

ENGINEERS AUSTRALIA

NOMINATION

FOR ENGINEERING HERITAGE RECOGNITION

*The Overland Telegraph Line
“Joining Point”
Frews Ponds, Northern Territory*



JUNE 2012

Front Cover Photograph Caption

Overland Telegraph Party at the Roper River in 1872. From left to right: John Archibald Graham Little (Postmaster Port Darwin), Robert Charles Patterson (it was Patterson who connected the wires at Frews Ponds on 22 August 1872), Charles Todd and surveyor Alexander James Mitchell. Biographical material on the above mentioned men is at Appendix 3.

Source: State Library of South Australia No.B4639.

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1 Introduction

On 22 August 1872 a group of workers on the Overland Telegraph Line made the final connection between the wires from the south (in the direction of Adelaide) and the wires from the north (in the direction of Darwin and ultimately, via undersea cables, London) at a remote place called Frews Ponds¹ between Newcastle Waters and Daly Waters in the Northern Territory of Australia.

Later that day the first telegram was transmitted between Adelaide and Darwin over a distance of 3178 km.

The telegram could go no further than Darwin as there had been a break in the undersea cable between Darwin and Java. This fault was rectified three months later and on 22 October 1872 the first telegram message was sent from London to Adelaide².

In 1868/69 the sailing clipper ship *Thermopylae* set the fastest time between London and Melbourne of 61 days covering 21,160 km although most sailing ships of the period took up to 100 days. Steam ships were still in an early stage of development and the fastest steamers of the time took 50 days for the journey³.

After the completion of the Overland Telegraph telegrams took only hours to transmit through the various telegraph stations between London and Adelaide. The Overland Telegraph in one giant leap forward reduced the communication time between London and Adelaide (and between Adelaide and London) by a huge factor.

The construction of the Overland Telegraph between Darwin⁴ and Adelaide⁵ had been a huge and risky undertaking, perhaps the most audacious infrastructure project ever undertaken in Australia.

In modern times the NBN (National Broadband Network) has been compared to the Overland Telegraph in terms of its audacity and comparable budgetary implication.⁶

¹ Refer to paragraph 3.1.

² Actually a commercial message to be forwarded on to Melbourne.

³ Leybourne-Ward N, Australia's Overland Telegraph Line 1870-1872, Transactions of the Institution of Engineers, Australia, multi-disciplinary transactions, v. GE18 no. 2, 1994.

⁴ The town of Palmerston was named by Goyder in 1869 after British Prime Minister Lord Palmerston. The name of the town was changed from Palmerston to Darwin in 1911. However the locality was known as Port Darwin, after the harbour, and this title is used as the name of the locality in many works. In this work the northern termination of the Overland Telegraph Line will be referred to as Darwin for simplicity. Most references use the term Port Darwin for the Telegraph Station at the northern end of the line where it joined with the submarine cable to Java.

⁵ Note that a telegraph line already existed from Adelaide to Port Augusta at the time of construction of the Overland Telegraph Line. The connection to the existing Adelaide to Port Augusta line was made at Stirling North, 4½ miles east of Port Augusta. In this work the Overland Telegraph Line will be referred to as connecting Darwin and Adelaide. The line to Port Augusta was opened on 30 August 1866 [SA Advertiser, Tues 4 September 1866, p3c].

⁶ Trevor Horman, email, 12 June 2012.

2 Heritage Nomination Letter

The Administrator
 Engineering Heritage Australia
 Engineers Australia
 Engineering House
 11 National Circuit
 BARTON ACT 2600

Name of work: The Overland Telegraph "Joining Point", Frewa Ponds, Northern Territory.

The above-mentioned site is nominated for heritage recognition under the Engineering Heritage Australia Heritage Recognition Program.

Location, including address and map grid reference if a fixed work: The site is located approximately midway between Daly Waters and Newcastle Waters or 29.8 km (measured along the Stuart Highway) south of Dunmarra Roadhouse on the western side of the Stuart Highway. There is a commemorative Cairn on the side of the highway. The "joining point" is 1.593 km west of the cairn at a bearing of 273 degrees.

The cairn is located in NT Portion 499, whilst the access track from the cairn to the "joining pole" and the remnant section of the Overland Telegraph Line is located on NT Portion 500. This portion is one chain (20.1168 m) wide throughout.

The grid reference of the "joining point" is near: 16°55'20.4"S, 133°24'28.2"E

Owner (name & address): Northern Territory Government. Portions 500 has been excised from Hayfield Station.

The owner has been advised of this nomination and a letter of agreement is attached.

Access to site: The memorial cairn is on the side of the Stuart Highway. The "joining point" can be accessed by foot across the Hayfield Station property.

Nominating Body: Engineering Heritage Northern



Trevor Horman
 Chair, Engineering Heritage Northern
 Date: 15 June 2012

3 Heritage Assessment

3.1 Item Name: Frews Ponds⁷ Overland Telegraph Line Memorial Reserve⁸.

Overland Telegraph Line Memorial Reserve. The NT Government Place Names database reference for Frews Ponds provides a history of the name of the site⁹.

3.2 Other/Former Names: Nil

3.3 Location: The site is located approximately midway between Daly Waters and Newcastle Waters or 29.79 km south (along the line of the Stuart Highway) of Dunmarra Roadhouse on the western side of the Stuart Highway. There is a commemorative Cairn on the side of the highway. The “joining point” is 1.593 km¹⁰ west of the cairn at a bearing of 273 degrees¹¹ and is adjacent to pole number 4E28.

The cairn is located in NT Portion 499, whilst the access track from the cairn to the “joining point” and the remnant section of the Overland Telegraph Line is located on NT Portion 500. This portion is one chain (20.1168 m) wide throughout.

The grid reference of the “joining pole” is: 16°55'20.4”S, 133°24'28.2”E

The grid reference of the obelisk on the Stuart Highway is: 16°55'18.2”S, 133°25'21.3”E

The grid reference of Frews Ponds is: 16°55'37.2”S, 133°21'52.2”E¹²

Several relevant maps are located at Appendix 4.

3.4 Address: Hayfield Station, Dunmarra, Northern Territory

3.5 Suburb/Nearest Town: Dunmarra Roadhouse

3.6 State: Northern Territory

3.7 Local Government Area: Roper Gulf Shire, Never Never Ward

⁷ Frew Ponds was named by John McDouall Stuart in April 1862 during his successful crossing of the continent. Stuart originally named the place Frew’s Water Hole. It later became known as Frew’s Ironstone Ponds to identify the unusual ironstone outcrop in which the ponds are formed. In more recent times the name has been shortened to Frew’s Ponds, Frews Ponds, Frew Ponds or Frew Pond. The Northern Territory Place Names Committee suggests two titles: Frew’s Ironstone Pond or Frew Pond. The name Frews Ponds is used in this document except where it is a direct quote. Refer also to Appendix 8.

⁸ Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 8-9.

⁹ Place name reference: <http://www.ntlis.nt.gov.au/placenames/view.jsp?id=12987> Patterson was camped at Frew Ponds when he went to join the line on 22 August 1872 and it is the name of the joining point. The site is also important in Stuart’s journeys of discovery. From here, in 1862, he tried to head out north west for the Victoria River, making several attempts over several weeks. To get to Frew Ponds drive 1 km south from the obelisk and take a well defined track due west for 6.5 km. Frew Ponds is to the left of this track.

¹⁰ Trevor Horman, email 2 June 2012.

¹¹ As measured from Survey Plan A.17.

¹² Trevor Horman, email 2 June 2012.

3.8 Owner: Northern Territory Government

3.9 Current Use: Cattle Station surrounding Heritage Place

3.10 Former Use: Nil

3.11 Designer: Charles Todd and his assistants

3.12 Maker/Builder: South Australian Government plus contractors

3.13 Year Started: 1870

3.14 Year Completed: 1872

3.15 Physical Description: The “Joining Point” is identified as being near pole 4E28. No remnant of the temporary connection made by Patterson on 22 August 1872 is known to exist. The present remnant of construction at the site is from a later date, probably rebuilt from the original in the period 1873 to 1883 using Oppenheimer poles.

The Overland Telegraph Line originally consisted of a single galvanised iron wire on 36,000 poles covering 3178 km from Darwin to Adelaide including 13 telegraph stations¹³ along the route including the terminal stations.

3.16 Physical Condition: Only remnants of the Overland Telegraph Line and several telegraph buildings remain. The line near the “Joining Point” is one such remnant.

3.17 Modifications and Dates: The remnant section of line near the “joining point” was probably removed from service and relocated approximately 1.5 km to the east adjacent to the modern line of the Stuart Highway sometime before 1954. Photographs show it in this location in 1954 when the obelisk was built on the Stuart Highway.

The entire Overland Telegraph Line was augmented many times. A second (copper) wire was added in 1899 and a third (copper) wire in 1941. After this there were major additions and augmentations, including the conversion to two wire voice circuits starting in the 1920s.

A microwave link parallel to the wire circuits was also added in the early 1970s.¹⁴ Later still underground fibre optic cables were laid along the Stuart Highway.

3.18 Historical Notes:

3.18.1 General Historical Notes.

The full history of the Overland Telegraph Line is detailed elsewhere. Refer to the following references, amongst listed in section 8:

Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frews Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 4-10 for a general history of the history of the Overland Telegraph Line.

Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide, 27 April 1999.

¹³ The 13 telegraph stations referred to are Adelaide General Post Office, Beltana, Strangways Springs, The Peake [Peake], Charlotte Waters, Alice Springs, Barrow Creek, Tennant Creek, Powell Creek, Daly Waters, The Katherine [Katherine], Yam Creek [Southport] and Port Darwin. The names in brackets are those used by Leybourne-Ward and have been adopted in the map at Appendix A4.1. Port Augusta is not included as it was not on the line of the Overland Telegraph which passed through Stirling North, 4½ miles east of Port Augusta although it would have been connected to the same telegraph circuit.

¹⁴ Microwave links were installed from Mount Isa via Tennant Creek to Darwin in 1973 and between Tennant Creek and Alice Springs in 1979. Trevor Horman, email, 12 June 2012.

3.18.2 The Lead up to the joining of the wires

The South Australian Government had contracts with the British and Australian Telegraph Company who were building the line north of Port Darwin including the submarine cable to Java. This contract contained savage penalties of approximately £3000 per month if completion of the Overland Telegraph Line was not achieved by 1 January 1872. This was a massive incentive for the South Australian Government to complete the work on time¹⁵.

The detailed events in the last few months leading up to the joining of the wires at Frews Ponds are difficult to piece together from the published material. It is clear that work was proceeding on several fronts with independent parties working out of communication with other parties for considerable times and in some cases being supplied from different supply routes either from the south or from the Roper River.

Trevor Horman has gone through several texts to try to piece together which parties carried out which work and when. This material is at Appendix 7.

Also in Appendix 7 are a series of newspaper clippings (converted to modern text by OCR) tracing the progress of work immediately prior to the completion of the Overland Telegraph Line.

Taylor says that the very last pole was planted on 9 August. All that remained was for Burton to finish wiring north from Tomkinson Creek. By 18 August Todd had reached the telegraph station at Barrow Creek.¹⁶

3.18.3 Joining the Line

Construction of the northern section of the line was delayed during the 1871/72 Wet Season which was particularly heavy and Todd inspected the incomplete section between Eley to Tennant Creek in July 1872, accompanied by Patterson. Refer to Appendix 7.

Todd decided to institute a 'pony express' or horse relay¹⁷ in order to maintain telegraph operations across the gap between the two ends of the line. The first horse relay was over a distance of 421 km and was carried out by John Lewis and one of his men on 24 June 1872, arriving at Tennant Creek on 1 July 1872¹⁸. The horse relay was progressively reduced in length as the line was built.

Relief from the non-completion penalties of the contract had come when the submarine cable between Darwin and Java failed on 23 June 1872: however Todd pressed on to have the Overland Telegraph completed as soon as possible.

Engineer, Robert Patterson, leading his team at Frews Ponds on 22 August 1872, joined the wires. He wrote the following account of the event in his diary:

"Half the party seized hold of me and the wire, and the other half of the other end, and stretched with all might and main to bring the two ends together. All our force

¹⁵ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 6.

¹⁶ Taylor, Peter, An End to Silence - The Building of the Overland Telegraph Line from Adelaide to Darwin, Methuen of Australia, 1980, page 152.

¹⁷ Todd referred to this service as an "estafette" which is defined as a mounted courier.

¹⁸ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 8.

could not do this. I then attached some binding wire to one end. The moment I brought it to the other end the current passed through my body from all the batteries on the line. I had to yell and let go. Next time I proceeded more cautiously, and used my handkerchief to seize the wire. In about five minutes I had the joint made complete, and Adelaide was in communication with Port Darwin. It would have been with England had not the (overseas) cable broken down”¹⁹.

John Lewis described the scene as follows:

“On 22 August, I went with Patterson and Mitchell to a point a few miles east of Frew’s Ironstone Ponds, where the two ends of the wire were to be joined, connecting Adelaide with Port Darwin.

We met Will Harvey who told us the wires would not be joined until 12 o’clock, so we returned to camp, then made for the last join and arrived there at about 12 o’clock.

At ten minutes past twelve on 22 August, 1872, the wires were really joined. Twenty-one shots were fired from our Colt revolvers, and as bottle of supposed brandy was broken over the last post (I think it was cold tea).

Among those present were Messrs. Patterson, Rutt, Mitchell, Howley, Ricks, Hands, Bayfield, Hack and myself. It had long been a desire of mine to see the wire connected between south and North....”²⁰

Todd officially²¹ opened the Overland Telegraph Line at Central Mount Stuart and the message he sent to Adelaide read:

“We have this day, within two years, completed a line of communication two thousand miles long through the very centre of Australia, until a few years ago a Terra Incognita believed to be a desert”²².

On the morning after the line was joined the Adelaide Post Office issued its usual daily weather report and for the first time it included a report from Port Darwin where the weather was stated to be “fine, cool and clear”. That information had been conveyed from Darwin to Adelaide by the Overland Telegraph. The Adelaide Advertiser newspaper explained the significance of this weather report and said “...how many of our readers grasp the fact that our communication with Port Darwin is practically instantaneous?”²³

¹⁹ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 8.

²⁰ Pike, Glenville, The Northern Territory Overland Telegraph - An Epic of Courage - Just 100 Years Ago, circa 1972.

²¹ Richard Venus queries the use of the term “officially” and says “My understanding is that this was pretty informal and hardly an “official opening” – in fact Todd asked the Government if they wanted an opening ceremony but (to his surprise) he was told they didn’t (Taylor, p153)”.

²² Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 8-9.

²³ The South Australian Advertiser, Saturday 24 August 1872, p2b.

The cable ship *Investigator* located the fault in the undersea cable and spliced in a new section which came into service on 20 October 1872²⁴.

The link between London and Adelaide was available for commercial traffic on Monday 21 October 1872; however, the congratulatory telegrams between the Mayors of London and Adelaide were not sent until Tuesday 22 October 1872. The latter date is considered to be the official opening date by the Institution of Engineers, Australia.²⁵

Senior staff from the Overland Telegraph project found their way back to Adelaide on the ship *Omeo* via the Roper River whilst Todd travelled back to Adelaide overland taking the opportunity to inspect the work for himself. This involved a journey on horseback of over 2000 km! Todd reached Adelaide on 30 October whilst the party travelling by sea did not reach Adelaide until 10 November²⁶.

On 15 November 1872 a party of Overland Telegraph workers assembled at the General Post Office and marched along King William Street to the Exhibition Grounds. A Banquet was held in the evening of the same day at the Town Hall. Telegraph messages were exchanged during the dinner and the replies to these messages were received in less than two hours²⁷.

3.18.4 The Oppenheimer Poles and other line hardware

The original 36,000 poles for the telegraph line between Stirling North and Port Darwin (an average span of 79 metres over the 2839 km²⁸ of line constructed in the period 1870-72) were a mixture of timber and galvanized Oppenheimer poles²⁹. Initially Oppenheimer poles were used in areas where there was no suitable “local” timber to be cut for use as poles. Whether these poles were manufactured by Oppenheimer and Company in Germany or built under licence in the United Kingdom (as the later Oppenheimer poles for the project were) is

²⁴ Taylor, p160

²⁵ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999, page 8.

