within the ten year bond release period without replanting the seedlings. Through TR45, DMG reduced this density to 500 stems per acre.

- As per Greystone Consultants, a variance application requesting 24 inches of soil cover would be appropriate given the vegetative and soils data collected to date and with data collected at other mines in the state which indicate that revegetation success can be achieved with a 24 inch soil cover.

A copy of Greystone's report is included at the end of this section as Appendix "A". In response to TR45 application, DMG lowered the cover requirement to 30 inches with a minimum of 12 inches of topsoil.

V.H Removal, Storage and Redistribution of Topsoil and Subsoil

All areas to be disturbed at any time during the construction, operation, or reclamation of the mine and its surface facilities will have available topsoil or other suitable growth media separately removed and segregated from other fill material. Available topsoil was determined from the soil assessment contained in Section II.I. Topsoil or other suitable growth media are stockpiled in various locations to be used during final reclamation. Disturbed areas to be covered with topsoil are indicated on Maps 43, 44, 45 and 46 ("D" Portal), Map 55 (Water Tank Area), Map 92 (Alluvial Wells), Map 89 (Ventilation Entry), Map 77 (Refuse Area 1), Map 77A (Refuse Area 5a), Map 150 (Refuse Area 2/3/4), Map 151 (B Seam ventilation shaft and access), Map 162 (Refuse Area A Site Plan), Map 166 (RP 2/3/4/5 Combination Soil Stockpile Inventory) and Map 104 (railroad loadout area). Roads which are to be reclaimed will be covered with topsoil as shown on Map 69 (Haul Road) and Map 55 (Water Tank Road). In addition, all areas disturbed during the removal of roads, conveyors, or utilities will be covered with topsoil. A summary of the disturbed areas is shown in Table V-3.

Before the removal of the topsoil, all trees and large brush are cleared and placed in windrows. Grass, weeds and small brush are not separated from the topsoil. Grass, weeds and small brush intermixed with the topsoil aid in preventing over compaction and adds organic material to the stockpiled topsoil.

Topsoil is stripped and transported to the stockpiles by scrapers or front-end loaders and trucks. In some cases where large amounts of rock fragments are intermixed with the topsoil, it might be necessary to strip the topsoil with dozers and then transport it to the stockpiles via front-end loaders and trucks. In order to prevent over compaction during stockpiling, compaction water is not used and driving over the deposited soil is limited to only that which is necessary to stockpile the material.

During construction, topsoil was stripped to various depths depending on soil type and site specific conditions, as indicated on Map 28 ("D" Portal Area), Map 52 (Water Storage Area and Access Road), Maps 70-75 (Refuse Haul Road and Plant Access Road), Map 82. (Refuse Area), Map 90 (Alluvial Well Area), Map 150 (B-Seam ventilation shaft facility/access road), Map 162 (Refuse Area A Site Plan) and Map 166. There was no topsoil at the Ventilation Entry Area or associated access

road. In the refuse disposal area only as much material as required to obtain uniform reclaimed topsoil depth (near the average topsoil depth) was removed. Only soils from areas that were disturbed for facilities were utilized for reclamation. The remainder of the material was separately removed, stockpiled and replaced as subsoil or cover material (see Section II.I.7.b Topsoil Handling). Appendix V-1 tabulates haul road topsoil volume and mapping area for the existing stockpiles #1 to #11 and future stockpiles #12 to #14.

The stripping of material to be used as cover for special non-coal wastes (Section 4.09) or coal waste banks (Section 4.10) in the waste disposal area was done after the topsoil was stripped. Material which was to be stored was treated in the same manner as a permanent topsoil stockpile. Since the thickness of available cover material varied, the stripping depths were varied in order to obtain enough material to provide the required cover.

