

Family golf/practice driving-range, Forrestdale

Lot 112 Warton Road, Forrestdale

C.A.D.O.H.E.R. Pty Ltd

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

**Environmental Protection Authority
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Background

The site is located approximately 500m south west of the Nicholson Road/Warton Road intersection on Warton Road in Forrestdale (see attached map). Lot 112 is currently used for the grazing of horses of which there are currently approximately 18 on the 20ha site. The site has been parkland cleared, meaning all understory vegetation has been destroyed leaving scattered mature trees, and the cleared area put to pasture. As the soil is made up of infertile light sands associated with the Bassendean complex, the pasture has been fertilised to promote growth. Landform is flat ranging to gently undulating with portions of the site being seasonally inundated, depending on rainfall in any given year.

The site is over a Priority 2 Source Area as defined by the Water Authority of Western Australia (WAWA) for the protection of groundwater supplies and is also in the Jandakot Underground Water Pollution Control Area. The proposal was referred to the Environmental Protection Authority for comment in March 1990 by the City of Armadale, which at that time was considering a development application for the project. Due to the potential impacts on the groundwater protection areas as mentioned above, the Authority set the level of formal assessment at Consultative Environmental Review (CER) under Part IV of the Environmental Protection Act 1986.

At the present time a land-use study (Jandakot Land Use and Water Management Study) for the Jandakot Water Mound is being prepared for the WAWA and the Department of Planning and Urban Development, and an Environmental Protection Policy for the same area is also being prepared under the Environmental Protection Act 1986. Thus this and other developments over the water mound are being assessed by the Authority in the interim phase before the finalisation of these documents. It is anticipated that once they are completed, they will give a better indication of the acceptability of specific types of development on this public water supply area.

Proposal

The proponent, C.A.D.O.H.E.R. Pty Ltd, proposes to develop Lot 112 Warton Road, Forrestdale for a golf course and driving range facility with the emphasis being on family and casual use. There will be 9 short holes and 9 longer holes that will still be only approximately two thirds the length of a normal golf course. The driving range will be located in the southern end of the site and will be approximately 300m long. The fairways, tees and greens (approximately 6.5ha) will be irrigated, but the driving range will be rainfall watered only and will be allowed to die off in summer.

Extensive earthworks are planned to raise the majority of the site (eg fairways, service areas) above the winter groundwater level, and the majority of the material required will come from the excavation of lakes within the seasonally inundated areas that already exist. The lakes will serve several functions including irrigation reservoirs, and aesthetic water features. Islands will be created in the lakes for wildlife (particularly waterbirds) refuges.

An administration/clubhouse facility is also planned in the north east corner of Lot 112, and in keeping with the family theme, it will not be licensed.

An extensive revegetation programme is planned, including the creation of a 2-3ha woodlot near the lakes in the centre of the site, with the remainder of the area not needed for fairways, the driving range and other facilities (about 6ha) being parkland planted with native species.

Management of nutrients with the potential to pollute the groundwater in this area is of paramount importance, and the proponent proposes to use various methods to ameliorate any adverse impacts, including the following:

- soil amendment of the site to increase the capacity for nutrient removal;
- selection of turf grass species which have low requirements for nutrients;
- restricting the application of fertilisers to levels essential for growth by monitoring levels remaining from previous applications;
- using foliar application of fertilisers which greatly increases rate of nutrient uptake by plants;
- increasing nutrient utilisation on the site by re-forestation; and
- septage from the clubhouse facility will be stored in tanks and removed off site for disposal.

