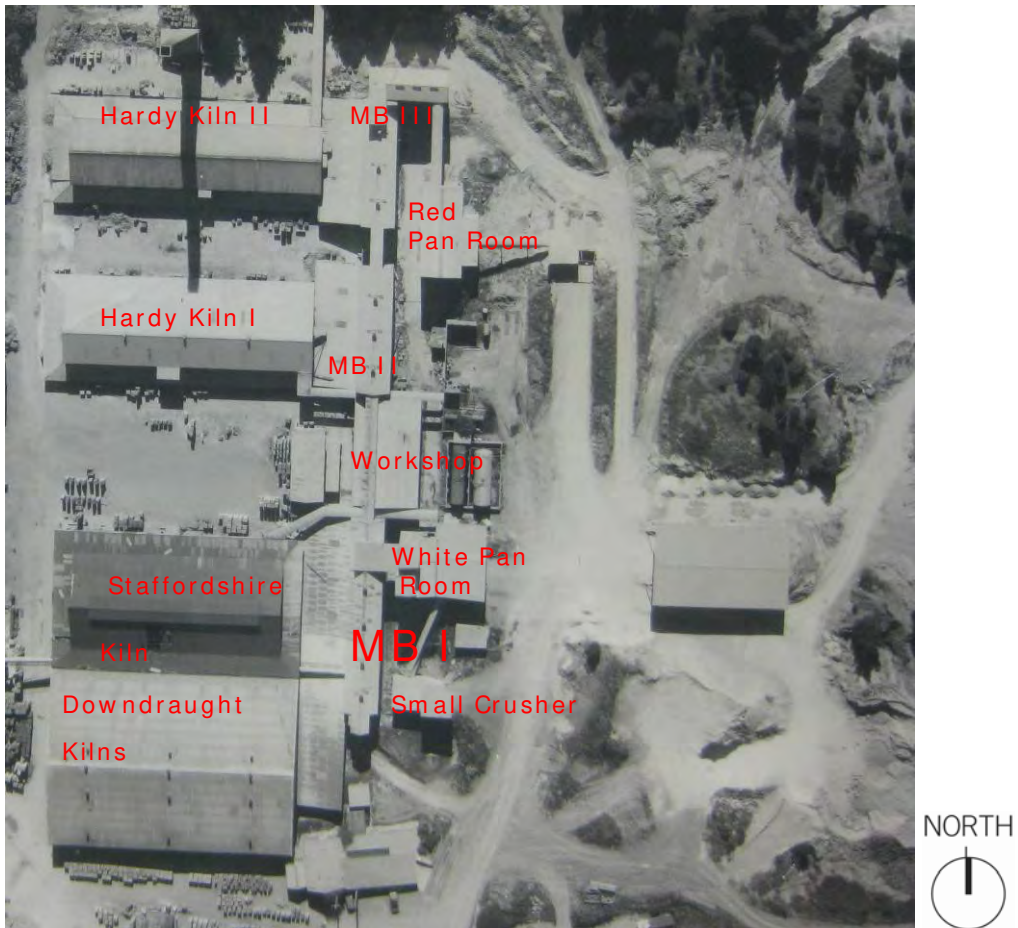


Figure 106 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay I is indicated by a larger font.  
 Source: ACT Heritage Library, Woden ACT.



Figure 107 From left: the truncated south end of Machine Bay 1, showing location of former headgear housing; interior of the loft space.



Figure 108 Interior of the Machine Bay shop floor, presently used by a timber recycling business.



### Historical background

Known also as Brick Press No. 1, Machine Bay I is partly located on the site of the earlier by 1915 Machine Bay and tile making plant (demolished). The present machine bay was constructed in 1955 as part of the upgrading of the Brickworks to meet post World War II production requirements. After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top level conveyor system, housed within the upper (loft) areas of the three machine bays, and passed through the upper roof area of the Workshop (Building 17) to hoppers and gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to the adjoining kiln for firing. Machine Bay 1, which serviced the Staffordshire Kiln (Building 4) also received white clay material refined in the adjoining White Pan Room (also known as the Large Crusher House, Building 19), immediately to the east. The machine bay was extended by two additional bays to service the early 1960s downdraught kilns (Building 22). This addition was subsequently demolished and the present tenant has an office on the site.

The former brickmaking floor is utilised by the present tenant as the main workshop space for the sanding and treatment of recycled timber.

### Description & Integrity

Machine Bay I is a three level steel-framed and corrugated galvanised steel-clad structure. It comprises the loft gallery, containing the overhead conveyor, which extends through the loft space of all three machine bays and the workshop, and hoppers which fed the brick presses housed on the 'shop floor' below. The loft space has a concrete floor and the conveyor, housed within the roof space is accessed by steel ladder-form stairs from this level. The conveyor level walkway is of timber, some sections of which are in poor condition. There are a number of holes in the concrete floor where machinery and stairs have been removed. There is a row of windows, previously fitted with glass louvres to the east and west sides of the loft space, and a row of windows to the east (rear) wall of the shop floor below. The shop floor is raised on a concrete slab, and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. A number of skylights have been let into the roof. This roof form is thought to be original – refer to the section drawing for Machine Bay III (Building 16), at Figure 113.

The brick making machinery (brick presses and the like) has been removed, and the southern extension to service the downdraught kilns has been demolished.

Name	Machine Bay II for Hardy Patent Kiln I	Building No	15
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

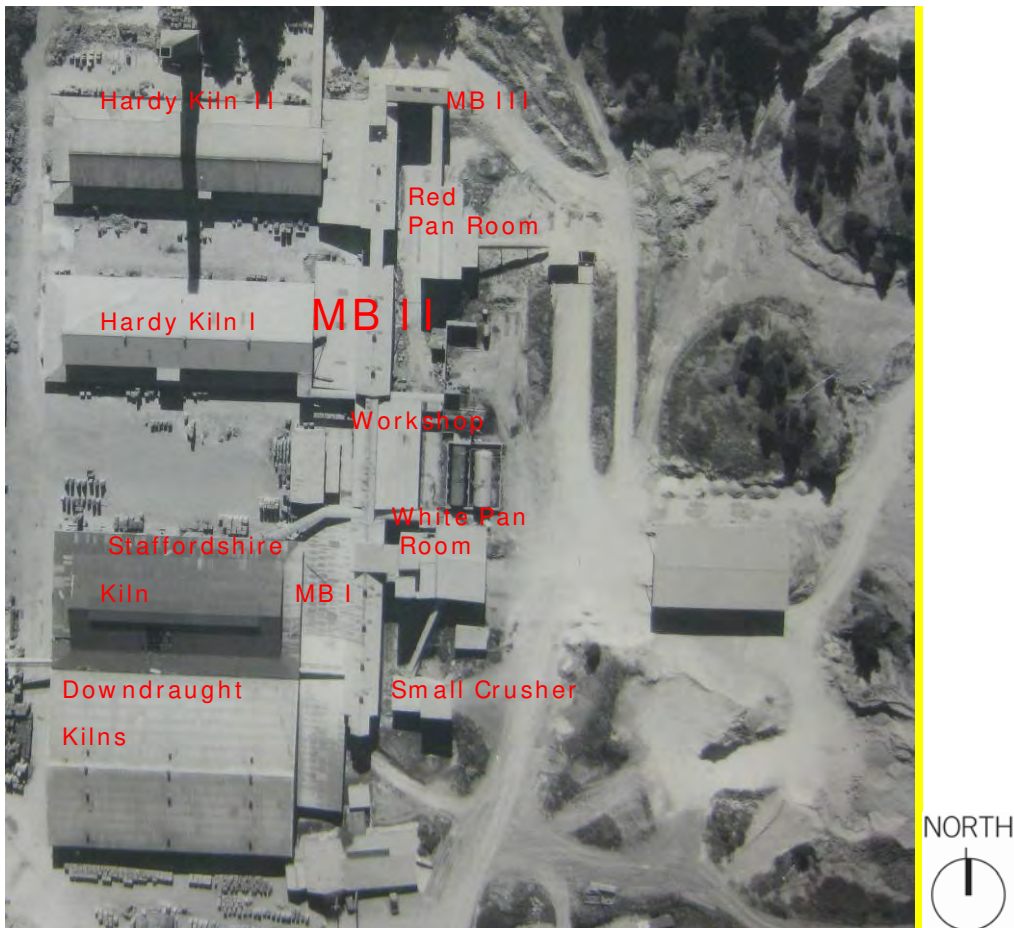


Figure 109 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay II is indicated by a larger font. Source: ACT Heritage Library, Woden ACT.



Figure 110 The rear (east) wall of Machine Bay II. The adjoining building (to the north) is Machine Bay III.



Figure 111 Interior of the Machine Bay II shop floor, looking north.

### Historical background

Machine Bay II was built in 1955 as part of the upgrade of the Brickworks to meet post World War II production increases. It is interlinked with Machine Bays I and III as well as the workshop (Building 17).

After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top level conveyor system, housed within the lofts of the three machine bays and passed through the upper roof area of the Workshop (Building 17) to hoppers and gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to the adjoining kiln- in this case the Hardy patent kiln I - for firing. Machine Bay II received raw materials transported via conveyor from Machine Bay III, which was fed from the 400 ton hopper (now demolished) which adjoined the west end of Machine Bay III.

The former brick making floor is utilised by the present tenant as a storage area for recycled timber.

### Description & Integrity

Machine Bay II is a three level steel-framed and corrugated galvanised steel-clad structure. The structure comprises the loft gallery containing the overhead conveyor which extends through the loft space of all three machine bays and the workshop, and hoppers which fed the brick presses housed on the 'shop floor' below. The loft space has a concrete floor and the conveyor, housed within the peak of the roof space is accessed by steel ladder-form stairs from this level. The conveyor level walkway is of timber, some sections of which are in poor condition. There is an open walkway at the height of the concrete floor level which interconnects this building with Machine Bay III, to the north. There is a row of windows, previously fitted with glass louvres to the east and west sides of the loft space, and a row of windows to the east (rear) wall of the shop floor below. The shop floor is raised on a concrete slab, and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. The shop floor is raised on a concrete slab, and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. A number of skylights have been let into the roof. This roof form is thought to be original – refer to the section drawing for Machine Bay III (Building 16), at Figure 113.

The brick making machinery itself has been removed.

Name	Machine Bay III for Hardy Patent Kiln II (Brick Press Building)	Reference No	16
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

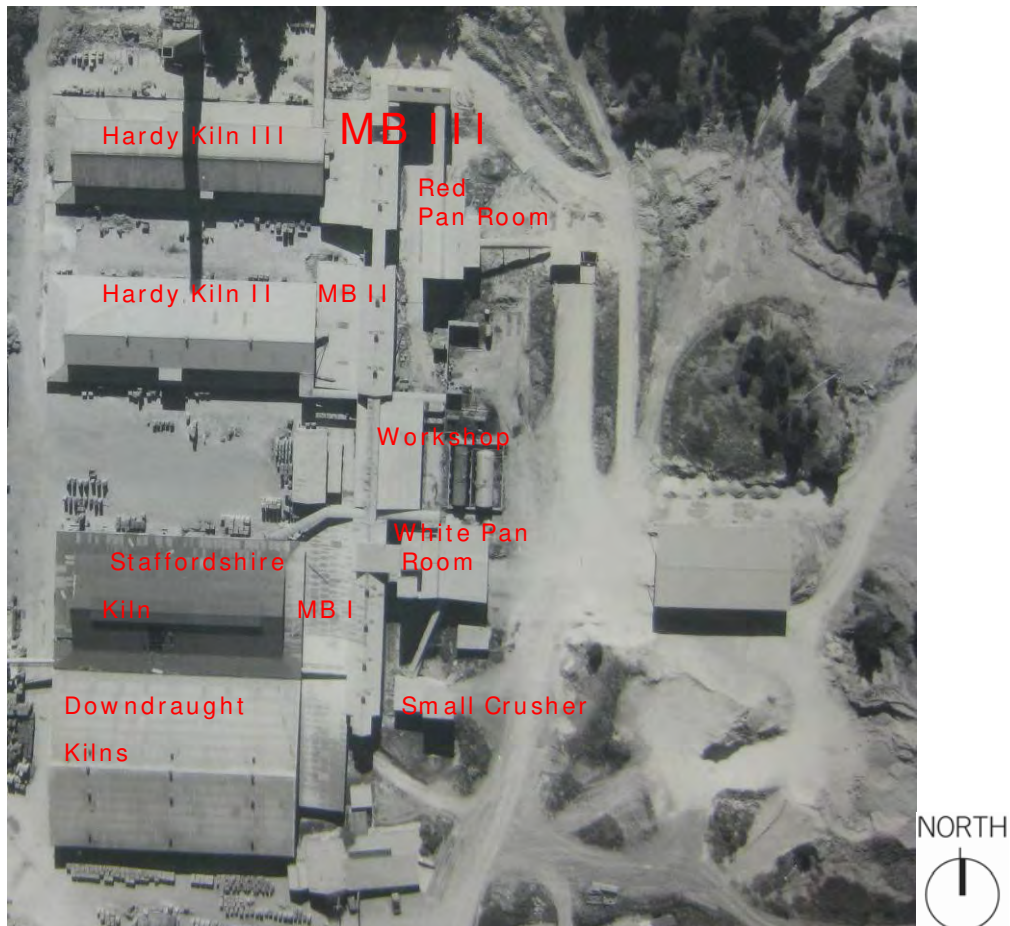


Figure 112 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay III is indicated by a larger font.  
Source: ACT Heritage Library, Woden ACT.

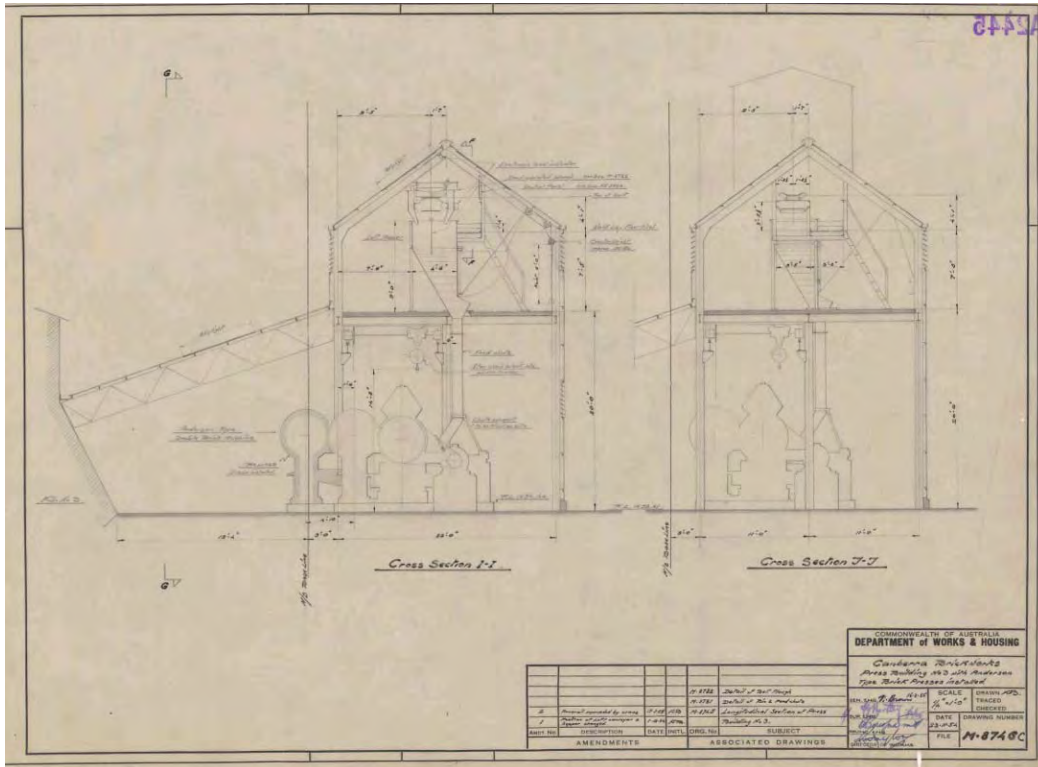


Figure 113 Canberra Brickworks Press Building III, 23 November 1954. Cross-sections showing internal structure and machinery installation, Machine Bay III. Source: National Archives of Australia.

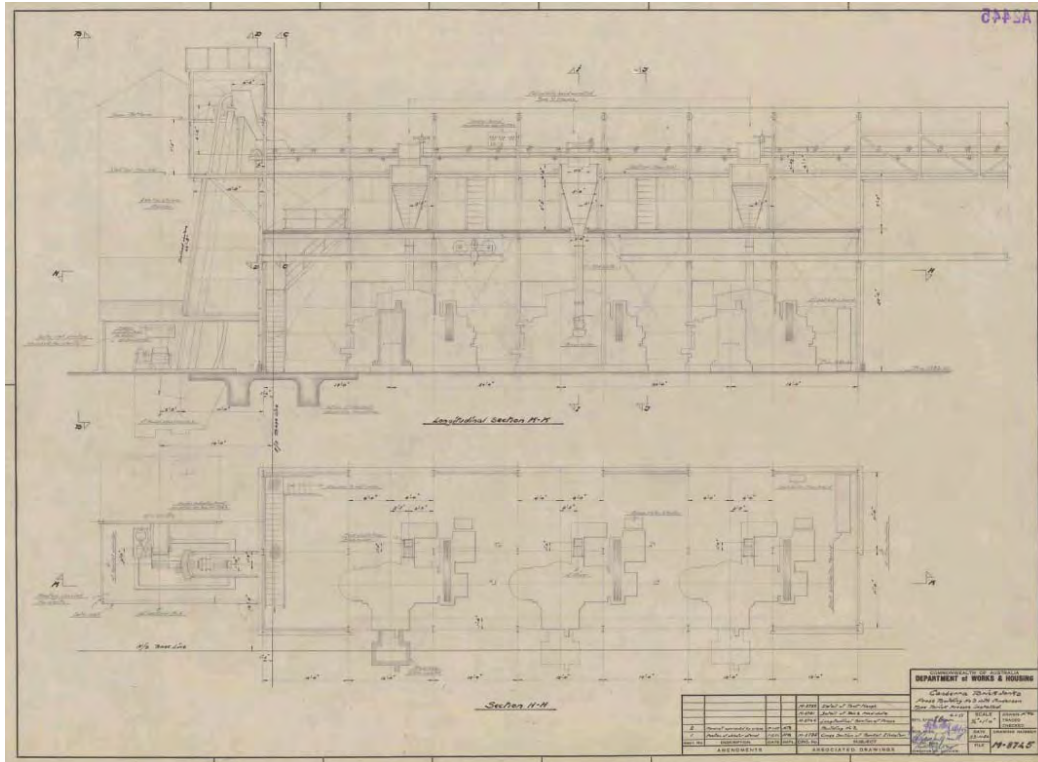


Figure 114 Canberra Brickworks Press Building III, 23 November 1954. Longitudinal sections showing internal structure and machinery installation, Machine Bay III. Source: National Archives of Australia.



Figure 115 Machine Bay III, east elevation, with the remains of the conveyor in the foreground.



Figure 116 Machine Bays II (left) and III (right), looking west, showing the conveyor 'bridge' and open walkway between the two structures.



Figure 117 From left: north end Machine Bay III showing remains of headgear housing for the loft conveyor; interior with remnants of the Anderson brick machinery at north end.



Figure 118 Interior of the Machine Bay III shop floor, looking north.



### Historical background

Machine Bay III was built in 1955 as part of the upgrade of the Brickworks to meet post World War II production increases. It is interlinked with Machine Bays I and II as well as the workshop (Building 17). After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top level conveyor system, housed within the lofts of the three machine bays and passing through the upper roof area of the Workshop (Building 17) to hoppers and gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to the adjoining kiln – in this case the Hardy patent kiln II – for firing. Machine Bay III received raw materials directly from the 400 ton hopper (now demolished) which adjoined the north end of the structure.

The former brick-making floor is utilised by the present timber-working tenant as a storage area for recycled timber.

### Description & Integrity

Machine Bay III is a three level steel-framed and corrugated galvanised steel-clad structure. The structure comprises the loft gallery containing the overhead conveyor which extends through the loft space of all three machine bays and the workshop, and hoppers which fed the brick presses housed on the 'shop floor' below. The loft space has a concrete floor and the conveyor, housed within the peak of the roof space is accessed by steel ladder-form stairs from this level. The conveyor level walkway is of timber, some sections of which are in poor condition. The northernmost section is blocked off as it approaches the site of the part-demolished headgear housing and site of the removed hopper. There is an open walkway at the height of the concrete floor level which interconnects this building with Machine Bay II, to the south. There is a row of windows, previously fitted with glass louvers to the east and west sides of the loft space, and a row of windows to the east (rear) wall of the shop floor below. The shop floor is raised on a concrete slab, and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. A number of skylights have been let into the roof. This roof form is thought to be original – refer to the section drawing at Figure 113.

Some elements of the dismantled brick making machinery have been relocated to this building, and are sited in its north-east corner. The removal of the hopper and part of the headgear for the loft conveyors has also occurred.

Name	Workshop	Reference No	17
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	1955

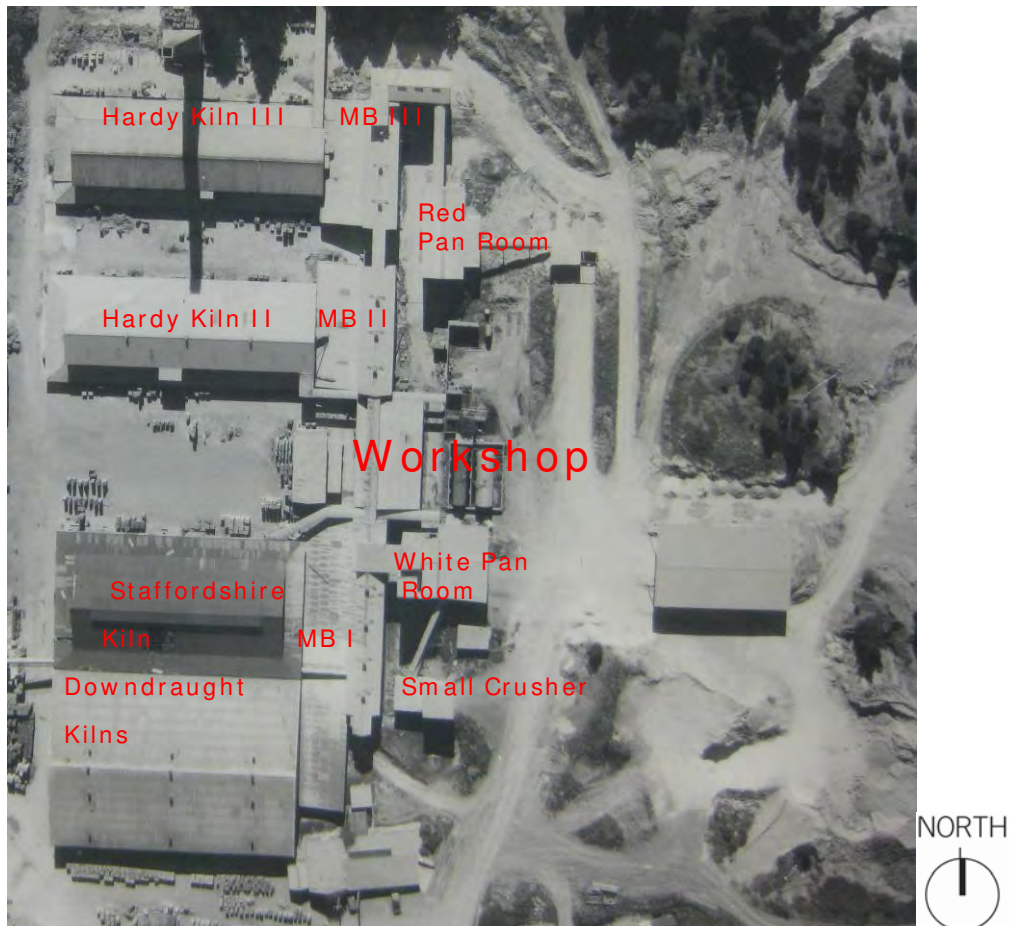


Figure 119 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Workshop is indicated by a larger font. Source: ACT Heritage Library, Woden ACT.

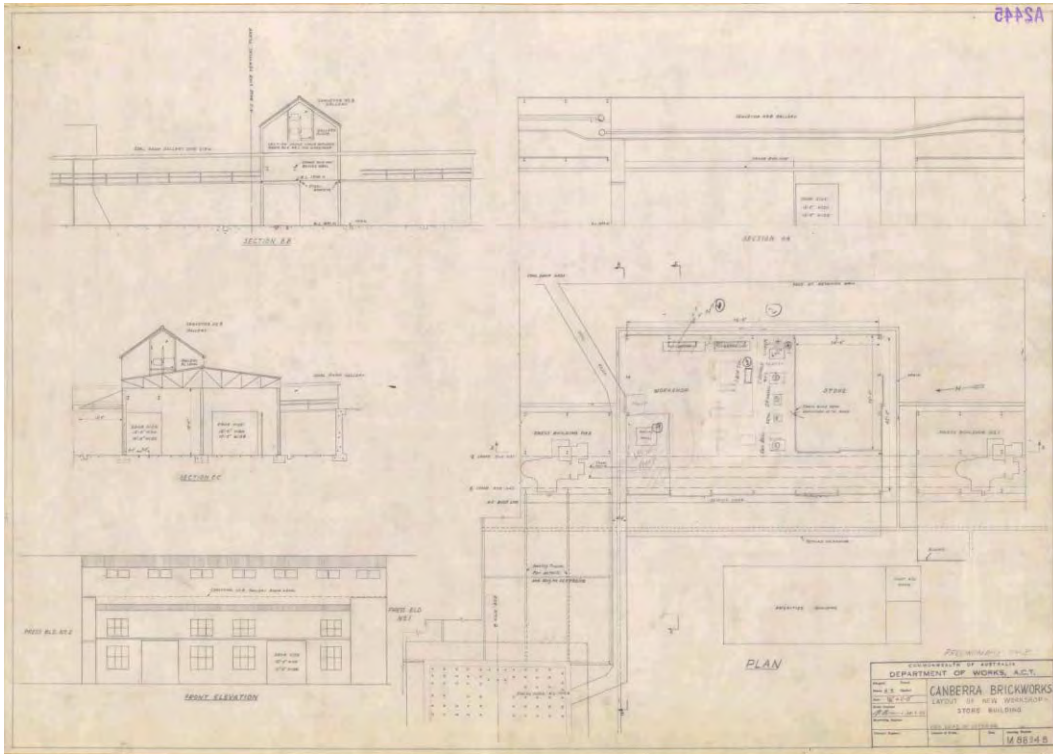


Figure 120 Canberra Brickworks Layout of new Workshop – Store Building, 1955.  
Source: National Archives of Australia.



Figure 121 Interior of Workshop



Figure 122 West elevation showing entry.

#### Historical background

The Workshop was constructed in 1955. It was used for general workshop repairs and the maintenance of machinery. It runs north-south across the site in the main built area, and was built on the approximate site of the original Machine Shop, which was constructed in 1915, and demolished in the 1950s.

The conveyor which connects the three machine bays also travels through the gabled roof space within the north side of the building. Within the space the overhead gantry crane remains in situ and operational.

#### Description & Integrity

The Workshop is a two-storey steel framed building, clad in corrugated steel over a brick base. There is a sliding corrugated steel door in the west elevation and another entry to the north elevation. The original louvred glazing to both the west and east elevation have partly been replaced by corrugated fibreglass sheeting, due to vandalism. The window openings as shown on the original plan differ from those shown today. To the north and south the building is part enclosed at the upper level by walkways which connect the conveyor gallery with the higher ground to the east, where the later model railway sheds (Buildings 33 and 34).

Internally the building has a concrete floor and the walls are unlined. Since 1991, the former workshop has been used as an artist's studio. The tenant has installed some internal partitioning and has also been responsible for the maintenance of the building – at the time of inspection the building appeared to be in reasonable condition.

Name	Small Crusher House (Crusher House I)	Building No	18
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	Unknown, c. mid to late 1950s

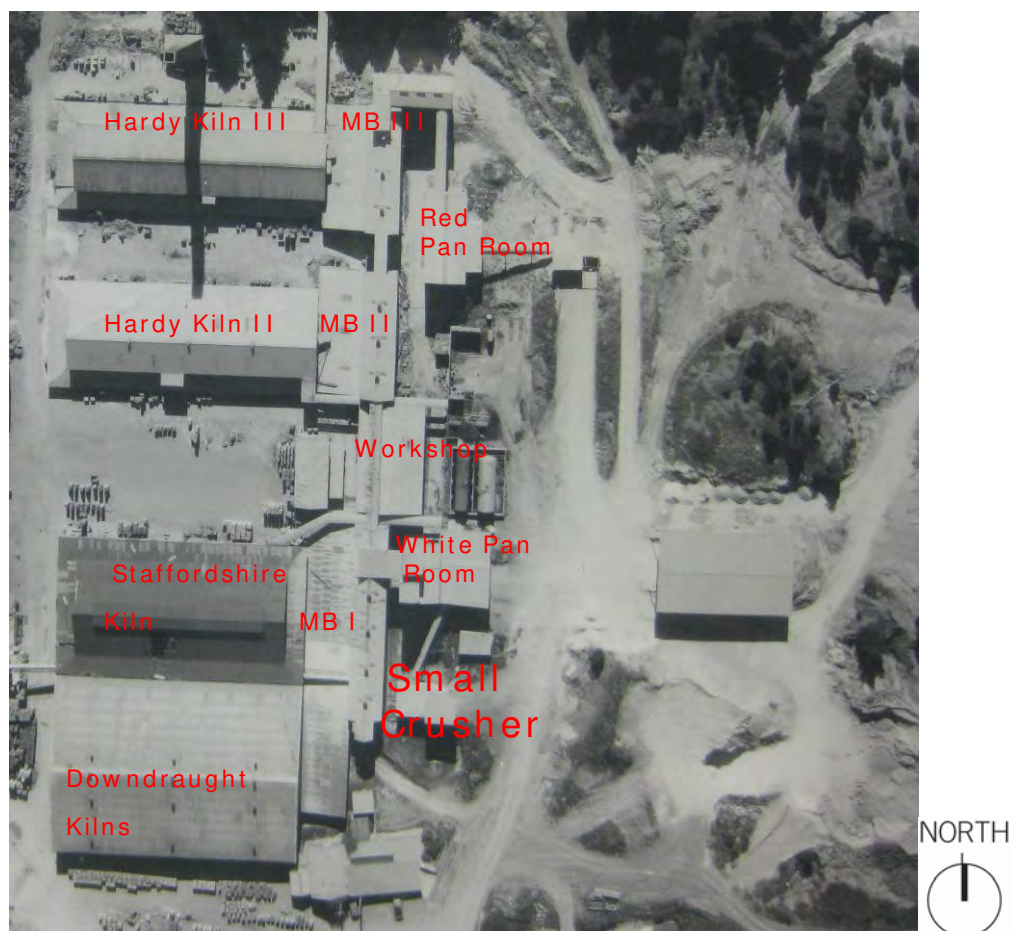


Figure 123 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Small Crusher House is indicated by a larger font. Source: ACT Heritage Library, Woden ACT.



Figure 124 Small Crusher House viewed from the north.

#### Historical background

Though its construction date has not been confirmed, the Small Crusher House appears to have been constructed as part of the 1950s expansion works.<sup>114</sup> Its later construction date may suggest the requirement to augment the operations of the newly completed crushers (Buildings 19 and 20) at comparatively short notice.

The Small Crusher house was fitted with a 'Hazemag' brand crusher and a single hopper. Raw materials could be unloaded directly from the truck bay at the higher level, into the hopper and thence into the crusher. The 'Hazemag' crusher was a rotary crusher which ground and screened the raw material through a perforated plate. Material was then transported by conveyor to the Large Crusher House or White Pan Room, (Building 19) so named because it solely processed white clay for further refining. Here materials would be further ground and screened. Crushed clay would then be conveyed by elevator to the three machine bays which immediately adjoin the crusher houses to the west.

---

<sup>114</sup> The building is not shown on a site layout plan prepared in 1955 which comprehensively documented site elements relating to this significant phase of works: *Canberra Brickworks re-arrangement of Plant Layout of Site Works for Dept of the Interior 11 July 1955*, ref. no. M8788K, National Archives of Australia.

### Description & Integrity

The Small Crusher House is a steel-framed, corrugated galvanised steel-clad machinery house. The building at the upper (driveway) level is flanked by low sloping walls of off-form concrete, which frame the unloading bay. At the lower level the structure presents as a two-storey building, with some of the machinery platforms and framing including the hopper in place. The conveyor connecting the crusher to Building 19 has been removed. Part of the roof cladding and lower sections of the wall cladding and the internal flooring have been removed.

The Small Crusher House is in poor condition and its connection to the White Pan Room removed.

Name	White Pan Room (Large Crusher House II)	Building No	20
Construction	Corrugated galvanised steel over steel frame	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

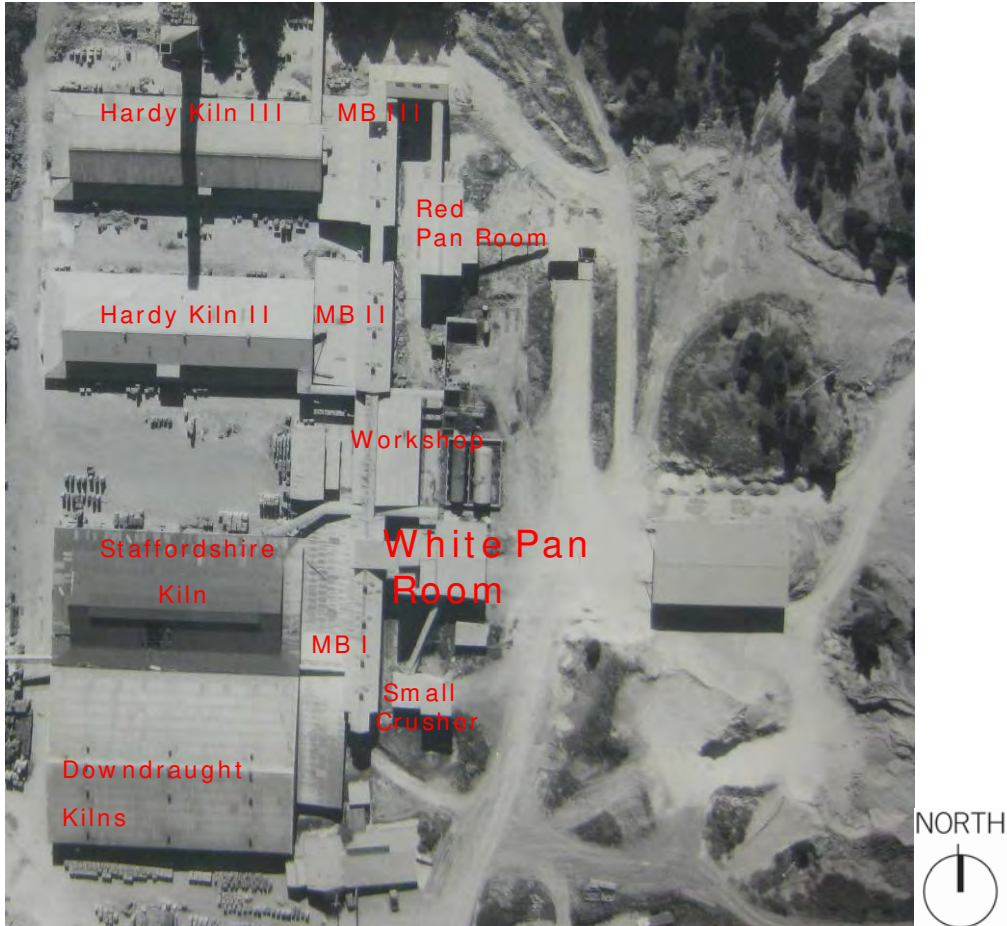


Figure 125 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The White Pan Room is indicated by a larger font. Source: ACT Heritage Library, Woden ACT.





Figure 126 The White Pan Room viewed from the east. The shed in the foreground is Building 34.



Figure 127 Interior of the White Pan Room looking west. The site of the now-removed hoppers is in the foreground.



Figure 128 South elevation showing the high-level connection to Machine Bay I, which is shown at left.

#### Historical background

The White Pan Room is thought to have been constructed in c. 1955 as part of the expansion and modernisation of the Brickworks plant.<sup>115</sup> With the now-demolished pan house, sited further north, the White Pan Room further refined raw materials including shale and white clay prior to processing and feeding into the brick presses, housed in the Machine Bays. Located to the east of Machine Bay 1 (Building 14), this facility was solely used for the crushing and refining of white clay. The white clay was brought to the pan house by truck where it was placed in the two hoppers ready to be fed into grinding pans. The grinding pans comprised a rotating perforated metal disc or pan over which large rollers crushed the clay through the perforations. After grinding the raw material was elevated, screened where material still too coarse was returned to the grinding pans and then elevated to the top of the adjoining machine bay to be fed into the brick presses contained within.

