

Aggregate Operators Best Management Practices Handbook

PART II

Chapter 6 **RECLAMATION**

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Reclamation

The focus of this handbook is on the planning and operation of sand and gravel pits and rock quarries. A survey of relevant documents, conducted before the writing of this handbook, indicated that numerous aggregate operation reclamation handbooks are currently available and that further reclamation advice is not needed.

The key reclamation advice that this handbook provides is:

- **Extraction is a Temporary Activity** - As temporary occupiers of the land, aggregate operations should conduct their business in such a manner as to not limit post-extraction land uses. Sites where no development will occur should be returned to their natural state with an equal or enhanced ability to grow trees or other forms of vegetation. For development areas, community and environmental stewardship should be included in the planning and operational stages of the pit or quarry.
- **Know the End Land Use** - In some circumstances, a specific end land use can be determined and may be defined during the permitting process. For operations that have a life span of more than twenty years, general assumptions can be made to help address uncertainty. If local government has zoned the property, that zoning may define the range of permitted post-mining activities.
- **Plan For Reclamation** - Whatever the level of certainty regarding end land use, an operator should plan for reclamation. This planning can reduce costs by decreasing double handling and the need for material storage areas. Furthermore, early re-vegetation of post-extraction areas reduces dust, visual impacts and stormwater concerns.
- **Account for Grade** - A flat uniform deposit on level ground may be reclaimed by any number of strategies, whereas a steep mixed grade hillside deposit will have limited reclamation options. Even if a form of progressive reclamation is possible, it may be years until sufficient working space has been developed to allow reclamation to begin.

Reclamation Strategies

The choice between reclamation strategies may be dependent upon:

- the scale of the operation
- the geometry of the deposit
- the surface geometry
- the grade distribution of the deposit

Four general strategies can be used for the timing of final reclamation. These are listed in Table R - 1.

Table R - 1: General reclamation strategies

Reclamation Strategy	Notes
Post-extraction Reclamation	<ul style="list-style-type: none"> • reclamation initiated only after all extraction stops
Interim Reclamation	<ul style="list-style-type: none"> • temporary reclamation during operation to stabilize disturbed areas
Concurrent Reclamation - (Progressive or Continuous)	<ul style="list-style-type: none"> • on-going reclamation as aggregate resources are removed • overburden and soil is immediately replaced
Segmented Reclamation	<ul style="list-style-type: none"> • reclamation after extraction has stopped in one area of the pit or quarry

After: Norman and others (1997).

For advice on reclamation, please refer to:

Price, B., Editor (1995): **Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in British Columbia.** *British Columbia Ministry of Energy, Mines and Petroleum Resources; Ministry of Transportation and Highways and Natural Resources Canada.*