²⁶ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999, page 11.

²⁷ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999, page 11.

²⁸ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 4. This reference lists the 3 sections of line construction which total 1765 miles (2839 km). The overall length of the Overland Telegraph Line of 3178 km (as stated in this reference) includes the pre-existing section between Adelaide and Stirling North (estimated to be 339 km). The modern road distance between Adelaide and Stirling North is about 300 km. However the original telegraph line ran inland: first from Adelaide to Gawler then on the Clare, Melrose, Stirling North and Port Augusta. The modern road distance from Adelaide to Stirling North via Gawler and Clare is 334 km which is a close match to the 339 km distance calculated above. Current road distances are taken from The Australian Touring Atlas, Explore Australia Publishing Pty Ltd, Twenty-first Edition, 2007.

²⁹ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, Frew Ponds Overland Telegraph Line Memorial Reserve, paper, April 2010, pages 9.

not clear although Taylor suggests that the original Oppenheimer poles were from Oppenheimer and Company³⁰.

Many of the wooden poles were rapidly being destroyed by termites and in 1873 work commenced on replacing them with Oppenheimer poles. This work continued until 1883 when all poles had been replaced. The poles used in the replacement program were telescopic galvanised iron poles manufactured in Manchester, England under licence to J Oppenheimer who held the patent³¹.



Linesman up an Oppenheimer pole. Note that this image was taken after the second wire was installed on the line.

The Oppenheimer poles had three oval shaped galvanised pipes of different diameter such that each pipe would slide inside the next. These galvanised iron pipes were ideal for handling and storing and their reduced size and made them much easier to transport and erect on site. Once on site they would be extended to their full height and a heated iron collar would then be placed over the joint. The iron collar would cool and shrink on the joint making it firm. Prior to the pole being installed cast iron base plates were fitted to the bottom of the poles to prevent them from moving.

Two different pole types were used - a light duty and a heavy duty type³². The dimensions are shown in the following table:

³⁰ Taylor, Peter, *An End to Silence - The Building of the Overland Telegraph Line from Adelaide to Darwin*, Methuen of Australia, 1980, page 51.

³¹ Northern Territory Government, Heritage Branch, Department of Natural Resources, Environment, The Arts and Sport paper, *Frew Ponds Overland Telegraph Line Memorial Reserve*, paper, April 2010, pages 9.

³² Northern Territory Government, Department of Natural Resources, Environment, the Arts and Sport, Heritage Branch, *Frew Ponds Overland Telegraph Line Memorial Reserve*, April 2010, page 9-10.

Institution of Engineers, Australia, *The Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide*. 27 April 1999.

| | Heavy Duty | Light Duty |
|----------------|--------------------------|-------------------------|
| Base Section | 110 mm dia x 2.41 m long | 80 mm dia x 2.41 m long |
| Centre Section | 100 mm dia x 1.82 m long | 72 mm dia x 1.82 m long |
| Top Section | 83 mm dia x 1.52 m long | 60 mm dia x 1.52 m long |
| Wall Thickness | 7 mm | 5 mm |
| Overall Height | 5.8 m (19 feet) | 5.8 m (19 feet) |
| Burial Depth | 1200 mm (approx 4 feet) | 1200 mm (approx 4 feet) |

The Oppenheimer poles remained in service until the overhead line was retired in the 1970s.

The insulators used were of the “pin” type with a screw thread to attach them to their insulator pin which may have been made from wood or metal. Both glass and white ceramic insulators were used on the line. Initially the insulator pin was attached to the pole without a crossarm by drilling a hole axially from the top of the pole to accommodate the pin^{33 34 35}.

Lightning conductors were fitted to each second pole projecting above the top of the insulators and connected to a short length of buried copper wire³⁶

Other details of line construction are described in the references used above.

3.18.5 Erection of Marble Column in 1954

In 1954, the PMG³⁷ Department erected a fine marble column by the side of the Stuart Highway about a mile east of Frews Ponds between Elliott and Dunmarra. The inscription reads:

*“The Overland Telegraph Line. This column was erected to the memory of Sir Charles Todd, K.C.M.G., M.A., F.R.S., F.R.A.S., F.S.T.E., Postmaster-General of the Province of South Australia. His gallant construction teams, operators and linesmen under R. C. Patterson, A. T. Woods, W. H. Abbott, B. H. Babbage, R. C. Burton, W. Harvey, R. R. Knuckey, G. McLachlan, G. McMinn, W.W. Mills, A. J. Mitchell, W. Rutt and explorer John Ross. The north and south parts of this epic O.T. line were finally joined about one mile west of this spot, at 3.15 p.m. on Thursday, August 22, 1872, thus making possible for the first time, instantaneous telegraphic communication between Australia and Great Britain. Finis Coronat Opus³⁸.”*³⁹

³³ Leybourne-Ward N, Australia’s Overland Telegraph Line 1870-1872, Transactions of the Institution of Engineers, Australia, multi-disciplinary transactions, v. GE18 no. 2, 1994, page 106.

³⁴ Taylor, Peter, An End to Silence - The Building of the Overland Telegraph Line from Adelaide to Darwin, Methuen of Australia, 1980, page 172.

³⁵ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999, page 10.

³⁶ Leybourne-Ward N, Australia’s Overland Telegraph Line 1870-1872, Transactions of the Institution of Engineers, Australia, multi-disciplinary transactions, v. GE18 no. 2, 1994, page 106.

³⁷ Abbreviation of Postmaster General.

³⁸ Finis Coronat Opus, Latin translates to: “the end crowns the work”.

The column remains in place. The telegraph line seen in the background of photographs of the obelisk was not a relocated Overland Telegraph Line but a part of the memorial to demonstrate to people what the line looked like. There were only 3 poles in this line. It is not known when it was constructed.⁴⁰

³⁹ Pike, Glenville, *The Northern Territory Overland Telegraph - An Epic of Courage - Just 100 Years Ago*, circa 1972.

⁴⁰ From Trevor Horman, email 14 June 2012. Trevor says that the survey carried out by Earl James in 1984 confirms this.

3.19 Heritage Listings

3.19.1 Northern Territory

Name: Frews Ponds Overland Telegraph Line Memorial Reserve

Number: No number allocated

Date: Declared to be a Heritage Place under the Heritage Conservation Act NT by Marion Rose Scrymgeour, Minister for Natural Resources, Environment and Heritage on 22 August 2006.

References: Appendix 2 contains the Heritage Register entry for the site and the declaration by the Minister.

3.19.2 Engineers Australia - Heritage Recognition Program

Name: The Overland Telegraph

Number: No number allocated

Date: 27 April 1999 (date of nomination document)

References: Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide, 27 April 1999.

Marking: Engineering Heritage Markers are in place at Darwin (Adjacent to the south western corner of Parliament House); Alice Springs Telegraph Station and Adelaide General Post Office.

3.19.3 National Trust of Australia (Northern Territory)

TCH to provide further information

4 Assessment of Significance

4.1 Historical Significance:

Refer to clause 3.19 above.

The historical value is very significant. This was the first telegraph connection between Australia and Europe and hence the rest of the world. It also linked inland communities to the rest of the continent. First major users of the telegraph were newspapers and commercial interests⁴¹.

4.2 Historic Individuals or Associations:

Refer to Appendix 3 for biographical details on:

- Sir Charles Todd
- John McDouall Stuart
- Robert Charles Patterson (two accounts)

It should be noted that the material on Robert Charles Patterson from two well regarded sources gives a very different picture of Patterson. Two such extracts are provided at Appendix 3.

4.3 Creative or Technical Achievement:

The operation of telegraphs over long distance had already been proved elsewhere. The technical achievement associated with the Overland Telegraph Line is most notably found in the application of project management techniques far in advance of their time. The project was of immense proportions with a very tight timeframe (less than two years construction time) in difficult terrain, most of which had not been settled at all. The logistics challenges were very considerable and were solved with innovative solutions which appear audacious by today's standards.

The opening up of a navigation route deep into the Top End on the Roper River to bring in supplies and personnel to the central section of the line is an outstanding example of project management. The operation of the 'pony express' to bridge a gap of 421 km was another example of a lateral solution to a difficult project management dilemma. The response to the damage to the wooden poles in the line by termites by replacing them with imported Oppenheimer iron poles is an example of a sound engineering solution to a previously unquantified problem.

4.4 Research Potential:

As demonstrated by the outstanding research work of Mick Kent⁴² there is still much to learn about the Overland Telegraph Line 140 years after its completion.

4.5 Social:

The social value is very significant. The line connected Australia to the rest of the world and ended its relative isolation. Newspapers were able to report major international events almost as they happened while commercial interests could maintain effective communications with their markets. The availability of the Overland Telegraph is credited

⁴¹ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999.

⁴² Kent, M, Overland Telegraph Line, Part 1, Pre-removal Report, Department of Infrastructure, Planning and Environment, Heritage Branch, 2002.

with an increase of a quarter of a million pounds in the value of South Australia's primary produce in the first year alone.

The telegraph was of immediate financial benefit to the Colony: for example, wheat growers were able to get better prices for their exports and that alone was worth £250 000 in the first year⁴³. Ann Moyal says that the telegraph "... with its international and inter-colonial axes, served as the communication link for an upsurge of mining from the late 1870s that finally surpassed the resource development of the glittering 1850s"⁴⁴. She quotes historian Noel Butlin who said that capital outlays began to rise rapidly from 1872-73:

"Rapid communication underwrote stable and confident investment. Funding from British merchant bankers flowed into 'go-ahead' Colonial programmes that pushed roads, railways and the telegraph line themselves outward; built harbours and bridges, and nourished the spread of ancillary activities in the Colonies"⁴⁵.

The survey and construction of the line also opened up Central Australia and the Northern Territory to pastoral and mining industries which remain significant to this day⁴⁶.

The very presence of the line and its telegraph stations provided the basis for development of towns and villages along its length. These towns later became the support centres for wide-flung pastoral, mining and tourism development across the Outback. Towns like Alice Springs are now hubs for vast areas of development in almost every activity and service. For instance Alice Springs is now the home of a Royal Flying Doctor Base and a major School of the Air hub. The development of Alice Springs, supporting a population of 30,000+ people, all started from its Telegraph Station.

4.6 Rarity:

There was no technical innovation in the systems, materials and equipment being used was all 'off-the-shelf'.

Rarity is not a significant factor. There are other long telegraph lines in Australia and elsewhere in the world with similar remaining relics.

4.7 Representativeness:

The relics of the Overland Telegraph are representative of relics of telegraph lines elsewhere. In particular the substantial buildings of the telegraph stations which are the largest remaining fabric are typical of similar groups of buildings elsewhere although they invariably used locally available materials.

4.8 Integrity/Intactness:

Most of the overhead line work of the Overland Telegraph Line has been removed for scrap (1970s) although some fragments remain and are important relics which should be preserved.

The overhead line work was almost constantly upgraded during its working life so that by the end of its life it barely resembled the original single iron wire. Significant changes were:

⁴³ Gibbs, 1984, p137.

⁴⁴ Moyal, 1985, p61.

⁴⁵ Moyal, 1985, p62.

⁴⁶ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide. 27 April 1999.

- Replacement of the wooden poles (in most areas) with Oppenheimer iron poles.
- Addition of more wires which were copper or other non-ferrous alloys after about the turn of the twentieth century.
- The addition of 2-wire telephone (voice) circuits from the early twentieth century.
- The eventual fitting of a large number of 2-wire circuits on several crossarms with frequent transposition arrangements to carry increasing traffic.
- Inter-poling of the line as more wires, closer together were installed.
- Various relocations of the line route to make it more accessible. These were to straighten the route, bring it into closer proximity with the route of the Northern Australia Railway and Central Australia Railway routes and to bring it into closer proximity with the route of the Stuart Highway.
- Microwave links were added in the 1970s.
- The present day fibre optic underground cables which ultimately replaced the Overland Telegraph Line generally follow the Stuart Highway reserve.

Hence there are only small fragments which represent the early line construction. The section at Frews Ponds is probably the most extensive of these. A short section of wooden pole construction still exists north of Pine Creek.

11 of the telegraph stations survive in some form and some are well maintained and virtually complete.

5 Statement of Significance:

The following statement has been written following the National Heritage Criteria.

The place described by this statement of significance is the point in the Overland Telegraph Line at which the final connection of the wires was made to complete the circuit between Darwin and Adelaide.

The short section of poles (52 poles) and wire in the vicinity described in the definition of the Heritage Place by the Northern Territory Government is included.

The memorial obelisk on the side of the Stuart Highway, approximately 1.5 km east of the “joining point” commemorating the event is also included.

Criteria (a): The Overland Telegraph “Joining Point” has outstanding heritage value to the nation because of the place’s importance in the course of Australia’s cultural history:

(a)1 The Overland Telegraph represents a major step change in communications between Australia and the rest of the world as it brought about an immediate increase in the speed of communications from many months (by ship) to a few hours.

(a)2 The “joining point” is the physical location where the two ends of the Overland Telegraph were connected together by Robert Patterson on 22 August 1872.

Criteria (b): The Overland Telegraph “Joining Point” has outstanding heritage value to the nation because of the significant historical event which occurred there and the artefacts of the Overland Telegraph Line in the vicinity of the “joining point”.

(b)1 The place has 52 poles and wires from the very earliest era (the first ten years after completion) of the Overland Telegraph preserved in their original setting.

Criteria (c): The place has outstanding heritage value to the nation because of the place’s potential to yield further information that will contribute to an understanding of Australia’s cultural history.

None noted.

Criteria (d): The place has outstanding heritage value to the nation because of the place’s importance in demonstrating the principal characteristics of a class of Australia’s cultural history.

(d)1 The Overland Telegraph was the most important link in the era of telegraph communications in the period after its completion in 1872 because it was the only link providing communications from Australia to the rest of the world. Over time it became less important as other overseas telegraph cables were constructed.

(d)2 The Overland Telegraph traversed terrain which had only recently been explored (by John McDouall Stuart who was the first explorer to cross the continent from south to north and return to tell the story) and hardly settled at all at the time of the construction of the line. This made the logistics of the construction of the line immeasurably more complex and was compounded by the great length of the line measuring 3178 km from Adelaide to Darwin.

Criteria (e): The place has outstanding heritage values to the nation because of the place’s importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

None noted.

Criteria (f): The Overland Telegraph has outstanding heritage values to the nation because it demonstrates a high degree of technical achievement at the time of its construction.

(f)1 The Overland Telegraph Line was built in a period of less than two years. Such a feat would be virtually impossible today but it was achieved by Charles Todd and his men as a result of the application of superb project management skills and exceptional leadership by Todd.

(f)2 The Overland Telegraph Line was constructed over a very great distance over land only occupied for most of its route by Aboriginal tribes and without any pre-existing logistical support facilities. The project involved the erection of 36,000 poles over a distance of 3178 km.

(f)3 The Overland Telegraph was constructed over country where very little was known of the conditions or the weather conditions likely to be encountered along the route. The extreme conditions of the Wet Season in the Top End (1871/72 was a particularly "wet" Wet Season) caused a change of plans and the development of a port facility near Roper Bar on the Roper River to bring men and supplies to the central part of the route which was at that time the only section not completed. This audacious but successful management innovation enabled the ends of the wire to be joined at Frews Ponds on 22 August 1872.

(f)4 The Overland Telegraph was the largest and most important infrastructure project of the 19th century in Australia. The completion of the project brought changes to the lives of all Australians through the improved communication with the rest of the world.

Criteria (g): The place has outstanding heritage values to the nation because of the place's strong association with a particular community or cultural group for social, cultural or spiritual reasons.

None noted.

Criteria (h): The Overland Telegraph outstanding heritage values to the nation because of the place's association with the life and work of important Australians:

(h)1 The instigator of the project and its project manager was Charles (later Sir Charles) Todd, Postmaster General of South Australia. Todd was a great leader and achieved a great deal during his long tenure as a public servant. He was also a gifted engineer and astronomer.

(h)2 Todd recognised the need to explore along the track of the future Overland Telegraph Line well before the project commenced. He encouraged the explorer John McDouall Stuart on his several expeditions culminating in the crossing of the continent, and safe return. Stuart's maps and diaries were the key planning tools for the route of the Overland Telegraph.

