

# **Extractive industry - Lot 242 Corio Road, Pinjarra**

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**Mr P Gangemi**

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

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 568  
July 1991**

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# Contents

	<b>Page</b>
<b>1. Introduction</b>	<b>1</b>
<b>2. Description of proposal</b>	<b>1</b>
<b>3. Existing environment and land-use</b>	<b>1</b>
<b>4. Consultation</b>	<b>3</b>
<b>5. Environmental assessment</b>	<b>3</b>
5.1 Impact of the proposal on waterbird breeding	4
5.2 Protection of wetland vegetation	4
5.3 Nutrient and drainage impacts on Peel-Harvey Estuary	6
5.4 Wind erosion, dust, noise and site rehabilitation	6
<b>6. Conclusion</b>	<b>7</b>

## Figure

1. Proposed sand removal, Lot 242 Corio Road, Pinjarra, showing proposed access road, staging plan and West Corio Swamp.	2
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## Appendices

1. Proponent's commitments	9
2. Letter from Department of Conservation and Land Management regarding value of West Corio Swamp for waterbirds	11
3. Shire of Murray Excavation Licence of 6 December 1990	15



## **1. Introduction**

This proposal to extract sand from Lot 242 Corio Road, Pinjarra was considered by the Shire of Murray in December 1990 and approval was granted (See Appendix 3), conditional on acceptance being obtained from the Environmental Protection Authority and the Department of Conservation and Land Management.

During the period between granting conditional approval and the Authority setting the level of assessment, advice was received by the Shire of Murray from the Department of Conservation and Land Management that the proposal was adjacent to one of the most important breeding sites in south-western Australia for colonially nesting waterbirds. This wetland is known as West Corio Swamp. Based on the advice from the Department of Conservation and Land Management and concerns that the proposal could result in changed land management practices to the detriment of the Peel-Harvey Estuary and the wetland, the Environmental Protection Authority set the level of assessment at Consultative Environmental Review.

The Western Australian Department of Agriculture subsequently wrote to the Shire of Murray expressing concerns in relation to nutrients, retention of vegetation in the wetland and the potential for wind erosion.

The Authority issued guidelines for the Consultative Environmental Review document in January 1991 and received the document from the proponent in July 1991.

## **2. Description of proposal**

It is proposed to remove an estimated 295 650 m<sup>3</sup> of sand from a pastured hill which runs east-west along the northern boundary of Lot 242 Corio Road, as shown in Figure 1. It is anticipated that removal will take place intermittently over a period of several years. An eight stage removal plan is proposed with each stage being excavated and rehabilitated commencing with Stage 1 and moving westward. Each stage may be carried out on two fronts to minimise dust problems created by the prevailing winds. Western faces would be excavated in summer and eastern faces in winter.

No refuelling will occur on site, on-site power is not required and no groundwater will be used.

Access is as shown on Figure 1 and hours of operation will be from 7am to 7pm.

In response to concerns about the importance of the wetland for colonially nesting birds, the proponent's Consultative Environmental Review document states that "it is not proposed to carry out sand removal during the peak breeding season from August to October".

The proponent intends to rehabilitate the site to pasture. The approximate area of the excavation is 18.5 hectares which when rehabilitated will enable the paddock in which West Corio Swamp is situated to produce more hay for cutting and permit 14 more cattle to be grazed.

## **3. Existing environment and land-use**

The following aspects of the existing environment are relevant:

- The site has a Bassendean type soil (ie grey leached sand) and has negligible (if any) topsoil;
- With the exception of a few trees on the western end of the hill there is no native vegetation on the area to be excavated. There is about 40m of pasture between the remnant wetland vegetation and the nearest proposed excavation area;
- The hill to be removed is a low sand dune of about 4m high.

