Environmental impact statement: renewal of sand and gravel extraction, North Arm, Bellinger River at Fernmount, Parish of South Bellingen, County of Raleigh for J.A. Scroope
ENVIRONMENTAL IMPACT STATEMENT

RENEWAL OF SAND AND GRAVEL EXTRACTION

NORTH ARM, BELLINGER RIVER AT FERNMOUNT

PARISH OF SOUTH BELLINGEN,

COUNTY OF RALEIGH

FOR J.A. SCROOPE

John Allen & Associates Pty. Ltd.,
A.M.P. Centre, Gordon Street,
COFFS HARBOUR. N.S.W. 2450.

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* Public Works Department - assistance and consultation re Draft report on geomorphology of river.

- Survey data from original investigations.

* R. Crowther & Associates Pty. Ltd. - tidal and hydraulic characteristics.
ENVIRONMENTAL IMPACT STATEMENT

RENEWAL OF SAND AND GRAVEL EXTRACTION
NORTH ARM, BELLINGER RIVER AT FERNMOUNT
PARISH OF SOUTH BELLINGEN, COUNTY OF RALEIGH
FOR J.A. SCROOPE

1.0 SUMMARY

This statement has been prepared in support of an application for renewal of a previous approval.

The nature and extent of the proposal has not changed significantly nor has the environmental impact.

Approval was granted to the previous application on 5th October, 1985, however, the applicant was not able to commence operations on the site prior to the expiration of the previous approval. Conditions imposed by Council were such as to prevent an extension of time for the approval.

The proposal involves the removal of some 36,000 m$^3$ of gravel and sand from the bed of the Bellinger River in a location where the development of a gravel island in recent years has aggravated the erosion of the southern bank of the river.

The removal of the deposit will assist in the control and reduction of the rate of bank erosion and will produce a product essential to the development and construction industries.

The environmental impacts are acceptable and adequate controls will be exercised to ensure the maximum benefit is gained and pollution is kept to acceptable limits.
The long term adverse impacts will be negligible, however, there will be long term beneficial impacts in the reduction of the rate of erosion of the southern bank of the river and the retention of good quality agricultural lands.

2.0 INTRODUCTION

2.1 Overview of Project

The applicant wishes to renew his previous approval to extract river gravel from the Bellinger River approximately 1 kilometre north-west of the village of Fernmount. The material will be extracted from an extensive gravel island which has developed in the river over recent years and from the river bed. It will be extracted using an excavator, loaded onto trucks, and transported to Coffs Harbour for processing and sale as crushed aggregate and sand.

The processed material will be used for road construction, building construction, concrete manufacture, hot mix manufacture and other uses associated with the development and construction industries.

2.2 Previous History

An application for an identical operation was lodged with the Bellingen Shire Council in March, 1982, and was supported by an Environmental Impact Statement prepared by Christopher Murray.

Much of the information contained within this study has been collated from Mr Murray's study and other studies and investigations completed in support or consideration of that previous application.
The Bellingen Shire Council granted approval to the previous application on the 5th October, 1982. Twenty-one (21) conditions were attached to the approval with the majority being allied to pollution control, the protection of public access and public rights, and restriction of the quantity to be removed.

Commencement of extraction was dependant upon the concurrent establishment of a processing plant and equipment within the Coffs Harbour area. It was not possible to commence operations on the lease site until such time as approval had been received for the construction of the necessary processing plant.

The Coffs Harbour Shire Council have now granted approval to the establishment of a rock crushing and processing plant at England's Road near Coffs Harbour and it is now possible for the applicant to commence operation on the lease site north-west of Fernmount.

Unfortunately the previous approval granted in October, 1982 included several restrictive conditions on the duration of the operation as follows:

"Condition No.11 - this consent will lapse at the end of a two year period from the date endorsed on the consent and consideration of a renewal of the consent will be subject to a further report from the Public Works Department".

"Condition No.21 - this development consent shall lapse at the expiration of 24 months from the date of this consent unless the development has been substantially commenced or unless the prior written consent of Council to an extension of time has been granted."

Because of the dependence of the operation on the Coffs Harbour processing plant, it has not been possible to commence extraction within the specified
time, and the previous consent has now lapsed. A new application, complete with supportive Environmental Impact Statement, is required before the approval can be renewed.

This Environmental Impact Statement is submitted in support of the application for the renewal of the previous application and in satisfaction of the requirements of condition No.11 specified in the approval granted on the 5th October, 1982. (See copy of letter from Public Works Department – Annexure "B").

2.3 Objectives

The applicant gained a previous approval for the same development but was unable to take advantage of that approval because of delays in gaining approval to a separate application for a processing plant at Coffs Harbour.

There is an established demand for crushed and graded river gravel and the proposed source has been tested and will provide a final product well suited to the market.

The processing plant will be designed to provide material suitable for use in the manufacture of asphaltic concrete and will be the first plant specifically designed for that purpose in the Coffs Harbour District.

The objectives of this application and proposal can be summarized as follows:

- to utilize the applicants existing Permissive Occupancy over that section of the Bellinger River adjacent to lots 8, 54, 71, 72 and 33 for the purpose of extraction of river gravel

- to obtain material suitable for use in the manufacture of aggregate for use in the concrete, asphaltic concrete, road construction, and development industries
to ensure the operation is designed in such a manner as to minimise adverse environmental impacts and to assist in the reduction of bank erosion.

2.4 Location, Access and Land Tenure

The extraction site is located approximately 1 kilometre north-west of the village of Fernmount and is accessible to Trunk Road 76 via Brownlea's Lane. Brownlea's Lane is a public laneway which gives direct access to the river bank immediately opposite Hydes Creek. A crossing exists at this location and is used by farm stock for access from one side of the river to the other.

The site is approximately 30 kilometres south of Coffs Harbour with high quality bitumen sealed access all the way.

This application relates particularly to stage 1 as shown on Figure 1. Additional survey will be required to identify any future stages.

It is possible to gain vehicular access to the full length of stage 1 of the extraction operation by travelling along the gravel deposit which has developed in the centre of the river.

The Bellinger River at this location is Crown land and the applicant has gained a Permissive Occupancy from the Lands Department for the purpose of extracting river gravel. (Annexure "C").
2.5 Zonings and Planning Controls

The extraction area is covered by the Shire of Bellingen Interim Development Order No.1 which zones a strip approximately 400 metres wide along each side of Trunk Road 76 as Rural 1(b) and the area to the north and south thereof as Rural 1(a). Figure 1 attached shows the approximate zoning boundaries. The majority of the stage 1 extraction area lies within the 1(a) zone. The proposed operation, being an extractive industry, is permissible within either the 1(a) or 1(b) zone with the consent of the Bellingen Shire Council.

There are no other planning controls being considered by the Bellingen Shire for this area at this time, nor are there any proclamations affecting the area under the Heritage Act or by the National Trust.

3.0 Detailed Description of Proposal

3.1 Area to be Extracted

The area from which river sand and gravel are to be excavated is as shown on Figure No. 3, and extends upstream from the mouth of Hydes Creek for a distance of approximately 560 metres. The site is located adjacent to the northern bank and varies in width from approximately 60 metres maximum to 24 metres minimum. The width of the river over this distance varies from approximately 108 metres maximum to 78 metres minimum.
3.2 Extraction Process

Sand and gravel will be extracted and loaded directly onto highway trucks using an Hitachi UH081 excavator or similar. Excavation will commence at the upstream limits of Stage 1 and work progressively downstream to the downstream limits of the site. Trucks will gain access to the site by way of the existing shallow ford opposite Brownlea's Lane. (See Figure 3).

3.3 Machinery to be Used

The machinery to be used in the extraction and removal of sand and gravel at the site will include:

1 - Hitachi UH081 excavator-steel tracked ($1.0m^3$ capacity)
4 (ave). - Highway trucks ($12m^3$ capacity).
3.4 Treatment and Processing

The excavated material will be transported to the applicants approved processing plant in Coffs Harbour where it will be crushed, screened, graded, washed and stockpiled in assorted sizes for later use in the construction, development and building industries.

The applicant has received approval to construct a screening and processing plant on a small portion of land on England's Road south of Coffs Harbour. A third party appeal has been lodged in objection to Council's approval and the hearing of that appeal has not yet been finalised.

3.5 Hours of Operation

Normal operation will be confined between the following hours:

Monday to Friday - 7.00 a.m to 5.00 p.m.
Saturdays - 7.00 a.m to 12.00 noon.

No extraction will be undertaken on Sundays or Public Holidays nor during the Christmas School Holiday period.

3.6 Quantities of Material to be Extracted

Based on the limits of excavation indicated on Figure No.3, the project will yield approximately 35,700 m\(^3\). The final quantity removed will be subject to the effects of flood-induced accretion and/or scouring that may have occurred in the river bed since the time of the survey (20/12/81) and which may occur in the future up to completion of excavation.
3.7 Life of the Operation, Future Extension and Staging

Based on the anticipated average demand of $1,500 \text{ m}^3$ per month, the life of the operation will be approximately 2 years but may be extended if significant accretion occurs during that period.

Any future extension of the excavation site beyond the limits of Stage 1 will require additional survey and investigation to determine quantities of material available.

3.8 Employment

The project will provide direct employment for 1 plant operator, 2 truck drivers and 1 foreman, and will provide part-time employment for supportive, administrative staff.

Indirect employment will be provided for a further 3 to 5 men at the processing plant in Coffs Harbour and a significantly greater number in the construction and development industry fields.

3.9 Transport, Traffic Routes and Volumes

Once extracted, the material will be loaded onto trucks having an expected maximum capacity of $12 \text{ cubic metres}$ per load, and then transported to the processing plant at Coffs Harbour via Brownlea's Lane, Trunk Road 76, and the Pacific Highway.

The demand for the processed material is variable and is dependant upon a number of factors including seasonal changes and economic variations. Any change in the rate of development within the Coffs Harbour, Bellingen and Nambucca areas may produce a significant and direct result in the demand for the processed material. Accordingly it is extremely difficult to
estimate average anticipated demand. A figure of approximately 1,500 cubic metres per month has been adopted for calculation purposes. (It should be emphasised that normal annual fluctuations for demand caused by seasonal factors could mean that no material will be extracted for 1 month and 3,000 to 4,000 cubic metres the next month).