(h)3 Todd needed tough and unyielding supervisors, like Robert Charles Patterson, who could carry out the construction of the line. Patterson was typical of the men who Todd used for this purpose although Patterson was not chosen by Todd but allocated to his team by government. It was Patterson's responsibility to be at the "joining point" and to perform the final connection.

Criteria (i): The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.

The whole route of the Overland Telegraph ran through Aboriginal Land belonging to numerous tribes.

6 Area of Significance:

National

7 Interpretation Plan

7.1 General Approach

The ceremony should be held on **Wednesday 22 August 2012** which is the 140th anniversary of the joining of the wires of the Overland Telegraph Line. The ceremony should be held at or near the monument on the Stuart Highway at Frews Ponds.

The interpretation panel could be located:

- a) Within NT Portion 499 which is owned by the Northern Territory Government with permission from the Heritage Branch. This portion currently contains the obelisk near its eastern side. This is the preferred location as the interpretation panel would tie in with the obelisk and provide a safe stopping place on the side of the Stuart Highway for those interested in the Overland Telegraph Line.
- b) Within the Stuart Highway road reserve but outside Portion 499. This would require approval of NT Department of Construction and Infrastructure. This would appear to be the fallback location if approval in Portion 499 was not forthcoming.
- c) Within Portion 500, at or near the "Joining Point". This Portion is owned by the Northern Territory Government and the Heritage Branch would need to provide their approval as Portion 500 is a registered heritage place. This location is inappropriate as the country is heavily timbered and we (Engineers Australia) should not be encouraging the general public to enter unmarked and potentially dangerous gidgee bushland. Anyone doing this could become disoriented and lost with potentially fatal consequences.

7.2 General Attributes of the Interpretation Panel:

- 1) A title "**Overland Telegraph "Joining Point" Frews Ponds, Northern Territory**".
- 2) Logos of Engineers Australia, NT Government (generic) to be incorporated.
- 3) A small scale representation of the EHA marker plate.
- 4) The date and other details of the marking ceremony.
- 5) Text should be 24 point Arial Bold.
- 6) A map showing the route of the Overland Telegraph.
- 7) Brief captions for each photograph.

7.3 The Interpretation Panel:

- 1) Size to be nominally 1200 mm wide by 600 mm high.
- 2) The panel to be constructed of vitreous enamel-on-steel plate with flanges as per drawing at Appendix 9.
- 3) The panel to be mounted on a steel free-standing frame as per drawing at Appendix 9. The mounting frame is already constructed and under the care of Trevor Horman in Darwin.
- 4) The EHA marker to be mounted below the interpretation panel as shown in Appendix 9.

7.4 Possible Interpretation themes for Interpretation Panels

The following subjects have been assessed as possible themes for the interpretation panel:

- a) The history of the Overland Telegraph Line
- b) The story of the joining of the wires
- c) The role of Charles Todd
- d) Communications on the route of the Overland Telegraph today

Total text should not exceed 500 words excluding headings.

7.5 Preliminary Text Blocks for Interpretation Panels

History of the Overland Telegraph Line

The 3178 kilometre line was built in less than two years and joined on 22 August 1872. It linked Australia to an undersea cable from Java and thence to Europe, that came ashore at Port Darwin. The project was under the direction of Sir Charles Todd, Superintendent of Posts and Telegraphs for South Australia. Communications between Australia and the rest of the world could now happen in hours rather than weeks. The first telegraph messages from overseas were received on 21 October 1872 after the repair of the cable to Java which had failed on 23 June 1872⁴⁷.

98 words

The Joining of the Wires

Engineer, Robert Patterson, leading a team of nine men at Frews Ponds on 22 August 1872, joined the wires. He wrote the following account of the event in his diary:

“Half the party seized hold of me and the wire, and the other half of the other end, and stretched with all might and main to bring the two ends together. All our force could not do this. I then attached some binding wire to one end. The moment I brought it to the other end the current passed through my body from all the batteries on the line. I had to yell and let go. Next time I proceeded more cautiously, and used my handkerchief to seize the wire. In about five minutes I had the joint made complete, and Adelaide was in communication with Port Darwin. It would have been with England had not the (overseas) cable broken down”⁴⁸

This event took place 1.5 kilometres to the west of this point.

Todd, who was at that time 552 km⁴⁹ further south at Central Mount Stuart, sent the following message to Adelaide:

“We have this day, within two years, completed a line of communication two thousand miles long through the very centre of Australia, until a few years ago a Terra Incognita believed to be a desert”⁵⁰

218 words

Sir Charles Todd (1826 - 1910)

⁴⁷ Adapted from the wording on the bronze marker unveiled near Parliament House, Darwin in 1999.

⁴⁸ Extracted from paragraph 3.18.3 of this document.

⁴⁹ Measured from Google Earth in a straight line between the obelisk site and Central Mount Stuart as marked by Google Earth. Note that the actual peak of Central Mount Stuart is not clear from satellite images.

⁵⁰ Extracted from paragraph 3.18.3 of this document.

Todd was an extraordinarily vigorous man with many skills and he served South Australia and Australia well during more than half a century as a public servant. His achievements as an electrical engineer, project manager, astronomer, meteorologist and public administrator are all noteworthy. Despite his mammoth achievements Todd was a kind, mild mannered man, much loved and admired by his staff, colleagues and his family.⁵¹

65 words

Robert Charles Patterson (1844 - 1907)

Patterson, who had the task of joining the wires, was a complex and difficult man. He was a competent and experienced railway engineer yet he was moody, withdrawn and apparently a poor communicator with his men, as observed by Todd and others. Nevertheless his achievements on the Overland Telegraph project, when it was in trouble and behind schedule, were very considerable.⁵²

61 words

What replaced the Overland Telegraph?

The Morse code telegraph technology of 140 years ago was replaced by telephone (voice, text and data) technology in the early 20th century, still carried by open wires on poles; microwave links were added in the 1970s and today most trunk communications traffic on the route is carried by fibre optic cables (with hugely larger carrying capacity) buried alongside the Stuart Highway.⁵³

62 words

Total words = 504

⁵¹ Adapted from Appendix A3.1 of this document.

⁵² Adapted from Appendix A3.3 and A3.4 of this document.

⁵³ Adapted from paragraph 4.8 of this document.

7.6 Interpretation Panel Design


The first draft of the interpretation panel prepared by Richard Venus dated 12 June 2012 is shown below:


Joining Point of the Overland Telegraph, 22 August 1872

A circle round the earth ...

Hours not Months ...
 The 3178 kilometre Overland Telegraph Line connects the first communication link between Australia and Europe. The Line from Adelaide was connected to an undersea cable from Darwin to Java (Indonesia). From here, telegraph lines ran through Asia, India, the Middle East, and Europe. Messages could now be sent by telegraph between Australia and England in hours rather than sending a letter by ship when a one-way trip could take as long as 100 days. Although the Line was joined in August, the undersea cable to Java had failed on 23 June 1872. It took four months before it could be repaired. The first telegraph messages from overseas were received in Adelaide on 21 October 1872.

Today messages are sent through fibre-optic cables, microwave transmitters, and satellites, and take only seconds to arrive anywhere in the world.






John Lobb, Nicholas Paterson, Charles Deane and James Mitchell at the joining point.

A Shocking Result ...
 The final join in the Overland Telegraph was made just 1.5 kilometres to the west of here by engineer Robert Patterson on 22 August 1872. He wrote the account in his diary: "Half the party seized hold of me and the wire, and the other half of the other end, and stretched with all might and main to bring the two wires together. All our force could not do this. I then switched some blinking wire to one end. The current I brought it to the other end the current passed through my body from all the batteries on the line. I had to yell and let go. Next time I prodded more cautiously, and used my forefinger to seize the wire. In about five minutes I had the joint made complete, and Adelaide was in communication with Port Darwin. It would have been with England had not the (overseas) cable broken down."


A Monumental Undertaking ...
 Even by today's standards, the Overland Telegraph line was a massive project but it was built in less than two years. Nearly 30 000 poles had to be filled with insulators and lightning rods and erected in the bush. Some poles were cut from local timber, other poles were made of iron and imported from England. The project was planned to the finest detail by Sir Charles Todd, Superintendent of Posts and Telegraphs for South Australia. Todd personally supervised the completion of the line and then rode by himself 2500 kilometres back to Adelaide to inspect the all work that had been done.


Engineering Heritage National Landmark created in 2005. Approved by the Department of Heritage, Northern Territory. Photographed by Richard Venus, 2012.

Joining Point Location Plan



Route and Repeater Stations





The Overland Telegraph Line "Joining Point" - Freew Ponds, Northern Territory

8 References:

Commonwealth Government of Australia, Northern Territory of Australia, NT Portion 499 (PMG Memorial Reserve) NT Portion 500 (Reserve for OT line) & Access Road, Survey Plan Number A.17, 8 January 1960.

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Taylor, Peter, An End to Silence - The Building of the Overland Telegraph Line from Adelaide to Darwin, Methuen of Australia, 1980.

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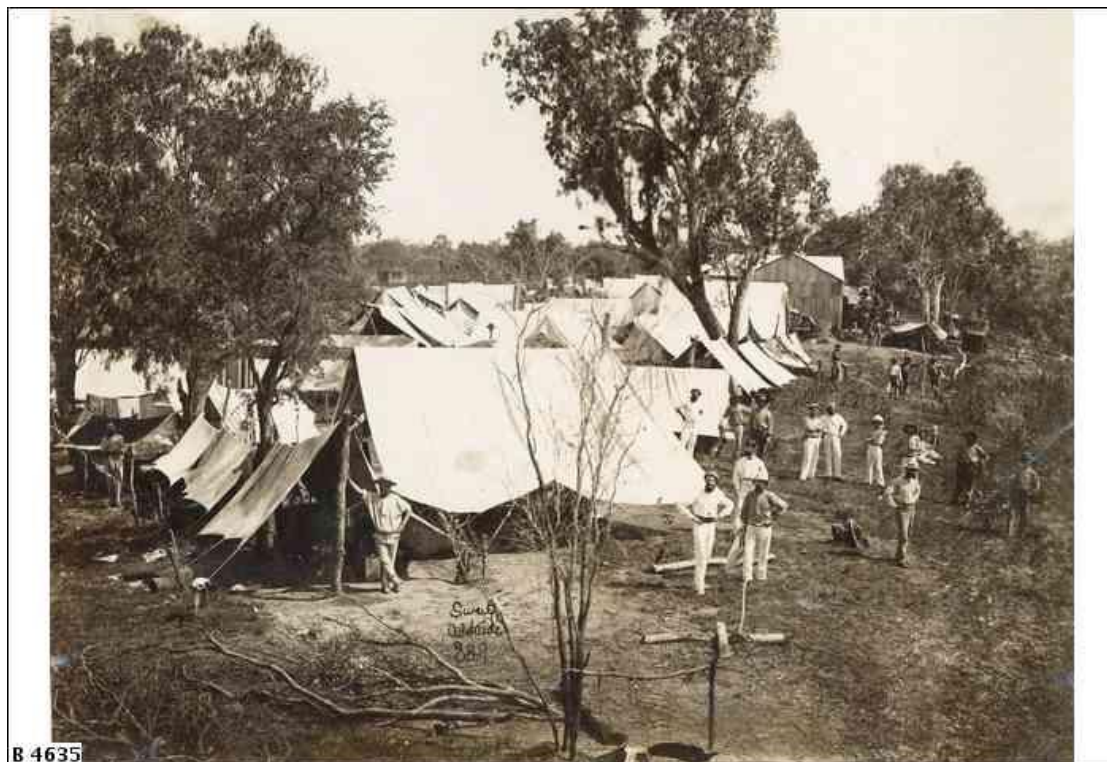
Email: rjv@esc.net.au

Appendix 1: Images with captions

A1.1 Historical Images

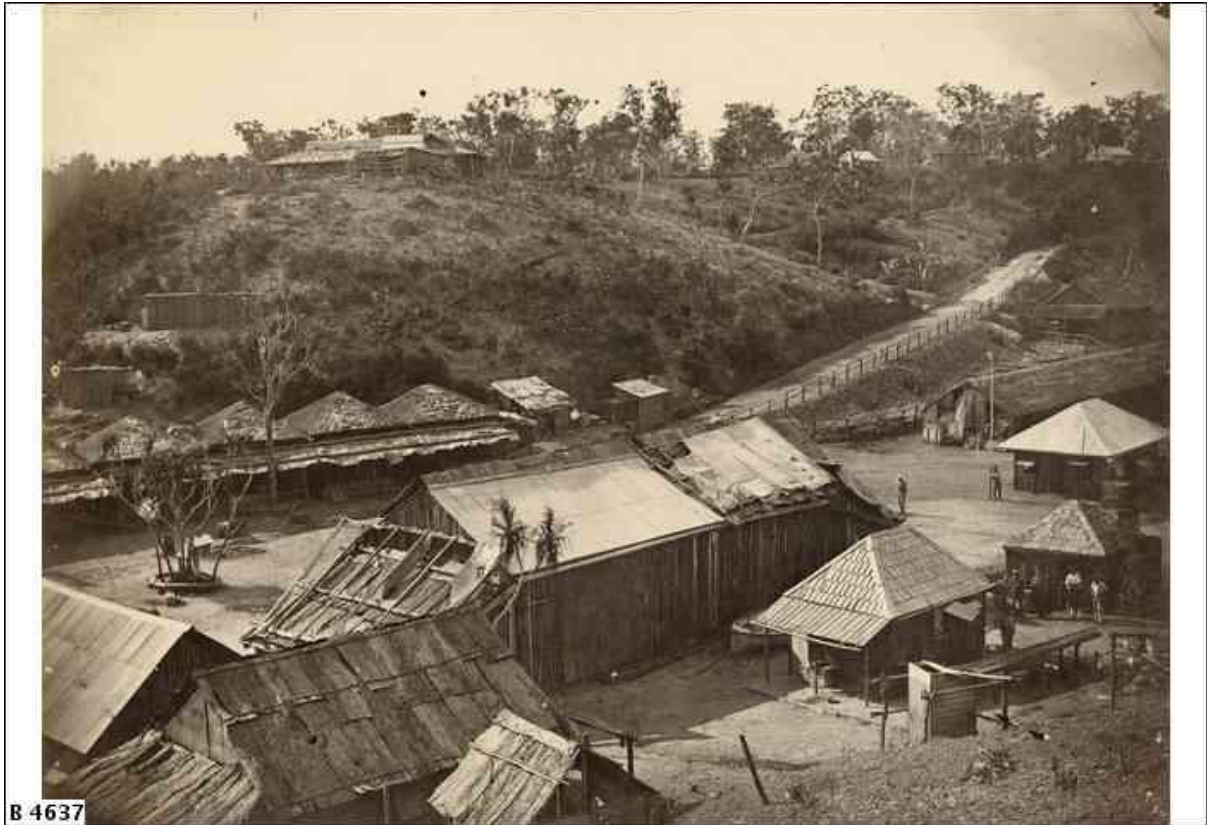


Planting the first pole of the Overland Telegraph Line at Port Darwin on 5 September 1870.