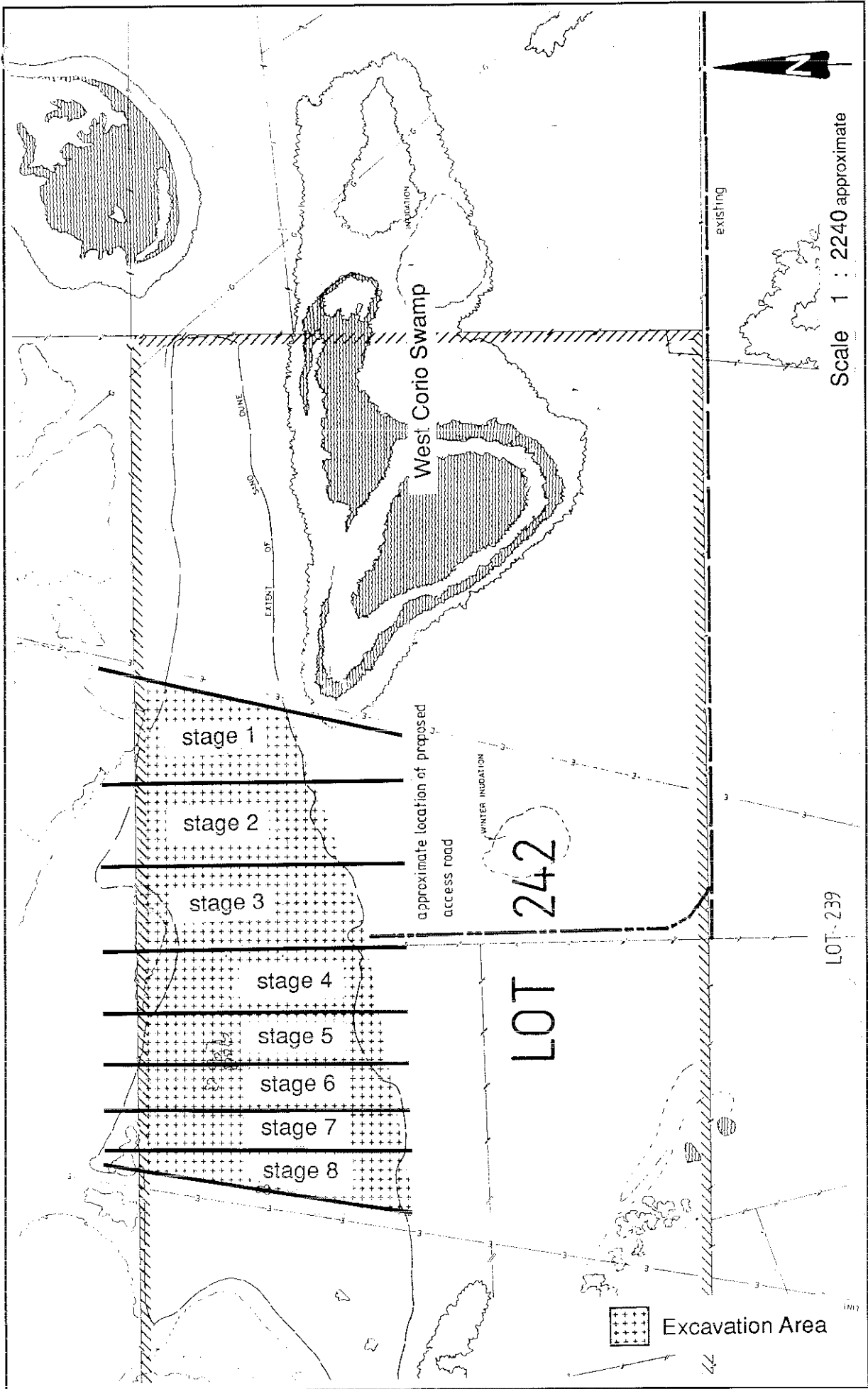


Figure: 1 Proposed sand removal lot 242 Corio Road Pinjarra, showing proposed access road staging plan and West Corio Swamp.

- The letter from the Department of Conservation and Land Management in Appendix 2 indicates the pattern of bird usage at the Swamp. Bird numbers are considerably greater during the breeding season;
- The nearest residence is at least 300m from the proposed access road and there are no houses for at least 500 m from the proposed excavation area; and
- The nearest main drainage system which flows into the Peel-Harvey Estuary is about 1.5km away.

