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Price Field Office

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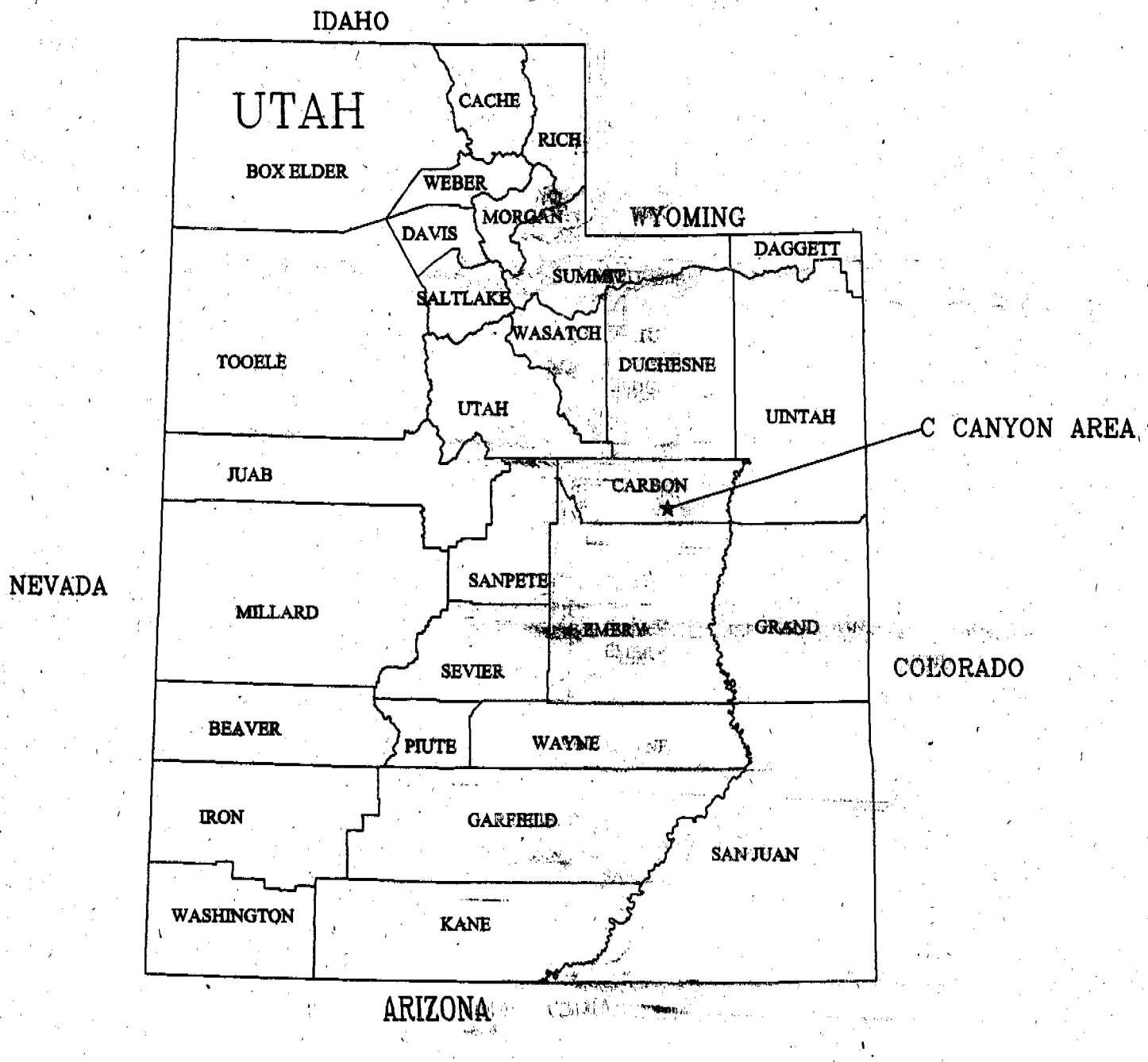
Environmental Assessment for Carbon County Development of the C Canyon Road and WEST RIDGE Resources, Incorporated Development and Surface Operation of the West Ridge Mine Development of the C Canyon 69 kV Powerline Development of the C Canyon Telephone Line Development of the C Canyon Water Line and East Carbon City Development of the C Canyon Water Line



ENVIRONMENTAL ASSESSMENT

For

CARBON COUNTY
DEVELOPMENT OF THE C CANYON ROAD

WEST RIDGE RESOURCES, INCORPORATED
DEVELOPMENT AND SURFACE OPERATION OF THE WEST RIDGE MINE
DEVELOPMENT OF THE C CANYON 69 kV POWER LINE
DEVELOPMENT OF THE C CANYON TELEPHONE LINE
DEVELOPMENT OF THE C CANYON WATER LINE

And

EAST CARBON CITY
DEVELOPMENT OF THE C CANYON WATER LINE

In

CARBON COUNTY, UTAH

RESPONSIBLE AGENCY

USDI, Bureau of Land Management
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MAY 1998