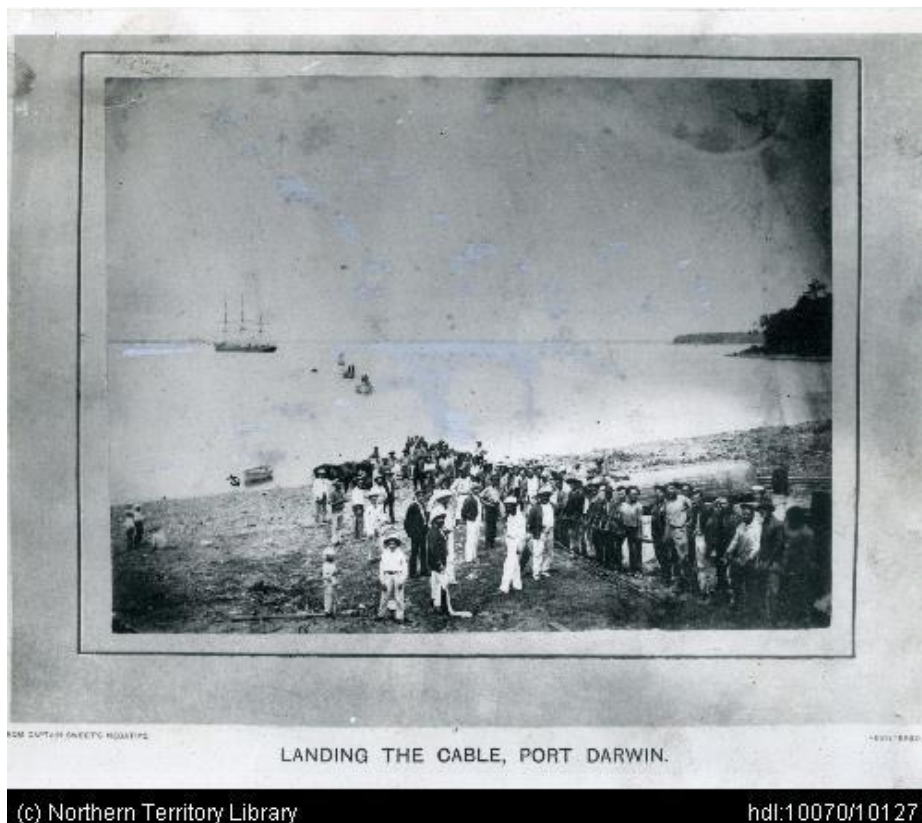


Overland Telegraph workers camp at the Roper Depot in 1871.

The Overland Telegraph Line "Joining Point" - Frew Ponds, Northern Territory



Overland Telegraph Camp at Port Darwin in 1870. The site was originally Goyder's camp between Fort Hill and the peninsula on which the present Administrators Residence is located. Goyder finished his work in the Northern Territory the previous year and the camp was taken over by the Overland Telegraph.



The Overland Telegraph Line "Joining Point" - Frew Ponds, Northern Territory

A1.2: Recent Images of the “Joining Point”.



One of the Oppenheimer poles in the preserved old line section near the “joining point”.



Memorial to the Overland Telegraph Joining Point beside the Stuart Highway
18 km south of the Dunmarra Roadhouse.



Memorial to the Overland Telegraph Joining Point in 1977



Typical original timber pole.
This is an angle pole with a compression brace still intact, located north of Pine Creek.
Image taken in 1984.

Appendix 2: Heritage Register entry & Declaration by the Minister



| Site Details | Photo | | | | | | | | | | | | | | | | |
|--|---|--------|--|----------------------|-------------------------|------|--|----------------------|-----------------------------|----------------------|----------------------------------|----------|---------------|--------|-----------|---|--|
| <p>Name Frew Ponds Overland Telegraph Poles</p> <p>Is Public</p> <p>Status Declared</p> <p>Type Place</p> <p>Description The fifty-two (52) remaining Oppenheimer telegraph poles are located along 4.7 kilometres of the original Overland Telegraph Line route and can be accessed by the public via a 1.5 kilometre long walking trail.</p> <p>Statement Of Heritage Value The Frew Ponds Overland Telegraph Line Oppenheimer Poles, are associated with the construction of the original Overland Telegraph Line (1870 - 1874). The fifty-two (52) Oppenheimer poles located within the Frew Ponds Memorial Reserve are significant to the Territory as a remnant of the original line, and present tangible evidence of the construction methods and materials used in the construction of the 3,000 kilometre line from Port Augusta to Darwin that saw the end of Australia's isolation. The heavy galvanised iron telescopic Oppenheimer poles display a style of technology no longer practised and are a symbol of human ingenuity in solving the problem of transporting large numbers of sturdy termite resistant poles through inhospitable country. The Oppenheimer poles are a tribute to the vision of South Australia's Post Master General, Charles Heavitree Todd, who was responsible for the construction of the telegraph line, and also the contributions made by the overseers, construction teams, line operators and linemen, all of whom, played a vital role in fulfilling this remarkable engineering feat.</p> <p>Nominated 06/05/2005</p> <p>Nomination Refused</p> <p>Nomination Accepted 06/05/2005</p> <p>Interim Conservation Order</p> <p>Assessment Report Considered 09/12/2005</p> <p>Report Action s24 notification process instigated</p> <p>Report Comments</p> <p>Recommended</p> <p>Not Recommended</p> <p>Refused By Minister</p> <p>Referred Back</p> <p>Signed By Minister 22/08/2006</p> <p>S26 notice advertised 06/09/2006</p> <p>Gazetted 30/08/2006</p> <p>Revoked</p> <p>Destroyed</p> <p>File No HAC 2004/0031</p> <p>Value Cultural</p> <p>Conservation Policy</p> <p>LGA</p> <p>Comments Heritage Advisory Council nominated of its own volition the Overland Telegraph Frew Ponds.</p> | <table border="1"> <thead> <tr> <th>Name</th> <th></th> </tr> </thead> <tbody> <tr> <td>View</td> <td>web photo.jpg Frew Pond</td> </tr> </tbody> </table> <p>Scan no data found</p> <p>Further Information</p> <table border="1"> <thead> <tr> <th>Name</th> <th></th> </tr> </thead> <tbody> <tr> <td>View</td> <td>Instrument and Gazettal.pdf</td> </tr> <tr> <td>View</td> <td>Frew Ponds - Background info.pdf</td> </tr> </tbody> </table> <p>Approximate Location</p> <table border="1"> <thead> <tr> <th>LAIS Key</th> <th>Street Number</th> <th>Street</th> </tr> </thead> <tbody> <tr> <td>000 00500</td> <td>0</td> <td></td> </tr> </tbody> </table> <p>Nomination Period - a nomination Council; OR a nomination has been assessment.</p> <p>Assessment Period - a nomination assessed.</p> <p>Consultation Period - Heritage assessment a proposal to declare the place/object</p> <p>Recommendation Period - the Heritage decision is awaited.</p> <p>Not Recommended - a decision has declared</p> <p>Declared - the Minister has made a c</p> <p>Refused - the Minister has refused to</p> | Name | | View | web photo.jpg Frew Pond | Name | | View | Instrument and Gazettal.pdf | View | Frew Ponds - Background info.pdf | LAIS Key | Street Number | Street | 000 00500 | 0 | |
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NORTHERN TERRITORY OF AUSTRALIA

Heritage Conservation Act

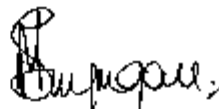
DECLARATION OF HERITAGE PLACE

FREW PONDS OVERLAND TELEGRAPH LINE MEMORIAL RESERVE

I, MARION ROSE SCRYMGOUR, the Minister for Natural Resources, Environment and Heritage, pursuant to section 26(1)(a) of the *Heritage Conservation Act*, on the recommendation of the Heritage Advisory Council and within the time specified by that section, declare the part of the place known as the Frew Ponds Overland Telegraph Line Memorial Reserve described in the Schedule, to be a heritage place.

Dated

22 AUG 2006



Minister for Natural Resources,
Environment and Heritage

SCHEDULE

All that parcel of land near Hayfield in the Northern Territory of Australia containing an area of 9.71 hectares more or less being Northern Territory Portion 500 more particularly delineated on survey plan A17 lodged with the Surveyor General, Darwin.

Appendix 3: Historic Individuals or Associations

A3.1 Sir Charles Todd⁵⁴



Sir Charles Todd 1905
Source: Adelaide University

Sir Charles Todd was one of Australia's greatest engineers. Whilst he is best remembered for his role in the construction of the Overland Telegraph he showed leadership and great skill throughout his long working life. He was a South Australian Public Servant for 50 years and his overall public service spanned 63 years.

He was born in London on 7 July 1826 and arrived in Adelaide on 5 November 1855 to take up the post of South Australian Government Astronomer and Superintendent of Telegraphs, a post which he retained until his retirement in 1905.⁵⁵ He was also South Australian

⁵⁴ Institution of Engineers, Australia, The, Nomination for the SS Young Australian A Paddle Steamer wrecked in the Roper River in 1872, Version 10, 7 July 2010.

⁵⁵ Todd "retired" as DPMG on 31 January 1905 [*The Sydney Morning Herald*, Wed 1 February 1905, p7h]; however, he appears to have gone on a nominal six months leave which expired on 30 June 1905 and a permanent appointment to the vacancy could not be made until after that date [*The Advertiser*, Wed 21 June 1905, p6e] – he was then 78 (79 in July). However, he remained as Government Astronomer (although this was an honorary position which presumably meant without salary because he retained the title) until retiring at the end of December 1906 [*The Advertiser*, Mon 26 November 1906, p7a].

Postmaster General from 1870 to 1906. After Federation he remained in his old posts⁵⁶ under the new Commonwealth Government arrangements by special provision⁵⁷.

He had married Alice Bell (1836-1898) on 5 April 1855, in London, just before departing for the colonies, his long and successful marriage was one of his great joys. His wife, Alice, lives on in Australia's collective memory as she gave her name to Alice Springs - "The Alice".

The greatest of his life works was the Overland Telegraph Line completed on 22 August 1872. It was one of the epic feats of Australian engineering.

Other telegraph projects for which Todd was responsible included:

- SA regional towns: ongoing from about 1857⁵⁸
- Adelaide to Melbourne: 1858
- Adelaide to Sydney: 1867⁵⁹

He also set up the Adelaide Astronomical Observatory and observed the transits of Venus in 1874 and 1882.

In the meteorological field he can arguably claim to be the first systematic meteorologist in Australia and arranged for data to be telegraphed from around South Australia on a daily basis to Adelaide. Todd was the first to make the connection between droughts in Australia and India attributed to what we now call the El Nino Effect.

As early as 1856, Todd was publically discussing the use of electricity to light the city although it wasn't until the 1860s that he gave demonstrations at a series of public lectures. In November 1867 he lit King William Street with an electric arc lamp, which he had made himself, powered by batteries. In 1881 he again demonstrated electric light, this time using a Foucault Duboscq arc lamp powered by a dynamo, and explained how the two principal streets of the city could be lit with arc lamps. The City Council and the Colonial Government also sought Todd's advice about lighting buildings. However, it was several years before the decision to adopt the new form of lighting was made and by this time a number of commercial organisations (including one managed by Todd's son Hedley) were available to advise on installations and contract for the service. (A single electric street lamp was erected in Adelaide in 1895 but a significant installation of 31 lamps was not completed until 1901.) He was successful, however, in having electric light installed at the Jubilee Exhibition of 1887 and the School of Mines and Industries where he was a board member. When the Government finally decided to install electric light at the new Parliament House in 1891, Todd was asked to supervise the installation. Clearly, he can be acknowledged as a pioneer of electric lighting in Adelaide⁶⁰.

He was involved in many learned societies and was in fact responsible for the establishment of some of them in South Australia. These included:

⁵⁶ With a Federal Postmaster-General, Todd's title became Deputy Postmaster-General.

⁵⁷ "A very real compliment was paid him by the State Parliament, which refused to pass an Act for the compulsory retirement of septuagenarians so long as he remained in the South Australian Public Service ..." [*The Advertiser*, Mon 31 January 1910, p7i,8a-c].

⁵⁸ The first line was to Gawler which opened 14 April 1857.

⁵⁹ The direct line was completed on Saturday 27 April and became available for general working later the following week [*SA Advertiser*, Monday 29 April 1867, p2cd]. However, communication was possible via Victoria when the line from Sydney to Albury was opened on 30 December 1857 [Moyal, p23]. However, Todd, in one of his two official reports to Parliament, says Melbourne and Sydney were connected on 29 October 1858 [1885, p5].

⁶⁰ This material comes from a paper being prepared by Richard Venus, still in draft form at the time of writing of this nomination.

- Royal Society, London
- Royal Meteorological Society, London
- Royal Astronomical Society, London
- Society of Electrical Engineers, London
- SA Royal Society
- SA Astronomical Society
- Adelaide Philosophical Society
- Council of the University of Adelaide

He was involved in establishing two Congregational Churches in Adelaide and followed a keen interest in photography as a hobby. Some of his photographs survive.

Todd was a fine applied scientist and technologist and a leading electrical engineer in Australia. His particular interests were astronomy, meteorology, telegraph communications and public administration.

He was a very vigorous man in both private and public life:

- He was appointed Government Astronomer and Superintendent of Telegraphs at the age of 30.
- He remained in public service until shortly before his death at age 84. He was a South Australian Public Servant for 50 years and his overall public service spanned 63 years.
- He had close managerial and engineering involvement in the mammoth Overland Telegraph Line project.
- He had broad community and professional interests
- He had 6 children

Todd was knighted in 1893 and died on 29 January 1910 in Adelaide; he is buried alongside Alice in Adelaide's North Road Cemetery.

His personal characteristics were a curious mixture of softer traits which made him an appealing and friendly character whilst he also possessed the enormous drive and energy which enabled him to reach such great heights. The following extract describes his character admirably:

“A Benevolent Autocrat.

He was a man, take him for all in all, we shall not look upon his like again." He was born and equipped for the great work which he performed, and South Australia can never be too grateful that the control of the vast department of posts and telegraphs was at so early a stage in her history placed in such capable hands. The genial personality of Sir Charles Todd was combined with all those qualities which help to make a really ideal public servant. He never spared himself, but at all times and under every circumstance did what he considered to be his duty to the State, and his conception of duty was of a very exacting character. He had his reward in the warm and unstinted approval and admiration of the Government, the love and affection of the employees, who gladly acknowledged him as their chief, and the limitless confidence and respect of the people for whom he toiled and wrought. Seldom indeed has a public official made such a deep impression on the heart of the community, as did Sir Charles Todd, whom at all times it was a delight to honor [sic]. His great achievements and his trying work neither puffed him up nor spoilt his delightful nature. He was ever simple, kindly, modest, and playful in his character and conversation, while at all times – even when most immersed in his absorbing labors [sic] – he was ready to listen to any member of the staff or the general public who desired to lay before him any question affecting the department. There are successful men who arouse animosities and provoke jealousies, but he was not one of them. He ruled by, love and not fear, and the worst thing

anyone ever said against him was that it was beneath his dignity to make puns. They, however, to quote Mark Twain, fell as naturally from his lips as "the famous otter of roses from the otter." Sir Charles was a benevolent autocrat but his power was very real. He was Postmaster-General, for years with practically no Ministerial head, and it was only when Federation came that the qualifying word "Deputy" was placed before his title"⁶¹.

⁶¹ *The Advertiser*, Monday 31 January 1910, p7i,8a-c.

A3.2 John McDouall Stuart⁶²



John McDouall Stuart (1815-1866), by unknown photographer
 Source: *State Library of South Australia, B501*

John McDouall Stuart (1815-1866), explorer, was born on 7 September 1815 at Dysart, Fife, Scotland, fifth son of William Stuart, army captain, and his wife Mary, née McDouall. Educated at the Scottish Naval and Military Academy, Edinburgh, in 1838 he decided to migrate to South Australia. He arrived in the *Indus* in January 1839 and joined a surveying party. Having had a taste of the outback, in 1844 he accepted Charles Sturt's offer to join a party exploring the centre of the continent. The seventeen-month journey revealed only desolation, but Stuart now knew the problems of exploring waterless regions with a large expedition: he had seen fatal scurvy at close hand, had observed the Aboriginals and, having drawn many of the maps, had become familiar with the topography of the centre.

In 1846-58 Stuart practised as a surveyor, had an estate agency and spent some time at Port Lincoln. With financial help from William Finke, Stuart set out on 14 May 1858 with an assistant, an Aboriginal tracker and provisions for four weeks to explore beyond Lake Torrens and Lake Gairdner and to look for grazing land. He travelled as far as Coober Pedy before turning south and then west. The Aboriginal left them on 3 August, and with supplies and water almost exhausted and the horses lame they struggled into T. M. Gibson's outstation at Streaky Bay on 22 August. After ten days rest Stuart returned to Adelaide to an enthusiastic welcome. He had discovered 40,000 sq. miles (103,600 km²) of possible sheep country at minimal cost. He gave his diary and maps to the South Australian government and was granted a lease of 1000 sq. miles (2590 km²) of the new country.