The following aspects of existing land-use are relevant:

- Cattle are grazed in the paddock which includes West Corio Swamp from January to July each year. Stock levels have been kept to one head per 1.3 hectares of pasture for the past nine years;
- Some damage to individual trees within the wetland was observed as a result of current grazing practices; and
- The current fertiliser application rate is 50kg per hectare per annum.

## 4. Consultation

The Environmental Protection Authority has consulted with the Western Australian Department of Agriculture, Department of Conservation and Land Management, Royal Australasian Ornithologists Union, Australian Conservation Foundation, Conservation Council of Western Australia and a neighbour, Mrs Stokes in regard to this proposal.

The proponent indicated in the Consultative Environmental Review that he had contacted property owners directly abutting the site.

## 5. Environmental assessment

### Recommendation 1

The Environmental Protection Authority concludes that the proposal by Mr P Gangemi to excavate a portion of Lot 242 Corio Road is environmentally acceptable.

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

- The protection of colonially nesting waterbirds such as cormorants and ibis from disturbance by excavation activities.
- The protection of the wetland and its vegetation from stock grazing pressures;
- The potential for wind erosion and dust problems; and
- Ensuring no additional nutrient load to nearby wetlands and the Peel-Harvey Estuary from the proposed agricultural land-use after excavation is complete.

The Environmental Protection Authority concludes that these issues can be 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 Environmental Protection Authority's recommendations in this assessment report; and
- the proponent's commitments given in the Consultative Environmental Review (Appendix 1) which are not inconsistent with the Environmental Protection Authority's recommendations in this assessment report.

### **5.1 Impact of proposal on waterbird breeding**

West Corio Swamp is one of the most important breeding sites in south-western Australia for colonially nesting waterbirds such as cormorants and ibis (See Appendix 2). The breeding season extends from August to December.

The sensitivity to disturbance of colonially nesting waterbirds at West Corio Swamp is difficult to assess. At Booragoon Lake, which is another of the few known colonial breeding sites in south-western Australia, Leach Highway runs less than 25m from the nesting areas. However, the nature of the disturbance at Leach Highway is different to the type of disturbance likely from intermittent excavation operations, where machinery is only used occasionally.

Advice to the Authority indicates that beyond the first hillock to the west, (ie west of and including Stage 3) excavation activities are unlikely to disturb breeding birds. Stage 3 is located at least 200m from West Corio Swamp. Traffic movement along the proposed access road is also considered unlikely to disturb breeding birds, with the nearest point being approximately 150m from West Corio Swamp. The Authority considers that all movement of vehicles, machinery and on-site workers should be restricted to the access road and stages 3 to 8 during the breeding season.

Therefore the Environmental Protection Authority considers that excavation would be acceptable in stages 3 to 8 throughout the year, and that excavation in stages 1 and 2 should only occur between January and July of the following year.

During consultation in regard to this proposal it was suggested that the hill in stages 1 and 2 could contribute to the value of Corio Swamp by providing land for a viewing area, should the State Government decide to protect this wetland by purchase and making it a nature reserve. In order to protect the landform around West Corio Swamp for as long as possible, the Authority considers excavation should start in Stage 8 and move eastward towards Stage 1, rather than the other way around. Excavation of stages 1 and 2 should not commence until stages 8 to 5 have been completed.

### **Recommendation 2**

**The Environmental Protection Authority recommends that in order to protect breeding birds from disturbance excavation in stages 1 and 2 only be permitted between January and July (inclusive), to the satisfaction of the Environmental Protection Authority on advice of the Shire of Murray. Excavation in stages 3 to 8 may take place throughout the year.**

**The Environmental Protection Authority recommends that excavation of stages 1 and 2 not commence until excavation of stages 8 to 5 has been completed, to the satisfaction of the Environmental Protection Authority on advice of the Shire of Murray.**

### **5.2 Protection of wetland vegetation**

It is essential that wetland vegetation is not damaged or altered as a result of this proposal so the wetland can continue to support waterbirds and function as a healthy biological system. This wetland is identified as a portion of the environment to which the Draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 1991 applies.