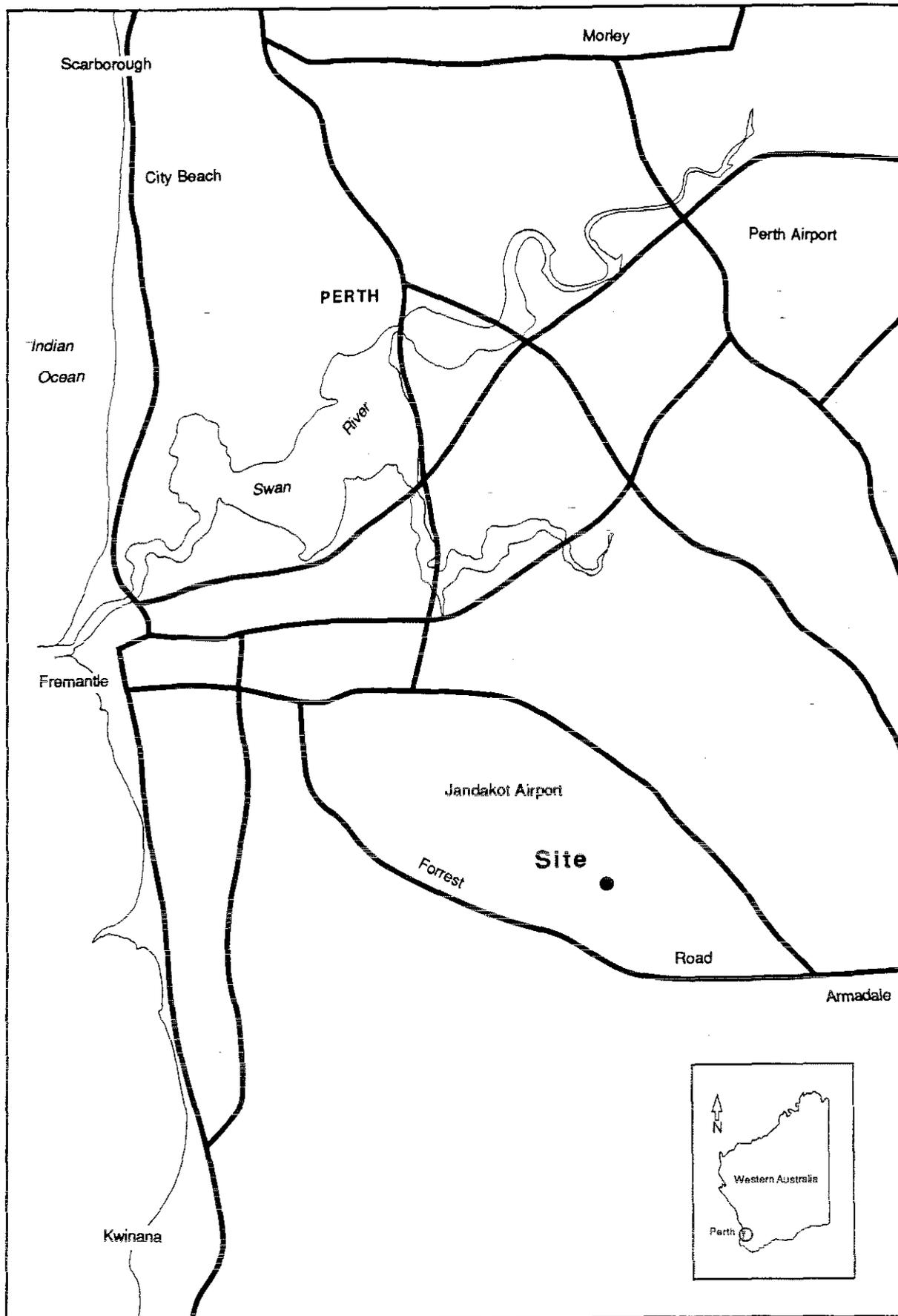
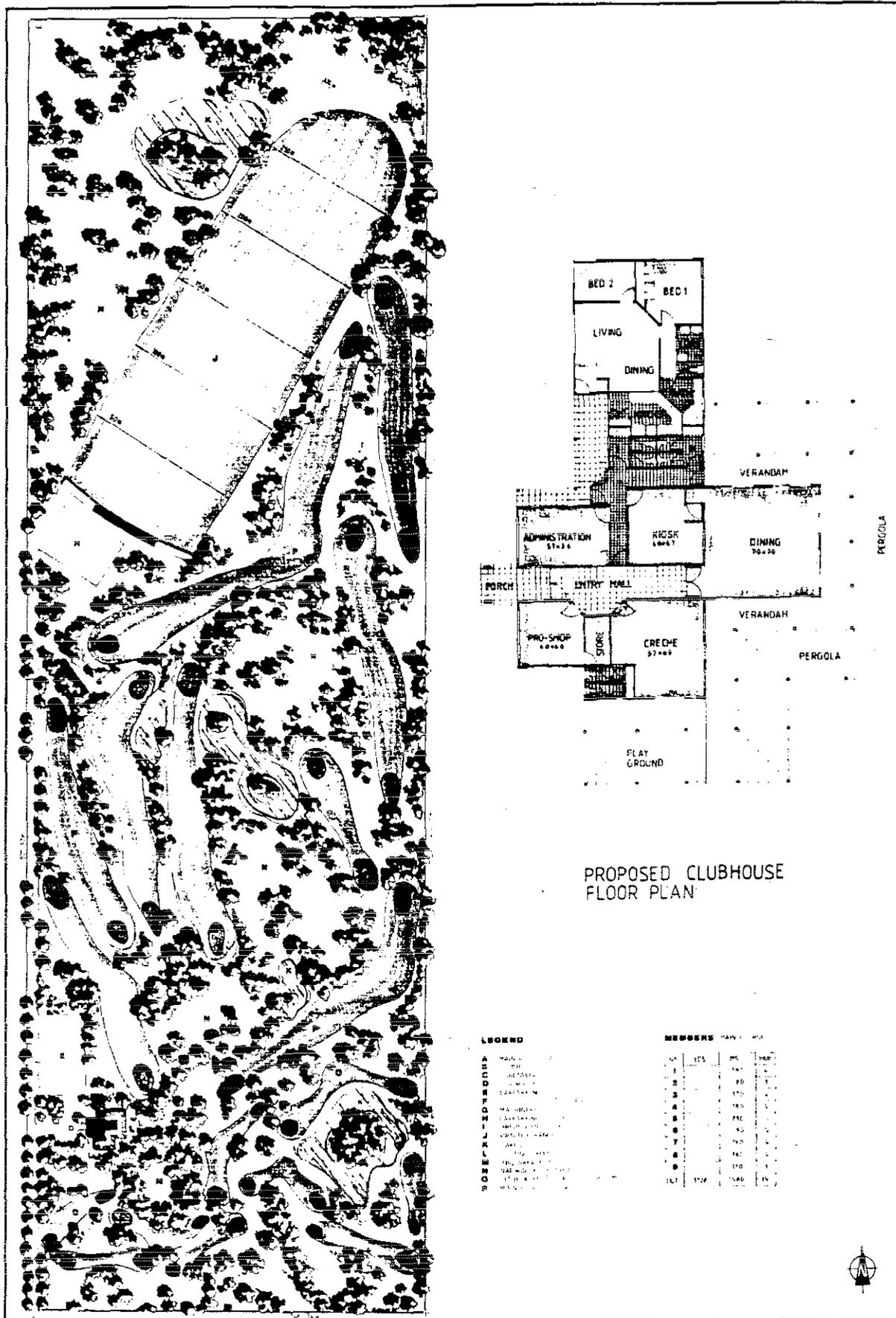


