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New South Wales Government

Forestry Commission of N.S.W.

Forestry Office
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Muswellbrook, 2333

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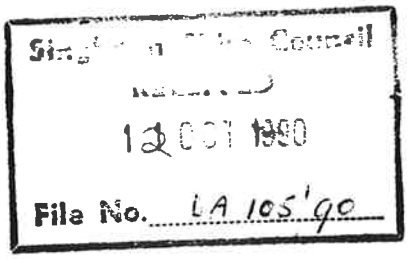
The General Manager,
Singleton Shire Council,
Civic Centre,
Queen Street,
SINGLETON. 2330.

Att: Mrs F. Stewart-Butcher



11th October 1990

					MTP	FS-B
ACTION					✓	
INFO						

Dear Madam,

Re: Comments on Glennies Creek Coal Mine Environmental Impact Statement

In general, the level of investigation and consideration in the E.I.S. in relation to rehabilitation and vegetation appears thorough and soundly based. However, a few comments are appropriate and may warrant further consideration.

1. The plan for earth bunds and associated forward tree planting to provide visual screening of the site (Section 6.1.1) is commended. In view of the schedule proposed on page 29, Section 4.10, however, it would appear that if there is indeed to be "forward tree planting", then this activity will take place between December 1990 (project approved) and January 1991 (construction commences).

   This: (a) appears unrealistic;
   (b) will not provide really effective screening for 3-5 years until the trees are of reasonable size;
   (c) is not recommended.

   The bases for not recommending this are that planting of trees mid-summer poses severe risk of complete failure, unless the trees can be effectively watered. (The use of advance size plants is particularly discouraged).

   Successful tree planting is best achieved by a thorough approach, including adequate consideration of the site, its features and suitable species, comprehensive site preparation, choice of hardy quality plants, careful tree planting and care. Unless there is adequate time to organise these aspects, the long term success of the plantings is unlikely.

db 17/10/90

The most appropriate time for tree planting in the Hunter is autumn-winter. Standard recommendations on tree planting are enclosed.

2. Despite comprehensive maps and sketches of numerous aspects, no plans or information on the location of the aforementioned screen plantings has been provided. Nor are any estimates of the proposed number of trees or species given for screen or other plantings.

3. In Section 7.6, it is stated that the final objective of rehabilitation is the establishment of a healthy Casuarina/Ironbark woodland community. Appendix L.2, which provides more detailed rehabilitation proposals, however, focuses on the re-establishment of pastures and grazing.

If a woodland tree community is to be re-established, extensive tree re-establishment will be required. This can be achieved by tree planting, but the use of well proven Direct Seeding techniques is far more economical and effective. Reference is made to Direct Seeding Research, but no proposal to utilise the technique (other than in a trial) is mentioned. In contrast, considerable detail on pasture species, sowing rates, etc., is provided. Standard recommended techniques for Direct Seeding are enclosed.

In L.2.5 (Land Management Plan), reference is made to grazing 2-3 years after pasture is established. As no reference is made regarding the protection of trees from animals, it would seem this is in conflict with the goal of establishing a "treed" woodland. Dependent on growth rate, young trees need protecting from livestock damage until approximately 5-10 years old.

Yours faithfully,

Glenda Briggs,
District Forester,
Muswellbrook

Encls.

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IMPORTANT STEPS TO SUCCESSFUL TREE ESTABLISHMENT

The following steps must be adhered to if good survival and growth of planted trees is to be achieved.

1. Fencing
   Fencing must be adequate to continuously keep stock out of planted areas for at least five years and in some cases, permanently. Electric fencing is cheap, but must be properly designed to be effective. Individual tree guards are generally not successful for large plantings.

2. Site Preparation
   (a) Deep ripping: Proposed planting lines should be deep ripped using one or two tynes to at least 50 cm depth (18" approx.). Effective deep ripping is critical to easy planting and fast tree growth. Plant in the middle of rip lines.

   (b) On some sites, pre-spraying along planting lines with a knockdown herbicide, e.g. Roundup, may be necessary to restrict heavy weed growth in the first few months after planting. Cultivation can also be used, but has an even shorter effect. Care must be taken to ensure cultivation does not disguise rip lines.

3. Weed Control
   The use of weed mats or heavy mulches is strongly recommended. Various products are available. Herbiciding around trees is risky and only gives short term control. Hand chipping or cultivation around trees has similar problems. Effective weed control must be maintained around each tree for at least 18 months and to a radius of at least 50 cm (18" approx.). Mowing does not reduce weed competition.

4. Protection From Hares and Rabbits
   Hares can cause considerable damage to newly planted trees. Various protection devices are available including low perimeter electric wires (design available) or cheap individual tree guards. Blood and bone placed around trees gives short term hare protection.

