

# 'Buried in the Courtyard of the New Gaol':

## Geophysical Methods for Lost Grave Detection at a South Australian Colonial Prison

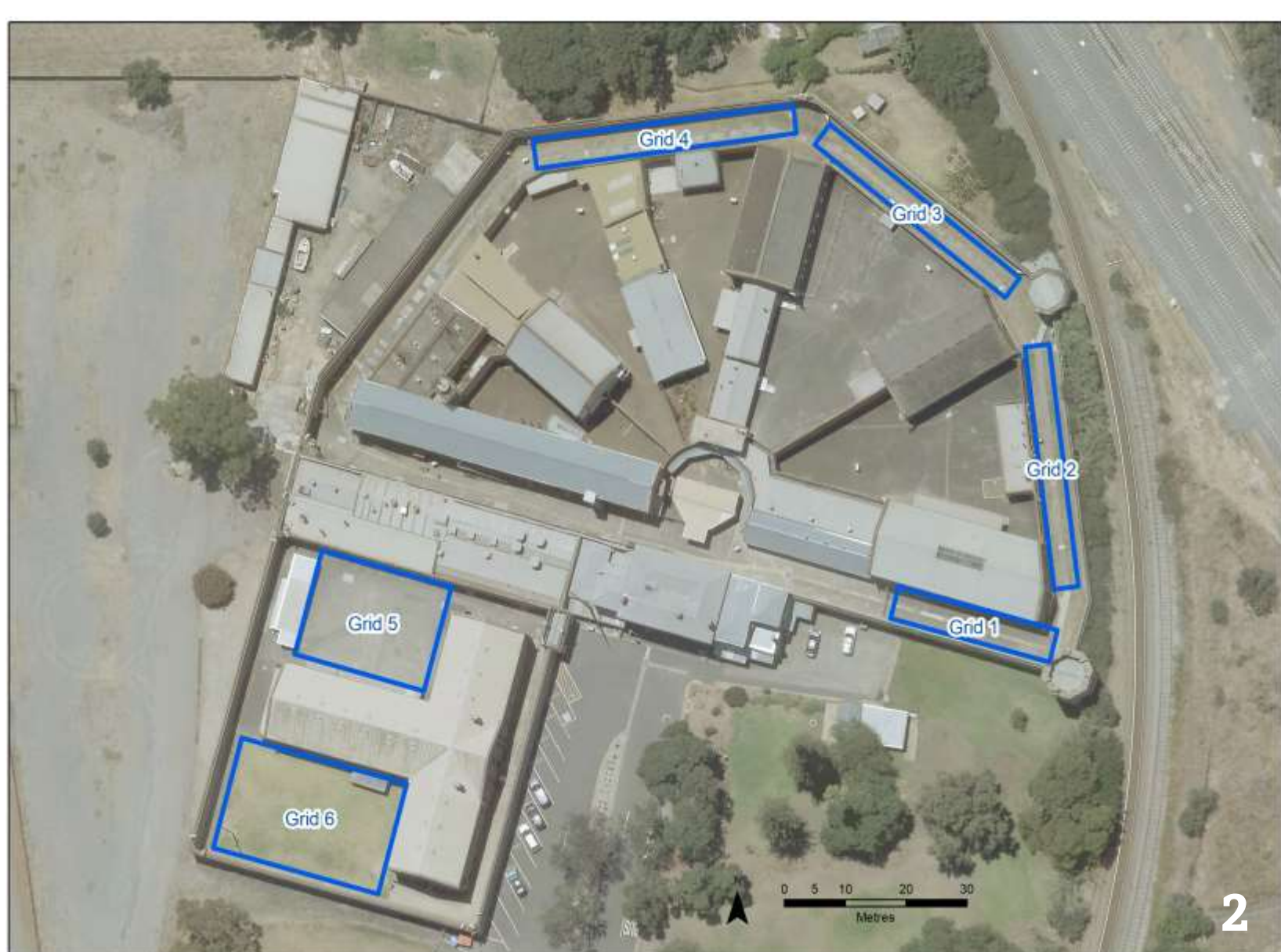
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### History

The Old Adelaide Gaol was opened in 1841, and decommissioned in 1988. The Colony of South Australia, being a 'free' colony, had never planned for a prison, but shortly after its establishment, it became apparent that a penal institution was required, and so Governor Gawler was tasked with the building of Her Majesty's Gaol, Adelaide (Fig. 1).