In 1859 Finke and James Chambers financed another expedition. Leaving in April with four others, Stuart travelled 500 miles (805 km) blazing a trail with sufficient water for a permanent route north. On 4 November he set out on his third expedition and spent six weeks surveying new runs. In the

⁶² Morris, Dierdre, *Australian Dictionary of Biography*, National Centre for Biography, Australian /National University. This article was first published in the *Australian Dictionary of Biography*. Volume 6, 1976.

Davenport Range he found signs of gold; after three weeks fruitless prospecting his men rebelled and the party returned to Chambers Creek where all but William Kekwick were paid off. He set off again on 2 March 1860 with two men and thirteen horses. Most of their provisions were soon spoilt by floods, and when the party reached the freshwater creek that Stuart named after Finke on 4 April, they were suffering from scurvy and he had lost the sight of his right eye. They followed the Finke to the mountains that Stuart named after Governor Sir Richard McDonnell and headed north again, naming Anna's Reservoir after Chambers' youngest daughter; on 22 April he camped where he calculated the centre of the continent to be. Two miles (3.2 km) away he named Central Mount Sturt (later changed to Stuart) and planted a flag as 'a sign to the natives that the dawn of liberty, civilization and Christianity was about to break on them'.

For the next month the party tried in vain to find a route with sufficient water to take them to the north-west. When rain fell late in May they travelled 200 miles (322 km) north to Tennant's Creek where they made a depot. Pressing on to Kekwick Ponds Stuart tried to penetrate the near-by scrub but on 25 June was forced back. Two months later the party staggered into Chambers Creek. On his return to Adelaide Stuart was fêted at a public banquet and at Government House; one newspaper urged that he be given the government reward for crossing the continent because Attack Creek, his furthest point, was only 200 miles (322 km) from explored country in the north.

At the end of 1860 the South Australian government voted £2500 to equip a large expedition to be led by Stuart. Burke and Wills had already set out to cross the continent so there was no time to lose if a South Australian party was to arrive first. On 1 January 1861 he left Chambers Creek with eleven men and reached Attack Creek late in April; with two others he discovered a way through the scrub that had defeated him before, and found Sturt's Plain. After exhausting failures to pass the plains, with their provisions low and their clothes in shreds, Stuart gave in and on 12 July turned south to reach Adelaide on 23 September. He received the 1861 gold medal of the Royal Geographical Society from the governor.

Stuart was still convinced he could cross the continent. Shopkeepers gave him supplies for a fresh party, Chambers provided the horses and saddlery, and the government gave him £200 and instructions to take a botanist Frederick Waterhouse with him. They left Adelaide at the end of October 1861 but Stuart was delayed for five weeks by an accident; he joined the party at Moolooloo station where one of the men left after a quarrel. The party reached the centre on 12 March 1862, Attack Creek on the 28th and Sturt's Plain on 15 April where they were blocked and Stuart turned to the scrub. Although they only made a mile (1.6 km) an hour and the water-bags were badly torn they arrived at Daly Waters, named after the new governor, on 28 May and made camp for two weeks. His endurance was beginning to falter, but on 24 July they forced their way through a thick belt of scrub and came upon the Indian Ocean. Many of the horses were so weak they had to be abandoned on the way back. Ill with scurvy and nearly blind, Stuart had to be carried on a stretcher slung between two horses; recovering sufficiently to ride by the time they reached Mount Margaret on 26 November, he pushed on with three of the party and arrived in Adelaide on 17 December. On a public holiday on 21 January 1863, crowds lined the streets amid banners strung from buildings. He was awarded £2000, though allowed only the interest from it, and his party received £1500 between them.

White-haired, exhausted and nearly blind, Stuart decided to visit his sister in Scotland and sailed in April 1864. He later went to London. His claims for a greater reward from the South Australian government led to another £1000, again with only the interest. His *Explorations in Australia. The Journals of John McDouall Stuart* was edited by W. Hardman and published in 1864. He died of ramollissement and cerebral effusion on 5 June 1866 in London and was buried in the Kensal Green cemetery. He has remained a controversial figure, lonely and independent, with a fierce pride. His reputation as a heavy drinker has led detractors to minimize his achievements, even to the extent of doubting that he reached the Indian Ocean in 1862, though the tree he had marked with JMDS was positively identified in 1883 and photographed in 1885.

A3.3 Robert Charles Patterson⁶³

Robert Charles Patterson (1844-1907), engineer, was born on 21 March 1844 in Melbourne, son of James Patterson, merchant, and his wife Mary Jane, née Keys. Educated at King's College, London, he was articled to the engineer William Wilson of Westminster and at 19 was employed by Peto, Brassey & Betts on the first railway construction in Queensland, from Ipswich to Grandchester. In 1867, as engineer with Doyne, Major & Willet, Patterson surveyed Tasmania's first railway, from Launceston to Deloraine, before joining the South Australian public service as assistant engineer to H C Mais. In 1869 he was promoted resident engineer for railways and on 16 October that year at St John's Church, Adelaide, he married Charlotte Elizabeth Ingram.

Patterson's eighteen years in South Australia established him as an authority on railway construction and usage. In 1870 he reported on the construction of railways generally in the colony and on routes for the Port Augusta section of the Great Northern Railway in particular. He saw the construction of this line as impracticable, but expressed his mounting zeal for railways as the prime means of opening up undeveloped areas in an 1870 publication on light railways and in a paper read before the Institute of Civil Engineers, London, in 1878, the year after he was elected a member.

In 1871 Patterson was appointed to take over the trouble-ridden northern section of the Overland Telegraph Line. In a race against time, he met the same frustrations as his predecessors; the wet set in, but the line was completed—some eight and a half months late. In the circumstances no one could have done better. As a serious, careful man Patterson had accomplished a dangerous task where risk-taking could have cost lives.

He became deputy engineer-in-chief in 1880 and had charge of the development of jetties and other harbour works. Patterson resigned and left for Tasmania in 1886. Next year he won the abandoned contract for the final section of the Bridgewater-Glenora railway line and in May 1892, before his early retirement, he completed the Bellerive-Sorell line.

In retirement Patterson was a royal commissioner enquiring into Hobart municipal government in 1901 and stood for both Senate (1901) and House of Assembly. He was member for Hobart in the assembly from March 1900 to April 1903 and then for South Hobart to July 1904. A forcible speaker on practical questions, he was leader of the Opposition in 1903 but resigned because of ill health after only a few months.

Despite a strong tendency towards strict self-discipline Patterson was occasionally the subject of controversy. Careless remarks about the stability of poles on the Overland Telegraph Line led to a humiliating retraction when the matter was aired in parliament, and, although later exonerated, he was accused of impropriety over the purchase of land at the end of his South Australian career. Workers regarded him as a liberal employer.

A pioneer of rail transportation in three States, Patterson's lasting memorial was Hobart's deep-drainage scheme. He was chairman of the Metropolitan Drainage Board from its inception in 1891 until his death of cerebral haemorrhage during a board meeting at Hobart on 21 June 1907. Survived by his wife and adopted son, he was buried in Queenborough cemetery and left an estate valued for probate in four States at over £50,000.

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- D. A. Cumming and G. C. Moxham, *They Built South Australia* (Adel, 1986)
- Report of the Patterson Enquiry Board, *Parliamentary Papers* (South Australia), 1881 (127)

⁶³ Eastman W H, *Australian Dictionary of Biography*, Patterson Robert Charles (1844 - 1907), *Australian Dictionary of Biography*, National Centre for Biography, Australian National University. Published in hard copy *Australian Dictionary of Biography*, Volume 11, Melbourne University Press, 1988.

- Australian Railway Historical Society, *Bulletin*, June 1974, p 125
- *Mercury* (Hobart), 21, 22, 24 June 1907.

A3.4 Robert Charles Patterson⁶⁴

As described in *The Singing Line* by Alice Thomson. Extracts by Trevor Horman.

Page 149...

When McMinn cancelled the contract for the Northern section in March 1871 his decision was vigorously disputed by the contractor's representative Paqualin. They both returned to Adelaide on the *Gulnare* on 5 July 1871 and caused uproar with their reports. There was only 6 months to go before the deadline for completion of the OT expired. Superintendent Todd was at Strangways Springs, near Lake Eyre, when the news was flashed to him on the wire which had just been fixed up. He rode flat out to Port Augusta, a ten-day journey of over 330 miles, and took the first boat to Adelaide to join the frantic consultations that were taking place in parliament. But he was too late. The government had already taken its decision. Assistant Railway Engineer Robert C. Patterson had been selected to take control of the north. He was only twenty-seven years old and the parliamentary records describe him as "the well-known gentleman".

Page 153...

Todd must have been frantic when he returned to Adelaide and was told that the northern operation was turning in to a catastrophe and, even worse, it was out of his hands. The government was taking direct control and Robert Patterson was now commanding the emergency expedition.

Page 156...

The government gave Patterson every assistance to complete the line. Money was no object. Patterson was offered £300 in addition to his regular salary, and a bonus of £1,500 if the line was completed by 31 December 1871. Adelaide was surprised at the size of the reward. Todd must have felt bitter that he had been given no such incentive.

Page 157...

Todd recommended that half of the provisions for the new offensive should go to Darwin with Patterson and half to the Roper River with Patterson's deputy Walter Rutt (bringing supplies directly to the interior). This was not accepted as the government was concerned that a port on the Roper might rival Darwin which they wanted to establish as the pre-eminent town in the north.

Page 158...

Todd's real problem was Patterson. He'd never liked the man and took care to avoid him at social occasions. Todd thought that Patterson was pedantic. Patterson was cynical and gloomy to his juniors and unctuous to his seniors. He was also obsessive about his wife and his religion. His clammy-handed outpourings about his wife, Elsey, and his endless genuflecting unnerved Todd, who never mentioned Alice to the men.

Patterson was always licking his thick, red lips and toying with his beard; he had a tic in one eye and towered over Todd, to the superintendent's irritation.

Page 159...

Patterson arrived in Darwin in August 1871 to the same conditions that the contractor had faced 12 months previously.

⁶⁴ Thompson, Alice, *The Singing Line - Tracking the Australian Adventures of My Intrepid Victorian Ancestors*, Random House, 2000.

To the men's surprise, Patterson's first pre-occupation was to name the newly discovered tributary of the Elsey River Birdum Creek, "Birdum" being his pet name for his wife.

Page 160...

By the end of October Patterson had not erected a single pole and there were only two months left before New Years Day 1872.

Patterson soon realised that Todd had been right. Taking a boat up the Roper would be the only way to get supplies to the men when the rain began.

Patterson, travelling down to the Roper, had already got his wagon stuck in a muddy rut. The rains had begun again. Realising this meant defeat, he worked himself into a lather of self-pity, bitterness and despondency. One moment he would be shouting at his men, the next weeping in front of them. In long outpouring to Elsey he blamed everyone but himself.

On 10 December 1871 he wrote "I have met with defeat of fame, but I hope in time to think of it with less pain than it gives me now".

Page 167...

Patterson's diary shows that he was almost deranged in his anger towards Todd, whom he accused of spreading malicious rumours. He scrawled "I find that Mr Todd considers my telegram from Port Darwin as unnecessarily alarming. He also attributes the partial failure to the assumed fact that stock had been overdriven and not allowed the fortnightly rest after landing. I am extensively annoyed at the false assumption and the conclusion he has jumped to without a particle of evidence". Patterson decided he had no option but to resign when Todd arrived.

Page 190...

Todd barely recognised the shrunken Patterson when he boarded the *Omeo*. He was even more startled when Patterson immediately insisted in resigning.

This resulted in an exchange of letters between the pair as Patterson insisted that Todd spell out their respective positions in writing.

Page 197...

Patterson whiled away the long hours writing long letters to his wife – one of more than 100 pages – incoherent with pain and anger, and insisted on naming all new rocks, boulders, knolls and islands after her.

Todd wrote to his wife "Patterson is awfully lazy and selfish, does nothing but read, write to his wife, and hardly speaks to his men".

Page 208...

Todd returned by sea to the Roper (from Darwin) where he met Patterson who was livid that Todd was still interfering, and wrote in his diary: "I handed Mr Todd four letters protesting against his

actions after my departure (from the Roper Depot to the interior) and informing him that if such action were repeated, I should at once resign the command of the expedition”.

Page 211...

In July 1872 Todd headed south along the OT checking it out as he went.

Patterson wrote “Mr Todd is getting awfully tiresome and I am looking forward with unaffected delight to seeing the last of him. He should have great reason to be downcast about the line. I would not be in his shoes for double his salary”.

Page 212...

On 9 August the last pole was planted and all that was needed was a few more coils of wire. Patterson now panicked that he was too weak to reach the joining point. There were now only two small gaps in the wire.

Page 213...

Patterson now in sole command, insisted the men cut the new line near him at Frews Pond, so he would have little problem in getting out of his tent and linking the last two pieces. He sent word to Adelaide that he would make the link at midday on Thursday 22 August 1872. The men had to wire in the dark to meet the deadline.

Page 215...

Patterson did not know Morse Code and could not participate in the chatter on the line which Todd enjoyed up until midnight.

A3.5 Alexander James Mitchell⁶⁵



Alexander James Mitchell

The suburb of Mitchell and nearby Mitchell Creek are named after Surveyor A J Mitchell who was a Senior Surveyor with Surveyor General George Woodroffe Goyder during the surveying of Palmerston and surrounding hinterland in 1869-70. He was involved in the actual surveying of the land where the current Palmerston stands.

Mitchell's Number One Party surveyed the East Arm area, after first establishing a wagon line of road from Port Darwin towards Freds Pass, near the previously known Adelaide River. This was referred to by Goyder as the 'start of the highway to the Interior'— the genesis of the Stuart Highway. The Northern Territory was then part of South Australia., with Goyder its Surveyor General. Town and rural lots were urgently surveyed to be sold to raise funds for the development of the Territory.

Darwin (originally Palmerston), Southport, Virginia and Freds Pass were quickly surveyed. Land parties were helped by small boats on Darwin Harbour. Mitchell's old surveys include sections North East of Mitchell Creek, well clear of mangroves and harbour edges. Camping out, Mitchell's men felt mosquitoes and midges, especially at night. Working under pressure in the tropical climate, and virgin bush, with grass sometimes twelve feet high, with primitive tools and transport, was sometimes exhausting for Mitchell's Number One Party.

Later back at Port Darwin, Mitchell was prominent in the camp's infant Port Darwin 'Theatre Royal'. One of his senior colleagues Edwin Smith, described him as 'a brilliant man, a clever entertainer, amiable, but was inclined to be erratic.' After the Expedition he went off to America, and was not heard of again. The 'Mitchell' involved in the Overland Telegraph is a different person.

He then was a Construction Party leader on the OT (especially in the frantic months of first half of 1872). He was there with Patterson at the Joining on 22 August 1872.

⁶⁵ Information from Margaret Clinch, Historical Society of the Northern Territory. No references supplied at this time. Note that Margaret Clinch thinks that the AJ Mitchell who worked for Goyder was a different man to the one involved in the Overland Telegraph Line. However the image above was thought to be taken during Mitchell's time working for Goyder. Comparison with the AJ Mitchell in the image on the cover of this document suggests strongly that they were, in fact, the same man.

Following the surveying around Port Darwin, he is known to have been employed by the Lands Department in NSW (perhaps in 1873) prior to emigrating to California, USA, in 1874.

A3.6 John Alexander Graham Little (1853 - 1906)

John Little was born on 23 May 1853 at Alberton and died on 21 June 1906 at Darwin after a short illness from blood poisoning. He had lived at Alberton, Mt Gambier, Penola, Robe and Darwin.⁶⁶

“PORT DARWIN POSTMASTER. DEATH OF MR. LITTLE.

Mr. John Archibald Graham Little, the senior post and telegraph official at Port Darwin, died there yesterday. The news of his death, however, was not unexpected, as a telegram was received in Adelaide on Friday last stating that Mr. Little was suffering from blood poisoning, as a result of an accident to his foot, and that his condition was critical. Mr. Little was connected with the Telegraph Department for many years and was greatly esteemed by his comrades.