5. Insect Attack
   Some trees, particularly eucalypts, can get severe insect attack in the first three years of growth. Contact the Forestry Commission Nursery regarding specific problems.

6. Planting Time
   The best planting time in the Hunter Valley is April to July, particularly after good rain.

FORESTRY COMMISSION OF NEW SOUTH WALES
Conserving forests for our future

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GUIDELINES FOR DIRECT SEEDING NATIVE TREE SPECIES ONTO REFORMED SPOIL IN THE HUNTER VALLEY X-53

1. Pros and Cons

Direct seeding of native trees and shrubs is a widely accepted and well utilised technique in open cut coal mining rehabilitation in the Hunter Valley. In essence, it involves the sowing of seed of native trees/shrubs directly onto the reformed mine spoil site. This provides an attractive alternative to the very effective, but labour intensive, hand planting of containerised trees/shrubs.

Utilising the steps outlined in this document, it is possible to successfully revegetate large or small eas utilising similar equipment, site preparation and fertilising regimes, as employed for pasture tablishment.

A range of species can be established simultaneously in a varied and more natural pattern than aditionally obtained by planting.

The major drawback is the greater risk of failure. Native tree seeds are typically very small, and it is essential to have good follow up rains after germination to sustain the emergent seedlings. The timing of sowing is critical in this regard. The young plants are also susceptible to competition from more vigorous grass or weed species. The initial absence of this competition on reformed mine overburden is a significant advantage.

2. Site Preparation

Site preparation needs both to decompact the surface layers and to provide a good surface tilth for sowing. Deep ripping along the contour to at least 40 cm depth at 3 m spacing has given good results. These rip lines also trap seed and prevent seed being washed off site and/or being buried too deeply. The use of two or more tynes at the above spacing will reduce the concentration of trees in any particular rip line.

If ripping is not practical, complete surface coverage using a heavy agro-plough, is a suitable alternative. Ripping or ploughing in dry weather gives best results.

3. Surface Material

Good results for direct seeding have been obtained on a wide variety of overburden and top dressing naterials at Hunter Valley mines. Top dressing material, however, frequently contains grass/weed seeds, which germinate rapidly after spreading, and can out-compete the smaller, later sown tree seed The use of a 10 cm surface layer of chitter (instead of topsoil) has given excellent results, especially for sowings in the cooler months when germination is slower. The success is mainly due to the broken surface which provides numerous niches in which the seed can collect and germinate. This effectively overcomes the problem of thick surface crusts, which typically develop on many overburden and top dressing materials, and severely restrict germination.

4. Unfair Competition

Most native tree seeds are far smaller than grass seeds and are easily out-competed for soil moisture and nutrients. In an existing dense sward of aggressive grass species, native tree seed has little chance of surviving.

Whilst it is possible to reduce pre-existing competing grass/weed growth by thorough cultivation or herbicide spraying, this is rarely fully effective. Preferably, the area to be sown should be clear of vegetation.

Where the intended tree area is to be surrounded by pasture areas, it is desirable to plan for a buffer strip of 5-8 m. Not sowing this with trees/shrub seed avoids losing successful germinants to invading pasture species, such as Rhodes, Couch or Phallaris.

General

Sown areas should be protected from stock until most trees are at least 6 metres high. However, where a high component of bushy Acacia species exists, any browsing may damage these trees.
Imagination should be used in designing the shape and location of sown areas. Irregular shapes are more aesthetic than squares. With foresight, windbreaks and shade lots can be designed in strategic areas of the mine.
Areas sown with trees should not be sown with pasture for at least two years.
Further details can be obtained from:

District Forester
Forestry Commission of NSW
[illegible]
PO Box [illegible]
Muswellbrook NSW 2333
Phone: (065) 43 [illegible]
Fax: (065) 43 [illegible]

Major seed suppliers

* Royston Petrie Seeds Pty Ltd
PO Box 77
[illegible] NSW 2156
Phone: (02) 654 1186
Fax: (02) 651 2653

* M.L. Farrar Pty Ltd
PO Box 1046
Bomaderry NSW 2541
Phone: (044) 21 [illegible]
Fax: (044) 21 6051

* Nindethana Seed Service
RMB 939
Woogenilup WA 6324
Phone: (098) 54 1066
Fax: (098) 54 1011

* H.G. Kershaw Pty Ltd
PO Box 34

Terrey Hills NSW 2084
Phone: (02) 450 2444
Fax: (02) 450 2550

Anthony G. Briggs,
District Forester,
Muswellbrook,
December, 1989