

To: The South Australian Heritage Committee

From: Senior Historical Architect

Subject: REGISTER NOMINATION REPORT -  
MUNICIPAL TRAMWAYS TRUST  
No. 1 Converter Station,  
East Terrace, Adelaide

Date: 21 April 1982

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### Summary

This report has been prepared as part of an assessment of the entire East Terrace Complex, comprising the former Electric Lighting and Traction Company of Australia Powerhouse, the Adelaide Electric Supply Company Converter Station and the Municipal Tramways Trust Converter Station. The site which occupies approximately 2 acres is bounded by Grenfell Street, East Terrace, Pirie Street and Devonshire and Tam o'Shanter Places.

This Nomination has been initiated by the Heritage Conservation Branch.

Historically, the No. 1 Converter Station is important because of its links with the early years of the Municipal Tramways Trust and with the electrification of Adelaide's horse-drawn tramway systems. The construction of the converter station was one of the first steps in the modernization of Adelaide's major form of public transport in the early twentieth century.

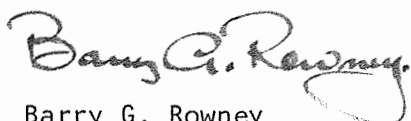
Architecturally, the No. 1 Converter Station is important as a scarce example of a building type which has become obsolete due to technological change.

Environmentally, the No. 1 Converter Station is an important element in the Adelaide Electric Supply Company complex which dominates the eastern end of the City.

The Integrity of the building is high as the basic structure of the building is intact.

### Recommendation

It is recommended that the former Municipal Tramways Trust No. 1 Converter Station, East Terrace, Adelaide, be included on the Register of State Heritage Items and be categorized A2, A3, H3.



Barry G. Rowney  
CW:JD

South Australian Heritage Act 1978-80	Register of State Heritage Items ITEM EVALUATION SHEET Buildings and Structures					
	Item NO. 1 CONVERTER STATION (Part of Adelaide Electric Supply Co. complex) East Terrace, Adelaide.					
Age 1908	Theme	Office				
Period 1884-1913	Subject Transportation - Land Utility Services - Energy Science & Technology - Technical Application	Region Adel. Metropolitan				
Building Type Industrial	Style  Romanesque	Status				
<u>Qualitative Data</u>		<u>Grading</u>				
Component	Comment	E	VG	AG	FP	NA
<u>History</u>						
1. Context:	Associated with the establishment of the M.T.T. and the electrification of Adelaide's horse trams from 1909 onwards. The construction of the converter station was essential to provide the proper voltage for the running of the electric trams and hence was a vital first step in the implementation of the electrification programme.		*			
2. Person/Group:	Associated with the M.T.T. Board and in particular with the Engineer-in-Chief, Mr. A.B. Moncrieff, first Chairman of the Trust and "architect" of the electrification programme.		*			
3. Event:	Converter Station commenced operation during late 1908 or early 1909.		*			
<u>Architecture</u>						
4. Architect/ Builder:	English & Soward C.H. Martin, Hanson St. Adelaide. Foundation Stone 1908.		*			*
5. Design:	Imposing facade to East Terrace, with parapet concealing saw tooth roofs behind. Facade has six circular arched windows, and matching circular archway to entrance door.		*			
6. Construction:	Brick walls, substantial granite plinth and surrounds to arches, decorative corbelling, sandstone perimeter course below parapet. The parapet has a projecting slate course supporting a brick string course, and is rendered on top. Corrugated iron roof. Cast iron window frames with reinforced glass panes.		*			
7. Interior:	Austere - painted brick walls, tiled floor - tiled dado, exposed steel trusses, timber lining to roof. Some original fittings - steel platform and overhead gantry still remaining. Exposed timber trusses to battery room.			*		

