SCOTT COASTAL PLAIN
LAND USE STRATEGY

PART A — BACKGROUND TO THE STUDY

1. BACKGROUND

The Scott Coastal Plain Steering Committee was established by the Hon Minister for Primary Industry, Monty House MLA, in 1996, to prepare a land use strategy/catchment plan for the Scott Coastal Plain area. The Committee members are representatives of farmer organisations, producer groups, the Lower Blackwood Catchment LCDC, local government and state government agencies.

The Steering Committee was established with the following terms of reference:

i  Report on the agricultural potential of the Scott Coastal Plain;

ii  Report on the impacts on the environment of current and any future developments;

iii  Develop the formal planning and coordination process for the future management of the Scott Coastal Plain.

The study area is referred to as the Scott Coastal Plain. It is defined as the area bordered by Brockman Highway, Stewart Road, Barlee Brook, Donnelly River, the Southern Ocean coastline and the Blackwood River. Roughly rectangular in shape, it extends about 70km along the coast and about 20km inland, covering a total area of about 105 000 hectares. Private freehold land covers about 42 900ha, with the remainder being state forest, national parks/nature reserves, Crown land and other minor uses.

Most of the area to the west of Scott River Road was the subject of a Group Settlement Scheme, but much of the land to the east remained undeveloped until the early 1970's. Over the next two decades substantial clearing took place for the purpose of sheep and cattle grazing (Monaghan, 1997). In the 1990's, as returns from grazing diminished, farmers in the area began to diversify to other agricultural opportunities. This saw the eastward spread of dairying and the emergence of substantial blue gum (Eucalyptus globulus) plantations. With the availability of vast quantities of high quality water from the underlying Yarragadee Aquifer, some farmers sank bores capable of drawing up to 1 000 000m³ per annum and developed 40ha centre pivot irrigation systems, principally for growing potatoes in a three year rotation with grazing and other agricultural uses.

The recent closure of a major potato processing plant in Manjimup, which has previously taken the bulk of the horticultural crop produced within the study area, has been a setback for the producers. However, the future development potential of the Scott Coastal Plain in a range of horticultural and other agricultural products is still quite apparent.
In addition, there were significant issues and comments relating to:

- Agricultural development — take advantage of natural assets; facilitate further agricultural development; support diversification; use best management practice and new technologies;
- Community development — maintain the clean environment, peacefulness; better services and infrastructure required; less bureaucratic interference; opportunities for youth in the area;
- Future development — Mixed views (positive and negative) on tourism in the area, future townsite development and benefits of tree plantations; balance of economic, social and environmental sustainability; protect existing amenity with new development;
- Government involvement — less bureaucratic interference; lack of government support; delays and frustration; compensation needed where rules change; need government expertise and assistance; financial assistance where works required are related to a community benefit; full community commitment and contribution; community and government working together;
- Guidelines and policies — don't be prescriptive, flexibility required; must be clear, consistent, relevant to local circumstances and be practical and affordable;
- Further research — need monitoring, research and good accurate information; no decisions without proper information.

3.2 FUTURE DEVELOPMENT POTENTIAL AND ACCOMMODATION

The future development potential of the Scott Coastal Plain has been assessed by Agriculture WA and the outcomes are set out in the report entitled "Economic Potential of the Scott River Study Area" (Chamarette, 1999). Of particular interest to the Land Use Strategy is the table entitled "Gross Value of Agriculture with Various Land Use Scenarios". From those projections various assumptions have been made to allow estimation of the likely employment generation, resultant population increase, accommodation requirements and demands for additional infrastructure and community services and facilities.

Of the various agricultural uses listed by Chamarette, there is likely to be little additional employment generated, other than for the landowner and immediate family, for beef grazing, wool sheep grazing and sheep meat grazing and farm forestry is unlikely to result in any significant additional on-site employment, as this industry tends to employ a number of specialists whose work demands range across the whole region.

On-site employment demands for horticulture vary significantly from one area to another and between one crop and another and are also influenced by whether the growing period is seasonal or continuous. With widespread winter waterlogging, a large proportion of the horticultural developments will be summer cropping, with a resultant seasonal peak in employment demand.
Table 1 has been prepared on the basis of the Chamarette projections and employment demand experience of local producers. It is intended to give an indication of the likely employment demands emanating from that scale of future development. To this should be added employment accommodation needs related to existing and future mining activity and future tourist and recreational demands.

Currently, the only accommodation available in the study area is on privately owned rural zoned lots, with the exception of the small scale development at East Augusta. Each landowner has the opportunity under the local zoning provisions to erect an additional dwelling for the accommodation of a farm worker, but seasonal workers are not adequately catered for and mine workers need to find their own accommodation, generally in towns outside the study area. There is no provision for tourist accommodation at this stage.

3.3 LAND TENURE

Of the total 107 000ha of the study area, State forests, National Parks, Nature Reserves and other reserves account for about 57 400ha, with the remaining 49 600ha being private farmland. Most of the private land holdings on the Scott Coastal Plain are much larger in area than those in other parts of the South West. North of the Scott River and east of Scott River Road most of the lots are between 600ha and 1 200ha in area, but with some down to 150ha. The vast majority of the holdings are family owned, some with two or more lots forming the total farming enterprise. The large lot sizes, relatively low land values and minimal land speculation pressures in this area have provided a favourable basis for developing large scale agricultural enterprises and has offered greater flexibility for the placement of 40ha centre pivot irrigation systems, through reduced restriction by lot boundaries, streamlines, remnant vegetation, poorer soils or other constraints.

To the west of Scott River Road the lot sizes are generally in the range of 40ha to 200ha, but with a few lots of much smaller size. South of the Scott River the lot areas are much more variable, ranging generally from 100ha to 500ha. Several land holdings consist of a number of much smaller lots. In the area known as East Augusta, on the eastern bank of the Hardy Inlet and at the end of Scott River Road, there is a precinct of about 50 lots around 4 000m² to 8 000m² in area.