At an average demand of 1,500 cubic metres per month, approximately 6 truck loads per day will be required to remove the material. This will represent a total of 12 truck movements plus approximately 3 car movements each day. Details of estimated traffic movements are set out in the table below:

**TABLE NO.1**

<table>
<thead>
<tr>
<th>ROAD</th>
<th>A.A.D.T.</th>
<th>TRAFFIC</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXISTING</td>
<td>GENERATED BY TRAFFIC DURING OPERATION (V.P.D.ave.)</td>
<td></td>
</tr>
<tr>
<td>Brownlea's Lane</td>
<td>5 (est)</td>
<td>15</td>
<td>75.0%</td>
</tr>
<tr>
<td>Trunk Road 76</td>
<td>2,970 * (1982)</td>
<td>15</td>
<td>0.5%</td>
</tr>
<tr>
<td>State Highway No.1</td>
<td>8,530 *(North of Raleigh intersection)</td>
<td>15</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

* Source - DMR Traffic counts

It is anticipated that some improvement will be necessary to Brownlea's Lane to enable it to adequately carry this volume of heavy traffic. The applicant proposes to resurface the lane with suitable gravel and carry out maintenance grading as necessary.
3.10 Material Description

The material to be extracted under this proposal consists of a sandy gravel. This description is based on a sieve analysis (Appendix E.) of a sample taken from the site (see figure 3 for location).

The sieve analysis indicates approximately 10% fine to course sand with the remainder being fine to coarse gravel. No clay or silt fractions are identified in the sieve analysis. Trial excavations on the lease area using an excavator similar to that to be used in the actual operation, did not encounter any evidence of fluvial muds or silts within the extraction area.

Photo 2. - Typical sample of material to be excavated.
3.11 Rehabilitation and Controls

The project involves the removal of river gravel from the bed of the Bellinger River and the extraction process as described in section 3.2 above, will allow the bed of the river to be left with a generally uniform profile appropriate to the aquatic and hydraulic environment.

There will be no disturbance to the existing river banks and thus no terrestrial rehabilitation will be necessary.

Truck access to the river will be gained over a gently sloping and stable section of the river bank and will not cause or tend to cause bank erosion. (See photo 3).

Photo 3. - Proposed access point located in stable location.
Trucks and other vehicles visiting the site will enter and exit via Brownlea's Lane, which will require upgrading to accommodate the increased traffic, but will not require any rehabilitation once the operation ceases.

The upgraded lane-way will be a long term benefit to the community and will improve access to the river at this location.

Normal lease provisions require that a hydrographic survey be completed of the excavated areas on a regular basis and this survey, in conjunction with site inspections by Officers of the Lands Department and the Bellingen Shire Council will be sufficient to ensure that rehabilitation of disturbed areas is satisfactory. (See Section 5.13)

4.0 THE EXISTING ENVIRONMENT

4.1 Flora and Fauna

The extraction site lies within the bed of the Bellinger River where the bed sediments consist predominantly of coarse river gravel with some fine sands.

The major deposit to be removed during stage 1 extraction consists of an alluvial island which is presently colonised by casuarinas. Photographic evidence (N.S.W. Lands Department Aerial Photo Series) indicates that these trees are of recent origin and were not in existence as late as the mid seventies.

The development of the island and growth of the casuarinas has contributed to a marked increase in the rate of erosion of the southern bank of the river.
The surrounding countryside is part of the flood plain of the Bellinger River which has been cleared for agricultural purposes and contains little vegetation other than crops and pastures.

Bank vegetation is minimal and consists mainly of casuarinas, and exotic species such as willows and camphor laurel trees.

The extensive development and utilisation of the surrounding countryside for agricultural and cropping purposes has completely altered the natural ecology of the area and substantially reduced its importance as a habitat for wildlife species.

The lease is located at the limits of navigation and is not fished commercially. No detailed investigation of the aquatic environment was carried out as this operation is identical to that approved previously but not yet commenced.

4.2 Socio-Economic Aspects

The flood plains of the Bellinger River contribute substantially to the agricultural economy of the vicinity. Agriculture, and to a lesser extent, tourism are the major industries of the Bellinger Valley.

The Bellinger River has been a regular source of gravel and river sand for many years with regular extraction taking place both above and below the township of Bellingen. There are currently a number of proposals for the extraction of sand below Fernmount and river gravel above Fernmount and above Bellingen. The extractive industry has operated in close association and harmony with the agricultural industry over the years and there has been little or no conflict between the two. In many cases the removal of excessive gravel deposits from islands within the river has prevented or retarded bank erosion and retained valuable agricultural land in production.
Figures published by the Australian Bureau of Statistics for the year 1983 indicate that agriculture contributed in excess of $12 million to the economy of the Bellingen Shire for that period, whereas the manufacturing establishments contributed only $5 million, and hotels, motels contributed only $175,000.

No figures are available for the building and construction industry, however 155 new dwellings were commenced in the 1981/82 year and it is estimated that this would have provided employment for some 50 to 75 families.

The extractive industries operating within the Shire have a limited market within the Bellinger District but contribute substantially to the economy of the wider district including Coffs Harbour.

4.3 Visual Landscape

The township of Fernmount is situated on a high bluff immediately above a sharp bend in the Bellinger River and the houses above the river have a general north-westerly outlook over the Bellinger Valley and surrounding landscape.

The Bellinger Valley is renowned for its spectacular mountain scenery and lush agricultural river flats.

The combination of lush agricultural flats with a backdrop of hills and mountains, has proved attractive to many tourist and visitors over the years, and is an important feature of the landscape. The Bellinger River is an active coastal river and in the history of European settlement, a number of changes have occurred to its path during major flood events. (See photo 5 & figure 2 for details of recorded changes at the site).
4.4 Tidal Characteristics

Tidal stage discharge investigations by the Public Works Department at the site indicate average velocities of 0.4 m/sec and 0.3 m/sec for flood and ebb tides respectively under mean tide conditions.

Comparison of the tidal flushing characteristics of other areas studied by the Public Works Department with those of the Bellinger River indicate that full tidal exchange can be expected within 2 to 3 days downstream from the site and at the end of the next following full ebb tide upstream from the site.

4.5 Flooding

An analysis of the predicted flood peak profiles investigated by Cameron & McNamarra indicate that bank overtopping of the site can be expected by a flood with a recurrence interval of 1 in 10 years or greater. Average stream velocities at the site for floods with recurrence intervals of 1, 2, 5 and 10 years are shown in table 4 (see page 21).

4.6 Climate

The climate of the area can generally be described as humid sub-tropical. Summers are generally warm with frequent hot periods accentuated by the closed-valley effect created by the surrounding ranges of hills to the north, south and west. Afternoon sea breezes are a regular feature of the summer period. The winters are generally drier with mild days and cool nights. Frosts occur infrequently but are generally not severe. No records are available for the site but Table 2 below sets out rainfall and wind data for Bellingen which is only a few kilometres upstream from the site.
Rainfall is heaviest during the Summer and Autumn months. Rises in the river level are generally more frequent during this period. The rainfall pattern is not likely to have an adverse effect on the proposed extraction operation. The prevailing wind directions are from the south to south-west in the morning and north-east in the evening, emphasising the sea breeze effect.

As the lease area generally lies north-west of the residential area of Fernmount there is little likelihood of wind carrying dust or noise from the operation over the residential areas.

TABLE NO.2

BELLINGEN: - Climatic Data.

<table>
<thead>
<tr>
<th>RAINFALL</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>187</td>
<td>196</td>
<td>204</td>
<td>143</td>
<td>114</td>
<td>105</td>
<td>86</td>
<td>66</td>
<td>61</td>
<td>101</td>
<td>101</td>
<td>133</td>
<td>1427</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>147</td>
<td>154</td>
<td>183</td>
<td>96</td>
<td>74</td>
<td>59</td>
<td>32</td>
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<td>38</td>
<td>68</td>
<td>85</td>
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<tr>
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<td>13</td>
<td>14</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>119</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WIND</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
<tbody>
<tr>
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<td>S6</td>
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<td>SW6</td>
<td>SW4</td>
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<td>NE19</td>
<td>NE13</td>
<td>S9</td>
<td>SW11</td>
<td>S10</td>
<td>NE17</td>
<td>NE21</td>
<td>NE28</td>
<td>NE29</td>
<td>NE24</td>
</tr>
</tbody>
</table>

4.7 Water Quality

The river at this location is still tidal with a mean tidal variation of approximately 1.0 metres at the down stream end of the site. The first bar which interferes with free tidal flow, occurs at the downstream end of the site and consequently the upstream tidal variation is slightly reduced.
Salinity levels vary considerably both with respect to depth and the volume of fresh water flow in the river.

Officers of the Department of Public Works have carried out measurements of salinity over this section of the river. These tests show that the mid-depth salinity levels vary from less than 2 parts per 1,000 to a maximum of about 12.5 parts per 1,000. Salinity penetration ceases to all intents and purposes approximately 3,500 metres upstream of the site.

Water samples were taken at the site on Tuesday 5th March, 1985, during a trial excavation and tested for non-filtrable residue. Results of these tests are set out in Table 3 below.

### TABLE NO.3
ANALYSIS OF WATER SAMPLES

<table>
<thead>
<tr>
<th>Sample</th>
<th>Sample Description</th>
<th>Non-filtrable Residue mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>S &amp; B Method No. WP100.4</td>
</tr>
<tr>
<td>1.</td>
<td>Site before dredging</td>
<td>&lt;1</td>
</tr>
<tr>
<td>2.</td>
<td>Site during dredging</td>
<td>840</td>
</tr>
<tr>
<td>3.</td>
<td>15 m downstream during dredging</td>
<td>250</td>
</tr>
<tr>
<td>4.</td>
<td>30 m downstream during dredging</td>
<td>180</td>
</tr>
<tr>
<td>5.</td>
<td>Site 15 minutes after dredging</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>15m downstream, 15 mins. after dredging</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>30m downstream, 15 mins. after dredging</td>
<td>2</td>
</tr>
</tbody>
</table>

**Note:** An excavator was taken to the site and operated continuously in the main channel before and during the collection of samples 2, 3 and 4.
4.8 Roads and Traffic Volumes

The major traffic routes within the region are Trunk Road 76 (which provides access from the Pacific Highway to the Northern Tablelands) and the Pacific Highway which travels the eastern coast of New South Wales. As well as these two roads the "North Bank Road" follows along the northern bank of the Bellinger River and provides access from the Pacific Highway to North Bellingen. Other minor local roads radiate out from Trunk Road 76 and the North Bank Road and provide access to the agricultural and forestry areas.