During its 147 years, over 300,000 people were imprisoned in the Gaol, and 45 were executed by hanging. In addition to the executed prisoners, more than 300 prisoners died within the walls from disease, violence, and natural causes.

All of the 45 executed prisoners were buried at the Gaol, along with some of these incidental deaths; however, due to changes in the layout of the Gaol in its first 50 years, lost plans, and incomplete records, the locations of the earliest burials, including the first 11 executed prisoners, have been lost. The only clue remaining is a note in the early journals of Governor William Baker Ashton, stating that they were "buried in the courtyard of the new gaol". No 'courtyard' was ever designated in the Gaol design. Additionally, there have been rumours for many years of underground 'deprivation' cells near the New Building (constructed 1873).



Grid Number	Size (m)	GPR Lines	Total length of GPR line (m)	GPR Picks
Grid 1	27 x 5	11	297	140
Grid 2	38.5 x 4	9	346	133
Grid 3	39.5 x 4	9	355	145
Grid 4	43 x 4.5	9	386	129
Grid 5	17 x 22	35	770	918
Grid 6	18 x 28	37	1036	946



### Methods

Fieldwork was done over two full days in November 2021, using ground-penetrating radar (GPR). Six grids were set up in the Gaol (Fig. 2), four between the inner and outer walls where the known burials are located and those 'lost' were rumoured to be (Figs. 3 & 5), and two in exercise yards around the New Building, where the underground cells were suspected (Fig. 4).

GPR offers a method to remotely investigate the near surface in a non-invasive and non-destructive way. The GPR can help detect features in the subsurface matrix that show variations in their permittivity or conductivity. These features can be naturally occurring, such as stratigraphic changes, or of anthropogenic origin.

The GPR pulse will reflect, refract, or diffract from features that show a change in permittivity or conductivity, with the size of the recorded reflection an indication of the change. The raw data is viewed as a radargram, and then processed to improve the signal-to-noise ratio. This processed data can be viewed in 2-D, as a radargram, or in 3-D as time slices.

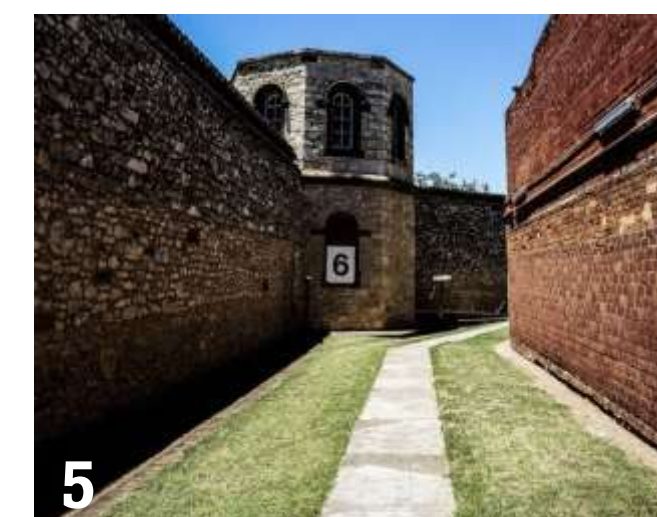
Any reflections seen in the radargrams are recorded as 'picks', and mapped spatially.

Figure 2/table: Grids surveyed in the Old Adelaide Gaol. Layout in current era.