Mr. Little had, at the time of his death, spent nearly 35 years in the Northern Territory. He first became connected with the Government service in February, 1857, when he was given permission to learn the working of the magnetic telegraph, but in the following July he was appointed junior clerk in the railway accountant's office, and telegraph clerk at the Adelaide railway-station. Later he was transferred to the chief telegraph office, and subsequently opened the telegraph offices at Woodside, Nairne, and Naracoorte [sic]. Early in 1864 he was appointed postmaster at Penola, and in 1866 took up a similar position at Robe, where he also acted as sub-collector of Customs and harbourmaster. When it was decided to open the Northern Territory, Mr. Little volunteered for service there, and in August, 1871, proceeded to Port Darwin with the appointment of postmaster. He was at Port Darwin when the overland telegraph line was completed. This occurred on August 22, 1872; the final joint in the line being made at Frew's Ponds, nearly 450 miles south of Port Darwin, Mr. Howley, then a field operator, being the officer in charge at that point. Mr. Little had the distinction of sending the first signals through from Port Darwin to Adelaide. Owing to an interruption in the cable, the first message from England did not arrive until November 1872. It was for Sir William McArthur, of Messrs. McArthur & Co., of Sydney, and was sent from London to his firm, Sir William being also a director of the Cable Company. Mr. Little received and transmitted this message. In that same year Mr. Little was called on to establish Customs duties in the Northern Territory and for several years had charge of the Custom-house, and also held office as Deputy Sheriff. His principle work, however, lay with the Telegraph Department. He had control of all the great undertakings, in the Northern Territory portion of the line, and personally supervised the re-poling of the line with iron poles, and the erection of copper wires. Every year he rode over his section of the line, which extends as far south as Attack Creek, a distance of 600 miles. As the railway only runs as far as Pine Creek, this means an annual horseback ride of over 900 miles. Mr. F. Bradshaw, of Alice Springs, supervises the line from Attack Creek to the southern border of the Northern Territory. Mr. Little was a big man, weighing nearly 17 stone. His son (Mr. E. P. G. Little) is well known in legal circles, and was at one time the partner of Mr. Justice Herbert, Government Resident of the Northern Territory”.⁶⁷

“NORTHERN TERRITORY. PORT DARWIN, May 22.

The body of Mr. J. A. G. Little was buried this morning. The funeral started from the deceased's private residence at 9 a.m., and nearly every vehicle in Palmers- ton was requisitioned. Over 100 followed the body to the grave. One two-horse vehicle was crowded with all the leading Chinese storekeepers. Messrs. Foelsche, Stretton, Finnis, and many other old residents were present at the grave- side. The funeral service was performed by the Rev. J. Drabble, assisted by the Rev. D. Fletcher. The Government Resident, members of the overland telegraph staff, and all the leading townspeople were present. The deceased, in both his official and private relations, was generally respected and esteemed throughout the Territory. Had he lived he would have celebrated his 64th birthday to-morrow. He arrived in the Territory about 1870, and had resided here continuously since.

⁶⁶ SA Genealogy Records.

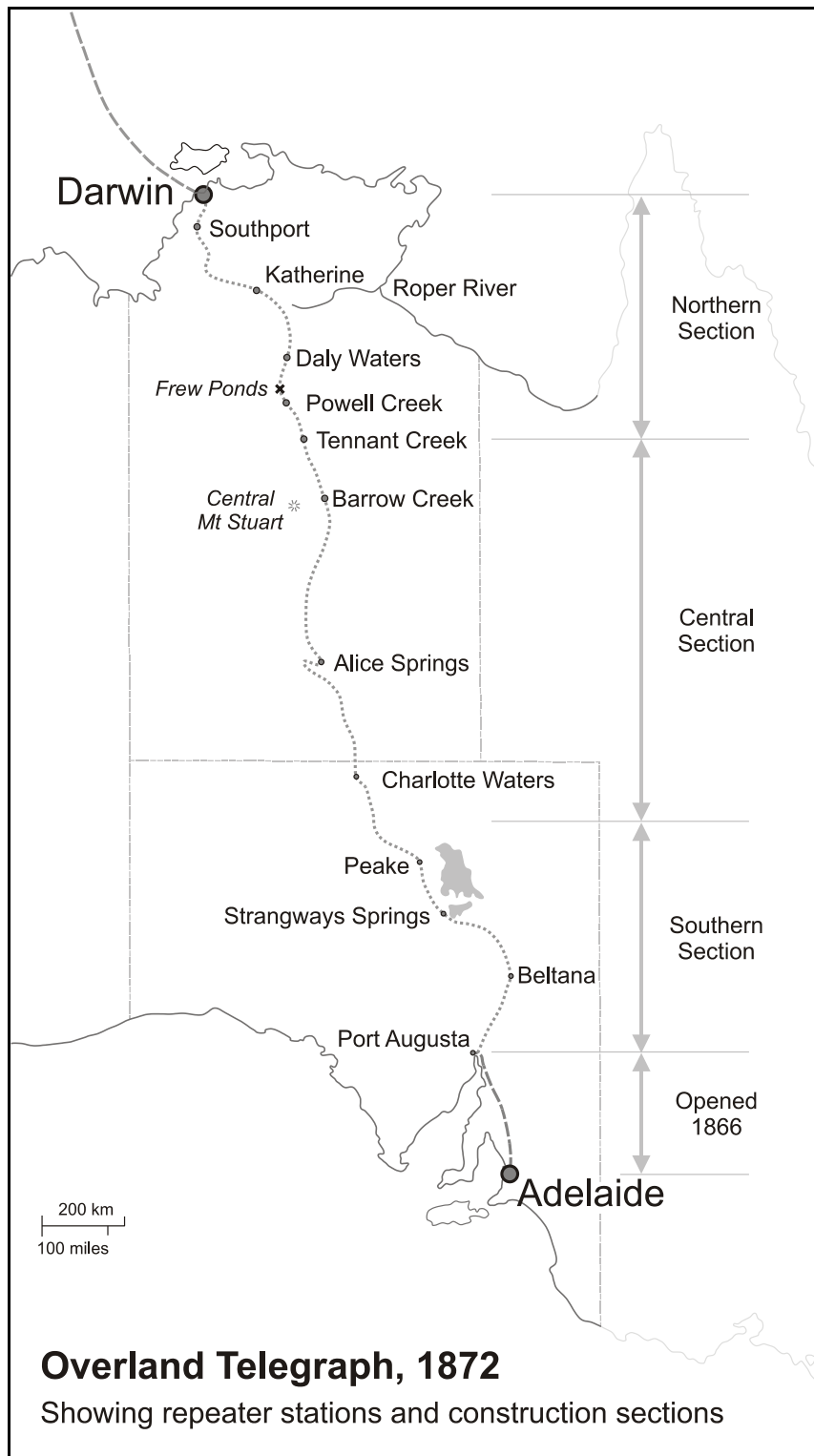
⁶⁷ Source to be checked. Taken from Richard Venus, Nomination Supplements, 14 June 2012.

In a few months he would have completed 50 years in the service of the Government".⁶⁸

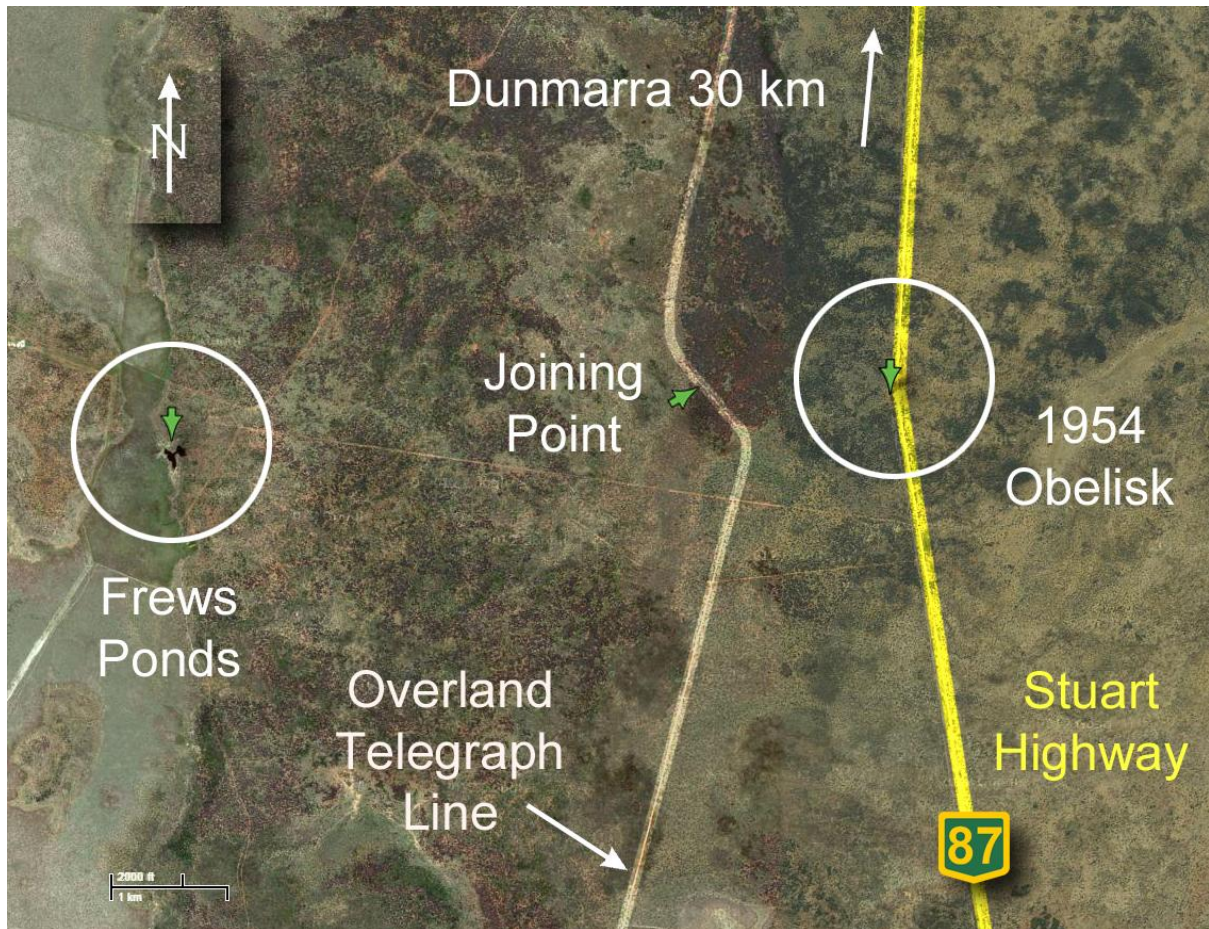
⁶⁸ *The Advertiser*, Wed 23 May 1906, p6h.

Appendix 4: Maps of the Overland Telegraph

A4.1 Locality Map of the Overland Telegraph Line



A4.3 Satellite image of the area around the “Joining Point”⁶⁹



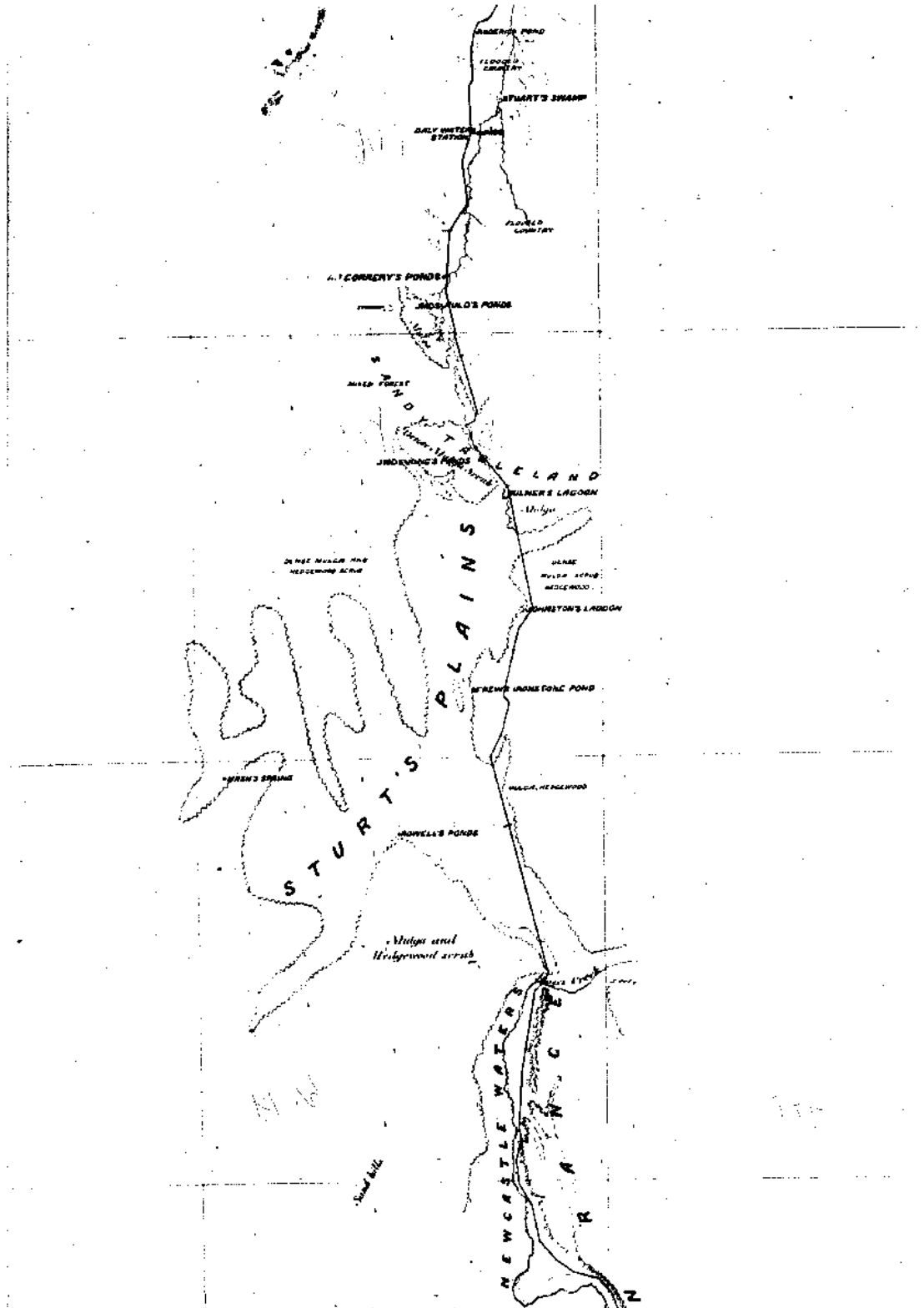
The grid reference of the “joining pole” is: 16°55'20.4”S, 133°24'28.2”E

The grid reference of the obelisk on the Stuart Highway is: 16°55'18.2”S, 133°25'21.3”E

The grid reference of Frews Ponds is: 16°55'37.2”S, 133°21'52.2”E

⁶⁹ Satellite images sourced from Google Earth with annotations by Richard Venus.

A4.4 Map made by Todd in 1874 showing places named by Stuart in the vicinity of the “joining point”. The “joining point” is just below the “P” in Sturt’s Plains. The nearby annotation says: “Frew’s Ironstone Pond”⁷⁰.



⁷⁰ Map sourced from Trevor Horman, 2 June 2012.

Appendix 5: Time Line for Key Dates for the Overland Telegraph ⁷¹

| | |
|-------------------------------|--|
| 8 June 1870 | Port Augusta to Port Darwin Telegraph Bill introduced |
| 16 June 1870 | Bill received assent |
| 7 July 1870 | John Ross appointed to survey and plot the route from Mt Margaret |
| 20 August 1870 | Work team leaves Port Augusta by ship for Port Darwin |
| 15 September 1870 | First pole ceremoniously sunk at Port Darwin |
| March 1871 | Torrential rain and supply problems interrupt work on the Northern section |
| August 1871 | Patterson arrives in Port Darwin to resume work on the Northern section |
| August 1871 | Telegraph Construction and Maintenance Company brings the undersea cable ashore at Port Darwin ⁷² |
| 19 November 1871 | Australia now linked to the rest of the world |
| 1 January 1872 | Penalties of 70 pounds apply for every day the transcontinental line is incomplete |
| 21 January 1872 April 1872 | Charles Todd goes into the field to restart work from Roper River weather permits works to commence |
| 22 May 1872 | Todd sends first telegram across Australia from Port Darwin to a temporary station on Eley River; then by horse to Tennant Creek; then by telegraphy to Adelaide |
| 24 June 1912 | Undersea cable between Port Darwin and Java fails |
| 22 August 1872 | Patterson joins the line near Frew's Ironstone Ponds |
| 20 October 1872 | Overseas line restored; Adelaide and hence Melbourne and the eastern states are now connected to the world |
| 22 October 1872 | First commercial message received followed by congratulatory messages from the Lord Mayor of London to the Mayor of Adelaide |
| 15 November 1872 | Celebratory dinners in Adelaide, Sydney, and London |

⁷¹ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide, 27 April 1999, page 8.