The Scott Coastal Plain has been identified by the State Planning Strategy as being an agricultural area of State/regional significance. As such, its productive agricultural capacity should be protected against inappropriate subdivision or development. Further breakdown of agricultural lot sizes may impinge on the productive capacity of the land by restricting the operational flexibility and by reducing the scale and viability of the farming enterprise. It may also lead to speculative pressures and increased land values. In turn these effects may limit the financial capacity of that landowner to carry out the appropriate land management procedures.
<table>
<thead>
<tr>
<th>AGRICULTURAL ACTIVITY</th>
<th>EMPLOYMENT PER 100Ha (1)</th>
<th>CURRENT</th>
<th>SCENARIO 1</th>
<th>SCENARIO 2</th>
<th>SCENARIO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AREA (Ha)</td>
<td>EMPL</td>
<td>AREA (Ha)</td>
<td>EMPL</td>
<td>AREA (Ha)</td>
</tr>
<tr>
<td>Dairying (2)</td>
<td>2</td>
<td>1 750</td>
<td>35</td>
<td>1 893</td>
<td>38</td>
</tr>
<tr>
<td>Horticulture (3)</td>
<td>50</td>
<td>450</td>
<td>225</td>
<td>1 000</td>
<td>500</td>
</tr>
<tr>
<td>Other (4), (2)</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>-</td>
<td>31</td>
</tr>
<tr>
<td>Workforce</td>
<td>-</td>
<td>-</td>
<td>110</td>
<td>-</td>
<td>169</td>
</tr>
<tr>
<td>Year round (5)</td>
<td>-</td>
<td>-</td>
<td>180</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td>Seasonal (6)</td>
<td>-</td>
<td>-</td>
<td>290</td>
<td>-</td>
<td>569</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Additional accommodation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>requirement</td>
<td>Permanent (7)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Seasonal (8)</td>
<td>-</td>
<td>-</td>
<td>37</td>
<td>-</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>90</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>127</td>
<td>-</td>
<td>256</td>
</tr>
</tbody>
</table>

NOTEs AND ASSUMPTIONS:

(1) The figures used in this column are based on local landowner advice and experience.
(2) Year round workforce
(3) Largely seasonal workforce, peaking around harvest time (March to May)
(4) Includes beef grazing, wool sheep grazing, sheep meat grazing and farm forestry
(5) Includes 20% of the horticultural workforce and all the workforce of the other agricultural uses
(6) Includes 80% of the horticultural workforce
(7) Assumes that 1/3 of the workforce is accommodated at the workplace, 1/3 finds accommodation outside the study area and 1/3 will require an accommodation opportunity within the study area.
(8) Assumes that ¼ of the workforce is accommodated at the workplace, ¼ finds accommodation outside the study area and ½ will require an accommodation opportunity within the study area.

TABLE 1 — INDICATIVE WORKFORCE ACCOMMODATION IMPLICATIONS WITHIN THE STUDY AREA
Based on three potential development scenarios outlined in Chamarette (1999)
3.4 LAND CAPABILITY

Large reserves of high quality groundwater are available to the majority of the properties within the study area. The main concerns which had been expressed by various government agency reports in respect of the more intensive agricultural land uses related to the suitability of the soils and the ability to control offsite nutrient impacts. Tille and Lantzke (1990) reported a generally low capability for horticulture across the study area, due mainly to poorly drained soils to the north of Scott River and to wind exposure and erosion risk to the south of the river. This was subsequently confirmed by Van Gool and Runge, indicating waterlogging as the main constraint. However, when summer cropping only was considered by Van Gool and Runge, most of the area north of the river and parts of the southern area were shown to have a fair to high capability. However, this was qualified by the comment that occasional early breaks to the winter season may cause waterlogging, which may effect crop yields and can impede harvesting of the summer crop. On the agricultural land north of Scott River and the suitable areas abutting the coastal dunes to the south, the principal concern is nutrient leaching/runoff.

3.5 ENVIRONMENTAL CONSTRAINTS

The waterways network of the Scott River catchment has been classified by Agriculture WA, through Cox (1999), into first to sixth order of drainage and also according to channel formation. Most of the streams outside of the CALM estate have been modified or impacted upon to varying degrees and few retain their original vegetation and bank structure. The importance of retaining riverine vegetation and protecting the stability of stream banks is fully recognised. In some cases this may require additional treatments, such as reservation, fencing, revegetating or stock control. However, there may be opportunities to redirect lower order streams to facilitate placement of irrigation systems or other intensive agricultural developments, provided suitable management measures are taken.

The wetland distribution within the study area has been identified by Water and Rivers Commission to indicate such features as lakes, sumpland, dampland, floodplain and palusplain. Most of the wetland features outside of the CALM estate have either been cleared of natural vegetation or have otherwise been significantly impacted upon. Where these features do remain in their natural state or close thereto, their value for retention may need to be evaluated, especially if it is in conjunction with poorly represented vegetation associations.

Retention of existing remnant vegetation also has other potential benefits, such as reducing wind erosion, enhancing the visual landscape, reducing waterlogging, providing biological filters for nutrients, protecting rare and endangered species, maintaining wildlife corridors, providing areas for wildlife refuge and protecting adjoining reserves. In particular, remnant vegetation within existing wide road reserves can play an important role. New irrigated horticultural proposals will be evaluated against various additional assessment criteria, as described elsewhere in this Strategy.
3.6 MINERALS AND MINING

The Beenup titanium minerals mine has been closed recently because it is not economically feasible to handle the large proportion of slimes within the ore. Attendant problems such as the presence of pyrite and of strongly cemented sideritic horizons in the ore, added to the difficulties of balancing costs and sales revenue. A considerable mass of mineralised sediments remains in situ and the possibility of reopening the mine must be considered if there are further breakthroughs in technology.

The Jangardup mine and the nearby Jangardup South proposed mine are well-defined and no land use changes that could compete with the mining should occur. Although the western portion of the study area is underlain by the Sue Coal Measures, there are shallower and therefore more financially attractive seams occurring to the north, and therefore any extraction of coal on the Scott Coastal Plain is most unlikely to be contemplated in the foreseeable future.

Ferricrete gravels are an attractive base construction material for roads and other uses. Significant quantities can be extracted from the ferricrete cap-rock of the laterite profiles, common in the southwest of WA. However, these areas are not suitable for agricultural pursuits and tend to occur within areas still forested to the north of the agricultural lands. Some ferricrete related to shallow groundwater levels may occur in the Plain, although their location is less predictable than the laterite and they are not used greatly.

Construction sand is widely available from the surficial units (Safety Bay Sand, Guildford Formation). The resource is believed to have a relatively low demand and with the widespread nature is not seen to be an issue for land-use planning.