Figure 1: Location map.



PROPOSED CLUBHOUSE FLOOR PLAN

LEGEND

- A
- B
- C
- D
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

MEMBERS

NO	SECS	RES	MEM
1		750	
2		150	
3		150	
4		750	
5		750	
6		750	
7		750	
8		750	
9		150	
10	150	750	150

Figure 2: Site plan.

Public submissions

During the public review period, ten submissions on the proposal were received by the Authority, including six individual submissions, three government department submission and one local authority submission.

Of the ten submissions, five were opposed to the proposal, three gave conditional support, and two were awaiting the outcome of the environmental assessment before making a decision on the proposal. Opponents of the proposal had the following concerns/suggestions:

- land use planning is a huge issue and the current direction of travel is very worrying;
- concern over any developments that will compromise groundwater supplies (ie there should not be intensification of land use over groundwater supply areas);
- there is a responsibility to protect water supplies on a local and global scale;
- protection of groundwater supplies will be cheaper than remedial measures;
- polluting groundwater will put more pressure on the hills catchments and supply areas;
- protection of water supplies extremely significant given that 80-90% of Western Australia's population depends on water supplies in the Perth region;
- concern over nutrient leaching from the golf course;
- climatic change (particularly in terms of groundwater level changes and reduced rainfall) has not been addressed;
- no development should be allowed until the Environmental Protection Policy is finalised or the WAWA/EPA agree on development guidelines.

Environmental issues

With so much of Perth's domestic water supply coming from groundwater resources (particularly during the summer months), protection of existing groundwater supplies must be of paramount importance. Thus on this site, the potentially adverse environmental impacts from the development (primarily nutrient pollution from fertiliser application) must be managed to prevent further degradation of groundwater quality and quantity.

For this particular site, the Environmental Protection Authority believes the impacts can be managed to make the project environmentally acceptable. The Authority notes that, the proposal as described in the proponent's documentation would contribute less pollution to the groundwater mound than the existing rural use.

Recommendation 1

The Environmental Protection Authority has concluded that the proposed family golf centre in Warton Road, Forrestdale as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and the government agencies that were consulted is environmentally acceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factor requiring detailed consideration as:

- **protection of the Jandakot groundwater mound.**

The Environmental Protection Authority notes that this environmental factor has been addressed adequately by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to:

- **the proponent's commitments; and**
- **the Environmental Protection Authority's recommendations in this report.**

The Authority's experience is that it is common for details of a proposal to alter through the detailed design and construction phase. In many cases alterations are not environmentally significant or have a positive effect on the performance of the project. The Authority believes that such non-substantial changes, and especially those which improve environmental performance and protection, should be provided for.

While the Authority is satisfied that the environmental management commitments will ensure the protection of the groundwater mound in the short term, the long term operation of the golf course also must be addressed. The Authority recognises that the proponent has made a commitment to implement a monitoring programme to the satisfaction of the Authority and WAWA, but believes a separate recommendation is warranted.

Recommendation 2

The Environmental Protection Authority recommends that the proponent undertake a review of operating and environmental management procedures at the end of five years to the satisfaction of the Environmental Protection Authority. In addition the Environmental Protection Authority recommends that if the golf course is sold before then, the proponent shall make the prospective owner(s) aware of this recommendation and obtain their agreement to comply with it.

The Authority believes that any approval for the project based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

It should be noted that the recommendations contained in this report do not prevent relevant Authorities from refusing the development on grounds other than environmental (e.g. planning, protection of water supplies).

It should also be noted that if the recommendations in this report are converted to Ministerial Conditions which subsequently conflict with other conditions/provisions applied through the planning process (e.g. scheme provisions, subdivision conditions), then the Conditions as set by the Minister for the Environment take precedence.

Appendix 1

Proponents commitments

8.2.3 Site Management

The company undertakes to implement the following management programmes to minimise the potential for pollution of groundwater:

- (a) Sewerage will be retained on site in sealed tanks built to engineering specifications approved by the W.A.W.A. and E.P.A. Sewerage from the tanks will be transported periodically from the site.
- (b) Machinery and vehicles will be transported from the site for servicing to eliminate any possibility of oil spills or other pollution. A sealed surface will be provided with drainage to a sealed tank for vehicle washdown.
- (c) Fuel and chemicals for weed and insect pest control will be stored in an approved manner on a sealed surface draining to a concrete holding tank.
- (d) Grass clippings and other vegetation prunings will be stored on a concrete surface and either converted to compost and recycled or removed from the site.

