CHECKLIST ENVIRONMENTAL ASSESSMENT
FINAL

Project Name: Squaw Creek Site **Proposed Implementation Date:** April 22, 1996
Proponent: Schellinger Construction
Type and Purpose of Action: The applicant proposes to mine, crush, stockpile and haul approximately 120,000 cubic yards of gravel and batch asphalt from a pit located 10 miles south of the town of Swan Lake. The area has been mostly clear cut and burned, although a small stand of trees will be removed. The mine will leave a level bottomed forest with smooth-graded slopes when completed. The slopes will be covered with topsoil and seeded with trees.
Location: NW¼ NE¼ Sec 6, T23N, R17W **County:** Lake

N = Not present or No Impact will occur.
Y = Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?	[Y] The proposed mine is located in a fault-blocked river valley between two major mountain ranges. The deposit is composed of stratified layers of sand and gravel overlain by a layer of sandy loam topsoil left from retreating continental glaciers around 10,000 years ago and re-worked by the Clearwater River. The chain of lakes, including Seeley and Swan Lakes that dot the length of the Swan River Valley, were scoured out by a branch of glacier that extended from Flathead Lake to Clearwater Junction. Tertiary sediment fills the bottom of the valley and the more recent Quaternary glacial debris forms a layer on the surface. The billion year old Precambrian rock of the Belt Series limestone and quartzite rocks surround the deposit in towering walls of the Mission Mountains to the west and the Swan Mountains to the east. The upper elevations of the mountains were dramatically sculpted by alpine glaciers. The Swan River Valley was formed as the limestone rock was tilted eastward and block faulted down the middle of the present valley. Up to ten inches of topsoil will be salvaged and stockpiled for reclamation. Local terrace slopes demonstrate reasonably good stability with native soils. Following mining, the topsoil will be replaced, disked and seeded to stabilize the soil and prevent erosion. Microbes will re-colonize the soil.

2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[Y] High groundwater is near the pit floor but mining will leave the floor at least three feet above the high water table. The water table will be monitored during excavation and backfilling will be done to keep final grade three feet above the water. Except for fuel and lubricants in mobile tanks and equipment working in the pit, all fuel and other potential water contaminants will be stored out of the mine site. All spills (including those from mobile equipment) will be excavated and removed immediately. The nearest surface waters are Squaw Creek located 500 feet south and the Swan River located 1 mile west of the site. The river and creek are located far enough away that no effect is expected from the mine. The proponent may be required to obtain a Stormwater Discharge Permit from the Montana Department of Environmental Quality, to assure the protection of surface waters.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[Y] Loaders, screens and trucking equipment typically cause dusty conditions in disturbed soil sites. Water bars, road watering and other dust controls will be used as necessary. Asphalt production also degrades the air quality but the operator must obtain air quality permits and abide by state air quality regulations. Applicable federal regulations for air quality which are implemented by the state are the Standards of Performance for New Stationary Sources, 40 CFR Part 60, Subpart I(Asphalt & Concrete Plants) and Subpart OOO (Nonmetallic Mineral Processing Plants). Subpart I sets particulate and opacity limitations on emissions from the asphalt plant. The particulate limitation must be verified by performance (stack) testing. Subpart OOO sets an opacity limitation on fugitive dust emissions from the gravel crushing and handling operations.

4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?	[Y] The area disturbed would be approximately 12 acres with 8.4 acres in excavated pit. Approximately 1.4 acres contains mature timber of mixed conifer species. The remaining 10.6 acres contains a diversity of conifer seedlings and saplings mixed with native grasses and brush. The merchantable sawtimber would be harvested. The remaining vegetation would be cleared from the site and burned with the logging slash. Large dead woody material and the duff layer would be stockpiled. Top soil and overburden would also be stockpiled separately. At the completion of mining, the site would be reclaimed and planted with 100 each rust resistant western white pine, western larch and ponderosa pine containerized seedlings per acre. Vegetation that is damaged or destroyed in conjunction with crushing and stockpiling operations will also be reclaimed by scarifying disturbed sites and planting trees and seeding grass. Knapweed will not be a problem during mining operations since the time the pit will be open is too short for the biennial weed to go to seed. Any plants that sprout will be killed as the pit is reclaimed. Plants that grow later after reclamation is complete will be infested with seed head gall flies to reduce seed generation, and the trees that are planted will choke out the surviving plants as the forest canopy grows and absorbs the available sunlight. Natural regeneration of trees, brush and grasses will supplement tree planting and grass seeding. Native vegetation will be removed and will be replaced with trees and grass species compatible with the proposed reclaimed use. Some native seed will remain viable in the salvaged topsoil and will re-generate. Under ideal conditions, trees and other native species from undisturbed, adjacent land will re-invade the topsoiled areas of the site.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[N] The general area sustains populations of white-tailed deer, elk, moose, black bears, mountain lions, and a variety of other animal species. Most of these species will be displaced from the mine area for one to two years as the mine proceeds through development and closure. The proposed mine is not expected to significantly affect populations of terrestrial, avian, or aquatic species in the area and reclamation would restore habitat values.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	[N] Grizzly Bears: The site is in the Goat Creek Subunit of the Northern Continental Divide Ecosystem. DNRC manages grizzly bear habitat in the Goat Creek Subunit according to the Swan Conservation Agreement (SCA). The proposed mine is within the Swan River State Forest Linkage Zone but is not in "preferred habitat" as defined in the SCA. Habitat value and effectiveness will decline during the operation of the mine. Reclamation of the area will restore the habitat value of the subunit; obliteration of an existing restricted road will lower total road density and therefore increase habitat effectiveness in the subunit. Mitigation for grizzly bears include: 1. Seed mixes less palatable to bears will be used for revegetation and erosion control along all roads and in the reclaimed gravel pit (added) to reduce chances of bear\human encounters. 2. Garbage hauling is required daily. 3. Contractors are prohibited from carrying firearms. 4. The Forest Officer will immediately suspend any or all activities directly related to the proposed action if necessary to prevent imminent confrontation or conflict between grizzly bears and humans. 5. Maintenance of visual screening between Highway 83 and the site. 6. Obliteration of the road to the junction with Highway 83 after site reclamation. Grey Wolf: Wolves are not known to occur on the Swan State Forest. Habitat management for wolves involves maintenance of an ungulate prey base, minimizing human-caused mortality (correlated with motorized access), and avoiding disturbance around active den and rendezvous sites. Ungulate populations are not expected to be affected by the project. Motorized access in the area will decrease with the obliteration of the existing restricted road. Mitigation: for wolves include: 1. If a gray wolf den or rendezvous site is discovered within 1 mile of the mine, all activities will be suspended pending consultation with DNRC biologists. Bald eagles: Bald eagles range all along the Swan River Valley but no eagle nests are known near the proposed permit area. Disturbances contributed by the gravel operations will not exceed disturbances existing disturbances associated with Highway 83 reconstruction. The gravel operations should, therefore, not impact potential nesting along the Swan River, approximately 1 mile west of this proposed action. No adverse effects are anticipated on