⁷² Trevor Horman advises that the correct date for this entry is 7 November 1871, email 12 June 2012. The laying of the cable from Port Darwin to Banjoewanji (near Bali) commenced on the same day.

Appendix 6: Time Line for Key Dates for Charles Todd ⁷³

| | |
|-----------------|---|
| 7 July 1826 | Born at Islington, UK |
| 5 November 1855 | Arrives in Adelaide with Alice Gillam Todd (nee Bell) |
| June 1893 | Awarded KCMC |
| January 1905 | Retires from SA Public Service |
| 29 January 1910 | Dies at Semaphore; buried North Road Cemetery, Nailsworth |

⁷³ Institution of Engineers, Australia, The, Nomination of the Overland Telegraph for an Historic Engineering Marker at Darwin, Alice Springs and Adelaide, 27 April 1999, page 8.

Appendix 7: Analysis of Construction Progress Leading up to the Joining of the wires

A7.1 Description of the final months of construction between the King River and Tennant Creek as it seems to have advanced on at least three fronts:-

Page 190 of the Singing Line.

1. Patterson's Deputy, Walter Rutt (supplied from Darwin) continuing down from the King River to the Roper. He camped on Providence Knoll (-14° 42' S, 132 ° 49' E) Past Maranboy and 39km from Mataranka (24 miles) during the 1871-1872 wet season..
2. George McLachlan working south from the Elsey (Mataranka) with supplied from the Roper. Red Lily lagoon?? Rendezvous Hill? Warloch Ponds?
3. Richard C. Burton was working somewhere further south heading for Tennant Creek. I suspect that he was supplied from the Roper via the Strangways River (which Stuart had followed). Overseer Burton, during the stoppage in 1871, had built Telegraph Stations at Southport, Adelaide River and Yam Creek.

Page 206 of the Singing Line.

By the end of March 1872 the wet was almost over, Todd sent Patterson out to see if the other camps had survived. It took Patterson three weeks to travel 120 miles to the line. He found Rutt's men first at Providence Knoll. McLachlan's Camp "was only a couple of miles away" but they hadn't spotted each other.

Page 118 of Glenville Pike

At a camp at red Lilly Lagoon (on the Elsey Creek), Richard Knuckey found men who had tried to go to meet the "*Bengal*" who were literally starving, marooned for 10 weeks by floodwater.

This was in early 1872. It was George McLachlan's party. It's about 45 miles from Rutt's camp at Providence Knoll.

Page 106 of Leybourne-Ward

Todd (from Adelaide) sent Knuckey, Mills and Bagot (supervisors from the Central Section) to explore to explore north from Tennant Creek and they set out on 19 December 1871. They were authorised to pole at 10 poles per mile (rather than 20 poles per mile). The net effect was that 82 miles of the northern Section (north from Tennant Creek) was constructed by Harvey's party. This is around Helen Springs which is south of Elliott.

(The distance from Helen Springs to Mataranka is about 265 miles)

Page 122 of Glenville Pike

On the evening of 9 July John Lewis and his young brother Jim travelling north from Tennant Creek reached Attack Creek (at 45 miles) where some telegraph men were camped.

By sunset on 10 July 1872, the Lewis brothers from Tennant Creek had reached Richard Burton's camp at Renner Springs 120 miles north of Tennant Creek.

Further north at Lawson Creek they met Richard Knuckey and Christie Bagot. Then on past Newcastle Waters and Frews Ponds to McGorrerey's Ponds where they met Walter Rutt of the northern construction party. The Lewis's rode on the point where the telegraph was operational (which Pike says was Milner's Ponds but that place is half way between Frews Ponds and McGorrerey's Pond). Not sure what happened to McLachlan.

Page 124 of Glenville Pike

Those present at the joining included Robert Patterson, Walter Rutt (his deputy) A.J.Mitchell (Member of Todd's team) Andrew Howley (telegraph operator) Ricks, Hands (pony express rider) , Bayfield, Hack and John Lewis (pony express contractor).

No mention of Richard Burton

On the basis of the above it would seem that:-

At the end of the 1871-1872 Wet in March 1872 progress was thus:-

The line was poled from Darwin to the King River (230 miles)

The line was wired from Darwin to Yam Creek (112 miles)

From the south Harvey had completed Section E of the Central Section on 1 November 1871.which was at Tennant Creek.

Harvey went on with his crew to build another 82 miles north to Helen Springs. He would have been supplied from south which was a very big ask.

The distance from Helen Springs to Yam Creek is about 394 miles which required wiring. This was the much spoken of "Gap"

The distance from Helen Springs to Mataranka is about 265 miles which required poling.

When work restarted at the end of the Wet in March 1872 the following is presumed:-

1. Walter Rutt and crew continued working south from the King River towards the Elsey (about 33 miles). This would have included wiring from Yam Creek to the Elsey (about 143 miles).
2. Richard Burton may have been supplied from the Roper River via a route along the Strangways to near Daly Waters and worked from there southwards Helen Springs (155 miles)
3. Rutt may have continued south from Elsey to Daly Waters (90 miles). In July 1872 he was at McGorrerey's Ponds south of Daly Waters.
4. Harvey was obviously still involved as he could have been working the midnight shift on 21 August and had told Patterson that the joining could not happen until noon on 22 August.

A7.2 Newspaper Clippings relating to the completion of the Overland Telegraph Line

SA Register Saturday 17 December 1870

THE OVERLAND TELEGRAPH.

The following is a copy of a telegram which has been received from Mr. B. Douglas, Government Resident Northern Territory, dated 20th October, 1870:—

“All well. Mr. McLachlan and party returned on 25th September, having reached latitude 14° 20' S. on the Chambers. Saw two of Stuart's camps. Very fine country, eligible for telegraph line. Mr. McMinn adopts another track more southerly. Telegraph proceeding. Work finished in two sections, 60 miles. Line working 28 miles. By the 10th November sections will be joined, and 100 miles will be completed. Gulnare sails for survey of entrance to the Roper on 5th November. Mr. McLachlan in charge of survey. Natives friendly. Everything going on satisfactorily.”

Border Watch (Mount Gambier, SA) Saturday 6 July 1871

The Overland Telegraph

LATEST advices from Adelaide report arrangements to be in fair train for the recommencement of the Port Darwin section of the overland telegraph. . Mr. Patterson expects to leave for Melbourne next week with 100 men and necessary appliances for the work, where, it is said, the Omeo has been chartered to go with the party to Port Darwin. Mr. Boss is buying up teams, &c., which he will dispatch .from" Sydney with all possible speed. The Gulnare will leave Adelaide for the same destination without delay, and also the Bengal as soon as the mail arrives. By all these various means it is hoped such an amount of

strength and material will be accumulated as will still leave a chance for the work to be finished within the prescribed time.

The length, of the Port Darwin section is 650 miles, of which it is probable Mr. Patterson, will find 225 miles completed, reducing his task to 425. It is anticipated he will reach the scene of his labours "about the end of August", thus leaving four months - available before the contract time expires. If he can get over 25 miles per week he will accomplish all that, is now expected of him. As the interior parties have had notice to push on north to meet him it is probable substantial help will reach him from that quarter. Like the Surveyor-General he goes forth with the promise of a handsome bonus if he saves the colony's credit, and no doubt he will do his best to earn it.

The Overland Telegraph

On Jan. 25. The South Australian Assembly spent half-an-hour in debating the position of the overland telegraph. There were (says the Register) few expressions of regret that such a work should have been undertaken, but there were loud lamentations over the muddle into which operation at the northern end have been brought, and frequent references to the impolicy of entering upon the construction of the line without first obtaining the help of the other colonies. The discussion was evidently only a prelude to what is to come, for members, although they have hitherto said little, have thought much over the arrangements for repairing mischief caused by the miscarriage of Messrs. Darwent and Dalwood's contract, and they have come to the conclusion that the time for explanations has arrived. A few pertinent inquiries were put on Thursday, but the information elicited served only to sharpen the appetite for more, and it is understood that on Tuesday next a full battery of questions will be opened upon the present and late Ministers, unless they see fit to forestall the attack by volunteering a particular account of all matters upon which the curiosity of the House has been roused. Considering the nature of the emergency to be met, and the utmost promptitude in meeting it, it would be ungenerous to scrutinize too narrowly every item of expenditure incurred, but there are some points which sadly require elucidation. Especially is it necessary that every circumstance connected with the abandonment of the Roper at the main base of operations for Mr. Patterson's expedition should be stated.

Border Watch (Mount Gambier, SA) Saturday 6 January 1872

The Overland Telegraph

THE news in our telegraphic column; relative to the overland telegraph is highly satisfactory. The Port Augusta contract, as well as the five central sections - carried, out by-the Government, have all- been completed, and communication with Adelaide has been established for an unbroken stretch of 1200 miles. In other words; Adelaide is now in communication with the southern point, of the section on which Mr. Patterson is engaged. "When Mr. Patterson reached the Northern Territory it was expected he would find somewhere , about, 400 miles of the work delegated to him uncompleted, and it is only reasonable to suppose that in the six or eight weeks he had for work before the end of the year, that he was able considerably to reduce that distance. His instructions were to push on with the utmost expedition and not to be over-particular as to the manner in which the line was put up so that it would only convey a message. A substantial job was not expected or required of him. He was to get the wire extended - leaving it for a future time to fix up in a more permanent form. He would thus be able to push on at a more rapid rate than any of the

other construction parties; and as we now learn that he will be aided from the south there is a strong probability that before the pony express has made many trips the existing break will be bridged over. In town the first overland message is now anxiously looked for, and it may reach Adelaide at any moment.

(What baseless confidence!!!)

SA Advertiser. Wednesday 14 February 1872

OVERLAND TELEGRAPH.

We shall be able immediately to supply our readers with very full particulars respecting the Overland Telegraph Line, as a mail dispatched from the Roper has reached the Gums, and the party bringing it must have travelled over the greater portion of the central sections since the floods that have so long interrupted communication in the creeks the water has been a great height, and many piles have been washed away, but, as far as we know at present, it does not appear that any long stretches of the line have been removed. Communication has been reopened as far as the Charlotte Waters, but has since been temporarily stopped by the method in which the contractors on the southern section of the line are erecting the intermediate iron poles. They plant a number and afterwards fix the insulators, and meanwhile these poles on which the insulators have not been placed have the wire leaning against them, and this prevents the operators from speaking each other distinctly. We understand the constructors will be asked to fix the insulator on pole as it is erected, so that each interruption will be very brief. No effort will be spared to get the utmost possible intelligence up to the time of the Bangalore leaving. All along the line wherever there have been floods repairing parties are working with the utmost energy.

Border Watch (Mount Gambier, SA: 1861 - 1954) Saturday 29 June 1872

OVERLAND TELEGRAPH.

The following is the telegram received on Monday last from Mr. Todd :-

Palmerston, May 22, 1872.

Your message of March 19th overland, only reached me on May 18th, having been stopped on the road. I am much pleased to hear that my action in taking Omeo up Roper was approved of by the Government.

I fear the great delay owing to the heavy floods must have occasioned great disappointment; but country was impassable, and had I rushed my stock I should have lost large numbers, and probably caused loss of another season. The construction parties could do little or nothing till weather cleared and fresh rations arrived.

I now expect to have line completed south of Daly Waters, or 400 miles, in two or three weeks (say June 12), and wire is being sent with all dispatch to wire line from Tennant's

Creek to Morphett's Creek, to which point I am informed Messrs. Harvey and Mills have erected poles north of Section E. This will still leave a gap of nearly 180 miles; but the three construction parties under Mitchell, Rutt, and Burton will speedily fill it up if all goes well.

'Mr. Knuckey, who proceeds to Tennant's Creek, will be able to give full particulars as to the progress making. Should it be satisfactory I propose that he shall at once organize a weekly express service, to start, say every Tuesday, from each end of the gap, meeting in the middle, where bags would be exchanged. There will be three or four intermediate camps, with relays of men and horses to secure dispatch.

I would, suggest that several days' notice should be given before first express starts. The first express from this side will be dispatched when the replies are received from London; after which it will start from each end every Tuesday, as before explained.

I expect to be at Daly Waters by the middle of next month, and will make, all necessary arrangements there that are important to establish the express service as soon as it can be done effectively, but hitherto it has been impracticable, as the gap has been too long.

I have communicated full particulars as to progress to Agent-General, and had replies. He has received orders for 1,000 iron poles, which he advises will reach Melbourne in October.

I am having line between this and the Catherine thoroughly overhauled by Mr. Little. Have bought all Millner's sheep to save cartage.

.Sydney Morning Herald Monday 22 July 1872

THE Hon. the Postmaster-General received the following telegram an Saturday morning, from Mr. C. Todd, Superintendent of Telegraphs, South Australia :-"Attack Creek, 10th July. Latitude 19. Overland Telegraph was progressing rapidly. Expect to have gap of only sixty mile at first week in August, when Estafette will run three times a week. Wire communication right through by end of August, or first week in September. Shall strengthen line next year with large number of iron posts."

OVERLAND TELEGRAPH LINE!

We are indebted to the Postmaster-General for a copy of the following telegram from Mr. Todd, the superintendent of telegraphs of South Australia:

CENTRAL MOUNT STUART.

We have put a most substantial line, and I intend to introduce iron poles gradually throughout, as wooden ones decay. Have seen no desert as yet, and have been travelling through a splendid country, which only requires to be known to be settled.

Gippsland Times (Vic. : 1861 - 1954) Tuesday 20 August 1872

THE OVERLAND TELEGRAPH.

The following telegram, dated 15th August, is published in the Melbourne morning papers of Friday: A telegram was received from Mr Todd last night, dated Barrow's Creek, 14th inst., in which he says that he arrived there yesterday, and had the intense satisfaction of informing the Government that through communication between Adelaide and Port Darwin, a distance of 2,000 miles, would be completed by "the end of next week, or earlier. The line is working splendidly throughout, and he (Mr Todd) felt assured the Government would acknowledge, since the work had been resumed at the end of the wet season, that no time had been lost, and with the vexatious delays and mishaps the erection of 2,000 miles of telegraph through the centre of Australia in less than two years was not bad work, considering that the necessary material had been procured from England. He hoped that the submarine cable would be repaired by the time that the overland line was completed. The estafette arrived last night at Lawson, having left the north end wire station on Tuesday morning, when the cable was still interrupted. From the above date it will be seen that the existing gap has been traversed in two days.

SA Register 4 April 1873

THE OVERLAND TELEGRAPH.

Mr. R. E. Knuckey, the Superintendent of the party which is to proceed to the Roper for the purpose of partly re-poling the Overland Telegraph with iron poles, has selected about 60 men to accompany mm, most of whom have already been under him in the Northern Territory. There have been altogether several hundred applications. The complete expedition is as follows: — Officer in command— R. R. Knuckey; overseers of transport— S. Jarvis and E. Bayfield; teamsters and labourers— Wm. Wood, Fredk. Wood, H. M. Jones, Charles Dix, J. Barwis, Geo. Cooke, S. Jones, D. Frinsdorf, T. Walker, G. Vicary, J. Lloyd, Wm. Vile, W. Carter, W. Batton, J. R. Knuckey, A. Hart, M. Papps, J. Hockley, J. A. Ewart, W. Ogilvie, A. Warren, W. Bushby, W. P. Farrant, T. Jones, T. Bacon, R. S. Brown, W. Crick, T. B. Crispe, H. Brumley, J. Hunter, u. Floyd, E. Burford, C. Floyd, G. Clark, G. H. Langford, L. Chalmers, fl. Bayfield, M. Cowalick, J. Thomson, E. Quigley, J. Cronk, W. Pike, C. Laycock, M. Francis, J. Cocker, J. Fernee, T. Cocker, M. E. Fitch, E. J. Sampson, P. Kealey, J. Brennan, J. Dairs Vannan, T. F. Smith, E. Judd.