Cattle damage to some trees has been noted, however the significance of the damage in terms of the wetland as a whole is difficult to assess. The proponent does not intend to alter current land-use practices, however when excavation is complete an additional 14 cattle will be grazed in the paddock which contains West Corio Swamp.

Two suggestions were made during consultation in regard to this issue, namely:

- the proponent should be required to progressively fence the wetland as part of the rehabilitation, and the fence should include a 50m buffer between the wetland and the pasture to prevent fertiliser getting into the wetland and allow a vegetated wetland buffer to re-establish or be planted; and
- the proponent should be permitted to excavate to below the water table to provide an alternative source of water for cattle grazing.

A fence of about 1 400m long would be required to fence the portion of West Corio Swamp on Lot 242. This length of fence does not include the boundary of Lot 242 which dissects the swamp. It would be wise to involve the owner of Lot 241 in any proposals to fence the swamp.

As the purpose of the fence is to keep out stock, an electric fence may be appropriate.

The Western Australian Department of Agriculture noted that assistance for fencing could be available and suggested that proponent contact the Community Co-ordinator of the Catchment Centre located in Pinjarra. The Authority agrees that the proponent should investigate funding assistance for fencing.

The Environmental Protection Authority considered whether or not the proponent should be required to fence the wetland and has decided that fencing would be recommended on the following grounds:

- It would be difficult to monitor for adverse impacts of cattle grazing on wetland vegetation because the impacts would be incremental over many years (The number of cattle would increase slowly as each stage of the excavation was rehabilitated). Some impacts, such as soil compaction, would take many years to detect and it could then take many years for wetland vegetation to recover;
- If the wetland is not fenced the Authority would have to recommend restrictive conditions that would require any change in land-use practices, such as grazing goats rather than cattle, to be referred to the Authority for approval. The Environmental Protection Authority considers such conditions less desirable than a requirement to fence;
- A fence would allow a vegetated wetland buffer to re-establish or be planted; and
- The conservation value of the swamp would probably give a request for financial assistance for fencing a relatively high priority over other applications.

As the grazing intensity will increase gradually as each stage of the excavation is developed and the proponent currently has no intention of changing land-use practices the Environmental Protection Authority considers that the fence does not need to be installed immediately but could be put in place after completion of some stages of excavation.

### **Recommendation 3**

**The Environmental Protection Authority recommends that prior to commencement of excavation of a third stage of the proposed excavation the proponent prepare a plan and then subsequently install and maintain a fence for the purpose of preventing stock movement into West Corio Swamp to the satisfaction of the Environmental Protection Authority on advice of the Shire of Murray and the Western Australian Department of Agriculture.**

**The Environmental Protection Authority further recommends that the proponent be permitted to excavate a soak to provide water for stock within the area proposed to be excavated, to the satisfaction of the Environmental Protection Authority on advice of the Shire of Murray and the Western Australian Department of Agriculture.**

### **5.3 Nutrient and drainage impacts on Peel-Harvey Estuary**

This proposal is within the area defined as the Peel-Harvey Catchment by the Minister for the Environment. The Peel-Harvey Estuary is badly degraded because large quantities of nutrients have flowed into the Estuary from surrounding farm land and urban areas. Algae live on the nutrients and multiply rapidly, stifling life in the Estuary in warmer weather. The algae accumulate and rot on the shores of the Estuary, causing odour problems, polluting the shore, and killing wildlife and fish.

The strategies accepted by the State Government to improve the Estuary's condition include the construction of the Dawesville Channel to improve flushing and catchment management to reduce nutrient input through controlling clearing, drainage and nutrient inputs.

As previously noted the soil type at this location is Bassendean Sand which has little ability to hold excess nutrients applied to the soil. Although the nearest main drainage system which flows into the Peel-Harvey Estuary is about 1.5km away excess nutrients applied to this lot could affect nearby wetlands or migrate to the estuary.