The Tamala Limestone contains extensive deposits of both cemented limestone and lime sand. The former is used for road-base and for construction blocks, and the latter, along with crushed limestone, for agricultural soil pH modification. The Tamala Limestone occurs widely in the coastal dunes. However, most of these areas are held within the conservation estate and mining is not judged acceptable to significant parts of the community. Areas of private land near the coast that are underlain by limestone or lime sand should be viewed as containing a resource that will probably become more valuable with time, and land-use planning to allow for future access could be appropriate for such areas.

Peat occurs in low-lying areas subject to near continuous inundation. This is an attractive consumer product for plant growing, but in uncleared wetlands its extraction can produce undesirable environmental impacts.
3.7 COASTAL CONSTRAINTS

The vast majority of the ocean frontage, extending from Hardy Inlet to Donnelly River, is a sandy coastline, with the main feature of variation being the large basalt outcrop at Black Point. The dunal areas are low in elevation in the western sector, grading to high in the east, particularly just to the west of Black Point and Donnelly River. There is a lack of information on coastal processes and stability, but the whole area is exposed to westerly to southerly winter storms and south easterly to south westerly sea breezes in summer and that exposure can be described as extreme. There are large areas of dunal blowouts, stressing the importance of protecting the vegetation cover.

Although relatively remote from major population centres and local towns, there is growing pressure on this coastal area from tourism, recreation and fishing enthusiasts. That pressure extends into the D'Entrecasteaux National Park, which covers the eastern part of the study area coastal strip. A new management plan for the D'Entrecasteaux National Park is currently in preparation. It is understood there are concerns within CALM that there is limited visitor capacity around Black Point, one of the most popular spots within the park, to handle the degree of camping and vehicle pressures that are coming onto that area. The new management plan will endeavour to address that issue, but there are opportunities for this land use strategy to assist in resolving some of that pressure. At this stage the only formal road access to the coast along the entire 70km ocean frontage is at Black Point, and that is by way of an unmaintained four wheel drive sand track. Some land owners allow restricted public access through their properties.

Of the 70km ocean frontage, the D'Entrecasteaux National Park covers about 9km and almost the entire remainder is vacant Crown land, being that strip of land along the water frontage of the private landholdings between Black Point and Hardy Inlet. Full responsibility for the implementation of the national park management plan rests with CALM. Currently, there is no vesting for the Crown land coastal strip, there is no management concept in place and so far no agency has been prepared to accept any management responsibility.

There are clearly significant opportunities for tourist, recreation and lifestyle development in this area as well as intensive agricultural uses in some sections. However, there are also major issues to address, including vesting of the vacant Crown land, coastal management, foreshore access, road construction and services and infrastructure provision.
3.8 ROADS AND TRANSPORT

Consistent with the remote nature of the study area, only Brockman Highway was constructed to a sealed standard until recent times, and even that was of a rather poor standard. The development of two mineral sands mines has resulted in the reconstruction of parts of Brockman Highway, Black Point Road and Scott River Road, and also the construction of Sues Road to the north. Apart from a short section of Milyanup Coast Road, all other roads in the study area are either graded earth roads or unconstructed dirt tracks. One of the major constraints to road construction and upgrading in this area is the lack of roadbase materials within a reasonable haulage distance, as most of the materials reserves are located within the CALM estate and are generally not available for local government road purposes. A more detailed outline of the background information is set out in the Monaghan report.

Current developments in the area have placed considerable strain on a number of the existing local roads. As indicated in the Monaghan report, each centre pivot site producing potatoes generates about 53 return truck movements (38 tonnes) at the time of harvest, with a further five return truck movements carrying in lime, gypsum and fertilizer at other times of the year. It could be assumed that there would be similar truck movements associated with other horticultural production, but their seasons of cartage may be different or may be more evenly spread throughout the year. Each dairy will involve the calling of a milk tanker each day of the year.

It should be noted that the upgrading of Sues Road has considerably improved the accessibility to the processing plants in the Busselton/Bunbury area for milk tankers and other products, and has also facilitated the transport of farming requirements and equipment into the study area. Another route which has been used extensively outside the study area has been via Stewart Road, Coronation Road and Graphite Road to deliver potatoes from the study area to the processing plant in Manjimup. With that processing plant having recently closed down, the future demands on this route are uncertain, but Manjimup may remain a centre for sorting and/or processing of potatoes and other horticultural crops, given its current importance in horticultural production.

Harvested logs from the existing hardwood plantations are expected to be destined for a wood chip mill which is likely to be built in the vicinity of Donnybrook or Bunbury. Indications at this stage are that Sues Road and Bussell Highway are likely to be used as the truck transport route. However, if there are further changes to the Regional Forest Agreement, there may be a case for using the existing Diamond Chip Mill for chipping some plantation timbers from the Manjimup/Pemberton/Scott River area. In that case both Stewart Road and Coronation Road could be used to gain access to the existing log haul route along Palings Road to the chip mill.

Future development potential will have considerable implications for the road network. Table 2 sets out the indicative volume of loaded heavy truck movements likely to be generated each year for the three development scenarios outlined in Chamarette (1999).
### AGRICULTURAL ACTIVITY

<table>
<thead>
<tr>
<th></th>
<th>CURRENT (1)</th>
<th>SCENARIO 1</th>
<th>SCENARIO 2</th>
<th>SCENARIO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H</td>
<td>ONNES</td>
<td>T</td>
<td>RUCKS</td>
</tr>
<tr>
<td>DAIRYING SUPPORT (2)</td>
<td>1750</td>
<td>-</td>
<td>680</td>
<td>-</td>
</tr>
<tr>
<td>HORTICULTURE SUPPORT (2)</td>
<td>450</td>
<td>22 500</td>
<td>592</td>
<td>1 000</td>
</tr>
<tr>
<td>FARM FORESTRY SUPPORT (3) (4)</td>
<td>5 000</td>
<td>125 000</td>
<td>2 083</td>
<td>6 000</td>
</tr>
<tr>
<td>SHEEP/CATTLE GRAZING SUPPORT (5) (6)</td>
<td>24 356</td>
<td>9 744</td>
<td>213</td>
<td>23 662</td>
</tr>
<tr>
<td></td>
<td>16 685</td>
<td>438</td>
<td>-</td>
<td>16 209</td>
</tr>
<tr>
<td>TOTAL (7)</td>
<td>31 556</td>
<td>167 404</td>
<td>4 098</td>
<td>32 555</td>
</tr>
</tbody>
</table>