The building was also later connected to the Small Crusher House (Building 18), by a conveyor which transported crushed raw materials to be further refined in the White Pan

---

<sup>115</sup> The White Pan Room is described as undergoing renovation in 1955 in Lester Firth Associates 1986, Datasheet C2, but the source for this statement is not cited.

Room, thus increasing the processing capacity of the works. The relationship between Buildings 18 and 19 generally mirrored that of the Primary Crusher House (Building 20) and a now-demolished pan building previously sited behind Machine Bay 3 (Building 16), known as the Red Pan Room. However, unlike the demolished pan house, the subject building also had a hopper for direct raw materials loading.

#### Description & Integrity

The White Pan Room is a steel framed corrugated steel clad machinery house, with a distinctive roofline of skillion forms of varying heights. Like the Small Crusher House, there is an unloading bay at a higher level where white clay material was directly unloaded into one of two hoppers, both now removed. The structure is framed by off-form concrete walls and the interior has been gutted with the majority of the machinery removed. The removal has exposed large holes in the concrete surrounding the former location of the hoppers.

The machinery house remains generally intact, but the removal of much of the machinery and the interconnections between the White Pan Room and the smaller crusher house have diminished its ability to demonstrate the processes it accommodates.

Name	Primary Crusher House (Crusher House III)	Reference No	20
Construction	Corrugated galvanised steel over steel frame, retaining wall of concrete	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

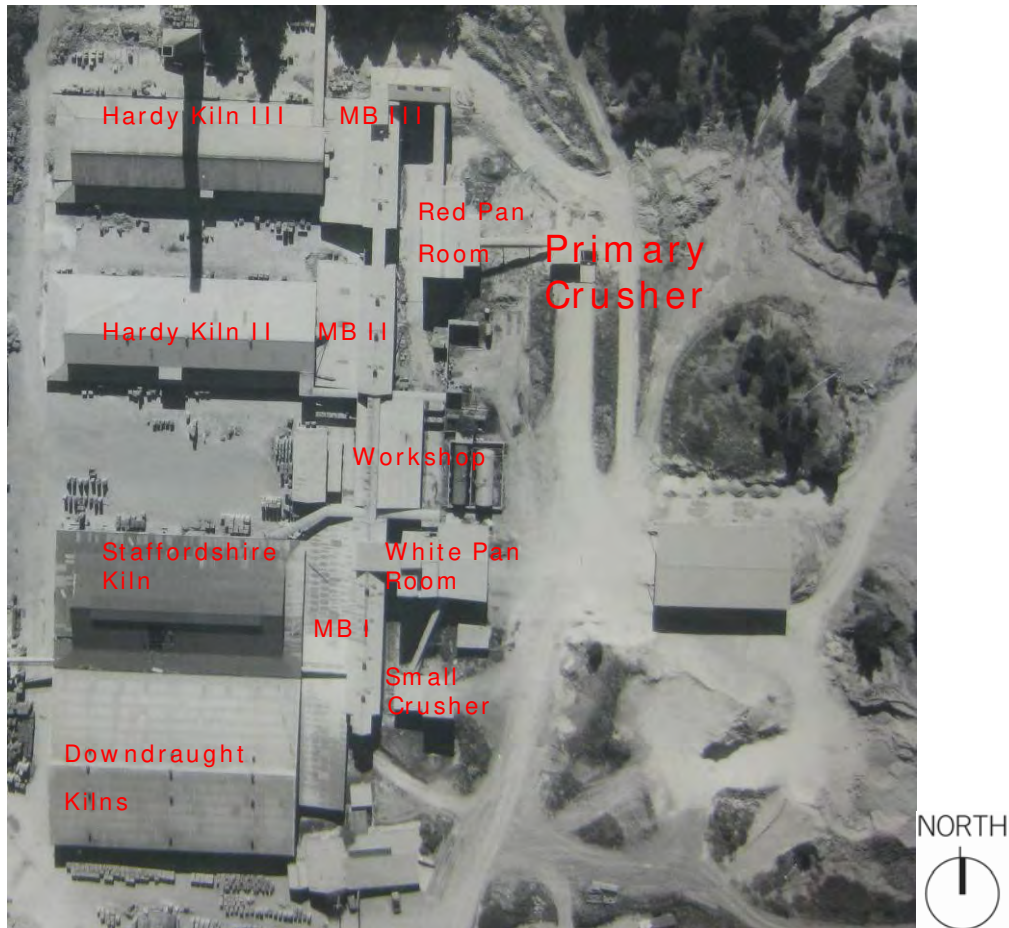


Figure 129 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Primary Crusher House is indicated by a larger font. Source: ACT Heritage Library, Woden ACT.



Figure 130 The Primary Crusher House viewed from the west. The concrete footings in the foreground supported the now demolished conveyor which transported crushed material to the Red Pan Room (also demolished) for further refining.

#### Historical background

The Primary Crusher House was constructed in c. 1955 to process raw materials, which were crushed and then conveyed to the Pan building (demolished) for further screening and grinding. A ramp attached to the crusher provided truck access. The Primary Crusher House contained a Ross feeder for raw shale, with 32" and 18" Jaw Crusher, (Jaques swing jaw crusher) and also a grizzly feeder. It was an integral element of the raw materials processing operations in the expansion of the Brickworks in the post-War period.

#### Description & Integrity

The Primary Crusher House is of steel framed construction with corrugated galvanised steel cladding. The structure is raised on steel posts and there is a concrete retaining wall to its eastern side. The machinery housing is accessed by a metal ladder from the excavated ground level and there is a truck bay and hopper chute for the delivery of raw material at the higher level.

The structure is in a ruinous state. Parts of the crushing machinery and conveyor are still in evidence. The timber decking within the structure is in a hazardous condition. The building is impacted by a copse of pine trees which appear to have self-seeded in front of the chute.

Name	Elevator/Conveyor	Reference No	21
Construction	Corrugated galvanised steel over steel frame, partially dismantled	Survey Date	3 December 2009
Historical Phase	Post-war phase, 1944-1976	Date	c. 1955

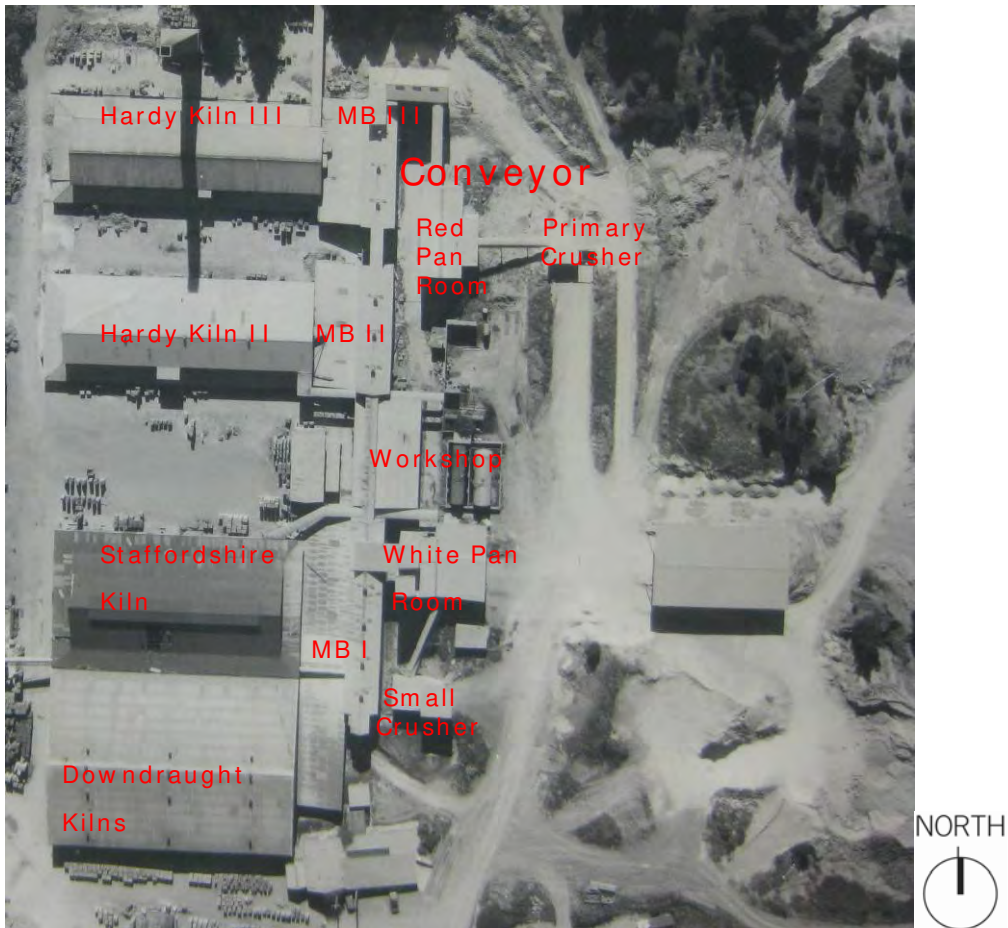


Figure 131 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Conveyor is indicated by a larger font.  
 Source: ACT Heritage Library, Woden ACT.



Figure 132 Extant section of the elevator/conveyor looking north-east.



Figure 133 Looking south-west. Machine Bay III (Building 16) is in the background.

### Historical background

The Elevator/Conveyor was constructed in c. 1955 as part of the post-War expansion and modernisation of the works. The conveyor, in two parts, transported the crushed shale from the Primary Crusher House (Building 20) to the now demolished White Pan Room building – the site of which is immediately to the rear (east) of Machine Bay II and Machine Bay III (Buildings 15 and 16 respectively). The Pan building ground and screened the crushed shale, and the other section of the conveyor transported it to a distribution hopper which adjoined Machine Bay III. From this point the shale travelled vertically down to the table measures where it was then conveyed by elevator to the top of Machine Bay III joining the loft conveyors to be distributed to the brick presses, housed within the machine bays which serviced each of kilns.

### Description & Integrity

The Elevator/Conveyor is a steel-framed structure, clad in corrugated galvanised steel supported on steel stanchions. Part of the conveyor remains in-situ. In the immediate, vicinity footings of the demolished structures, including sections of the dismantled gangway which led from the firing floor of the second Hardy patent kiln (Building 12) to an oil storage depot, the present-day site of the houses in Lane Poole Place, are also present.

The Conveyor is in poor condition. The section linking the demolished pan house to the distribution hopper is only partly intact and the section linking the pan house to the crusher has been demolished. The adjoining distribution hopper structure has also been demolished.



Name	Downdraught Kilns (three kilns and roofed enclosure)	Reference No	22
Construction	Brick (kilns) with corrugated steel roof enclosure (shed)	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1960-61



Figure 134 Detail from a 1929 photograph of the brickworks, with the chimney of the temporary downdraught kilns highlighted.  
Source: National Archives of Australia.



Figure 135 Interior of enclosure showing the north elevation of two of the three kilns.



Figure 136 Kiln roof with brick walkway to sides.



Figure 137 Kiln entry showing stepped side wall.



Figure 138 Side elevation showing steel framing and fireholes.



Figure 139 From left: interior of kiln showing entry and deteriorating fire bricks; interior of kiln showing later cement paving.

### Historical background

A series of three downdraught kilns, also known as dome kilns, were built in the early 1960s. Initially coal-fired; they were subsequently converted to oil-firing. The kilns were used almost exclusively for the production of face and special bricks.

The kilns were constructed close to the site of two 'temporary' downdraught kilns with a brick stack (see Figure 134), which had been built in 1925 to cope with the increasing demands for Canberra's growth after the decision of the Hughes government to pursue the construction of the National Capital after World War I. These temporary kilns were demolished around in c. 1958.

### Description & Integrity

The three kilns are oriented north-south and are constructed of face brick laid in an English bond and fitted with large fire brick faced metal doors to either end. There are feedholes along both the east and west sides, for the ingress of fuel, in this case coal, and later oil, each of which is topped with a segmented brick arch and infilled with brickwork. Each kiln is enclosed by steel framing which extends above each of the kilns, and reinforced by a system of tensioned tie rods. The kilns in section have a stepped profile, with the domed roof surface enclosed to the east and west sides by a traversable brick pier. The kilns are numbered 1 through 3 from east to west, with 1 being closest to the Power House (Building 3).

Internally, the kilns are designed to be accessed via metal doors to either end. None of the three kilns are accessible from the north end. With the exception of Kiln 1, the doors to the south end comprise metal cladding to the exterior face and a wall of firebricks, held in place to the surface of the metal door by a heavy duty metal mesh. These are in reasonable condition albeit some of the brick is friable and deteriorating. The doors to Kiln 1 are of metal without the firebrick lining. The doors are fitted with easy clean hinges, enabling them to be folded fully back flat against the kiln wall to permit access to the interior. Internally the north doors are either bricked over or, as for Kiln 1, a false stud wall with plaster has been installed.

The three kilns have each been altered internally to serve as antique market stalls or storage areas in the period immediately following on from the closure and relocation of the brickworks in 1976. Works typically involved the paving of the interior floors with brick, the installation of electric wiring and of lighting –generally in the form of spotlights which have reused the hot air off-takes, or suspended fluorescent fittings. Between the three kilns, racks have been installed by the current site tenant for the storage of salvaged timber. A secure display space has been created to the east of the Kiln1, within the form of the open-sided corrugated steel roof structure. It is a metal framed corrugated steel enclosure with corrugated laserlite let into the east wall.

The whole is enclosed by an open-sided metal framed corrugated steel canopy. The date of construction of this has not been confirmed, however it is thought to be contemporary with the kilns themselves. The structure appears on the 1976 aerial photograph. The roof cladding has been replaced by the current site tenant since the 1986 report was compiled.

Name	Downdraught Kiln control room	Reference No	23
Construction	Brick, corrugated asbestos cement sheet	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1961



Figure 140 The downdraught kiln control room is the cream brick building adjoining the larger terracotta-tiled Power House (Building 3).

#### Historical background

The downdraught kiln control room was constructed during the early 1960s, at the time of the construction of the three downdraught kilns (Building 22).

#### Description & Integrity

The control room is constructed of cream brick with a gable roof of corrugated asbestos cement. There are timber framed louvre windows to both the south and west which have been broken and are now boarded over internally with plywood. There is a brick stair with concrete treads to the west elevation, leading to the entry in the north elevation. The building is in poor condition and there are holes in the roof. The lining boards to the gable to the south are damaged.

---

Name	Chimney Stack for Downdraught Kilns	Reference No	24
Construction	Brick	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c.1961



Figure 141 Chimney stack viewed from the north-west.

#### Historical background

The brick chimney stack located north-west of the three early 1960s downdraught kilns was linked by underground tunnels from the three kilns to a now-demolished fan house. The large opening in the east face of the stack is thought to for a large duct – now removed – from the fan house. The method of operation is thought to have been similar to that of the fan house and stack associated with the Hardy patent kiln.

There is no obvious evidence of the fan house today and at the time of inspection.

### Description & Integrity

The chimney stack, constructed of red brick, is located approximately 30 metres south of the draught kilns. The stack is surrounded by a gravelled car parking area and with timbers stored at its base. The design of the stack is a simpler version of the Staffordshire and Hardy patent kiln stacks, without the corbelled brickwork. At the time of the compilation of the 1986 *Conservation Plan*, the stack was being used as an incinerator by the site's tenants.

There is evidence of brickwork spalling, particularly to the west and north faces. There is a large oblong opening approximately three metres above the ground in the north face, indicating where a duct channelled spent fuel and heat to the stack for dispersal. There is an opening at low level in the south face, set within a steel door surround – the door is missing.

---

Name	Toilet Block	Reference No	25
Construction	Brick, steel roof decking	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1960s



Figure 142 The toilet facility is indicated by the arrow.

#### Historical background

This small brick toilet adjoins the rear of the former office building (Building 7) and is sited adjacent to a storage building (Building 31). It is similar in size and uses similar materials to the amenities block which adjoined the brick extrusion plant at the other side of the works. It contained a toilet cubicle and at time of the 1986 *Conservation Plan* it was utilised by the tenants of the former office building.

Its construction of vari-coloured brickwork suggests it was built from materials at hand, as needs dictated.

#### Description & Integrity

The toilet is constructed of vari-coloured brickwork, and has a skillion roof of metal roof decking. There is a window in the north wall and a door (boarded up) in the east elevation. The interior of the building was not inspected as access was not available.

The building is in poor condition.



Name	Amenities Block	Reference No	26
Construction	Brick, metal roof decking	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1960s



Figure 143 From left: the amenities block is the small red brick building at right; entry.

#### Historical background

This small brick amenities block is sited at the eastern edge of the brick extrusion plant (Building 30). It adjoins a small tan brick ancillary storage building (Building 29) which it predates. It is similar in size and is constructed of similar materials to the storage shed (Building 32) on the southern edge of the quarry, behind the White Pan Room (Building 19). It contained a toilet cubicle and shower recess and may also have functioned as a laundry, post-closure of the brickworks. At the time of the 1986 report it was utilised by the tenants of the former substation/control room and boiler house (Buildings 27 and 28 respectively).

Its construction of vari-coloured brickwork suggests it was built from materials at hand, as needs dictated.

#### Description & Integrity

The amenities block is of vari-coloured brickwork, and has a skillion roof of metal roof decking. Internally it has a concrete floor and there are window openings to the north, east and south. The entry is from the south. The interior has been heavily vandalised with all fittings and finishes in poor condition.

Name	Substation/control room	Reference No	27
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1971



Figure 144 Substation/control room building, showing north elevation.



Figure 145 The former boiler house and adjoining substation/control room, photographed from the site of the former extrusion plant. The substation building is at left.

### Historical background

During 1971 a new building was constructed to house the new extrusion brick making plant as well as a series of brick drying kilns. The extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor which passed between the Staffordshire and downdraught kilns Buildings 4 and 22 respectively. The *Canberra Times* reported in August 1972 that the \$500,000.00 extrusion machine raised the Brickworks total production capacity from around 20 million bricks per year to more than 40 million per year.<sup>116</sup>

To service the new plant, the subject building – originally constructed as a substation/control room – and the adjoining boiler house (Building 28) were erected. After the closure of the plant, both buildings were refitted to serve as stalls as part of a larger antique market which operated from the site during the late 1970s-early 1980s.

### Description & Integrity

The former substation/control room building is sited to the north of the boiler room, and is positioned at right angles to it.

The building is constructed of brick and has a gabled roof form clad in corrugated steel. The gable is also infilled with corrugated steel to both the front and rear. The structure is accessed by a steel roller door in the east elevation, and there is a crude corrugated steel canopy above the roller door entry in supported on timber posts with angled brackets. The verandah element extends further to the south than the extent of the building, almost abutting the verandah of the adjoining boiler house. This last element is thought to date from the use of the building as an antique stall. A painted timber sign fixed to the building's façade adjoining the louvre window next to the roller door reads 'Nicky's Antiques'. There is a single door entry in the north elevation and a window, with metal bars fixed to its outside face. The door is a painted timber ledged door set within a timber frame. A metal cable tray which previously extended from the rear (west) wall into the extrusion plant proper has been crushed against the wall.

The building is of painted brickwork internally, has a concrete floor and painted concrete ceiling. The space is largely stripped out, and at the time of inspection a number of rusted metal brick barrows were *in-situ*.

The building is in fair condition, apart from the impacts of minor vandalism, including the breaking of windows, painted graffiti and smoke damage. The corrugated galvanised steel roofing is in very good condition.

The verandah element and signage date from the post-closure phase and are related to its subsequent use as an antique stall.

---

<sup>116</sup> Cited in Lester Firth and Associates, 1986, datasheet DH.

Name	Boiler House	Reference No	28
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1971



Figure 146 Former boiler house building showing east entry and later verandah addition.



Figure 147 The former boiler house and adjoining substation/control room, viewed from the site of the former extrusion plant. The boiler house is at right.

### Historical background

During 1971 a new building was constructed to house the extrusion brick making plant as well as a series of brick drying kilns. The extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor which passed between the Staffordshire and downdraught kilns. The *Canberra Times* reported in August 1972 that the \$500,000.00 extrusion machine raised the Brickworks total production capacity from around 20 million bricks per year to more than 40 million per year.<sup>117</sup>

To service the new plant, the subject building – originally constructed as a boiler house – and the adjoining substation/control room (Building 27) were erected. After the closure of the plant, both buildings were refitted to serve as stalls as part of a larger antique market which operated from the site during the late 1970s-early 1980s.

### Description & Integrity

The former boiler house is a double-height structure, constructed of brick and has a gabled roof form clad in corrugated steel. The gable is also infilled with corrugated steel to both the front and rear. The structure is accessed by a steel roller door. There is a crude corrugated steel canopy above the roller door entry in the east elevation, supported on timber posts. This last element is thought to date from the use of the building as an antique stall. There is a crudely laid brick and concrete paver apron to the entry.

The building is of painted brickwork internally, and has a concrete floor and painted ceiling lining boards with a narrow bead. There are two fixed pane windows to the east and west walls, approximately 2.5 metres above the internal floor level. No machinery or equipment relating to its original use remains.

The building is in good condition, apart from the impacts of minor vandalism, including the breaking of windows.

The verandah element is thought to date from the post-closure phase and related to its subsequent use as an antique stall.

---

<sup>117</sup> Cited in Lester Firth and Associates, 1986, datasheet DH.

Name	Ancillary storage building	Reference No	29
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1971



Figure 148 The storage building, adjoining the site of the brick extrusion plant site.

#### Historical background

This is a small structure located on the edge of the brick extrusion plant site, and its date of construction is thought to be contemporary or soon after the construction of this facility c. 1971. Its original function is not known. At the time of the 1986 *Conservation Plan* it was in use as a studio space by an artist/craftsperson. At present it is vacant and unsecured.

#### Description & Integrity

The building is constructed of tan wire-cut brick, and has a skillion roof of metal roof decking. Internally it has a concrete floor and window openings to both the south and east elevations. There is a doorway in the east elevation. The glazing and window framing as well as the door have been removed. Internally the building has a concrete floor and the walls are partly of painted brickwork with some areas of painted wall lining panels. The ceiling is also lined and painted.

The building is vacant and in poor condition.

---

Name	Slab for Brick Extrusion Plant	Reference No	30
Construction	Concrete slab	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1971



Figure 149 Detail of a 1976 aerial photograph showing the extrusion plant and overhead conveyor (indicated).  
Source: ACT Heritage Library, Woden ACT.



Figure 150 Brick extrusion plant site, looking north-east.

#### Historical background

During 1971, a new building was constructed to house the extrusion brick making plant as well as a series of brick drying kilns. The extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor which passed between the Staffordshire and Downdraught kilns. This is shown in an aerial photograph of the brickworks site, taken in May 1976. The *Canberra Times* reported in August 1972 that the \$0.5 million extrusion machine raised the total production capacity of the plant from c. 20 million bricks per year to over 40 million per year.

After the closure of the brickworks the shed building which enclosed the drying kilns and brick making machinery was relocated to the Canberra Showgrounds and the conveyor was dismantled. Since the compilation of the 1986 report the drying kilns have also been demolished. The slab is now used as a timber store.

#### Description & Integrity

The concrete floor slab is the remaining element of the short-lived extrusion plant. Buildings 27 and 28 – the substation/control room and boiler house respectively which abut the site to the south-east - were constructed to service the extrusion plant.



Name	Ancillary storage building	Reference No	31
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1960s



Figure 151 The ancillary storage building is sited behind the former offices (Building 7).

#### Historical background

This small brick storage building abuts a brick toilet (Building 25) behind the former office building (Building 7). It uses similar materials to the storage shed which adjoins the White Pan Room (Building 19), further to the north. It appears to have been built as a store, related to the nearby office building.

#### Description & Integrity

The structure is of orange face brick with a timber framed door and window to the south elevation. It has a skillion roof of metal roof decking. The interior walls are lined and part-fitted with shelving unit brackets. The building is unsecured, vandalized and in poor condition.

Name	Storage shed	Reference No	32
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-war phase 1944-1976	Date	c. 1960s



Figure 152 Storage shed.

#### Historical background

This small brick storage shed is sited on the southern edge of the quarry, and behind the White Pan Room (Building 19). It is similar in size and uses similar materials to the toilet and storage building behind the office building, further south and the amenities block adjacent to the brick extrusion plant. The original function of the shed is not known. Its construction of vari-coloured brickwork suggests it was built from materials at hand, as needs dictated.

#### Description & Integrity

The shed is of vari-coloured brickwork, and has a skillion roof of metal roof decking. Internally it has a concrete floor and the timber door to the large opening on its north face is stored within the building. The walls are not lined internally and the reflective insulation has been damaged by vandals. The shed is vacant and in fair condition.

## 6.0 HISTORY & PHYSICAL ANALYSIS: POST CLOSURE PHASE 1976-2010

### 6.1 Introduction

The following section summarises the uses, and some of the proposed uses, of the Canberra Brickworks since the site was decommissioned in 1976. As noted at Chapter 1, the site is presently occupied by a recycled timber merchant and a number of artists.

#### 6.1.1 *A.R. Marr redevelopment proposals (1976-84)*

In September 1976 all removable structures at the Canberra Brickworks were offered 'for sale for removal,' and the extrusion plant shed to the south-west of the site was relocated to the Canberra Showgrounds.<sup>1</sup> The National Capital Development Commission (NCDC) anticipated that costs incurred during the relocation process would be recovered during the subsequent adaptive re-use of the site, which the NCDC initially proposed to achieve by redeveloping the site with medium density housing.<sup>2</sup>

Also in 1976, local developer and businessman Alan Marr (A R Marr Pty Ltd) put forward a proposal to develop the brickworks as an integrated tourist, recreation and retail centre. Uses envisaged included manufacturing (including a pottery, winery and crafts), speciality shops, an antiques market, plant nursery, restaurant and tavern, offices, art displays (in the upper levels of the three continuous kilns) and museums, including collections of vintage cars and fire engines. Medium density housing was proposed to the east and north of the site. Under Marr's scheme, the quarry was to be landscaped to include picnic areas, walking trails and a miniature railway.<sup>3</sup> Marr succeeded in having the land re-zoned to accommodate his vision for a mixed-use tourism, recreation and residential development. The present zoning at the site dates from this period.<sup>4</sup>

Works undertaken by Marr on the existing buildings included re-roofing the Staffordshire and draught kilns; re-constructing the external brick walls of the Staffordshire kiln; some internal lining to the Staffordshire kiln; electrical work to the Hardy patent kilns; paving to some areas of the Hardy patent kilns; and re-roofing of ancillary buildings.<sup>5</sup> Work on the quarry commenced towards the end of 1978, including land fill and the creation of the reflection lake (see Figure 153).

The redeveloped brickworks was opened to the public as a tourist attraction in July 1979. However, limited income opportunities and high capital costs (over \$1 million was invested in works to the site<sup>6</sup>), forced A R Marr into provisional liquidation.<sup>7</sup> Auctions of the vintage car

---

1 Lester Firth and Associates, 1986, Section 2.1.5, sources uncited.

2 'Proposed Land Uses for Undeveloped Land in Inner Canberra,' National Capital Development Committee, cited in Lester Firth and Associates, 1986, Section 2.1.5.

3 Lester Firth and Associates, 1986, Section 2.1.5.

4 Connell Wagner Pty Ltd, *The Old Canberra Brickworks and Environs Development Control Plan*, February 2001, p. 4.

5 Lester Firth and Associates, 1986, Section 2.1.5.

6 Lester Firth and Associates, 1986, Section 2.1.5, uncited reference.

collection and site equipment took place in September and November 1980. Two of the items, a 1913 Austral Otis Steam Roller and a 1925 Fowler Road locomotive, both associated with Canberra's early development, were purchased for the National Museum of Australia.<sup>8</sup>

At this time Marr also held an option to develop up to 212 townhouses on parts of the brickworks site. In 1980 the first stage, comprising 20 houses on the eastern side of the site, was commenced. Work on houses to the north of the brickworks (now Lane Poole Place) began the following year.<sup>9</sup>

In the early 1980s, Alan Marr was seriously injured in a fall at the brickworks, and later died of complications.<sup>10</sup> On 18 September 1984, the Commonwealth accepted surrender of A R Marr Pty Ltd's lease and paid \$1.1 million for the lessee's interest in the site.<sup>11</sup> The surrender included options to acquire adjoining land for the construction of 151 townhouses. The Commonwealth paid the lessee \$1.1 million for its interests.<sup>12</sup>

A number of tenants from the Marr lease, including artists, the antiques market and a timber recycling merchant, Thor's Hammer, remained at the site. In the mid-1990s, due to concerns about the safety of some of the buildings<sup>13</sup> and in anticipation that the site was going to be redeveloped (see below), the tenants were required to leave. The role of the caretaker (Bruce McDonald), who had been responsible for the management of the site since the Marr lease, was also abolished. In recognition of the considerable volume of its timber stock, Thor's Hammer was granted an extended period to relocate. The company was still at the site by the time it was clear that the development proposal was not going to come to fruition. Thor's Hammer remains at the site today.

#### 6.1.2 *Hooker projects proposal (1988)*

In February 1979, the NCDC issued the *Yarralumla Policy Plan: Report on Environmental Issues Incorporating Draft EIS and the Development of Section 100 Yarralumla*. This document was, 'intended to provide additional demands for housing, recreation, tourism and national capital uses which were deemed compatible with the existing use and character of Yarralumla.'<sup>14</sup> The recommendations of the *Yarralumla Policy Plan* were poorly received by

<sup>7</sup> A R Marr Pty Ltd was put into provisional liquidation on 9 January 1980. Lester Firth and Associates, 1986, Section 2.1.5.

<sup>8</sup> Lester Firth and Associates, 1986, Section 2.1.5.

<sup>9</sup> Lester Firth and Associates, 1986, Section 2.1.5.

<sup>10</sup> Pers comm., Peter Vandermark (artist based at the Canberra Brickworks) and Adam Mornement, Lovell Chen, 4 December 2009.

<sup>11</sup> Susan Conroy & Munns Sly Architects, *The Yarralumla Brickworks & Environs Planning Review*, March 2005, pp. 21-22, and Lester Firth and Associates, 1986, Section 2.1.5.

<sup>12</sup> Lester Firth and Associates, 1986, Section 2.1.5.

<sup>13</sup> A brick is rumored to have fallen from the ceiling of one of the downdraught kilns. Pers comm., Thor Diesondorf, Thor's Hammer and Adam Mornement, Lovell Chen, 4 December 2009.

<sup>14</sup> Susan Conroy & Munns Sly Architects, *The Yarralumla Brickworks & Environs Planning Review*, March 2005, p. 21.

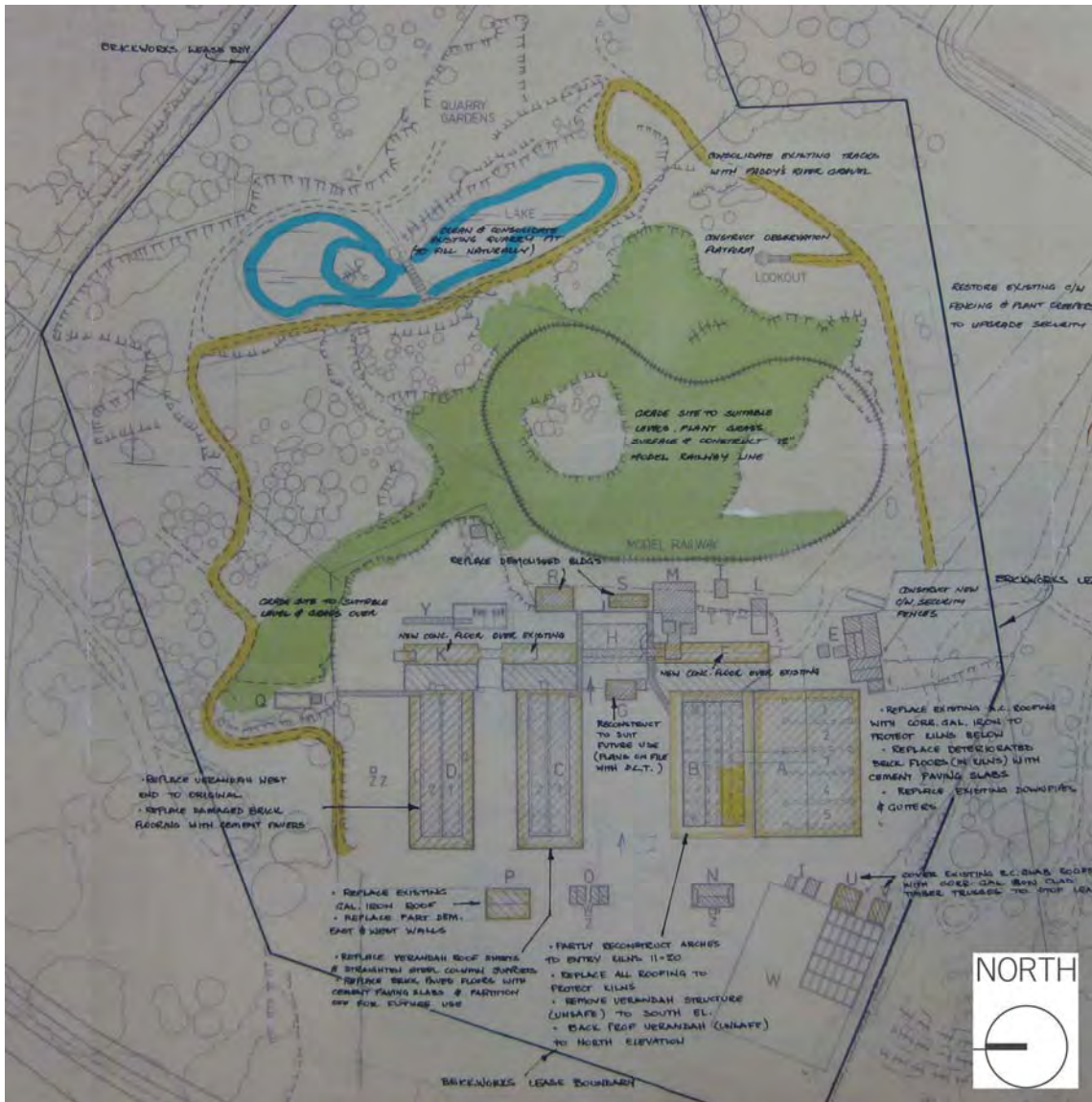


Figure 153 The A R Marr proposed for Canberra Brickworks, c. 1977.  
 Source: ACT Heritage Library, Woden ACT.

the local community, with objections relating to the loss of open space, the scale of the tourism and recreation development and medium density development.<sup>15</sup>

The *Yarralumla Policy Plan* (1979) was followed in 1988 by the *Canberra Brickworks South Canberra Policy Plan*. This document suggested a range of potential uses for the site, including:

- Medium density housing in the western and southern areas of the brickworks: c. 250 dwellings of 30 households per hectare (4.2.1);
- Commercial accommodation in some of the historic buildings at the site (4.2.1); and

<sup>15</sup> *Yarralumla Section 94, Brickworks Redevelopment Section 2, variation no. 5* (anonymous and undated), a compilation of responses to the *Draft Yarralumla Policy Plan*, held in ACT Assembly Library, cited by Susan Conroy & Munns Sly Architects, p. 21.

- Limited amounts of office and retail space (4.2.2 and 4.2.4, respectively)

In addition, it was noted that a combination of the above uses would be appropriate in the development of the brickworks as a tourism destination, and that future uses of the site needed to be financially self-sufficient.<sup>16</sup>

Susan Conroy and Munns Sly Architects suggest that the 1988 *Policy Plan*: 'Appears to have been instigated by the Commonwealth because of what it considered an innovative plan [the Hooker proposal, described below] for redevelopment and use of the Canberra Brickworks Site [sic]'.<sup>17</sup>

Once again, the *Policy Plan* was poorly received by the community, and led to the establishment of the Yarralumla Residents Association (YRA), in November 1988. The Association took the view that the *Plan* had been hastily prepared and failed to address key issues.<sup>18</sup>

Regardless of the YRA's views, the *Plan* was adopted, and formed the basis of calls for Expressions of Interest (EOI) for the development of the site in November 1988. The preferred EOI was submitted by Hooker Projects, which proposed a sports precinct in the south and the south-west of the site, with the kilns adapted to multiple uses, including a museum, restaurant, hotel and visitor attractions. Sections of the machine bays were proposed for adaptive re-use, including the conveyor belt in the roof space as a 'museum walkway' (see Figure 154).

By 1990, however, with the economy depressed, Hookers had been placed in provisional liquidation. Susan Conroy and Munns Sly Architects note that, 'negotiations continued with the liquidator, Halwood Corporation Ltd, who transferred development rights to a subsidiary Hooker Projects (Castlereagh Management), to allow progress on the project ... [However] by August 1992, the Hookers proposal was defunct'.<sup>19</sup>

### 6.1.3 *Local Area Planning Committee proposal (1998)*

In 1998, following a failed development proposal by the Canberra Theatre,<sup>20</sup> the Burley Griffin Local Area Planning Committee (LAPAC) was invited by the Government to submit its recommendations with regard to the future development of the brickworks. The committee that developed the proposal comprised representatives of the LAPAC and Yarralumla Residents Association,<sup>21</sup> with assistance from local architect Ric Butt.<sup>22</sup>

---

<sup>16</sup> NCDC, *Yarralumla Brickworks South Canberra, Policy Plan*, October 1988, pp. 14-15.