I.E.S./D3/211081

South Australian Heritage Act 1978-80	Register of State Heritage Items ITEM EVALUATION SHEET Buildings and Structures Item NO. 1 CONVERTER STATION							
Component		Comment		Grading E VG AG FP NA				
8. Representation: A scarce example of a building type discontinued due to technological change. The external appearance is unique, reflecting the architects interpretation of functional requirements and possibly influenced by the style of the original (1901) power. Important as part of a Power Complex.		*						
<u>Environment</u>								
9. Continuity: Forms an important group with the adjacent Adelaide Electric Supply Co. buildings and linking brick walls. The pylons and powerlines in this instance contribute to the strength and character of the visual impact.		*						
10. Local Character: One of several stylistically different red brick buildings which define the east end of the main commercial section of the city.		*						
11. Landmark: An element in a group of buildings which form an impressive boundary to the East Parklands at the North East corner of the City.		*						
<u>Integrity</u>								
12. Alterations: The basic structure of the building is intact. Minor alterations to floor where machinery removed.  Windows on the North and South facades with triangular fly screens added in 1922.		*						
13. Condition: Basically sound .		*						
14. Compatibility: Use as Converter Station ceased in 1963. Currently used as storage for E.T.S.A.		*						
<u>Supplementary Information</u>								
Adaptation: The building has potential for reuse as a large open space.								
Interpretation: The building represents a discontinued function relating both to early electric supply and early electrified transport in Adelaide and has consequently considerable potential for active interpretation of those themes. The E.T.S. has mentioned a possible Museum function here.								
Current Situation: The Electricity Trust owns the building, which is currently used only as a store. The building does not appear to be under threat at this stage.								
Evaluated By		Carolyn Wigg Register Architect		Annely Aeuckens Register Historian		Date 23/2/82		
Reviewed By		Ivar Nelsen		Date				
South Australian Heritage Committee Categorization							Date	

I.E.S./D3/211081

HISTORICAL RESEARCH: FORMER POWER HOUSE OF THE ELECTRIC LIGHTING AND TRACTION COMPANY OF AUSTRALIA, GRENFELL STREET, FORMER ADELAIDE ELECTRIC SUPPLY COMPANY CONVERTER STATION, EAST TERRACE, AND FORMER M.T.T. NO. 1 CONVERTER STATION, EAST TERRACE

Origins of the Company

The establishment of the Electric Lighting and Traction Company of Australia's (which soon became the Adelaide Electric Supply Company) second power station in Grenfell Street marked the beginning of a critical phase in both the development of the Company and of the electrification of Adelaide and its suburbs. It was also to play a major part in the process of electrifying Adelaide's main form of public transport at that time, the horse trams. There is little doubt that the success of the Adelaide Electric Supply Company and hence of its Adelaide "power-house" in the first decade of the twentieth century played a major role in the growth and transformation of Adelaide into a "modern" city.

In December, 1897, "An Act to authorise and empower 'The South Australian Electric Light and Motive Power Company Limited' to carry on, at Adelaide and elsewhere in South Australia, the business of an Electric Light and Motive Power Company, and to generate, accumulate, distribute and supply Electricity for motive power and lighting purposes," was passed by Parliament two years after the South Australian Electric Light and Motive Power Company Limited first applied to Parliament for the authority to supply electricity within South Australia. The Company had been incorporated and registered in March, 1895, and had its tender for the lighting of the Town of Port Adelaide accepted in August of that year, but the postponement of the Parliamentary Bill meant that it was not until September, 1897, that the Company entered into an agreement with the Town of Port Adelaide to "erect electrical works" for the purpose of street lighting. "Accordingly, early in 1898, the Company started to erect its first power-house, in Nile Street, Port Adelaide; .... Supply was started on January 1st, 1899, although only half the steam plant had been completed."<sup>2</sup>

At this time, the Chairman of the Company was Mr. George Brookman and the Company's office was located in Brookman's Building, Grenfell Street. In July, 1899, a Mr. F.W. Wheadon from England was appointed the Company's resident Engineer and he took charge of the Port Adelaide power-house. Shortly afterwards, in late September, the Company sold all its interests to the Brush Electrical Engineering Company Limited, which in turn sold the undertaking in January, 1900, to the Electric Lighting and Traction Company of Australia Limited, an English Company which was already operating power stations in Melbourne and Geelong.