8.2.4 Regional Undertakings

The vehicle entry roadway design to provide access of Warton Road will be designed to guidelines laid down by engineers of the City of Armadale. Apart from complying with specifications relating to the grade of the entrance road in relation to Warton Road, width and sight distances, it is not expected that there will be any special requirements for modification to Warton Road.

The company proposes to operate the facility only in daylight hours to avoid any impact due to noise of patrons using the facility or from vehicular traffic generated by the facility.

8.3 Summary of Commitments

The following table identifies the main issues of potential impact of the proposal and the commitment the company will provide in relation to them:

- | | |
|---|---|
| 1. Monitoring Water Level and Quality | Peizometers will be installed and measurements taken of nutrient content and water levels of surface water will be taken on a regular programme approved by W.A.W.A. and E.P.A. |
| 2. Bond to Guarantee Monitoring Programme | Chemical analysis will be undertaken as agreed by the Government Chemistry Centre and a performance bond will be lodged by the company to guarantee funding for this work. |
| 3. Low Leaching Nutrients | Results of monitoring will be used to regulate the rate of application and utilisation of nutrients to ensure minimal loss due to leaching. |
| 4. Efficient Irrigation System (Co-efficient 95%) | The irrigation system will be designed and monitored to ensure a co-efficiency of 95%. |

5. Water Quality in Ponds to be Maintained by Re-cycling and Testing
The testing programme by the Chemistry Centre will also include testing of the nutrient levels in ponds. The irrigation system will be designed to enable water from the ponds to be used to irrigate turf and be replenished from the bore.
6. Sewerage Effluent
Sealed tanks to engineering specifications approved by W.A.W.A. and the E.P.A. will be constructed to hold the effluent which will be removed periodically by truck from the site.
7. Machinery Wash Down
A concrete pad with a drain to a sealed storage tank will be provided to ensure that there is no leaching of residues from vehicle washdown into the water table.
8. Servicing of Machinery
Machines and vehicles will not be serviced on site.
9. Fuel and Chemical Storage
All fuel and chemicals for day to day use will be stored in an approved manner on a sealed surface draining to a holding tank.
10. Grass Clippings and Compost Storage
All grass clippings, tree and shrub prunings will be stored on an impervious concrete surface draining to a holding tank and either composted and re-utilised or transported from the site.
11. Use of Chemicals
All herbicides for weed control and insecticides used on site will meet Health Department requirements for use on catchment areas.

