

Expansion of Satellite Earth Station Complex - Gnangara

OTC Limited

**Report and Recommendation
of the
Environmental Protection Authority**

Environmental Protection Authority
Perth Western Australia
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Summary and recommendation

OTC Limited (OTC) proposes to expand its satellite earth station complex at its Gnangara site to include an INTELSAT Tracking, Telemetry, Command and Monitoring (TTC&M) facility, an INMARSAT Maritime and Aeronautical Earth Station facility and a 27.5 m diameter antenna. A total of eight new satellite antennas are involved ranging in size from 7.5 m to 27.5 m in diameter.

The Environmental Protection Authority decided that Assessment under Part IV of the Environmental Protection Act, 1986 was required and the level of assessment was set at Consultative Environmental Review with input invited from a number of Government agencies, the Shire of Swan and the Wanneroo City Council.

OTC addressed most of the relevant issues in a comprehensive list of commitments which covered drainage, sewage disposal, irrigation and landscaping, handling of hazardous materials, noise control, fire protection and bushland preservation.

During the assessment concerns were expressed on the adequacy of the commitments on fire control in the bushland buffer and screening and in response OTC made additional commitments.

Another issue raised was the appropriateness of the landuse in relation to future plans for urban and industrial expansion. While this is clearly a planning issue the Authority notes that this development sterilizes an area around it because of 'noise' buffering requirements. However this sterilization is consistent with the need to limit intensive development in the Priority 1 Area of the Gnangara Mound Water resource. The Authority accordingly sees this use as appropriate for this area.

The Consultative Environmental Review has been assessed and the proposal is considered to be environmentally acceptable subject to the following recommendation.

Conclusion and recommendation

The Environmental Protection Authority has concluded that this proposal is environmentally acceptable and recommends that it could proceed subject to the environmental commitments made by the proponent in the Consultative Environmental Review (consolidated in Appendix A of this report).

1. Introduction

OTC Limited (OTC) is a company incorporated in the ACT responsible for providing Australia's international telecommunications services.

OTC's Perth International Telecommunications Centre is located at Gnangara, some 20km north of Perth. OTC Limited proposes to expand its facilities at the Gnangara site and submitted an "Assessment of Environmental Impact" for this proposal in September 1989.

The Environmental Protection Authority called for a Consultative Environmental Review and released OTC's report for comment to a number of Government agencies and local authorities.

2. The proposal

OTC's Gnangara site is bounded by Alexander Drive to the west, Gnangara Road to the north, Park Street to the South and Lot 1 Shire of Swan to the East (Figure 1). This land is still currently zoned rural and comprises 283 hectares.

The eight new satellite antennas proposed for construction at the Gnangara site comprise the following:

- four small antennas, 7.5 metres diameter, maximum height above ground approximately 10 metres;
- three medium sized antennas, 2 x 18 and 1 x 20 metres diameter, maximum height above ground approximately 35 metres; and
- one large antenna 27.5 metres in diameter, maximum height above ground approximately 35 metres.

The proposed antennas will be centrally located within the OTC property and will be constructed on land that is already cleared.

Both the three existing medium sized antennas and the proposed new antennas will be white in colour.

The antennas and associated buildings will be illuminated at night with low level lighting.

The purpose of the five International Telecommunications Satellite Organisation (INTELSAT) station antennas and associated facilities is to provide a wide range of satellite Tracking, Telemetry, Command and Monitoring (TTC&M) functions

The two INMARSAT satellite system antennas and associated facilities will provide Maritime and Aeronautical services such as telephone and telex services including distress services and data services.

The remaining INTELSAT 27.5 m antenna will provide support to the new Perth telephone exchange and also provide for occasional restoration of the INTELSAT TTC&M Full Performance Antenna.

3. Submissions

As the level of assessment was set at Consultative Environmental Review, the Water Authority of WA, Department of Planning and Urban Development, Department of Health, Department of Conservation and Land Management, Shire of Swan and Wanneroo City Council were invited to comment on the proposal. While there were no objections to the proposal, issues raised included:

- fire-hazard reduction programme;
- the implications of the Metropolitan Development Strategy for the Future Expansion of Perth and the recommendation for future urban and industrial expansion in this area.

4. Environmental impact

The Authority considers the visual impact for surrounding residents is of local rather than regional significance. The proposed new antennas will be centrally located within the OTC property and their visual impact will be buffered by distance and the relatively dense bushland that has been retained around the property borders.

Nevertheless the Authority believes that for this bushland screen to be an effective visual buffer and in order to reduce the visual impact further, a continuous screen of vegetation around the property boundary is desirable. The present wide, straight internal firebreaks should be redesigned so as to achieve an uninterrupted visual barrier from the adjoining road systems while retaining their effectiveness as a fire protection measure. The reinstatement of some vegetation is required to achieve this effect. This aspect has been included by the proponent in the amended list of commitments.

The noise impacts associated with normal station vehicular traffic, antenna tracking, air-conditioning plant and standby diesel generators are considered to be acceptable.