Figure 3: Known burial in Grid 4 (Charles Streitman, 24 July 1877)

Figure 4: Surveying Grid 5 (New Building Yard)

Figure 5: Eastern end of Grid 3 (known cemetery), facing the Hanging Tower



### Results

Over the 3190 m of GPR traces, 2411 picks (or stratigraphic breaks) were identified. 22 of these picks are associated with possible burial sites.

There were 16 possible burials recorded, along with several subsurface voids or pits. Possible burials were in Grid 1, partially underneath the Remand Building (constructed in 1873), and Grid 3, dotted amongst known burials (Figs. 6 & 7).

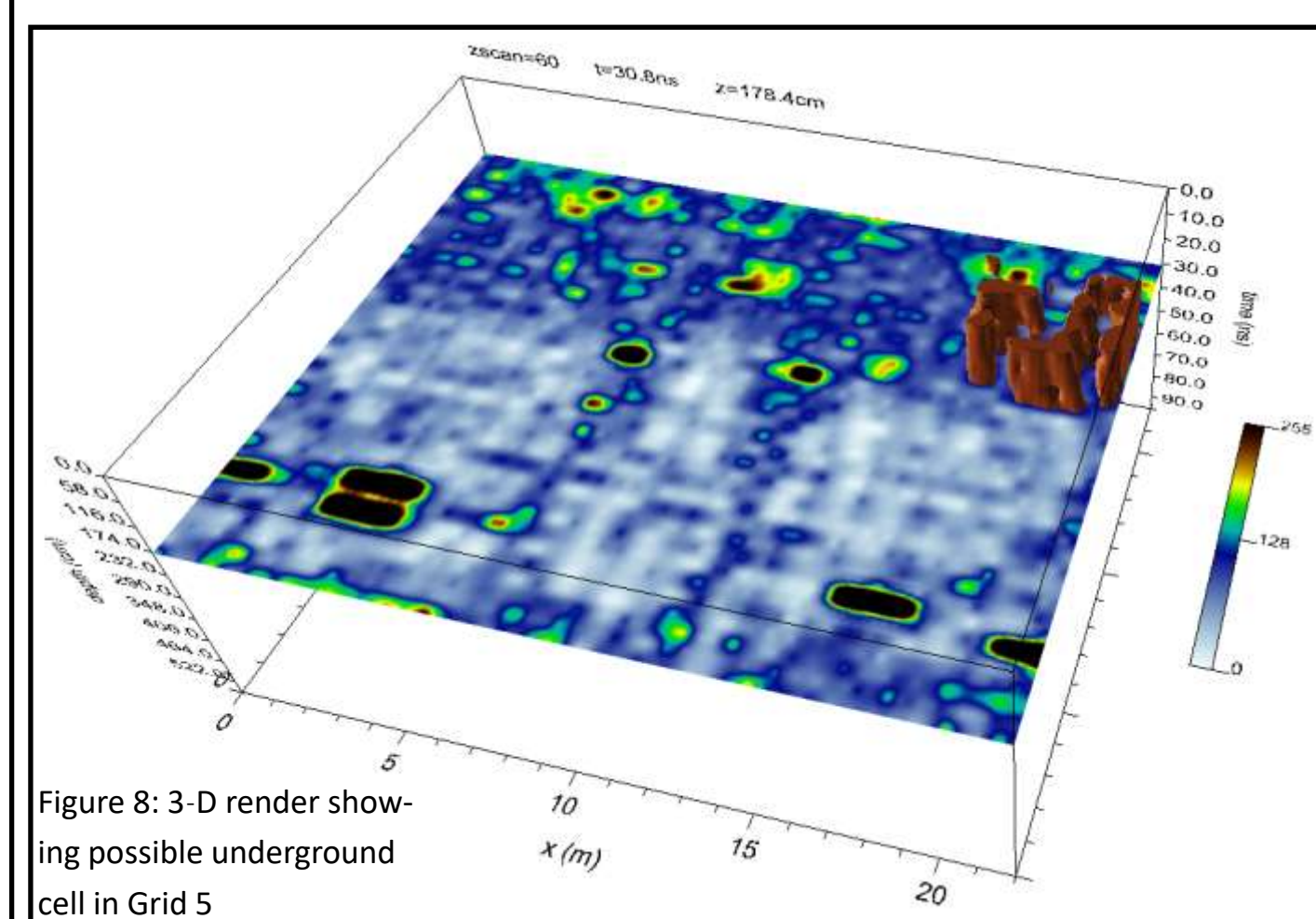