Traffic volumes on the North Bank Road and the minor local roads have not been measured and no reliable figures are available.

Trunk Road 76, the Pacific Highway and the North Bank Road are sealed, all weather roads. During periods of high flood sections of Trunk Road 76 and North Bank Road are covered by floodwaters and are untrafficable.

Traffic Volumes are set out in section 3.9 above.

4.9 Background Noise Levels and Existing Noise Sources

Officers of the Bellingen Shire Council carried out site analysis of noise levels on the 28th July, 1982, in association with the previous application. Background levels were measured at 9.30 a.m. both at the site and in Baker Street, Fernmount. Levels recorded using a Bruel and Kjaer model type 2219 noise meter were:
- for the site: 35 dBA
- for Baker Street, Fernmount 42 to 48 dBA.
A third background measurement was taken adjacent to a farm house on Trunk Road No. 76 (property owned by Di Guglielmo). At this location the background level recorded was between 40 and 50 dBA.

4.10 Archaeological Sites and Investigations

The National Parks and Wildlife Service have been contacted in relation to the site and the proposed operation and requested to supply details of any archaeological sites or places of importance within the vicinity. They have not supplied details of any recorded sites.

The proposed operation relates only to the disturbance of the bed of the Bellinger River which carries an active sediment load of extremely recent origin in geological times. It is therefore not anticipated that any archaeological artefacts nor sites of archaeological or aboriginal significance will be disturbed or exist within the excavation area.

4.11 Geology

The proposed operation involves the removal of fluvial gravel from the bed of the Bellinger River. The surrounding countryside consists of wide flood plains adjacent to the river, backed by steep hills.

The flood plains are typical of many coastal rivers in New South Wales and have been built up over a considerable period of time by the deposition of suspended silt and sediment from flood waters.

The river has changed its course gradually (and occasionally, dramatically) over the years and in some places there is evidence of river gravel lenses below the existing silt layers.
The bed load of the Bellinger River is active and is moved downstream with each major flood event. The armouring of the gravel is such that bed load sediment does not move during normal tidal or flow events, but only during flood events.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Flooding

Predicted average stream velocities and flood heights at the site before and after dredging are shown in Table 4 below. These heights are based on investigations of predicted flood peak profiles investigated by Cameron & McNamarra (4) and the surveyed cross sections.

<table>
<thead>
<tr>
<th>Recurrence Interval (years)</th>
<th>Stream Velocity (m/sec)</th>
<th>Flood Height (m A.H.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Dredging</td>
<td>After Dredging</td>
</tr>
<tr>
<td>10</td>
<td>2.3</td>
<td>2.1</td>
</tr>
<tr>
<td>5</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>2</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td>1</td>
<td>1.4</td>
<td>1.2</td>
</tr>
</tbody>
</table>

The above figures indicate that stream velocities would reduce by 9% to 16% at the completion of dredging for floods with a recurrence interval of 1 in 10 to 1 in 1 year. Floods with a greater recurrence interval would overtop the river banks resulting in reduced average velocities.
The effects of dredging on velocities for floods with a recurrence interval of greater than 1:10 years will be negligible.

Flood levels at the site will be less than 10cm lower after dredging for floods with recurrence intervals up to 1 in 10 years. The effect upstream and downstream of the site will be negligible.

Flood levels will be virtually unaffected for floods with a recurrence interval greater than 10 years.

The effects of dredging on flooding at the site will be minimal and generally of no practical consequence.

5.2 Sediment Transport

Stream velocities for all floods as shown in table 4 exceed accepted non-erodible velocities (5) required for natural replenishment of sand and fine to medium gravel fractions of the material to be excavated. The coarse gravel fraction will be replaced on a similar basis by floods with a recurrence interval of 1 in 5 years or greater.

Removal of sand and gravel as proposed will have a negligible effect on the natural process of replenishment of these materials under flood conditions due to the resulting minimal reduction in average stream velocities. The rate of replenishment is subject to the frequency and intensity of storms producing future flood events.
5.3 River Bank Stability and Erosion Control

Cameron & McNamara (4) have predicted that (if no action is taken to correct the present situation) the southern bank of the river adjacent to the site will erode approximately 120 metres and the northern bank will accrete approximately 80 metres over the next 100 years assuming similar rainfall conditions to those which have prevailed over the past 40 years.

One of the factors contributing to the active and rapid erosion of the southern bank is the development of the gravel island which forms a major portion of the material to be removed by this proposal.

With the growth of casuarines on the island (over the past 5 to 8 years), the rate of erosion will be accentuated.

The proposal will effectively reduce the rate of erosion of the southern bank and the rate of accretion of the northern bank and will assist in retaining a relatively stable channel until such time as accretion replaces the gravel island (some years after completion of the proposal).

As detailed in Section 3.11 above and indicated in photo 4, the access point for trucks has been carefully located on a stable, accreting section of the river bank. No special construction will be necessary other than the normal maintenance replenishment and grading of the gravel surface.
Photo 4. Southern bank.

Note:—Active erosion and development of gravel island on right hand side.

5.4 Turbidity

Analysis of turbidity data studied in other areas by the Public Works Department suggests that the low background turbidity at the site as shown in Table 3 could be expected to contain a substantial proportion of suspended organic matter.

These studies also indicate that a wet weather non-filtrable residue (NFR) value of over 100 mg/l can be expected.
The State Pollution Control Commission (2) suggest that NFR values of 80 to 100 mg/l are unlikely to effect estuarine fish eggs and larvae although oysters may be affected if the NFR value exceeds 10mg/l for extended periods. Solinity levels at the site are insufficient to support oyster culture and there are no commercial leases within 7 km of the site.

The above studies further conclude a maximum dredge-induced turbidity plume length of 700 metres in tidal waters, irrespective of the nature of the dredged material with turbidity levels returning to background levels within 2 to 3 hours after cessation of dredging activity.

Based on the water sample analysis results in table 3 and the tidal velocities in section 4.2 the NFR value could be expected to return to near to background levels within 400 metres upstream of dredging operations on a mean flood tide and 300 metres downstream on a mean ebb tide.

Based on the above turbidity plume lengths it is anticipated that, during the short periods of actual disturbance, acceptable turbidity levels would be achieved 100 metres beyond dredging operations in respect of fish eggs and larvae and beyond 300 - 400 metres in respect of oysters.

Turbidity levels from dredging activities at the site and beyond can be expected to drop to well below 10 mg/l within less than 1/4 hour and return to background levels within 2 to 3 hours after cessation of such activities.

It should be noted that dredge-induced turbidity is sensitive to the tidal stage, i.e. whether dredging is occuring on a flood or ebb tide and the time within the tidal cycle when dredging commences. These factors offset tidal velocities and hence reduce the length of dredge induced turbidity plumes.
No specific measures are recommended to control the extent and density of the dredge-induced turbidity due to the limited anticipated extent of the plume, the intermittent and short duration of excavation periods, and the absence of clay and silt particles in the material to be dredged. The latter is responsible for the relatively early return to acceptable levels of turbidity on the cessation of dredging activities.

5.5 Tidal Flushing

Tidal flushing characteristics both upstream and downstream will remain substantially unaffected by dredging operations at the site. (See section 4.4)

As the majority of the dredging will occur below low water, the tidal prism both upstream and downstream will be only minimally increased with accompanying negligible effect on tidal levels and extent of tidal penetration.

5.6 River Management Strategy

This Environmental Impact Statement addresses the proposed extraction of some 36,000 cubic metres of material from the Bellinger River above Fernmount and does not purport to address the problems or the desirability of dredging the entire length of the Bellinger River.

No river management strategy has been prepared by the controlling Authorities and the applicant does not have access to sufficient information to allow a complete appraisal of the management of the entire length of that section of the Bellinger River which may be dredged.

Any appraisal of river management strategy must therefore be confined to the development site and the effect the extraction might have on the stretches of the river immediately upstream and downstream.
The operation has been specifically designed to ensure that the impact and interference with the normal flow and flood patterns of the river is kept to an acceptable level and that river bank stability is not detrimentally affected.

Noise levels, access routes and traffic volumes will be kept to an acceptable limit.

Site tests carried out indicate that within 15 minutes of cessation of excavation, the non-filtrable residue levels of the river water will return to levels acceptable to the State Pollution Control Commission (See Table No.3).

Any disturbance to the natural sediments will therefore have minimal impact on the adjoining communities and on the usability of the water for recreational purposes.

Investigations carried out by the Department of Public Works (1) indicate that salinity penetration will not be increased by the proposed operation due to the method of excavation proposed and the negligible effect on tidal characteristics. Water quality upstream of the excavation site will not be detrimentally affected nor will the operation have a detrimental effect on the use of river waters for agricultural and irrigation purposes.

The management and control proposals for the operation are sufficient to ensure that the management and usability of the river upstream and downstream is not detrimentally affected.
5.7 Flora and Fauna

The two aspects of the proposed operation which may have an impact or interaction with the flora and fauna of the area are:

(i) the access route and traffic volumes along Brownlea's Lane and
(ii) the excavation process itself.

Brownlea's Lane is an existing gravel surfaced access road from Trunk Road 76 to the banks of the Bellinger River and is used by locals and amateur fishermen. The surrounding countryside is fully developed for agricultural and pastoral purposes and the predominant fauna is exotic farm animals, (beef and dairy cattle). The increased traffic volumes along Brownlea's Lane will not have a detrimental effect on the fauna of the area.