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AUM	animal unit month
BLM	Bureau of Land Management
BP	Before Present
cfs	cubic feet per second
dBA	decibels of the A-weighted scale
ESA	Endangered Species Act
fps	Feet per Second
gpm	Gallons per Minute
KOP	Key Observation Point (VRM Class)
kV	kilovolt
MFP	Management Framework Plan (BLM)
MRP	Mine Reclamation Plan
NAS	National Academy of Science
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act of 1986
NRCS	Natural Resource Conservation Service
OSM	Office of Surface Mining
pfs	Pounds per Square Foot
R	Range
ROW	right-of-way
SLB&M	Salt Lake Base and Meridian
SPCC	Spill Prevention Control and Countermeasure Plan
T	Township
TDS	Total Dissolved Solids
TES	Threatened, Endangered and Sensitive (Species)
UDES	Utah Department of Employment Security
UDWR	Utah Division of Wildlife Resources
UDOGM	Utah Division of Oil, Gas and Mining
UNPDES	Utah Nonpoint Discharge Effluent Source
UP&L	Utah Power & Light
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USHPO	Utah State Historic Preservation Office
VRM	Visual Resource Management

GLOSSARY OF TERMS

Access	Passage to proposed site
Alternative (action)	An option to meeting the stated need
Archaeology	The science that investigates the history of peoples by the remains belonging to the earlier periods of existence.
Assessment(environmental)	An evaluation of existing resources and potential impacts to them from a proposed act or change to the environment.
Commitment (mitigation)	Obligation to a measure that would diminish the severity of an impact.
Community (biological)	A group of one or more populations of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals or both.
Contrast	The effect of a striking difference in the form, line, color, or texture of an area being viewed.
Cultural resources	Any site or artifact associated with cultural activities.
Distribution Line	A line that carries low voltage and high amperage for short distances. Since it has the ability to be transformed into low voltages, the distribution line is usually used for residential and small commercial facilities.
Endangered species	Any species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of Interior determines to be pests and whose protection under the Endangered Species Act of 1973 would present an overwhelming and overriding risk to man.
Environment	The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.
Ephemeral (streams)	Flowing in response only to direct precipitation, and whose channel is at all times above the water table, and restricted to streams that do not flow continuously for at least 30 days.

Erosion	The group of processes whereby earth or rock material is loosened or dissolved and removed from any part of the earth's surface.
Habitat	A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover and living space.
Hydrology	The science that relates to the water of the earth.
Impact	A modification in the status of the environment brought about by the proposed action or alternative action.
Interdisciplinary team	A group of people with different training representing the physical sciences, social sciences and environmental design arts assembled to solve a problem or perform a task. The members of the team proceed to solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions.
Landscape	That which makes up the various attributes of land surface as a result of geologic activity and weathering, such as plateaus, mountains, plains and valleys.
Mitigation	To alleviate or render less intense or severe.
Paleontology	The science that deals with the life of past geological ages through the study of the fossil remains of organisms.
Public Lands	Federally owned lands administered by the Bureau of Land Management.
Raptor	A bird of prey.
Right-of-way	Public lands authorized to be used or occupied pursuant to a right-of-way grant.
Riparian	Any area of land directly influenced by permanent water that has visible vegetation or physical characteristics reflective of permanent water influence. This can include streams, springs, seeps, wet meadows, aspen stands, and similar habitats.

Significant (impact)	Impact that would cause a substantial adverse change or stress to one or more environmental resources. In general, all potential high impacts are considered to be significant, but in some cases potential moderate impacts are considered significant.
Species	A group of individuals of common ancestry that closely resemble each other structurally and physiological and in nature interbreed producing fertile offspring.
Threatened species	Any species likely to become endangered within the foreseeable future throughout all or a significant part of its range.
Visual Resources	Classification of landscape according to the kinds of structures and changes that are acceptable to meet established visual goals (BLM VRM).

CHAPTER I. INTRODUCTION

A. NEED FOR THE PROPOSED ACTION

WEST RIDGE Resources, Inc. (WEST RIDGE) currently holds 2,570.67 acres of federal coal leased under serial number SL-068754 in the Book Cliffs coal field in Carbon County near East Carbon and Sunnyside, Utah (PLATE I and II). In order to access and mine the coal reserves present within this lease, WEST RIDGE would need to construct and operate a mine facility within C Canyon. To facilitate the construction and operation of a surface facility in C Canyon, an 80 acre lease area modification would need to be acquired. Currently, the area below C Canyon and along Clark Valley is accessed by numerous unmaintained dirt roads. These existing roads are inadequate to facilitate the proposed haulage of approximately three million tons of coal annually from the proposed mining operation, along with the associated personnel, vendors and supply vehicles a mine of this magnitude would necessitate.

