

RECORD OF DECISION TAMARACK QUARRY EXPANSION PROJECT

APPENDIX A

Design Criteria and Mitigation Measures

Design Criteria

Quarry Operation Restrictions in the Selected Alternative

Dates and Times During which Quarry Activities Will Be Permitted

| Activity | Dates | Days and Hours* |
|--|---|--|
| Blasting | July 16 – first measurable snowfall (typically in November) | Mon.-Thu. 10 AM to 5 PM Fri. 10 AM to 12 PM |
| Crushing Screening Batching | Mid-April – first measurable snowfall (typically in November) | Mon.-Thu. 7 AM to 7 PM Fri. 7 AM to 12 PM |
| Blast Day Preparation Batch Plant Daily Preparation Equipment Repair General Equipment Maintenance (fueling and servicing) Dust Abatement (pre- and post-shift each day) | Mid-April – first measurable snowfall (typically in November) | Days and hours not restricted |
| Hauling (i.e., large trucks, including semis and rock trucks, on the haul route) Loading | Mid-April – first measurable snowfall (typically in November) | Mon.-Thu. 7 AM to 5 PM Fri. 7 AM to 12 PM |

* *No activities will be permitted on federal holidays. Restrictions could be modified after Labor Day subject to approval by the FS.*

Additional Design Criteria in the Selected Alternative

To minimize potential conflicts with recreation traffic, hauling will not occur on weekends beginning on Fridays at noon, or on federal holidays, unless the quarry is being used for emergency road repairs. When hauling will occur, ODOT will implement traffic control measures (e.g., flagging, temporary signage).

No improvements will be made to the haul route except for routine maintenance which may include resurfacing and structural repairs, and will include striping, placement of safety reflectors, and placement of additional traffic signs at intersections. ODOT will pay for a commensurate portion of haul route

maintenance. Traffic control, which may include flaggers and signs, will be implemented during hauling. Typical hauling trucks have a 20-cubic-yard capacity. No culvert replacements, road widening, pull-out or turn-around construction will occur as part of this alternative.

To provide a better trail connection and continued year-round use of the quarry for recreation, the FS will relocate the Quarry Connector trail around the quarry and maintain it for winter cross-country skiing (suitable for beginner to intermediate skiers) and summer mountain biking use (suitable for intermediate bikers), as part of the proposed project. ODOT will pay for the trail relocation. The route will be at a grade of less than eight percent with rest grades approximately every 200 feet to accommodate mountain bikers in the summer use season. It will be suitable for grooming with a snow groomer. Quarry operations will maintain the designed location and grade of the route into the future.

Under Alternative 1 (as with Alternative 2), a reclamation plan has been developed by the FS and ODOT, and will be implemented and updated as expansion occurs. A copy of this plan is in Appendix G. Overburden soil has been and will continue to be saved for use during later reclamation of the quarry. The soil will be pushed back into the quarry benches and floors and planted with erosion-preventing, native grasses and other vegetation when the excavation is completed. Portions of the quarry could be reclaimed in stages, depending on the individual updates of the quarry development plan.

Mitigation Measures Adopted in the Selected Alternative

Mitigation Measures for Scenic Resources

Although the selected alternative is expected to meet the VQO of Partial Retention, the following mitigation measures could be implemented to mitigate and/or reduce potential impacts to the scenic environment.

1. Monitor expansion from Timberline Lodge to determine when impacts are becoming visible. The expansion project will take an extended period of time and will be accomplished in phases. Monitoring the success of reclamation efforts will help determine actual visual impacts by showing if reclaimed areas have been successfully re-vegetated before new areas are opened and become visible from Timberline Lodge. Monitoring the actual expansion footprint from the lodge will help determine where the limits of visibility occur.

2. Locate processing equipment and batching facilities on the lower levels of the quarry. Existing topography and vegetation could screen equipment and facilities placed on the quarry floor from view.

3. Augment forest cover on the north side of the expansion area. Supplementing existing vegetation with additional plantings will, in time, provide a screen for portions of the expansion area. The area will be planted when specific quarry development plans are proposed for the northernmost portion of the expansion area. Planting plans will be coordinated with a FS wildlife biologist to meet wildlife goals for the area.

Mitigation Measures for Recreation

Quarry operations (including hauling) typically will not occur during weekends and holidays; ODOT will implement traffic control measures to minimize traffic conflicts. These project design features will minimize traffic conflicts in the area. However, to mitigate potential safety issues between pedestrians/bicyclists and additional truck traffic, the following mitigation measure will be implemented.

1. ODOT will contribute \$30,000 toward construction of a pedestrian/bicycle trail along the haul route from Government Camp to Trillium Lake. The FS developed the trail as part of a separate action, as described in Chapter 4 of the FEIS (Cumulative Effects).

Mitigation Measures for the Northern spotted owl

1. As part of the project design, blasting will not occur before July 15 to mitigate for potential impacts to northern spotted owls. In addition, all quarry operations will be limited to daylight hours only and mufflers will be on all equipment.

Mitigation Measures to Prevent the Spread of Noxious Weeds

The following measures will be implemented to minimize the potential for the spread of noxious weeds.