<sup>17</sup> Susan Conroy & Munns Sly Architects, p. 21.

<sup>18</sup> Susan Conroy & Munns Sly Architects, p. 22, citing a letter (December 1988) from the Yarralumla Residents Association to the Hon Clive Holding.

<sup>19</sup> Susan Conroy & Munns Sly Architects, p. 23.

<sup>20</sup> See, Cameron Chisholm and Nicol Architects, *A Proposal for the redevelopment of the Old Canberra Brickworks*, prepared for Canberra Theatre, instructed by Allied Projects (ACT), July 1996, cited in Susan Conroy & Munns Sly Architects, p. 23.

<sup>21</sup> Connell Wagner Pty Ltd, 2001, p. 5

<sup>22</sup> Susan Conroy & Munns Sly Architects, p. 23.



Infrastructure and Asset Management. Connell Wagner was commissioned to prepare the DCP.<sup>26</sup>

Options identified by the DCP included the development of the site for housing; the creation of fenced gardens in the former quarry; adaptive re-use of the brickworks, dependent on remediation; the potential for adaptive re-use for aged care accommodation; and leaving the site substantially undeveloped.<sup>27</sup>

The YRA responded to the DCP with a recommendation that a maximum of 25 units be developed, to the south of the brickworks. As noted by Susan Conroy and Munns Sly Architects, the YRA also proposed that the Defense Housing Authority develop and manage the site. The ACT Government entertained the proposal, but concluded that any development should be based on a competitive process for land sales.<sup>28</sup>

In May 2002 the ACT Land and Property Group engaged a firm of civil consultants to evaluate the YRA's 25 dwelling proposal, including costings and consideration of an access road from Dudley Street to the south.<sup>29</sup>

---

26 Connell Wagner Pty Ltd, *The Old Canberra Brickworks and Environs Development Control Plan*, February 2001.

27 Connell Wagner Pty Ltd, 2001, chapters 6 and 7.

28 Susan Conroy & Munns Sly Architects, pp. 24-25. .

29 Ribeny F J & Associates, *Multi-Unit Site, The Old Canberra Brickworks Yarralumla DUS*, 26/05/02, cited by Susan Conroy & Munns Sly Architects.



6.2 Datasheets for Post-closure phase elements

No.	Name/ Description	Date of construction
33	Model railway workshop	c. 1979
34	Model railway storage shed	c. 1979



Figure 155 Location of elements surviving from the Post-closure Phase. Refer to the larger scale site plan in Chapter 1 for more detail.

---

Name	Model Railway Workshop	Reference No	33
Construction	Brick, corrugated galvanised steel	Survey Date	3 December 2009
Historical Phase	Post-closure phase 1976-2009	Date	c. 1979

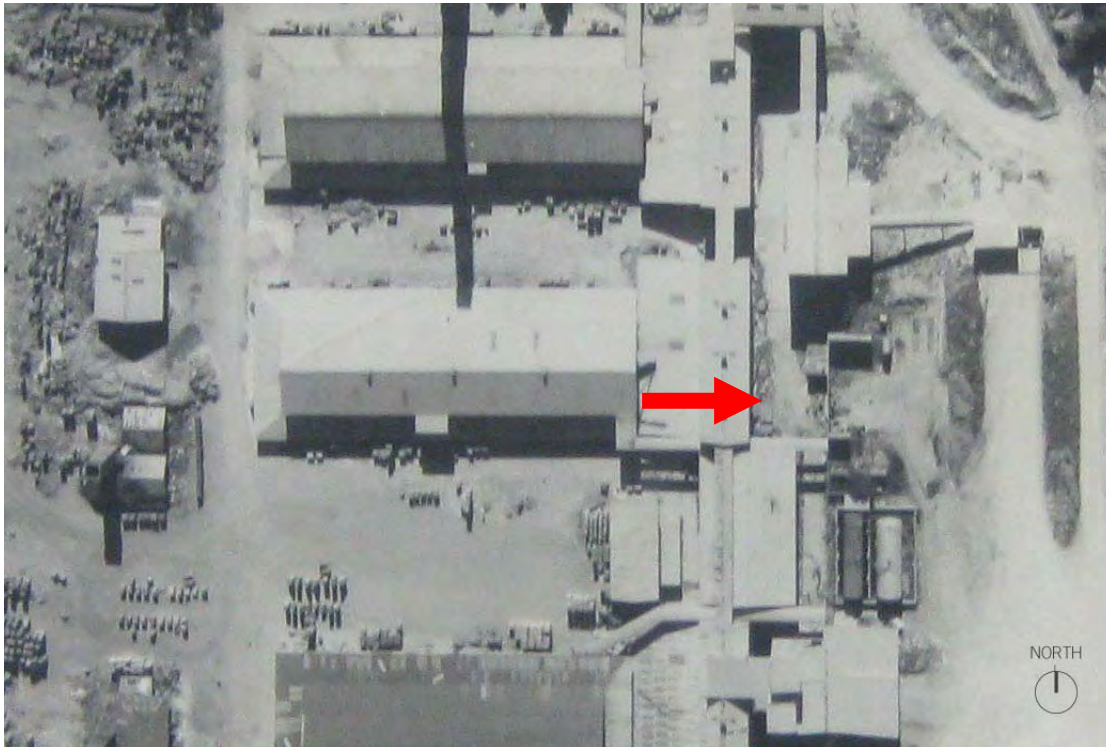


Figure 156 Detail of a 1976 aerial photograph, with the brick component of Building 33 – at that time a storage bunker - indicated.  
Source: ACT Heritage Library, Woden ACT.



Figure 157 Exterior, showing the south and east elevations. The brick wall is an earlier element incorporated into the workshop building.

#### Historical background

Similar to the model railway storage shed (Building 34), the model railway workshop was constructed in 1979, utilizing the brick walls of a former oil storage facility / coal storage bay, associated with the brickworks (see Figure 156). The workshop relates to the post-closure phase and housed an engine and carriages for a narrow gauge railway, which was established as part of A R Marr Pty Ltd's operation of the site. A site plan prepared in the 1970s showing works relating to the proposed reuse of the site outlines the sites of both Building 33 and 34 and annotates the drawing 'replace demolished buildings'.<sup>30</sup>

#### Description & Integrity

Located to the west of the quarry, the shed is a steel framed skillion-roofed structure, clad in corrugated galvanised steel. To the west, north and south the building incorporates the brick walls of a former fuel storage facility or coal bay. The structure abuts a deep excavation to its west, and the brick wall to the north and west is atop a concrete retaining wall to the lower (brickworks) level. It has a row of windows (louvred glazing all broken/removed) running along the northern wall looking out onto the quarry. There is a roller door entry and a single door entry to the south elevation.

Internally the corrugated galvanised steel walls are lined, with much of the lining panels damaged and the brick is not lined. The floor is of concrete and the roof is not lined.

---

<sup>30</sup> Site plan held in the collection of the ACT Heritage Library, Woden ACT.

---

Name	Model Railway storage shed	Reference No	34
Construction	Corrugated galvanised steel on brick plinth	Survey Date	3 December 2009
Historical Phase	Post-closure phase 1976-2009	Date	c. 1979

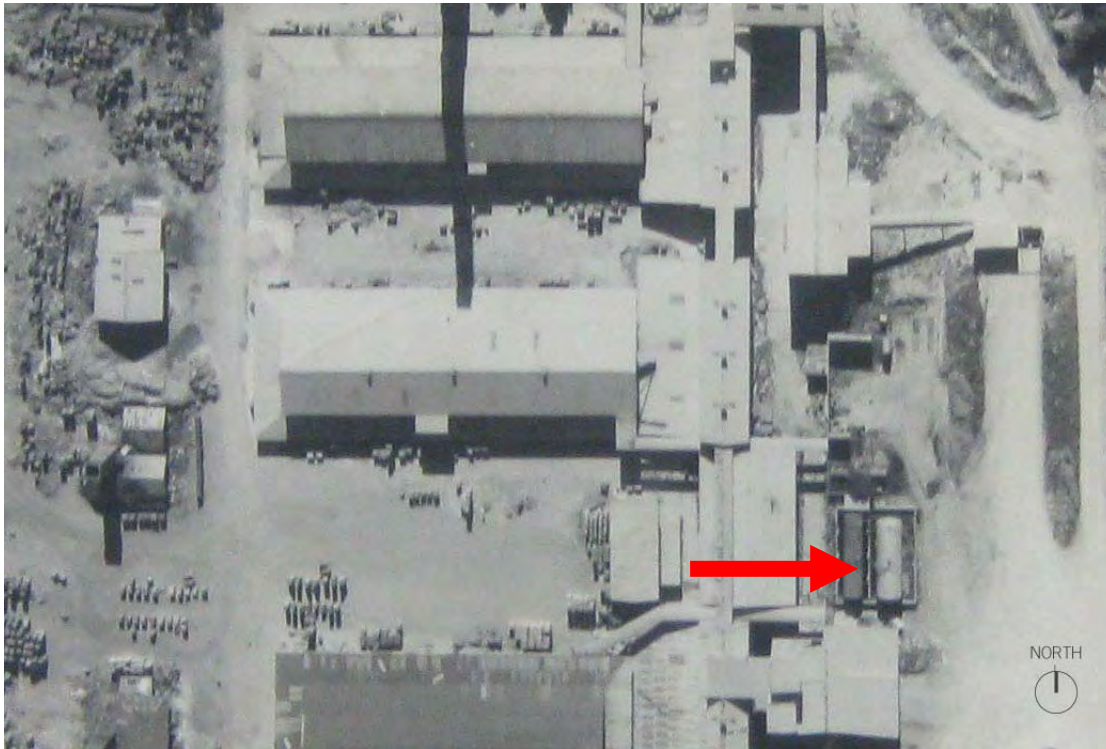


Figure 158 Detail of a 1976 aerial photograph, with the site of Building 34 – at that time an oil storage facility - indicated.  
Source: ACT Heritage Library.



Figure 159 Exterior, showing east and north elevations.

#### Historical background

The storage shed was constructed in 1979, utilizing the brick footings and dwarf walls of a former oil storage facility / coal storage bay, associated with the brickworks, and shown on the 1976 aerial photograph containing two storage tanks (see Figure 158). It is an element relating to the post-closure phase and housed an engine and carriages for a narrow gauge railway which formed part of A R Marr Pty Ltd's operation of the site. A site plan prepared in the 1970s showing works relating to the proposed reuse of the site outlines the sites of both Building 33 and 34 and annotates the drawing 'replace demolished buildings'.<sup>31</sup>

#### Description & Integrity

The storage shed is of steel frame construction over an earlier brick base and is similar in scale to a domestic garage with corrugated galvanised steel cladding on the walls and roof. It has a tilt-up metal garage door and is presently used for timber storage. It is in good condition.

---

<sup>31</sup> Site plan held in the collection of the ACT Heritage Library, Woden ACT.

### 6.3 Demolished structures

The 1986 *Conservation Plan* provides background information, with varying degrees of detail, on a number of structures associated with the development of the brickworks. As well as a number of structures relating to the establishment phase of site, it is noted that there were also structures relating to the post-war phase of development. These include a clay storage shed, carpenter's workshop, oil and coal bunkers, weighbridge and a forklift shed, demolished since the 1986 *Conservation Plan*. They are described briefly below. While the significance of these later demolished structures is considered to be relatively limited, they should be investigated as part of a broader archaeological assessment of the site and abutting land. Refer to Chapter 8.



Figure 160 Aerial photograph, 1976, with the following later site elements indicated; clay storage shed (red star); coal storage bunker (red/green star) and former forklift shed (red/yellow star).

Source: ACT Heritage Library, Woden.

### 6.3.1 *Clay storage shed*

The storage shed was located within the quarry area to the immediate east of the brickworks. It stored clay, bought to the site by trucks prior to crushing. It is visible in 1976 aerial photograph of the site (see Figure 160).

### 6.3.2 *Coal storage bunker*

The coal storage bunker was located on an elevated site to the north of the Hardy patent kiln II chimney stack (Building 13), as indicated at Figure 160. The site today forms part of the Lane Poole Place housing complex and is outside the study area.

### 6.3.3 *Former forklift shed*

The forklift shed was extant at the time of the compilation of the 1986 *Conservation Plan*. The building was constructed in c. 1965 to house forklifts and replaced an earlier shed structure. The forklift shed was a brick structure with a corrugated galvanised steel roof. The structure contained a petrol bowser linked to a large underground tank sited between the shed and the fan house associated with the Hardy patent kiln I (Building 9). The description of the building provided in the 1986 *Conservation Plan* noted that it was in poor condition. The site of the building today is overgrown with little evidence of its form, apart from some remnant brickwork and rubble (Figure 161). As noted, the structure replaced an earlier shed building, the date or purpose of which is not known.



Figure 161 The approximate site of the former forklift shed indicated by the arrow.





## 7.0 ASSESSMENT OF SIGNIFICANCE

### 7.1 Introduction

The following assessment of cultural heritage significance for the Canberra Brickworks includes:

- a comparative analysis of related urban brickworks sites;
- an assessment of the historical and technological values of the site as an evolved brickmaking complex of the early to mid /late twentieth century;
- an assessment of the site in the context of the establishment and early history of the Australian Capital Territory (ACT) and the national capital (Canberra);
- a description of the identified scientific (geological) values of the place;
- an assessment of the aesthetic values of the place;
- a consideration of the issue of social values that may attach to the place;
- an assessment of the brickworks against the ACT Heritage Significance Criteria, and the National Heritage List criteria; and
- a new Statement of Significance for the site based in part on the existing statement in the ACT Heritage Register.

### 7.2 Comparative analysis

#### 7.2.1 *Late 19th and 20th century urban brickworks in Australia*

Brickworks were once a common feature of Australian urban landscapes. The introduction of continuous kilns from the 1870s saw the replacement of small-scale enterprises with larger works of which the Canberra Brickworks is an example. As noted in Chapter 2, the development of the continuous kiln marked a major shift in firing technology, enabling mechanised production on an industrial scale, and signalling the end of the era of small-scale brick manufacturers. The increased speed of the brick making process also encouraged the mechanisation of brick preparation, and improvements in related technologies and processes, including brick presses.

Brickyards with continuous Hoffman-type kilns proliferated from the late-nineteenth century to the interwar period. These yards closed progressively from the end of World War II, with further waves of closures in the mid-1960s, and in the 1980s. The majority of these sites had been demolished by the 1990s.<sup>149</sup> Today, there are no Hoffman-type or 'patent' continuous kilns in operation as originally designed in Australia (other than a single example at Bowral which has been modified to operate as a downdraught kiln).

The following section provides an overview of brickworks in major Australian cities that include, or previously included, continuous kilns. The majority of these sites are either redundant, disused or have been adapted to an alternative use. Brickworks that have been demolished in their entirety and redeveloped are not included. Every effort has been made

---

<sup>149</sup> Pers comm., Stephen Wall, NSW Manufacturing Manager, Austral Brick Co Ltd, and Adam Mornement, Lovell Chen, 10 February 2010.

to confirm the currency of the information provided, however with the exception of the Victorian examples and one example in South Australia, none of the sites have been inspected as part of the review. The comparative analysis describes brickworks complexes.

It does not include potteries or facilities that produced other fired products (tiles, piles and the like). See Figure 165.

#### New South Wales

##### *Goodlet and Smith Brickworks (fmr) 150, Granville, Parramatta*

In 1884 hardware and building supplier Goodlet and Smith acquired the Junction Brick Company Ltd at Granville, west of Sydney. Production of building products, including bricks, finials, tiles and capping, and pottery, continued at the works until 1985.<sup>151</sup> Early development of the brickworks included a Hoffman kiln with a 45m-tall stack and associated technologies and support structures.<sup>152</sup> By the early twentieth century, the brickworks had evolved to become one of the largest in the Sydney region.

In 2002, infrastructure related to brick production at the site included the Hoffman kiln, by then truncated and adapted to two long draught kilns, with an associated stack; two draught kilns; two stacks; a conveyor; brick maker's smithy; and ancillary buildings, including the old tile works.<sup>153</sup>

These elements have been retained and integrated into the 'Brickworks Square' interpretive component of the Holroyd Gardens residential development (Delfin Lend Lease). The former quarry has been filled.

---

150 The former Goodlet and Smith Brickworks have also been known as Junction, Merrylands and Granville brickworks.

151 Ron Ringer, *The Brickmasters, 1788-2008*, pp. 75-77.

152 Ron Ringer, *The Brickmasters, 1788-2008*, p. 77.

153 Eric Martin and Associates, 'Former Goodlet & Smith Brickworks as part of the Holroyd Gardens Development: Heritage Report & Statement of Heritage Impact for the Heritage Precinct Buildings,' July 2002.



Figure 162 The Holroyd Gardens redevelopment at the former Goodlet and Smith Brickworks, pictured 2008.  
Source: Flickr



Figure 163 Interpretive signage and industrial relics at the former Goodlet and Smith Brickworks, pictured 2008.  
Source: Flickr.

*Bedford Brick Works (fmr), St Peter's, Sydney*

The Bedford Brick Works (also known as the Josiah Gentle Brickworks) was among the largest in the St Peter's district, which was the centre of Sydney's brickmaking industry from the 1840s. The complex was established in 1893, and taken over by the Austral Brick Company in 1933. It closed in 1970.<sup>154</sup> At its height (c. 1930s), the Bedford Brick Works included two Hoffman kilns, one with curved ends and a centralised stack, the other with a squared ends and a stack attached at the south end. The later 'Hoffman' has been described as a Hardy patent kiln.<sup>155</sup> The site also included six draught kilns in two clusters, brick sheds, a site office/entry building and machine shed, with a clay pit to the north (see Figure 164).

The site has been conserved within a public open space (Sydney Park). One of the draught kilns and the west end of the Hoffman kiln with rounded ends has been demolished to accommodate a road widening scheme. The site office/entry has also been removed. The Hoffman (Hardy patent?) with squared ends, five draught kilns, a crushing mill and boiler house have been retained.<sup>156</sup>

The four surviving chimney stacks at the site have a strong presence in the local streetscape (see Figure 166). The site is included in the South Sydney Amending Local Environmental Plan, 2000.



Figure 164 Letterhead for Bedford Brick Works, 1929.

Source: Ron Ringer, *The Brickmasters, 1788-2008*, p. 166.

<sup>154</sup> Anne-Maree Whitaker, 'Sydney Park [2008]' [www.dictionaryofsydney.org](http://www.dictionaryofsydney.org), accessed 15 January 2010.

<sup>155</sup> Dictionary of Sydney online, 'Bricks', entry by Ron Ringer, [www.dictionaryofsydney.org](http://www.dictionaryofsydney.org), accessed 9 February 2010. See also Figure 164.

<sup>156</sup> Otto Cserhalmi & Partners Pty Ltd Architects, *Sydney Park, Brick Kiln & Chimney Precinct, Repairs & Remediation Study*, Stage 1 Return Brief, February 2007, p. 3.

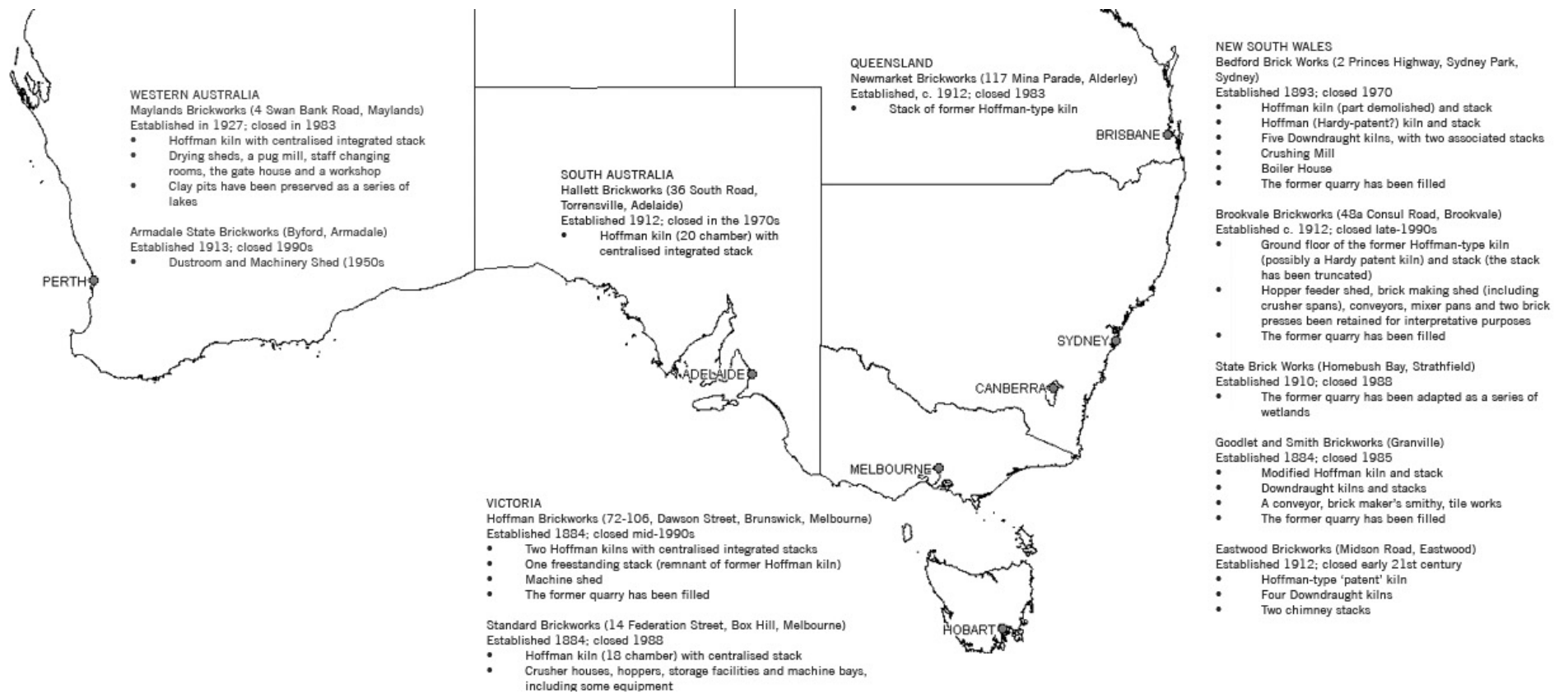


Figure 165 Surviving brickworks in Australia with continuous kilns dating to the late 19th and early 20th century. Note, there are no sites in northern WA, the Northern Territory and northern Queensland.





Figure 166 Stacks of the former Bedford Brick Works, with Sydney Park in the foreground, pictured 2008.  
Source: Flickr.

#### *Brookvale Brickworks (fmr) Brookvale*

The Manly Brick and Tile Company built the Brookvale brickworks from 1910-12. The company was taken over by Brickworks Ltd in 1936. Austral managed the plant from the end of World War II to the late-1990s.<sup>157</sup>

At its height, the Brookvale Brickworks included six downdraught kilns, located to the north and west of the site, and a large Hoffman-type kiln, with a square stack attached at one end (see Figure 167).<sup>158</sup> The arrangement of the Hoffman kiln is the same as the kiln at the Bedford Brickworks (fmr), which has been described as a Hardy patent kiln.

---

<sup>157</sup> 'The Kilns' development, [www.thekilns.com.au](http://www.thekilns.com.au), 'History of the site,' accessed 19 January 2010.

<sup>158</sup> 'The Kilns' development, [www.thekilns.com.au](http://www.thekilns.com.au), 'History of the site,' accessed 19 January 2010.



Figure 167 Brookvale Brickworks prior to redevelopment (undated).  
Source: Warringah Image Library.



Figure 168 The adapted/redeveloped kiln and truncated stack at Brookvale Brickworks.  
Source: [www.marchesepartners.com.au](http://www.marchesepartners.com.au)



Following the closure of the brickworks in the late 1990s, and a CMP prepared by Pratten and Irving (1996), consent was granted for the re-zoning of the site<sup>159</sup> and its redevelopment as 71 townhouses and apartments. All the kilns have been demolished, with the exception of the lower section of the Hoffman-type kiln and the stack, whose height has been reduced by 11m from c. 50m (see Figure 168).<sup>160</sup> In addition, a hopper feeder shed, brick making shed (including crusher spans), conveyors, mixer pans and two brick presses been retained for interpretative purposes.

The site is included in the Warringah Local Environmental Plan, 2000 (listing number 80984).

*State Brickworks (fmr), Homebush Bay, Strathfield*

In 1910, Arthur Griffith, NSW Minister for Public Works, proposed the establishment of a Government brickworks that could produce cheap bricks and break the monopoly of private manufacturers. A 9.5ha site was purchased at Homebush Bay (also referred to as the Enfield Brickworks) and the site was operational by the end of the following year. Three Hoffman-type kilns were constructed in the first phase of development at the State Brickworks. The site was subsequently expanded (c. 1920) with the acquisition of 9.2ha, and construction of five further Hoffman kilns and six open kilns. Production continued intermittently at the State Brickworks until 1988.<sup>161</sup> Clay extraction at the site ceased in the 1960s, from which point the brick pits were used as a municipal waste depot. <sup>162</sup>The former brick pits were developed as a freshwater wetland during preparations for the Sydney 2000 Olympics. The Enfield Brick Pits are included in the Strathfield LEP (1999), listing number 256.

*Eastwood Brickworks (fmr), Parramatta*

The Great Northern Brick Co Ltd established the former Eastwood Brickworks in 1912, to produce dry press bricks using locally available shale. A brickmaking shed and Downdraught kilns (possibly two) were built soon afterward. Expansion from the 1920s saw the addition of a 'patent' kiln, an additional Downdraught kiln, three grinding pans, and four Platt, one Clayton and two Whittaker presses. A 2002 description of the site referenced five Downdraught kilns, one Hoffman-type continuous 'patent' kiln and two chimney stacks.<sup>163</sup>

The Hoffman-type kiln at the former Eastwood works appears likely to have been the last operational kiln of its type in Australia, ceasing operations at the beginning of the twenty-

---

<sup>159</sup> The area occupied by the former brickworks has been re-zoned Residential 2(e); the land surrounding the brickworks has been designated an Environment Protection 7(a) zone. Brookvale Brickworks and Surrounds – Draft Land Use Study, report to the Strategy Committee Meeting, Warringah Council, 27 May 1997. See, [www.warringah.nsw.gov.au/council/documents/81270597.pdf](http://www.warringah.nsw.gov.au/council/documents/81270597.pdf), accessed 19 January 2010.

<sup>160</sup> Minutes of the Heritage Council Approvals Committee [NSW], 17 May 2001, item 7.1.

<sup>161</sup> Ron Ringer, *The Brickmasters, 1788-2008*, p. 353.

<sup>162</sup> Sydney Olympic Park, [www.sydneyolympicpark.com.au](http://www.sydneyolympicpark.com.au), 'State Brickworks: 18901-1988,' accessed 19 January 2010.

<sup>163</sup> Eric Martin & Associates, 'Eastwood Brickworks Project: Heritage Report,' 2002.



Figure 169 Continuous kilns at State Brickworks, pictured 1957.  
Source: NSW Heritage Register.



Figure 170 Continuous kilns at State Brickworks, pictured 1957.  
Source: NSW Heritage Register.

first century (by then the site was commonly known as the Austral Brickworks).<sup>164</sup> The site is being developed for housing, including the filling of the former shale pit. The patent kiln

---

<sup>164</sup> Pers comm., Eric Martin of Eric Martin & Associates, and Adam Mornement, Lovell Chen, 4 February 2010.

and four of the Downdraught kilns are to be stabilised and retained as interpretive elements.<sup>165</sup>

The site is included in the Parramatta Council Local Environment Plan 2001 as a Heritage item. (See Figure 171)



Figure 171 Recent aerial view of Eastwood Brickworks (fmr).  
Source: Google Earth.

---

<sup>165</sup> Pers comm., Parramatta City Council planning department, and Adam Mornement (Lovell Chen), 11 March 2010.



Figure 172 Recent aerial view of Bowral Bricks.

Source: Google Earth.

*Bowral Bricks, Bowral, Southern Highlands (operational)*

Bowral Bricks was established in 1922,<sup>166</sup> and grew expanded into the major enterprise it is today (see Figure 172). A Hoffman-type kiln with a centralised integrated stack was constructed at the works (date unknown), and has subsequently been converted internally to two downdraught kilns. Externally, the kiln has 22 openings to chambers.<sup>167</sup> (See Figure 172)

Queensland

*Newmarket Brickworks (fmr)*

In c.1912, the Brisbane Brick and Builders Supply Co Ltd constructed a Hoffman kiln at the Newmarket brickworks, outside Brisbane. The kiln was built with a 50m-high stack with a

<sup>166</sup> Bowral Brick, [www.bowralbricks.com.au](http://www.bowralbricks.com.au), 'History,' accessed 8 February 2010.

<sup>167</sup> Pers comm., Stephen Wall, NSW Manufacturing Manager, Austral Brick Co Ltd, and Adam Mornement, Lovell Chen, 10 February 2010.

square plan, located approximately 15m from the kiln. This follows the model of the Hardy-patent and Staffordshire kilns at the Canberra Brickworks.

The Newmarket Brickworks closed in the 1970s, and was redeveloped for alternative industrial uses from 1987. The stack was retained, but all other elements at the site demolished. The chimney stack is identified as an Indicative Place in the RNE (ID 101989), and included in the Queensland Heritage Register (Place ID 601357).



Figure 173 Panorama of Newmarket, c. 1925, with brickworks chimney visible to the left.  
Source: State Library of Queensland.



Figure 174 Hoffman stack at the former Newmarket Brickworks.  
Source: Queensland Heritage Register.

South Australia

*Hallett Brickworks (fmr), Torrensville, South Australia*

The Hallett Brickworks was established by Hallett Brick Industries at Torrensville in 1912. A 20-chamber Hoffman kiln, with rounded ends and centralised stack (circular), was built at the site later that year. It is believed to have been the first of its kind in South Australia. The kiln operated until 1975.

Since 1983, the former brickworks has operated as a market ('Brickworks Market'), which is open on Fridays, Saturdays, Sundays and public holidays. The kiln has been adapted to accommodate stalls and the like over two levels.<sup>168</sup> All machine sheds and ancillary buildings have been demolished.

Hallett Brickworks is included in the South Australian State Heritage Register.



Figure 175 Hallett Brickworks (undated).

Source: [www.brickworksmarket.com.au](http://www.brickworksmarket.com.au)

---

<sup>168</sup> Brickworks Market, 'History,' [www.brickworksmarkets.com.au](http://www.brickworksmarkets.com.au), accessed 18 January 2010.



Figure 176 Brickworks Market (January 2010).  
Source: Lovell Chen



Figure 177 Brickworks Market (January 2010).  
Source: Lovell Chen

## Victoria

*Hoffman Brickworks (fmr), Brunswick, Victoria*

The Hoffman Patent Brick and Tile Company was established at premises in Albert Street, Brunswick in 1870. The company held the patent rights to import the Hoffman kiln. In 1884 the company established premises at Dawson Street in Brunswick (the Albert Street premises were subsequently vacated). Production at the Dawson Street plant ceased in the mid 1990s.

From 1884 the Hoffman Patent Brick and Tile Company built the following at its Dawson Street works: three elliptical Hoffman kilns (16, 18 and 20 chambers) with integrated stacks and associated technologies, including clay grinding sheds, brick pressing sheds, stores and warehouses. Pottery works and related facilities, including small circular bottle pottery kilns (demolished) were located to the east of the site. A clay pit was located to the north of site.

Land to the north of the kilns at the Hoffman Brickworks has been adapted as a residential development. As part of the adaptive reuse of the site, the northern-most Hoffman kiln has been demolished; only its stack survives. The two surviving kilns, and the former engine house, brick pressing shed and grindings sheds to the west of the site have been retained and approval has been given for their conversion for residential use. The Hoffman Brickworks site is included in the Victorian Heritage Register (H0703).



Figure 178 Hoffman Brickworks, 1930s.  
Source: State Library of Victoria.





Figure 179 Former Hoffman works at Brunswick, pictured January 2010.  
Source: Lovell Chen.



Figure 180 Former Hoffman works at Brunswick, pictured January 2010.  
Source: Lovell Chen.



Figure 181 Hoffman kiln at the former Standard Brickworks, pictured in January 2010.  
Source: Lovell Chen.



Figure 182 Former machinery sheds at the former Standard Brickworks, January 2010.  
Source: Lovell Chen.

*Standard Brickworks (fmr), Box Hill, Victoria*

The former Standard Brickworks at 14 Federation Street, Box Hill, Victoria operated from 1884, as the Haughton Park Brick Company, until its closure in 1988. From 1913 until 1938, the site was owned and operated by the Standard Brick and Tile Company and it was during this period that the majority of existing buildings and fabric were completed.

An 18-chamber Hoffman kiln with a centralised integrated stack (circular) was built in c. 1913. Four brick presses were installed at the same time.<sup>169</sup> As existing, the site includes crusher houses, hoppers, storage facilities and bays, including some equipment. Despite a number of proposals for adaptive reuse/development, the site remains disused and the buildings are in poor condition, having been subject to extensive vandalism and graffiti. The ground level openings to the kiln have been boarded up.

The Standard Brickworks site is included in the Victorian Heritage Register (VHR H0720).

## Western Australia

*Armada State Brickworks (fmr), Byford, Armadale*

The State Brickworks at Armadale was established in 1913, following the *Government Trading Concerns Act* of 1912. The site operated intermittently until the 1990s. The Brickworks had been in private ownership since 1961.<sup>170</sup>

A Hoffman kiln with integrated stack was built at the Armadale works in 1913-14. The next major phase of development was in the early post-WWII period, when 'No. 2 Pressed Brickworks' and 'No. 3 Wire-Cut Brickworks' were constructed at the site. Two 'Zigzag' kilns, a form of transverse arch continuous kiln, were constructed at the site during the post-WWII period.<sup>171</sup> No.2 Brickworks, which included a dustroom and machinery shed, replaced the earlier facility.

All kilns at the site have been demolished. Only the Dustroom and Machinery Shed, built during the 1950s, survive. The machinery associated with these structures is also extant. The Dustroom and Machinery Shed are included in the Heritage Council of Western Australian Register of Heritage Places (place ID 15829). The site was included in the National Trust of Australia (WA) list of endangered heritage sites for 2008.

---

<sup>169</sup> Victorian Heritage Database, Former Standard Brickworks citation, VHR no. 0720.

<sup>170</sup> Heritage Council of Western Australia, Register of Heritage Places, Armadale State Brickworks Dustroom & Machinery Shed citation, place ID 15829.

<sup>171</sup> A 'Zigzag' is a type of continuous kiln invented in Germany during the 1920s. It features a long fire zone advanced by suction fan. See, [www.hablakilns.com/industry.htm](http://www.hablakilns.com/industry.htm), accessed 3 February 2010.



Figure 183 Armadale brickworks c. 1905.  
Source: State Library of WA.

*Maylands Brickworks (fmr), Maylands, Perth*

The Maylands Brickworks was developed by Messrs Atkins and Law from 1927.

The first phase of development included a Hoffman kiln and drying sheds, pug mill and brick making extruder. The plant was expanded in 1936, with an additional Hoffman kiln, pug mill and drying sheds. As existing the site includes one Hoffman kiln with 18 chambers and centralised integrated stack (34m high). The second kiln was demolished following damage sustained during the 'Meckering' earthquake of 1968. Brick production ceased at the site in 1983.<sup>172</sup>

The kiln, stack and some ancillary buildings have been preserved. The site is included in the Heritage Council of WA database (no. 2410), and the Register of the National Estate, as an Indicative Place (ID 17340), in response to a public outcry against a proposal to develop them for residential use.<sup>173</sup>

---

<sup>172</sup> Heritage Council of Western Australia, Register of Heritage Places Assessment Documentation, place no. 2410 (Maylands Brickworks).

<sup>173</sup> Heritage Council of Western Australia, Register of Heritage Places Assessment Documentation, place no. 2410 (Maylands Brickworks).



Figure 184 Maylands Brickworks, 1950s.  
Source: State Library of WA.



Figure 185 Recent shot of the Hoffman kiln and integrated stack at the former Maylands works.  
Source: Flickr

*Midland Brick, Bassett Road, Middle Swan*

Midland Brick is a major brick production company located at Middle Swan, north of Perth. It was established in 1946 by brothers Ric and Gerry New, and has operated consistently since that time. The first kiln at the site was built in 1946. This may have been a Downdraught kiln, but this has not been established. The first of nine tunnel kilns at the site was constructed in 1962. The most recent (Kiln 11) was completed in 2006. The site covers an area of 100ha, and the company claims to produce approximately 60 per cent of WA's total brick output.<sup>174</sup>

7.2.2 *Conclusion*

Each of the surviving complexes identified above has particular qualities and characteristics, including kiln types, dates of construction and expansion, retention of plant and other attributes, and on this basis it is difficult to draw direct comparisons between them.