Section 3.2 above sets out details of the proposed extraction process and it should be noted that care will be taken to maintain a clear by-pass route prior to and during extraction operations. This will ensure clear water by-pass for fish and other aquatic life.

Excavation will be confined to a maximum depth of -1.5 metres A.H.D. and a generally even profile will be maintained to prevent the development of salinity traps. Although the extraction process will produce a minor change to the profile of the river over the length of the operation it will not, in the long term have a substantial detrimental effect on the aquatic environment nor on the aquatic or benthic fauna and flora.

No commercial fishing occurs at the site (much of the area to be excavated is above normal water level) however some amateur fishermen utilise the beach at the end of Brownlea's Lane and fish the deeper water at and downstream of the junction of Hydes Creek.

The proposed operation will have little impact on amateur fishing in the vicinity.
The removal of the stand of casuarinas which has developed on the gravel island since the mid 1970's will produce a minor change to the visual environment. It should be noted that these trees are of extremely recent origin and may be removed or extensively damaged during the course of any major flood. The visual impact of the operation itself will be minimal, consisting only of an excavator and truck within the confines of the river banks which at this site are approximately 2.5 to 3.5 metres above the river bed. The operation will be of an intermittent nature (i.e short loading periods each day) and this, coupled with the only partial visibility of the operational process, will mean the impact of the operation from the visual point of view will be acceptable.
5.9 Noise Levels and Control

Officer's of the Bellingen Shire Council carried out site tests on the 28th July, 1982 involving a trial run using an Hitachi UH 081 excavator similar to that which the applicant anticipates using on the site.

Noise measurements were recorded at 20 metres from the operating excavator, at 100 metres from the operation, and at Fernmount and the residence of Mr Di Guglielmo. Recordings are set out below in Table 5.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATIONAL LEVEL</th>
<th>BACKGROUND LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 metres from the excavator</td>
<td>80 dba,</td>
<td>35dBA</td>
</tr>
<tr>
<td>100 metres from the excavator</td>
<td>60 dba,</td>
<td>35dBA</td>
</tr>
<tr>
<td>at Fernmount</td>
<td>48 dba,</td>
<td>42-48dBA</td>
</tr>
<tr>
<td>at Mr Di Guglielmo's residence</td>
<td>50 dba,</td>
<td>40-50dBA</td>
</tr>
</tbody>
</table>

The levels recorded are within acceptable limits and, provided due care and control is exercised on the operation of plant, the noise impact of the operation will be acceptable.

It will be necessary for care to be taken to ensure that all equipment is kept in proper order and approved residential type mufflers are fitted to the excavator and to the trucks removing material from the site.
It should be noted that the traffic volume on Trunk Road 76 is already in the vicinity of 3,000 vehicles per day and whilst no hourly counts are available it is probable that the average hourly traffic volume during normal operational hours of 7.00 a.m. to 5.00 p.m. would be approximately 200 vehicles per hour or 1 vehicle every 20 seconds on average.

The proposed operation will involve the loading of 6 trucks per day on average. Assuming 6 loaded trucks per day and 5 minutes to load each truck, it may be assumed that the operation will generate only a 5 minute burst of noise once every 80 minutes. This is very intermittent and unlikely to cause disturbance to the surrounding community.

5.10 Dust

The material excavated will have a high moisture content. The extraction and loading processes will not generate any dust, however, it is possible that trucks using the access road may generate a small amount of dust. This will be controlled by the use of a water truck during dry periods. It is anticipated that the Bellingen Shire Council will include a condition of approval requiring the watering of the access road during dry periods and at times requested by the Shire Engineer.

5.11 Traffic Volumes

Details of anticipated traffic volumes and the percentage increase in traffic volumes on Trunk Roads 76 and the Pacific Highway are set out in section 3.9 and Table No. 1.

The increases in traffic volumes on Trunk Road 76 and the Pacific Highway are negligible. The impact of increased traffic from the operation will therefore be acceptable.
The increase in traffic volumes on Brownlea's Lane is substantial and may cause pavement collapse unless additional gravel is applied. The material to be excavated is quite suitable for use as a gravel pavement and the applicant undertakes to re-surface and grade the Laneway as necessary to maintain it in a sound and trafficable condition.

5.12 Site Runoff

The excavated material will be loaded directly into trucks and transported from the site. There will be no stockpile and consequently there will be no runoff back to the river.

Site tests set out in table 3 indicate that settlement of disturbed material will generally occur within 15 minutes of the cessation of disturbance.

5.13 Control Mechanisms

5.13.1 Licences and Inspections

The proposal will require the issue of the following licenses, leases, etc. together with their associated controls.

<table>
<thead>
<tr>
<th>LICENCE, LEASE</th>
<th>AUTHORITY</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissive Occupancy for gravel extraction from the Bellinger River.</td>
<td>Department of Lands</td>
<td>Schedules conditions of approval and lists the information and tests required from the applicant. Some typical requirements include:- regular hydrographic survey of the river bed to show final contours (every 3 to 6 months); the lodging of</td>
</tr>
</tbody>
</table>
LICENCE, LEASE OR APPROVAL.

Permissive Occupancy cont'd

- Control
  - a security bond to ensure compliance with the conditions; require the gaining of licenses from other authorities such as the State Pollution Control Commission prior to commencement of the operation; implementation of a monitoring programme; the setting of extraction limits; regular site inspections in association with responsible Departments which might include State Fisheries, State Pollution Control Commission, Bellingen Shire Council, Public Works Department and Lands Department.

- Noise
  - The operation may require scheduling under the Noise Control Act, 1975. If this is so, a licence would be issued and would specify maximum noise levels permissible at different locations and may require regular monitoring of affected locations and residences.
    - State Pollution Control Commission
    - Bellingen Shire Council

- Bellingen Shire Council.
  - The Council will be responsible for noise control of trucks etc. using public roads. Special restrictions can be imposed on truck movements (times, speeds etc) and on maximum
cont'd LICENCE, LEASE OR APPROVAL.

Approval under Clean Waters Act, Pollution Control Commission.

The proposal will require approval under section 19 of the Clean Waters Act, 1970 prior to the commencement of the operation. Any such approval will specify whatever conditions the Commission deems necessary to prevent or control the discharge of pollutants into any waters (which will include the excavation areas) and may require regular monitoring of water quality.

Development Approval Bellingen Shire Council. The Shire will be the determining authority. Prior to considering the proposal it must be referred to the Department of Environment and Planning, referred to various Government Departments and placed on public exhibition. Any approval subsequently given by Council will apply conditions reflecting the concerns expressed by the public and the various Departments. These conditions could require regular inspections of the operation by responsible authorities and/or the regular submission of monitored parameters.
All sections of the operation will be effectively controlled or monitored by these means.

5.13.2 Tests and Sampling

A number of water samples have already been collected during the investigation process and the details are set out in the body of this report. (Table 3).

Sampling of the material to be extracted has also been carried out and the results of the tests are specified in section 3.10 and appendix "E".

The applicant proposes to carry out regular hydrographic surveys of the excavated area to establish the final profile and to estimate the quantities removed. Regular monitoring of water quality upstream and downstream of the site could also be instituted if required by the controlling authorities. Such monitoring would involve the collection of water samples and testing for parameters such as: specific conductance, turbidity, non-filtrable residue, bio-chemical oxygen demand, nitrate NO\textsubscript{3} and total phosphorus. Such samples would assist in developing a file of existing water quality and the impact of the operation on water quality upstream and downstream.

5.14 Rehabilitation

There will be no disturbance to terrestrial areas nor to any of the adjoining agricultural lands and consequently no rehabilitation of the land surrounding the operation will be required.

It is anticipated that the removal of the gravel bar will assist in the control of river bank erosion and reduce the current rate of erosion experienced on the southern bank of the river. Once the gravel bar has been removed it would seem appropriate to consolidate the stability of the
southern bank by the planting of suitable species such as casuarinas, and other native species common to the vicinity, however, such work should not be the responsibility of the applicant but should be carried out by other authorities or the adjoining land owners in the interest of the preservation of the adjoining agricultural land.

The removal of gravel from the bed of the river will be monitored by frequent hydrographic surveys and site inspections to ensure that the final profile is acceptable to the Departments responsible for controlling such water ways (State Fisheries Section of the Department of Agriculture, the Maritime Service Board and Department of Public Works).

The applicant undertakes to carry out whatever works are necessary to ensure that the final profile is acceptable.

5.15 Alternative Sources and Cumulative Effects.

River gravel or hard rock suitable for the manufacture of crushed aggregate for use in concrete manufacture and road construction works, is a relatively scarce resource within the Coffs Harbour area with the major sources being the Bellinger River and the Orara River. A number of licenses already exist along the length of the Bellinger River and are controlled by existing operators.

This will be the first lease gained by the applicant and it will be necessary for the supply of material for use in his processing plant at Coffs Harbour. Other locations along the Bellinger River were examined, however, those with usable access have already been leased or mined previously and material is not available to the applicant from these sources.

Other stretches of the river could be successfully mined, however, access is difficult and the disturbance to the environment may be considerably greater than the present proposed excavation site.
In sections of the river upstream from the second bar above the proposed site as far as the old butter factory, salinity penetration becomes an increasingly major consideration. The excavation of quantities of river gravel from the bed of these sections of the river may increase the penetration of salinity levels upstream and produce adverse effects on the surrounding agricultural lands and reduce the suitability of the river for repeated irrigation.

The site selected is the closest possible site to the applicants processing plant in Coffs Harbour which it was possible for him to obtain on the Bellinger River.

Historic records indicate that there has been a gradual movement of bed load sediment down the Bellinger River and sections of the river which were previously navigable from the river mouth are no longer so. The continued removal of gravel from sections of the river will counteract the noticeable build up of sediment load in the lower stretches of the river and retard the further accretion of the downstream sections.

The movement of bed load sediment down the river is subject to the frequency and intensity of future flood events and it may take some years before the material excavated is replaced.

Site inspections and historical information indicate that the existing operations involving extraction of large quantities of material from upstream sections of the river have not substantially altered the rate of accretion or sediment movement at the site or in downstream sections of the river.