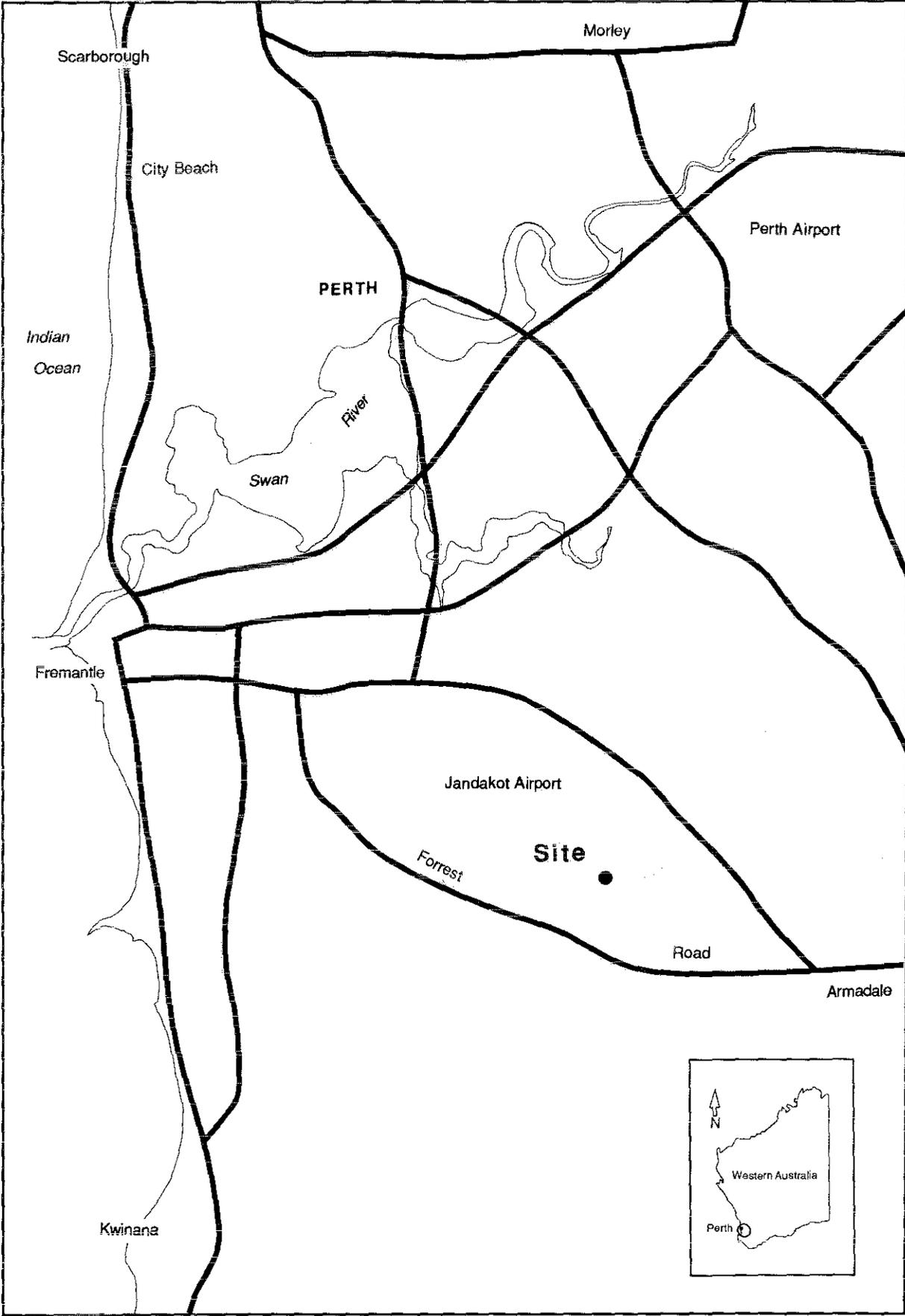