Mr. George Brookman continued on the Adelaide Board as the local Chairman, Mr. Wheadon remained as Resident Engineer, but a Mr. F.W. Clements was appointed Engineer and General Manager of the concern in Australia and was stationed in Melbourne.

Grenfell Street Power House

After a poll of ratepayers in the City of Adelaide in September, 1893, affirmed "that it is desirable that the South Australian Electric Light and Motive Power Company's Act 1897 shall apply within the limits of the Municipality of Adelaide",<sup>3</sup> the Company purchased property at the corner of East Terrace and Grenfell Street which had been previously occupied by Burford's Soap Factory (which had been destroyed by fire) for the purpose of erecting a power-station. Evidently, the building of a power-station was commenced but it remained unfinished for some time, a small temporary power-station in a



galv. lined iron shed meeting the needs of the Adelaide supply until the completed Grenfell Street power-station commenced operation in November, 1901.

The contract for the Grenfell Street power station was let to a Mr. Nicholas Wallis Trudgen in July, 1900, at the cost of 8,650 pounds, construction beginning in August. Trudgen, one-time Mayor of St. Peters in 1887, was a prominent builder and contractor, and was president of the Builders and Contractors' Association for some time up until 1891. The official opening of the station took place on 19 November, 1901, and some 800 people, including the Mayor and Mayoress of Adelaide, the Attorney-General, "and a number of legislators, the Engineer-in-Chief (Mr. A.B. Moncrieff), members and officers of the City Council, and mayors and councillors and officers of the City of Port Adelaide and suburban towns, and a large number of leading citizens",<sup>4</sup> attended the evening ceremony reflecting the importance attached to the occasion. The Register of 20 November described the buildings as standing, "on a block about two acres in extent, the front portion of which is occupied by the offices. Running parallel with the offices are the engine room and the boiler house. The engine room is 129 ft. long by 40 ft. wide, and is lofty and well ventilated ... A large underground room has been provided for storage batteries, which at an early date will be placed in position. The offices are fairly commodious, and provide accommodation for the technical and clerical business to be done, and for the public. Mains have been laid in nearly all the streets of the business portion of the city, and also in the principal residential portion."<sup>5</sup>

The architect for the building was Alfred Wells, a well-known Adelaide architect who was responsible for designing a number of "notable edifices"<sup>6</sup> in the city including the Exhibition Building, North Terrace (1887), the Adelaide Arcade, Brookman's Building and the Commercial Travellers' Club, "besides several suburban municipal buildings, banks, churches, hotels, and residences for leading colonists." Wells was also architect to the Adelaide Children's Hospital for some years and a former Vice-President of the South Australian Institute of Architects.

#### Further Developments

In 1902, motor-generators were installed at the new power-station to convert the direct current formerly supplied to alternating current and the first suburban supply, to North Adelaide by underground cable, was commenced. The next major event of note occurred two years later in August, 1904, when the Directors of the Electric Lighting and Traction Company of Australia "decided that it was in the best interests of the Company that its South Australian undertakings should be separated from its other undertakings" and therefore, "sold its Undertaking in South Australia to The Adelaide Electric Supply Company Limited, a Company registered in England on 10th April, 1905, ... The undertakings at Adelaide and Port Adelaide were transferred to the new Company at the purchase price of 162,000 pounds. ... The number of consumers at the date of transfer was 665, with 36 miles of street supplied in the city only."<sup>7</sup>

The new company had two Boards of Directors, one located in London and a local Board, headed by George Brookman, M.L.C. as Chairman, in Adelaide. F.W. Clements continued as Local Managing Director and Chief Engineer, and F.W. Wheadon stayed on as Resident Engineer. Thus, despite a number of changes of name and ownership, a remarkable degree of continuity was maintained in the make-up of the leading members of Adelaide's first electric supply company. George Brookman, for example, had been Chairman of the original South Australian Electric Light and Motive Power Company Limited from 1897-1899, remained as Local Chairman of Electric Lighting and Traction Company of Australia Limited from 1900-1904, was then Local

Chairman of The Adelaide Electric Supply Company Limited from 1904-1921, and after the control of the Company passed to Adelaide on 1 March, 1921, continued on as Chairman of the Board until his death in June, 1927.