### NOTES AND ASSUMPTIONS:

1. Tonnages and truck movements for horticulture and sheep/cattle grazing based on road count figures taken by the Shire of Nannup in late 1997/early 1998; for dairying based on discussions with Bill Russell from AgWA; for farm forestry based on discussions with John Sanders from Bunnings Tree Farms.
2. Based on 38 tonne trucks.
3. Based on 60 tonne trucks.
4. The truck movements related to harvesting plantations occur 10 years after planting; that is, uptakes to these levels will be progressive.
5. Based partially on 60 tonne trucks and partially on 40 tonne trucks.
6. The overall figures for tonnage and truck movements were taken from the Shire of Nannup road count figures and proportionately expanded to include also the Shire of Augusta-Margaret River.
7. All truck numbers shown relate only to loaded large trucks; actual truck movement numbers will be double to account for empty return journeys.
8. Based on three potential development scenarios outlined in Chamarette (1999)

### TABLE 2 — INDICATIVE TRUCK GENERATION IMPLICATIONS
3.9 POWER AND TELECOMMUNICATIONS

Agricultural properties are currently limited to single phase (240 volts) power supplies, which is sufficient to operate an irrigator, but a bore pump requires three phase (415 volts). There is a considerable cost saving in using appropriate electricity supplies, rather than diesel fuel, to power the plant associated with irrigated horticultural production (Monaghan, 1999). Many landowners in the study area have expressed a strong desire to connect to three phase power supplies. This could be achieved by extending a 22kv line from the Beenup substation, which is served by a 132kv line. Previously, this would have necessitated the installation of filter banks to reduce the level of harmonics generated by mining equipment, but with the Beenup mine now being closed indefinitely, this is no longer required. There have also been suggestions of extending the power grid to supply the Jangardup Mine. This could open up other possibilities for the landowners.

A preliminary estimate by Western Power to extend a suitable transmission line from the Beenup sub-station to the eastern sector of the study area suggests that it may cost in the order of $1-2 million.

Currently, most of the properties in the central and western sections of the study area are connected to the Telstra cable phone system, but those in the east mostly rely on radio or satellite connections. Mobile telephone coverage is very limited. The local community has expressed a strong desire for an improved telecommunications service.

3.10 OTHER COMMUNITY SERVICES

There is no established townsite in the study area and no urban commercial services. At the moment local landowners and residents use the commercial and civic facilities in the surrounding towns. From a common point at the junction of Milyanup Coast Road, Fouracres Road and Governor Broome Road, it is a distance of 47km to Nannup, 60km to Augusta, 68km to Margaret River, 81km to Pemberton and 84km to Manjimup. A small roadside shop exists on the north side of Brockman Highway, near the junction of Scott River Road. For the usual commercial and civic facilities, residents in the central and eastern sections generally use Nannup and those in the western end tend to prefer Augusta or Margaret River. Manjimup is the regional level focus for most of the local community and is the processing and servicing centre for the horticultural and timber industries.

Many of the local residents have expressed concern at the remoteness and lack of services and facilities. They have cited a general store, tavern/bottle shop, sporting facility (golf?), community hall/social meeting area, rural supplies and product handling/storage unit as their main interests in that regard. Provision of these facilities is generally based on both need and commercial viability, with the implication that an increasing local population and greater economic activity may be the catalysts to achieving them.
3.11 CURRENT STATUTORY RESPONSIBILITIES

Various agencies have statutory responsibilities in regard to land use planning and management on the Scott Coastal Plain. The principal ones are:

- **LOCAL GOVERNMENT** — There are two main responsibilities. Firstly, the preparation and implementation of a district planning scheme, including development control, under the Town Planning and Development Act, allows Councils to control the use and development of land by way of the planning approval process. Secondly, the provision and maintenance of the local road system in accordance with the Local Government Act, provides Councils with an ability to limit or control heavy vehicle transport on its road system.

- **WESTERN AUSTRALIAN PLANNING COMMISSION** — Under the Town Planning and Development Act, the Commission has responsibility for determining applications to subdivide freehold land, and is required to make recommendations to the Minister for Planning on proposed town or district planning schemes and amendments thereto. In addition, the Commission carries a regional and strategic planning function.

- **AGRICULTURE WESTERN AUSTRALIA** — Under the Soil and Land Conservation Act, Agriculture WA has control over the clearing of land or actions that may cause land degradation.

- **WATER AND RIVERS COMMISSION** — The Commission has the responsibility of managing the state's water resources, including the assessment and approval of applications for water bore licences. Approvals can be given for limited periods and may contain specific conditions designed to protect the environment and the water resource.

- **DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT** — The Department is responsible for the management of state forests, national parks and nature reserves, and for the protection of rare and endangered species.

- **ENVIRONMENTAL PROTECTION AUTHORITY** — Under the Environmental Protection Act, the Authority may assess, either formally or informally, any proposal which is likely to have a significant effect on the environment. Proposals may be referred to the Authority by the proponent, a government agency or any member of the public. In addition, the Minister for the Environment may refer proposals and the Authority may call proposals in for assessment.

3.12 CURRENT ZONINGS AND LAND USES

In both the Shire of Augusta-Margaret River Town Planning Scheme No. 11 and the Shire of Nannup Town Planning Scheme No. 1, the privately owned land within the study area is currently zoned "Rural". These schemes allow for a wide range of uses to be permitted at the discretion of the Council, some requiring prior public advertising. A narrow strip of land on the eastern shore of Hardy Inlet is included within the Shire of Augusta-Margaret River Town Planning Scheme No. 19 and is zoned "Special Residential", allowing for the creation of about 50 lots.
4. LAND USE STRATEGY

4.1 GENERAL STRATEGY

After the initial spate of irrigated horticultural developments took place several years ago, a number of agencies and other groups expressed reservations about the sustainability of that trend and concerns over the likely off-site environmental impacts. It had been feared that deep leached sandy soils and high water tables, combined with the widespread applications of high levels of fertilizers, would lead to nutrient overload in the adjoining waterways and a loss of important ecological habitats and recreational areas.

