FINAL ENVIRONMENTAL ASSESSMENT
September 4, 1998

Project Name: Grenfell Estates Site **Proposed Implementation Date:** 8/98
Proponent: Donald & Lola Grenfell
Type and Purpose of Action: The applicant proposes to mine, crush, stockpile and transport 70,000 cubic yards of sand and gravel from a 2.5 acre pit located ½ mile east of the town of Corvallis. The estimated start-up date is August, 1998 and will result in two wetland ponds separated by a road, approximately 18 feet deep in spots. The ponds will be reclaimed for landscaping purposes to enhance residential building sites on adjacent property. They will have graded slopes of at least 5:1, be topsoiled and be re-seeding back to grass.
Location: NW¼NE¼ Sec. 4, T6N, R20W **County:** Ravalli

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 flat-lying river terrace within the Bitterroot River Valley. The area was last inundated by Lake Missoula around 10,000 years ago. The deposit consists of stratified layers of river-worked glacial outwash sand and gravel that covers the deeper bedrock. The site is a low, wet pasture area which drains west and is adjacent to a local irrigation ditch.** **The Bitterroot Valley, where the minesite is located, occupies an intermountain fault basin between the granitic batholith rocks of the Bitterroot Mountains to the west and the granitic-injected Precambrian sedimentary Sapphire Range to the east. The 70 to 90 million year old Cretaceous granitic rocks of the Bitterroot Mountains to the west were sculpted into their present profiles by alpine glaciers. The Bitterroot River Valley fills the bottom of the intermountain, fault block basin at the south end of the Rocky Mountain Trench.** **Topsoil, which pinches and swells from 12 to 24 inches will be salvaged and stockpiled away from the pits. Following mining, grading and ripping, the soils will be replaced, disced and seeded around the pond banks and stockpile area.**

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] The nearest pre-mining surface water is the Republican ditch, an adjacent irrigation ditch, and Willow Creek located 500 feet south of the site. The ditch and creek will not be affected by mining. The site will be mined to a depth of 20 feet which intercepts nearly 18 feet of groundwater.

Groundwater is shallow in the area, and the sands and gravels display high permeability. There is a spring located several hundred feet to the east. There may be some leakage from the irrigation ditch which causes some increase in local water level at the site, but with the influx from the spring, water levels don't rise and fall more than several feet from season to season. There are several domestic water wells within 1000 feet of the site. Wells close by are drilled from 18 to 97 feet deep, yield 5 to 80 gallons per minute and have static water levels of 7 to 37 feet.

Sample wells located in the north half of section 4:

WELL	DEPTH	STATIC WATER	YIELD (GPM)
Lensing	35'	12'	5
Lensing	20'	Unk	55
Crosley	52'	7'	12
Hallibaugh	70'	30'	15
Carney	59'	37'	10
Hall	97'	35'	30
Spek	53'	28'	20
NPRR	14'	Unk	5
McCray	40'	11'	80
Smyth	18'	15'	20

Special precautions will be taken to minimize possible contamination of the groundwater. All bulk fuel and lubricants will be kept outside the site. Portable equipment with fuel tanks such as loaders, trucks and crusher will be in various places within the facility. Any accidental spills or leaks from equipment will be excavated and disposed of. No waste or trash will be disposed of at the site. With these precautions, the quality and quantity of the groundwater should not be adversely impacted.

Hydrologic impacts of the proposed pond are not likely to cause any measurable change in the groundwater quality or water levels on property surrounding the site. This assumption is based on the fact that there will be no de-watering of the pit, and the pond will quickly attain equilibrium with surrounding static water levels due to the high permeability of the sands and gravels.