The proposed action would be a result of a cooperative agreement with Carbon County and WEST RIDGE to provide the necessary, road system so that the coal resources could be mined and transported in a competitive marketplace. The benefit to Carbon County in increased employment and subsequent royalties from federal coal leases define a realistic need for all parties. Agreements between WEST RIDGE, PacifiCorp dba: Utah Power & Light (UP&L), U.S. West and East Carbon City would provide for the associated utility and power needs required to adequately mine and transport the proposed coal production.

B. AUTHORIZING ACTIONS AND PERMITS

Conformance With Existing Land Use Plans

The proposed action, located within Bureau of Land Management (BLM), State of Utah and private jurisdictions, is in conformance with federal, state and local requirements. The proposed action is in conformance with the BLM Price River Resource Area Management Framework Plan (MFP), approved in 1983 and as amended.

The area of the proposed action is zoned as MG-1, mining and grazing, by the Carbon County Zoning and Planning Office, and is in conformance with the existing land use plan for the county.

Permits

The granting of rights-of-way (ROW) by the BLM is pursuant to the requirements of Title V of the Federal Land Policy and Management Act of 1976, and regulations found within Title 43 of the Code of Federal Regulations, part 2800.

Carbon County and WEST RIDGE would be required to obtain a number of permits and approvals from federal and state agencies for the project. These are listed on TABLE I-1.

TABLE I-1

PERMITS AND OTHER LEGAL REQUIREMENTS

Agency	Act or Regulation	Requirement
Federal		
Council for Environmental Quality	National Environmental Policy Act of 1969 (NEPA), as amended (40 CFR 1500) Public Law 91-90, 42 U.S.C. 4321	Environmental Assessment, Right-of-Way, Notice to Proceed, Temporary Use Permits, and Consultation.
Bureau of Land Management	Federal Land Policy Act of 1976 (FLPMA) (43 CFR 2800 & 3100) Public Law 94-579 (10/21/76)	Lease Modification
Fish and Wildlife Service	Endangered Species Act of 1973 (ESA) (16 U.S.C. 1539)	Provide biological opinion of wildlife and plants that are federally listed, and impacts of the proposed action to listed species.
	Migratory Bird Treaty Act (16 U.S.C. 703-711)	Consultation and review of impacts to listed species.
	Bald Eagle Protection Act (U.S.C. 663a)	Consultation and review of impacts to golden eagles.
Utah State		
Office of Rehabilitation		
School & Institutional Trust Lands	Permit for Materials and Easement	Consider issuance of permit for easements and borrow material.
Department of Transportation	Permit to Encroach Road Easement	Consider issuance of permit to intersect state road ROW.
	Permit to Cross a Road Easement	Consider issuance of permit for crossing of road ROW.
Department of Natural Resources		
Division of Oil, Gas and Mining	Permit for Mine and Reclamation (R645-301)	Consider issuance of operational mining actions.
Division of Water Rights	Permit for Stream Alteration	Consider issuance of permit for alteration of natural drainage.
Department of Community & Economic Development		
Utah State Historical Society	National Historic Preservation Act (CFR 800, Section 106)	Consider NRHP eligibility and mitigation of cultural resources.
Carbon County		
	County Zoning Ordinances	Determine compliance with existing land use designation.
Private		
	Confirmation and Review of ROW	Obtain Easements

CHAPTER II. PROPOSED ACTION AND ALTERNATIVES

A. ALTERNATIVES DISCUSSED AND DISMISSED

Two alternatives were discussed and dismissed from further review within this environmental assessment. Alternative A would have established the intersection of the C Canyon Road with State Road 123 in S.L.B.&M. T. 15 S., R. 13 E., Section 7, SE ¼ NE ¼ and continue for 3.56 miles in a north-northeast direction across public, state and private land. The alternative alignment would reconvene with the proposed action in S.L.B.&M. T. 14 S., R. 13 E., Section 28, SW ¼ NW ¼ (PLATE II). The total length of the road with the alternative access would be approximately 6.67 miles. In association with the alternate road alignment, an adjacent alternate power line ROW and telephone line ROW within the road ROW would have been constructed. This alternative would have been within the 0.5 mile zone of protection of two occupied golden eagle nests. Carbon County applied for a federal take permit upon these nest sites. Upon consultation with resource specialists with the BLM, U.S. Fish and Wildlife Service (USFWS), and Utah Division of Wildlife Resources (UDWR), the possibility of significant raptor nesting impacts resulting from this alternative was identified. Since another alternative (Proposed Action) was being analyzed within this environmental assessment that would not intersect the established 0.5 mile buffer zones, it was the opinion of the resource specialists reviewing the alternate route that a take permit would not be granted to allow construction and operation of the road. Since this alignment would be in nonconformance with the raptor use stipulations of the Price River MFP, as well as the federal Migratory Bird Treaty and Eagle Acts, this alternative was dismissed from further review.