When considering the likely outcomes of this study at the outset, the general consensus appeared to be that some areas may be restricted, either in a limited or extensive way, and other areas may be excluded from development altogether, on the basis of the potential threat to the environment. Subsequent analysis of the available information and an acknowledgement of the lack of other necessary data has tempered those restrictive concepts somewhat. Firstly, the soil types are varied and mostly underlain by impervious layers, indicating that surface runoff carrying nutrient enriched particulate matter is likely to pose a greater threat of nutrient transport than leaching through the soil. Secondly, the lack of detailed monitoring of sites and waterways to determine sources and extents of nutrient generation has made it difficult to justify an overly restrictive approach at this stage.

The land capability assessment carried out for summer horticulture indicated that the vast majority of the private land outside of the coastal dune area had a moderate to high rating. This suggested that, subject to appropriate land management practices being undertaken, irrigated horticulture and other intensive agricultural activities could be undertaken in most areas. The key factors for sustainability are implementation of best management practice and ongoing monitoring.

As a result, the broad land use concept for the study area is for continued and enhanced agricultural uses on private land to the north of the Scott River and for a range of rural-type land uses on the private lands to the south.

4.2 RESERVED AND CROWN LANDS

Existing areas of State forest, national park, nature reserves and other reserves are vested in CALM or other relevant agencies. Nothing in this land use strategy will affect the continued management of those lands by those agencies, but the strategy will endeavour to reduce adverse impacts on those lands by appropriate management practices associated with agricultural and other land uses.
There are several relatively large parcels of vacant Crown land remaining within the study area which should be investigated further as potential land swap options in conjunction with the recommendations of the Vegetation and Water Management strategies. The vesting of the existing strip of vacant Crown land along the foreshore of the south coast needs to be resolved to facilitate appropriate planning and management of the coastal area.

Additional conservation protection on private land may be achieved in other fair and equitable means other than acquisition. Various options, such as through conservation covenants and incentives for voluntary protection, should also be considered.

4.3 RURAL AGRICULTURE ZONE

In recognition of the availability of large volumes of high quality water and the large lot sizes unconstrained by incompatible adjoining uses, the Strategy proposes that all the freehold land within the study area to the north of the Scott River and the CALM estate to the east be zoned "Rural Agriculture". This will enable the continued development of a wide range of intensive and extensive agricultural land uses in conjunction with appropriate land management practices.

The principal objective of the Rural Agriculture zone is to provide for the sustainable use of land for crop growing (including horticulture and timber production) and extensive animal husbandry (including dairying and grazing) and to protect the long term productive capacity of agricultural land from incompatible land uses (including subdivision).

Within the Rural Agriculture zone, proposed land uses and developments should be assessed in accordance with the following chart (note that where the use is listed as "permitted", a formal planning application to the Council may still be required):
<table>
<thead>
<tr>
<th>USE TYPE</th>
<th>PERMISSIBILITY OF USE</th>
<th>COMMENTS AND GUIDELINES FOR ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated horticulture</td>
<td>Permitted</td>
<td>• Bore licence required from W&amp;RC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with bore licence conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• May require EPA approval — see “Guidelines for Assessing the Environmental Risk of Irrigated Agriculture on the Scott Coastal Plain”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with EPA approval conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Clearing permits required from AgWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with permit conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Observe the Best Management Guidelines for Horticulture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Setbacks from environmental features shall generally be in accordance with the Buffer Distance Guidelines set out in Table 3 of the &quot;Guidelines for Assessing the Environmental Risk of Irrigated Agriculture on the Scott Coastal Plain&quot;</td>
</tr>
<tr>
<td>Tree plantations</td>
<td>Permitted</td>
<td>• Clearing permits required from AgWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with permit conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Observe the Best Management Practice Guidelines for Tree Plantations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Observe the Timber Industry Code of Practice for Timber Plantations in Western Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Compliance with any district road transport strategy or fire management strategy.</td>
</tr>
<tr>
<td>Dairying</td>
<td>Permitted</td>
<td>• May require EPA approval</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with EPA approval conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Animal husbandry</td>
<td>Discretionary</td>
<td>• EPA approval required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full compliance with EPA approval conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Grazing</td>
<td>Permitted</td>
<td>• Observe the Best Management Guidelines for Grazing.</td>
</tr>
<tr>
<td>House</td>
<td>Permitted</td>
<td>• Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Additional accommodation</td>
<td>Discretionary</td>
<td>• May be permitted only for accommodation of permanent or seasonal workforce on land under the same ownership</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To be positioned on site to avoid conflict with existing or permissible adjoining land uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Tourist accommodation</td>
<td>Discretionary</td>
<td>• To be positioned on site to avoid conflict with existing or permissible adjoining land uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
</tbody>
</table>

In planning for new land uses and developments or extending existing ones, every effort should be made to avoid conflicting with existing waterways, areas of remnant vegetation and other areas of high conservation value. Irrigated horticulture developments should be positioned to ensure that natural watercourses do not enter or cross the site. First,
second or third order streams or artificial drainage lines may be diverted as set out in the Water Management Strategy, but all watercourses of fourth order or higher must be avoided. In addition, setbacks from environmental features should generally be in accordance with the Buffer Distance Guidelines set out in Table 3 of the "Guidelines for Assessing the Environmental Risk of Irrigated Agriculture on the Scott Coastal Plain".

The majority of the study area is underlain by the Yarragadee Aquifer, which can provide large quantities of high quality water for irrigation purposes. The aquifer extends well to the east of the study area, but its western limit approximates to the local government boundary between the Nannup and Augusta-Margaret River shires. To the west of the Yarragadee Aquifer lies the Lesueur Formation, a shallower aquifer with variable water quality and availability. In addition, several fault lines extend into the middle of the study area from the south coast, creating a narrowing wedge of land where basalt rock layers and other geological formations often render access to the underlying Yarragadee Aquifer more difficult and expensive. This does not preclude the overlying land from irrigated horticultural use, but it will impact on the economic viability of those uses and developments in those areas.

Throughout the Rural Agriculture zone, a prime objective of this strategy is to protect the productive capacity of the land from incompatible land uses, or those uses or developments which may prejudice their viability. One of the economic advantages of the Scott Coastal Plain for extensive irrigated horticulture is the large lot sizes and the relatively low land values. To maintain and protect that advantage, there is a clear presumption against any subdivision of land within that zone. The only exception to that may be in the area to the west of Scott River Road, where the proposed subdivision would be to lot sizes comparable to the majority of surrounding lot sizes and the subdivision can be clearly demonstrated to be for productive agricultural purposes.