One of the first decisions made by the company was to close down the Nile Street power station which had been unprofitable for most of its operational life since 1899, and to transfer the load to the Grenfell Street power station. This was finally achieved on 12 October, 1907, when the Adelaide station became solely responsible for supplying all the Company's customers, both in Adelaide and Port Adelaide, with electric current. This was to be the case until 12 August, 1923 when the new Osborne Power House commenced operation, initially providing half the required load of electricity. Also in 1907, the Company completed an important agreement with the Municipal Tramways Trust, which had been established by Act of Parliament on 22 December, 1906, to provide a temporary supply of power from March of that year to those portions of the old horse-drawn tramway system which were now being electrified.

#### M.T.T. No. 1 Converter Station

This proved to be an important contract for the Adelaide Electric Supply Company, bringing in a considerable amount of revenue, and was to last for four years until 7 June, 1911 when the Trust opened its own power house. In connection with this temporary supply of power which commenced in March, 1907, the M.T.T. constructed their No. 1 Converter Station on East Terrace adjacent to the Adelaide Electric Supply Company's power station to change the electric current to the proper voltage for their trams. This converter station began operation during late 1908 or early 1909, but in any case, was completed before the official opening of the first electrified tram route to Kensington on 9 March, 1909.<sup>8</sup> The M.T.T. was to continue to use this station until as recently as 1963.

#### Expansion of Business and the Osborne Power Station

Meanwhile, the Adelaide Electric Supply Company's business expanded rapidly with the increasing demand for their "product" and, "the Directors considered it necessary to extend the boiler room and engine room (of the Grenfell Street Power House) and to add on an extra storey to the office portion of the building. Accordingly, in May, 1912, a contract was placed with Mr. A.R. Maddern, at a price of 9,619 pounds."<sup>9</sup> These extensions were completed the following year. However, such was the growth in demand during the next five years that despite the expanded facilities of the Grenfell Street Power House, the Company was already considering the construction of a new power station at Port Adelaide to supersede the Adelaide one in 1918. At the Company's Annual General Meeting on 29 January of that year, it was reported that, "... we are quite prepared, when the proper time comes, to put down a new Power House at Port Adelaide, and ultimately to close down our existing Power House at Adelaide and concentrate at the Port, where we shall have an ample supply of water for condensing purposes; (there had been problems at Adelaide with the provision of adequate cooling facilities) and by so doing we should get rid of the present somewhat wasteful and illogical method whereby our coal, which is brought to Port Adelaide in the first place by sea, is transported by rail or road to Adelaide and then a portion of it has to be returned to the Port in the shape of electricity."<sup>10</sup>

The decision to "build and equip a new Power House" at Osborne, Port Adelaide, on land leased by the S.A. Harbours Board was made shortly afterwards, in 1919. Work on the foundations of the new station began in 1920 and the completed station was ready by mid-1923. During the building of the Osborne station, the control of the Adelaide Electric Supply Company passed from the London



Board, which was dissolved on 1 March, 1921, to the Adelaide Board of Directors headed by the Hon. George Brookman. The Director's Report of November, 1921, noted that the Company was presently providing 35,200 customers with electric current and that "a supply of electric light and power is now available in 558 miles of streets" in metropolitan Adelaide. Just over a year later, in December, 1922, a bill amending the Company's Private Act of 1897 was passed by Parliament allowing the Adelaide Electric Supply Company "to extend its mains to any part of the State where a profitable load is available", including country districts which it could not previously supply under the original Act.

Not wasting this opportunity for state-wide expansion, the Company purchased, "the electric lighting plant of the Town of Gawler, which became the starting point for the Company's general scheme of extensions to the Northern country districts." This scheme commenced with the extension of power lines to the Mount Lofty Districts in 1924/25 and was to continue rapidly throughout the 1920's. Even in the mid-1940's, shortly before the promulgation of the Electricity Trust of South Australia Act in 1946, the Company was continuing the development of power facilities to new areas, often taking over existing plants as at Yankalilla (1943) and Maitland (1945).