7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] Although there are important cultural values in the general area, this site has been previously disturbed by modern man, thus destroying the integrity of resources that may have existed. A surface reconnaissance did not discover any cultural, historical or archeological resources. The operator will give appropriate protection to any values or artifacts discovered in the affected area. If significant resources are found, the operation will be routed around the site of discovery for a reasonable time until salvage can be conducted. The State Historical Preservation Office will be promptly notified.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] The site is partially visible by traffic along Highway 83 where clear cuts are now common. Floodlights from dark period operations increase visibility and awareness of the operation. A 200 foot screen of trees separates the site from traffic along Hwy 83 and will minimize aesthetic affects on motorists traveling Highway 83. The nearest residence is located nearly 3 miles to the south of the project site. Noise from gravel operations is not likely to disturb local residents. Noise will increase when equipment is active. Noise levels are generally within the range of 60 to 90 decibels measured on-site, decreasing with distance. As a comparison, sound levels for ordinary activities such as close conversation at 60 decibels and music from a radio at 70 decibels are considered to be moderate. Levels above 90 decibels are severe, and prolonged exposure can lead to hearing loss. Because the crusher, asphalt plant and other noise generating equipment would be located at least 200 feet back from the road, behind a buffer of trees, effects from noise and light would be reduced to the highway. There is also noise from truck traffic hauling to the highway project. These impacts are intermittent and of relatively short duration. There is a temporary deterioration of aesthetics while the operation is under way. However, reclamation will return the area to a visually acceptable landscape.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]

10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other studies, plans or projects on this tract?	[N]

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[Y] Heavy equipment and facilities including crushers, asphalt plants, trucks, loaders and screens will create hazards, but the operator must comply with all MSHA and OSHA regulations.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] The acreage listed in the Type and Purpose of Action will be taken temporarily out of wildlife habitat and timber production, and put into industrial/commercial use. Upon reclamation, the land will be returned to its original use.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N]
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N]
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?	[Y] The operation will require periodic site evaluations by DEQ staff. However, these evaluations are usually performed in conjunction with other area operations.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y] County zoning clearance has been obtained. The area is generally under management for timber production, wildlife and recreational use.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[Y] The Stillwater State Forest, Flathead National Forest and Plum Creek Timber Company's forest are all accessible through this tract. However, the access to this site is planned to be closed off after mining is completed.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N]
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]

21. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[Y] The gravel to be removed is a depletable resource that will generate income to the School Trust Fund in the form of cash royalties. The royalty rate was negotiated based on local economics and fair market value of the resource at the time. With the exception of a small parcel of trees, the site was recently clear-cut and is just beginning to re-generate trees. Although this mining process will remove vegetation, it will produce a relatively high rate of income in the short term. The process will replace the topsoil and re-plant trees, thereby promoting the long-term income to the school trust from forest products and recreational use. Royalty payments of 75 cents per cubic yard will generate approximately $60,000 to school trust funds from the removal of 80,000 cubic yards of gravel. Stumpage payments at $219.94 per thousand board feet of sawtimber will generate an additional $9,677.49 to school trusts from harvesting approximately 44 thousand board feet of timber.

22. Alternatives Considered:
1. No Action: Pit expansion would not be permitted and impacts would not occur at this location. Aggregate would be hauled from a greater distance increasing fuel use, gaseous emissions and project costs.
2. Approval of the application with mitigating conditions: The Plan of Operation has been written with mitigating conditions. Mitigation measures include fuel containment and water protection, visual and audible screening for aesthetics, seeding, garbage handling and encounter strategies for grizzly bears and grey wolves, and road closure after reclamation is complete.

23. Public Involvement, Agencies, Groups or Individuals contacted:
State Historic Preservation Office, Montana Heritage Program, Montana Department of Natural Resources, Swan Unit Office.

24. Other Governmental Agencies with Jurisdiction, List of Permits Needed:
Montana Department of Health and Environmental Science, Air Quality Bureau for Air Quality Permit and Water Quality Bureau for Stormwater Discharge Permit; Mine Safety and Health Administration for safety permit; Montana Department of Labor & Industry, Bureau of Safety for safety permit.

25. Magnitude and Significance of Potential Impacts:
Impacts are unlikely to be significant because the project will be short-termed and reclamation will occur immediately following mining.

Recommendation for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

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