Alternative B was to follow the existing alignment of the C Canyon unimproved dirt road from State Road 123 to the proposed mine site. Preliminary engineering of this route indicated that a considerable amount of Mancos shale type material is present along the course of the existing road. Mancos shale is a mixture of silts and clays that tend to expand when exposed to moisture. To compensate for this structural problem, the substrate material would need to be excavated and a road base built thick enough to compensate for the loss in integrity. Since the road base would need to be thicker, it would also need to be wider. To facilitate a wider ROW, a greater impact area would be created. Therefore, due to the considerable cost associated with the construction of a thicker, wider road base, the long term operational maintenance costs associated with the continual expansion of the road substrate, and the increase in project disturbance to the surrounding environment this alternative was dismissed from further review.

B. PROPOSED ACTION - DEVELOPMENT OF THE C CANYON ROAD, 69 kV POWER LINE, WATER LINE, AND UTILITY CORRIDOR IN CONJUNCTION WITH THE DEVELOPMENT AND SURFACE OPERATION OF THE WEST RIDGE MINE

The proposed action would be located in Carbon County, approximately five miles north-northwest of East Carbon, Utah (See PLATE I and II). The proposed road development by Carbon County would intersect State Road 123 in S.L.B. & M., T. 15 S., R. 12 E., Section 12, SW ¼ NE ¼. The proposed road would proceed northeast 7.68 miles, terminating at the proposed WEST RIDGE coal mine facility in C Canyon at T. 14 S., R. 13 E., Section 15, NE ¼ NE ¼; Section 10, SE 14/ SE ¼; Section 11, SW ¼ SW ¼; and Section 14, NW ¼ NW ¼. A separate WEST RIDGE ROW for a 69 kV (69,000 volt) power line would be located adjacent to the proposed road alignment. This power line would tap the existing 69 kV power line near the intersection of the proposed road with State Road 123. A WEST RIDGE ROW for a telephone line/utility corridor would be established within the proposed road ROW. The phone line would be located adjacent to the paved surface, and would follow the road to the proposed mine site. A joint ROW application by East Carbon City and WEST RIDGE for a water line to serve the culinary needs of the mine would be located adjacent to the paved surface of the proposed road. This line would run from East Carbon City to the proposed mine surface facility. FIGURE II-1 is a typical ROW corridor cross section showing the location of each ROW to one another.

DESCRIPTION OF PROPOSED ACTION PHYSICAL FACILITIES AND CONSTRUCTION PROCEDURES

The proposed action to be taken by Carbon County, WEST RIDGE Resources, Inc., and East Carbon City on public, State of Utah and private land includes:

- Development of the C Canyon Road.
- Establishment of borrow and staging areas for equipment storage and associated road fill needs.
- Establishment of an underground telephone line.
- Development of the 69 kV power line to the proposed mine surface facility.
- Development of an underground water line to serve the culinary requirements of the proposed mine surface facility.
- Development of the West Ridge Mine surface facility.
- Potential mitigation areas associated with the proposed action.

The planned surface routes of the road, power line, water line and phone line, as well as area of the proposed mine are shown on PLATE II. Associated areas, such as staging areas, borrow sites, pull sites, pumping stations and all associated access roads are shown on PLATE II as well. Specific details of the road alignment are shown on PLATES II-A through II-N. Surface facilities associated with mine are shown on PLATE II-V. The following section describes each of the attributes of the proposed action.

Road Development - The proposed two lane, 28 foot paved Class B road, totaling 7.68 miles, would transect public, state and private land. The proposed road, designed for a maximum speed of 50 miles per hour, would be constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Utah Department of Transportation 1992 Standard Specifications for Road and Bridge Construction.

Total ROW acreage upon public, state, and private land is shown in TABLE II-1.