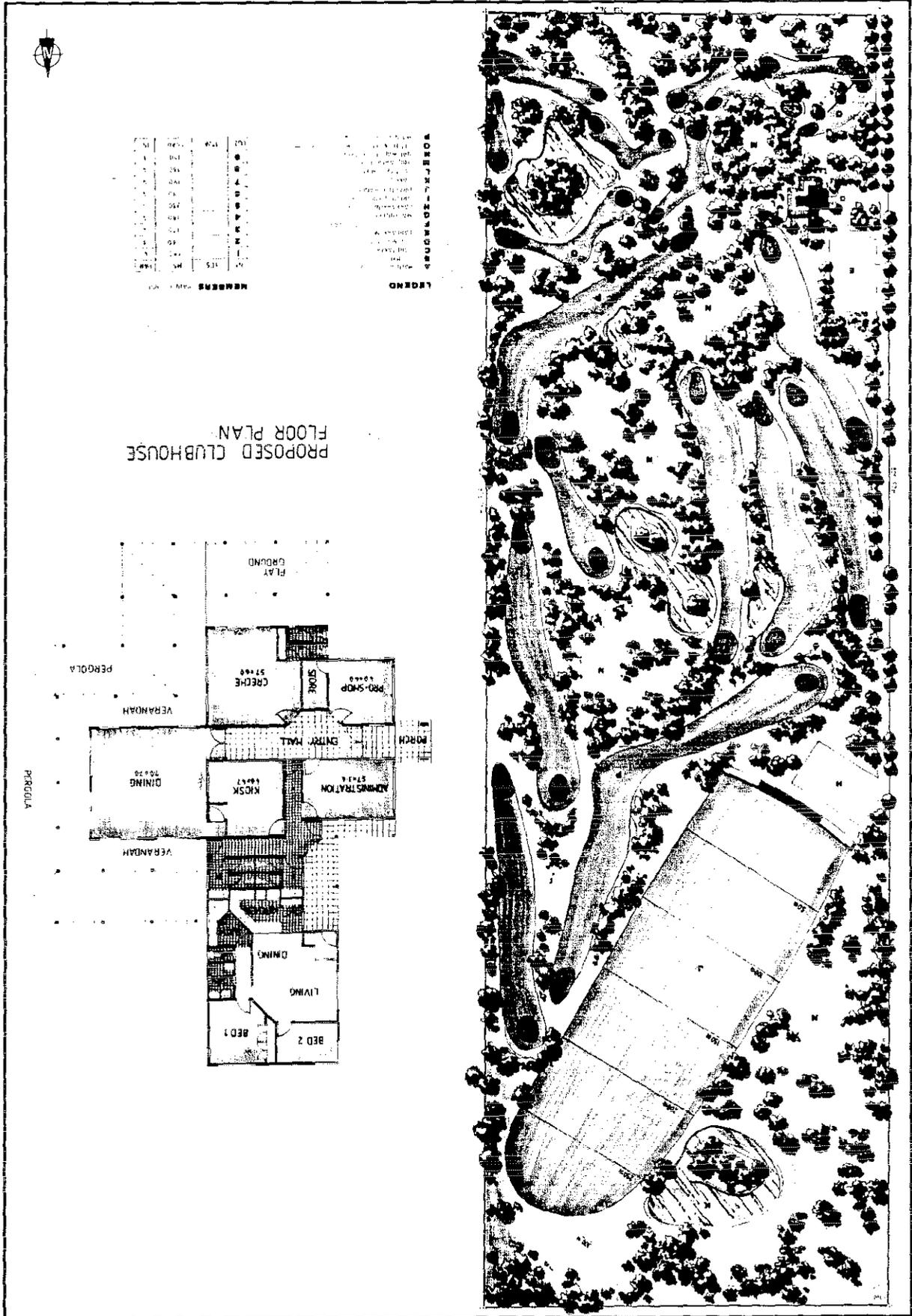