#### Adelaide Electric Supply Company 1925 Converter Sub-Station

The new Act marked the beginning of a major phase of expansion for the Company in the mid-1920's; for a start the much vaunted Osborne Power House commenced the supply of electricity on 12 August, 1923, and two years later, in August 1925, was providing the total output required for both the City of Adelaide and metropolitan councils, enabling the Grenfell Street Power House to be completely shut-down shortly afterwards. To assist the Osborne station in meeting the supply for the City of Adelaide, which was still being met by the old Grenfell Street Power Station in 1924, a new rotary Converter sub-station was constructed "at the rear of the old Boiler Room" in this year and came into operation in August of the following year. With the completion of the converter station, the Grenfell Street power house became redundant. Along with the winding down of the Grenfell Street Station, the Company was also transferring other departments such as the Stores, Mains and Meter Departments, and Garage from East Terrace to new larger buildings at Hilton, the Garage being the first building completed and its staff moving there in August, 1924.

The Director's Report of November, 1924 noted that, "when the North Terrace offices are completed the site of the present City offices, power house, etc. with the exception of the rotary sub-station will be sold." The North Terrace offices mentioned above were located in the new six-storey Kelvin Building erected for the Company in 1925 at a cost of 42,975 pounds by Messrs. Cherry Brothers, the architects being Messrs. McMichael and Harris. Thus, the Company had, in a period of some five years, radically enlarged and extended its facilities to cope with the "scheme" of State-wide expansion it now embarked upon. Whereas up to 1920, all its facilities, power house, offices, service departments and garage, were all located on the one site at East Terrace, by the beginning of 1926 the Company had separately situated its own city "office block", a suburban site for its service departments, one of the most up-to-date power stations in Australia at Port Adelaide and the new converter sub-station at East Terrace to supply the City of Adelaide.

The former Grenfell Street Power House and M.T.T. No. 1 Converter Station are therefore important elements, belonging to an early stage of development in the history of electrical generation in South Australia, while the Adelaide Electric Supply Company's 1925 Converter Station relates to a latter period of expansion, and may, perhaps, be not quite as important as the other two items. Nevertheless, the complex as a whole has played a highly significant part during the first 25 years of development of electric power in the State and therefore has additional importance as a historical site.