This proposal is not likely to significantly alter drainage or water flow patterns.

The Environmental Protection Authority considers it essential that fertiliser applications to Lot 242 do not result in nutrient export to nearby wetlands or the Peel-Harvey Estuary. The proponent has indicated that the area is currently fertilised with Coastal Super at 50kg per hectare per year has made a commitment that a higher fertiliser application rate would not be used. Advice to the Authority indicates that the application rate proposed by the proponent is quite low and therefore unlikely to result in off-site nutrient losses.

### **Recommendation 4**

**The Environmental Protection Authority recommends that annual fertiliser applications to Lot 242 Corio Road, Pinjarra not exceed 50kg per hectare or an amount determined appropriate by soil testing in accordance with Western Australian Department of Agriculture recommendations to the satisfaction of the Environmental Protection Authority on advice of the Western Australian Department of Agriculture.**

### **5.4 Wind erosion, dust, noise and site rehabilitation**

The proposed excavation is remote from residences so few complaints in respect of dust and noise are likely. Nevertheless it is important that wind erosion and dust are minimised to ensure that a blowout which could spread beyond the excavated area is not created. If dust controls are implemented, wind erosion would be unlikely.

The Environmental Protection Authority considers that each stage should be rehabilitated as soon as practical, and that excavation should be carried out on two fronts as suggested by the proponent, to minimise dust problems created by the prevailing winds.

The Environmental Protection Authority considers the conditional approval granted by the Shire of Murray and the proponent's desire to rehabilitate excavated areas to pasture provide adequate control with respect to potential wind erosion and dust. The Shire of Murray may wish to enforce advice from the Western Australian Department of Agriculture that wind erosion be prevented during excavation by the erection of artificial wind breaks until the mined areas are stabilised by vegetation cover through its condition that appropriate measures be implemented to reduce dust at the pit site.

The Environmental Protection Authority's dust control guidelines, issued in September 1990 could be used by the Shire of Murray.

The proponent should ensure compliance with the Authority's noise management procedure and ensure motorised machinery and equipment has appropriate exhaust systems fitted to minimise noise levels near the swamp.

The Authority considers that the conditions stipulated by the Shire of Murray in the Excavation Licence of 6 December 1990 adequately addresses this issue (See Appendix 3).

## 6. Conclusion

The Environmental Protection Authority concludes that the proposal by Mr P Gangemi to excavate a portion of Lot 242 Corio Road is environmentally acceptable.

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

- the protection of colonially nesting waterbirds from disturbance by excavation activities.
- the protection of the wetland and its vegetation from stock grazing pressures;
- the potential for wind erosion and dust problems; and
- ensuring no additional nutrient load to nearby wetlands and the Peel-Harvey Estuary from the proposed agricultural land-use after excavation is complete.

The Environmental Protection Authority concludes that these issues can be 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 Environmental Protection Authority's recommendations in this assessment report; and
- the proponent's commitments given in the Consultative Environmental Review (Appendix 1) which are not inconsistent with the Environmental Protection Authority's recommendations in this assessment report.

No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent should take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister should be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement should lapse and be void. The Minister for the Environment should determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition should be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority).



# **Appendix 1**

## **Proponent's commitments**

1. Stocking levels per hectare will not be increased.
2. Coastal super will continue to be applied at a rate not exceeding 50kg per hectare
3. As can be seen from the overlay plan vegetation around Corio Swamp has not been affected by the farming techniques applied over the past nine years and all endeavour will be made to continue these practices.



