ANNEXURE B:

HISTORICAL SUMMARY

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Based on historical overview in the SAAO Heritage Inventory prepared by Nicolas Baumann and Sarah Winter dated May 2011 and in various publications, notably a book on the history and heritage of SAAO authored by I.S Glass (2015).

A. Pre-establishment of the Royal Observatory

Prior to the establishment of the Observatory, the Liesbeek Valley would have provided suitable hunting, gathering and grazing ground for indigenous hunter-gatherers and herders. With the establishment of a *Vereenigde Oost-Indische Compagnie* (VOC) outpost in Table Valley in the mid-17th century, land cultivation and pasturage became critical to the survival of the refreshment station. The VOC thus extended settlement to the Liesbeek Valley in the later 17th century; fenced, fortified and farmed it. The expansion of colonial settlement resulted in deterioration of relationships between the Dutch and the Khoekhoen herders with growing tensions and disputes over access to land. Open conflicts broke out within the Liesbeek Valley during this period (Sleigh 1998; Worden *et al* 1998).

B. Royal Observatory (1820-1905)

The Royal Observatory at the Cape of Good Hope was formally established in 1820 in order to determine accurate star positions and provide a reliable time service to aid the navigation of ships. The site selected was a portion of Valkenberg farm, described as a rocky mound between the swampy areas of the Liesbeek and Black Rivers (Glass 2015).

The first royal astronomer at the Cape was Reverend Fearon Fallows. Under his direction, the main Observatory building was completed in 1828. It was equipped with state-of-the-art astronomical equipment (Glass 2015).

The Observatory is now recognised for major achievements in astronomy during the 19th century. To mention just a few:

- Thomas Henderson was royal astronomer between 1831 and 1833. He made the first observations from which the distance of a star (other than the Sun) could be calculated (Glass 2015).
- Thomas Maclear's arrival in 1834 marked an important phase of both astronomical and survey work. He re-measured Lacaille's Arc of Meridian (1751-1753), established the true shape of the earth in the southern hemisphere and performed the first accurate geodetic surveys of Southern Africa (Glass 2015).
- David Gill was royal astronomer between 1879 and 1905. He pioneered the use of photography in accurately charting and measuring star positions. He was responsible for organizing a massive international effort to produce a detailed photographic 'Map of the Heavens' and produced the Cape Photographic *Durchmusterung*. Gill's Reversible Transit Circle (RTC) was state of the art engineering principles which ensured exceptional stability and precision in positional measurements (Glass 2015).

Several astronomers were also artists who left valuable drawings of the Cape (1839-1860), e.g. John Herschel and Charles Piazzi Smyth. Its buildings and setting have also inspired artists to draw, paint and photograph the Observatory, e.g. Thomas Bowler and Charles Peers (Glass 2015).

The oldest dome on the site is the Heliograph Telescope erected in 1847. The wooden dome that runs was cannon balls was prefabricated in England. It originally housed a 7-inch telescope manufactured by Merz. The telescope is now the guider of the 18-inch telescope. The “Kew Patter” photoheliograph was originally mounted in a wooden observatory on the site.

Under Gill’s direction, numerous telescopes and auxiliary instruments were installed. Some of these are important in the history of astronomy in South Africa and internationally. Examples include the McClean Telescope (1896), the RTC (1901), the 18 Inch Telescope (1887) and the Astrographic Telescope (1890).

C. Royal Observatory (1905-1970)

During this period, the Observatory continued to be recognised by major achievements in astronomy particularly in the cataloguing of precise star positions with the new Reversible Transit Circle and analysing star brightness. The period following the end of World War II was noted for experiential “Fabry” photometry by Alan Cousins and his development of equipment and a methodology for photoelectric photometry using photomultipliers (Glass 2015).

A number of structures were erected during this period. Examples include the new Administration Building (1920s), the RNA Building (1920s), the 6 Inch Telescope (1935) and the Kinetheodolite (1957).

D. South African Astronomical Observatory (1970 onwards)

In 1972 SAAO was formed by an amalgamation of the Royal Observatory at the Cape of Good Hope with the Republic Observatory in Johannesburg. Telescopes were relocated to Sutherland in the Northern Cape, establishing it as the central observation station for SAAO (SAAO website).

Dating to the late 20th century are the Auditorium and Technical Building.

SAAO continues to be highly regarded internationally and occupies a central place in the development of South African science. Research has concentrated on understanding the nature and life cycle of stars and galaxies. In 2005 the Southern African Large Telescope (SALT) was erected at Sutherland. It is the largest single optical telescope in the southern hemisphere and one of the largest in the world (SAAO website).