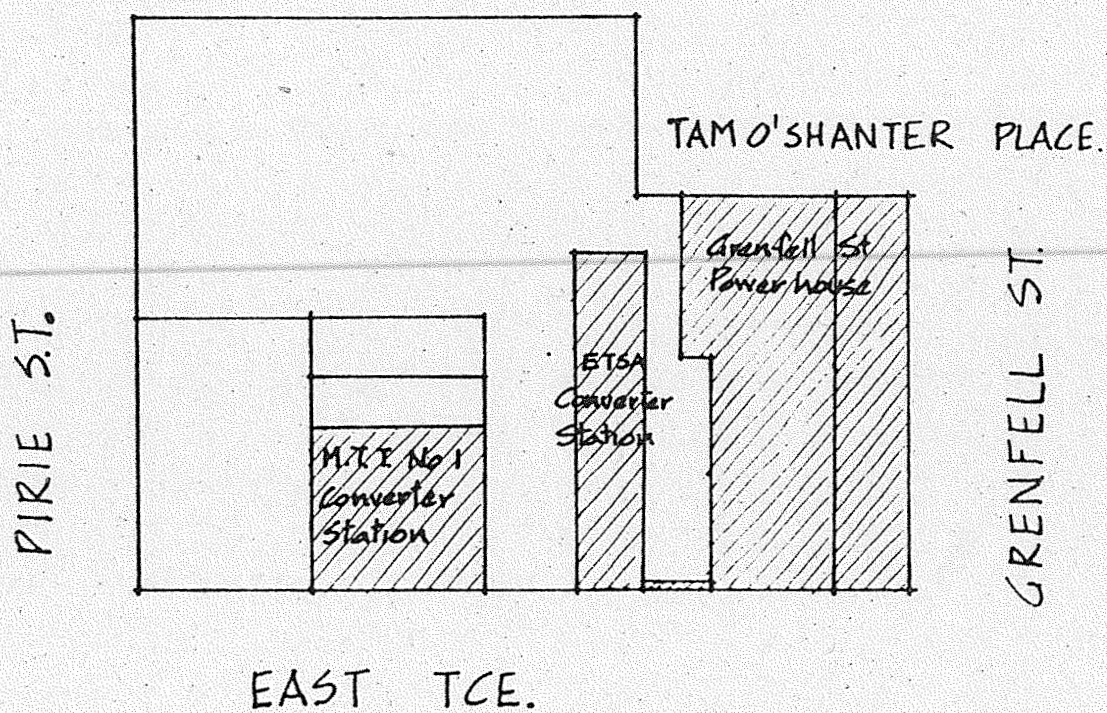
#### Footnotes


1. The Adelaide Electric Supply Company Limited, Fifty Years of Progress, 1896-1946, Dorothy Wakelin, Adelaide, 1946. Pg. 1.
2. ibid, Pg. 9
3. ibid, Pg. 14.
4. ibid, Pg. 22.
5. ibid, Pg. 26 & 27.
6. Cyclopedia of South Australia, Vol. I, Pg. 541.
7. Wakelin, Pg. 41.
8. Development of Street Transport in Adelaide, Official History of The Municipal Tramways Trust, 1907-1974.
9. Wakelin, Pg. 49.
10. From the Annual Director's Reports of the Adelaide Electric Supply Company, 1905-1946, S.A. Collection, State Library of S.A.

A. Aeuckens  
REGISTER HISTORIAN

10 March, 1982  
 AA:SK





 Extent of Nomination

N. 

GRENFELL ST. POWER HOUSE &  
CONVERTER STATIONS, ADELAIDE.

former M.T.T. CONVERTER STATION  
52-60 East Terrace,

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This item is of immense historical significance because of its identification with the foundation of the Municipal Tramways Trust, the commencement of the electrification of the tramway network, and the history of public transport in Adelaide generally. The M.T.T. was formed in 1906, this was the first, and the most substantial converter station to be built by the Trust in its effort to electrify the tramway. It is of interest that the M.T.T. took the power from its own generator at Port Adelaide rather than from the adjacent power station. It is the most important M.T.T. converter station to survive, having been purchased by E.T.S.A. in 1963 for storage purposes.

The building is an excellent example of the interpretation of architectural style for an industrial building. Designed by the architects responsible for the former Grenfell Street Mail Exchange, this building shows its links with the earlier design of the former Mail Exchange. The high quality detailing and juxtaposition of rock faced sandstone with face brick-work are particularly demonstrative of this fact. The granite plinth, rock faced sandstone and the use of slate to support the cantilevered cornice make this building a distinctive element of this section of East Terrace.

This is a strong visual element in the streetscape, which is closely linked to the former power station buildings to the north because of its construction, style, and scale. Together, the three buildings form a very important group.

The structural integrity of the building is high - except for the removal of part of the southern wall. Internal features including steel trusses, and tiled floors remain, though some damage was done to the floor by the removal of original machinery.