Figure 1: Location map.

Figure 2: Site plan.



PROPOSED CLUBHOUSE
FLOOR PLAN

LEGEND

MEMBERS

NO.	AREA	AREA	NO.	AREA	AREA
1	101.20	101.20	1	57.18	57.18
2	101.20	101.20	2	57.18	57.18
3	101.20	101.20	3	57.18	57.18
4	101.20	101.20	4	57.18	57.18
5	101.20	101.20	5	57.18	57.18
6	101.20	101.20	6	57.18	57.18
7	101.20	101.20	7	57.18	57.18
8	101.20	101.20	8	57.18	57.18
9	101.20	101.20	9	57.18	57.18
10	101.20	101.20	10	57.18	57.18
11	101.20	101.20	11	57.18	57.18
12	101.20	101.20	12	57.18	57.18
13	101.20	101.20	13	57.18	57.18
14	101.20	101.20	14	57.18	57.18
15	101.20	101.20	15	57.18	57.18
16	101.20	101.20	16	57.18	57.18
17	101.20	101.20	17	57.18	57.18
18	101.20	101.20	18	57.18	57.18
19	101.20	101.20	19	57.18	57.18
20	101.20	101.20	20	57.18	57.18

LEGEND

MEMBERS

1. 101.20

2. 101.20

3. 101.20

4. 101.20

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