SA Advertiser 20 May 1899

The Overland Telegraph

The work of erecting a second wire along the line of the Transcontinental telegraph is proceeding satisfactorily, but in the Northern Territory the progress made has necessarily been much less rapid than in the south, as in the wet season the cartage of material in the tropics was brought almost to a standstill. The Post Master-General expects to have the second wire in position from Adelaide to Barrow Creek by the end of June, and the whole work will probably be completed early in August.

Appendix 8: Naming of Frews Ponds

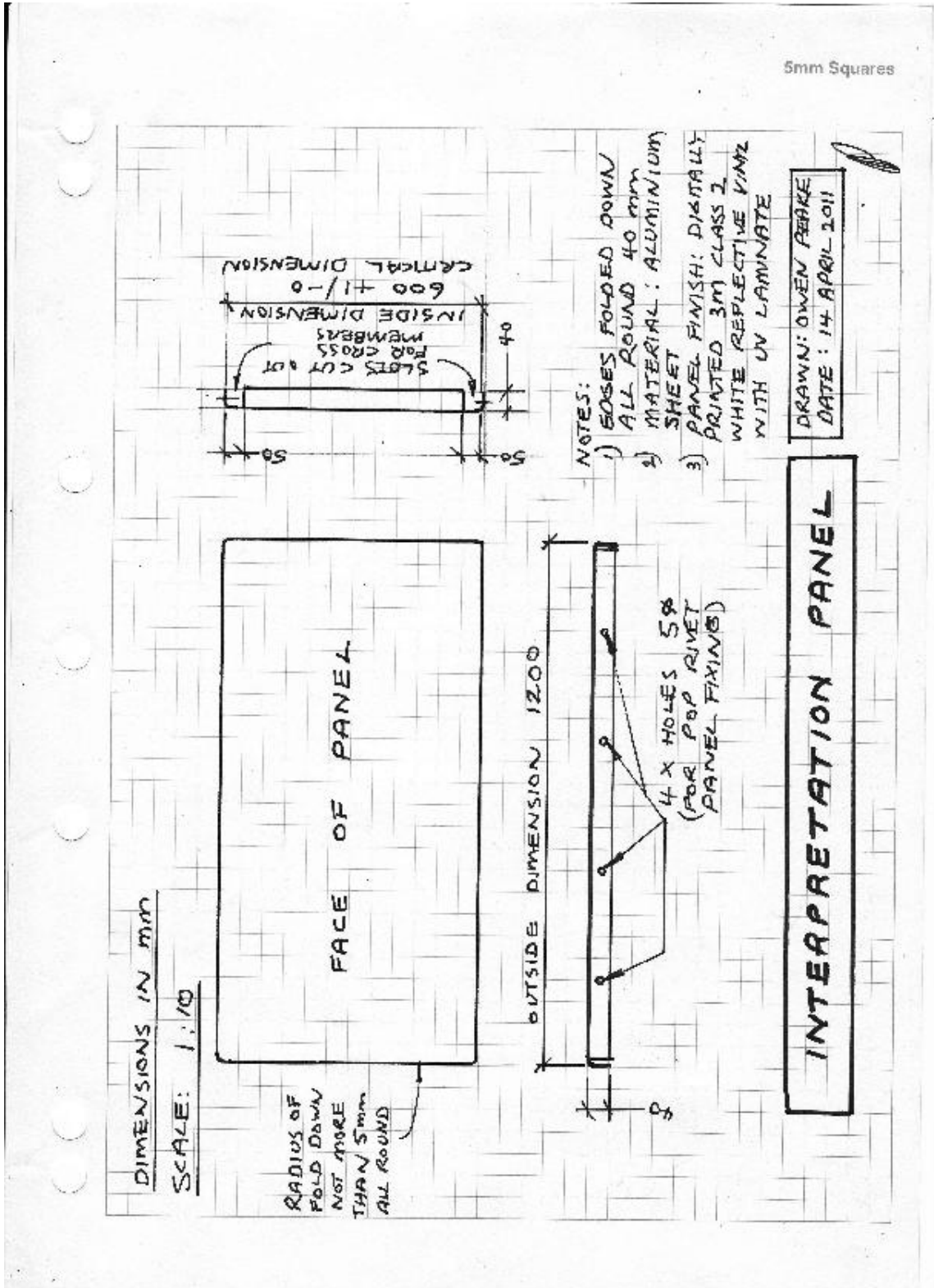
“Stuart had named the waterhole after James Frew, a member of his 1862 expedition. He had written in his diary on 1 May 1862:

Leaving Mr Kekwick in charge of the party, starting with King and Thring to the waterhole that I discovered on the 15th ult.; arrived in the afternoon and camped. This waterhole I have named ‘Frew’s Water Hole’, in token of my approbation of his care of, and attention to, the horses.

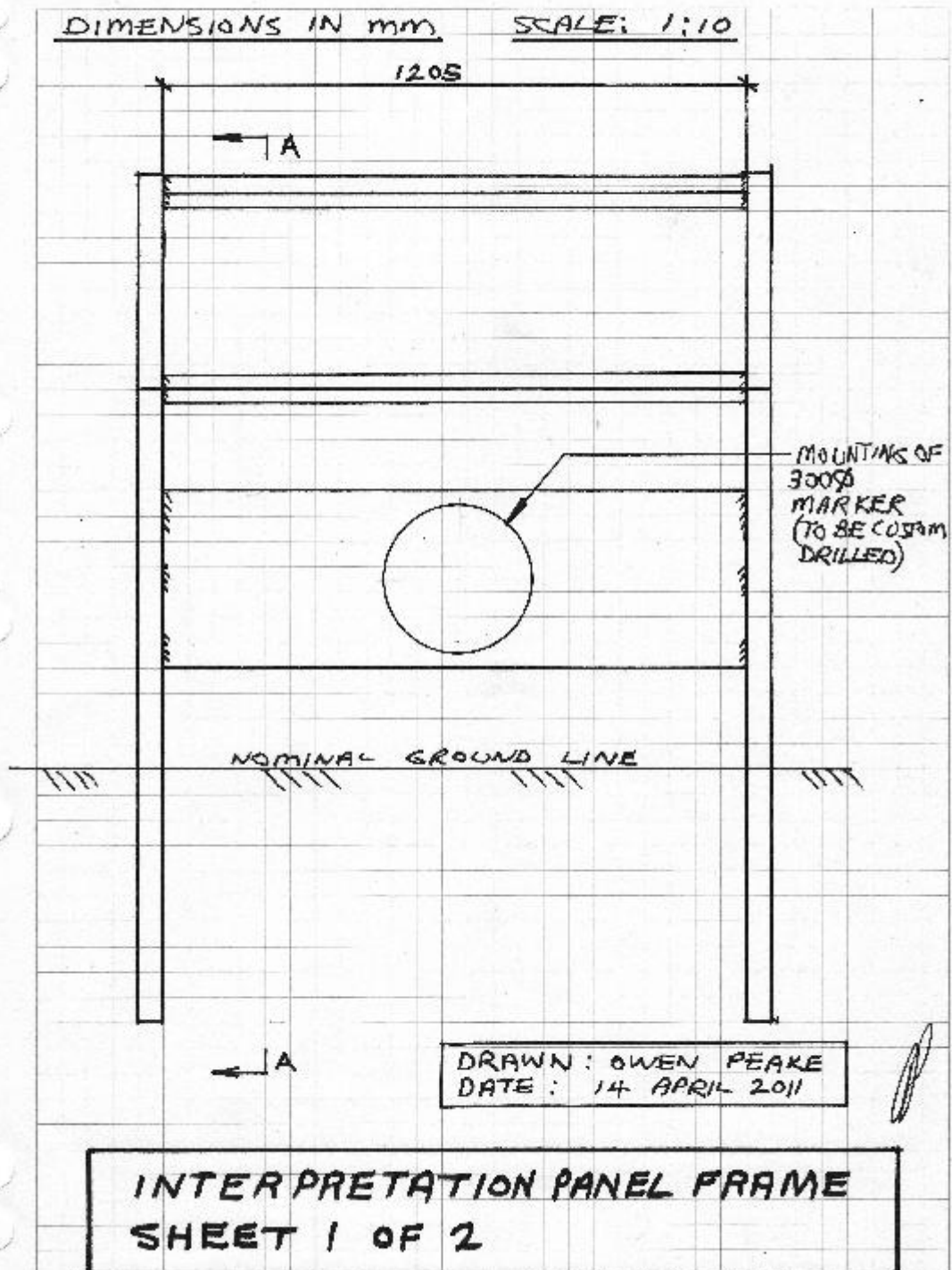
Stuart had named many such features after members of his party and friends in Adelaide, and although many still appear on maps, others have since been forgotten. It was an accident of history that led Frew’s name to live longer than most of the others, an accident that would make this waterhole, which was no more important than countless others Stuart named, more famous as the place where the Overland Telegraph Line was finally joined⁷⁴

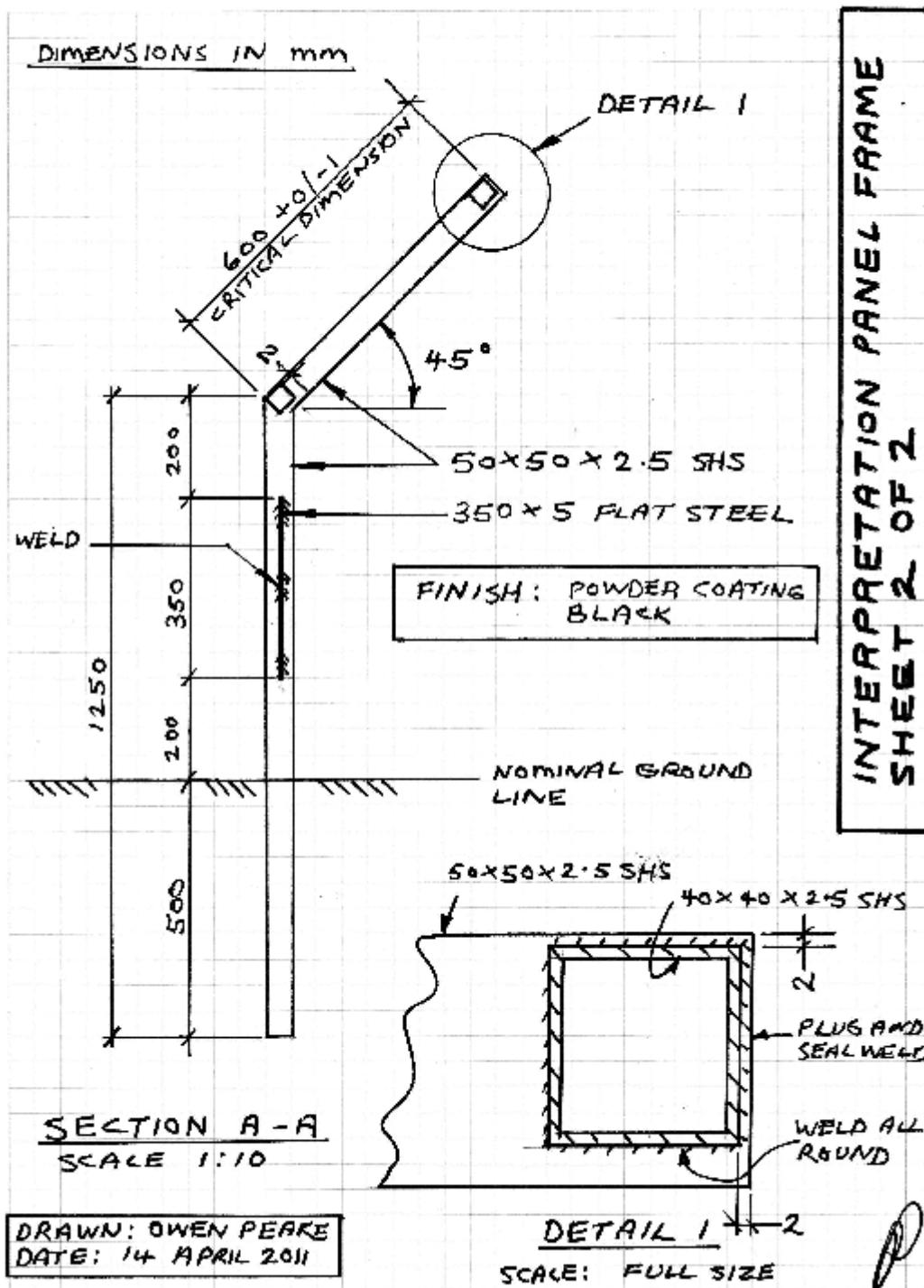
⁷⁴ Taylor, Peter, *An End to Silence - The Building of the Overland Telegraph Line from Adelaide to Darwin*, Methuen, 1980, pages 153-154.

Appendix 9: Interpretation Panel & Mounting Frame Drawings



5mm Squares





CHANGE CONTROL

| | | | |
|-------------------|---------------------|--------------------|---|
| VERSION 1 | 23 MAY 2012 | 1668 WORDS | COMMENCED DRAFTING |
| VERSION 2 | 24 MAY 2012 | 3374 WORDS | |
| VERSION 3 | 26 MAY 2012 | 6716 WORDS | |
| VERSION 4 | 27 MAY 2012 | 7447 WORDS | |
| VERSION 5 | 4 JUNE 2012 | 8125 WORDS | REVISION BASED ON OP CHECK READ 29 MAY 2012 |
| VERSION 6 | 4 JUNE 2012 | 9331 WORDS | REVISION BASED ON CHECK BY TCH 2 + 4 JUNE 2012 |
| VERSION 7 | 6 JUNE 2012 | 9438 WORDS | REVISION BASED ON CHECK BY RV EMAIL 3 JUNE 2012 |
| VERSION 8 | 6 JUNE 2012 | 10420 WORDS | REVISION BASED ON EMAIL FROM TCH OF 4 JUNE 2012 |
| VERSION 9 | 7 JUNE 2012 | 12778 WORDS | REVISION BASED ON EMAIL FROM TCH OF 5 JUNE 2012 |
| VERSION 10 | 8 JUNE 2012 | 14318 WORDS | REVISION BASED ON EMAIL FROM RV OF 6 JUNE 2012 |
| VERSION 11 | 8 JUNE 2012 | 14605 WORDS | ADDITION OF APPENDICES 5, 6, AND 9 |
| VERSION 12 | 8 JUNE 2012 | 14565 WORDS | FORMATTING & INDEX CHECK |
| VERSION 13 | 11 JUNE 2012 | 14601 WORDS | REVISION BASED ON EMAIL FROM RV OF 9 JUNE 2012 |
| VERSION 14 | 11 JUNE 2012 | 15228 WORDS | ADDED INTERPRETATION PANEL TEXT AT PARA 7.5 |
| VERSION 15 | 13 JUNE 2012 | 15277 WORDS | REVISION BASED ON EMAIL FROM RV OF 11 JUNE 2012 |
| VERSION 16 | 13 JUNE 2012 | 15284 WORDS | REVISION BASED ON EMAIL FROM TCH OF 12 JUNE 2012 |
| VERSION 17 | 13 JUNE 2012 | 15629 WORDS | ADDED MITCHELL BIOGRAPHY |
| VERSION 18 | 13 JUNE 2012 | 15668 WORDS | ADDED 2 ADDITIONAL IMAGES |
| VERSION 19 | 15 JUNE 2012 | 15669 WORDS | REVISION BASED ON EMAIL FROM TCH OF 14 JUNE 2012 |
| VERSION 20 | 15 JUNE 2012 | 16406 WORDS | REVISION BASED ON EMAIL FROM RV OF 14 JUNE 2012 |
| VERSION 21 | 15 JUNE 2012 | 16267 WORDS | REPLACED NOMINATION LETTER DRAFT WITH SCANNED COPY |