Local information suggests that accretion is continuing and sediment build up is still noticeable. The proposed operation, is therefore not likely to substantially change sediment transport rates along the river.
6.0 JUSTIFICATION

The material available from the proposed lease site is of a quality similar to that along upstream stretches of the river and is known to be quite suitable for processing for concrete aggregates, and sealing aggregates. The course sand which forms part of the bed load sediment, will be removed during the processing operation, and will be available for sale as coarse sand and for mixing with dune sand for use in concrete manufacture.

Supplies of coarse sand for use in the manufacture of concrete are very limited within the Coffs Harbour District, however there are adequate supplies of fine grain sand which fall below the specified envelope for concrete sand.

A mixture of fine dune sand or sand from the Glenreagh district, together with the coarse sand obtainable from the screening of river gravel, produces a satisfactory grading of coarse sand for use in concrete manufacture.

The area from Nambucca to Woolgoolga is continuing to experience a rapid growth rate in the vicinity of 5 to 7% per annum and the demand for processed aggregate and sand is continuing to increase. It is therefore essential that new sources of supply be established and developed to meet the demand created by the rapid growth of the area.

The applicant has gained an approval from the Coffs Harbour Shire for the establishment of a processing plant and has an established market with one of the local concrete manufacturers to supply aggregate and sand as soon as it is available.

Removal of material from the proposed site will produce acceptable environmental interactions and the costs of extraction and transport are acceptable to the industry.
7.0 CONSEQUENCES OF NOT PROCEEDING

The body of this report establishes that the material to be obtained is a necessary resource for the continued development of the region and that its removal will not adversely affect the environment. The proposal will provide direct employment for 4 people and a further indirect employment for a considerably greater number of people in the processing and developing industries. If the project does not proceed, then direct employment for 4 families will be lost, together with the benefits of the multiplying factor of such employment.

Manufacturers will be forced to continue to obtain their supplies from existing sources at a greater distance from the point of demand and thus at greater costs. Many existing deposits are approaching the end of their viable operation and their closure prior to the approval of this application would create a marked shortage of material.

Should a supply not be maintained it may be necessary to establish a more elaborate processing plant to process less suitable material. The consequent cost of such action would be considerable and would place an additional burden on the development industry and the community at large.

If supplies of coarse sand are not available from this source then an increased demand would be placed upon the removal of sand from the beaches and dunal areas of the shire and may produce unacceptable environmental interactions.
8.0 DEPARTMENTS AND AUTHORITIES

During the course of preparation of this study the following Departments and Authorities have been contacted or consulted:

- The Department of Environment and Planning,
- Bellingen Shire Council,
- National Parks & Wildlife Service,
- Soil Conservation Service,
- Department of Main Roads,
- Water Resources Commission of New South Wales,
- Maritime Services Board,
- Department of Agriculture - State Fisheries Branch,
- Department of Agriculture
- State Pollution Control Commission,
- Department of Public Works,
- Department of Mineral Resources
- Department of Lands.

As a result of these consultations a number of amendments have been made to the original proposal and additional investigations have been carried out in some areas.

8.1 Responses Received

The specification for the Environmental Impact Statement issued by the Director of the Department of Environment & Planning is included as Annexure "A".
Responses received from other Government Departments and Organisations are included as Annexure "F". The following generalised comments are offered in relation to each reply.

i). Department of Environment and Planning

The Department's letter confirms that the proposal is a renewal of a previously approved operation and has renewed the specification which was applied to that previous application.

Further information has come to hand since the compilation of the original Environmental Impact Statement and consequently it was felt necessary to update the information contained therein and produce an up-dated and expanded Environmental Impact Statement.

ii). Bellingen Shire Council

The completed Environmental Impact Statement together with a Development Application will be submitted to the Bellingen Shire Council for consideration and approval.

iii). National Parks and Wildlife Service

No formal response has been received from this service.

iv). Soil Conservation Service

The service have requested that the Environmental Impact Statement address the matter of the removal of trees within 20 metres of the river bank and that the point of access to the river should be designed to prevent erosion.
An application has been made to the Catchment Areas Protection Board to confirm existing permission to remove the trees within the confines of the river, however, there will be no interference, nor cause, to remove trees along the river bank nor within 20 metres of the river bank.

The access point has been chosen at a stable location which has been used as access for farm traffic and animals for a considerable number of years. No erosion is likely to result from the operation at this location.

Routine maintenance will be carried out on the access road for its full length from Trunk Road No. 76 to the river.

Department of Main Roads

The Department has suggested that an example 2 intersection layout may be required at the intersection of Brownlea's Lane and Trunk Road No. 76.

In view of the good sight distance available and the small percentage of traffic contributing from the operation, a type 2 intersection seems to be excessive. A type 1 intersection is quite adequate.

Traffic volume figures indicate that approximately 100 vehicles per hour will travel in each direction on Trunk Road 76 whereas only approximately 0.75 vehicles per hour would be turning into or out of Brownlea's Lane.

In accordance with the N.A.A.S.R.A. document for the design of intersections, such a configuration would fall within zone 1(a) of the graph and require only a type 1 intersection.
vi). Water Resources Commission

The development site falls within the tidal limits of the Bellinger River and accordingly the Commission does not have jurisdiction over the area.

vii). Maritime Services Board

The site is generally above the navigable limits of the river and accordingly the Board's controls are minimal. The proposed operation would not be likely to interfere with the normal use of the river.

viii). Department of Agriculture - State Fisheries Branch

The Department's requirements have been addressed in the body of the report. It is emphasised that the present operation is identical to that approved by Council in 1982.

ix). Department of Agriculture

The Department have replied indicating that they would require that there be no adverse effects on any agricultural land-use adjacent to the river from either the dredging or transport operations.

They have requested that the following matters be addressed in the report:-

- limitations on the depths of extraction, batters on the sides of the areas to be dredged, protection of the foreshore and foreshore vegetation,
ponding of suspended waters and control to ensure silt does not enter the river.
- the quantities of material to be removed should be accurately specified.

They have also requested that the operation be restricted to a 10 year period with any extension being subject to a review of the operation over that period.

All the issues they have raised have been addressed within the body of the report.

State Pollution Control Commission

The Commission have advised that the operation will probably not require licensing under the Clean Air Act but will require a license under the Clean Waters Act and may do so under the Noise Control Act. They have suggested parameters for the operation particularly in relation to the Clean Waters Act. They have requested that a number of matters be addressed in the report.

All the matters they have raised have been addressed in the body of the report.

Department of Public Works

The Department have supplied a considerable amount of background information and data and have emphasised that a number of studies applicable to the operation have been completed and would be available for research.
They have requested that a number of matters be addressed in the Environmental Impact Statement and due attention has been given to all these matters.

xii). Department of Mineral Resources

The Department has indicated that they have no objection in principle to the operation and have only limited information in relation to the geology and sediment transport rates in this area. They have listed a number of items which should be addressed in the report and due attention has been given to these.

xiii). Department of Lands

The Lands Office are responsible for the issuing of a Permissive Occupancy over the lease area which will establish conditions of operation, monitoring and testing procedures which must be observed.
REFERENCES

2. Public Works Department 1981  "Dredging of Metropolitan Waterways" Internal Report
5. Chow V.T. 1959  "Open Channel Hydraulics."
7. Scholer HA (1974)  "Geomorphology of N.S.W. Coastal Rivers"
8. State Pollution Control Commission  "Extractive Industries in the Hawkesbury Region."
Proposed gravel extraction from the Bellinger River upstream from Fernmount by Mr. J.A. Scroope.

Thank you for your letter of 7th December, 1984, seeking the Director's requirements for an EIS to accompany your new development application for the above designated development.

2. After consideration of the circumstances of this matter the Director has decided that the requirements previously issued on 12th October, 1981 with respect of this proposal remain relevant. A copy of these requirements and the associated correspondence are attached.

3. Should you require any further information regarding this matter please do not hesitate to contact us again.

Yours faithfully,

J.D. Shields
Assessments Branch.
As Delegate for the Director.
Dear Sir,

Proposed Sand and Gravel Extraction and Crushing and Screening operations by J. A. Scroope near Yeronga.

I refer to your letter of 30th September, 1981, and earlier correspondence with regard to the preparation of an environmental impact statement for the above-mentioned proposal at Sells, Victoria, and refer to the preparation of an environmental impact statement for the above-mentioned proposal at portions 3, 27, 33, 71, 72, 73 and 74, parish of South Bellingen and 36, 30, 31, 341, parish of North Bellingen, Bellingen Shire.

2. I note the amendment to the subject proposal, as indicated in your letter of 30th September, 1981. The proposal is a designated development within the meaning of Schedule 3 of the Environmental Planning and Assessment Regulation, 1980. As such an environmental impact statement is required to be prepared for the designated development.

3. It is advised that the environmental impact statement shall be prepared in accordance with clause 34 of the Environmental Planning and Assessment Regulation, and that it shall bear a certificate required by clause 36(1)(b) of the Regulation. There would be no objection to this certificate being included, provided that the matters specified in the attachment are adequately considered and taken into account when preparing the environmental impact statement.

4. Copies of the statement and the development application should in due course be made available to Bellingen Shire Council for public exhibition purposes and consideration by Council.

5. The Director regrets any inconvenience caused as a result of the error included in the attachment to our earlier advice.

Yours faithfully,

R. SLOOKE
Acting Manager,
Resource Assessments Branch.

As Delegate for the Director.

Encl.
A comprehensive environmental impact statement should adequately cover all those matters provided in Clause 34 of the Environmental Planning and Assessment Regulation, 1980, including the following matters:

1. **Details of the Proposal:**
   - Methods of extraction.
   - Type of machinery and equipment to be used.
   - Expected life of operation.
   - Number of persons to be employed.
   - Hours of operation.
   - Quantity of material to be extracted, crushed and screened.
   - Availability of alternative resources/sites.
   - Water recycling programme to be implemented (if applicable).
   - Trucking movements.
   - Economic justification for proposal.
   - Current market trends.
   - Restoration/rehabilitation procedures to be adopted.

2. **Existing Environment to include:**
   - Fauna and flora.
   - Socio/economic aspects.
   - Landscape, visual aspects, including view from Bellingen-Raleigh Road.
   - Natural characteristics of the area.