3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	**[Y] Air quality will be degraded and there will be an increase in particulate matter. Dozers, loaders, crushers and trucking equipment typically cause dusty conditions in disturbed soil sites. However, crushers are regulated for dust emissions and the equipment used must be tested and approved.**
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?	**[N] There are no known rare or sensitive plants in the site area. Vegetation consists of pasture grasses such as brome, bluegrass and quackgrass and water-tolerant sedges which lie in a low, wet pasture. Vegetation covers 100% of the ground and will be removed and planted with species compatible with the proposed reclaimed use.**
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	**[N] Although the area is used primarily for grazing, it is also supports populations of whitetail deer, waterfowl, rodents, song birds, coyotes, foxes, raptors, insects and various other animal species. Population numbers for these species is not known. There are rookeries of blue herons and nesting sites of ospreys and bald eagles along the Bitterroot River but none were identified at or near the site. The creation of a wetland pond will provide increased fishing opportunities for these species. Available open water will be increased for migratory and resident waterfowl.** **Human use of the area has intensified in the past two decades with residential and commercial activity. The proposed mine is not expected to significantly degrade wildlife populations. The Natural Heritage Program literature search and site evaluations have not revealed any other endangered or threatened plant or animal species on site that would be significantly impacted.**
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] The Natural Heritage Program and site evaluations have not revealed any endangered or threatened plant or animal species that would be directly affected. Bald eagles are known to range all along the Bitterroot River Valley, but no nesting sites are known on or near the proposed permit area. No adverse effects are anticipated on the eagles as a result of this proposed action.**
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	**[N] Although there are 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?	**[Y] The site is located in a scenic, but not unique area. There will be a temporary deterioration of aesthetics while the operation is under way. However, reclamation will return the area to a visually acceptable landscape.** **The site is visible by homes in the local area and to traffic along the County road. Hours of operation for the crusher are anticipated to be 8 AM to 5 PM, Monday through Friday when it is at the site. A typical crusher can make 500 to 1000 cubic yards per day. A crusher might set up and run for several weeks and move out for months at a time. Hauling from stockpiles or pit-run gravel from the pit may occur at any time.** **Noise levels generated by operating equipment at the pit 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. There is also noise from loaders and truck traffic hauling to various projects These impacts are intermittent and of relatively short duration.**
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 scrapers, trucks and loaders will create hazards, but the operator must comply with all MSHA and OSHA regulations. The operator must employ proper precautions to avoid accidents. Road signs in cooperation with the county could reduce hazards entering to and from the county road from the site.** **Excessive and prolonged noise and light could increase stress for nearby residents and induce difficulty sleeping, but ongoing operations are not planned for nighttimes. Both of these effects**

	may be considered harmful to human health if the activities are continuous. This proposed operation should not significantly affect human health.
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 out of agricultural/grazing and put into industrial/commercial use. Upon completion of mining, the land will be turned into green space and a wetland pond. The pond will provide some additional wildlife habitat.**
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] To this date it has not been shown that this type of operation has resulted in a reduction in taxable value of property and it is not anticipated that this project would alter past assessments. The presence of an industrial site in the midst of an agricultural/rural residential area has the potential to temporarily reduce the desirability of surrounding land as a location to live a rural lifestyle until reclamation is completed, and therefore the marketability of improved and unimproved real estate may be temporarily diminished as some prospective buyers would not purchase these properties.**
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 until such time as the site is successfully reclaimed to the required post-mining use. 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] City/County zoning clearance has been obtained.**
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?	**[N]**
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?	**[Y] The area has generally been agricultural and residential in the recent past. The previous landowner started development of the site and left it in a state of disrepair with dozer cuts, a poorly constructed roadway and piles of debris. Locals will notice a change in the site as gravel is extracted. They will notice equipment working and truck traffic coming and going. Upon reclamation, the site will be improved from its current condition and should improve land values in the area.**
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:	**[N]**

22. Alternatives Considered:

A. Denial: The pit would not be permitted and impacts from mining would not occur at this location. The owner of the gravel resource would be denied full utilization of his property at this time.
B. Approval of the application with mitigating conditions: The Plan of Operation has been written with mitigating conditions including water protection, soil salvage and construction of more waterfowl habitat.

23. Public Involvement, Agencies, Groups or Individuals contacted: State Historic Preservation Office, Montana Heritage Program, County Weed Control District, County Commissioners for zoning. Public notice was given and comments were solicited through the Ravalli Republic Newspaper commencing on August 6 and running for two weeks, and all known interested locals were contacted and provided copies of the DRAFT EA. The comment period closed Friday, August 21, 1998 and no written or verbal comments were received.

24. Other Governmental Agencies with Jurisdiction, List of Permits Needed: Montana Department of Environmental Quality for Air Quality Permit and 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 on the general environment because of the scope and location of the project, the lack of significant or threatened wildlife or habitat, and because of the mitigation measures placed in the Plan of Operations.

26. Regulatory impact on private property: The analysis conducted in response to the Private Property Assessment Act indicates no impact.

Recommendation for Further Environmental Analysis:

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

EA Checklist Prepared By: **Rod Samdahl** **Reclamation Specialist**

Name **Title**

Approved By: **Jerry Burke** **Supervisor, Opencut Mining Program, IEMB**

Name **Title**

Signature **Date**