Accepting this, it is evident that the brickworks at Canberra is now one of a relatively small number of surviving sites which are able to demonstrate aspects of the operation of large-scale twentieth century urban brickworks. Compared with the majority of other sites reviewed, the Canberra site retains more evidence of the brick making processes, site layout and principal building components typically found on such sites, albeit expressed through a range of buildings of vastly different dates of construction rather than a coherent complex of elements constructed in one or more key phases. Conversely, the ability of the site to meaningfully demonstrate some of these processes has been compromised by the removal of the majority of the manufacturing plant itself (crushing and pressing plant). While through their form and construction, the kilns themselves (together with their related structures, fan houses and stacks) are evocative of the process that occurred within them, this is not the case for the simple steel-clad machinery bays, following the removal of the brick presses and other machinery and plant they accommodated. Only remnants of the conveying systems (conveyors and hoppers) remain in these buildings in a form that can be readily understood. The crusher houses similarly have had the majority of their plant removed.

In considering the kiln types remaining on site, in summary, the continuous kilns (Staffordshire and Hardy patent) sit within what is a now relatively limited group of surviving kilns – predominantly of the early to mid-twentieth century - which are either of or are based on the Hoffman continuous kiln typology. Within Australia there are now approximately 12 surviving kilns of this type, including Hoffmans, Hardy patent and others. Within the typology of continuous kilns the Staffordshire kiln was a rare – if not unique - design in Australia and is the only surviving example of this design. On this basis it is considered to be of additional interest.

Downdraught kilns of varying ages and design are found at a number of brickworks and related sites across Australia including three at the Sydney Park site and a number at the Bristle site in Perth. They are not rare as a building type.

---

<sup>174</sup> Midland Brick, 'About Midland Brick,' [www.midlandbrick.com.au](http://www.midlandbrick.com.au), accessed 3 February 2010.

### 7.3 Historic value

Historic value is defined in the guidelines to the Burra Charter as follows:

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies aesthetic, social and scientific value. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives *in situ*, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some evidence or associations may be so important that the place retains significance regardless of subsequent treatment.

The Commonwealth Brickworks at Yarralumla was developed specifically to facilitate the construction of Canberra. The complex provides evidence of the establishment of the city following the decision to construct the National Capital in the Yass-Canberra district in October 1908. Subsequent phases in the development of the brickworks, until its closure, reflect the broader political context that determined the ebb and flow of the construction of the Federal Capital, with major phases of the development in the 1920s and post-World War II period.

The decision taken in 1914 decision to construct Australia's new Federal capital in an isolated bushland setting necessarily was followed by discussions relating to the provision of essentials such as water, power (electricity) and construction materials. The outcomes, respectively, were the Cotter Dam and pumping station, the Kingston Power House and the Commonwealth Brickworks. The first of these to be constructed was the brickworks at Yarralumla, which was then able to supply bricks for the construction of the Kingston Power House complex. However, as noted at Chapter 3, the bricks from the temporary works disintegrated and a decision was made to clad the steel frame of the Power House in unreinforced in situ concrete made with river gravel.<sup>175</sup>

Prior to the closure of the Canberra Brickworks it had been estimated that c. 600 million bricks were produced at the plant for the construction of Canberra.<sup>176</sup> Early Canberra landmarks constructed of locally produced bricks include the Hotel Canberra (1925), the Provisional Parliament House (1927, see Figure 187) and Albert Hall (1928). From 1923, the brickworks was linked to these sites by a narrow gauge railway (removed).

The foundation stone of Canberra was laid on 12 March 1913, making Canberra the only Australian state or territory capital with twentieth century origins. Its foundation post-dated the introduction of continuous kiln technology in Australia (1870s), which facilitated the firing of bricks on a massive scale. Continuous firing heralded the demise of small scale brick manufacturing works, particularly in urban areas where demand was greatest. Brickworks and potteries were a common feature of all nineteenth century settlements of scale, typically

---

<sup>175</sup> Pers comm., Jocelyn Jackson, Project Director/Architect for the adaptive reuse of the Kingston Power House, Tanner Architects, and Adam Mornement, Lovell Chen, 3 February 2010.

<sup>176</sup> Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, June 1986, Section 2.1.4 (Post War Growth). The source for this estimate is not cited.

being located adjacent to deposits of raw materials. The Brickworks at Yarralumla is the only facility of its type ever developed within Canberra's city boundary. It was replaced, in 1976, by a brickworks at Mitchell, north of the Federal Capital.

The Brickworks has also had a major part to play in the history of the local Yarralumla area. Along with the Westbourne Woods arboretum, the location and form of the Brickworks complex (the development of which predated Walter Burley Griffin's arrival in Australia) has clearly influenced the layout and historical development of the suburb in a physical/spatial sense. Additionally, the Brickworks has been a major employer in Canberra and while not investigated in the course of this report, it is reasonable to assume that many of the brickworks workers were local residents.

*Conclusion:*

The Commonwealth Brickworks is of historical significance at a Territory level as the first industrial or manufacturing facility constructed in the Australian Capital Territory and one of few early industrial complexes. This is in contrast with the other major Australian capital cities which have a more varied history of industrial and manufacturing activity and retain a range of surviving industrial buildings and complexes of different ages and types.

The site is also of significance for its role in the history and early development of Australia's national capital, Canberra, in the period to 1940. Bricks manufactured at the site were used to construct the majority of buildings in Canberra, including the major public buildings of the early period, such as Parliament House, the Hotel Canberra and many others.

The site is also of local historical significance for its role in the history and development of the suburb of Yarralumla (known originally as Westridge), including as a major employer in the local area.



Figure 186 Kingston Power House, with brickworks railway in foreground.

Source: NAA.





Figure 187 Parliament House prior to rendering (1926), with brickworks railway in foreground.

Source: NAA.

#### 7.4 Scientific value

##### 7.4.1 *Introduction*

Scientific value is defined in the guidelines to the Burra Charter as follows:

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute to further substantial information.

For the purposes of this analysis, scientific value is considered to encompass both the geological values of the place, as well as issues of technology and the ability of the place to demonstrate manufacturing processes and technologies. These are discussed in turn.

##### 7.4.2 *Geological significance*

The geology of the Canberra region has been the subject of extensive investigation and is well understood. It consists of a range of both sedimentary and volcanic rock types which are relatively common in south-east New South Wales. The main rock types are:

- Deep water sediments of late Ordovician and early Silurian age
- Shallow water sediments of middle to late Silurian age
- Volcanic rocks of middle Silurian to early Devonian age<sup>177</sup>

---

<sup>177</sup> Lovell Chen, Nomination of Canberra to the National Heritage List: An examination of the merits, prepared for the National Capital Authority, April 2008, pp. 85-88.

There are also minor outcrops of recent river gravels and stream deposits.

The issue of geological significance was recently considered as part of a broader assessment of Canberra against the criteria for inclusion in the National Heritage List. This assessment concluded that while the underlying geology of the city and surrounds are not of national significance when considered as a whole, there are a number of individual sites in the region that are of a high order of significance.<sup>178</sup> These sites include the deep water sediments of late Ordovician and early Silurian age at the Ginninderra Road Cutting; and the Acton Limestone; the Coppins Crossing trilobite sites; and the Deakin Anticlines. The Canberra Brickworks pit was also noted as one of this group of individually significant sites. One site in the region was considered to be of national significance; this was the State Circle Cutting and Capital Hill unconformity beneath Parliament House.<sup>179</sup>

The site at Yarralumla was originally selected for development as a brickworks because of its readily available shale deposits. The shale was extracted from the quarry east of the brickmaking complex and was used in production at the site from 1913 to the mid-1930s, after which time, the raw materials were sourced elsewhere. Unlike many other disused quarries, or brickpits, the one at this site was not filled following its closure and a series of rock formations incorporating fossils remained exposed. As a result, from at least as early as the 1950s, the brickworks quarry was identified by geologists and became known more widely as a site where aspects of the local geology could be viewed and analysed.

The geological significance of the site derives from it being the 'type locality' of the Yarralumla Formation, the origins and characteristics of which are summarised in the recently published *Geological Guide to Canberra Region and Namadji National Park* (Geological Society of Australia (ACT Division):

During the Tabberabberan Cycle there were episodes of volcanism and these provided source rocks for continued sediment deposition into shallow seas. In the period 424-423 Ma the Yarralumla Formation (calcareous and tuffaceous mudstone and siltstone) was deposited within the Canberra Rift.

These Yarralumla Formation sedimentary sequences are now evident in central Canberra, principally at the old Canberra Brickworks near Weston Park and on Red Hill but also at outcrops in the suburbs of Deakin, Hughes and in road cuttings along the Tuggeranong Parkway west of Curtin. The Yarralumla Formation (mudstone, siltstone, about 424-423 Ma) was deposited in a shallow sea following the eruption of the Mount Painter Volcanics (about 425-424 Ma), and at about the same as the eruption of the Deakin Volcanics (about 423-422 Ma).<sup>180</sup>

---

178 Lovell Chen, Nomination of Canberra to the National Heritage List: An examination of the merits, prepared for the National Capital Authority, April 2008, pp. 86.

179 Lovell Chen, Nomination of Canberra to the National Heritage List: An examination of the merits, prepared for the National Capital Authority, April 2008, pp. 86.

180 Geological Society of Australia (ACT Division), DM Finlayson (comp.). *A Geological Guide to Canberra Region and Namadji National Park*, pp. 33-34.

The Yarralumla Formation is fossiliferous in places including brachiopods, trilobites, corals, bivalves, bryozoans, and crinoids.<sup>181</sup>

In geological terms a ‘type locality’ is a place at which a stratigraphic unit is typically displayed and from which it derives its name and/or the place where a geologic feature was first recognized and described. The brickpits at Yarralumla were identified as the type locality for the Yarralumla Formation by geologist A A Öpik as early as 1954 and again in his 1958 work for the Bureau of Mineral Resources (the precursor to Geoscience Australia), *Geology of the Canberra City District*.<sup>182</sup>

The Canberra Brickworks site is among Canberra’s oldest identified Geological Monuments, having being designated as such by the Geological Society of Australia in the 1960s. The Brickworks pit site is complemented by another site, an outcrop in what is known as the Deakin Anticline, behind the Deakin Shopping Centre.

Together, the two sites are able to demonstrate the key characteristics of the Yarralumla Formation.<sup>183</sup>

Within the quarry, four specific locations (A, B, C D) have been identified which demonstrate particular aspects of the site and the Yarralumla formation (see Figure 189). These are mapped in Figure 188 as 12A, 12B, 12C and 12D. Of these, Sites A and D show excellent examples of anticline in calcareous siltstone and Site B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation. Site C shows abundant fossils of mainly brachiopods [note, not *gracitopods*], trilobites and crinoids preserved in a bedding plane.<sup>184</sup>

---

181 G A M Henderson. *Geology of Canberra, Queanbeyan & Environs; Notes to Accompany the 1980 1:50,000 Geological Map*, AGPS (Bureau of Mineral resources, Geology and Geophysics), 1981, p. 5.

182 G A M Henderson, *Commentary on the Coppins Crossing 1:10,000 Engineering Geology Sheet*, Canberra, Canberra, Australian Capital Territory, Bureau of Mineral Resources, Geology and Geophysics, AGPS, Canberra, 1980, p. 27, referencing A A Öpik, *Geology of the Canberra City District*, Bureau of Mineral Resources, Australia, Bulletin 32, 1958. See also A A Öpik ‘The Geology of the Canberra City District’, in *Canberra: A Nation’s Capital* (ed., H L White), Angus & Robertson, Sydney, 1954, p. 142.

183 DL Strusz, pers. comm. K Gray, Lovell Chen, 29 January 2010. Des Strusz is a geologist who retired from Geoscience Australia in 1996. Since his retirement he has been a Visiting Fellow at the Australian National University. He is a corresponding member of the International Sub-commission on Silurian Stratigraphy, has authored and co-authored a number of publications on the geology of the Canberra region and is a long standing member of the Geological Society of Australia. *A Geological Guide to Canberra Region and Namadgi National Park*, p. 139.

184 Register of the National Estate entry for Yarralumla Brickworks (extended area), Denman St, Yarralumla, ACT, Australia (file no. 101439).

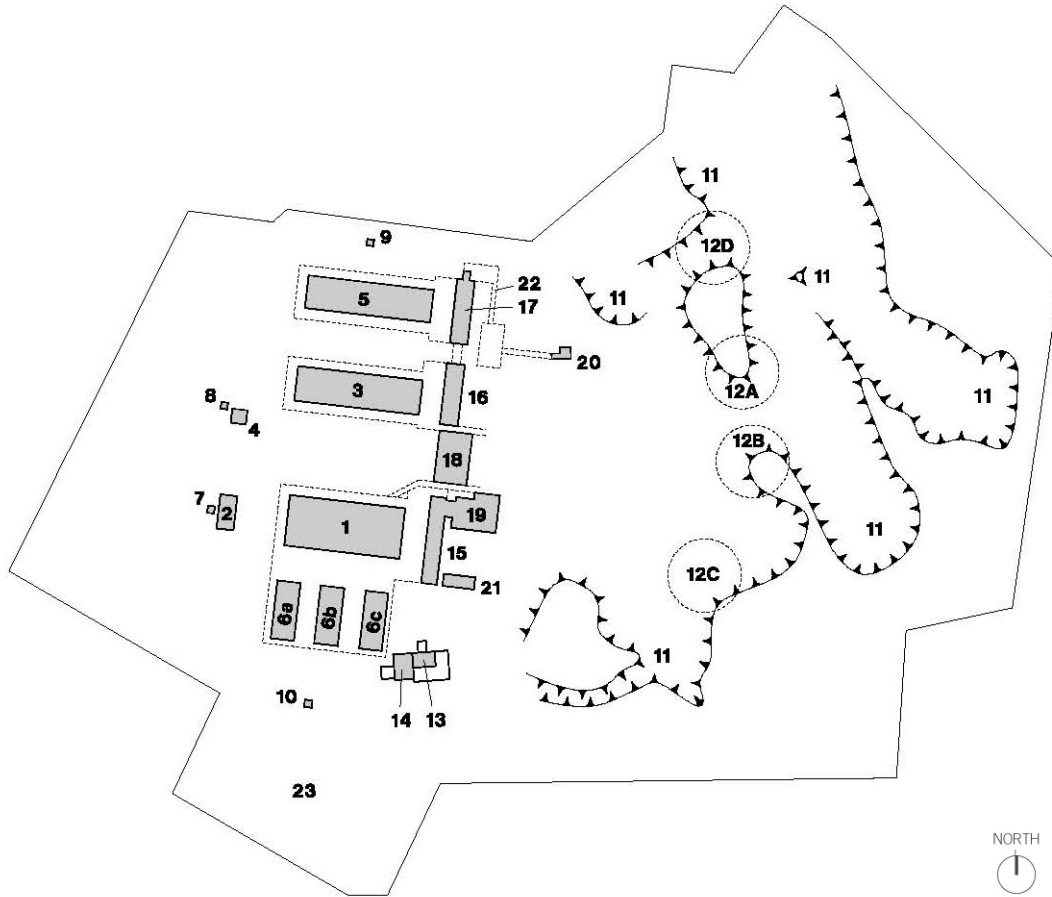


Figure 188 ACT Heritage Register plan of the site, showing the location of the specified geological features, 12A-12D.



Figure 189 Formations A (left) and B (right).

### 7.4.3 *Technological significance*

#### Ability to demonstrate

The technological significance of the Canberra Brickworks derives in part from the ability of the complex to demonstrate aspects of the manufacturing processes that occurred on the site. Refer to Chapter 2 for a description of these.

As noted, aspects of the brickmaking process as it occurred in the earlier period (1913-1940s) of the site's history remain legible through the overall site layout and key buildings and site elements remaining from the establishment and expansion periods, however the early crushing, grinding and pressing buildings have all been removed as has much of the associated plant.

To the extent that the majority of process buildings on the site from the 1950s through to the 1970s still remain (in addition to the earlier kilns, fan houses and stacks), more substantial evidence remains of the brick making processes as they occurred on the site in this later period. While the complex as it existed in this period is not complete (the Red Pan Room and the conveyor linking this with the Primary Crusher have been demolished), the majority of buildings and elements remain. Again, however, while sections of the conveying system and associated hoppers remain in the Machine Bays, the ability of the complex to demonstrate process has been diminished by the removal of the majority of manufacturing plant itself (crushing and pressing machinery).

The movement of processes across the site in a broadly east-west direction remains evident for both phases. In the first phase, this originated with the extraction of the shale from the quarry on the eastern half of the site, and its movement west across the site through the process buildings (now demolished) to the kilns. In the later phase, while the raw materials were sourced elsewhere and brought onto the site they were delivered (access to the site has always been in the vicinity of the current entry) into the area to the east of the Machinery Bays and were also stored within the quarry and so the processes occurred following a similar pattern across the site.

In considering the ability of the complex to demonstrate processes and layout, this relies on key characteristics of the layout of the site as well as the combination and arrangement of elements and the relationship between them. For example, an appreciation of the operation of the kilns themselves relies not just on the surviving kilns but also on their relationship with their associated fan houses and stacks. The location and form of the Machinery Bays and Crusher Houses and their relationship with the kilns demonstrate other aspects of the process. The large open spaces between the kilns are the brick yards and are also key to an understanding of process.

#### The surviving kilns and associated stacks and fan houses

Six types of kilns are known to have been constructed (or - as in the case of the aborted tunnel kiln - partially constructed) at the Canberra Brickworks, of which three types survive: the Staffordshire, Hardy patent and Downdraughts kilns. Each type is of some technological interest as an example of brick kiln design, though they vary both in terms of the level of interest and their relative rarity.

Regardless of their specific design attributes, all three of the continuous kilns (Staffordshire and Hardy patent kilns) are considered to be of technological significance as increasingly rare

examples of such kilns. There are now thought to be in the order of 12 kilns of this typology nationally. Relatively few of these retain their associated fan houses and stacks (in many cases, stacks remain but fan houses are demolished). Furthermore, some of the kilns themselves appear to have been modified in the course of adaptation works (see, for example the Brookvale example). While altered to a greater or lesser extent during and after their working life, the Canberra examples are distinguished by the survival of their associated fan houses and are also assumed to retain all their associated underground workings (flues etc).

In addition, the Staffordshire kiln and its associated stack and fan house, is of particular interest on the basis it is understood to be the only surviving example of the type in Australia. There has been a suggestion that Staffordshire kilns were constructed at the State Brickworks at Homebush Bay, in 1911-12, but if this was the case, the kilns have now been demolished. Plans by the Australian Tesselated Tile Works to construct a Staffordshire kiln at its works in Mitcham, in Victoria appear not to have come to fruition.<sup>185</sup>

The intermittent Downdraught kiln, introduced in the late nineteenth century, quickly became popular. However, by the time of the construction of the three extant Downdraughts at Yarralumla (early 1960s), it was more commonly associated with smaller country works. These kilns are not rare and there are numerous examples surviving across Australia.

#### 7.4.4 Conclusion

The Canberra Brickworks site as a whole is of historical and scientific (technological) significance for its ability to demonstrate aspects of brick production processes in the twentieth century. While individual brickworks varied in their layout and building forms, including variation in kiln types, there were common elements and building types and the majority of these (ranging in date from 1915 to the 1970s) are represented in some form or another at this site. When compared with other surviving complexes, the Canberra Brickworks retains a relatively greater range of production and ancillary buildings, though crusher houses, power houses and the like also remain on a number of other former brickworks sites. Importantly, other than for the conveying system, the Yarralumla site has had the majority of its plant and machinery removed, diminishing its ability to demonstrate key aspects of the brick making process and the associated technologies.

The individual kilns themselves are of varying levels of technological interest and significance as examples of kiln design.

- The Staffordshire kiln (completed 1915) is the only known example in Australia of this particular type of continuous kiln. It is of interest for its design which through a relatively complex system of dampers and flues offered more control and flexibility than earlier types.

---

<sup>185</sup> Based on a review of historic photographs. A letter from R E Odd, patentee of Staffordshire and Manchester continuous brick kilns in Australia, to Andrew Christie, Consulting engineer who inspected the new Homebush kilns in association with P T Owen, Director-General of Works for the Federal Capital, dates 21 July 1911, refers to the Mitcham kiln. A copy of the letter is included in Lester Firth Associates (1986), Staffordshire Kiln, c. 1916 Data Sheet (unpaginated).

- The Hardy patent kilns are considered to be of a lesser order of technological significance, though they are of interest as an example of a patented variation on the Hoffman kiln design originating from the late nineteenth century. There are a number of examples of Hoffman and patent kilns dating from the first half of the twentieth century in Australia. Of the two kilns the later one (Kiln 3) is more intact.
- The three downdraught kilns are of limited technological interest. They are relatively late examples of this type of intermittent kiln design and there are numerous other and earlier examples surviving elsewhere.

The fact that three different kiln types exist on the one site is of interest but is not considered to be of particular technical or technological significance. The sequence of kiln types constructed on the site over its 63-year history does not reflect in any sense any progression or advancement in kiln design; both the Hardy patent kilns and the downdraught kilns were long-established kiln types when constructed on this site.

The Canberra Brickworks site is considered to be of scientific (geological) significance as the type locality for the Yarralumla Formation, a major sedimentary sequence dating from the Silurian Period, 424-423 million years ago. The rock units at the site provide the reference section for comparison of other outcrops within the Yarralumla Formation and in this context are of both research and educative value.

#### 7.5 Aesthetic value

Aesthetic value is defined in the guidelines to the Burra Charter as follows:

A place may have aesthetic value because of the form, scale, colour, texture and material of the fabric; the smell and sounds associated with the place and its use.

In 1912, when the Commonwealth Government acquired the site of the brickworks, the site was located in a gently undulating agrarian landscape. The site acquired for the brickworks in 1912 comprised a gentle hill, rising from the south-east and sloping down to the north-west. The brickworks were developed to the north-west of the incline, concealing the site in views from the south and east (see Figure 190) and this remains the case today. In the immediate vicinity, while the viewer is aware of the site to a greater or lesser degree, depending on the vantage point, the site does not have a particularly strong visual presence or aesthetic quality beyond its site boundaries. The one exception is the 1953 chimney which is a prominent element in the immediate vicinity and a marker for the site.

In more distant views comparatively flat landscape leading to the Molonglo River allows some limited glimpses to the site from the north shore of Lake Burley Griffin and Black Mountain (see Figure 191, Figure 192 and Figure 193). The taller chimney stack (Building 13 built 1953) is visible in these views from the north shore of the Lake (refer Figure 193) but is not considered particularly prominent in such views.

The aesthetic qualities of the complex are generally experienced from within the site itself and relate to the robust industrial quality of the buildings, particularly as expressed through the scale and distinctive forms of the kilns and chimneys and to a degree also through the materiality of the building complex as a whole (predominantly a combination of red brick and corrugated iron). The quarry itself also has a particular aesthetic quality, deriving from the combination of open landscape and striking exposed rock outcrops.



Figure 190 View of site from crest of hill on Denman Street.



Figure 191 Distant view towards Canberra Brickworks from Telstra Tower, Black Mountain.





Figure 192 Detail view.

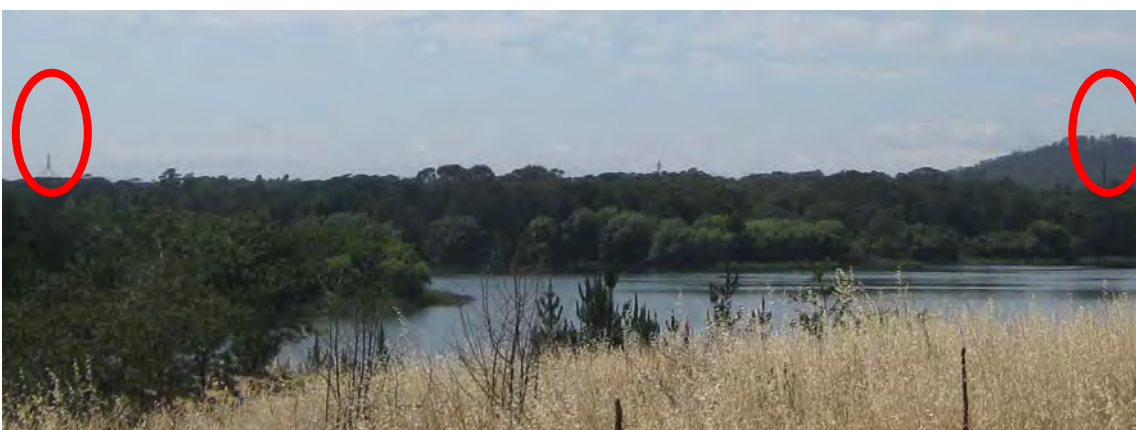


Figure 193 Canberra viewed from the north bank of Lake Burley Griffin. The 1953 stack at Canberra Brickworks and Parliament House are highlighted.

While residential and other development abuts to the site to the east and north, the landscape both within and beyond the site boundaries to the south and west has an open woodland quality. The understated siting of the complex and the relatively open landscaped nature of this setting contribute to a sense of remoteness from the urban environment which is distinctive and imparts a particular aesthetic quality experienced from within the site.

#### 7.5.1 *Conclusion*

The complex is considered to be of aesthetic significance for its combination of distinctive and robust industrial building forms and the open landscape quality and striking rock outcrops of the quarry. The 1953 chimney is a landmark in the local area.

#### 7.6 Social value

Social value is defined in the guidelines to the Burra Charter as follows:

Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group.

##### 7.6.1 *Assessing social value*

The social value of a heritage place has been described as, 'the special meanings attached to places by groups of people (rather than by individuals)'.<sup>186</sup> A critical consideration in establishing the social significance of a place is its value to the present community. This sense of communal attachment is typically associated with places that are publicly accessible, or have otherwise been, '*appropriated* [sic] into the daily lives of people'.<sup>187</sup> Places recognised as having social value include those that:

- Provide a spiritual or traditional connection between past and present;
- Tie the past affectionately to the present;
- Help give a disempowered group back its history;
- Provide an essential reference point in a community's identity or sense of itself;
- Loom large in the daily comings and goings of life;
- Provide an essential community function that over time develops into a deeper attachment that is more than utility value;
- Have shaped some aspect of community behaviour or attitudes';
- Are distinctive - the old clock tower in a town or an architectural folly – features that lift a place above the crowd, making it likely that special meanings have been attached to that place;
- Are accessible to the public and offer the possibility of repeated use to build up associations and value to the community of users; and

---

<sup>186</sup> Chris Johnston (Ms), *What is Social Value? A Discussion Paper*, Australian Government Publishing Service, Canberra, 1994, Foreword.

<sup>187</sup> Chris Johnston (Ms), *What is Social Value?*, pp. 7-11.

- Places where people gather and act as a community, for example places of public ritual, public meeting or congregation, and informal gathering places.<sup>188</sup>

Indications of a community's attachment to a place might be reflected in a history of communal action to protect the place from development; inclusion in local walking tours; and representation in postcards or websites for the area.

Social significance or value is typically established through community consultation, sometimes in the form of survey questionnaires, interviews with members of the relevant communities or public discussion workshops. Opinion pieces in the local print media, and views expressed in talk-back radio shows can also be forums for the expression of community sentiment. Community consultation is rarely a 'scientific' process, although it is generally the case that the broader the cross-section of the community invited to express opinions, the greater the certainty about the outcomes.

#### 7.6.2 *Yarralumla Residents Association*

The Yarralumla Residents Association (YRA) was formed in 1988, in response to concerns that the *Yarralumla Brickworks South Canberra Policy Plan* (1988) was thought by many in the community to be poorly resolved to have failed to address key issues with regard to the site. The YRA has subsequently been prominent in discussions about the future development of the Brickworks.

#### 7.6.3 *Yarralumla Neighbourhood Plan*

In 2003, during the preparation of the *Yarralumla Neighbourhood Plan* by the ACT Planning and Land Authority, people who 'live, work, play and invest' in Yarralumla were invited to comment on the future of the suburb.<sup>189</sup> Techniques used to engage with the community included: a 'values survey letterboxed to all residents'; a 'future character survey letterboxed to all residents'; a Neighbourhood Character Discovery' process, in which residents used disposable camera to take pictures of valued features; and a series of community workshops and forums.<sup>190</sup>

An assessment of the 'Values of the Yarralumla Community' found that 1% of those questioned described 'Community Facilities' as a valued aspect of the suburb. Community facilities in this context include the childcare and primary school, shops, churches, medical facilities and the Canberra Brickworks. A total of 69% of respondents described the suburb's 'Open Space & Environment' as valued features of the community. The top three responses to the question, 'What are Yarralumla's Favourite Places?' were: Lake Burley Griffin, Weston Park and Stirling Ridge.<sup>191</sup>

A discussion of 'Future strategies' in relation to the Brickworks Precinct noted that a 'Conservation and Management Plan' for the site had yet to be prepared, and that future uses of the site were likely to be informed by the site's, 'cultural heritage importance,' 'the location beside the treed inter-town buffer space for Inner South Canberra' and the tall

---

188 Chris Johnston (Ms), *What is Social Value?*, p. 7.

189 ACT Planning & Land Authority, *Yarralumla Neighbourhood Plan*, 2004.

190 *Yarralumla Neighbourhood Plan*, 2004, p. 3.

191 *Yarralumla Neighbourhood Plan*, 2004, pp. 8-10.

chimney as a 'landscape landmark'.<sup>192</sup> The possibility of linking the Yarralumla Centre retail and residential area with a 'heritage walk' to the Brickworks was also raised.<sup>193</sup>

#### 7.6.4 Conclusion

The scope of this CMP has not allowed for a detailed investigation of the social values that might attach to the place. Notwithstanding, it is reasonable to assume that the place well may be the subject of social value and attachment to people who have worked at the site, whether that be during its operational life as a brickworks, or in more recent times. Beyond this, the site may also have some social value for the activities that occurred at the site in the period when it was publicly accessible (during the 1980s and 1990s when it was in use as an antiques market and other uses).

Beyond this, however, the site is not one which is currently accessible to the public and so is not experienced directly. It is not a place where people gather or where community activities take place. It is a major site in the local area, although interestingly, it has no major public presence and other than from the private properties directly abutting the site, is glimpsed rather than viewed. This is with the exception of the 1950s chimney, which is a local landmark and marker for the site.

Unsurprisingly, given its scale, heritage values and location, the Brickworks is a place which has been the focus of major interest for the local community focusing largely on the issue of potential future development (but including a consideration of the issue of heritage). Such interest can be reflective of social value as it is understood in a context of cultural heritage, but can also be linked to other concerns relating to development and its associated impacts.

While not assessed in detail, any social value that attaches to the site is considered likely to be at a local, rather than Territory level.

In order to confirm the extent and nature of any such social value, any future community consultation project should include an investigation of this issue.

#### 7.7 Assessment against the ACT Heritage Significance Criteria

The following table contains an assessment against the ACT Heritage Significance criteria, drawing on the preceding analysis and assessment.

Criterion	Comment
(Criterion A) It demonstrates a high degree of technical or creative achievement (or both), by showing qualities of innovation, discovery, invention or an exceptionally fine level of application of existing techniques or approaches.	Does not meet criterion.  None of the kiln types on the site were innovative in terms of their design at the time of construction.

<sup>192</sup> *Yarralumla Neighbourhood Plan*, 2004, p. 31.

<sup>193</sup> *Yarralumla Neighbourhood Plan*, 2004, p. 33.

Criterion	Comment
(Criterion B) It exhibits outstanding design or aesthetic qualities valued by the community or a cultural group.	Meets criterion at a local and Territory level. The site has a distinctive industrial aesthetic deriving from the robust and distinctive industrial building forms and their materiality, combined with the visual qualities of the quarry and the open landscape character of its setting. The 1953 chimney is a local landmark.
(Criterion C) It is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest.	Meets criterion at a Territory level.  The complex is an unusually complete large-scale urban brickworks of the twentieth century, comparing well with other examples in other states.  Despite the removal of most of the manufacturing plant, the buildings and other site elements and the layout of the site combine to demonstrate aspects of the processes and operations common to large scale brickworks.
(Criterion D) It is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations.	Not investigated in detail in this CMP.  Assumed to meet this criterion at a local level.
(Criterion E) It is significant to the ACT because of its importance as part of local Aboriginal tradition.	Not investigated.
(Criterion F) It is a rare or unique example of its kind, or is rare or unique in its comparative intactness.	Meets criterion at a Territory level.  The continuous kilns represented on the site are part of a relatively small group surviving in a national context.  The Staffordshire kiln is the only known example of this particular design of continuous kiln in Australia.  See also comment above against Criterion C. The site is an unusually complete complex of its type.
(Criterion H) It has strong or special associations with a person, group, event, development or cultural phase in local or	Meets criterion at both a Territory and local level.  The Commonwealth Brickworks was the

Criterion	Comment
national history.	<p>first manufacturing facility commissioned for and constructed in the Australian Capital Territory. It was developed specifically to facilitate the construction of the Federal Capital.</p> <p>The brickworks is of historical significance in providing tangible evidence of the establishment of the city following the decision to construct the National Capital in the Yass-Canberra district in October 1908. Subsequent phases in the development of the brickworks, until its closure, reflect the broader political context that determined the ebb and flow of the construction of the Federal Capital, with major phases of the development in the 1920s and post-World War II period.</p> <p>At a local level the site has been a major determinant in the physical and historical development of the suburb of Yarralumla. It also had a long history as a major employer in the local area.</p>
(Criterion I) It is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes.	<p>Meets the criterion at a Territory level.</p> <p>The Brickworks site is of scientific (geological) significance as the type locality for the Yarralumla Formation, a major sedimentary sequence dating from the Silurian Period, 424-423 million years ago. The rock units at the site provide the reference section for comparison of other outcrops within the Yarralumla Formation and in this context are of both research and educative value.</p>
(Criterion J) It has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site.	<p>Meets the criterion at a Territory level.</p> <p>Refer to comments above in relation to Criterion I.</p> <p>The rock units at the site provide the reference section for comparison of other outcrops within the Yarralumla Formation and in this context are of both research</p>

Criterion	Comment
	and educative value.
(Criterion K) The place exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements.	Not investigated.
(Criterion L) The place is a significant ecological community, habitat or locality for any of the following: <ul style="list-style-type: none"> <li>• the life cycle of native species;</li> <li>• rare, threatened or uncommon species;</li> <li>• species at the limits of their natural range; or</li> <li>• distinct occurrences of species.</li> </ul>	Not investigated.

#### 7.8 Assessment against National Heritage List criteria

The following table contains an assessment against the National Heritage List criteria, drawing on the preceding analysis and assessment.

Criterion	Comment
(Criterion A) The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	Does not meet the criterion at the level required for the National Heritage List.  The association with the early history of the Federal capital is considered to be at a Territory level.  Refer to ACT Heritage Significance criterion H.
(Criterion B) The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.	Does not meet the criterion at the level required for the National Heritage List.  As noted, the continuous kilns are now relatively rare in a national context, and the Staffordshire kiln is the only example of its type. This rarity is, is however, not considered to elevate either the place as a whole or the kilns and their associated structures to the level of 'outstanding heritage value to the nation'.  While the complex as a whole is also

Criterion	Comment
	<p>now an unusual example of a relatively complete brickworks complex, it is not considered to meet the test of 'outstanding heritage value to the nation'.</p>
<p>(Criterion C) The place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.</p>	<p>Does not meet the criterion at the level required for the National Heritage List.</p> <p>The rock units at the site provide the reference section for comparison of other outcrops within the Yarralumla Formation and in this context are of both research and educative value.</p> <p>The site has some archaeological potential relating to demolished structures however this is considered to be of limited significance.</p> <p>The place has research potential in terms of further understanding of the technologies and processes related to brickmaking. This could be explored further through a project involving oral history and historical research related to the place.</p>
<p>(Criterion D) The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:</p> <ul style="list-style-type: none"> <li>• a class of Australia's natural or cultural places; or</li> <li>• a class of Australia's natural or cultural environments.</li> </ul>	<p>Does not meet the criterion at the level required for the National Heritage List.</p> <p>The complex is an unusually complete large-scale urban brickworks of the twentieth century, comparing well with other examples in other states, however, this not considered to be at a level indicative of 'outstanding heritage value to the nation'.</p> <p>Refer to ACT Heritage Significance Criterion C above.</p>
<p>(Criterion E) The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.</p>	<p>Does not meet the criterion at the level required for the National Heritage List.</p> <p>Refer to ACT Heritage Significance Criterion B above.</p>



Criterion	Comment
(Criterion F) The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.	Does not meet criterion.  None of the kiln types on the site were innovative in terms of their design at the time of construction and there are no other aspects of the place which demonstrate a high level of creative or technical achievement.
(Criterion G) The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.	Not investigated in detail in this CMP.  Assumed to meet this criterion at a local level.
(Criterion H) The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.	Does not meet criterion.
(Criterion I) The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.	Not assessed in this CMP.