The biological impacts associated with the proposal are considered to be negligible. Where appropriate, existing native vegetation should be retained. Inappropriate burning regimes can substantially alter floristics and habitat diversity. The Environmental Protection Authority considers that the proponent should consult with relevant authorities to determine suitable guidelines for the frequency of controlled "burn offs". The proponent has included this issue in the amended list of commitments.

The Environmental Protection Authority has referred the proposal to the Department of Health which considers the proposal does not pose a threat to public or occupational health (Appendix B).

It is noted that the proposal includes the provision of toilet facilities and site drainage, and that these issues are adequately addressed in the proponent's list of commitments.

The Authority considers the issue of the consistency of this land use with the Metropolitan Development

Strategy to be a planning issue, and beyond the scope to this report.

5. Conclusion

The Environmental Protection Authority has concluded that the environmental impact associated with the OTC Limited's expansion of Earth Station Complex at Gnangara is acceptable and manageable as outlined in the amended list of commitments (Appendix A).

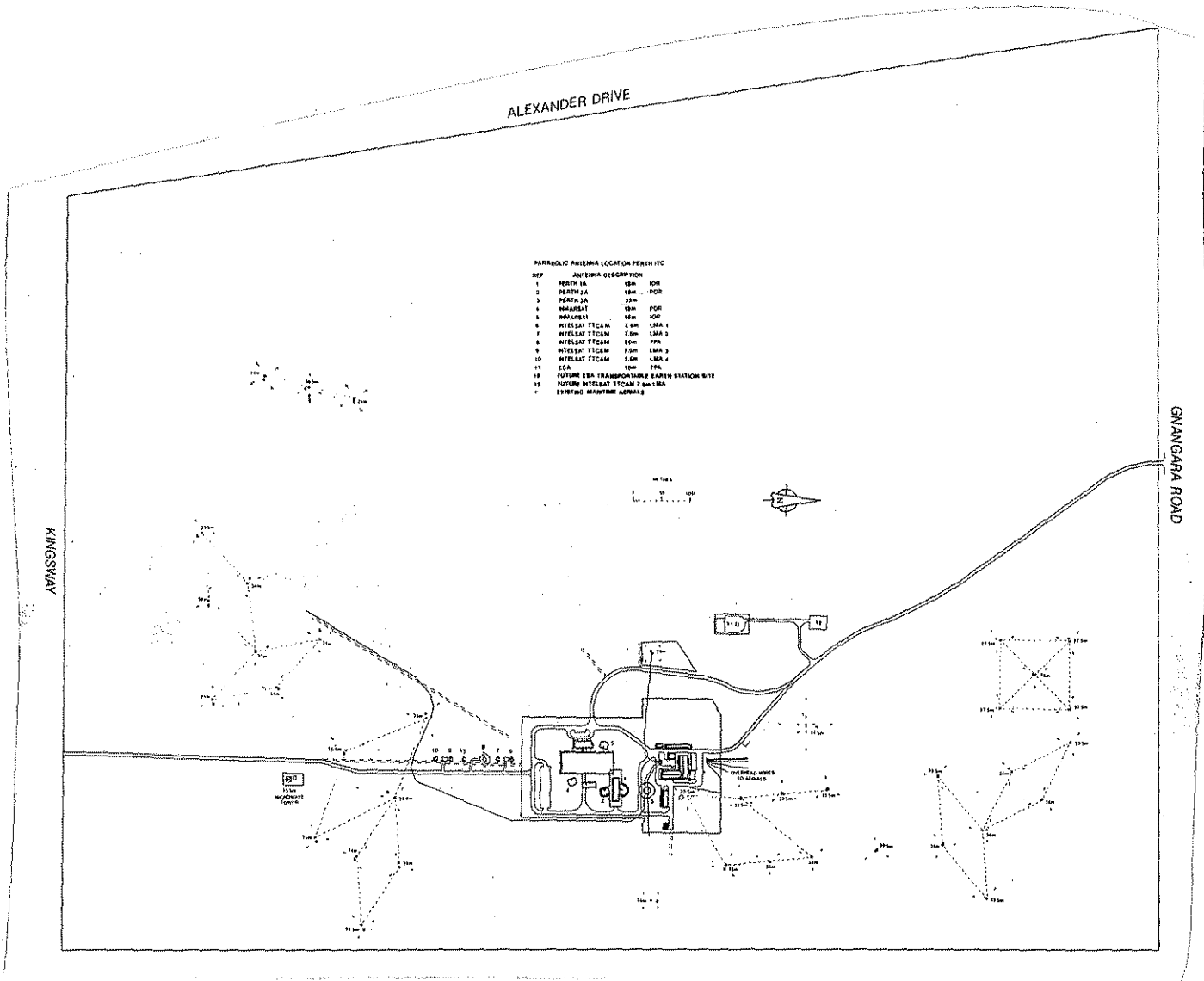


FIGURE 1: Site location

Appendix A
OTC environmental commitments with regard to
installation of satellite earth station facilities
at Gnangara

1. Visual Impact

1.1 The proposed new antennas are centrally located within the OTC Gngangara property and their visibility from adjoining public thoroughfares will be very low.

