

Heritage (Decision about Registration of the Orroral Geodetic Observatory, Tennent) Notice 2016

Notifiable Instrument NI2016—271

made under the

Heritage Act 2004, s40 (Decision about registration)

1 Name of instrument

This instrument is the *Heritage (Decision about Registration of the Orroral Geodetic Observatory, Tennent) Notice 2016*.

2 Decision about registration

On 2 June 2016, the ACT Heritage Council (the **Heritage Council**) decided to register the Orroral Geodetic Observatory, part Block 88, Tennent (the **Place**).

3 Registration details of the Place

The registration details of the Place are in the schedule.

4 Reasons for the decision

The Heritage Council decided to register the Place because it has heritage significance as it meets one or more of the heritage significance criteria in section 10 of the *Heritage Act 2004*, as set out in the schedule.

5 Date registration takes effect

The registration of the Place takes effect on the day after this notice is notified.

6 Revocation

The *Heritage (Decision about Provisional Registration of the Orroral Geodetic Observatory, Tennent) Notice 2016* NI2016—72 is revoked.

Fiona Moore
A/g Secretary (as delegate for)
ACT Heritage Council
2 June 2016

Schedule
(See Section 3 and 4)



ACT Heritage Council

AUSTRALIAN CAPITAL TERRITORY
HERITAGE REGISTER

For the purposes of s. 40 of the *Heritage Act 2004*, an entry to the heritage register has been prepared by the ACT Heritage Council for the following place:

Orroral Geodetic Observatory

Block 88 (part), Tennent

DATE OF DECISION

2 June 2016 Notifiable Instrument: 2016–

Copies of the Register Entry are available for inspection at ACT Heritage. For further information please contact:

The Secretary
ACT Heritage Council
GPO Box 158
CANBERRA ACT 2601
Telephone 13 22 81

This statement refers to the location of the Orroral Geodetic Observatory as required in s. 12 (b) of the *Heritage Act 2004*.

LOCATION OF THE PLACE

Orroral Geodetic Observatory, Block 88 (part), Tennent. The place is at the top of a ridge to the west of the Orroral Valley Tracking Station in the valley floor. It is situated at the end of a trail, called the 'Granite Tors Walking Track.'

This section refers to the description of the Orroral Geodetic Observatory as required in s.12(c) of the *Heritage Act 2004*. The attributes described in this section form part of the heritage significance of the place. For the purposes of s. 12(c) of the *Heritage Act 2004*, the boundary of the place is at Image 1.

DESCRIPTION OF THE PLACE

The Orroral Geodetic Observatory, consisting of the following attributes:

- The Observatory, consisting of:
 - 9 metre diameter hemispherical dome surmounting a grey-brick cylindrical building.
 - Footprint indicating location of survey pillar NM/C/106, consisting of:
 - Trapezoid fenced area atop granite boulder, 22.6 metres south east of the observatory dome.
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This statement refers to the heritage significance of the Orroral Geodetic Observatory as required in s.12(d) of the *Heritage Act 2004*.

STATEMENT OF HERITAGE SIGNIFICANCE

The Orroral Geodetic Observatory was one of two geodetic observatories in the southern hemisphere between 1974 and 1999, and the only such facility in the ACT until its functions were transferred to the Mt Stromlo Observatory in 1999. It was Australia's fundamental geodetic facility, boasting caesium atomic clocks providing Australia with its official time, and a range of sensitive instrumentation catering to Satellite Laser Ranging and Global Positioning Systems, enabling measurement of the Earth's geoid with millimetre accuracy [*criteria (a), (b)*].

The facility is represented by a distinctive structure that is easily recognisable as a terrestrial observatory. It gathered data that confirmed plate tectonic theory, and informed national and international research on natural phenomena and disasters. Further, the survey pillar associated with the place remains an integral part of the ACT geodetic survey mark network that continues to record Australia's latitude and longitude with an accuracy permitting the integration of Australia's National Coordinate System (the Geocentric Datum of Australia 1994) to the Global Geodetic Reference Frame [*criterion (c), (d)*].

CONSERVATION OBJECTIVE

The guiding conservation objective is that the Orroral Geodetic Observatory shall be conserved and appropriately managed in a manner respecting its heritage significance.

The ACT Heritage Council may adopt heritage guidelines applicable to the place under s25 of the *Heritage Act 2004*.

For further information on guidelines applicable to the place, or for advice on proposed works or development, please contact ACT Heritage on 13 22 81.

REASON FOR REGISTRATION

The Orroral Geodetic Observatory, Tennent, has been assessed against the heritage significance criteria and been found to have heritage significance when assessed against criteria (a) (b) (c) and (d) under s.10 of the *Heritage Act 2004*.

ASSESSMENT AGAINST THE HERITAGE SIGNIFICANCE CRITERIA

The Council's assessment against the criteria specified in s.10 of the *Heritage Act 2004* is as follows.