### 7.9 Statement of significance

The Statement of Significance for the site in the ACT Heritage Register has been reviewed and a new statement has been prepared.

Operational from 1913 to 1976, the Canberra Brickworks is of historical significance at a state / territory level as the first industrial manufacturing facility within the ACT, and for its integral role in providing the base material used in the construction of the early buildings in the National Capital. The Canberra Brickworks is one of a small group of remnant industrial and engineering heritage places that were built to facilitate the initial development of Canberra, with the other key sites being the Cotter Dam and Pumping Station and the Kingston Power House.

The site is also of local historical significance for its role in the early history and subsequent development of the suburb of Yarralumla. It has been a major presence in the suburb and has had a significant influence on its physical development. It has also been a major employer in the local area. More recently, the site has been the focus of local interest and action and broader community sensitivity in relation to its future management and development and in this context is considered of some social value at the local level.

The quarry is of scientific (geological) significance at a state / territory level as the type locality for the Yarralumla Formation, a major sedimentary sequence dating from the Silurian Period, 424-423 million years ago. The rock units at the site provide the reference section for comparison of other outcrops within the Yarralumla Formation and in this context are of both research and educative value. Sites A and D show excellent examples of anticline in calcareous siltstone and Site B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation. Site C shows abundant fossils of mainly brachiopods, trilobites and crinoids preserved in a bedding plane.<sup>194</sup>

The Canberra Brickworks site as a whole is of historical and scientific (technological) significance for its ability to demonstrate aspects of the process of brick production in the twentieth century. While individual brickworks varied in their layout and building forms, including variations in kiln types, there were common elements and building types and the majority of these (ranging in date from 1915 to the 1970s) are represented in some form or another at this site. When compared with other surviving complexes, the Canberra Brickworks retains a relatively wide range of production and ancillary buildings, though crusher houses, power houses and the like also remain on a number of other former brickworks sites. Conversely, the Yarralumla site has had virtually all the specific brickmaking plant and machinery removed, greatly diminishing its ability to demonstrate key aspects of the brickmaking process and the associated technologies.

The individual kilns themselves are of varying levels of technological interest and significance as examples of kiln design. The Staffordshire kiln (completed 1915) is the only known example in Australia of this particular type. It is distinguished by a relatively complex system of dampers and flues which offered more control and flexibility than earlier types and which was thought to particularly suitable to the Canberra context, where a range of different products might be required. The Hardy-Patent kilns are considered to be of a lesser order of technological significance, though they are of interest as an example of a patented variation on the Hoffman kiln design originating from the late nineteenth century. A number of examples exist in Australia of Hoffman and patent kilns dating from the first half of the twentieth century. The three downdraught kilns are of limited technological interest. They are very late examples of this type of intermittent kiln design and there are numerous other and earlier examples surviving elsewhere.

The place is of aesthetic significance for its combination of distinctive and robust industrial building forms and the open landscape quality and striking rock outcrops of the quarry. The understated siting of the complex and the relatively open landscaped nature of its setting contribute to a sense of remoteness from the urban environment which is distinctive and imparts a particular aesthetic quality experienced from

---

<sup>194</sup> Register of the National Estate entry for Yarralumla Brickworks (extended area), Denman St, Yarralumla, ACT, Australia (file no. 101439).

within the site. The 1953 chimney is of aesthetic significance as a landmark in the local area.



## 8.0 CONSERVATION POLICY AND MANAGEMENT PLAN

### 8.1 Introduction

This conservation policy is based on the preceding assessment of the significance of the Canberra Brickworks. It has been developed with an understanding of:

- The heritage values of the complex;
- The relative contribution of the individual elements within the complex to these heritage values; and
- Statutory and other constraints.

The intention of the conservation policy is to provide direction and guidance on future use, conservation and physical management of the brickworks; and to inform consideration of potential future change and adaptation works.

As relevant, the conservation policy also has regard for the land adjacent to the brickworks.

The chapter includes significant fabric and conservation focussed policies including those relating to the care and conservation of significant fabric, maintenance and repairs, retention of significant heritage values, and adaptation and site development issues.

The chapter also includes policies that address matters relating to the management of the place including statutory frameworks and other matters of a more practical nature which have the potential to impact on heritage significance and values.

### 8.2 Policy objectives

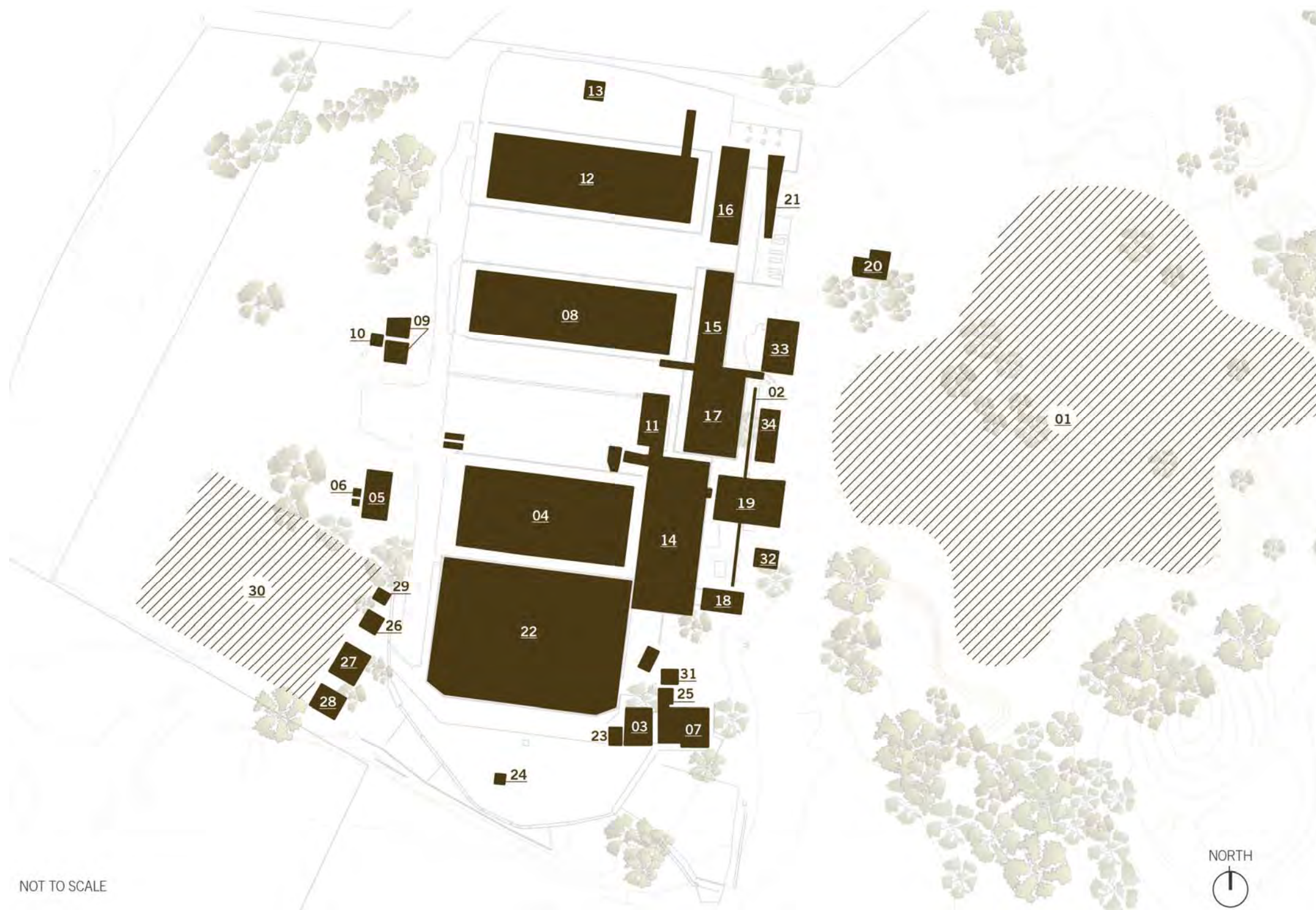
The principal objectives of the conservation policy are:

- The conservation (preservation, restoration, reconstruction and adaptation) of fabric of core and supporting significance, within a policy framework that is robust, easily understood, and consistent in its approach;
- To ensure that future works to the site are compliant with Burra Charter principles and responsive to the statutory heritage constraints;
- To maintain an understanding of the original function of the site;
- In support of a sensitive approach to potential future change and the implementation of an adaptive reuse and redevelopment strategy that is both feasible and will support the long-term conservation of the core heritage values of the place.

### 8.3 Implications of the assessment of significance

The assessment of significance for the Canberra Brickworks in this CMP has identified a number of values that relate to and are expressed by the site and complex as a whole. It has also identified values which are embodied in and/or expressed by particular elements or groups of elements within the complex. In developing the conservation policy consideration has been given to these different values and their expression through particular site elements and the complex as a whole. These are summarised in the following table.

Value	Level	Key related elements
<i>Historic</i>		
<ul style="list-style-type: none"> <li>• Role in the early history of Canberra</li> <li>• Commonwealth brickworks – first Territory based industrial facility</li> </ul>	State/Territory	Pre-1940 buildings and features, including quarry.
<ul style="list-style-type: none"> <li>• Role in the history of the local Yarralumla area</li> </ul>	Local	<p>Primary focus is on the pre-1940 buildings and features.</p> <p>Archaeological evidence relating to early demolished buildings and structures.</p>
<i>Scientific</i>		
<ul style="list-style-type: none"> <li>• Geological</li> </ul>	State/Territory	Quarry, with particular reference to identified geological features.
<ul style="list-style-type: none"> <li>• Technological</li> </ul>		
Kiln design	State/Territory	<p>Staffordshire kiln</p> <p>Hardy patent kilns</p>
Extensive surviving brickworks complex	State/Territory	<p>Overall complex including quarry, does not include post-1970s buildings.</p> <p>Archaeological evidence relating to early demolished buildings and structures.</p>
<i>Aesthetic</i>		
<ul style="list-style-type: none"> <li>• Industrial complex</li> </ul>	<p>State/Territory</p> <p>Local</p>	<p>Key production buildings (kilns, chimneys, machinery bays, crushers, conveyor)</p> <p>Quarry</p> <p>1953 chimney</p>
<i>Social</i>		
<ul style="list-style-type: none"> <li>• Focus of local interest and action and broader community sensitivity</li> </ul>	Local	Entire complex
<i>Spiritual</i>	N/A	N/A



Number	Element
01	Quarry
02	Concrete retaining wall
03	Power House
04	Staffordshire Kiln (Kiln 1)
05	Fan house for Kiln 1
06	Chimney stack for Kiln1
07	Offices
08	Hardy patent Kiln (Kiln 2)
09	Fan house for Kiln 2
10	Chimney stack for Kiln 2
11	Amenities block
12	Hardy patent Kiln (Kiln 3)
13	Chimney stack for Kiln 3
14	Machine Bay I for Kiln 1
15	Machine Bay II for Kiln 2
16	Machine Bay III for Kiln 3
17	Workshop
18	Small Crusher House (Crusher House I)
19	Large Crusher House (White pan room / Crusher House II)
20	Primary Crusher House (Crusher House III)
21	Elevator / Conveyor
22	Downdraft Kilns (Kiln 4-6)
23	Downdraft kiln control room
24	Chimney stack for Kilns 4-6
25	Toilet block
26	Amenities block
27	Substation/control room
28	Boiler house
29	Ancillary storage building
30	Remnant of Extrusion plant (concrete pad)
31	Ancillary storage building
32	Storage shed
33	Model railway workshop
34	Model railway storage shed

NOT TO SCALE

Figure 194 Site plan showing location of elements





#### 8.4 Significant site elements

Given the multiple values associated with the site, it is recognised that in addressing the conservation policy objectives, there will be options for future management, including for restoration and reconstruction, demolition, adaptation and site development.

It is also recognised that various elements can be identified on the basis of their role in the history, operation and development of the place and/or on the basis of their contribution to particular values associated with the place or with the individual elements themselves.

The elements have variously been identified as 'core' or 'supporting' elements, and 'incidental' elements (Figure 195). These designations recognise that:

- A group of elements is associated with the establishment and operation of the Canberra Brickworks in the period 1915-1940. These elements are central to an understanding and appreciation of the operation and history of the site in this early period including its relationship with the early history and development of Canberra. These are generally designated as core elements.
- A number of elements are of individual scientific (geological or technological) significance in their own right. These have also been designated as core elements.
- A group of elements relate to the further development of the brickworks complex as it was expanded and evolved from the 1940s through to the 1970s and are able to demonstrate aspects of this expansion and the operation of the site in this period. These elements are generally designated as supporting elements.
- A further group has been designated as incidental elements. This group comprises buildings of the post-WWII period which while related to the expansion of the complex, were originally minor in nature, reflect ancillary uses rather than core manufacturing processes and/or are altered. In addition this group includes a small number of buildings that were introduced to the site following its closure as a brickworks.

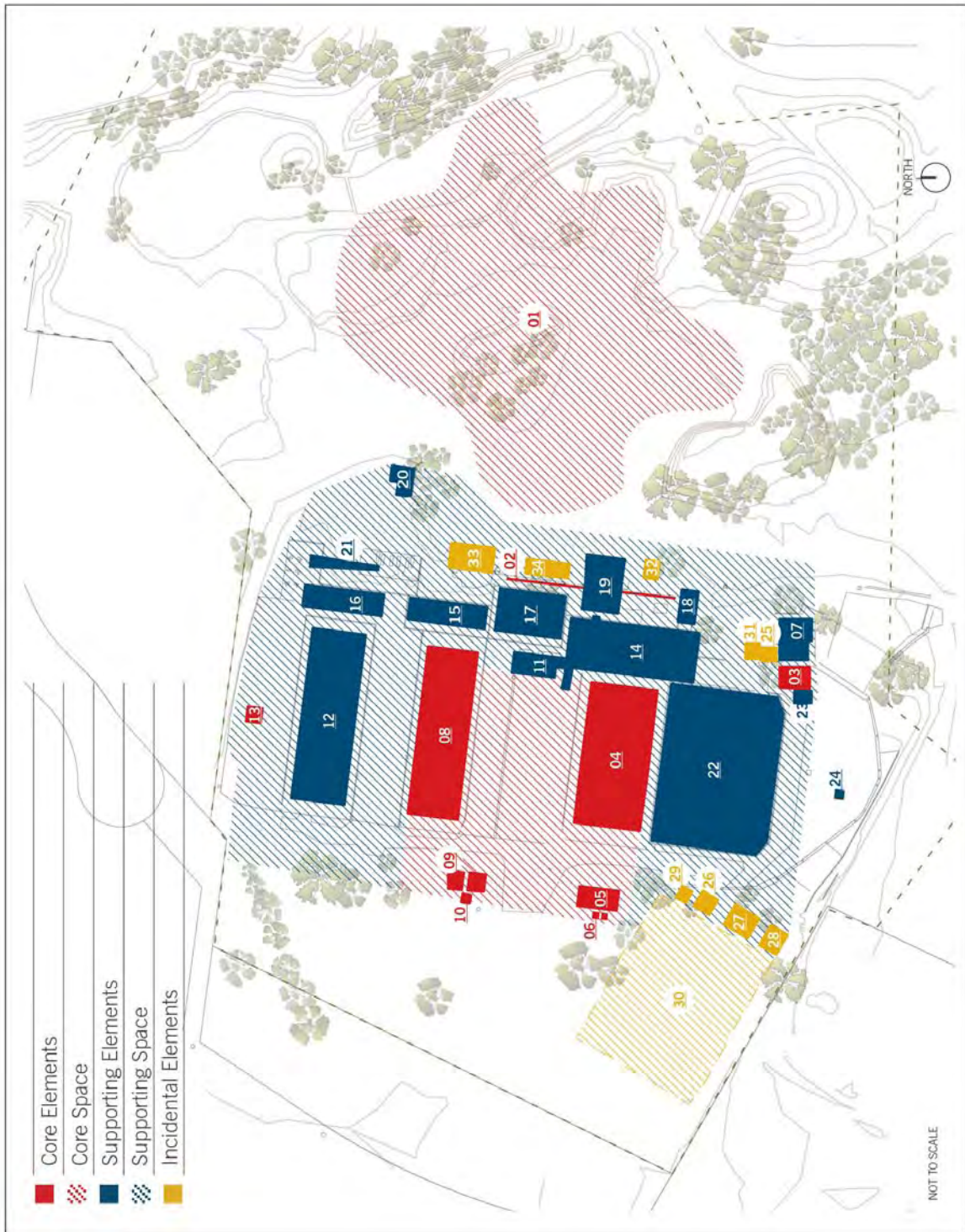


Figure 195 Significant site elements

8.4.1 *Core elements*

All surviving fabric associated with the establishment and expansion phases of development on the site, including the following site elements:

No.	Name/ Description	Phase	Date of construction
01	Quarry including exposed geological features	Establishment (1911-1920)	Shale extraction from 1913
02	Concrete retaining wall	Establishment (1911-1920)	1915
03	Power House	Establishment (1911-1920)	1915-16
04	Staffordshire kiln and associated underground workings	Establishment (1911-1920)	1914-15
05	Fan house for Staffordshire kiln	Establishment (1911-1920)	1914-15
06	Chimney stack for Staffordshire kiln	Establishment (1911-1920)	1914-15
08	Hardy patent kiln I and associated underground workings	Expansion (1921-1940)	c. 1926, c. 1955
09	Fan house for Hardy patent kiln I	Expansion (1921-1940)	c. 1927, c.1955
10	Chimney stack for Hardy patent kiln I	Expansion (1921-1940)	c. 1927
12	Chimney stack for Hardy patent kiln II	Post-war phase (1944-1976)	c. 1953, c. 2005
unnumbered	Original brickyard area between Staffordshire and Hardy patent kiln I kilns and around fan houses	Establishment (1911-1920)	c.1911-1927

In addition to these elements, there is potential for archaeological evidence to survive of a range of early buildings and site elements associated with the earlier phases of development on the site, notably the Brickworks Camp, the quarry tramway, and the light railway from the site to the city. Some of these features were located on land outside the current boundaries of the site. The archaeological potential, both of the subject site and the abutting sites, requires further assessment (refer to Policy 8.6.7).

Quarry (01)

The quarry dates from the establishment of the Brickworks and demonstrates a key aspect of the original brick making operation and as it existed up until c. 1940.

The quarry is also considered to be of scientific (geological) significance as the type locality for the Yarralumla Formation, a major sedimentary sequence dating from the Silurian Period, 424-423 million years ago. The rock units at the site provide the reference section for comparison with other outcrops within the Yarralumla Formation and in this context are of both research and educative value.

#### Concrete retaining wall (02)

The concrete retaining wall is an early feature of the site and is demonstrative of the planning and operation of the site in this first phase.

#### Power house (03)

The Power House is associated with the earliest phase of the permanent brickworks and was a key element in the development of the site, providing power to the site after the Kingston Power House came on line in 1915.

The provision of continuous power supply was fundamental to the operation of the plant.

#### Staffordshire kiln including associated underground workings, fan house and stack (04, 05, 06)

The Staffordshire kiln together with its associated structures and underground workings is an element of core significance. It was the first permanent kiln structure on the site and is a key surviving element from the earliest phase of development. The choice of this relatively elaborate kiln type with its capacity to fire multiple types of products simultaneously reflected the requirements of the brickworks as the sole provider to the new national capital. While extensively modified and rebuilt in some areas, this kiln is the only example of a Staffordshire kiln remaining in Australia.

The fan house and stack were both integral to the operation of the Staffordshire kiln. While only remnants of dismantled equipment remain in the fan house, the arrangement of the interior demonstrates the function of the building and its relationship to the kiln and the associated chimney.

#### Hardy patent kiln 1 and associated underground workings, associated fan houses and stack (08, 09, 10)

Together with its fan houses and chimney (Buildings 9 and 10), the Hardy patent kiln demonstrates the expansion of the works in the 1920s in response to the increased demand for building materials for the development of the National Capital in this period. The kiln was commissioned prior to the relocation to Canberra of the Australian Parliament in May 1927. The kiln has been extensively modified and extended (including extensive rebuilding) but still provides an important link to this phase in the history of the site.

The Hardy patent kiln is also of interest as an example of an Australian patent kiln design thought to date from the late nineteenth century, one of a large number of variations of the Hoffman kiln typology developed in this period.

The associated fan houses and stack are integral to the operation of the kiln, including in its expanded form post-WWII.

Original brickyard (between the Staffordshire kiln and Hardy patent kiln I, unnumbered)

The open yard area between the two earlier kilns historically was the early brickyard and was a key space within the complex. It demonstrates key aspects of the layout of the site and its operation.

#### 8.4.2 *Supporting elements*

Supporting elements include those key structures associated with the expansion of the manufacturing plant in the post-WWII period, which demonstrate the pattern of this expansion, the arrangement of various elements of the process across the site, and aspects of the brickmaking process itself. Minor non-specific process or ancillary buildings have not been included. The heavily modified office building of c.1925 has also been included in this group.

*Supporting elements are as follows:*

No.	Name/ Description	Phase	Date of construction
07	Offices	Expansion (1921-1940)	c. 1925 with extensive alterations and additions
11	Amenities block	Post-war phase (1944-1976)	c. 1950, c. 1977
12	Hardy patent kiln II and associated underground workings	Post-war phase (1944-1976)	c. 1953
14	Machine Bay I for Staffordshire kiln	Post-war phase (1944-1976)	c. 1955
15	Machine Bay II for Hardy patent kiln I	Post-war phase (1944-1976)	c. 1955
16	Machine Bay III for Hardy patent kiln II	Post-war phase (1944-1976)	c. 1955
17	Workshop	Post-war phase (1944-1976)	1955
18	Small Crusher House (Crusher House I)	Post-war phase (1944-1976)	c. 1958
19	Large Crusher House (White pan room/ Crusher House II)	Post-war phase (1944-1976)	c. 1955
20	Primary Crusher House (Crusher House III)	Post-war phase (1944-1976)	c. 1955
21	Elevator / Conveyor	Post-war phase (1944-1976)	c. 1955

No.	Name/ Description	Phase	Date of construction
22	Downdraught kilns (3) and associated underground workings	Post-war phase (1944-1976)	c. 1960-3
23	Downdraught kiln control room	Post-war phase (1944-1976)	c. 1963
24	Chimney stack for Downdraught kilns	Post-war phase (1944-1976)	c. 1950s
unnumbered	Expanded brickyard	Post-war phase (1944-1976)	(1950s-1970s)

#### Offices (07)

While the original section of the office building is associated with an early phase of development at the site, the building has been extensively modified and overbuilt, the result being the original form is substantially obscured.

#### Amenities block (11)

The amenities block was constructed as part of a major consolidation and expansion of the brickworks in the 1950s and reflects the need to provide improved facilities for workers on site.

#### Hardy patent kiln II and chimney stack (12 and 13)

The second Hardy patent kiln together with its underground workings and associated chimney stack are key elements of a major expansion and upgrade of the Brickworks during the 1950s, along with the new crusher houses, grinding facilities, automatic conveyors, new brick presses and machine bays. The construction of this kiln greatly expanded the production capacity of the works. The kiln is relatively intact, including when compared with the earlier Hardy patent kiln on this site and is a good representative example of this typology of continuous kilns.

In addition to its role as a key element in the post-WWII expansion of the Brickworks, the 1953 chimney for the Hardy patent kiln is also of aesthetic significance as a prominent element in the immediate vicinity and a marker for the site. While not prominent in these views, it is also visible more distant views from the north shore of Lake Burley Griffin and Black Mountain.

#### Machine bays I, II and III (14, 15, 16)

Replacing earlier structures in this general area of the site (between the kilns and the quarry), the Machine Bays present as a series of utilitarian steel-framed and clad process buildings constructed as part of the post World War II expansion and modernisation of the complex. The form and siting of these related structures and the conveyor that connects them demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of the majority of the equipment including the brick presses, the Machine Bays also demonstrate aspects of the brick making process in the post-WWII period.

#### Workshop (17)

Replacing earlier structures in this general area of the site (between the kilns and the quarry), the Workshop is one of a series of utilitarian steel-framed buildings constructed as part of the post World War II expansion and modernisation of the complex. The form and siting of these related structures and the conveyor that connects them demonstrate important aspects of the historical pattern and layout of the complex. While not a process building *per se*, the Workshop performed a key function in the operation of the complex.

#### Crusher houses (18, 19, 20)

Along with the Machine Bays, the three related crusher houses were new process buildings constructed as part of the post World War II expansion and modernisation of the complex. The form and siting of these related structures demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment, the form of the buildings and the various remnant hopper and other elements internally also reflect aspects of the brickmaking process in the post-WWII period. In the case of the Primary Crusher House, following the demolition of both the conveyor structure and the Red Pan Room, which interconnected the Primary Crusher House with the Machine Bays and the conveyor 'spine' which served the brick presses, the subject building is now somewhat isolated from these related buildings. Despite this, it is still demonstrative of its original function and role in the process.

The White Pan Room is a particularly prominent site element, with its collection of skillion roofed forms rising above the machine bays.

#### Elevator/ Conveyor (21)

The Conveyor was an integral element in the transport and refining of raw material from the Primary Crusher House (Building 20) to the brick kilns.

While much of the fabric of this structure is missing and it is in a semi-derelict condition, the remaining portion demonstrates aspects of the layout and sequence of processes on the site.

#### Downdraught kilns and associated underground workings, control room and chimney (22, 23, 24)

The downdraught kilns are part of the evolved brickworks complex and date from one of the last phases of expansion on this site. They contribute to an understanding of the operation of such complexes; in this case the choice of downdraught kilns appears likely to have been made on the basis of their suitability for specialist lines.

The kilns are of limited interest in their own right; they are relatively late examples and there are many surviving elsewhere.

The downdraught kilns are supporting elements on the site.

#### Expanded brickyard (unnumbered)

As for the earlier brickyard, the spaces around and between the key process buildings, considered to represent the expanded brickyard, are important features of the planning and layout of the complex and therefore, the processes that occurred there. Of particular importance is the open space between the Hardy patent kilns.

### 8.4.3 *Incidental elements*

Incidental elements include a series of relatively minor ancillary and service buildings of the post-WWII period. This group also includes buildings associated with the extrusion plant on the basis the plant itself has been demolished. It also includes buildings constructed following the closure of the brickworks. A number of these buildings are typical of the support functions found on any industrial site and do not inform about the process.

No.	Name/ Description	Phase	Date of construction
25	Toilet block	Post-war phase (1944-1976)	c. 1960s
26	Amenities block	Post-war phase (1944-1976)	c. 1960s
27	Substation/control room	Post-war phase (1944-1976)	c. 1971
28	Boiler house	Post-war phase (1944-1976)	c. 1971
29	Ancillary storage building	Post-war phase (1944-1976)	c. 1971
30	Demolished slab for extrusion plant	Post-war phase (1944-1976)	c. 1971
31	Ancillary storage building	Post-war phase (1944-1976)	c. 1960s
32	Storage shed	Post-war phase (1944-1976)	c. 1960s
33	Model railway workshop	Post-closure phase (1976-2009)	c. 1979
34	Model railway storage shed	Post-closure phase (1976-2009)	c. 1979

## 8.5 Options for the management of core and supporting elements

### 8.5.1 *Discussion*

One of the primary heritage objectives for this site is the establishment of a viable future use that will ensure its physical conservation and the retention of key heritage values in the long term. It is often difficult to establish a viable long-term use for such industrial sites and this is reflected in the varying approaches and outcomes that have occurred on such sites, including redundant brickworks in New South Wales, Western Australia, South Australia and Victoria. As evidenced in some of these projects, achieving a sustainable and meaningful heritage outcome in the context of major redevelopment is challenging.



The two key questions in assessing any adaptive reuse/redevelopment proposal for this and other similar sites are:

- what is the impact of the proposal on the cultural heritage significance of the heritage place?; and
- what is a reasonable and economic use of the heritage place?

The buildings on this site are generally in fair to poor condition and some are in a relatively advanced state of decay. Any adaptive reuse proposal for this site which involves the substantial retention and conservation, repair and refurbishment and adaptation of significant fabric so as to maintain the heritage values of the place will also involve substantial cost, both up-front and ongoing. These costs ultimately will be required to be assessed against the positive heritage outcomes and the investment in the cultural capital embodied in the site, but also against an economic return that is generated by a new use or uses. In this case they may also include consideration of the ability to generate funds to support active conservation of the heritage place which can be generated by peripheral and associated development.

On this basis and having regard to the assessed significance of the place, the conservation policy recognises that there are two broad approaches that reasonably could be contemplated. Both involve intervention by way of new development and adaptation of retained buildings, recognising that both actions are likely to be required if a feasible reuse strategy for this site is to be realised.

The two options are consistent in many respects but vary in the extent of demolition and site development contemplated, and (albeit to a lesser degree), the approach to adaptation of retained buildings.

The two options are summarised below.

In providing the summary, it is noted that clearly within these options there is scope for variations in approach to specific issues. For example, while both options propose the adaptation of the retained buildings, the specific approach to adaptation could be varied within the parameters of the conservation policies in this document. Similarly, both options also contemplate a level of site development; again, the CMP allows for scope for variations in the approach to this issue.

The general conservation policies in this CMP apply equally to both options. Where appropriate, reference to the options is made in specific policies, including policies for specific site elements.

#### 8.5.2 *Option 1 - whole of site conservation*

Option 1 focuses on the conservation of the complex as a whole as was developed to the 1970s. This option prioritises not only the heritage values that are embodied in the pre-1940 fabric of the place, but relative to Option 2 following, also seeks to conserve the evolved form of the complex and its ability to demonstrate aspects of the brickmaking process as it occurred in the later phases of the site's operational history.

Option 1 contemplates the retention of all buildings of core and supporting significance, including all of the kilns, together with their associated fan houses and chimneys. The lighter-weight process buildings (Machine Bays and Crusher buildings) to the east of the kilns would also be retained. Recognising the majority of plant specific to the brickmaking process

(presses, crushers and the like) has been removed from the site, preferably this option would also include retention of the limited remaining plant (conveyors and hoppers) in the Machinery Bays and Crusher Houses. This plant suggests the movement of the crushed materials through this area, and down to the brick pressing area.

In this option the preference would also be to retain the 1950 amenities building on the basis it reflects the broader operation of the site, though this would be a lesser priority relative to the retention of the process buildings.

The original and expanded brick yard area would be retained as open area with limited scope for the insertion of new buildings.

The quarry would be retained, sufficient to demonstrate its significant geological features, as well as its general form and relationship to the building complex and role in the process.

This option contemplates the internal adaptation of the kiln, process and other retained buildings, within the parameters described in the building-specific policies for these elements. In the case of the Machine Bays any internal adaptation would be constrained by the retention of the plant and equipment at the upper level.

This option contemplates a level of site development as identified in the Site Development policies at 8.6.12.

#### *Heritage impact*

Option 1 is directed at the retention of all buildings and site elements identified as of cultural heritage significance (core and supporting) and would result in an outcome that should maintain the key heritage values associated with the site. It would allow for the adaptation within certain constraints of individual buildings and for site development. It could be expected that the most compatible uses if such an approach were adopted would be low level industrial and commercial uses, particularly in the core elements, which could largely make use of the existing fabric without extensive intervention.

#### 8.5.3 *Option 2 - partial site conservation*

Option 2 focuses on the core elements as identified in the Conservation Management Plan. The objective in this option is to conserve those elements that relate to the earlier phase of development of the Brickworks and/or that are of a high order of significance in their own right.

This option would retain and conserve two of the three kiln types on the site:

- Staffordshire kiln (Kiln 1, 1915) and associated fan house and chimney
- Hardy patent kiln (Kiln 2, c. 1926) and associated fan house and chimney

It would also retain the original Power House (1915-16).

As for Option 1, the quarry would be retained, sufficient to demonstrate its significant geological features, as well as its general form and relationship to the building complex and role in the process.

The 1953 chimney, which has been identified for its landmark qualities both in the local area and to a degree in the wider area of central Canberra, would also be retained in this option.

Either demolition or a more interventionist adaptation of the balance of the process and ancillary buildings on the site, including those buildings identified as supporting elements, could be contemplated in this option.

The internal adaptation of the kilns and other retained structures could occur within the parameters described in the building-specific policies for these elements.

This option contemplates a greater level of site development as identified in the Site Development policies at 8.6.12.

#### *Heritage impact*

Option 2 could result in the loss of a number buildings and elements identified as supporting elements. It is noted that the completeness of the complex as a brickmaking plant is already compromised by the demolition of some building elements and the removal of the main manufacturing plant (crushing and pressing machinery). The demolition of the supporting elements, which generally date from the mid- to late- twentieth century, would further diminish the ability of the complex to demonstrate the manufacturing processes that occurred on this site in the later phase of its history.

The other heritage values associated with the complex would generally be retained in this option. Those elements which remain from the establishment and expansion phases of the site's history would be retained - including the two kiln types of most interest in terms of their technology and rarity (the Staffordshire kiln and the Hardy patent kiln) - along with the quarry itself (refer Figure 196). This early grouping would demonstrate key aspects of the layout of the site and the process as it occurred in the period (1913-1940). This period has been assessed as of most historical significance both in the local context and in terms of the associations with the establishment of Canberra. As for Option 1, the scientific (geological) values of the place would be maintained.

The Option 2 approach is the one which has typically been applied on other brickworks and related industrial sites where the development balance has required more wholesale site clearance. Retained fabric has either been heavily adapted and modified or retained and presented as an industrial archaeological artefact.

#### 8.5.4 *Conclusion*

The choice of one option over another will be the outcome of the consideration of many factors and ultimately determined by those responsible for approving works. While this report focuses on the heritage issue, the reality of a site of this nature is that many other forces will come into play in finding a balanced outcome. The fact that the site has remained in a semi-derelict and gradually decaying state for some decades reflects the challenge of such sites. The scale of the site and nature of the fabric will inevitably require a level of intervention that will change the physical and visual nature of the place. The intent of the options approach is to provide points between which a solution needs to be found if heritage is to be meaningfully addressed.



Figure 196 View west of the complex in 1929, including part of the quarry, the kilns and their stacks (albeit the Staffordshire kiln obscured), and the office and Power House (on left). The original crushing and pressing buildings (now demolished) are in the centre of this view, to the left of the Hardy patent kiln and in the background (far left) is the Brickworks Camp complex, now demolished. Source: National Library of Australia.

## 8.6 General conservation policies

### 8.6.1 *Setting and curtilage*

#### *Setting*

Setting is defined in the Burra Charter (Definitions, Article 1.12) as 'the area around the place which may include the visual catchment'. The Charter's Conservation Principles for 'setting' (Article 8) expand on the definition:

Conservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place.

The original setting of the brickworks was an open pastoral area surrounded by grazing land and juvenile plantations of radiata pine. The brickworks had no urban context and remained as such until well into the interwar period (with only relatively sparse residential development at some distance from the site) and the later twentieth century when the residential development of Yarralumla took full force. Because of the relatively sunken location the brickworks was a place concealed from view and seen only when approached over the as yet not full excavated quarry or from the north and west through what are now the wooded areas of the Canberra Golf Course and Dunrossil Drive. As vegetation matured and development occurred, the brickworks increasingly became an unseen place; only

visually evidenced by smoke from the chimney stacks and, after 1953, by the landmark chimney.

As has occurred throughout Canberra the visual setting has changed over time and while the site still exists with a treed and open grassed backdrop to the west and south, to the north and east expanding residential development provides a very much altered context.

From a heritage perspective the most distinctive aspect of the evolved setting is that the site still retains a degree of concealment and a 'removed-ness' from the character of the residential city. The setting is still one of a degree of open unkempt landscape, wooded and plantation areas, and limited visible perimeter form. Uniquely in the Australian context it is a brickworks which still conveys the sense of remoteness of the location in which it was built.

Policy 1

*While the setting has contributed to a sense of isolation and a sense of discovery upon arrival, the brickworks has evolved over time with discrete additive elements located to create a bold and orthogonal spatial sequence and order. Any new development should complement the reading of the brickworks as a complex of buildings and have regard to its inherent spatial qualities*

*Heritage curtilage*

The 'heritage curtilage' for a building, complex or site has been defined as meaning;

the area of land (including land covered by water) surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance. It can apply to either:

- land which is integral to the heritage significance of items of the built heritage; or
- a precinct which includes buildings, works, relics trees or places and their setting.<sup>1</sup>

The concept of heritage curtilage recognises that on occasions there is a requirement for an expanded curtilage which goes beyond legal or other boundaries to take into account views and vistas, the visual relationship between the place and its surrounds and the need to provide a 'buffer' between the heritage elements and surrounding land. A curtilage can also provide for the conservation of the sensitive heritage values immediately surrounding the heritage place, and where appropriate, can maintain a setting of aesthetic value for the heritage place.

Having regard for the above, the two issues that arise are the inclusion within the heritage curtilage of all features and elements that contribute to the significance of the place and that of establishing an appropriate setting for the place.

---

<sup>1</sup> Heritage Office, *Heritage Curtilages*, Department of Urban Affairs and Planning, 1996, p.3.