TABLE II-1

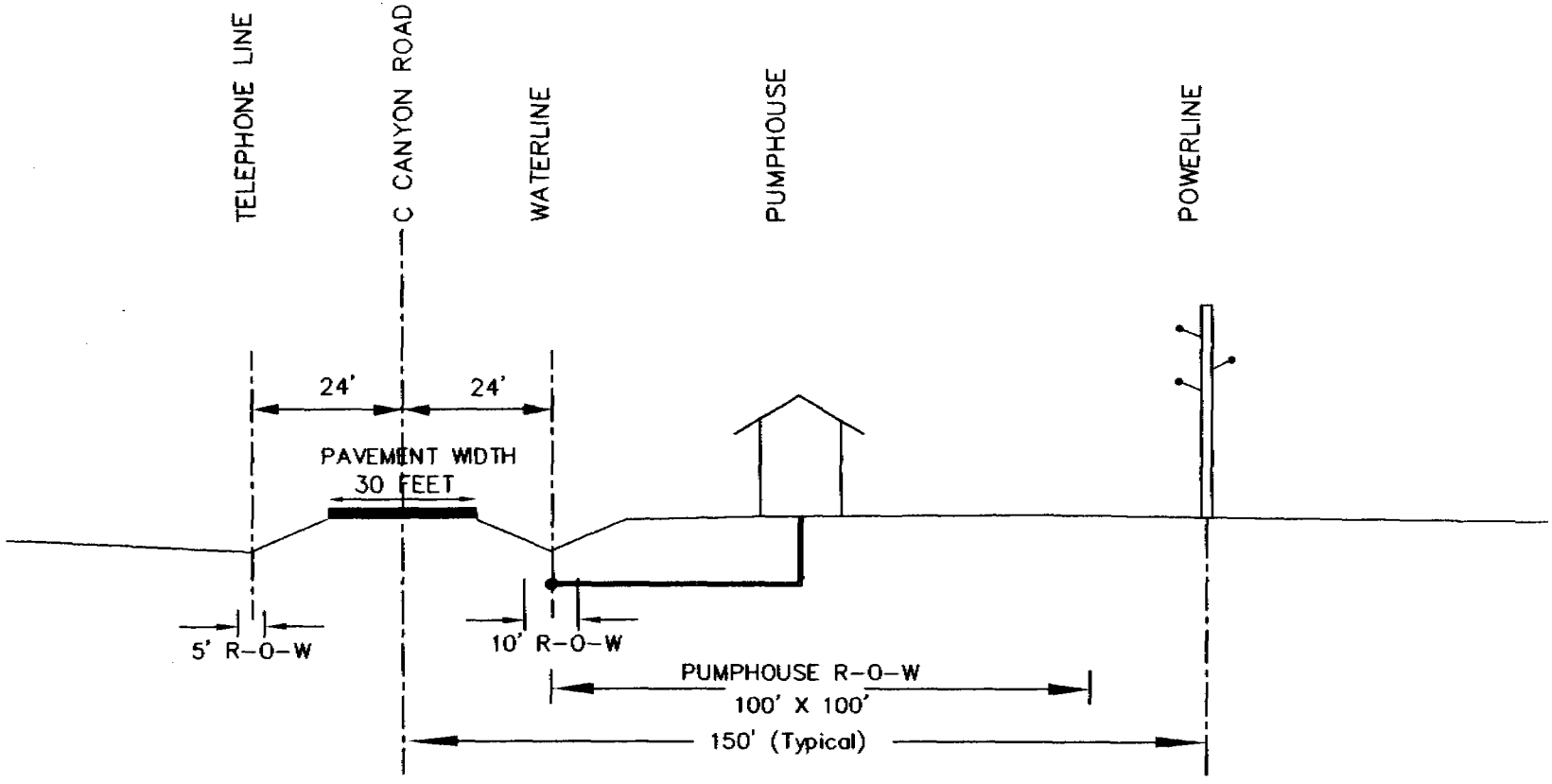
OWNERSHIP SUMMARY OF LAND AFFECTED BY PROPOSED ROAD

Ownership	Miles	Acres - 200' ROW (Construction)	Acres 100' ROW (Operational)
BLM	5.60	135.76	67.88
State of Utah	0.47	11.50	5.75
Private	1.61	39.03	19.52
TOTAL	7.68 Miles	186.29 Acres	93.15 Acres

FIGURE II-2 shows the typical design of the paved road. The area to be disturbed as a result of the construction would vary in width from 50 feet to approximately 200 feet depending on the natural terrain. The desired construction ROW would be 200 feet (186.29 acres) to allow the construction of cut and fill slopes. Upon completion of the road, the temporary construction ROW would be stabilized and reclaimed to BLM and/or land owner standards, thus minimizing the permanent operational ROW to a width of 100 feet (93.15 acres), or 50 feet on each side of the center line of the paved surface.

Approximately 195,000 cubic yards of roadway excavation, 49,988 tons of non-rutting asphalt concrete and asphalt mix, 50,750 tons of untreated base course, and 60,175 cubic yards of granular borrow are proposed. Alignments for the proposed road, as well as the anticipated cut and fill areas, are shown on PLATES II-A through II-N.