D.M.S.  
3.6.82

*Sent photo copies to  
ADRIAN EVANS*

<b>CITY OF ADELAIDE HERITAGE STUDY</b>		<b>ASSESSMENT SUMMARY SHEET</b> 1/1		<b>A1 FORM/BUILDING</b> No. 8/0504-1		<b>CORPORATION USE ONLY</b>					
<b>A2 CURRENT NAME OF ITEM</b> former M.T.T. CONVERTER STATION		<b>A3 ADDRESS/ LOCATION OF ITEM</b> 52-60 East Terrace			<b>A4 P.T.A.</b> 156	<b>A5 ASSESSMENT NO.</b>					
<b>B1 CURRENT OWNER</b> E.T.S.A.		<b>B2 PREDOMINANT USE</b> Storage				<b>A6 NATIONAL MAP GRID CO-ORDINATES</b>					
<b>C1 FORMER NAME(S) OF ITEM</b> M.T.T. Converter Station		<b>C2 FORMER OWNER(S)</b> M.T.T.		<b>C3 FORMER USE(S)</b> Converter Station		<b>A7 PRECINCT</b> F7 East End					
<b>D1 HISTORICAL THEME(S)</b> Economy - Transportation - Electric Tramways					<b>G1 INVENTORY GRADING</b> A  <b>H1 LISTING RE- COMMENDED</b> Yes	<b>A8 DEVELOPMENT ZONE</b> F7.2					
<b>E1 HISTORICAL PERIOD(S)</b> 1885-1914 - Depression and Social Change						<b>A9 FURTHER VIABILITY STUDY REQUIRED</b>					
<b>F1 VERIFIED DATE(S)</b> Plan dated 12.5.1908											
<b>EVALUATION COMPONENTS</b>		<b>COMMENT</b>				<b>GRADING</b>					
<b>HISTORY (J1-J3)</b>						E VG G F/p NA					
<b>J1 PERSON/GROUP</b>		Built for M.T.T. as a converter station				* * * * *					
<b>J2 EVENT</b>						* * * * *					
<b>J3 CONTEXT</b>		Identified with the foundation of the M.T.T. and the electrification of Adelaide's tramways				* * * * *					
<b>DESIGN (K1-K6)</b>											
<b>K1 DESIGNER</b>		English and Soward (MTT engineer W.G.T. Goodman)				* * * * *					
<b>K2 CONTRACTOR</b>		C.H. Martin				* * * * *					
<b>K3 STYLE</b>		Admirable example of the interpretation of the Richardsonian influence for the design of an industrial building				* * * * *					
<b>K4 DESIGN</b>		The consistent high level of design of the interior and exterior of this building are of great interest due to their quality detailing. The juxtaposition of slate, granite sand-				* * * * *					
<b>K5 CONSTRUCTION</b>		stone and brick is distinctive Load bearing brick on granite plinth - steel trusses - G.I. roof. Cornice supported on slate				* * * * *					
<b>K6 INTERIOR</b>		Original fittings have been removed but interior spaces remain. Trusses are of note				* * * * *					
<b>INTEGRITY (L1-L2)</b>											
<b>L1 ALTERATIONS</b>		Original equipment has been removed and portion of the southern wall has been removed to provide better access to the second bay				* * * * *					
<b>L2 CONDITION</b>		The building is very sound - there is some white-ant infestation in timber door-surrounds at rear				* * * * *					
<b>ENVIRONMENT (M1-M2)</b>											
<b>M1 STREETSCAPE/ LANDSCAPE</b>		This is a strong element in the streetscape, complimenting the other red-brick buildings to the north				* * * * *					
<b>M2 LANDMARK</b>		This is not a dominant element				* * * * *					
<b>M1 OTHER COMMENT</b>		This was the first converter station built for the M.T.T. It was necessary to convert electronic current from AC to DC. The power came from an M.T.T. generator at Port Adelaide. This was built immediately after the M.T.T. was formed, and when Adelaide's tram system was first electrified.				* * * * *					
<b>HERITAGE LISTING STATUS</b>		<b>01 NATIONAL TRUST</b>		<b>02 NATIONAL ESTATE</b>		<b>03 STATE HERITAGE</b>		<b>04 OTHER</b>		<b>05 LOMHAC LISTING ENDORSEMENT</b> Yes	