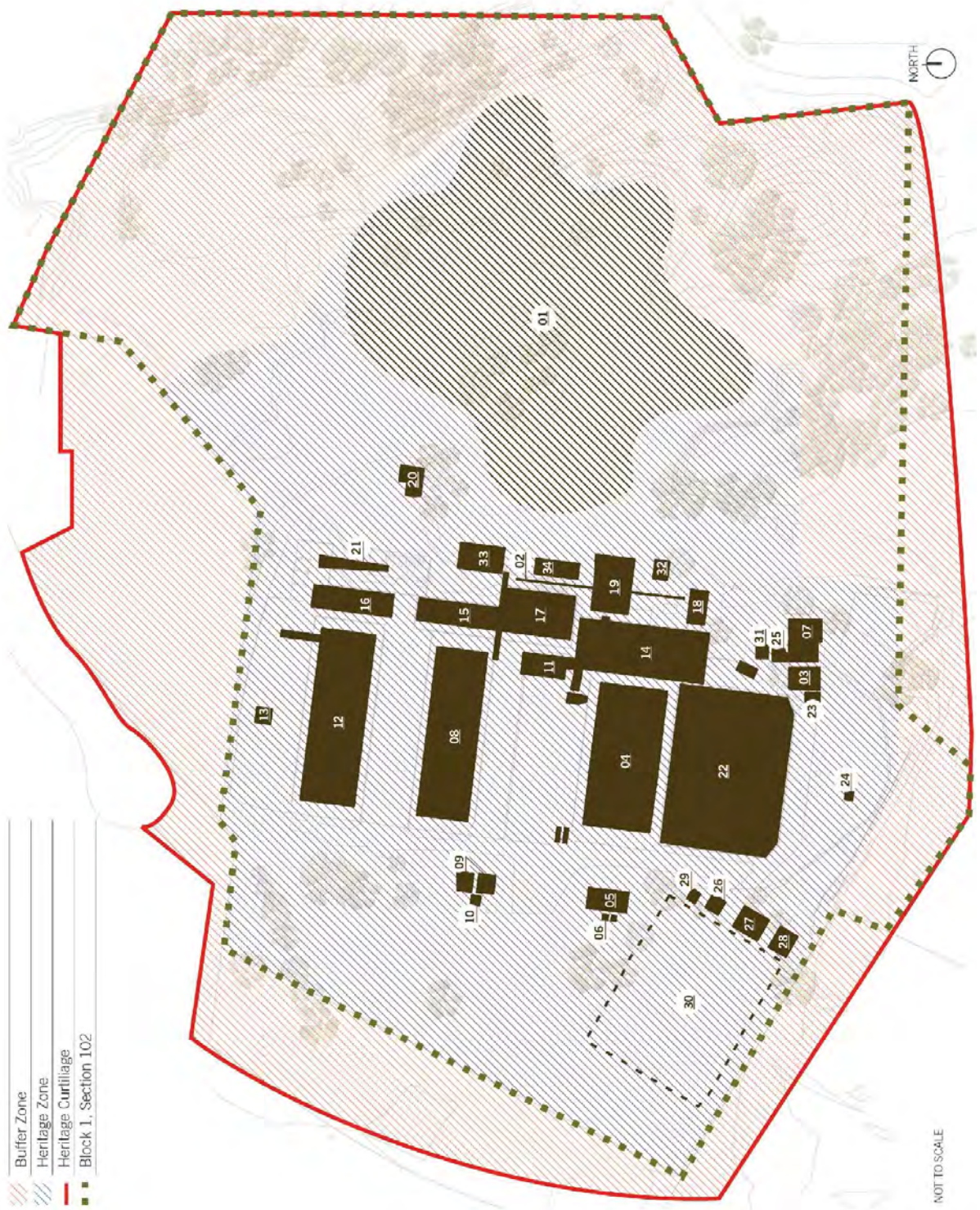


Figure 197 Heritage curtilage and management zones

In considering the first issue, it is noted there is potential for there to be archaeological evidence of related structures such as the Married Quarters surviving outside the currently enclosed site. Such archaeological evidence, if it exists, would be of interest in documenting the history of the site and should be investigated should future works occur in this area (refer to Policy 8.6.7). In considering the nature of the assessed significance of the place as a whole, however, it is not considered necessary to include these more distant potential archaeological sites within the curtilage for the place.

In considering the broader issue of setting, the immediate surrounds of the Brickworks vary considerably. Abutting the site are the remnants of the Westbourne Wood arboretum to the west of the site, medium density housing is to the east and north of the site and to the south is the lightly treed ridge north of Dudley Street. The recent housing to the north is in close proximity and has encroached on the setting of the brickworks complex. The topography of the immediate area also varies and has a major influence in defining a setting (and heritage curtilage), particularly with reference to the potential for future development to have an impact on setting.

The current boundaries of the Brickworks site are those of the irregularly shaped Block 1, Section 102 (Figure 197). The boundaries are also those which have been used in defining the registered site. This does not reflect the original extent of the site which was larger and which was reduced in size both before and after the closure of the works in the 1970s.

As an outcome of this study a heritage curtilage has been defined which extends beyond this legal boundary and the registered land to include additional land to the north, west and south. This heritage curtilage (Figure 197) is considered to reflect appropriately the area that requires management for heritage reasons, including management of potential impacts of future development. It is recognised that this expanded heritage curtilage includes land that has been subdivided and developed and is now privately owned (to the north). Notwithstanding, it is still considered desirable that this area be considered to be part of the defined heritage curtilage and any future redevelopment consider the impact on the brickworks.

In recommending a heritage curtilage that extends beyond the current registered area (Block 1), there is no requirement to expand the extent of registration under the *Heritage Act*. Rather, it is recommended that the management of the additional land on abutting sites be through an alternative mechanism – planning overlay or similar – which includes objectives that have regard for the setting of the brickworks complex.

#### *Management zones*

In establishing a heritage curtilage for this site, it is noted that there is potential for development to occur within this curtilage, but that this should be managed appropriately having regard for any impact on the heritage values of the place and within the relevant and appropriate statutory heritage frameworks.

Given its scale, complexity and layout, it is reasonable to consider different levels of management across the heritage curtilage as a whole, and to this end, two management zones have been defined (Figure 197). The zone boundaries are soft boundaries which should be treated as indicative rather than absolute.

*Primary heritage zone*

The Primary Heritage Zone is the area of the site which is considered to be of the highest level of heritage sensitivity. Adaptive reuse and new works need to have particular regard to the assessed significance of the relevant element or area and heritage impacts. The Primary Heritage Zone includes the main brickworks complex and a large part of the quarry.

*Buffer heritage zone*

The Buffer Heritage Zone includes those parts of the site which are within the curtilage but which are more removed, visually and/or physically, from the key elements of the complex. The Buffer Heritage Zone includes areas that support the significance of the site in providing a setting. In this zone, more intensive development could be contemplated but the scale, form and spatial characteristics of this development needs to be appropriately managed having regard for any adverse impact on the place as a whole. The Buffer Heritage Zone includes substantial areas of the quarry on its eastern and southern sides and additional land to the east, north and south.

Reference is made to the management zones in the policies for Site Development and New Works (8.6.12).

**Policy 2**

*The heritage curtilage for the Canberra Brickworks includes the land in Block 1, Section 102, Block 20, Section 102 and additional land to the north and south. Block 1, Section 102 should continue to be controlled under the Heritage Act. Alternative controls under the Planning and Development Act should be considered for the land to the north, west and south.*

**Policy 3**

*Management of land within the heritage curtilage should have regard to the identified heritage zones and for the identified significance of the subject site and complex.*

**8.6.2 Care of Significant Fabric***All works*

The Brickworks has been assessed as a place of a relatively high level of cultural heritage significance, variously at either a local or State / Territory level, for historic, scientific (technological and geological) reasons, aesthetic and social values.

The policy objectives set down in this chapter identify the approach to conserving fabric of core and supporting significance, and ensure that works to the place are compliant with Burra Charter principles. While the multiple values ascribed to the place allow for the consideration of different approaches to its conservation and adaptation, it is important that any conservation or adaptation works undertaken are in accordance with these Burra Charter principles.

This study did not involve a detailed assessment of the current condition of the significant structures and fabric on this site and such an assessment should be undertaken in order to inform future conservation and maintenance works. As a general comment, however, the physical condition of the buildings and structures varies from fair to poor, with the majority



appearing to be in need of extensive maintenance and conservation works, ranging from replacement of cladding and the like to – in the case of a number of kilns – potentially significant structural remediation works.

Policy 5

*All future conservation works which affect fabric and elements of significance (core and supporting elements) should be carried out having regard for the principles of the Australia ICOMOS Burra Charter, 1999 (see Appendix A).*

Policy 6

*Undertake a detailed assessment of the current physical condition of all significant fabric and use this assessment to inform all future conservation and maintenance works. Establish a priority list of works to ensure the long term conservation of the place.*

*General repairs and maintenance*

A consistent and regular approach to the maintenance of fabric is recommended. The approach should firstly be to maintain and ensure that significant fabric does not deteriorate and secondly to conserve significant existing fabric. An ongoing cyclical inspection and maintenance program should be instigated to ensure that the significant fabric is maintained in good physical condition and its integrity is not jeopardised.

The site generally suffers from a lack of regular maintenance and is subject to sporadic vandalism. A programme of immediate repair and maintenance works should be undertaken in accordance with the recommendations of this plan (refer Appendix B).

Policy 7

*Introduce an ongoing cyclical inspection and maintenance program to ensure that the significant fabric is maintained in good condition and its integrity is not jeopardised. Institute at least annual maintenance inspections and five yearly inspections to address longer term capital works.*

Policy 8

*Core elements should be retained and conserved.*

*If alterations or changes are proposed, then the works should have regard for the identified aspects of heritage significance, and should be guided by the policies and recommendations included in this report. A key consideration is the impact of any proposed change on the legibility and presentation of the complex as a whole.*

## Policy 9

*Generally, retention of supporting elements is preferred however these elements provide greater flexibility than core elements with regard to change and alteration, particularly internally. Where alterations or changes are proposed, these should be guided by the policies and recommendations included in this report, and should have regard for the identified aspects of heritage significance both for the specific element and the values of the complex as a whole. A key consideration is the impact of any proposed change on the legibility and presentation of the complex as a whole.*

## Policy 10

*Incidental elements typically can be retained, altered or removed. This is a general policy, however, and specific works or proposals relating to these elements, including replacement or alteration, should also have regard for policies and recommendations included elsewhere in this report which either address the specific element, or address matters to do with site presentation, new development, etc.*

## 8.6.3 Reinstatement/ reconstruction works

The Brickworks complex is an evolved place with both core and supporting buildings and elements ranging in their construction dates between 1913 and the 1960s. In addition, the current structures have been modified, in many cases, extensively, as the complex has evolved and expanded and reflecting changes in work practices and processes on the site. In many cases, original or early openings have been altered, including enlargement of openings and in some cases, the infilling of openings. There are also buildings which have undergone significant rebuilding and in some cases inaccurate or conjectural reconstruction works (see, for example, the Staffordshire and 1927 Hardy patent kiln).

In some cases, the works that have occurred are such that they demonstrate major changes in work practices (such as the widening of the entries to the kiln chambers to allow for the use of fork lifts). In other cases, however, alterations have been made on a more ad hoc basis and do detract from the presentation and/or legibility of particular elements.

As a general principle, while reinstatement and/or reconstruction works could be undertaken, either to individual buildings or to reconstruct missing elements on the site, there is no requirement to undertake such works across the site as a whole, nor would such an approach be recommended.

Any reinstatement or reconstruction works which are proposed should be assessed against the specific recommendations for individual elements and as part of a broader strategy for site interpretation and presentation. For individual buildings there may be cases where the reversal of particular alterations or additions would improve the presentation and legibility of the building, but in all cases there is a need to ensure there is clarity about the evolved nature of the fabric. Refer also to the policy for Site Interpretation (8.6.16).

Policy 11

*Any reinstatement or reconstruction works which are proposed should be assessed against the specific recommendations for individual elements in this CMP and as part of a broader strategy for site interpretation and presentation.*

8.6.4 *Relocation*

The relocation of particular structures within the site would obscure an understanding of the layout and processes on this site and is not supported. The majority of supporting elements on the site are of limited significance in their own right, instead deriving their meaning and significance from their contribution to the complex as a whole.

Policy 12

*Relocation of individual buildings and structures is not supported.*

8.6.5 *Plant and machinery*

The majority of the brickmaking plant from this complex has been removed, including the brick presses and crushers. Surviving machinery *in situ* is generally limited to conveyers and hoppers of the post-WWII period surviving in the Machine Bays. This is not of particular interest in its own right, nor is it specific to the brickmaking process. Notwithstanding, this remnant plant and supporting structure partly demonstrates the movement and handling of crushed material from the two Pan Houses through the Machine Bays and down to the brick presses and preferably should be retained in any adaptation of these buildings.

There is also remnant equipment in the Power House, which appears possibly to be early in origins. Its retention is not required on heritage grounds.

Similarly, it is noted that the Workshop retains a gantry crane, this is unrelated to the brickmaking process itself and is not considered of any note in the context of this site.

The fan houses generally do not retain plant *per se* but there is some remnant ducting which should be retained if possible.

The firing floors of the Staffordshire and Hardy patent kilns retain remnants of the equipment used to fire and feed the chambers on the levels below. In any adaptation of these buildings, a representative area or areas of the firing floors should be retained with this equipment intact.

All underground workings related to the kiln operations should be retained; this includes flue systems and connections to the fan houses and stacks.

Elsewhere across the site there are remnant components/elements of plant and equipment still present. Generally, however, these are neither intact nor *in situ*, but rather, represent remnants of disassembled/dismantled plant left in buildings or elsewhere on site and in this context do not provide coherent evidence of specific brickmaking processes. It is also noted that the provenance of the remnant items distributed around the site - see, for example, the items in Machine Bay III - is unknown. A list of 'Artifacts/Relics' was prepared by Mr Bruce McDonald (former site caretaker) for the purposes of the 1986 Conservation Plan (refer data

sheet appendix in this document); and this list appears to include items brought onto the site from other brickworks. Some of the items on Mr McDonald's list –not all - remain on site, though a complete inventory has not been prepared as part of this Conservation Management Plan.

Policy 13

*All underground workings related to the kiln operations should be retained; this includes flue systems and connections to the fan houses and stacks.*

*In the event the Machine Bays are retained and adapted, the remnant conveyors and hoppers on the upper level of the building should be retained in situ.*

*Other remnant and/or dismantled items of plant and equipment on site should be further investigated. Where appropriate and feasible these could be retained for interpretive purposes. Where these objects are to be removed, they should be recorded (refer to 8.6.8) prior to removal.*

8.6.6 *Ephemera*

While not documented in this CMP, there are a number of examples of remnant brickmaking ephemera located around the site, including painted numbers and similar within the kilns and elsewhere. All such ephemera should be retained, even in cases where its origins are unknown.

Policy 14

*All brickmaking ephemera should be retained wherever possible.*

8.6.7 *Archaeology*

This site has historical archaeological potential in the form of the evidence that is likely to remain of the numerous buildings and structures that are documented as having been constructed on the site but that have been demolished. Refer to the Demolished Buildings sections in Chapters 2-5 of this CMP.

While on the basis of the research undertaken for this CMP, none of this evidence is considered likely to be of a level of significance that necessarily would warrant retention in situ, or would preclude development on the site, it has the potential to provide further detail on the history and operation of the site. A predictive archaeological assessment should be prepared for the site.

Policy 15

*A predictive historical archaeological assessment should be undertaken for the study area and abutting sites. This study should identify the relative potential for sub-surface remains on the site and their likely nature and significance. Depending on the outcome of such a study, an Archaeological Management Plan should be prepared prior to any development or disturbance of the site.*

#### 8.6.8 *Landscape elements*

The area surrounding the subject site has been heavily treed and still has a strong landscape quality, and landscape and tree cultivation have been important themes in the history of abutting sites. Specifically, the Commonwealth nursery and Westbourne Woods arboretum were established in the 1910s to the west of the site, and the Commonwealth Forestry School was established in 1926 to its east.

The landscape on the Brickworks site itself includes large numbers of trees scattered through and around the quarry, which appear to be mostly self-seeded conifers (species vary but predominantly *Pinus radiata*). While not investigated in detail, there may also be some consciously planted specimens in this part of the site, possibly of some age; photographs of the 1920s show what appear to be newly planted trees as well as some more mature trees on the ridge to the north-east of the site. There are other trees planted around the site, a mix of predominantly deciduous trees of varying ages. The site is infested with weeds including blackberries.

Historically, while trees appear to have been deliberately planted on the site, there is no evidence of a consciously designed landscape treatment implemented across the site, nor would one be expected on an industrial site such as this one with no public presentation. Trees are more likely to have been planted within the site for their amenity value and on a more *ad hoc* basis.

Land to the south and west has a landscape quality that contributes to the setting of the place. Refer to the policies at 8.6.

#### Policy 16

*The existing plantings at the site are not of heritage significance. The landscaped quality of the immediate surrounds forms part of the setting of the place and should be maintained as far as possible. Refer to the policies at 8.6.*

#### 8.6.9 *Use and public access*

The Brickworks site has not been operated for the manufacture of bricks since its closure in 1976, and its cultural heritage significance does not depend on the ongoing use of the site for a brickworks or a related industrial purpose (though the latter would be an option if feasible). Proposed future uses for the site should be assessed on the basis of their feasibility and the likely nature and level of impact on the identified heritage values and significant fabric. Compatible uses are those which are not in conflict with these values or the significant fabric.

Possible future uses would include any of the following or – most likely - a combination of more than one use:

- Institutional/educational, includes potential government use
- Residential
- Retail/other commercial including office
- Tourism-related uses
- Industrial – light manufacturing – processing, storage and sales
- Arts-related uses including studio spaces and performance facilities
- Community facilities.



Figure 198 View of the brickworks, looking south-west toward the new Hardy patent kiln, c. 1927. Note the young conifers in the foreground.

Source: National Library of Australia

Public access into this site is not a major theme in the operational history of the place, however, parts of the site have been accessible to the public at different times in post-closure period. While not a key heritage objective, as an important heritage asset in Canberra, it would be desirable that there be some public access to at least parts of the site.

Given the scientific and educative value of the quarry as the type locality for the Yarralumla Formation, it would also be desirable that there be some public access to the quarry and its significant geological sites as identified.

#### Policy 17

*A range of possible future uses could be considered. Future uses for the site should be assessed on the basis of their feasibility and the likely nature and level of impact on the identified heritage values and significant fabric.*

*It would be desirable that in any new use or uses, consideration be given to allowing public access to all or part of the site*



Figure 199 Hardy patent kiln under construction, looking north-east. Note the plantings on the ridge.

Source: National Library of Australia.

#### 8.6.10 *Views and vistas*

Notwithstanding the 1953 chimney stack provides a marker for the site in the local area and can also be viewed from more distant locations, the Canberra Brickworks site is one which overall has a relatively understated presence in the surrounding area. Views are available into the site from the abutting sites, but these are relatively incidental and of no particular heritage significance. While some urban industrial complexes of a comparable age were designed with a conscious more formal presentation to one or more street frontages, this is not the case for the Brickworks, and it is a site that is completely utilitarian in its physical/architectural conception.



Figure 200 View westward from within the quarry, late 1920s, showing the earlier machine bays and the newly constructed Hardy patent kiln on the right.  
Source: National Archives of Australia



Figure 201 Current view to the south-west from within the quarry.





Figure 202 Another view westward into the site.



Figure 203 View southward between the kilns and their associated fan houses.

As noted earlier, the site is one where its historic and aesthetic qualities and the relationships between the different elements within the complex are experienced from within the site boundaries themselves and in moving around the site.

Rather than key views *per se*, generally it is the relationship between the different elements that is important (see, for example, the relationship between the brickpit (quarry) and the manufacturing buildings to the west and the relationship between the kilns and their associated fan houses and chimneys). There are interesting views toward the building complex from within the quarry including views from the north-east toward the corrugated iron clad process buildings along the eastern edge of the complex. In the latter case the relationship is evident in the view northward between the kilns and their associated fan houses and chimneys and this view preferably should be maintained.

Policy 18

*An appreciation of the relationships between key elements of the complex should be maintained, including the link between the kilns and their fan houses and chimneys and the relationship between the brickmaking complex and the brickpit (quarry).*

Policy 19

*The view northward between the kilns and the fan houses and their associated chimneys should be maintained.*

*The visual links between the building complex and the quarry should be maintained.*

#### 8.6.11 Adaptation

The approach to adaptation on this site should be one that seeks to maintain an understanding of the history of the site and its operation while introducing feasible new uses that will support the heritage values of the place in the long term.

The reality is that the form, scale and configuration of a number of the buildings on the site is such that they offer limited scope for adaptation. This group would include the chimneys, the fan houses and a number of the smaller steel-clad process buildings, including those where remnant plant, platforms and other infrastructure survives internally and where the conservation policy is for retention of these elements.

The balance of buildings on the site, including the kilns and some of the larger process buildings, have good potential for the adaptation of internal spaces and in most cases potential also for external modifications to facilitate a new use. In considering this issue, however, it is recognised that in many cases, adaptation for a feasible use will necessarily alter the buildings in a relatively fundamental manner, and in some cases would be likely to result in an outcome that may challenge the assessed heritage value. For example, the White Pan Room (Large Crusher House, Building 19) is a building where adaptation for any new use other than as a basic shed would involve major physical change - enclosure of the partly open structure, introduction of new floor levels, vertical connections, services and the like – and would fundamentally alter the presentation and configuration of the structure. For many of the buildings on this site there would also be such substantial costs associated with adaptation such that reuse may not be feasible when considered on a building-by-building basis.

While the CMP provides specific conservation policies and comments on the adaptation potential for each building of core and supporting significance (refer 8.7), it is preferable the consideration of adaptive reuse be undertaken as an integrated exercise for the site as a whole rather than on a building-by-building basis. The objective is that key aspects of the history and operation of the site are represented rather than focusing on any one particular building, particularly given their repetitive nature. This would allow for a more effective management of the balance between conservation and adaptive reuse. It also allows for a more liberal or interventionist approach to adaptation in some cases, on the basis that in other cases more of the significant fabric, external presentation and internal volumes are retained intact.

In doing so, the following overriding objectives should be considered, with reference to the options identified at 8.5:

*Option 1 - whole of site conservation*

- Retention of a representative area of the firing floor (including firing holes and any remnant equipment) to at least one kiln;
- Retention of a sense of the large internal volumes to one or more of the larger steel-clad process buildings east of the kilns;
- Retention of an understanding of the physical and functional connections between the process buildings to the east of the kilns; and
- Retention of a proportion of remnant process plant and/or related structure in the larger steel-clad process buildings east of the kilns.

*Option 2 – partial site conservation*

- Retention of a representative area of the firing floors to one or both of the Staffordshire or Hardy patent kilns (including firing holes and any remnant equipment); and
- Retention of representative areas of the kiln chambers to both kilns.

Refer also to the building-specific policies at 8.7 and 8.8.

*Building connectivity*

There is an established history of connections/links between buildings on this site, both below ground, at ground and elevated. While not an issue that is discussed on a building-by building basis in the building-specific policies at (refer 8.7 and 8.8), in considering the related issues of adaptive use and site development there is an opportunity to continue these patterns of connectedness and multiple levels of activity in any future works.

Policy 20

*Proposals for adaptive reuse should consider the complex as a whole and ensure that an appropriate balance is achieved between retention and conservation of fabric and delivery of a long term sustainable use. A key objective should be to ensure that the operation of the place as a brickworks can be readily understood in the retained and reused fabric without being reliant upon complex added interpretation.*

### 8.6.12 *Site development and new works*

#### *Key considerations*

The area within the heritage curtilage has considerable potential for new development subject to that development being responsive to the cultural heritage values of the place.

In considering the location, scale, form and design of any new building/s and landscaping treatments, important considerations include the following:

- The overall legibility of the place as an industrial complex, including the planning, layout and spatial qualities of the site, and the relationship between key elements and building groupings (the quarry, process buildings, and kilns, represent the historic pattern/sequence of use of the site – zones for extracting, production, firing etc);
- Important views within the site (view northward between the kilns and the fan houses and their associated chimneys, views to and from the quarry); and
- The strong industrial aesthetic quality of the place;

The nature and location of site development contemplated will vary depending on the overall approach to the site. Refer to the discussion of Option 1 and Option 2 at 8.5.

In addition, all site development should have regard to the two heritage management zones identified at section 8.6.1 and as discussed below.

#### *Primary heritage zone*

In addition to the key considerations listed above, within the Primary Heritage Zone (refer 8.6.1), the following principles should apply to all new development:

The area of the quarry included within the Heritage Zone should generally be retained as an open landscape zone. New built form should be limited to incidental 'garden' structures other than along the north-south spine at the interface between the quarry and the plant area. In this area development could occur which reinforces this spine while maintaining some connection between the quarry and plant.

No new development should occur in the original brickyard space between the Staffordshire and Hardy Patent 1 kilns.

Any new buildings within the Primary Heritage Zone should be of a scale and nature that relates to the existing building forms on the site. They should be of a relatively massive in their scale and form, reflecting the existing industrial forms. The introduction of multiple domestic-scaled building forms (individual houses) should generally be avoided.

New development should respect and respond to the site planning principles of the existing complex including the orthogonal and gridded qualities of the layout and the pattern of access and circulation (refer to 8.6.14). To the west of the fan houses there is greater scope to explore a more diverse response.

As noted earlier, there is an established history of connections/links between buildings on this site, both below ground, at ground and elevated. In considering the related issues of adaptive use and site development there is an opportunity to continue these patterns of connectedness and multiple levels of activity in any future works. In this regard, subject to

other objectives in this CMP, there may be scope for new buildings on the site to connect to retained buildings at one or more levels in order to facilitate access and circulation.

*Buffer heritage zone*

In addition to the key considerations listed above, within the Buffer Heritage Zone (refer 8.6.1), the following principles should apply to new development:

- Development within the eastern section of the Buffer Heritage Zone could adopt a wider range of different forms without an adverse impact on the heritage values of the Brickworks. This could include the use of the quarry floor for recreation and associated activities.
- The impact of new development in this eastern section on the views into the quarry and along the western edge of the Brickworks buildings complex should be considered.
- Development to the west, south and northern areas of the Buffer Heritage Zone should have regard to the identified setting of the brickworks.

Policy 21

*All site development should be undertaken in accordance with the guidelines in this Conservation Management Plan.*

8.6.13 *Site presentation*

In considering any new development or reuse of this complex, there is a need to consider the issue of the presentation of the place as a whole with reference to its valued industrial aesthetic character.

This is an issue that should be considered in the retention of elements that contribute to this character, to the design of any new buildings, to the adaptation of existing buildings and in any urban design/landscape planning undertaken for the site.

While there is a need to make the site safe, appropriately accessible and code-compliant (refer to 8.6.18), within these parameters as much as is possible of the industrial character of the place should be maintained, including not only the buildings and elements of core or supporting significance, but also the various remnants of plant and other features, including painted numbers/signs and other ephemeral elements that may not be of particular significance in their own right but that reference and support the character and presentation of the place. This also includes the infrastructure related to site drainage which is a distinctive feature of this site and presents as a series of grid lines around and between the main kilns.

In addition, any new landscaping / urban design treatment at the ground plane preferably should adopt an aesthetic that is in keeping with the history of the site and should not introduce an aesthetic that is at odds with that history (for example, an overly domestic treatment would not be appropriate in the vicinity of the main building complex or within the open spaces of the quarry). Any new treatment will require careful management of hard and soft landscaping elements so as to provide an appropriate setting for the retained buildings.

## Policy 22

*In considering any new development or reuse of this complex, there is a need to consider the issue of the presentation of the place as a whole with reference to its valued industrial aesthetic character.*

## 8.6.14 Access and circulation

Documentary and photographic evidence suggests that the principal road access to the site historically has generally been from the south and south-west (though not necessarily exactly on the current alignment). There is also a strong tradition of connecting roadways along the west of the kilns and, in the post-1940 period, between the process buildings and the quarry (the latter reflecting the delivery of raw materials onto the site following the closure of the quarry).

The 1976 aerial photograph shows a more complex arrangement of roads within and around the site, including routes through and around the quarry reflecting the complex nature of truck movements in and out of the site in this later phase of operations.

## Policy 23

*The traditional principal approach to the Brickworks complex from the south should be maintained. Additional access points could be developed if required.*

*Within the site, the historic circulation pattern should be referenced in any future site planning, including the roadway along the western edge of the kilns and the space (roadway now removed) along the western edge of the quarry.*

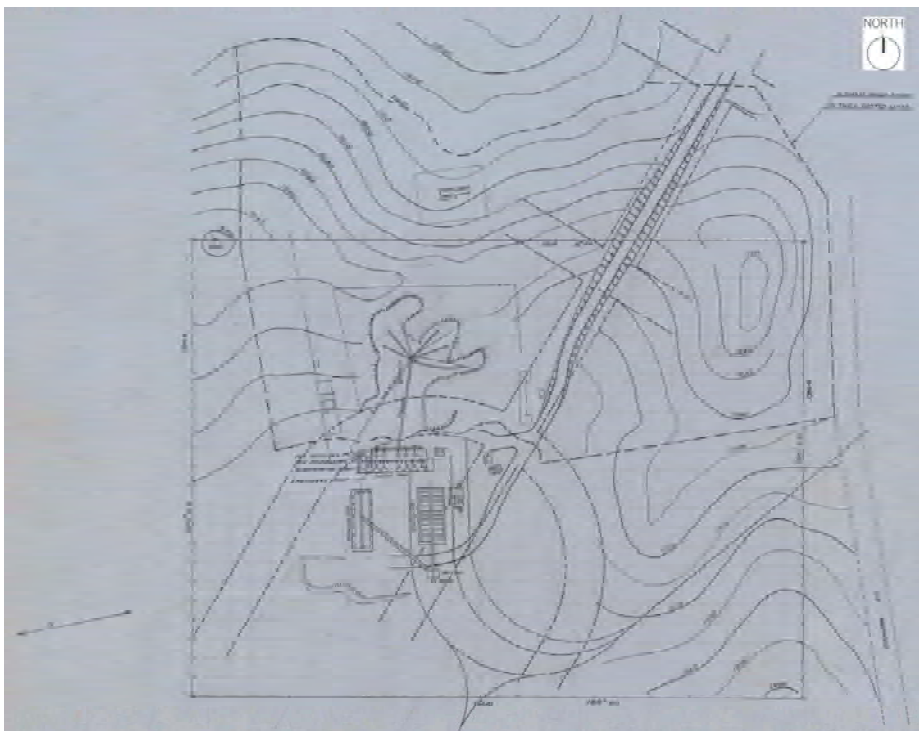


Figure 204 1926 site plan.

Source: National Archives of Australia

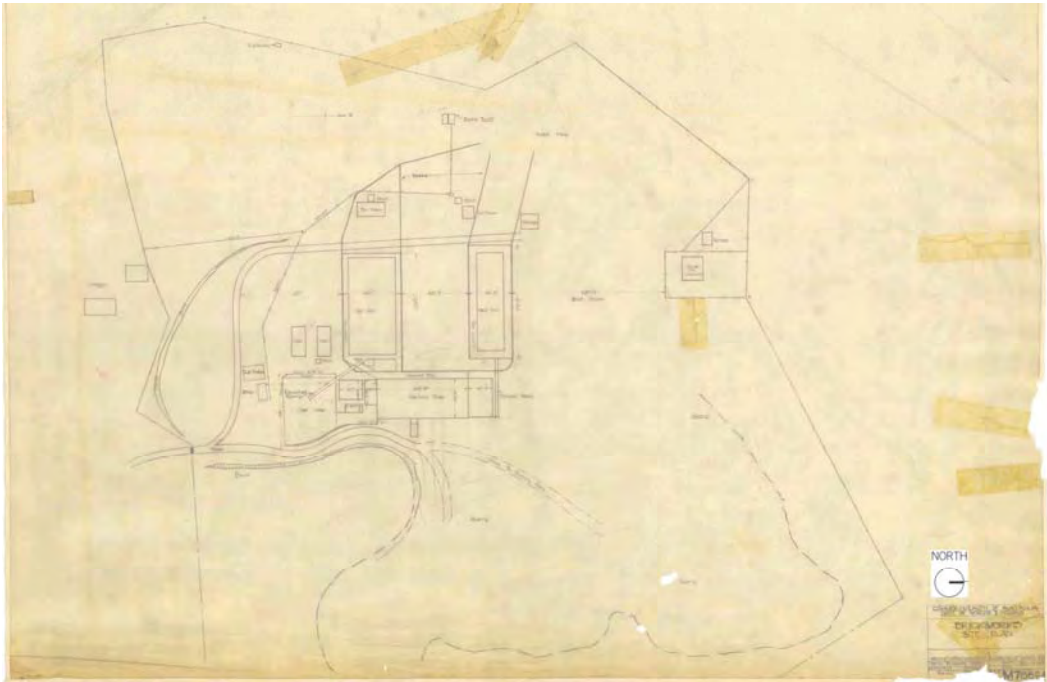


Figure 205 Site plan 1947.  
Source: National Archives of Australia



Figure 206 Aerial view of the brickworks, 1950.  
Source: ACT Planning and Land Authority.



Figure 207 Aerial view, 1976.

Source: ACT Heritage Library.

#### 8.6.15 *Site recording*

In the situation where major change is proposed for the site, or where significant structures or elements are proposed for demolition or archaeological sites for disturbance or removal, it is recommended that a recording program be undertaken. This might include, but would not necessarily be restricted to, measured drawings and a black and white archival quality photographic record (the latter is still regarded as a sound and archivally reliable form of recording); a digital or video record may also be undertaken. The records should be lodged with an appropriate repository, for future research purposes. A copy should also be retained and used, where appropriate, in any future site interpretation.

It is also recommended that all works to the site, including maintenance, conservation or other works-related activities, be recorded, with records maintained centrally by the body responsible for the site.

It would also be desirable that an oral history project be undertaken for the site. Such a project should focus on the operation of the site as a brickworks and involve interviews with former employees. There are a number of reasons for undertaking such a project, including:

- expanding the scope of the existing archival record of the site;
- providing more specific information (including technical information) about the operation of the brickworks; and
- providing material that could potentially be used in an interpretation plan for the site (refer 8.6.16).



Preferably, the oral history project should also include interviews with local residents about the history of the brickworks both pre- and post-closure and the relationship of the local community to the site. Given there was no scope in this CMP to undertake a full social values assessment, such a project could further inform the understanding of any social values which might attach to the site.

In addition to this, it would be desirable that more detailed documentary research be undertaken into the brickmaking processes and equipment used on this site. This would include more detailed research into the documentation held by the National Archives of Australia and elsewhere.

Policy 24

*In the situation where major change is proposed for the site or significant structures or elements are proposed for demolition or archaeological sites for disturbance or removal, ensure an archival record is made prior to the works.*

*Maintain records of all works to the site, including maintenance, conservation or other works-related activities.*

*Undertake an oral history project for the site.*

*Undertake a more detailed research project into the processes and equipment used on this site.*

8.6.16 *Site interpretation*

Any adaptive reuse or redevelopment proposal for the site should include the development and implementation of an interpretation plan for the site.

The form any interpretation plan will take will be dependant to a large degree on the nature of the new use or uses for the site and the level of public access that will be available to the site. Different interpretive devices are suited to different contexts.

Whatever its form, the interpretation plan should be developed on the basis it augments the physical evidence at the site and allows for a better understanding of the fabric and processes that occurred here historically.

It is important the plan work to improve the legibility of the site, including an understanding of the evolved nature of the buildings and complex as responsive to changes in brickmaking processes. It should also make reference to those features at the site that have been demolished, including site features which are evidenced through the archaeological record. The plan should also focus on the key historical themes associated with the site, the most important of which is its role in the early development of Canberra, as well, potentially as the experience of workers at the site (refer to the policy for site recording 8.6.8).

Policy 25

*An interpretation plan should be developed for the site.*

8.6.17 *Risk Management*

The most obvious and immediate risks to this site are considered to be those of fire and vandalism. To the extent that both can be related to unauthorised access into the site, these risks are to a degree interrelated. Unauthorised access also poses public safety risks; there are some limited areas of the building complex, including but not limited to the elevated walkways, which have structural and other issues of non-compliance and are not safe.

It is commented that the ongoing presence of the current tenant, Thor's Hammer, on the site, has a major positive benefit in terms of managing a number of these risks as it substantially reduces the risk of unauthorised access and activity within the main building complex. In the event the site is adapted and/or redeveloped, the pattern of access to the site will change and the security/vandalism risk should be reviewed at that time.

While the quarry is fenced off from the main building complex and approach road, access to this area is currently available via abutting residential properties. This access does not currently appear to pose major issues in terms of vandalism or other unwanted activity.

There are also site contamination (hazardous materials) issues which require management currently and into the future.