## **Appendix 2**

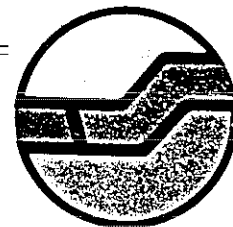
**Letter from Department of Conservation and Land Management  
regarding value of West Corio Swamp for waterbirds**





DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

6.6.34x



Please address all enquiries to:

WESTERN AUSTRALIAN WILDLIFE  
RESEARCH CENTRE  
OCEAN REEF ROAD  
WOODVALE  
Telephone (09) 405 5100

Your Ref:  
Our Ref:  
Enquiries:

Mr Mike Greener  
Shire President  
Murray Shire Council  
Pinjarra 6208

SHIRE OF MURRAY	
ATTENTION RECEIVED	
19 NOV 1990	
ADMINISTRATION	
ENGINEERING	
TOWN PLANNING	✓
HEALTH	

Postal Address:  
P.O. Box 51  
WANNEROO W.A. 6065  
Facsimile (09) 306 1641  
Telex AA94616

Dear Mr Greener

I am writing in response to a telephone call from Mr Ray Nancarrow, who told me the Council had before it a proposal for a sand mine adjacent to Corio Swamp. According to Mr Nancarrow, the council is seeking information about the swamp and I would like to take the opportunity to present what I know.

The Department of Conservation and Land Management (CALM) and the Royal Australasian Ornithologists Union (RAOU) have been studying the swamp for several years. There are two waterbodies, which we call Corio and West Corio. There is a small canoe shed on West Corio. Both areas are very important breeding sites for colonially nesting waterbirds. The number of birds breeding varies considerably between years but in 1989 the following breeding activity of colonial species was recorded:

Straw-necked Ibis	approx. 1 000 nests
Sacred Ibis	approx. 15 nests
Great Egret	approx. 25 nests
Little Egret	1 nest
Yellow-billed Spoonbill	approx. 5 nests
Rufous Night Heron	approx. 10 nests
White-faced Heron	1 nest
Darter	approx. 10 nests
Little Pied Cormorant	approx. 20 nests
Little Black Cormorant	approx. 20 nests

During annual counts of ducks, coots and swans 236 ducks were recorded in November 1988 and 399 were recorded in November 1989 in West Corio. Recent surveys of all waterbird species showed that 8 species occurred in West Corio in October 1989, 6 occurred in April 1990 and 14 occurred in July 1990. Highlights of the counts included 2 000 Straw-necked Ibis in October 1989, 25 Great Cormorant in April 1990 and 92 Grey Teal, 62 Pacific Black Duck and 12 Australasian Shoveler in July 1990.

We intend to continue working at Corio Swamp until at least 1992, by which time we will be able to document its

waterbird conservation value, water chemistry, productivity and vegetation very well. The data collected so far, however, are enough to demonstrate that it is one of the most important breeding sites in south-western Australia for colonially nesting waterbirds. For this reason it is one of the sites we use for colour-marking young egrets, ibis and spoonbills to study movements of waterbirds on the Swan Coastal Plain.

Yours sincerely

*S. Halse*  
Dr Stuart Halse  
Senior Research Scientist

15 November 1990

## **Appendix 3**

**Shire of Murray Excavation Licence of 6 December 1990**



Second Schedule

Shire of Murray

EXCAVATION LICENCE

Licence Holder: LENZ & MILNE  
Address: 9 PAGE ROAD, KELMSCOTT  
Land Description: LOT 242 CORIO ROAD, PINJARRA  
Material to be excavated: SAND

This licence is issued in accordance with the Shire of Murray By-laws relating to Extractive Industries upon and subject to the following conditions :-

- a. payment of annual licence fee of \$150.00;
- b. provision of a rehabilitation bond of \$7,500.00 to cover five (5) hectares of the site (or two stages);
- c. appropriate measures satisfactory to Council to be implemented to reduce dust at the pit site and on the access, especially near the existing residence;
- d. landscaping with trees and shrubs to be undertaken along the access route to the pit site to be undertaken to the satisfaction of Council;
- e. negotiation with the Shire Engineer regarding assistance with maintenance of Corio Road;
- f. location of two signs at the access to the site, advising of trucks entering;
- g. landscaping to be undertaken around the pit area, especially around the swamp;
- h. approval being obtained from the Environmental Protection Authority in view of the letter from the Department of Conservation and Land Management to the Shire President, Cr. M. Greenup, dated 15th November, 1990 (copy attached).

Dated ..... 6<sup>th</sup> ..... day of ..... December 1990.....

.....  
SHIRE CLERK