In assessing the nomination for the Orroral Geodetic Observatory, Tennent, the Council considered:

- the original nomination and documentary evidence supplied by the nominator;
- information provided by a site inspection on 2 October 2015 by ACT Heritage;
- the ACT Heritage Council's *Heritage Assessment Policy*, February 2015; and
- the report by ACT Heritage titled, *Background Information Orroral Geodetic Observatory*, June 2016, containing photographs and information on history, description, condition and integrity.

Pursuant to s.10 of the *Heritage Act 2004*, a place or object has heritage significance if it satisfies one or more of the following criteria. Future research may alter the findings of this assessment.

(a) importance to the course or pattern of the ACT's cultural or natural history;

Orroral Geodetic Observatory, Tennent, meets this criterion.

The Orroral Geodetic Observatory is important to the course of the ACT's cultural history as it represents the ACT's contribution to the advancement of global geodesy. As a host to Satellite Laser Ranging (SLR) facilities, Global Positioning System (GPS) receivers, caesium atomic clocks, a survey pillar, and a DORIS¹ receiver, it was Australia's fundamental geodetic facility during its time of operation, and one of only two geodetic observatories in the southern hemisphere. It provided Australia with its official time and took SLR readings that confirmed long-standing global theories on plate-tectonics. In its function as a geodetic survey pillar, it enabled latitude and longitude to be measured in Australia with unprecedented accuracy, and on the strength of these readings, connected Australia's National Coordinate System to the rest of the world.

(b) has uncommon, rare or endangered aspects of the ACT's cultural or natural history;

Orroral Geodetic Observatory, Tennent, meets this criterion.

The place has rare aspects of the ACT's cultural history as it was the only Geodetic facility in the

¹ Doppler Orbitography and Radiopositioning Integrated by Satellite

ACT while in operation (1974-1999). While the SLR telescope, receiving dishes, and other technical components were removed from the Orroral Geodetic Observatory in 1999, the place still retains a characteristic, semi-circular dome atop a cylindrical base, designed to accommodate a telescopic laser. The remaining fabric is highly evocative of terrestrial observatories with enough remaining integrity to meet thresholds for inclusion under this criterion.

(c) potential to yield important information that will contribute to an understanding of the ACT's cultural or natural history;

Orroral Geodetic Observatory, Tennent, meets this criterion.

The Orroral Geodetic Observatory formed part of an SLR network that measured the Earth's geoid to the millimetre level, enabling unprecedented accuracy in the study of plate tectonics, sea-level rise, earth rotation, and glacial retreat. Although closed in 1999, the satellite data collected by the facility is still used by surveyors and geodesists in organisations such as the International Laser Ranging Service, Geoscience Australia (Commonwealth) and the Office of the Surveyor-General (ACT Government). These organisations compare that data with new geodetic information to measure temporal changes on the Earth's surface, specifically, in the geographic region of the ACT. From these comparisons such organisations are able to build projection models on climate change and earthquakes, which then aid in developing management strategies for plate movement and global warming for the local region and internationally as data is added to global co-ordinate systems and the International Terrestrial Reference Frame. In essence, the data collected by the facility formed part of a global baseline dataset to which current changes to the surface of the Earth can be compared.

In addition, the ACT Office of the Surveyor-General takes satellite readings of survey pillar NM/C/106 multiple times per decade. Because the pillar was positioned with the millimetre-accuracy of SLR technology, its precise location on the Earth's surface has been recorded. Therefore it remains a crucial monument in maintaining the accuracy of the ACT section of the Geodetic Datum of Australia 1994 (GDA94). As such, ACT surveyors draw satellite readings though it in order to update Australia's National Co-ordinate System, and will continue to do so as these systems are updated in the future.

(d) importance in demonstrating the principal characteristics of a class of cultural or natural places or objects;

Orroral Geodetic Observatory, Tennent, meets this criterion.

The place, with its cylinder building and dome top, has the evocative and recognisable form of a terrestrial observatory. Further, the trapezoid enclosure on the granite platform clearly demarcates the footprint of survey monument NM/C/106. While the SLR technology has been removed from the place, these remnant physical characteristics demonstrate the scale of facility and the former relationships between its technical components, with enough heritage fabric to enable meaningful interpretation.

(e) importance in exhibiting particular aesthetic characteristics valued by the ACT community or a cultural group in the ACT;

Orroral Geodetic Observatory, Tennent, does not meet this criterion.

The place is situated in a picturesque visual setting, however, it does not possess landmark

qualities, artistic excellence, or visual prominence demonstrated to be valued by the wider ACT community or a cultural group. While the place is valued by professional and special interest groups, these are not connected through the same way of living, which has been transmitted from one generation to another, and do not share a cultural or ethnic background, and therefore do not fall within the definition of a cultural group as defined by the Council in its *Heritage Assessment Policy, February 2015*.

(f) importance in demonstrating a high degree of creative or technical achievement for a particular period;

Orroral Geodetic Observatory, Tennent, does not meet this criterion.

While the place was an important geodetic observatory for the southern hemisphere, capable of extensive data reception and transmission while operational, its technical significance is no longer evident in the physical fabric of the place. Further, although the survey monument at the place is important and continuously used, there is no evidence suggesting the marker itself represents a significant technical achievement.