Figure 8: 3-D render showing possible underground cell in Grid 5

In Grid 5, signs of a rumoured underground cell were seen, against the southern side of the New Building yard (Fig. 8).

More investigation is needed to verify these results: the Gaol have refused further access at this time due to a new government project.

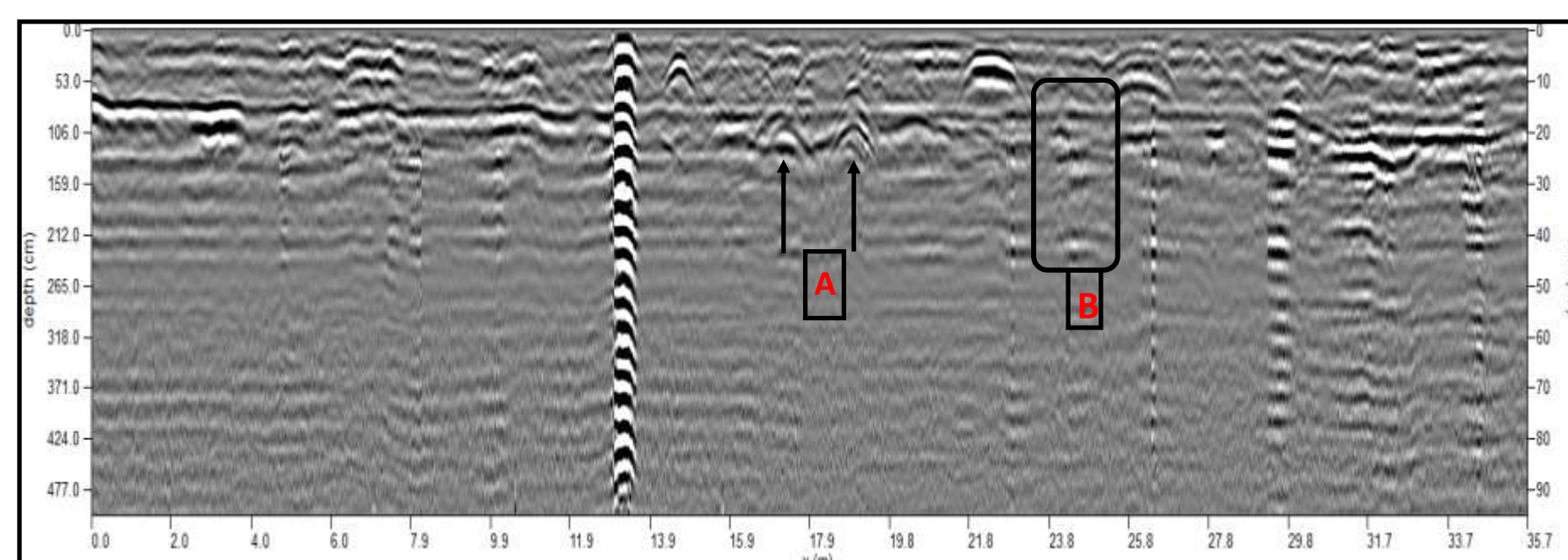


Figure 6: Possible burial sites in Grid 3. Time slice from 7.9–11.7 ns or 41.9–62 cm. Known grave to right (B), possible grave to left (A).



Figure 7: Grid 3, Line 24. Known graves marked with X, all graves detected by GPR marked with blue

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