At the now closed Beenup minesite, current permitted land uses within the Rural Agriculture Zone, even capital intensive developments, should be allowed to proceed until new technology breakthroughs make a recommencement of mining activity a feasible proposition. However, it would not be appropriate to rezone the areas underlain by mineralisation to a more intensive or sensitive use, at least for the foreseeable future, and subdivision to areas smaller than 40 ha should not be contemplated. The area concerned would be that identified by BHP Titanium Minerals in its latest environmental approval document. Additional areas of mineralisation are known, but should not be considered in land-use planning until the economics of this type of ore extraction improve markedly.

At Jangardup, the style of mining undertaken or being proposed is eminently suited to sequential land use, whereby most other uses can satisfactorily proceed after mining and rehabilitation has been concluded, subject to appropriate environmental approvals. There is a narrow, northwest extension of the Jangardup mine that is covered with Retention Licence 70/22, that may be considered for mining in the future. Land uses possibly sensitive to mining of this should be very closely examined prior to any decision to consent to them proceeding.
If any areas of potentially extractable ferricrete occur in the agricultural districts, consideration should be given to protecting them from competing land uses, particularly if an isolated occurrence. Where peat deposits occur in cleared farmland, its extraction may be acceptable and consideration could be given to protecting such areas from other uses that may prevent its future extraction.
4.4 RURAL LANDSCAPE AND CONSERVATION ZONE

The freehold land areas to the south of the Scott River are characterised mainly by steep coastal dunes with relatively fragile coastal heath vegetation, but also have significant areas of protected woodland and forest and other areas of richer soils capable of various productive agricultural activities. A large portion of this area is also underlain by the Yarragadee Aquifer, providing ready access to large volumes of high quality water for various land use and development purposes. The coastal belt is exposed to the strong winter storms and summer sea breezes, presenting a high risk of wind erosion and dunal blowouts. At the same time the whole area has high and varied visual landscape values and considerable potential for recreation, nature-based tourism and lifestyle living. In consideration of those factors, the the Strategy proposes that the freehold land south of the Scott River be zoned "Rural Landscape and Conservation".

The principal objective of the Rural Landscape and Conservation zone is to protect significant landscapes and environmental features and provide for development which is compatible with and will enhance the landscape and environmental qualities of the locality.

Within the Rural Landscape and Conservation zone, proposed land uses and developments should be assessed in accordance with the following chart (note that where the use is listed as "permitted", a formal planning application to the Council may still be required):

<table>
<thead>
<tr>
<th>USE TYPE</th>
<th>PERMISSIBILITY</th>
<th>COMMENTS AND GUIDELINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>House</td>
<td>Permitted</td>
<td>· Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Additional accommodation</td>
<td>Discretionary</td>
<td>· May be permitted only for accommodation of permanent or seasonal workforce on land under the same ownership</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· To be positioned on site to avoid conflict with existing or permissible adjoining land uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
<tr>
<td>Holiday chalets</td>
<td>Discretionary</td>
<td>· Total number of units to be no greater than one unit per 10ha of total site area (or appropriate similar performance criteria)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Development to be low key, with all buildings and site works to be compatible with and complementary to the visual landscape of the area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Additional coastal management plan for the property to be submitted to address the impacts of the additional development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· No units or other development to be placed on exposed dunes or in visually conspicuous positions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· To be positioned on site to avoid conflict with existing or permissible adjoining land uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Effluent disposal to be located so as to comply with the environmental objectives.</td>
</tr>
</tbody>
</table>
| Caravan park and/or camping ground | Discretionary | • Total number of caravan bays and camp sites to be no greater than one per 4ha of total site area (or appropriate similar performance criteria)  
• Development to be low key, with all buildings and site works to be compatible with a nd complementary to the visual landscape of the area  
• Additional coastal management plan for the property to be submitted to address the impacts of the additional development  
• No buildings or other development to be placed on exposed dunes or in visually conspicuous positions  
• To be positioned on site to avoid conflict with existing or permissible adjoining land uses  
• Effluent disposal to be located so as to comply with the environmental objectives. |
| Irrigated horticulture | Discretionary | • Bore licence required from W&RC  
• Full compliance with bore licence conditions  
• May require EPA approval — see “Guidelines for Assessing the Environmental Risk of Irrigated Agriculture on the Scott Coastal Plain”  
• Full compliance with EPA approval conditions  
• Clearing permits required from AgWA  
• Full compliance with permit conditions  
• Observe the Best Management Guidelines for Horticulture  
• Setbacks from environmental features shall generally be in accordance with the Buffer Distance Guidelines set out in Table 3 of the “Guidelines for Assessing the Environmental Risk of Irrigated Agriculture on the Scott Coastal Plain”  
• Development and use to be positioned on site to avoid conflict with existing or permissible adjoining land uses. |
| Tree plantations | Discretionary | • Clearing permits required from AgWA  
• Full compliance with permit conditions  
• Observe the Best Management Guidelines for Tree Plantations  
• Observe the Timber Industry Code of Practice for Timber Plantations in Western Australia  
• Plantation and associated development and site works to be restricted to areas compatible with the visual landscape protection objectives of the zone. |
| Dairying | Discretionary | • May require EPA approval  
• Full compliance with EPA approval conditions.  
• Effluent disposal to be located so as to comply with the environmental objectives  
• Grazing not permitted on dunal areas or other areas susceptible to wind erosion. |
| Animal husbandry | Discretionary | • EPA approval required  
• Full compliance with EPA approval conditions.  
• Effluent disposal to be located so as to comply with the environmental objectives. |
| Grazing | Permitted | • Observe the Best Management Guidelines for Grazing  
• Not permitted on dunal areas or other areas susceptible to wind erosion. |
Given the variety of uses that may be permitted in this zone, care must be taken to ensure compatibility of adjoining uses. With large lot sizes being available, each development and use on a lot should be so located as to not have any adverse impact outside the boundary of that lot. In addition, each development or use should be so designed and located as to be compatible with and complementary to the visual landscape, and in particular should not be placed on exposed dunes or in visually conspicuous positions.