TYPICAL RIGHT-OF-WAY CONFIGURATION



NOT TO SCALE

25' CONSTRUCTION R-O-W REQUIRED IN AREAS WHERE WATERLINE IS NOT INSTALLED WITHIN ROAD R-O-W

FIGURE II-1

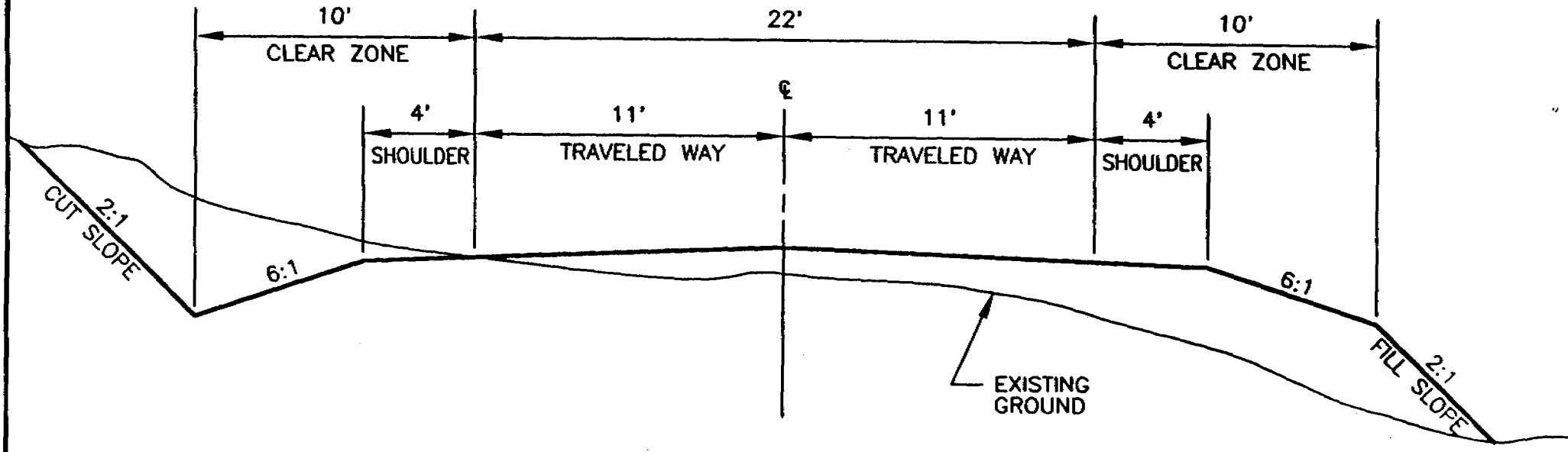
The time frame for completion of the proposed road is 120 days, beginning Summer, 1998 and ending Fall, 1998. The contractor would have a crew of approximately 20 to 30 people, and would utilize the following equipment during the various phases of construction:

Road Grader
Rubber Tired Loader
Conventional Scrapers
Hydraulic Excavators, Track Mounted and Wheel Mounted
Rear Dump Trucks
Belly Dump Trailers
Asphalt Paving Machines
Water Truck for dust control
Steel Drum Static Compactors
Sheeps Foot Compactors
Hand Held Vibratory Plate Compactors
Gravel Crushing Facility
Track Dozers
Construction Office Trailer

Due to the condition of the proposed road and associated access roads (narrow width, blind curves and rough surface) during construction, as well as the amount of construction activity that would take place, unauthorized personnel would not be allowed within the area during construction activity. Warning signs and flag crews would be utilized for traffic control at the intersection of the proposed road with State Road 123 during construction.

Crews would begin by clearing and disposing of all trees, vegetation, and debris within the staked limits of the roadway, channels, and other designated areas. The contractor would not disturb areas outside the slope staked limits unless prior written approval is received from the BLM. Upon completing the clearing of the ROW, crews would begin the construction of the roadway subgrade. Graders, scrappers and dozers would be utilized to obtain the necessary grade and alignment shown on PLATES II-A through II-N.

To facilitate the development of the C Canyon Road, a stream crossing is planned for Grassy Trail Creek. A double barrel concrete box culvert would be installed where the proposed road would cross Grassy Trails Creek in T. 15 S., R. 12 E., Section 1, NW ¼ SE ¼. Correspondence with the Utah Regional Engineer and Division of Water Rights, as well as engineering designs for the stream crossing are included as APPENDIX A. Where structures and realignments are to be built, the contractor would excavate and establish the elevations and dimensions necessary to construct the particular structure. Silt fences, or other sediment control structures would be utilized to prevent sediment loading during bank manipulation. Coffer dams would be constructed to allow work to take place in areas inundated with water and removed when no longer needed. The contractor would tie the steel for the concrete structures and construct the forms prior to pouring the concrete. After the concrete has set up, the forms would be dismantled and the structure backfilled to bring the roadway surface to grade.



WEST RIDGE ROAD

Typical Section

CREAMER & NOBLE
ENGINEERS
ST. GEORGE, UTAH

EXHIBIT NO.: 2 FIGURE II-3

After the road subgrade is completed, the contractor would begin hauling, placing and compacting of granular borrow to a depth of 12 inches. This is the first phase of the surfacing. The second phase of surfacing would entail placing and compacting of a six inch lift of untreated base course. Within C Canyon, the ephemeral channel would be realigned in two locations to facilitate the proposed road in an area located outside of the drainage area, as well as to minimize disturbance to the canyon environment. These locations, in T. 14 S., R. 13 E., Section 15, SE ¼ NE ¼, would involve 100 feet and 250 feet of channel respectively, with curves being placed in the channel to minimize flow velocity and rip rap on the banks to prevent scouring. The permit application, correspondence with the Utah Regional Engineer, and designs associated with the realignment are included in APPENDIX A.