1.2 The screening of antennas and associated structures will be further enhanced by planting as far as practical local native vegetation including trees, principally around the perimeter of the property, to the satisfaction of the Environmental Protection Authority and the Department of Conservation and Land Management.

2. Site drainage

2.1 All building and civil works associated with construction of the proposed new satellite antennas will incorporate hydraulic drainage designs in accordance with Australian Codes and Practices, requirements and guidelines of the Water Authority of Western Australia, and current practices employed in the Perth environment. Typically soakwells at least 2 metres in diameter and 2 metres deep will be employed throughout the area.

3. Septic facilities

3.1 The septic system design will comply with all requirements of the Shire of Swan, the Health Department of Western Australia and the Water Authority of Western Australia.

3.2 The design of septic systems associated with the new satellite facilities will be agreed with these Authorities before commencement of any associated works.

4. Irrigation and landscaping

4.1 Irrigation for landscaped areas associated with the main new Telecommunications complex will be in accordance with all requirements of the Water Authority of Western Australia including necessary bore licences.

4.2 Native bushland will be retained in the areas immediately associated with the new antennas to be constructed as far as practical, taking account of the need for adequate fire breaks.

5. Hazardous materials, chemicals, fuels etc.

5.1 No hazardous materials or fuels are used in the construction or operation of the satellite earth station antennas.

5.2 Diesel fuel tanks associated with the new Telecommunications Building will be in full accordance with the Water Authority of Western Australia Specification: "Installation of Underground Fuel Tanks in Underground Water Pollution Control Areas". This installation will incorporate two monitoring wells to a depth of five metres. The older existing underground fuel tanks will be removed and

the Water Authority appropriately advised so that an inspection can be carried out.

5.3 The installation of the new diesel fuel tanks will also comply with the requirements of the Mines Department (Explosives and Dangerous Goods Division), together with the necessary licence required to store flammable liquids on site.

6. Noise control

6.1 The most significant contribution to site noise will arise from the intermittent operation of two diesel generator sets within the Telecommunications Building. Perth ITC site boundary noise will meet all requirements of the Noise Abatement Neighbourhood Annoyance Regulation of 1979 administered by the Environmental Protection Authority. Perth ITC site boundary noise levels will not exceed 30dBA.

7. Fire protection

7.1 Fire safety facilities will be incorporated in accordance with all requirements of Local, State and Federal Government regulations. Both the Western Australian Fire Brigade and the local Bush Fire Brigade will be consulted during design and construction phases for all proposed satellite antennas and associated structures.

7.2 Controlled "burn off" of areas within the Gngangara site is presently undertaken in conjunction with the local Bush Fire Brigade and guidance from the Department of Conservation and Land Management on the frequency and extent of such "burn offs".

7.3 In conjunction with the Department of Conservation and Land Management and other local authorities OTC will formulate a "Fire Management Plan" for the Gngangara site to the satisfaction of the Environmental Protection Authority.

8. Flora preservation

8.1 As far as practical, removal of natural bushland for the antenna sites and associated fire breaks will be minimised, and area utilisation contoured as necessary to preserve bushland.

8.2 Fire break areas presently are and will be rough ploughed each year prior to seeding of non-indigenous weed growth.

9. Department of Transport and Communications approvals

9.1 All necessary licences and approvals will be sought from the Department of Transport and Communications for reception and transmission of satellite communications. This process includes detailed frequency coordination with all other communication users in the area such as Telecom, SECWA, Department of Defence, Civil Aviation Authority, Aussat etc.

10. Changes in project scope

10.1 Should any significant changes occur to the scope of the project that impact on any environmental issues addressed in the OTC "Assessment of Environmental Impact" Report of 1989, then OTC shall refer these to the attention of the Environmental Protection Authority for their agreement prior to any associated works being undertaken.

Appendix B

Western Australia

Health Department of Western Australia

Your ref
Our ref
Enquiries

DEH:SS TE 158/2
Hutchinson Ext 2269

ENVIRONMENTAL PROTECTION AUTHORITY

20 DEC 1989

File No _____ Initials _____

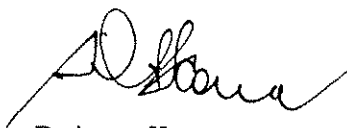
Mr R A D Sippe
Director Evaluation Division
Environmental Protection Authority
1 Mount Street
PERTH W A 6000

Dear Mr Sippe,

**PROPOSED EXPANSION OF SATELLITE EARTH
STATION COMPLEX - GNANGARA SITE**

I have been advised by the Radiation Health Section that public exposure to microwaves from the new transmitting dishes proposed for the OTC Gnangara site will not exceed the Australian Standard AS2772 - 1985. The Section has recently had a considerable involvement with these installations, and its observations and measurements concur with those in Dr Repacholi's assessment (Annexe 7 to the OTC Assessment of Environmental Impact). The actual stray fields from these antennae are so low as to be immeasurable on instruments normally used for exposure standard compliance.

Yours faithfully,



Peter Howe
ACTING COMMISSIONER OF HEALTH

19 December 1989

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