An essential pre-requisite to any increase in development and usage in this area is the preparation of a coastal management strategy for the whole coastal strip extending from the western boundary of the D’Entrecasteaux National Park through to Hardy Inlet. Subdivision of land and increasing development potential will not be supported by the WAPC until the issue of the vesting of the vacant Crown land coastal strip is resolved and a suitable coastal management strategy is approved and adopted. Negotiations need to be carried out with the respective local governments with a view to their accepting the vesting. Once these requirements have been fully addressed, subdivision of lots down to a minimum lot size of 40ha may be considered where road access and road upgrading issues have been satisfactorily resolved. Further subdivision of land to smaller lot sizes for lifestyle purposes will not be considered unless and until urban type services and facilities are provided in close proximity to the subject land and the required infrastructure has been appropriately upgraded.

Areas of private land near the coast that are underlain by limestone or lime sand should be viewed as containing a resource that will probably become more valuable with time, and land-use planning to allow for future access could be appropriate for such areas.

4.5 COASTAL MANAGEMENT

Coastal management to ensure appropriate protection of the coastal environment should be carried out at three separate levels. Firstly, the Warren-Blackwood Regional Planning Strategy (WAPC, 1997) recommended that the Ministry for Planning, in conjunction with other parties, prepare a regional coastal management strategy for the coastline stretching from Walpole to Augusta, addressing issues such as:
- coastal processes,
- tourist and recreational demands,
- options for access, development and settlement,
- location, type and style of tourist and recreational facilities,
- areas for conservation and protection,
- resourcing coastal management,
- rationalisation of boundaries and vesting of the vacant Crown land coastal strip.
Secondly, the local governments should seek appropriate government funding and assistance to prepare a coastal management plan for the section of coastline abutting the freehold land extending westwards from Black Point. That plan should address such issues as:

- proposed node(s) for formal public access to the coast,
- vehicle and pedestrian management,
- requirements (if any) for public facilities,
- beach and dune management,
- conservation requirements,
- involvement of abutting landowners,
- guidelines for site management plans.

Thirdly, where there is proposed subdivision or development on lots abutting the coastline or the existing vacant Crown land along the coastline, there should be a requirement to prepare and implement a site coastal management plan by the landowner/developer, relevant to the proposed scale of subdivision or development, addressing issues such as:

- setbacks for development,
- dune and vegetation protection measures,
- beach access points,
- vehicle movement control,
- fencing,
- fire management,
- visual amenity.

4.6 ACCOMMODATION

As indicated in Table 1, there may be an existing demand for on-site accommodation across the study area, with those demands increasing considerably in the future if any of the three development scenarios outlined are achieved. That table sets out the projected workforce resulting from the various development levels associated with agricultural activity. Further accommodation demands are also likely to arise in the future from both mining and tourism activities within the study area, but that is difficult to forecast at this stage.

Both permanent and seasonal workers may be satisfied with caravan, hostel, boarding house, chalet or unit type accommodation. Seasonal workers may also be satisfied with camping options, but the permanent workforce, who may also have family with them, may demand the option of detached housing on an urban or rural residential lot. Currently there is a relatively small apparent requirement for off-site accommodation within the study, but the future development scenarios would generate considerably higher demands, along with potential additional pressures from mining and tourism.
If this scale of development is to be achieved on the Scott Coastal Plain, it is likely that one or two small townsites may need to be established. In the western part of the study area the most suitable general location would appear to be adjacent to Milyeannup Coast Road, south of the Scott River. This area is mostly well drained dunal country, with close proximity to the coast for climatic benefits and recreational access, providing an attractive setting. The principal infrastructure demands (water, power and roads) would be relatively simple to provide to this area. The site could be positioned such that it would not be occupying the more productive agricultural lands and would not raise land use conflicts with agricultural uses. In addition, in this location it would better serve the tourist and recreation demands along the coastal strip and could provide for future lifestyle development.

The scale and disposition of the Scott Coastal Plain suggests that there could also be a need for a smaller townsite development in the eastern sector. In this instance, the best location options would appear to be along Black Point Road on vacant Crown land or as an excision from State forest. In this position it could serve both the agricultural developments and the Jangardup and other future mineral sands mines.

The development of new townsites is also an opportunity to redress the lack of community services and facilities in the area. Sites for commercial facilities, such as convenience goods, tavern/bottle shop and rural supplies, should be allowed for in scale with the perceived development. Options for financial assistance to provide community facilities such as a community hall and sporting amenities should also be investigated.

The need, scale, type and timing of the new townsite developments will be dependent largely upon the scale and timing of other future developments in the area. To facilitate that progression, forward planning for the accommodation requirements should be undertaken at an early stage.

4.7 ROADS AND TRANSPORT

The levels of heavy truck movements outline for the three future development scenarios set out in Table 2 indicate that funding needs to be sought for considerable upgrading of a number of the existing roads. Progressively, Milyeannup Coast Road will need to be upgraded to bitumen standard at least to the junction with Governor Broome Road/Fouracres Road, and if a new townsite is to be located south of the Scott River, the sealed road will need to be extended to that point. Scott River Road and Black Point Road have already been sealed to serve the Beenup and Jangardup minesites, respectively and will adequately serve the main eastern and western entry/exit points to the study area.

The main east-west connecting roads will also require considerable progressive upgrading. This will apply particularly to Governor Broome Road and Fouracres Road and to a lesser extent to the first part of Pneumonia Road.
South of the Scott River, both Woodaburrrup Road and the extension of Milyeannup Coast Road will require progressive upgrading depending on the scale and type of development that takes place. In particular, there are major horticulture developments along Woodaburrrup Road and significant tree plantations along Milyeannup Coast Road, with more likely to develop in the future. In addition, if recreational usage of the south coast and D'Entrecasteaux National Park increases and low key tourism development is established, the roads standard will need to be suitable for cars and caravans. A major constraint to road building in this area is the lack of suitable roadbase material within reasonable proximity. To facilitate planning and funding of the construction, it is suggested that the local governments prepare a development potential concept and a road-upgrading plan to enable a schedule of road contributions to be produced.