TABLE V-3
SUMMARY OF DISTURBED AREAS

DESCRIPTION	AREA (ACRES)	REFERENCE
"D" Portal Area	39.09	Maps 23-28
Water Tank Area & access Road	8.17	Maps 52-54
Haul Road & Plant Access Road	17.64	Maps 70 & 71
Haul Road (County Road to Refuse Area)	41.95*	Maps 71-75
Refuse Area	626.71*	Maps 76, 165, 166
East Portal/Ventilation Entry Area & road	2.86	Maps 85 & 88
B-Vent Shaft (#1) facility & access	1.37	Map 151
B-Vent Shaft #2, SH-1, SH-2, & road north of RDH-3	2.80	Map 155
B-Seam Dewatering System/SH-3	4.30	Map 157
B-Vent Shaft #3	0.88	Map 156
1 Right Dewatering System (DW-1R)	0.86	Maps 147, 164, 164A
Alluvial Well Area & Access Road	1.80	Maps 90 & 91
Overland Conveyor Access-Maintenance Rd.**	36.23	Maps 106-113
Slot Storage Facility	8.00	Map 105
Halandras Trash Dump	12.40	Map 136
Return shafts	7.46	Map 147,152,153
Degas, development drilling, nitrogen injection holes & rock dust facilities	135.64	Map147,154,155, 158
Staging/laydown areas	32.82	Map 147
TOTAL	**975.21**	

Notes:

* Total for mine life.

** The loadout tower and associated disturbances are included with the overland conveyor. The tower is the terminus for the conveyor system.

The volumes of topsoil stripped from affected areas and reclaimed thickness are presented in Table V-4. Table V-4A gives the existing topsoil/subsoil stockpile estimate pertaining to the refuse areas. The areas of topsoil to be disturbed vs. soil mapping unit (soil type) and location of disturbance is presented in Table V-5. Topsoil material was not segregated in stockpiles by type, as soil tests and survey information indicated no advantages to segregation.

Topsoil will be redistributed as promptly as practical. Grading work will be programmed to have finished slopes available on which to place topsoil as it is being stripped, where possible. This planning minimizes disturbed areas and topsoil handling. Permanent stockpiles of topsoil, for use during final reclamation, are placed on stable surfaces within the permit area where they will not be subject to additional disturbance, wind erosion, or compaction during mine life. Ditches are constructed above all topsoil stockpiles which are not located adjacent to a ridgeline, to prevent runoff from adjacent areas from entering the stockpile areas. Side slopes of topsoil stockpiles are not greater than 3h:1v. Side slopes of non-toxic fill (subsoil) stockpiles are not greater than 2h:1v. Side slopes of 3h:1v or steeper on stockpiles are heavily mulched.

The stockpile locations are presented on Maps 26, 27, and 28 ("D" Portal), Map 82 (Refuse Disposal Area), Maps 70-75 (Refuse Haul Road), Maps 53 & 54 (Water Tank Area and Access Road), and Map 90 (Alluvial Well Area), Map 162 (Refuse Area A Site Plan), and Map 166 (RP-2/3/4/5 Soil Stockpiile Inventory). Topsoil stockpiles are seeded during the first available favorable planting period after removal. The stockpiles will not be disturbed prior to topsoil redistribution or additions without prior approval by DMG.

The topsoil will be redistributed in a manner which achieves an approximate uniform thickness as required for the postmining land use. On gradual slopes, topsoil will be spread with scrapers, motor graders, and dozers. On steep slopes, the topsoil will be spread with tracked dozers. Excess compaction of the topsoil will be avoided. On slopes of 3h:1v or steeper, the topsoils will be spread and furrowed on the contour or tracked by a dozer to retard erosion and help retain runoff. Topsoil will be protected to prevent excess wind and water erosion before revegetation operations. Other specific erosion control practices are discussed in Section V.I., Revegetation.

Nutrients and soil amendments will be added as required to the redistributed topsoil so that it can support the proposed postmining activities. The types and amounts of materials added will be based on soils tests performed by a qualified soils laboratory and the vegetative responses desired. All treatments will be subject to review by the DMG.

Table V-6 shows areas reclaimed during construction, areas to be reclaimed at the time of mine closure and areas that will not be reclaimed because of continued use.