(g) has a strong or special association with the ACT community, or a cultural group in the ACT for social, cultural or spiritual reasons;

Orroral Geodetic Observatory, Tennent, does not meet this criterion.

The place is important to interest and professional groups, and previous employees of the organisation managing the facility. However the association does not extend to the ACT community or a cultural group, is not easily recognisable to the broader ACT community, and is not an association beyond the ordinary. These groups are not connected through the same way of living, which has been transmitted from one generation to another, and they do not share a cultural or ethnic background, and therefore do not constitute a cultural group defined by the Council in its *Heritage Assessment Policy, February 2015*.

(h) has a special association with the life or work of a person, or people, important to the history of the ACT.

Orroral Geodetic Observatory, Tennent, does not meet this criterion.

Orroral Geodetic Observatory has an association with NASA, the United States Government body which has been prominent international space exploration since the mid twentieth century. NASA made an important contribution to the history of the ACT in signing the Hornig agreement with the Australian Government, facilitating the sharing of scientific information. However, this association is not readily identifiable in the physical fabric of the place to a degree high enough to warrant inclusion under this criterion.

SITE PLAN

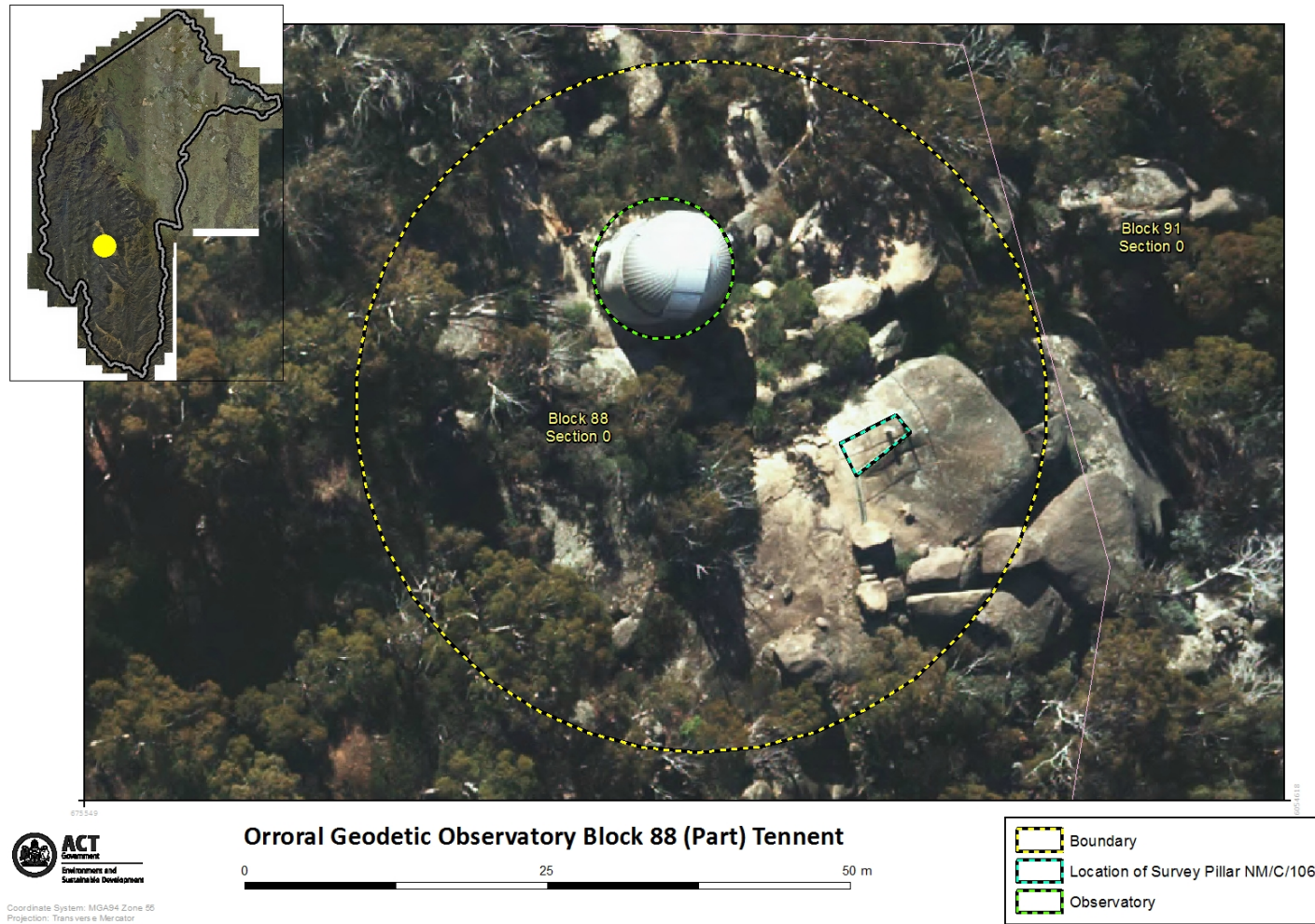


Image 1 Site Boundary, Orroral Geodetic Observatory.