3. **Assessment of environmental impact and measures/ safeguards to be implemented to reduce impact of the proposal, particular with respect to:**
   - Visual impact.
   - Noise disturbance.
   - Dust.
   - Truck/traffic movements.
   - Control of erosion and runoff from site.
   - Preventing silting of the Bellinger River and downstream pollution.

4. **Any requirement of authorities such as the State Pollution Control Commission and Soil Conservation Service, should be identified and these requirements taken into account in finalising the EIS.**

12 OCT 1984
Dear Sir,

Sand & Gravel Extraction From Bellinger River
West of Fernmount by Mr. A. Scroope


You mention in your letter that this Department was to supply a report at the end of a two year period following development approval by Council in late 1982. This report was to examine the impact of the extraction operations on the local environment.

Because no work has to-date been undertaken on the extraction, an assessment of the impact of the operations cannot be made, and hence an inspection would be unnecessary.

Since the development approval was given in 1982, this Department has investigated the hydraulic effects of certain gravel extraction operations between Fernmount and Bellingen. The investigation showed that extraction of the gravel bars in the area of Mr. Scroope's lease, was unlikely to have an adverse impact on the hydraulics of the Bellinger River. Consequently, this Department would have no objections to an extension of the original Development Application subject to the conditions given in the Department's original approval.

The above advice was verbally given to Mr. Geoff Smythe of Council on 28th November 1984. A copy of this letter has also been sent to Council for their information.

Yours faithfully,

H.R. COLLEY
District Engineer
Coffs Harbour.
The Permissive Occupancy shall be subject to conditions hereunder numbered:—

1 to 57

1. In the conditions of the Permissive Occupancy—unless the context otherwise requires—

"Minister" means the Minister for Lands, and any power, authority, duty or function conferred or imposed upon the Minister by or under such conditions may be exercised or performed either by the Minister or by such officers of the Department of Lands as the Minister may from time to time approve.

"Premises" means the Crown lands which the Minister has granted permission to occupy.

"Under Secretary" means the Under Secretary for Lands, and includes the person for the time being acting as such.

"Material" means the substance authorized to be removed under the Permissive Occupancy or any other substance necessarily taken by the tenant when removing such first-mentioned substance.

2. As a guarantee of good faith and to ensure compliance with the conditions of the Permissive Occupancy the tenant shall within one month after the date of commencement of the Permissive Occupancy and prior to commencement of any work deposit with the Under Secretary the security deposit required as a condition of the granting of the Permissive Occupancy. The sum so deposited and interest accruing thereon may be applied by the Minister so far as the same will extend in or towards the satisfaction of all claims sums of money due or payable under the Permissive Occupancy or in respect of any breach or failure of the tenant of the conditions of the Permissive Occupancy or of any other conditions of the Permissive Occupancy or for any default or failure on the part of the tenant to observe, perform or keep any of the provisions of the Permissive Occupancy or any other conditions of the Permissive Occupancy on the part of the tenant to be observed, performed or kept. PROVIDED HOWEVER that, in such case the tenant shall forthwith forthwith make good by cash bond and interest or by the substitution of other security acceptable to the Minister in form and amount approved by the Minister and in any event shall pay into the Minister's hands adequate security for the wed and breaches of conditions of the Permissive Occupancy as the Minister may from time to time require.

3. The tenant shall lodge with the Under Secretary not later than the last day of the second calendar month of the Permissive Occupancy a statement in Form A 427 setting out the quantity and class of material removed from the premises during the month immediately preceding such month. Each such statement shall be accompanied by a statement of assessment of the amount of royalty due or payable to the Minister in respect of the material removed from the premises during such month.

4. In the event of termination of the Permissive Occupancy prior to such termination.

5. The Permissive Occupancy shall be terminable at will by the Minister.

6. In the event of termination of the Permissive Occupancy prior to such termination.

7. The tenant shall lodge with the Under Secretary not later than the last day of the second calendar month of the Permissive Occupancy, and each succeeding month, a statement in Form A 427 setting out the quantity and class of material removed from the premises during the month immediately preceding such month. Each such statement shall be accompanied by a statement of assessment of the amount of royalty due or payable to the Minister in respect of the material removed from the premises during such month.

8. The Permissive Occupancy shall be terminable at will by the Minister.

9. Without prejudice to the generality of condition (8) a breach of any condition will render the Permissive Occupancy liable to termination and the decision of the Minister in this regard shall be final. In the event of termination no compensation will be payable to the tenant.

10. The cost of any inspection necessitated by a breach by the tenant of the conditions of the Permissive Occupancy or the costs of any quarterly survey or inspection of the tenant's books and records which reveals any under-payment of royalty by the tenant shall be paid by the tenant to the Under Secretary within one month of demand.

11. Upon termination of the Permissive Occupancy by the Minister all improvements on the premises shall become the property of the Crown, and no compensation shall be payable therefor; PROVIDED that on application within one month after such termination, the Minister may permit the tenant to remove from such premises any movable improvements effected by him or at his expense; PROVIDED FURTHER that, if directed by the Minister in writing to do so, the tenant shall remove any structure or material on the premises at his own cost and without compensation. In all cases where such permission or direction has been given, the movable improvements or structures or material, as the case may be, shall be removed within such time as the Minister may specify and the tenant shall not remove any structure or material other than movable improvements for which damage may reasonably be compensated for by the tenant or any person thereby or in the course of such removal and shall place the premises clear and free from rubbish and debris. If not complied with in removing such improvements or structures or material, the tenant shall have the right to sell them to an incoming tenant.

12. Termination of the Permissive Occupancy shall not exonerate the tenant from any liability incurred under the Permissive Occupancy prior to such termination.
The tenant shall pay all rates and taxes and all fees and charges levied or assessed upon or in respect of the premises due and payable in the currency of the Permissive Occupation.

The tenant shall not sublet or part with possession of the premises, or any part thereof, or sell or transfer the Permissive Occupation without the consent of the Minister having first been obtained and the tenant shall upon termination of the Permissive Occupation deliver up quiet and peaceable possession of the premises.

The tenant will not use or suffer to be used the premises for any purpose other than the purpose for which the Permissive Occupation was granted without the consent of the Minister.

Before doing any act or thing in the use of the premises the tenant shall do everything reasonably necessary to obviate risk of injury to the public or third parties and the precautions to be taken shall include erecting and maintaining sufficient fences, protection around and so on as the case may require to use any part of the premises the tenant shall maintain in an efficient condition and so that the low portion of the bed shall lee as required by the Minister and maintain during the period of this Permissive Occupation a sufficient fence and protection around the same to the satisfaction of the Minister and notwithstanding anything herein to the contrary the tenant may receive no compensation for any such fence or protection and if at any time, after the termination of the Permissive Occupation.

The tenant shall indemnify and at all times keep indemnified Her Majesty the Queen Her Heirs and Successors and the Government of the State of New South Wales and the Minister from and against all actions suits claims demands costs charges damages and expenses to which Her Majesty Her Heirs and Successors or the said Government or the Minister may be liable for or in respect of any process or any building structure erection or appurtenance thereof or thereto for or in respect of the use of any of the foregoing or for or in respect of any loss damage incident or injury of whatsoever nature or kind and howsoever sustained of occasioned by whether to property or persons or resulting in the destruction of any property or the death of any person or not at upon or in connection with the premises or any building structure erection or appurtenance thereof or thereto AND notwithstanding that any of such actions suits claims demands costs charges damages and expenses shall have resulted from any act or thing which the tenant may be authorised or obliged to do under these conditions.

The right of ingress and egress in, over and out of the premises is reserved to the Minister or any person or persons authorised by him in that behalf.

The tenant shall at all times take adequate precautions to prevent access to the premises by unauthorised vehicles for the purpose of removing material.

The Crown shall not be responsible to the tenant for provision of access to the premises.

The tenant shall not erect any buildings on the premises other than those necessary to house machinery or to provide accommodation for a caretaker, without the permission of the District Surveyor. All buildings erected shall be in accordance with plans and specifications approved by the local government and the Council of the local government area within which the premises are situated.

22. Water after being used by the tenant and all waste products arising in the course of the tenant's operations shall be disposed of to the satisfaction of the Minister.

The removal of material from the premises and all associated operations shall be effected by the tenant in such manner as not to cause erosion of the banks or bed, pollution of the waters, or interference with the flow of any river, watercourse or other collection of water; public or private nuisance damages or inconvenience; or endanger or adversely affect the use of pumps or structures in the vicinity.

The tenant shall not foul the existing channel of any river, watercourse or other collection of water with grit sand or mud occasioned by dredging operations and suchchannel shall be kept open by the tenant to the satisfaction of the Department of Public Works and the Maritime Services Board of New South Wales.

The tenant shall not use any manure, coal or other material in the form of ground or in a fluid state in the bed of any river, watercourse or other collection of water which may be in the bed of any river, watercourse or other collection of water, the tenant shall cease using or refrain from using as the case may require such process or processes or for deposit on adjacent land without compensation to the tenant.

The tenant shall erect notice boards marked "Danger—Deep Water", in letters at least two metres in height, on both sides of excavations and at intervals not greater than one hundred (100) metres and shall maintain such boards during the term of the Permissive Occupation.

The right is reserved to Her Majesty the Queen Her Heirs and Successors and to the Minister and to persons authorised by the Minister and to agents of the Crown to enter upon the premises at any time and from time to time and construct public works and dredge and remove spoil, deepen existing channels and deposit on the premises spoil from public works and remove felled or uprooted trees and other vegetation removed from the premises.

The right is reserved to Her Majesty the Queen Her Heirs and Successors and to the Minister and to persons authorised by the Minister and to agents of the Crown to enter upon the premises at any time and from time to time and construct public works and dredge and remove spoil, deepen existing channels and deposit on the premises spoil from public works and remove felled or uprooted trees and other vegetation removed from the premises.

