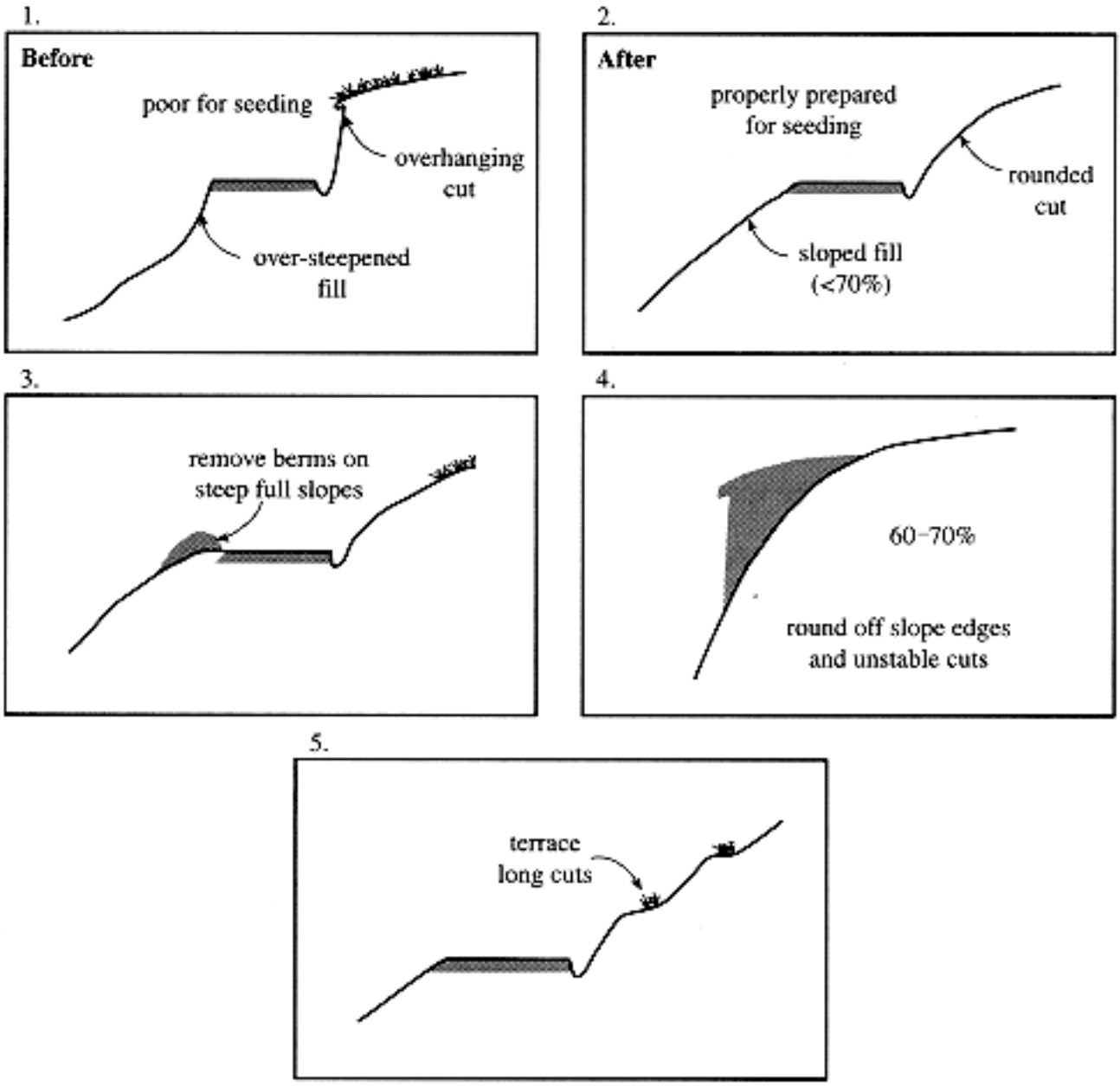
Appendix B

Coastal Grass Seeding Technical Advice for
Preventing Invasive Plant Spread & Providing Erosion Control

A. Site Preparation/Scarification - a well-prepared seedbed is vital in providing the best germination potential; complete with the objectives of the Site Plan in mind.

- use excavator bucket teeth to scarify/rip any compacted soil that has occurred as a result or repeated traffic during resource extraction, to a depth of about 50 cm (in soils that are neither too stony or wet)
- create a evenly rough surface suitable to accept subsequent seeding/fertilization treatment(s)
- ensure natural drainage patterns are maintained
- using an excavator with a thumb, place coarse woody debris (including non-merchantable logs and stumps) sporadically across site to provide protection from erosion until vegetation is established
- prepare cut slopes for re-vegetation as follows:



Source: Forest Practices Code Soil Rehabilitation Guidebook, 1997

B. Grass Seeding

1. **Ordering**
   - use native grass seed where there are immediate high value ecological or conservation values to protect
   - use agronomic grass seed where there are there are no immediate high value ecological or conservation values to protect (i.e. the landscape is largely modified already, such as a roadside)
   - if an agronomic seed mixture is ordered, ensure that it is of a grade that limits the potential introduction of weed seeds i.e. a minimum of Common No. 1 Forage Mixture or better.
   - order seed that contains pre-inoculated legumes (e.g. clovers) with nitrogen-fixing bacteria
   - note that individual species in a seed mixture are presented by % of total weight and % of total seed count; typically the former is what manufacturers require in order to place an order
   - the following companies specialize in grass seed, fertilizers, tackifiers and mulches for purposes of site reclamation:

   For CDF, CWH and MH BEC zones:
   - PICKSEED Canada – http://www.pickseed.com/WCanada/index.html , contact Don Biggin, P.Ag (Abbotsford)
   - TerraLink Horticulture Inc./Richardson Seed - http://www.store.tlhort.com/default.aspx , contact Richard McFarlane (Abbotsford)
   - Quality Seeds West - http://www.qualityseedswest.com/, Bill Awmack P.Ag, (Langley)
   - Western Seed & Erosion Ltd - http://www.westernseedanderosion.ca/ , contact Russ Paton (Langley)
   - Premier Pacific Seeds Ltd. http://www.premierpacificseeds.com/ , contact David Wall (Surrey)

   For IDF BEC zone:
   - Purity Feed Company - http://www.purityfeed.com/, contact Robson Rogan (Kamloops)

2. **Applying Seed Using Conventional Methods:**

   a) **Hand Broadcast Seeding:**
   - for flat or gently sloping areas e.g. <50%
   - rotary "belly grinder" seeders can allow for seeding of 1 ha in an hour or less (but walking speed, cranking speed and spill rate dictate the application rate and area coverage)
   - there is a natural tendency is to seed too heavily
   - steps:
     i. calibrate the seeder by testing a known weight of seed on a small patch typical of the area to be seeded
     ii. start with a small seeder orifice (usually scaled with numbers) and walk at a pace that can be sustained for the entire seeding operation
     iii. observe swath width and plan a route to allow for overlap to ensure complete coverage
     iv. calibrate
     v. spread seed and fertilizer separately

   b) **Hydroseeding (with tackifier):**
   - grass seed is applied to a site in a slurry to slopes > 60%, where the surface is rough, the soil medium is still not compacted, and aeration and water percolation are all conducive to seed germination and plant development e.g. immediately after road construction

- requires tackifier for sloped or erosion prone terrain which can constitute 40-60% of the total cost of treatment; the tackifier is added to a grass seed slurry to stick the seed to the soil during germination

c) **Helicopter Seeding:**
- for inaccessible gentle to moderate benches along steep slopes
- either dry seed or hydroseed is deposited on site using a spreader bucket slung from a helicopter
- generally - dry seed abandoned roads with pulled-up fills (if they are not too steep and not easily hand seeded) and hydro seed landslides

d) **Tips:**
- seed weight, seed quality, seedbed characteristics, climate, erosion potential, soil type and application method all affect the seeding application rate for a particular site
- application rates, whether by hand, hydro-seeding or helicopter generally vary from 40-100 kg/ha (or 35-88 lbs/acre), depending on which species constitute the seed mixture; hence follow the manufacturer's specifications.
- grass seed costs represent a small portion of the total cost of re-vegetation so using minimal rates is generally not a good way to save money.
- monitor for at least one growing season after re-vegetation treatment and re-applied if necessary to ensure establishment.

3. **Timing of Seeding:**
- spring (mid-March to early June) – best
- fall (late August to early October, but after soil is moist) – acceptable
- summer – only in emergencies (noting that at least 30 days are needed before first heavy rains)

C. Fertilizers

1. **Formulations:**
- apply fertilizer concurrently with grass seeding, but as a separate application, noting too much fertilizer can burn grass seed
- use 16-32-6 (N-P-K) formulations on nutrient poor sites
- use 18-18-18 (N-P-K) formulations in mesic to nutrient rich sites

2. **Application Rates:**
- for 18-18-18 (N-P-K) formulations on typical sites (e.g. moderate/mesic soil fertility levels)
- use 200 kg/ha (or 176 lbs/acre) for initial establishment of agronomic-dominated mixtures
- use 250 kg/ha (or 220 lbs/acre) for native grass seed mixtures or where soils are nutrient poor

3. **Tips**:
- to prevent corrosion, rinse the metal parts of rotary seeder after applying fertilizer
- do not apply fertilizer within 3 meters of watercourses
- follow-up with a fertilizer application using a lower application rate within three to five years after seeding to maintain the vigour of grasses and legumes at critical erosion control locations, or on severely degraded soils
- *when* fertilizer is applied (i.e. time of the year) can be more important than the *amount* of fertilizer used

D. Mulches

- are proven beneficial in establishing vegetation from seed as it conserves moisture, increases soil fertility, insulates soil from extreme sun exposure, minimizes raindrop impact, prevents soil crusting and reduces the velocity of surface water flow which may carry away seed, fertilizer and soil
- apply only to highly erodible sands, silts and silty clay textured soils, as it adds considerable cost to re-vegetation treatment
- use 3-5 cm layer (1-2”) of fine organic mulches (e.g. compost or shredded leaves) or a 7-10 cm layer (3-4”) of wood chips at ~ 1200 kg/ha (or 1058 lbs/acre).