Threat	Probability	Preparation/ Response
Vandalism	Moderate	Review site security for the building complex. Consider the provision of additional security measures to prevent access to individual buildings and structures.
Public safety	Moderate	Refer to recommendations above for reviewing site security, particularly those areas of the building complex that are not safe.
Fire	Always present	Refer to the recommendations of the 2007 and 2009 fire services and safety reports (by Steve Coomes and Ross Turton respectively) and review current arrangements against the recommendations in these reports. Fully compliant fire services will be required depending on the nature of any future use.

Threat	Probability	Preparation/ Response
Site contamination	High	Review the status of site against the findings and recommendations of the earlier environmental audits (Robson Laboratories, 2006) and implement these recommendations. Pending removal of hazardous materials secure areas against access as per the recommendations of these audits.

Policy 26  
*Identify risks and prepare an appropriate strategy.*

8.6.18 *Statutory constraints*

*Statutory heritage framework*

The Canberra Brickworks is currently and will continue to be managed within a statutory framework established under the *Heritage Act* 2004 and the Planning and Development Act 2007 which acknowledges the heritage values of the place.

This is an appropriate level of statutory control having regard for the nature and level of significance of the place.

In terms of statutory processes, pursuant to Part 10 of the *Heritage Act* and s. 148 of the *Planning and Development Act*, for any registered (or nominated) place the ACT Planning and Land Authority (ACTPLA) is required to give a copy of any development proposal (in the merit or impact tract under that Act) to the Heritage Council. The Heritage Council provides advice (within 15 working days) to the ACTPLA about the effect of a development on the heritage significance of the place. This advice must be considered by ACTPLA in approving or refusing to approve a development application. The Heritage Council's advice to the ACTPLA is required to follow a prescribed format (s.60 of the *Heritage Act*). This advice must be considered by the ACTPLA in approving or refusing to approve a development application. There are appeal or review procedures to the Administrative Appeals Tribunal. These may be pursued by the Heritage Council (review of a decision by the ACTPLA to approve or refuse the application) or by the proponent or other interested party (review of a decision by the ACTPLA to refuse a development application or approve with conditions).

The *Heritage Act* also contains provisions enabling the Heritage Council to make Heritage Guidelines (refer Part 5 of the *Heritage Act*). Heritage Guidelines are a statutory instrument and made subject to a public consultation process under the Act. Pursuant to s.27 of the *Heritage Act*, a function under the Act that relates, directly or indirectly, to the conservation of a place or object must be exercised in accordance with any applicable heritage guidelines.

There are Heritage Guidelines prepared by the Heritage Council in place for the Canberra Brickworks. These include 'Specific Requirements' or guidelines addressing a range of activities and adaptation/development actions. These guidelines are directed at the implementation of a specified conservation policy developed by the Council, which reads as follows:

The identified heritage values and intrinsic features of the place shall be conserved whilst allowing for the integrated and sympathetic redevelopment of the place as a single entity, consistent with contemporary practices for the adaptive reuse of industrial and commercial heritage places. In conserving and developing the place its significant historical use as an industrial site for the production of bricks and clay products shall continue to be evident and accessible to the public.

Redevelopment of all or part of the place shall be in accordance with a Conservation and Management Plan endorsed by the ACT Heritage Council.

The Specific Requirements themselves are in a guideline format arranged under a series of headings:

- i. Landscape Setting
- ii. Built Structures – including alterations and additions
- iii. Industrial Equipment
- iv. Demolition

While not necessarily addressing all elements on the site individually, the guidelines are relatively detailed and address issues of conservation, demolition, alterations and additions to retained buildings, and site development, including prescribing setbacks from particular elements of any new landscaping or built elements.

The document makes reference to the need for a Conservation Management Plan endorsed by the Heritage Council to further direct the management of the site.

This Conservation Management Plan should be endorsed by the Heritage Council and the Heritage Guidelines revised both to make explicit reference to the CMP and to be in accordance with the CMP assessment (statement of significance) and conservation policies.

While there is much common ground between the Specific Requirements and the CMP, there are equally a number of key areas where there are inconsistencies and differences of approach. It would clearly be undesirable to have contradictory policy documents with recognised status under the *Heritage Act*.

#### Policy 27

*The Canberra Brickworks should remain as a registered place in the ACT Heritage Register with its current extent of registration.*

*The Entry to the ACT Heritage Register should be reviewed and amended to make specific reference to the assessment and conservation policies contained in this Conservation Management Plan.*

*The Conservation Management Plan should be endorsed by the ACT Heritage Council as the key document underpinning the future management, adaptation and development of the Canberra Brickworks site.*

### *National Capital Plan*

The National Capital Plan (NCP) is the strategic plan for Canberra and the Australian Capital Territory, established by the Australian Government under the Australian Capital Territory (Planning and Land Management) Act 1988. The overarching objective of the plan is to ensure that, 'Canberra and the Territory are planned and developed in accordance with their national significance'. The key aspects of national significance include:

- The pre-eminence of the role of Canberra and the Territory as the National Capital;
- Preservation and enhancement of the landscape features which give the National Capital its character and setting;
- Respect for the key elements of Walter Burley Griffin's formally adopted plan for Canberra;
- Creation, preservation and enhancement of fitting sites, approaches and backdrops for national institutions and ceremonies as well as National Capital Uses; and
- The development of a city which both respects environmental values and reflects national concerns with the sustainability of Australia's urban areas.

The NCP identifies 'designated land' within Canberra. This is, 'land that has the special characteristics of the National Capital'. The Canberra Brickworks is not designated land (Figure 209). However, land to the south, north and west (Sections 103, 113, 119 and 123) is designated, and forms part of the National Capital Open Space system: Sections 103 and 119 are designated land within the National Capital Area; sections 113 and 123 are identified as uncommitted. The Open Space system includes the inner hills that form the setting for the National Capital, and Lake Burley Griffin and its foreshore. The principal of visual separation between the main town centres within the National Capital is a key element of the Open Space system. The ridgeline to the south of the brickworks forms an effective barrier between Yarralumla and Woden to the south.

Specific recommendations with implications for the Canberra Brickworks in the NCP are:

- Any new road servicing the Canberra Brickworks be located off Dudley Street and not Cotter Road so as not to conflict with Dunrossil Drive as the formal entrance to the Governor General's residence.
- Any new residential areas should be contained to the north of the ridge line running from the Cotter Road / Dunrossil Drive intersection through to Denman Street so as to assist in maintaining visual separation between Central Canberra and Woden Valley.
- Existing amenity / inter-town visual separation planting be maintained within the blocks currently identified as 3/94, 1/123 and 1/113.

While of relevance to the planning of the abutting sites and surrounding area, these recommendations are not considered to have major implications for the management of the cultural heritage values of the Canberra Brickworks site.

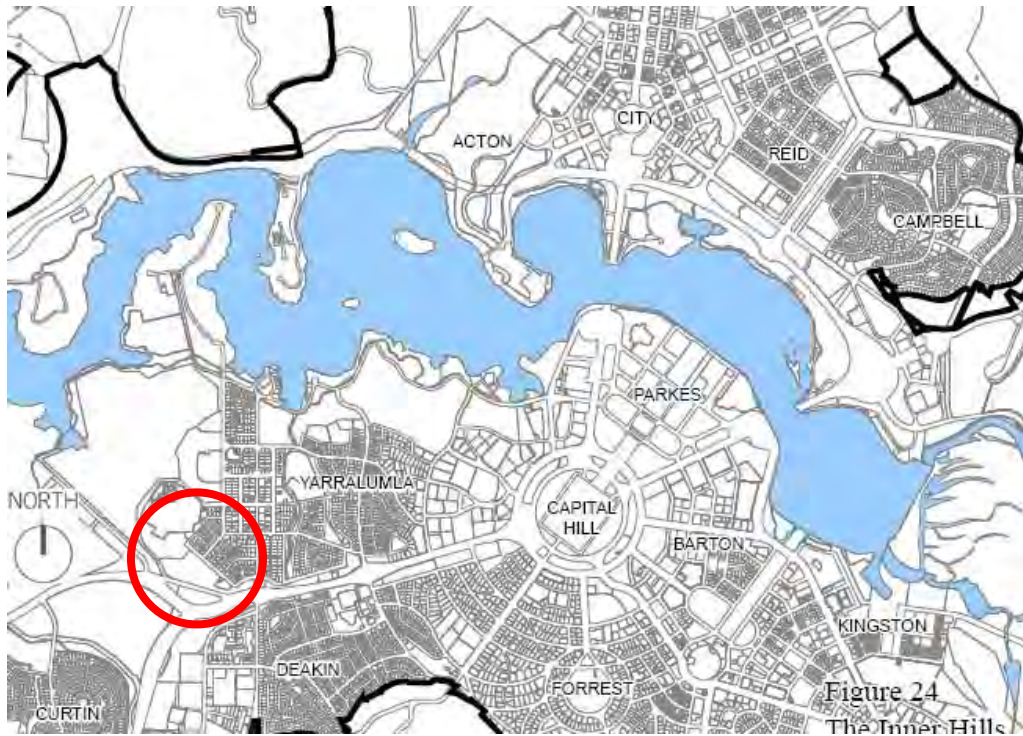


Figure 208 Plan of the National Capital showing the inner hills. The Brickworks is highlighted.

Source: National Capital Plan (consolidated, September 2009), p. 24.

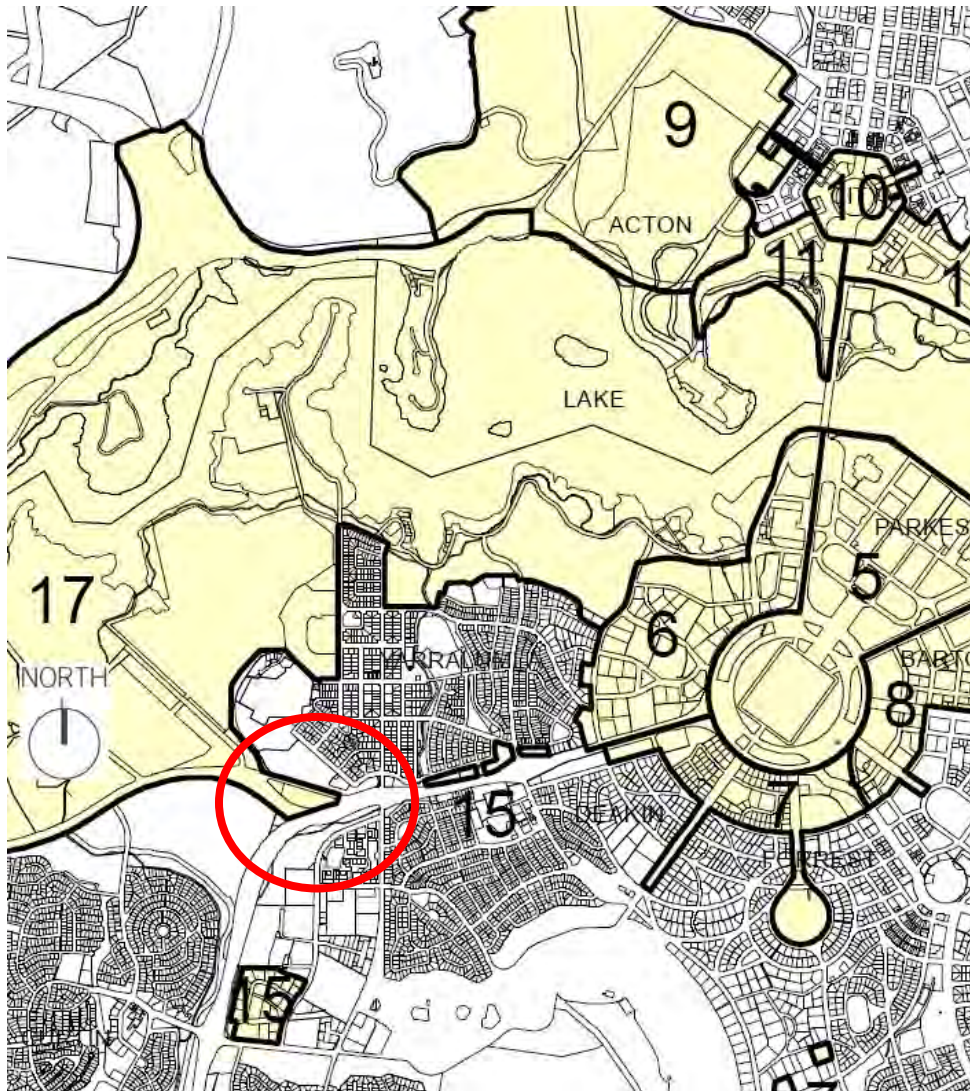


Figure 209 Designated land within the National Capital Plan. The Canberra Brickworks (highlighted) is excluded, but land to the south, north and west is included as part of the National Capital Open Space system.

Source: National Capital Plan (consolidated, September 2009), p. 28.

#### *Territory Plan*

The Territory Plan (TP), which is required to be consistent with the NCP, is the primary statutory planning document in the Australian Capital Territory and is established under the Planning and Development Act 2007. The overarching purpose of the TP is to manage development and land use change in a manner consistent with strategic directions set by the ACT Government, Legislative Assembly and the community.

The Canberra Brickworks and land immediately to the south and west (Blocks 7 and 20) are zoned Leisure and Accommodation.

Residential areas to the north (Lane-Poole Place) and east are designated RZ1 (suburban). The land between Dudley Street and the ridgeline to the north, and the section of Westbourne Woods to the west of the site is designated 'Restricted Access Recreation' (PRZ2) (Figure 210).



Figure 210 Land use plan (Territory Plan), with the Brickworks highlighted. Orange is Suburban (RZ1), dark green is Restricted Access Recreation (PRZ2) and blue is Leisure and Accommodation (CZ6).  
Source: Territory Plan online.

The current zoning of the Brickworks (Leisure and Accommodation, CZ6) does not reflect the historic use of the site. While the zoning is wide-ranging in the uses that can be considered, it also does not necessarily capture all potential compatible uses. One or more alternative zonings could be considered to allow for an appropriate adaptive reuse and development on the site.

Consideration should be given to implementation of controls that would assist in the management of the Buffer Heritage Zone as identified in this Conservation Management Plan (refer 8.6.1)

#### Policy 28

*Having regard for the Conservation Management Plan policies in relation to use, the Territory Plan could be amended to provide for consideration of a range of alternative uses at and within the registered site.*

*Consideration should be given to implementation of controls that would assist in the management of the Buffer Heritage Zone as identified in this Conservation Management Plan (refer 8.6.1)*



### *Building Code of Australia*

The Building Code of Australia (BCA) is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and state and territory governments. The BCA has been given the status of building regulations by all States and Territories.

The BCA is the definitive regulatory resource for building construction, providing a nationally accepted and uniform approach to technical requirements for the building industry. It contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, environmental sustainability, services and equipment, and certain aspects of health and amenity.

In addition to the requirement for new work to comply with the BCA, in cases of existing buildings undergoing alterations and/or additions (including buildings with heritage controls), some discretion may be available with regard to upgrading the existing part of the building to meet the BCA, based on either fire safety or volume of work. This means that for an existing building where no work is being proposed, the building is not subject to the BCA and therefore, is not required by legislation to be upgraded whenever the BCA is amended. For an existing building undergoing alterations and/or additions, including buildings with heritage controls, the new work must comply with the BCA although the existing part of the building may be subject to discretion on the basis of a fire safety matter or where the development involves less than 50 per cent of the building. To ensure that this advice on BCA compliance and requirements remains up to date, property managers of the Canberra Brickworks should also make reference to the Australian Building Codes Board.

With specific reference to the heritage implications of achieving BCA compliance, the advice of a heritage practitioner should be sought.

### *Disability Discrimination Act 1992*

The Disability Discrimination Act 1992 (DDA) makes it illegal to discriminate against a person on the basis of their disability. It is not specifically about buildings, however it has an effect on buildings in which the design and construction prevents access by people with a disability, as the owners of those buildings are deemed to be discriminating against people on the basis of a disability.

The DDA is philosophical in approach and:

- Is complaints based
- Has no construction standards
- Applies to actions of discrimination wherever they occur, and
- Can apply retrospectively to both new and existing buildings, wherever the discrimination occurs.

The 'access to buildings component' of the DDA is applied only to buildings that are available for the general public to enter and use, as employees, patrons, customers or the general public. Depending on the nature of future uses contemplated on this site, DDA compliance is likely to be an important issue.

8.6.19 *Adoption and Review*

## Policy 29

*It is recommended that the conservation policies in this report be endorsed by the Heritage Council, the ACT Property Group and the Land Development Agency, as the basis for the future planning and management of the Canberra Brickworks.*

Where there is ambiguity or doubt as to the meaning of a policy, or concern with the practical implication or outcome of a policy's implementation, then this should be clarified with the authors of the report.

## Policy 30

*The conservation policy should be subject to review, normally at not less than five yearly intervals. Should the circumstances affecting the site alter in any significant way, the policy should be reviewed at that time.*

## 8.7 Specific policies for core elements

*Introduction*

The following policies are intended to be read and interpreted with reference also to the general conservation and adaptation policies in this document.

8.7.1 *Quarry (01)*

## Conservation policy:

The Quarry should be retained as a landscape element that reflects in its form and presentation its origins as an excavated brickpit.

The identified geological features (rock outcrops) should be retained and protected.

## Adaptation:

There would be scope for part of the quarry to be developed. The preferred approach would be one in which the western section of the quarry – closest to the brickworks buildings – and including all four of the identified geological sites of significance, was retained as an open landscape feature. While at least two small process-related buildings (clay storage shed and another, specific use unknown) are known to have been built on the levelled floor of this part of the quarry, the preference is for no new buildings to be constructed in this area.

Any new development should be confined to the area to the east and south (within the Heritage Buffer Zone), and should be of a siting, scale and form which will not compromise the presentation of the retained section of the quarry. Refer to the policy for New Works and Site Development (8.6.12).

8.7.2 *Power House (03)*

Conservation policy:

The Power House should be retained and conserved to the extent of the external fabric.

Consideration could be given to the reinstatement of infilled openings to the exterior.

The remnant equipment could be retained or removed as required.

Adaptation:

The building could be adapted internally for a new use.

8.7.3 *Staffordshire Kiln (04)*

Conservation policy:

The kiln should be retained and conserved.

Externally, while the building is highly modified and sections have been substantially rebuilt, the policy is that the fabric generally be retained.

Given the extent of modification that has occurred to the building over the life of the complex and the nature of these changes, there is no strong conservation imperative to reinstate missing or altered elements, including the 1915 single-storey verandah, for example (as was recommended in the 1986 Conservation Plan). Reconstruction or reinstatement of particular elements of the building to a particular phase when other elements and areas are extensively modified has the potential to distort an understanding of the evolved form of the building.

Internally, in order to demonstrate the nature and operation of the firing floors of the continuous kilns on the site, an area of the firing floor of either this kiln or one of the two Hardy patent kilns should be retained intact as a single volume and with all fabric intact including exposed roof trusses, floor with firing holes and examples of remnant control mechanisms. Refer also to the policies at 8.6.11).

It is highly desirable that the evolved nature of the kiln be interpreted so that the sequence of alterations is understood.

Adaptation:

Externally, there is scope for minor changes including new openings. Any new openings that are contemplated at first floor level (in the rebuilt external walls) preferably should be of a form and configuration that references the original.

Roof lights could be introduced though these should be limited in their scale and number.

At ground level, the entries to the kiln chambers generally should be retained intact (i.e. to their current modified form), though there is scope to enclose the chambers with doors recessed into the openings if required. The kiln chambers could be subdivided internally if required, though a representative group of chambers should remain open and un-subdivided.

The derelict remnant verandah structure could be removed and replaced with a new verandah if required. This could be a simple timber structure with corrugated iron roof

based on the original single-storey verandah. It should be clearly identifiable as a contemporary structure and preferably interpreted as such.

Internally, there is scope to adapt the first floor level for a new use or uses. Adaptation works could include internal subdivision and fitout works within the constraints of the conservation policy.

#### 8.7.4 *Fan House for Staffordshire Kiln (05)*

Conservation policy:

The fan house should be retained and conserved including original window openings and joinery.

The internal configuration preferably should be retained as evidence of the original function of the building as the fan house to the Staffordshire kiln, including the lowered floor level and the tunnel connections with both the kiln itself and the associated chimney stack.

The remnant substantially dismantled plant could be retained for interpretive purposes or removed as required. If removed, it should be fully recorded.

Adaptation:

Externally, no new openings should be introduced.

The internal adaptation of the building is constrained by the recommendation that its internal configuration be retained.

There is little or no scope for adaptation of this building.

#### 8.7.5 *Chimney stack for Staffordshire Kiln (06)*

Conservation policy:

The chimney stack and attached kiln should be retained and conserved.

Adaptation:

There is no scope to adapt the chimney or attached kiln.

#### 8.7.6 *Offices (07)*

Conservation policy:

The office building preferably should be retained (refer to 8.5) and conserved and the feasibility of removing the additions and reinstating the original form of the building investigated.

Adaptation:

The building could be adapted internally.

#### 8.7.7 *Hardy patent kiln I (08)*

##### Conservation policy:

The Hardy patent kiln should be retained and conserved.

Externally, while the building is highly modified and sections have been substantially rebuilt, the policy is that the fabric generally be retained.

As for the Staffordshire kiln (Building 4, given the extent of modification that has occurred to the building and the nature of these changes, there is no strong conservation imperative to reinstate/reconstruct missing or altered elements.

Internally, in order to demonstrate the nature and operation of the firing floors of the continuous kilns on the site, an area of the firing floor either the Staffordshire kiln or one of the two Hardy patent kilns should be retained intact as a single volume and with all fabric intact including exposed roof trusses, floor with firing holes and examples of remnant control mechanisms.

It is highly desirable that the evolved nature of the kiln be interpreted so that the sequence of alterations is understood.

##### Adaptation:

Externally there is scope for the introduction of new openings at first floor level and in the roof if required.

At ground level, the entries to the kiln chambers generally should be retained in their current modified form, though there is scope to introduce doors recessed into the openings if required. Where openings have been infilled with brickwork this could be removed if required. The current verandah is not original and could be replaced if required, preferably with a simple steel or timber posted structure.

Internally, the kiln chambers could be subdivided internally if required and the firing floor adapted (within the constraints of the conservation policy).

#### 8.7.8 *Hardy patent kiln fan houses (09)*

##### Conservation policy:

The Hardy patent kiln fan houses should be retained and conserved including the internal configuration and connecting ducts.

##### Adaptation:

There is no scope for adaptation of these buildings.

#### 8.7.9 *Chimney Stack for Hardy patent kiln I (10)*

##### Conservation policy:

The chimney stack should be retained and conserved.

**Adaptation:**

There is no scope to adapt the chimney.

8.7.10 *Chimney Stack for Hardy patent kiln II (13)***Conservation policy:**

The chimney stack should be retained and conserved.

**Adaptation:**

There is no scope to adapt the chimney.

## 8.8 Specific policies for supporting elements

8.8.1 *Amenities block (11)***Conservation policy:**

While retention is preferred (refer to 8.5) as part of the larger group of 1950s buildings reflecting the operation of the complex in the post-WWII period, the amenities block is considered a lesser element as an ancillary building unrelated to process.

**Adaptation:**

The building could be adapted internally.

8.8.2 *Hardy patent kiln II (12)***Conservation policy:**

The Hardy patent kiln II preferably should be retained (refer to 8.5) and conserved to the extent of its external form and fabric including the first floor steel-framed windows.

Internally, in order to demonstrate the nature and operation of the firing floors of the continuous kilns on the site, an area of the firing floor either the Staffordshire kiln or one of the two Hardy patent kilns should be retained intact as a single volume and with all fabric intact including exposed roof trusses, floor with firing holes and examples of remnant control mechanisms.

Other than for the modifications to the wickets to allow fork lift access, and the alterations at the west end, this kiln appears to be relatively intact as built in 1953 and it would be desirable no significant changes be made to the exterior.

**Adaptation:**

At ground level, the entries to the kiln chambers generally should be retained in their current modified form, though there is scope to introduce doors recessed into the openings if required. Where openings have been infilled with brickwork, this could be removed if required.

The building could be adapted internally, including subdivision of the kiln chambers and first floor.

8.8.3 *Machine Bay I for Staffordshire Kiln and Downdraught Kilns (14)*

Conservation policy:

Machine Bay I preferably should be retained and conserved (refer 8.5) including the skillion form connection to the Staffordshire and Downdraught kilns.

The conveyors, hoppers, walkways etc at the upper level preferably should be retained in situ.

Adaptation:

Externally, there is scope for modifications to be made while still retaining the overall form and presentation of the building.

It would be desirable to retain a sense of the internal volumes in this building and the other related structures. Refer to the policy objectives at 8.6.11.

8.8.4 *Machine Bay II for Hardy patent kiln I (15)*

Conservation policy:

Machine Bay II preferably should be retained and conserved (refer 8.5) including the skillion form connection to the Hardy patent kiln and the elevated conveyor 'bridge' that connects this building to Machine Bay III.

The conveyors, hoppers, walkways etc at the upper level preferably should be retained in situ.

Adaptation:

Externally, there is scope for modifications to be made while still retaining the overall form and presentation of the building.

The building could be adapted internally. It would be desirable to retain a sense of the internal volumes in this building and the other related structures. Refer to the policy objectives at 8.6.11.

8.8.5 *Machine Bay III for Hardy patent Kiln II (16)*

Conservation policy:

Machine Bay III preferably should be retained and conserved (refer 8.5) including the skillion form connection to the Hardy patent kiln and the elevated conveyor 'bridge' that connects this building to Machine Bay II.

The conveyors, hoppers, walkways etc at the upper level preferably should be retained in situ.

Adaptation:

Externally, there is scope for modifications to be made while still retaining the overall form and presentation of the building.

The building could be adapted internally.

It would be desirable to retain a sense of the internal volumes in this building and the other related structures. Refer to the policy objectives at 8.6.11.

#### 8.8.6 *Workshop (17)*

##### Conservation Policy:

The Workshop preferably should be retained and conserved (refer 8.5).

The conveyor that connects this building to the others in this sequence preferably should be retained in situ. There is no requirement to retain the gantry crane or other remnant equipment or internal structure.

##### Adaptation:

The building could be adapted internally. External modifications could be made if required.

#### 8.8.7 *Small Crusher House (Crusher House I) (18)*

##### Conservation Policy:

The Small Crusher House preferably should be retained and conserved (refer 8.5).

The remnant platforms and hopper preferably should be retained.

##### Adaptation:

There is no scope to adapt this building.

#### 8.8.8 *White Pan Room (Large Crusher House II) (19)*

##### Conservation Policy:

The White Pan Room preferably should be retained and conserved (refer 8.5), though it is recognised in its current condition, this objective may be difficult to achieve.

While not essential, consideration should be given to the retention of the remnant platforms and hopper.

##### Adaptation:

There is limited scope to adapt this building other than with extensive intervention.

#### 8.8.9 *Primary Crusher House (Crusher House III) (20)*

##### Conservation Policy:

The Primary Crusher House preferably should be retained and conserved (refer 8.5).

The remnant machinery and conveyor preferably should be retained.

##### Adaptation:

There is limited scope to adapt this building.



8.8.10 *Elevator/Conveyor (21)*

Conservation Policy:

The Elevator/Conveyor preferably should be retained and conserved (refer 8.5).

Adaptation:

There is no scope to adapt this building.

8.8.11 *Downdraught kilns and associated enclosure (22)*

Conservation Policy:

The Downdraught kilns preferably should be retained and conserved (refer 8.5). While thought to be broadly contemporary with the kilns, the enclosing shed roof structure could be retained or demolished as required.

Adaptation:

There is scope to adapt the Downdraught kilns, including internal subdivision.

The enclosing shed roof structure could be modified as required.

8.8.12 *Downdraught kiln control room*

Conservation Policy:

The control room preferably should be retained and conserved (refer 8.5).

Adaptation:

There is no scope to adapt this building.

8.8.13 *Chimney Stack for Downdraught kilns (24)*

Conservation Policy:

The chimney stack preferably should be retained and conserved (refer 8.5).

Adaptation:

There is no scope to adapt this building.

8.9 *Incidental elements*

Incidental elements could be retained or demolished as required.



## SELECT BIBLIOGRAPHY

### Archival sources

Commonwealth of Australia, plans, photographs and file materials relating to the brickworks and documenting site elements held by the National Archives of Australia, c. 1910 to 1955.

Department of Works, Canberra Brickworks, Works Programme, 31 May 1955, National Archives of Australia (M8866D).

### Books and articles

Cox, Alan, *Brickmaking: A History and Gazetteer* (Survey of Bedfordshire, England), 1979.

Fitzgerald, Alan, & Andrews, W. C. & Institution of Engineers, Australia. Canberra Division. 1983, *Canberra's engineering heritage* / W.C. Andrews ... [et al.] ; edited by Alan Fitzgerald Institution of Engineers, Australia, Canberra Division, Barton, A.C.T.

Geological Society of Australia (ACT Division), D M Finlayson (comp), *A Geological Guide to the Canberra Region and Namadgi National Park*, Canberra, 1998.

Gugler, Ann, *The Builders of Canberra, 1909-1929, Vol I, Temporary camps & settlements*, C.P.N. Publications, Canberra, ACT, 1994.

Gugler, Ann, *The Builders of Canberra: where they lived, 1913-1959*, Mawson, ACT, 1999(?).

Gugler, Ann, *Canberra 1930-1943 & 1949, articles from the Canberra Times & other sources*, Mawson, ACT, 2002.

Gugler, Ann, *Westlake: one of the vanished 'suburbs' of Canberra*, Canberra, 1997.

Hammond, Martin, *Bricks and Brickmaking*, Shire Publications, Aylesbury, Buckinghamshire, 1981.

Headon, David *The Symbolic Role of the National Capital: From colonial argument to 21<sup>st</sup> century ideals*, Commonwealth of Australia (National Capital Authority), ACT, 2003.

Henderson, G A M and Strusz, D L, *Rocks and Fossils Around Canberra*, Australian Government Publishing Service, Canberra, 1982.

Henderson, G A M, *Geology of Canberra*, Queanbeyan & Environs; Notes to Accompany the 1980 1:50,000 Geological Map, AGPS, Bureau of Mineral Resources, Geology and Geophysics.

Henderson, G A M, *Commentary on the Coppins Crossing*, 1:10,000 Engineering Geology Sheet, Canberra, Canberra, Australian Capital Territory, Bureau of Mineral Resources, Geology and Geophysics, AGPS, Canberra, 1980.

Line, G J R, *Industrial Awakening: A Geography of Australian Manufacturing 1788-1890*, ANU Press, Canberra, 1979.

McGregor, Alasdair, *Grand Obsessions: The Life and work of Walter Burley Griffin and Marion Mahony Griffin*, Lantern (Penguin), Australia, 2009.

The National Capital Development Commission, *Tomorrow's Canberra: Planning for Growth and Change*, Australian National University Press, Canberra, 1970

National Capital Planning Authority, *Sites of Significance in the ACT, 2 Inner Canberra*, National Capital Planning Authority, April 1990.

Reid, Paul, *Canberra Following Griffin: A Design History of Australia's National Capital*, National Archives of Australia, Canberra, 2002.

Ringer, Ron, *The Brickmasters, 1788-2008*, Dry Press Publishing Pty Ltd, NSW, 2008.

Warren, John, *Conservation of Bricks*, Butterworth-Heinemann, Oxford, England, 1999.

White, H L (ed), Canberra, *A Nation's Capital*, Angus and Robertson, London, 1954.

#### Unpublished reports

Steve Coombe Fire and Safety Pty Ltd, Fire Services Condition Assessment Report, November 2007.

Connell Wagner Pty Ltd, The Old Canberra Brickworks and Environs Development Control Plan, February 2001.

Environment ACT, Old Canberra Brickworks, Yarralumla, Condition report to formalize handover from Environment ACT to Infrastructure and Asset Management, February 200.

Peter Freeman Pty Ltd, Kingston Power House Precinct, Kingston, ACT, Conservation Management Plan Review, 2001, Volume 1 of 2.

Lester Firth Associates Pty Ltd, Old Canberra Brickworks, Conservation Plan, June 1986.

Nigel Lewis & Associates, Brunswick Conservation Study, Prepared for the City of Brunswick and the Australian Heritage Commission, Melbourne, 1982.

Lovell Chen, Nomination of Canberra to the National Heritage List: An examination of the merits, prepared for the National Capital Authority, April 2008.

Macey, H H, Report on Canberra Brickworks, April 1959.

Eric Martin and Associates, 'Former Goodlet & Smith Brickworks as part of the Holroyd Gardens Development: Heritage Report & Statement of Heritage Impact for the Heritage Precinct Buildings,' July 2002.

Eric Martin & Associates, Eastwood Brickworks Project: Heritage Report, 2002.

Robson Laboratories Pty Ltd, Survey to determine the extent and condition of hazardous building materials at Yarralumla Brickworks, March 2006

Robson Laboratories Pty Ltd, Specification for the removal of asbestos materials from Yarralumla Brickworks, October 2006.

Susan Conroy & Munns Sly Architects, The Yarralumla Brickworks & Environs Planning Review, March 2005

#### Newspapers and periodicals

*Victorian Government Gazette* (various dates)

*Canberra Times* (various dates)

## Websites

Andrews, W C and Alan Fitzgerald A, *Canberra's Engineering Heritage*, Institution of Engineers, Australia, Canberra Division. 1983, viewed online at, [www.engineer.org.au](http://www.engineer.org.au)

*Business Spectator*, [www.businessspectator.com.au](http://www.businessspectator.com.au)

Habla kilns, [www.hablakilns.com/industry.htm](http://www.hablakilns.com/industry.htm)

Miles Lewis, *Australian Building: A Cultural Investigation*, [mileslewis.net/australian-building/](http://mileslewis.net/australian-building/)

Midland Brick, 'About Midland Brick,' [www.midlandbrick.com.au](http://www.midlandbrick.com.au)

Brickworks Market, 'History,' [www.brickworksmarkets.com.au](http://www.brickworksmarkets.com.au)

'Westridge House' viewed at [uncommonlives.naa.gov.au](http://uncommonlives.naa.gov.au)



APPENDIX A ACT HERITAGE REGISTER ENTRY & RNE CITATIONS







ACT Heritage Council

## Entry to the ACT Heritage Register

*Heritage Act 2004*

### **20068. Yarralumla Brickworks**

Section 102 Block 1

**YARRALUMLA**

This document has been prepared by the ACT Heritage Council.

This entry which was previously part of the old heritage places or the old heritage objects registers (as defined in the *Heritage Act 2004*), as the case may be, is taken to be registered under the *Heritage Act 2004*.

Conservation Requirements (including Specific Requirements), as defined under the *Heritage Act 2004*, that are contained within this document are taken to be Heritage Guidelines applying to this place or object, as the case may be.

Information restricted under *the old heritage places register or old heritage objects register* is restricted under the *Heritage Act 2004*.

**Contact:** ACT Heritage Council c/o Secretary PO Box 144  
**Enquiries:** phone 02 6207 2164 fax 02 6207 5715

Lynham ACT 2602  
e-mail [heritage@act.gov.au](mailto:heritage@act.gov.au)



ACT Government



environment ACT

Helpline: 02 6207 9777  
Website : [www.cmd.act.gov.au](http://www.cmd.act.gov.au)  
E-mail: [EnvironmentACT@act.gov.au](mailto:EnvironmentACT@act.gov.au)

## 68. Yarralumla Brickworks, Yarralumla [V118]<sup>1</sup>

### Location

District of Canberra Central, Division of Yarralumla, Section 102 Block 1 as identified in Figure 68 and indicated on the Territory Plan Map by the Heritage Places Register Overlay H68.

### Features Intrinsic To The Heritage Significance Of The Place

The place comprises the elements listed in Schedule 1 (rated as possessing exceptional significance) and Schedule 2 (rated as possessing considerable significance), as identified in Figure 68a.

#### Schedule 1 Elements Of Exceptional Significance

- 1) Kiln - Staffordshire (1915)
- 2) Fan House for Staffordshire Kiln (1915)
- 3) Kiln - Hardy-Patent (1927)
- 4) Fan House for Hardy Patent Kiln (1953)
- 5) Kiln - Hardy-Patent (1953)
- 6) Kilns - Downdraft a, b, c (1963)
- 7) Chimney Stacks for Staffordshire Kiln (1915)
- 8) Chimney Stack for Hardy Patent Kiln (1927)
- 9) Chimney Stack for Hardy Patent Kiln (1953)
- 10) Chimney Stack for Downdraft Kiln (1963)
- 11) Quarry
- 12) Geological features A, B, C, D

#### Schedule 2 Elements Of Moderate Significance

- 13) Office (1916)
- 14) Power House (1915)
- 15) Machine Bay for Staffordshire and Downdraft Kilns (1955)
- 16) Machine Bay for Hardy-Patent (1955)
- 17) Machine Bay for Hardy-Patent (1955)
- 18) Workshop (1955)
- 19) Large Crusher House (1955)
- 20) Primary Crusher House (1955)
- 21) Small Crusher House
- 22) Elevator Conveyor (1955)
- 23) Remains of the Brickworks Accommodation Village

### Statement Of Significance

Operational from 1913 to 1976, the Yarralumla Brickworks is of historical value as the first industrial manufacturing facility within the ACT, and for its integral role in providing the base material used in the construction of the early buildings in the National Capital.