The tenant shall pay all rates, taxes and fees levied and assessed upon or in respect of the premises and the tenant shall be entitled to recovery of any such rates or fees from any person or persons or the Government or any other person or persons in the event of or on behalf of such person or persons.
39. (a) No material shall be removed from the river or lake bed within a strip 10 metres wide measured from a line approximating Local Mean High Water Mark as determined by the District Engineer, Department of Public Works, or from a strip 10 metres wide measured from the face of any bridge, retaining wall, wharf, beacon pile, or submarine crossing. For the zones shown highlighted on Plan No. 1982/1 at Department of Public Works, Coffs Harbour, no material shall be removed from within 20 metres of the bank.

(b) No excavation shall be carried out below a gradient line of one vertical to six horizontal drawn from the aforesaid line approximating Local High Water Mark, nor shall excavation be carried out below a gradient line of one vertical to six horizontal drawn from the intersection of the vertical plane of the face of any of the above structures and the bed of the river.

(c) The maximum depth of excavation shall be limited as in (b) above and in addition in no case shall the maximum depth be more than 1.5 metres below Australian Height Datum (A.H.D.).

40. The depth limit determined from the hydro surveys is 1.5 metres below Australian Height Datum A.H.D. A tide board has been installed within the proposed extraction zone. Zero A.H.D. represents 0.32 metres on the tide board.

41. Access to the extraction areas is to be constructed so as not to cause damage or erosion to existing banks and subject to the conditions of schedule 2 regarding restoration or protection works as required. The access road is not to be more than 0.3 metres above Mean High Water and on completion of extraction, all access roads are to be removed. Some unstable banks exist within the proposed extraction area and accordingly your attention is particularly directed to condition 42(b).

42. (a) The provision of the Rivers and Foreshores Improvement Act No. 20, 1948 as amended, shall be observed, particularly in respect of clause 23A. The tenant shall conduct all his operations in such a manner as not to cause erosion of foreshores, either directly or as a result of the destruction of trees or vegetation.

(b) The tenant shall conduct all his operations in such a manner as not to cause, in the opinion of the District Engineer, Department of Public Works, an increase in any risk of failure of the shore or river bank. Where operations are not so conducted the act makes provision for restoration or protection of the river and bank to be carried out by or at the cost of the owner or occupier of the land.

(c) The permission to dredge may be terminated or varied at any time without compensation if it be found that operations on the area are causing or likely to cause erosion of the foreshore or damage to structures.

43. The District Engineer, Department of Public Works may upon written notice to the lessee, prohibit the continuance of dredging operations on any defined part of the area if, in the opinion of the said Engineer, it is desirable in the interest of the public to do so.

44. No piles or mooring posts shall be placed in the bed of the river, without permission having first been obtained from the District Engineer, Department of Public Works.

45. The tenant shall, at his own cost, remove any structure erected by him on the foreshore and shall leave the land clear of materials, rubbish etc., and to the satisfaction of the Department at the expiration of the lease by effluxion of time or upon other determination thereof.

Should any structure, or any part thereof, not be so removed as aforesaid, the Department may remove and sell the same and recover from the tenant the cost of such removal less the net proceeds of any sale made.

46. The tenant shall make suitable arrangement with the Council regarding access to the excavation, if such is necessary.

47. Prior to commencement of any work a proper metes and bounds survey is required to be submitted to and approved by the District Engineer, Department of Public Works. The survey must comply with the following:-

(a) The origin of co-ordinates of the survey must be related to a cadastral or other official survey.

(b) Soundings of the existing river bed are to be shown over the entire area to be dredged or as shown in the enclosed plan. The soundings must be of sufficient number to enable 0.5 m contours to be confidently drawn. Soundings must be based on a datum of levels of local Indian Spring Low Water, Standard Datum or other datum acceptable to the District Engineer, Department of Public Works. Levels must also be related to an official bench mark in the area.

(c) All proposed depths of dredging and side batters are to be clearly shown on the survey plan. Local Mean High Water Mark Level to be indicated on plan.

(d) The proposed method and area in which any dredge waste is proposed to be disposed of to be clearly indicated on the survey plan.
48. The tenant shall supply to the District Engineer, Department of Public Works, a plan of soundings to the same standard as indicated in 47(b) taken within the area of the application after completion of dredging and otherwise as required by the District Engineer, Department of Public Works.

49. The tenant shall carry out dredging operations in such a manner as not to cause any interference to river traffic by launch or rowing boat and all the navigational requirements of the Maritime Services Board shall be observed.

50. Where applicable, the provisions of Section 26D of the Water Act, 1912 as amended respecting the topping, topping, removing or injuring trees situated within 20 metres of the bank of a prescribed stream or lake shall be observed.

51. The licence will pay to the Minister royalty at the rate of $1.00 per cubic metre provided that if the total royalty in any one month shall be less than $50.00 or if no royalty is payable in any month the licensee will pay to the Minister in respect of that month:

   (i) if royalty has been paid for the month, then, in addition to such royalty, an amount calculated by subtracting from the amount of $50.00 the royalty paid for that month.

   (ii) if no royalty has been paid for the month the amount of $50.00.

52. All operations to be carried out in accordance with the Maritime Services Board’s Rules and Regulations and any special conditions which may from time to time be required.

53. All anchors and mooring arrangements approved by the Board are to be used and plant not working is to be hove clear of navigation or to the bank in restricted areas. Plant pipelines and lighters are to carry lights and signals in accordance with the Uniform Dredger Signals and any other lights, shapes or signals which may from time to time be required.

54. No power lines, wires, cables or pipes shall be used unless with the approval of the Board.

55. Any required depth is to be fully maintained and the bottom left clear of debris, rubbish, potholes, etc. No slope is to be steeper than 3 in 1.

56. Any licensed structure or occupation and/or apparatus licensed by the Maritime Services Board, if affected by dredging operations, shall be moved, re-aligned temporarily or permanently, re-built or replaced with additional equipment, if required to the Board’s satisfaction and without cost to the licensee.

57. The licence shall at all times comply with the requirements and regulations of the Clean Waters Act, 1970.

58. No dredged material is to be deposited in any lake, river or waterway.
Dear Sir,

RE: DEVELOPMENT APPLICATION NO.1173 - SAND & GRAVEL EXTRACTION FROM THE BELLINGER RIVER, FERNMOUNT BY J.A. & S.A. SCROOPE

I refer to your letters dated 6th and 7th November, 1984 with regard to the Development Consent for the above-mentioned application.

You are advised that on the 4th December, 1984, Council resolved that you be advised that the Development Consent has lapsed and that Council has no power under the Environmental Planning and Assessment Act to consider granting an extension of time. In this regard it will be necessary for a new Development Application to be submitted to Council in accordance with the requirements for "Designated Development" under the Environmental Planning and Assessment Act if the proposal is still contemplated.

Yours faithfully,

C.W. Allen
SHIRE CLERK

C.C.

Mr. A. Scroope,
P.O. Box 554,
COFFS HARBOUR. 2450
Dear Sir,

re Proposed Gravel Extraction from Bellinger River near Fernmount -Mr. A. Scroope

Thank you for your letter of 11th December 1984 regarding the above operation.

Matters of interest to this Service include:

1. Removal of trees from within 20m of the river requires approval from the Catchment Area Protection Board.
   The necessary application form is attached.

2. Access to the river should be obtained without causing erosion.

Yours faithfully,

I. S. Brook
District Soil Conservationist
Coffs Harbour

11th January 1985
SUBJECT: Shire of Bellingen. Trunk Road No.76.
Proposed Gravel Extraction from Bellinger River near Fernmount.

Dear Sir,

I refer to your letter dated 11th December, 1984 regarding preparation of an Environmental Impact Statement for the subject project.

The Department applies the policies set down by the Traffic Authority of New South Wales when considering traffic generating developments. Those policies include the principles of reducing the intensity or impact of roadside activity, and maintaining or improving traffic safety in a development situation. Thus developments generally require some degree of road improvements appropriate to the generated traffic.

The precise requirements such as intersection improvement standard are determined by Council in assessing the Developer's application, and in consultation with this Department and the Traffic Authority as appropriate. In this case a N.A.A.S.R.A. Example 2 intersection layout is likely to be required at the intersection of Brownlea's Lane with the Trunk Road.

Yours faithfully,

(R.L. Smythe)
Divisional Engineer
Dear Sirs,

I refer to your letter of 11th December 1984 advising that you are preparing an Environmental Impact Statement on behalf of Mr. A. Scroope for gravel extraction from the Bellinger River near Fernmount.

The letter was forwarded from the Commission's Grafton office for reply direct to you.

The location of the operation shown on the plan which accompanied your letter is several kilometres below the tidal limit of the Bellinger River. The Department of Public Works would administer the Rivers and Foreshores Improvement Act as it relates to the operation.

The approval of this Commission would only be necessary if the operation includes pumping water suitable for irrigation, in which case the operator should make application for a pumping licence.

Yours faithfully,

[Signature]

for A.F. Shoebridge, Secretary.
Dear Mr. Allen,

Proposed Gravel Excavation from Bellinger River near Fernmount - Mr. A. Scroope.

I refer to your letter of 11 December 1984 (ref. JA:KT) in connection with the above and wish to advise that the Board would, in principle, not raise any navigational objection to the proposed gravel extraction from the Bellinger River, near Fernmount, by Mr. Scroope. On the basis that floating plant will not be involved (as previously indicated) the Board's requirements will be as follows:

(i) All operations shall be carried out in accordance with the Board's Acts and Regulations and any special conditions which may from time to time be required;

(ii) A navigable channel shall be maintained at all times. Such channel shall be marked in accordance with the I.A.L.A. Maritime Buoyage System "A";

(iii) On completion of work in an area, all materials used during the operation shall be removed from the river;

(iv) Any required depth shall be evenly maintained and the bottom left clear of debris, rubbish, potholes, etc. No slope to be steeper than 3 in 1;

(v) No dredging shall be permitted closer than 9m from any shore, jetty structure or navigation mark;

(vi) Any licensed structure or occupation and/or apparatus licensed by the Board, if affected by dredging operations shall be moved, re-aligned temporarily or permanently, rebuilt or replaced with additional equipment, if required, to the Board's satisfaction and without cost to the licensee;

(vii) Dredging shall be carried out so that no loss of depth is caused in adjacent waterways;

(viii) No dredged material shall be deposited in any lake, river or waterway.