# CITY of ADELAIDE HERITAGE STUDY

THE CITY HERITAGE REGISTER — DEFINITION OF ITEMS

ITEM FORMER M.T.T. CONVERTER STATION

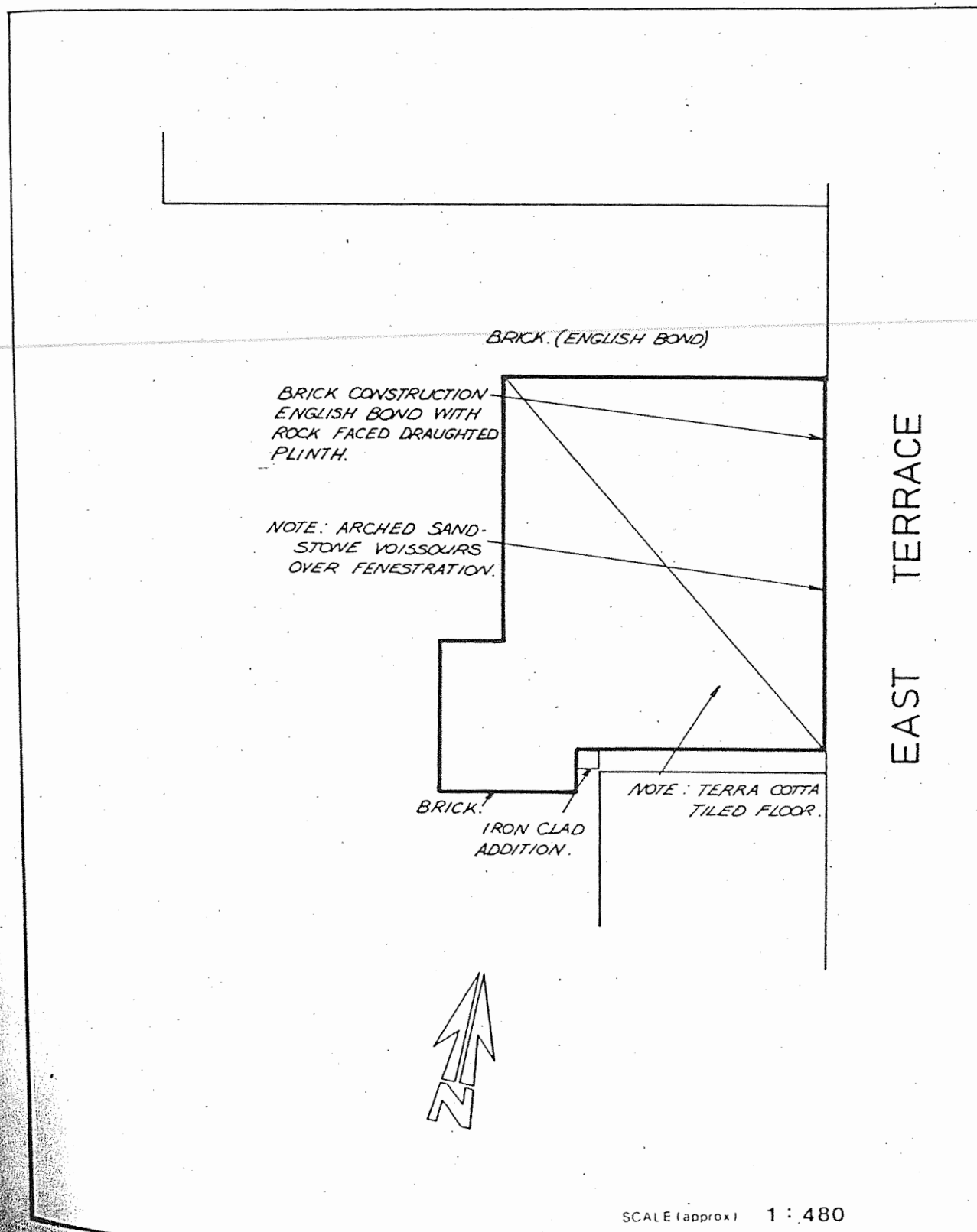
BUILDING NO.

ADDRESS 52-60 East Terrace

8/0504-1

(CT to 292-300 Pirie Street)

CT 3630/177





M.T.T. Converter Station, East Tce, Adelaide



M.T.T. Converter Station, East Tce, Adelaide