After the untreated base course is completed, the contractor would spray a prime coat of liquid or emulsified asphalt over the base course. The prime coat would remain on the surface for a period of 24 to 48 hours, after which time the contractor would begin the placing and compaction of the asphalt concrete. After the asphalt concrete has had time to set properly, the contractor would paint the traffic lane lines. Other traffic control items such as signing, would take place throughout the entire construction phase of the operation. The entire length of the road would be fenced and cattle guards and/or gates would be installed upon completion of the road and establishment of the operational ROW. The location of these facilities is shown on PLATE II.

In association with the construction areas that would be reclaimed upon completion of the proposed project, an effort would be made to reclaim existing roads and four wheel drive trails on public lands that intersect the proposed road. This would be completed to minimize any cumulative impacts to area wildlife that the proposed road may create. Where existing road sections are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, revegetation using an approved BLM seed mix would be completed. A seed mix designed for slope stabilization and wildlife enhancement would be utilized.

Road Borrow and Staging Areas - Two sites would be located on Utah School and Institutional Trust Lands (USITLA). A 23 acre site would be located in T. 14 S., R. 13 E., Section 16, NE ¼ SE ¼, and a 45.3 acre site would be located in Section 32, NW ¼ NW ¼. These areas would be utilized for fill requirements associated with the proposed road construction. An existing dirt road would be utilized to access the borrow area in Section 16. A short 0.10 mile dirt access road on state land would be created from the end of the existing road on public land to access the immediate area of the Section 32 borrow site. This road would intersect the proposed paved road in the NW ¼ SE ¼ of Section 31.

Topsoil would be stripped prior to excavation of the site to a depth of four inches. This soil would be stored within an erosion control berm constructed around the site. The berm would control drainage from the borrow/storage site and reduce impacts to the surrounding undisturbed area. Upon completion of the project, the area and associated facilities would be covered and recontoured with the stored topsoil and revegetated. PLATE II includes the location of these borrow sites and access roads. Correspondence and permit applications associated with the Utah School and Institutional Trust Lands Administration are included in APPENDIX B.

Two separate one acre areas would serve as equipment staging and material storage sites during construction of the proposed road. A site on private land near the intersection of State Road 123 in T. 15 S., R. 12 E., Section 1, NE ¼ SW ¼, and a site on public land at T. 14 S., R. 13 E., Section 15, SW ¼ SW ¼ near the Section 16 borrow site below C Canyon would be utilized. Fuel and oil may at times be stored within this area during construction of the road. A Spill Prevention Control and Countermeasure Plan (SPCC) is included as APPENDIX C. Upon completion of construction activities associated with the proposed action, this area would be recontoured and revegetated.

Underground Telephone Line - WEST RIDGE would install, upon completion of road construction, a telephone line within the corridor to serve the proposed mine. The line would be buried at a depth of 24 to 36 inches, approximately three feet from the edge of the asphalt surface. A junction box would be installed approximately 3000 feet from the intersection with State Road 123. At approximately 6,000 foot intervals along the length of the road, similar boxes would be installed. The four by five inch boxes, colored gray/green, would stand approximately 36 inches above the surface. A 10 foot wide corridor on the cut, or uphill, side of the road, would be located within the permanent ROW of the proposed road. The utility corridor would be located entirely within the disturbance associated with the new road and would accommodate any future gas, and/or sewer lines during the life of the mine.

69 kV Power Line Development - A 6.86 mile 69 kV (69,000 volt) power line located on public, state and private land, would be constructed upon the completion of the proposed road. The proposed power line would tap the existing Utah Power 69 kV Helper-Columbia #1 power line near the intersection of the proposed road with State Road 123. Construction within a 100 foot wide ROW adjacent to the proposed road ROW would be conducted by ground crews using tracked and/or rubber tire vehicles. Specific steps to complete the power line includes pole placement, crossarm assembly, line suspension and tension, installation of a switching station at the tap point, and metering station and substation within the area of the proposed mine surface facility. Upon completion of the line, the operational ROW would be minimized to 80 feet. The proposed route of the power line and associated facilities are shown on PLATE II. Total power line ROW acreage upon public and state land is shown in TABLE II-2.

TABLE II-2

OWNERSHIP SUMMARY OF LAND AFFECTED BY PROPOSED POWER LINE

Ownership	Miles	Acres - 100' ROW (Construction)	Acres - 80' ROW (Operation)
BLM	5.78	70.00	56.00
State of Utah	0.45	5.48	4.38
Private	0.83	10.04	8.03
TOTAL	7.06 Miles	85.52 Acres	68.41 Acres

The power line would require the establishment of approximately 95 pole sites. Pole types would be

single "C2T" and "HPS" structures, double "ES" structures, and triple "C3P" structures (FIGURE II-3, II-4, II-5, and II-6). Structures would be constructed using wood poles, with heights ranging from 60 to 80 feet. All features of the line hardware (insulators, wire, poles) would be non-reflective and designed to be raptor-safe, as described by the Raptor Research Foundation in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996.