1. Prior to project implementation, all identified noxious weeds within the quarry should be removed. This includes pulling, bagging in plastic bags, and burying all noxious weeds including St. Johns wort and bull thistle. Scot's broom can be pulled or cut at the main stem at ground level. Scot's broom does not need bagging, only burying. If burying can be accomplished in the soil disposal area soon after bagging or cutting, all cut or bagged vegetation may be buried at

the site. Herbicides have not been proposed at this time and would not be used unless further site specific analysis is conducted consistent with regional direction for the treatment of invasive plants.

2. A FS botanist will survey the quarry annually for noxious weeds and will draft a report as to the findings. (Alternatively, a qualified botanist will conduct a survey and prepare a report for review and approval by a FS botanist.) Additional weed control (bagging, cutting, burying) will be done annually if justified by the botanist's report.

3. Heavy equipment brought to the quarry from off the Forest should be free of soil clumps and vegetative matter or other debris that could contain seeds prior to entering the Forest.

4. Should material from outside the Mt. Hood National Forest boundaries be imported to the quarry, a FS botanist will be consulted prior to the material being transported to ensure noxious weeds are not imported to the quarry.

5. To protect from erosion, all exposed soil areas will be seeded, mulched, and fertilized when appropriate, by September 30 of each year where the area is disturbed. Grass species used will comply with the Mt. Hood National Forest policy on the use of native plants and be certified free of Oregon and All States noxious weeds. Mulch will be applied to the entire seeded area and to consist of straw from fields that grow State-Certified grass seed (which is certified free of Oregon noxious weeds) or other sources determined to be free of noxious weeds. Mulch species preferably will be from native seed sources, annual rye, or cereal grain fields. Mulch should be applied at a rate of 3,000 pounds per acre.

Mitigation Measures for Soils

A reclamation plan has been developed and approved by the FS and will be implemented and updated throughout the course of operations and expansion. At the minimum these will identify measures for annual erosion and runoff control, and sediment containment, including the following provisions.

1. Place and arrange stock piled soil, rock, or waste materials away from drainage and runoff pathways.

2. Prior to ceasing operations each year (i.e., before heavy snow closes the haul route), for the entire length of FS road 2656-955, as well as the first 0.1-mile segment of FS road 2656-903, and the intersecting segments of FS road 2656: install appropriately spaced structures to drain and dissipate concentrated runoff from road treads and ditch lines (e.g., culverts, waterbars, dry trenches below cross drain outlets, inboard drainage to ditch lines, check dams, etc.).

3. Place runoff control structures at the southern edge of the quarry site that are resistant to vandalism and off-road vehicle use (e.g., constructed benches, rock check dams and filters, rock containment berms, waterbars, infiltration drains, shallow evaporation basins, etc.).

4. Suspend operations, including haul, during excessively wet and high runoff events as determined by the Forest Service Road Manager.

5. Establish an effective ground cover over reclaimed and stock piled soils, including the use of seasonally rigorous species adapted to the site and capable of rebound from seasonal snowpack (e.g., prolific pioneer species enhanced by disturbance, such as long-stolon sedge and pearly everlasting).

Additionally, specific mitigation measures pertaining to stockpiled soil materials could greatly enhance reclamation efforts at the quarry site. During quarry expansion, removal of the soil mantle will entail scraping it nearly down to underlying rock, then stockpiling it on site for subsequent reclamation purposes. In the process surface and subsurface soil horizons will become mixed, altering several natural physical properties such as structure, porosity, and the distribution and arrangement of organic matter. Soil amendments could greatly enhance altered physical conditions by improving the nutrient status of stockpiled soils. Soil amendments used at the site should be approved by a FS botanist.

To reclaim and restore stockpiled soil materials to their inherent productive capability, measures beyond those typical of standard operating procedures could be necessary. These include not only seasonal applications of special soil amendments to enhance nutrient status and increase the content of organic matter, but also efforts to keep the bulk density of materials within a certain range after they are redistributed. Excessively compacted conditions should be avoided as should excessively loose conditions. In a moist state, soil materials should be somewhat firm, but not overly so.

Mitigation Measures for Water Resources

A reclamation plan has been developed and approved by the FS and will be implemented and updated throughout the course of operations and expansion. At the minimum these will identify measures for yearly runoff and sediment control, including the placement of runoff control structures at the quarry site that are resistant to vandalism and off road vehicle use (e.g., rock check dams, retention berms, drainage ditch lines, waterbars, infiltration drains, and shallow evaporation basins).

Mitigation measure for Heritage Resources

1. Should unanticipated archaeological or historical resources be encountered during expansion of the quarry, all ground-disturbing activity in the vicinity of the find will be halted and the SHPO and FS will be promptly notified to assure compliance with relevant state and federal laws and regulations.

Mitigation Measure for Air Quality

1. If either Action Alternative creates dust that impacts air quality, ODOT will suppress dust by sprinkling with water or implementing other approved treatment. If water is used a legal source from a municipal water system will be obtained prior to project construction. No water will be taken from any streams on National Forest system lands or Trillium Lake.

Mitigation Measure for Fire Prevention

1. To minimize the potential for fire starting at the site, vegetation near quarry operations will be sprayed with water during the high fire season (e.g., late summer and early fall).