The Yarralumla Brickworks is a relatively intact representative example of large urban brickworks from the early 20<sup>th</sup> Century, a type that is becoming increasingly rare nationally and internationally. The Brickworks comprise a cultural landscape where the remaining buildings, structures, equipment and landscape features have the ability to demonstrate the evolution of a range of industrial processes associated with brick and clay production-over a 60 year period.

The Yarralumla Brickworks is of considerable technical value from the presence in the one location of a number of different kiln types: Staffordshire (1915), Hardy-Patent (1927) and Downdraft (1953) kilns, which demonstrate an unusually wide range of firing processes. The Staffordshire kiln is especially significant as the only surviving example of this kiln type in Australia. The Staffordshire kiln variation to the Hoffman design of kiln allowed bricks, tiles and pipes to be fired in cycles and utilises an unusual fan-forced draft system to aid firing.

---

<sup>1</sup> [V118: Added to Heritage Places Register Number 68 10/05/2001 (Variation Number 118)]

The largest chimney stack (element 9) is of aesthetic and social value as a prominent landmark in the central urban area, visible from the Lake Burley Griffin foreshores, New Parliament House and mountain lookouts around the City. Additional aesthetic value is associated with the composition and sculptural forms of the built elements, specifically the kilns, stacks and larger elements of equipment.

The Yarralumla Brickworks is one of a broad thematic group of remnant industrial and engineering heritage places that were built to facilitate the initial development of Canberra including the Cotter Dam and Pumping Station and the Kingston Power House.

The brickpits have historical value as a primary source of clay and are also of considerable geological value as the type locality for the 'Yarralumla Formation', dating from the Silurian Period 425 million years ago. The scheduled stratigraphic rock units constitute the reference section against which all other outcrops within the Formation are compared. It is the only fossil marine unit within the extensive volcanic marker horizons of South Canberra. Sites A and D show excellent examples of an anticline in calcareous siltstone, Site B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation and Site C shows abundant fossils of mainly graptolites, trilobites, coral and a simple crinoid preserved in a bedding plane.

## Specific Requirements

In accordance with s54 (1) of the *Land (Planning and Environment) Act 1991* the following requirements are identified as essential to the conservation of the heritage significance of the place. These requirements are prepared to implement the following conservation policy for the place:

The identified heritage values and intrinsic features of the place shall be conserved whilst allowing for the integrated and sympathetic redevelopment of the place as a single entity, consistent with contemporary practices for the adaptive reuse of industrial and commercial heritage places. In conserving and developing the place, its significant historical use as an industrial site for the production of bricks and clay products shall continue to be evident and accessible to the public.

Redevelopment of all or part of the place shall be in accordance with a Conservation and Management Plan endorsed by the ACT Heritage Council.

### i) Landscape Setting

- a) The quarry landform (11) should be retained in a manner whereby it is clearly evident to be a man made excavation, associated with the industrial use of the site. Subject to the recommendations of the Conservation and Management Plan, revegetation, enhanced hard and soft landscaping and low-medium height buildings with a high proportion of landscape open space may be permitted in the vicinity of the quarry, including on land overlooking the quarry and within the quarry excavation. The shape of the quarry may be altered in a minor manner, however access points into and out of the quarry area should utilise existing openings and gradients within the landform. The historical linkage between the quarry and kiln areas shall be expressed in any new development.
- b) The geological features (12 A-D) shall be integrated within any site landscaping treatment. Disturbance of the immediate surface shall be limited to works that protect, stabilise or enhance the interpretation of the geological values. The immediate environs of the geological features to a distance of approximately 10 metres shall be retained as landscape open space.
- c) To reflect historical usage patterns at the site and protect the setting of significant elements, the immediate environs of the kilns (1, 3, 5, 6) as identified below shall be retained as landscape open space, clear of any major structures. Minor structures and landscaping treatments that retain the kilns, stacks and fan houses as the dominant visual elements to the space may be permitted within:
  - The open concourse running north-south from the Hardy Patent Kiln (Element 5) to the Downdraft Kilns (6a-c), between the kilns and fan houses (2, 4),
  - The spaces between the kilns: (5-3, 3-1, 1-6)
  - The immediate environs of the chimney stacks (7, 8, 9, 10), fan houses (2, 4) and primary crusher house and elevator conveyor (20, 22) to a distance of generally 10m.
- d) New hard and soft landscaping treatment should generally express the historical spatial relationships and movement patterns of brick making operations about the site.

**ii) Built Structures - including alterations and additions**

- a) The existing large chimney stack (9) shall be conserved and maintained in its current form as a prominent urban landmark.
- b) The external form, including the arrangement of openings and detailing that reflects the industrial use of the built elements in Schedule 1 (1-10) and the Primary Crusher House (Schedule 2: 20) shall be retained.
- c) Minor external alterations and additions and major internal alterations to the built elements in Schedule 1 may be permitted to suit a new use where the proposed works will not adversely affect the heritage significance of the elements or the place as a whole.
- d) Alterations and additions to the original built fabric of elements in Schedule 1, including alterations to external finishes, shall complement the historical industrial use and architectural style of the place.
- e) Subject to the recommendations of the Conservation and Management Plan, the elements in Schedule 2 may be conserved to interpret the historical use of the place or adapted to suit a new use for the place.
- f) Elements in Schedule 2 that no longer include substantial evidence to describe industrial processes (15, 16, 17, 18, 19 and 21) may be replaced with new development that is generally consistent with the scale, form, external materials and industrial character of the place. The Office, the Powerhouse, Primary Crusher House and the Elevator Conveyor (13, 14, 20 and 22) may be relocated elsewhere within the place, subject to the relocation process being fully documented and full reconstruction of the buildings taking place within a specified period. Development may occur on the site of the remains of the Brickworks Accommodation Village (23), subject to detailed recording and suitable interpretation of the historical significance of the site.
- g) Construction of new buildings or elements in the place may be permitted if any new building(s) or element(s) do not significantly diminish the heritage value of the place. The scale, form, detailing and external materials of any new buildings or structures shall be consistent with the architectural style and industrial character of the built elements in Schedule 1.

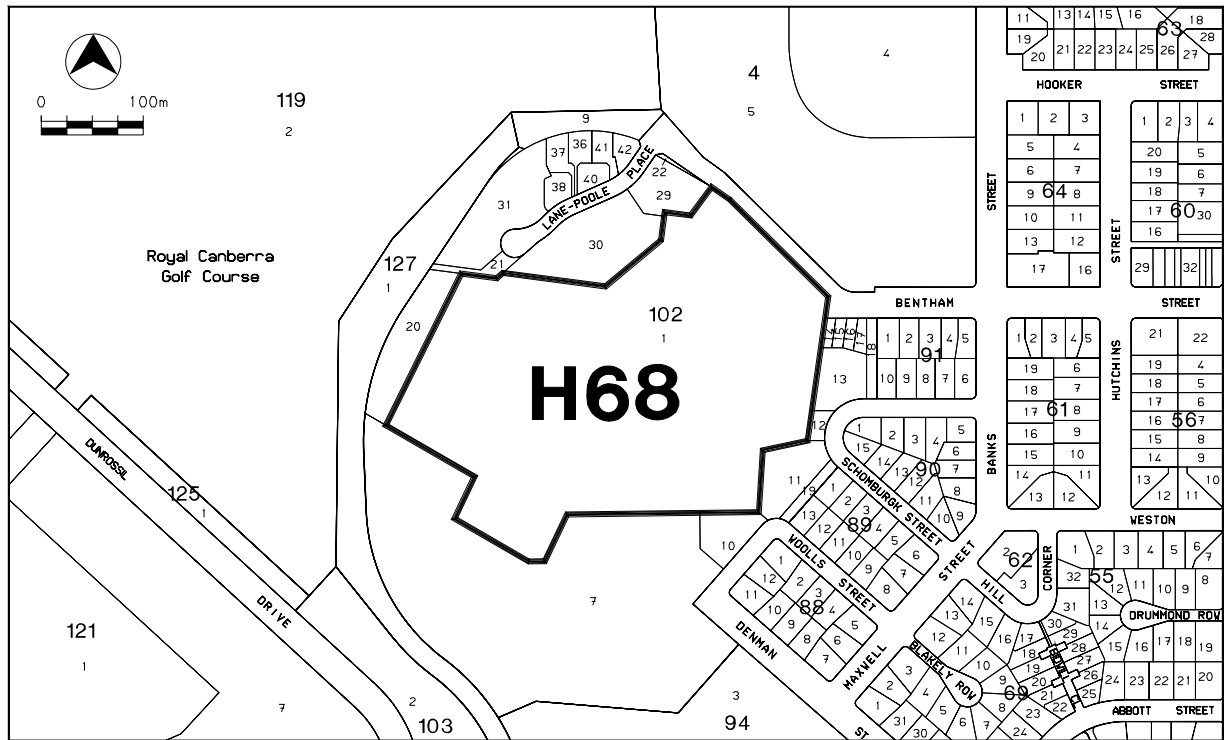
**iii) Industrial Equipment**

- a) Major equipment and machinery associated with the historical industrial use of the place shall be retained and conserved in situ. Minor equipment should be retained and conserved but may be relocated to a new location within the site for interpretative purposes and/or its own protection.
- b) The Primary Crusher House (20), including the integral equipment and machinery, and the Elevator Conveyor (22) shall be conserved for their ability to demonstrate and interpret industrial processes and secondary aesthetic values.

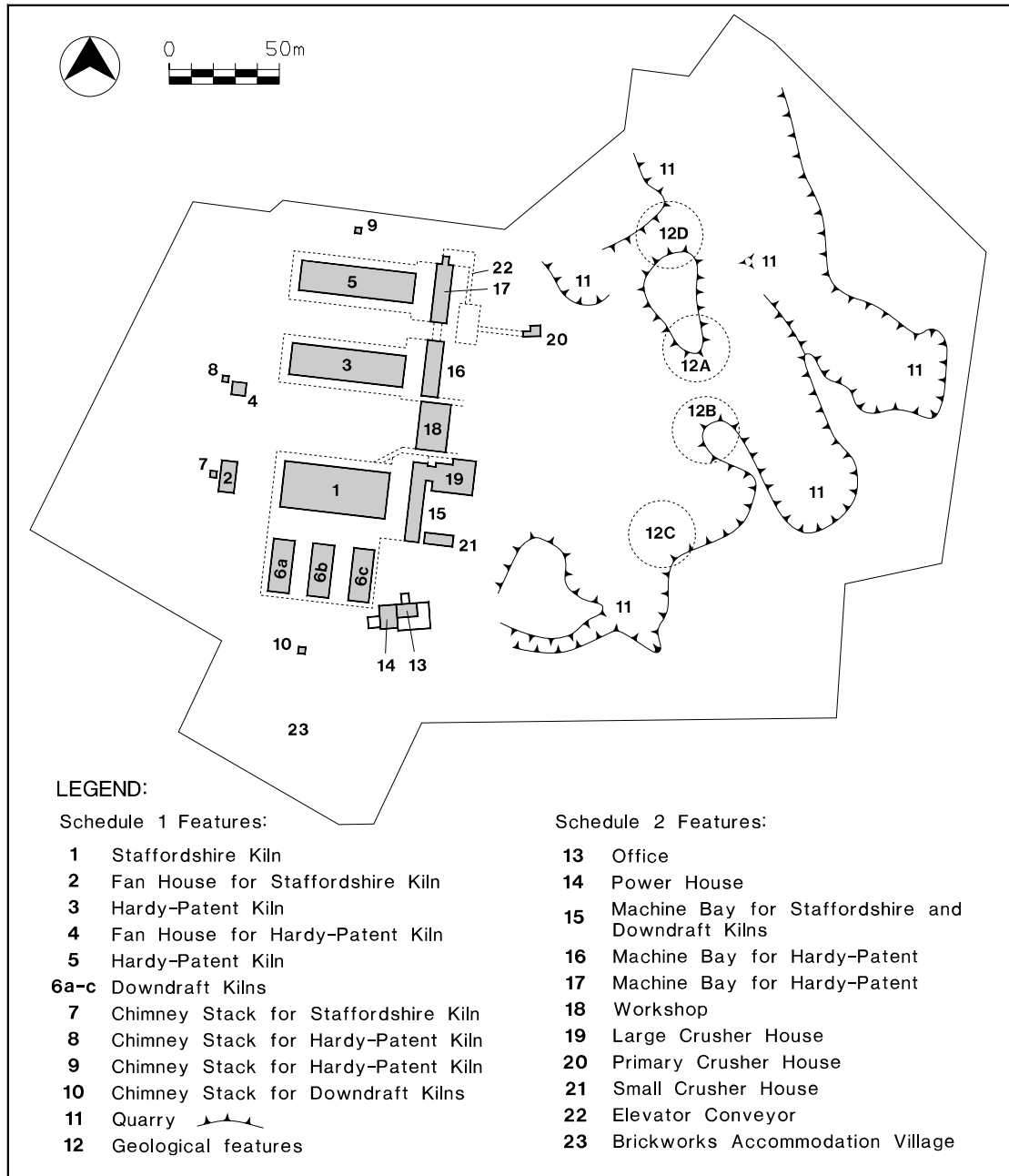
**iv) Demolition**

- a) Subject to (iv)(b) (c) and (d) demolition of elements listed in Schedule 1 and 2 shall not be permitted, other than in exceptional circumstances, including circumstances in which the building or structure is structurally unsound and beyond economic repair or where there are significant public health and safety reasons to warrant demolition. Demolition shall not be permitted unless it can be demonstrated that there is no prudent and feasible alternative.
- b) The demolition of the original internal fabric of buildings within Schedule 1 shall only be permitted in the context of sympathetic alteration and additions, as identified within the Conservation and Management Plan.
- c) Elements in Schedule 2 may be demolished only to allow for new development in accordance with the Conservation and Management Plan and specific requirements (ii) (e) and (f).
- d) Comprehensive recording of a building or structure shall be undertaken prior to any demolition or removal of fabric.

Figure 68: Yarralumla Brickworks, Yarralumla: Location



**Figure 68a: Yarralumla Brickworks, Yarralumla: Significant Features**



## Place Details

[Send Feedback](#)

### Yarralumla Brickworks (extended area), Denman St, Yarralumla, ACT, Australia

Photographs:	None
List:	Register of the National Estate
Class:	Historic
Legal Status:	<a href="#">Registered</a> (26/ 10/ 1999)
Place ID:	101439
Place File No:	8/01/000/0039

#### Statement of Significance:

Yarralumla Brickworks is significant as one of three initial industrial and service complexes built to facilitate Canberra's construction, the Brickworks provides a tangible evidence of the city's construction. The Kingston Powerhouse and the Cotter Dam and pumping station were the other initial complexes and are entered in the Register of the National Estate. Their values are described in RR013364 and RR013623 respectively. (Criterion A.4) (Themes 3.10 Altering the environment for economic development, 4.6 Remembering significant phases in the development of towns and suburbs, 5.2 Organising workers and work places)

The Yarralumla Brickworks are significant as one of the few remaining examples of a large urban brickworks, which are becoming increasingly rare both nationally and internationally. The Brickworks are significant for the presence in the one location of a number of different kiln types: Staffordshire, Hardy-Patent and Downdraft kilns. Consequently presenting a wide range of firing processes, which are readily comprehensible. The kilns, together with the ancillary brickworks buildings, are important in demonstrating the changing processes of brick and clay production. The Staffordshire kiln was the first of its kind to be used in Australia and is believed to be the only surviving example of this kiln type in Australia.(Criterion B.2)

Operating as a brickworks from 1913 to 1976, Yarralumla Brickworks is significant as a representative example of a large urban brickworks. (Criterion D.2)

The industrial site in its woodland setting, and particularly the brick chimney (S3), Kilns, and quarry, has considerable aesthetic qualities. (Criterion E.1)

The geological features at the brickworks site are important as expressions of the type locality of the Yarralumla Formation from the Silurian Period of 425 million years ago. Sites A and D show excellent examples of anticline in calcareous siltstone, Site B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation and Site C shows abundant fossils of mainly graptolites, trilobites and crinoids preserved in a bedding plane. (Criterion C.1) (Themes 1.1 Tracing climatic and topographical change, 1.2 Tracing the emergence of and development of Australian plants and animals).

Official Values: Not Available

#### Description:

The features intrinsic to the heritage significance of the place are as follows (the numbering is consistent with the Old Canberra Brickworks Conservation Plan and the ACT Heritage Council citation):-  
Kiln - Staffordshire (K1), Fan House for Staffordshire Kiln (F1), Office (O), Power House (PH), Quarry (Q), Geological Feature A, Geological Feature B, Geological Feature C, Geological Feature D, Fan House for Hardy Patent Kiln (F2), Chimney Stacks (S1-4), Kiln - Hardy-Patent (K2), Kiln - Hardy-Patent (K3), Kilns

- Downdraft (K4), Machine Bay for Staffordshire and Downdraft Kilns (M1), Machine Bay for Hardy-Patent (M2), Machine Bay for Hardy-Patent (M3), Workshop (W), Large Crusher House (C2), Primary Crusher House (C3), Small Crusher House (C1) and the Elevator Conveyor (E).

The brickworks consists of a range of buildings, machinery and equipment associated with the production of bricks. Archaeological remains would also exist at the site. There are other buildings on the site, which relate to subsequent uses of the place. To the east of the buildings are the remnants of the clay pits or quarry. There is a small lake at the northern end of the pits.

The Staffordshire Kiln (K1) is a two storey structure originally built in 1914/15 with a brick base and upper walls and a galvanised iron roof. It was one of the first of this type to be built in Australia. In c1924 it was surrounded by an upper verandah for drying tiles. The Staffordshire kiln type is characterised by a series of separate side by side chambers which enabled a single chamber to give special treatment to its contents. Prior to this, separate kilns had been needed. Other advantages to this kiln were complete quality of control over temperatures, a cost reducing drying technique and lower fuel consumption.

The Staffordshire Kiln fan house (F1) was constructed in conjunction with the Staffordshire Kiln approximately 20 metres to the west. The use of fans enabled kilns to be fired independently of atmospheric conditions, which had previously restricted firing times. The building is a single storey brick Federation style.

The Hardy Patent Kiln (K2), also known as a modified Hoffman Kiln type, is a two storey building dating from 1927. The lower storey is constructed of brick and the upper storey of corrugated iron. Due to the collapse of some major walls, the kiln was almost totally rebuilt in 1955 and extended from 18 to 20 chambers with the openings enlarged to enable access for forklift vehicles.

The Fan House (F2) is comprised of two identical small scale galvanised iron sheds constructed 25 years apart to house fan equipment for the Hardy Patent Kiln. They are located approximately 20 metres west of the kiln. The other Hardy Patent Kiln (K3) constructed in 1953 is almost identical, but retains its original second storey superstructure.

In the early 1960s three down draft (dome) kilns (K4) were constructed of brick with large fire brick lined metal doors with a number of penetrations along the sides of the kilns enabling the kilns to be fired and checked.

There are four chimney stacks on the site. The first (S1) is constructed of red bricks and was built adjacent to the Staffordshire kiln in 1915. Another chimney stack (S2) was built in conjunction with the fan house in 1927 to service the Hardy-Patent kiln. In about 1953 a further stack (S3) was built. Its height of 55 metres was to allow for the use of natural drafts to exhaust heat and fumes from the kiln (K3). This was unsuccessful, as drafts to the chimney were blocked by the surrounding terrain and a fan house had to be installed twelve months later. The fourth stack is associated with the three down draft kilns and was built in 1925 for the two earlier down-draft kilns. About 15 metres tall, it has a small steel door on the southern wall and a large opening in the eastern wall approximately 2.5 metres above ground level.

As part of the upgrading of the brickworks in 1955 and to meet the post World War Two production increases, three machine bays were built. One was a galvanised iron clad steel and concrete structure built on the site of the 1915 workshop and tile plant. Two others were built to service the Hardy-Patent kilns, both two storey steel framed structures clad in corrugated iron with concrete slab floors. As part of the upgrading a workshop (W) for general repairs and maintenance of machinery was also built. It is steel frame construction with metal cladding on the walls and roof. A crusher house (C1) of steel framed construction with corrugated iron cladding was also built as part of the upgrade. A second crusher room (C2) housing a crusher on the site of the original crusher is located to the east of the first Machine Bay. The primary crusher house (C3) is a small building located on the site of the original crusher to the east of Machine Bay 1. Material was crushed here in the first instance and then conveyed to the other crushers for recrushing. The building was a steel frame construction with metal cladding and a large concrete retaining wall on the eastern side.



In 1955, a conveyer elevator (E) was constructed. Shale was conveyed to the pan room where it was ground and screened then loaded onto the conveyor/elevator, which carried the raw material to a distribution hopper. The distribution hopper is an enclosed elevator system with walkway constructed with steel frame and supports.

The original galvanised office for the brickworks was removed for uses associated with the original machine shed. The construction of the present office building (O) is believed to date from 1916, the same date as the powerhouse (PH). The office is constructed as a small brick and tile gable ended building.

Over the years, extensions have been added mostly with flat roofs to meet the needs of the expanding brickworks.

Prior to the commissioning of the Kingston Powerhouse in 1916, the brickworks was powered by a steam engine housed in a temporary detached corrugated iron building. The 1916 permanent building has an exposed concrete floor, exposed brick walls and high corrugated metal ceiling. The western wall had two screened openings. Entry to the substation is through two pairs of doors at either end of the building.

Earthworks outside the brickworks delineate the route of the Brickworks railway, which once connected the brickworks to the Kingston railway yards, the Provisional Parliament House and Civic. The track exits the brickworks at the southern boundary and is identified by the ditch and bank formation. As the track turns eastwards it follows a manmade bank.

Land located in the far west of the site is reported to have been the site of an early quarry, and has subsequently been used for waste from the brickworks operation.

The quarry lies to the east of the brickworks building from which shale was extracted for the brickmaking process. A 2ft (610mm) narrow gauge tramway was constructed in the quarry area so that loaded trucks ran downhill to the works. The empty trucks were returned to the quarry area using manpower. The tramway was very portable requiring little effort to move as the quarry face advanced.

The quarry site is the type locality for the Yarralumla formation. It is the locality where the formation is considered to be most developed and is thus the reference section against which all other outcrops of that unit are compared. Its importance results from its being the only fossiliferous, marine unit within the extensive volcanic marker horizons of South Canberra. The stratigraphy of the volcanic rocks and its fossil fauna provide evidence for the age of these volcanic. Within this place, three localities are of particular significance.

---

#### History:

---

The Minister for Home Affairs, Mr O'Malley, announced Government plans in 1910 to erect brickworks to provide bricks for the construction of the new Federal Capital. Following experiments on shale in the region, Campbell's Yarralumla property was found to be the most suitable and in 1913 the land was acquired for the brickworks site. In June 1913 a temporary plant was established and operational, comprising a grinding pan, brickmaking machine, elevator and portable steam engine. By August 1913 four open kilns were in use. This temporary plant had an output of 44,000-50,000 bricks per week, producing bricks for the Kingston powerhouse and setting aside others for the permanent brickworks.

A temporary plant was established and operating in June 1913. The first stage of the permanent brickworks, consisting of a single Staffordshire kiln, was approved in December 1913. This kiln was to produce bricks for two further kilns. The Staffordshire kiln, crushing and processing equipment and brick presses were completed and ready for production in 1916, however the commitments of the First World War and a restricted Canberra works program and coal strike led to the brickworks closing in late 1916.

In 1917, a Royal Commission investigated the brickworks following complaints from Walter Burley Griffin. A number of interesting points emerged as a result of the Commission's investigation. It found that 250,000 bricks made in the temporary kiln were of inferior and defective quality, so were used for filling and lining drains and for the new kilns, and not for building work as planned. In addition, the

Staffordshire kiln contained substantial evidence of construction errors in estimating and design.

At the end of 1920, the Government decided to proceed with the building of Canberra and the brickworks reopened in 1921. The brickworks railway was constructed in 1923 linking the works to the provisional Parliament House, the Kingston Power House and Hotel Canberra. A tramway also extended into the Civic Centre. The tramway was removed prior to the opening of Parliament House in 1927.

Throughout the 1920s the brickworks was expanded. Production was severely curtailed in 1929 however with the economic depression, and the railway was fully removed. Production subsequently ceased with the brickworks closing in February 1931. The brickworks opened again in 1935 only to close with World War Two as activity was diverted to works associated with the War.

The brickworks reopened in 1944 and beginning in 1954 major upgrading of the brickmaking facilities was undertaken including the construction of a 20 chamber 'Hoffman' kiln. Following the creation of the National Capital Development Commission in 1958, the two temporary downdraft kilns were demolished and replaced with three new kilns.

In 1960 the control of the brickworks was transferred to Commonwealth Brickworks (Canberra) Ltd. By 1973 the brickworks were considered to be in need of extensive modernisation. However upgrading proposals prepared by Commonwealth Brickworks were rejected by the National Capital Development Commission on environmental grounds and, in 1976, all reusable material was moved to a new site in Mitchell, ACT. The decision to relocate the brickworks was justified economically by anticipating the redevelopment of the site in a way which would recover relocation costs.

A private developer, A R Marr Pty Ltd, proposed to redevelop the site and adjacent land as a major tourist complex and in July 1979 the brickworks reopened as a tourist attraction. Extensive work was undertaken at the site but by 1980 A R Marr Pty Ltd was in provisional liquidation and in 1984 the lease was surrendered to the Commonwealth.

---

#### Condition and Integrity:

The structures comprising the brickworks range from good to poor condition. (1997)

---

#### Location:

About 9.6ha, off Denman Street, Yarralumla. Area comprises the whole of Blocks 1 and 20, Section 102. Includes former kilns, chimneys, fan houses and brickpits.

---

#### Bibliography:

Lester Firth Associates Pty Ltd 1986 'Old Canberra Brickworks Conservation Plan'  
ACT Heritage Council, Citation for Yarralumla Brickworks, Yarralumla

---

Report Produced: Fri Mar 12 09:14:46 2010

## Place Details

[Send Feedback](#)

### Yarralumla Brickpits, Denman St, Yarralumla, ACT, Australia

Photographs:	None
List:	Register of the National Estate
Class:	Natural
Legal Status:	<a href="#">Registered</a> (28/09/1982)
Place ID:	13319
Place File No:	8/01/000/0039

#### Statement of Significance:

The brickpits are of geological significance as the type locality for the Yarralumla Formation, a marine sequence of tuffaceous siltstone, sandstone, mudstone and limestone. Here the Yarralumla formation is considered to be most typically developed and is therefore the reference section against which all other outcrops are compared.

Official Values: Not Available

#### Description:

The four sites occur in the disused quarry of the Canberra Brickworks and all belong to the Yarralumla Formation. The rocks of the Yarralumla Formation are a sequence of tuffaceous siltstone, sandstone, mudstone and limestone, deposited in marine conditions during the Silurian period.

History: Not Available

#### Condition and Integrity:

The condition of the area is generally good though the anticline at Site A is obscured by pine trees and scree slopes.

#### Location:

Within the Yarralumla Brickworks, refer record 13318.

#### Bibliography:

HENDERSON, G.A.M., (IN PREP) - COMMENTARY ON THE COPPINS CROSSING  
1:10,000 CANBERRA ENGINEERING GEOLOGY SHEET. TOWNLEY, K.A. & VEEVERS,  
J.J., 1966 REVISED STRUSZ, D.L., 1974 - ROCKS AND FOSSILS AROUND  
CANBERRA BUR. MINER. RESOUR. AUST.

Report Produced: Fri Mar 12 09:18:14 2010

APPENDIX B      CONSERVATION WORKS SCHEDULES



### Scope and Methodology

A site survey of the remaining buildings at the former Canberra Brickworks was carried out on 17 February 2010 to assess the existing conditions and identify remedial work required to make the buildings stable and weather tight. The works identified are intended to conserve the buildings and slow any further deterioration in the short to medium term. The works are not intended to restore any of the buildings. Ongoing maintenance works will still be required.

All accessible areas of each building were inspected. No access was available to the interiors of the three downdraft kilns (Building 22) or the Workshop Building (Building 17). The vaulted kilns and firing floors were inspected for each of the three large kilns.

### Summary of Condition

The buildings are mostly in reasonable condition. A number have suffered vandal damage, including broken windows and roof tiles. Most of the conveyor belt system and other equipment was removed following closure of the Brickworks, leaving openings in walls and roofs. Works, including replacement of some roofs, have been carried out to some of the buildings since the closure of the brickworks. Some of the more recent works were left unfinished, while other works such as the paving in the kilns have been partially removed.

Kiln 1, the Staffordshire Kiln (Building 4), has significant structural issues. Many of the kiln chambers are distorted although they appear to be stable at present. The arched entrance brickwork is failing in many of the chambers. These enlarged openings were later alterations to enable easier mechanical access to the chambers. The arched openings appear to have inadequate footings, probably due to movement in the flue tunnels beneath the outer walls of the kiln. Rebuilding of the worst of these is recommended in the near future.

No works are proposed for the crusher buildings, each of which is part demolished following the removal of conveyors and equipment. The partial demolition has resulted in missing sections of roof and walls but the remaining reinforced concrete and steel structures are likely to remain in fair condition for the medium term.

## Conservation Works Schedule

No.	Building No.	Building	Element	Works
1	3	Power House	Roof	Replace approx. 50 missing or broken marseilles pattern tiles
2	3	Power House	Gutters	Install new quad gutters
3	3	Power House	Fascias	Prepare and paint fascias and bargeboards
4	3	Power House	Eaves	Replace missing t&g eave lining boards
5	3	Power House	Eaves	Prepare and paint eave linings
6	3	Power House	Walls	Remove spray painted graffiti, wash down walls
7	3	Power House	Louvres	Replace 4 damaged louvres
8	3	Power House	Louvres	Prepare and paint louvres
9	3	Power House	Windows	Replace 6 missing windows
10	3	Power House	Windows	Prepare and paint windows
11	3	Power House	Doors	Replace damaged doors with new panelled doors with fanlight over
12	4	Kiln 1	N verandah	Replace decayed beams, rebuild collapsing north verandah/deck
13	4	Kiln 1	Chamber 1	Demolish recent brick wall and door in kiln entrance
14	4	Kiln 1	Chamber 1	Dismantle and rebuild outer 5 courses entrance arch
15	4	Kiln 1	Chamber 2	Dismantle and rebuild outer 5 courses entrance arch
16	4	Kiln 1	Chamber 3	Repoint entrance arch
17	4	Kiln 1	Chamber 4	Dismantle and rebuild outer 5 courses entrance arch
18	4	Kiln 1	Chamber 5	Dismantle and rebuild outer 5 courses entrance arch
19	4	Kiln 1	Chamber 6	Dismantle and rebuild outer 5 courses entrance arch
20	4	Kiln 1	Chamber 7	Dismantle and rebuild outer 5 courses entrance arch
21	4	Kiln 1	Chamber 8	Repoint entrance arch
22	4	Kiln 1	Chamber 9	Dismantle and rebuild outer 5 courses entrance arch
23	4	Kiln 1	Chamber 10	Dismantle and rebuild outer 5 courses entrance arch
24	4	Kiln 1	Chamber 13	Dismantle and rebuild outer 5 courses entrance arch
25	4	Kiln 1	Chamber 15	Remove concrete pavers from kiln floor
26	4	Kiln 1		Chambers 2, 4, 5, 6, 7 and 8 are significantly distorted but appear stable
27	5	Brick fanhouse	Gutters	Install new quad gutters and downpipes
28	5	Brick fanhouse	Fascias	Replace 5m missing fascia boards
29	5	Brick fanhouse	Fascias	Prepare and paint fascias
30	5	Brick fanhouse	Eaves	Replace 4m <sup>2</sup> t&g eaves lining boards
31	5	Brick fanhouse	Eaves	Prepare and paint eaves
32	5	Brick fanhouse	Windows	Install 10 new sashes and reglaze all windows
33	5	Brick fanhouse	Windows	Prepare and paint windows
34	5	Brick fanhouse	Doors	Replace missing doors

No.	Building No.	Building	Element	Works
35	5	Brick fanhouse	Doors	Prepare and paint doors
36	5	Brick fanhouse	Ceiling	Replace 60% of t&g ceiling lining boards
37	5	Brick fanhouse	Floor	Drain pits and clear debris
38				
39	6	Chimney & kiln	Chimney	Replace missing bricks and repoint top 8 courses of chimney
40	6	Chimney & kiln	Test kiln	Remove vegetation from roof of kiln, re-render roof and repoint door arch.
41	7	Office	Additions	Demolish flat roofed additions to 3 sides of original office building.
42	7	Office	Roof	Replace missing and broken marseille pattern tiles. Rebatten and install tiles along lower courses following removal of skillion roofs.
43	7	Office	Windows	Install new windows to match original windows
44	7	Office	Doors	Alter brickwork to reopen original doorways. Install new doors to match original doors.
45	7	Office	Joinery	Prepare and paint all external timberwork.
46	8	Kiln 2	Roof	Replace broken fibreglass skylight sheet
47	8	Kiln 2	Gutters	Install gutters.
48	8	Kiln 2	Windows	Reglaze all steel framed windows with Georgian wired glass
49	8	Kiln 2	Windows	Prepare and paint all steel framed windows
50	8	Kiln 2	Wall cladding	Clad centre of south upper wall with corrugated galvanised steel
51	8	Kiln 2	Wall	Remove efflorescence from west end internal kiln wall
52	8	Kiln 2	Internal	Demolish recent brick internal partition walls from within kiln chambers
53	8	Kiln 2	Internal	Remove concrete pavers from kiln floor
54	8	Kiln 2	Internal	Clear plasterboard and damaged insulation from firing floor and ceiling
55	8	Kiln 2	Internal	Remove electrical wiring and conduits
56	9	Fan Houses	Roof A	Replace CGI roof and gutters
57	9	Fan Houses	Roof B	Replace CGI roof and gutters
58	9	Fan Houses	Walls	Replace missing cladding to Fan house 8B
59	9	Fan Houses	Windows	Replace missing windows with matching 4 pane sash windows
60	9	Fan Houses	Doors	Replace missing doors and architraves
61	9	Fan Houses	Exterior	Prepare and paint fascias, windows and doors
62	9	Fan Houses	Interior	Clear out debris and blackberry bushes.
63	9	Fan Houses	Exterior	Clear drain channels and surroundings
64	10	Chimney	Chimney	Repoint top 5 courses of brickwork.
65	11	Amenities	Windows	Replace missing glazing, prepare and paint windows
66	11	Amenities	Doors	Replace/repair doors. Prepare and paint doors
67	11	Amenities	Fascias	Prepare and paint all external joinery
68				
69	12	Kiln 3	Roof	Replace 30m2 fire damaged CGI roof
70	12	Kiln 3	Downpipes	Replace downpipes at west end of south side to drain at outer edge of verandah roofs



## CANBERRA BRICKWORKS

No.	Building No.	Building	Element	Works
71	12	Kiln 3	Structure	Repair/replace 2 fire damaged Oregon trusses
72	12	Kiln 3	Structure	Replace 30m Oregon purlins
73	12	Kiln 3	Structure	Replace 2 fire damaged 200 x 200 Oregon posts
74	12	Kiln 3	Structure	Replace 10m fire damaged stud wall and doorway
75	12	Kiln 3	Structure	Repair and reroof operators room on north side
76	12	Kiln 3	Windows	Reglaze 33 steel framed windows with frosted Georgian wired glass
77	12	Kiln 3	Windows	Prepare and paint 33 steel framed windows
78	12	Kiln 3	Pipework	Remove and dispose of asbestos lagging from pipes at east end
79	12	Kiln 3	Verandah	Replace missing 12m of north verandah roof with new CGI
80	12	Kiln 3	Verandah	Install roof and structure to west end or demolish steel posts and beam
81	12	Kiln 3	Floor	Remove concrete pavers from kiln floor
82	14	Machine Bldg 1	Skylights	Replace broken glass skylights
83	14	Machine Bldg 1	Windows	Replace missing glass in all windows
84	15	Machine Bldg 2	Skylights	Replace broken glass skylights
85	15	Machine Bldg 2	Windows	Replace missing glass in all windows
86	15	Machine Bldg 2	Roof	Replace missing CGI sheets
87	16	Machine Bldg 3	Skylights	Replace broken glass skylights
88	16	Machine Bldg 3	Windows	Replace missing glass in all windows
89	16	Machine Bldg 3	Cladding	Replace 2 sheets east wall cladding
90	17	Workshop	Note	No Access - Works?
91	18	Crusher 1		Part demolished - no works
92	19	Crusher 2		Part demolished - no works
93	20	Crusher 3	Roof	Replace missing CGI roofing over hopper
94	21	Conveyor		Part demolished - no works
95	22	Downdraft Kilns	<i>Note</i>	<i>No access to kiln interiors</i>
96	22	Downdraft Kilns	Exterior	Repoint cracks in all 3 kilns
97	24	Chimney	Brickwork	Replace 40 spalling bricks with new matching bricks