I am to add that the Board requires the opportunity to further consider the proposal upon completion of the Environmental Impact Statement and in this regard it would be appreciated if a copy is forwarded to the Board when available.

Yours sincerely,

[Signature]

T.G. PAGE
Secretary.
Dear Sir,

Re: Proposed Gravel Extraction from Bellinger River near Ferrimount - A. Scroope

I refer to your letter of 11th December, 1984, concerning preparation of an Environmental Impact Statement for the above project.

The Division of Fisheries of this Department has not carried out any studies on the aquatic fauna and flora of the area.

You are advised that the following matters need to be addressed in the E.I.S.:

(a) effects on the aquatic fauna and flora of the area;

and

(b) effects on amateur and commercial fishing (if any)

With reference to (b) above, it is recommended that you liaise with the Senior Inspector of Fisheries at Nambucca Heads on (065) 68.6131.

Yours faithfully,

B. TILLEY,
For G.H. Knowles,
Director-General.
Dear Sir,

re: Proposed Gravel Extraction from Bellinger River near Fernmount, Mr A Scroope

I refer to your letter of 11th December, 1984, requesting advice on matters to be addressed in the Environmental Impact Statement (EIS).

The Department's main concern is to prevent adverse effects on water quality and ecology of the Bellinger River. There should be no adverse effects on any agricultural land use adjacent to the river from either the dredging or transport of materials associated with it.

The Department would prefer to make detailed comments on the matter of the dredging operation and controls to be placed on it after viewing the EIS document. However, our comments will likely lead to the following conditions being applied to such an operation.

1) Limits on the depth of dredging (likely to be specified at two metres below the Mean Low Water Level).
2) Batters on the sides of dredging areas (likely to be in the order of 1 to 8 or as specified by PWD).
3) Protection of the foreshore and foreshore vegetation.
4) Ponding of suspended waters and controls to ensure silt does not enter the river.

The Department would like to see a statement in the EIS specifying a definite quantity of material proposed to be extracted. With regards time of the operation, the Department would be keen to see a two year period specified for the extraction operation with a review to be carried out at the end of the two years to determine if further approvals are warranted. The proposed operation should terminate when dredging areas reach the two metre depth. Monitoring of the depth of dredging should be carried out by a Fisheries Inspector in the company of the operator.

The Department will provide detailed comments and a list of required conditions when the EIS has been received and reviewed.

Yours faithfully,

BRIAN SCARSBRICK,
Regional Director of Agriculture,
NORTH COAST REGION.
Dear Sir

I refer to your correspondence of 10 December 1984, seeking our comments on a proposal by Mr A Scroope to extract gravel from the bed of the Bellinger River near Fernmount. The following comments are offered to assist you in addressing pollution control matters which need to be incorporated in the E.I.S. for the proposal.

1.0 Clean Air Act.

It appears from the brief description of the proposal that no grinding, milling or screening operations will be carried out. This being the case, it is unlikely that our approval under the Clean Air Act, 1961, would be necessary.

2.0 Clean Waters Act

The E.I.S. should address:

(a) The steps that will be taken to control the flow of wet weather run off from any quarried material which may be stored on site from time to time.

(b) The quality of effluent discharge to the river from the extraction ponds. This effluent discharge should not contain solids of more than 50mg/l over and above the solids concentration in the river.

(c) The method of levee bank construction. During all extraction operations levee banks would need to have a free board of at least 500mm above the water level of the river.

(d) The method of levee bank removal. Preferably, levee banks should be removed when the turbidity of the river is such that the removal of the levee banks will not increase the turbidity in the river.

(e) The method of control of turbid water run off from truck loading activities.

The proponent would be required to have an approval in writing from the Commission under Section 19 of the Clean Waters Act, 1970, before any work to construct the quarry is commenced. Subsequent to any approval the proponent will need to hold a Clean Waters Licence before any discharge to receiving waters occur.

3.0 Noise Control Act

The E.I.S. would need to indicate the location of the nearest affected residences. We are concerned that at times the operation could be adjacent
to residents at Ferrumount. It is likely that in this situation noise levels would be well above rural background levels and may cause disturbance. We suggest inclusion in the document of expected source noise levels and predictions of levels at nearest residences for a variety of excavation locations within the proposed lease. This information will also be required for consideration of approval under the Noise Control Act, 1975.

I am enclosing the Commission's Data Sheet regarding Water and Noise pollution.

When preparing the E.I.S. you should address yourself to the matters that these data sheets contain.

I trust that these comments are of assistance. Should you require further information, please contact the writer on 066 420535.

Yours faithfully

A E Dyer
for Secretary

encl.
Dear Sir,

E.I.S. for Proposed Gravel Extraction From Bellinger River Near Fernmount : Mr. A. Scroope


The following information is provided in reply to your request for advice in the aboverefenced letter.

1. Investigations relevant to the proposal include :

   (a) "Bellinger River Upper Tidal Reaches Hydraulic Study". The Department is currently preparing a draft report for this study. The results of the study to date indicate that the effect on the upstream salinity will be minimal as far as the proposed operation is concerned, provided that the natural river bar in the vicinity of the Butter Factory is maintained and that any dredging within 1000 metres of the bar downstream is prohibited. There is little risk that this bar will be affected by the proposal as Mr. Scroope's permissive occupancy is in excess of 2000 metres downstream.

   (b) "Bellinger River Morphological Study". This study is being prepared for the Bellingen Shire Council by consulting engineers Cameron McNamara. The Department provided assistance for the study. A draft report of August 1984 is available. The Council should be approached if discussions on the results are required.

2. As stated in 1(a) above, the salinity levels upstream of the operation are unlikely to be adversely affected after the extraction has been completed. A salinity trap may however, result during the operations by the constriction of the river caused by the access groynes. As a result, tidal flows could become attenuated. This problem would need to be addressed in the E.I.S.

3. No Departmental investigations have indicated that any potential problems for flooding or erosion would result from the operation. The potential erosion problem may however, need further investigation in the light of the findings of the Bellinger River Morphological Study (as mentioned in 1(b) above).

4. If all the matters referred to in your letter are investigated in detail then the matters of interest to this Department will have been covered.
It is of concern to the Department that the extraction is being treated in isolation to other possible extractions on the Bellinger River. It would be preferable to examine the whole river for potential extraction sites and produce an overall management plan. The cumulative effect of a large number of small extraction operations, which in themselves can be shown to have a minor or negligible effect on the environment, could be a major one.

Nevertheless, it is acknowledged that the scale of the proposed operation is too small to warrant the cost of the major investigations required to comprehensively address all the problems involved. The Department therefore, reserves the right to place safeguards on the operation by imposing certain conditions. These conditions would include the Schedule 2 General Conditions for Dredging (a copy of which is attached). I believe these conditions form part of the conditions of the P.O. 1970/19 lease from the Lands Department. Conditions in addition to the General Conditions would include:

1) That all extraction is limited to the Stage 1 extraction area as shown on P.W.O. drawing No. 1982/1A (copy attached).

2) That excavation is to proceed in an orderly manner and in a sequence approved by the Public Works Department.

3) That if excess turbidity in the river is caused by the operation then the limits of extraction be 12,000 m³ per annum with an average rate not exceeding 2,000 m³ per month.

4) Access to the extraction areas is to be constructed so as not to cause damage or erosion to existing banks and subject to the conditions of Schedule 2 regarding restoration or protection works as required. The access road is not to be more than 0.3 metres above mean High Water and on completion of extraction, all access roads are to be removed. Some unstable banks exist within the proposed extraction area and accordingly, your attention is particularly directed to Clause 2(b) of the attached "Schedule No. 2".

5) That the conditions imposed by the Public Works Department and Catchment Areas Protection Board as detailed in the previous E.I.S. of March 1982, still stand.

I hope the above information is of assistance to you in your preparation of the Environmental Impact Statement. The Department is willing to review and comment on a draft copy of the E.I.S. prior to its final printing should you so desire.

Yours faithfully,

H.R. COLLEY
District Engineer
Coffs Harbour.
Dear Sir

RE: PROPOSED GRAVEL EXTRACTION
BELLINGER RIVER NEAR FERNMOUNT

I refer to your recent letter concerning the above development proposal.

This Department has no information on either sediment transport in the river or the detailed geology of the area. However, the Rivers and Ports Branch of the Public Works Department may have some data on sedimentation. The following reference may also be of use in preparation of the environmental impact statement:

Scholer, H.A., 1974 "Geomorphology of New South Wales Coastal Rivers" University of NSW Water Research Laboratory - Report No 139

As gravel is not a designated mineral under the Mining Act (1973), this Department has no statutory control over the extraction of this commodity. However, items which this Department would expect to be adequately canvassed in the environmental impact statement include, in addition to those listed in your letter-

- anticipated changes to channel and river bank morphology
- changes in sediment supply or deposition
- reconstruction of the channel bottom
- minimization of downstream sediment load
- details of any testing carried out on the deposit
- proposed environmental monitoring and control methods

As you may be aware, a development application for a similar proposal on the Bellinger River at Fernmount was lodged with Bellingen Shire Council in 1983 by WJ and KR Golden. The Department of Mineral Resources submitted comments to Council on the environmental impact statement prepared in support of this application and a copy of these comments is enclosed for your information. Also enclosed for your information is a copy of a Departmental information sheet on environmental impact assessment procedures. While this document deals specifically with development applications involving commodities which are prescribed minerals under the Mining Act (1973), much of the information is also applicable to proposals involving commodities which are not covered by the Mining Act (1973).

The Department has no objection in principle to the proposal. However, a copy of the completed environmental impact statement should be referred to the Department for comment. If you have any further queries concerning this matter, please contact Mr I Paterson of the Central and Coastal Section, Geological Survey Branch (telephone (02) 240 4776).

Yours faithfully

NL Markham
For Secretary
ACCESS & PROPERTY BOUNDARIES

EARLY REGISTERED SURVEY PLANS INDICATE THAT THE SOUTHERN BANK OF THE RIVER WAS ORIGINALLY LOCATED APPARENTLY BEFORE THE RESERVATION BOUNDARY (SEE PHOTO 3).

Fig. 2