Outside the study area, if any plantation timbers are to be transported to the Diamond Chip Mill for chipping, the Stewart Road/Coronation Road/Palings Road route is recommended. In the case of horticultural produce being transported to Manjimup for processing, packing or sorting, it is recommended that the opportunity for using Palings Road to Seven Day Road be investigated. This should result in a reduced road upgrading requirement, will separate tourist traffic on Graphite Road from heavy transport and will bypass the Manjimup main urban area.

4.8 POWER SUPPLIES

The three future development scenarios outlined in Table 1 suggest significantly increased levels of demand for improved power supplies across the study area. This will come mainly from additional horticultural and dairying developments, the vast majority of which would be located to the north of the Scott River. To this should be added the potential for or two townsites, the principal one which would more than likely be located to the south of the Scott River, in the vicinity of Milyeannup Coast Road, plus a range of low key tourist developments along the south coast.

It would appear that there are three main options to consider for extension and improvement of the power supply grid within the study area:

Option 1 — If the Jangardup Mine is to be connected by way of an extension from the existing Beenup sub-station, the proposed route should take into account the potential for up to a ten-fold increase in the level of irrigated horticultural development, a doubling of the dairy production and the establishment of one or possibly two townsites. In this case, the local landowners and producers and other interested parties should approach Western Power as a collective group to negotiate the most appropriate power line route, connection points, power charges and other factors of common interest.
Option 2 — If the Jangardup Mine is not to be connected to the existing power grid, then the local landowners should still approach Western Power as a collective group to negotiate similar issues for the agricultural enterprises, bearing in mind the potential for a new townsit connection in the future, also.

Option 3 — There is always the opportunity for individual landowners or small groups to approach Western Power for separate minor extensions. However, due to economies of scale, this is often an expensive and inefficient method of connecting to the grid.

5. IMPLEMENTATION

5.1 COMMUNITY INVOLVEMENT

This study has involved considerable levels of community consultation, mainly through the community interviews conducted by ARCWIS and the community workshop held at the Alexandra Bridge Hall in December 1998. The outcomes of a careful analysis of the key statements made by the community at those forums has formed the basis of this report. Furthermore, the joint development of the strategy with key landowner and producer representatives on the Working Group should ensure a high level of community ownership of the final strategy. It is therefore anticipated that the community will be highly motivated to implement the plan as far as it is practical for them to do so, in their own interests. With clear objectives and an agreed outcome, full implementation will be achieved by an appropriate partnership between the local community of the government agencies involved.

5.2 LOCAL GOVERNMENT

With similar levels of involvement in the development of the strategy and support for its outcomes, it is anticipated that both the Nannup and Augusta-Margaret River Shire Councils will incorporate the strategy into their respective district planning schemes and local rural strategies. Furthermore, both local governments will become a natural focus for advice and a local link to the community and back to the agencies.

5.3 WESTERN AUSTRALIAN PLANNING COMMISSION

The Commission will incorporate the Land Use Strategy and the basis of the overall Land and Water Management Plan into the Warren-Blackwood Regional Planning Strategy as a framework for ongoing regional planning and development within the South West Region. It will form the basis for decision making on subdivision proposals for freehold land and for assessing local rural strategies, district planning schemes and amendments thereto.
5.4 OTHER GOVERNMENT AGENCIES

The introduction of the two years plus two years bore licensing system by the Water and Rivers Commission has presented a strong control mechanism to deal with potential off-site environmental impacts of water usage, but has left landowners with a degree of uncertainty over their investments in the bore and irrigation equipment. As the clear objectives of the strategy become understood and accepted, the system should work to the advantage of all parties. The Commission will have the power to deal with unacceptable environmental impacts and the landowners will have the confidence to invest in the knowledge that with appropriate land management techniques, sustainable development is supported and encouraged. It is largely on this basis that the strategy has been able to promote this level of future development.

The Water and Rivers Commission should continue with this policy and refine the procedure as appropriate in accordance with the outcomes of ongoing monitoring. Another key aspect to the protection of the environment within the study area is the clearing controls administered by Agriculture WA under the Soil and Land Conservation Act. This procedure should continue, guided by the outcomes of the Vegetation Strategy and the Land and Water Management Plan. The department should also take a strong stance in dealing with aspects of land degradation under that same Act.

The Department of Conservation and Land Management will continue with management of its own estate and dealing with rare and endangered species and threatened ecological communities. Generally, the Environmental Protection Authority will only become involved in assessing bore licence applications within the study area where a proposal breaches the guidelines set out by the Water and Rivers Commission.

5.5 MONITORING AND REVIEW

The Water and Rivers Commission, in conjunction with the local landowners, has embarked on a three year programme of monitoring of nutrient levels in the waterways across the study area. This will enable assessment of the effectiveness of the current land and water management techniques being applied and will also be the basis upon which future target loads are set. The water monitoring programme and ongoing assessment of the effectiveness of the Land Use Strategy will enable all to be reviewed on a regular basis and maintained as a current and relevant document.
5.6 DEMONSTRATION

The Strategy for a Sustainable Future and the supporting documents have outlined and promoted a range of different methods for land and water management which should be implemented in the study area. Many of these techniques are new or unfamiliar to the local landowners, and many are still in the process of being developed. There may be an opportunity to seek appropriate funding to support a programme of researching and demonstrating these techniques on one or several of the local properties. This partnership should be beneficial to both the agencies and the landowners.

REFERENCES


Baddock, LJ, 1995. *Geology and Hydrogeology of the Scott Coastal Plain*

Chamarette, Jonathon, 1999. *Economic Potential of the Scott River Study Area* Agriculture Western Australia

Cox, Nick M., 1999. *Conceptual Surface Water Management within the Scott River Catchment* A Discussion Paper prepared for the Scott Coastal Plain Steering Committee and Lower Blackwood LCDC

Department of Conservation and Land Management, 1999. *Draft Scott Coastal Plain Vegetation Strategy*

Monaghan, John and Associates, 1997. *Scott Coastal Plain Study*


Tille, PJ and Lantzke, NC, 1990 *Busselton Margaret River Augusta Land Capability Study* Land Resources Series No.5 Department of Agriculture — Western Australia

Van Gool, Dennis and Runge, Werner. *Preliminary Mapping — Land and Groundwater for Horticulture* Agriculture Western Australia

Water and Rivers Commission, 1999 *Draft Water Management Plan for the Scott Coastal Plain*

Western Australian Planning Commission, 1997 *Warren-Blackwood Regional Planning Strategy* Western Australian Planning Commission