No access roads would be created during the construction, operation or maintenance of the proposed power line. Access for all phases of the power line would be gained by the existing roads within the area. Where accessible, rubber tired construction/maintenance vehicles would travel perpendicular from the road or trail to each pole location. Helicopter placement of poles could be implemented in areas of restricted access. The specific area identified for potential helicopter access would be upon public land along the steep, rocky slope below the proposed mine surface facility in S.L.B.& M., T. 14 S., R. 13 E., Section 15.

The proposed power line has been designed to minimize the number of employees necessary to maintain its length. Maintenance of the line and associated operational facilities would be on an as-needed/emergency basis. Maintenance access would be along established roads by 4x4 vehicle or snow machine and within the 80 foot operational ROW. Inaccessible areas would be maintained by foot and/or helicopter. The proposed power line would be compatible with the other ROW's. Throughout most of its length, the power line would be adjacent to the proposed ROW for the C Canyon Road. However, no interference with this line or any other line within the area would be anticipated.

The staging areas identified for the proposed road (PLATE II) would be utilized for equipment and material storage and assembly, due to their location to State Road 123 and their proximity to the proposed facilities and power line ROW's. During construction, these areas may be used as a helipad for helicopter access. The construction vehicles to be used would include two line trucks, two bucket trucks, a wire trailer, a pole trailer, and a crew truck. A crew consisting of 12 individuals and a line truck with an auger attachment would be used to dig the holes within accessible areas along the ROW. Holes would be excavated to a depth of eight to 10 feet and 14 feet where anchor structures are required. In areas of limited access or areas of critical concern, the 20 foot boom on the line trucks could be used to auger holes. All holes would be located as to create as little disturbance as possible. Pole location can be moved up to 24 inches within the ROW if topography and/or an identifiable impact to cultural, vegetation or wildlife resources are present at the site of the structure.

Poles would be transported to the site by truck, where the structure components (cross pieces and insulators) would be assembled on the ground and erected by a truck-mounted crane. A helicopter could be used to set and string preassembled structural components in areas of limited access. In areas of thick vegetation and/or where vegetation may impede the performance of the active line, vegetation would be cleared by hand-held chainsaws. This cut vegetation would be stockpiled and used later to scatter over any reclaimed areas to provide solar protection on newly revegetated sites.

When the structures are in place, the conductor would be strung. A sock line would be laid along the route by hand and light vehicle, and/or by helicopter. Ground crews would place the sock line in pulleys on each structure at the insulator location. The conductor would then be pulled up by the

pulleys and through the insulator with the assistance of a reel truck, or by hand, before moving to the next pole location. Wire stringing lengths for this project would be limited to 2.5 miles between pull sites due to the numerous angles, terrain, and inability of the wire pulling equipment to pull the conductor into place. Several locations along the proposed power line route would be utilized as pull sites during stringing activities. These pull sites, approximately 0.25 acres in size, would be situated within the power line ROW.

In areas where topography and access inhibits conventional power line construction, helicopters could be used to set the structure and string the conductor. This would help to ensure the environmental quality of the area surrounding the proposed power line without excessive disturbance of resources due to construction of access roads and the removal of vegetation along the ROW. Helicopter use would occur after any raptor nest use periods.

A switching station may be installed where the proposed power line would tap the existing power line. Location of the switching station would be located on a 200 foot by 200 foot area adjacent to the proposed road and existing power line on private land.

Water Line - Upon completion of the proposed road, an 8.28 mile water line, crossing public, state and private land would be constructed by East Carbon and WEST RIDGE to serve the culinary water needs of the proposed mine surface facility. The line would utilize six and eight-inch ductile iron pipe and, though designed to carry up to 150 gallons of water per minute (gpm), would provide for an average of 75 gpm to the proposed mine surface facility. Approximately 0.7 miles of the proposed line would be an eight-inch line constructed by East Carbon City. East Carbon City would tap the existing line at Mile Post 7.5, and construct the line within the ROW of State Road 123. Upon construction of 0.7 miles of the eight-inch line, the proposed line would cross under State Road 123 where the proposed line would be reduced to a six-inch line. From this point, the line would be constructed by WEST RIDGE and located adjacent to the existing state road ROW. The line would follow State Road 123 on private land for approximately one mile, before diverging to the north across private and public land to meet the ROW of the proposed road in T. 14 S., R. 13 E., Section 28, SW ¼ NW ¼.

On lands where the proposed line would create new disturbance, a 25 foot construction ROW would be utilized and minimized to a 10 foot operational ROW. A 10 foot construction and operational ROW would be utilized where the line would be located within the proposed ROW of the road. The line would be placed at a minimum of five feet from the paved surface of the road. TABLE II-3 is an overview of the ownership and acreage of lands associated with the proposed water line.

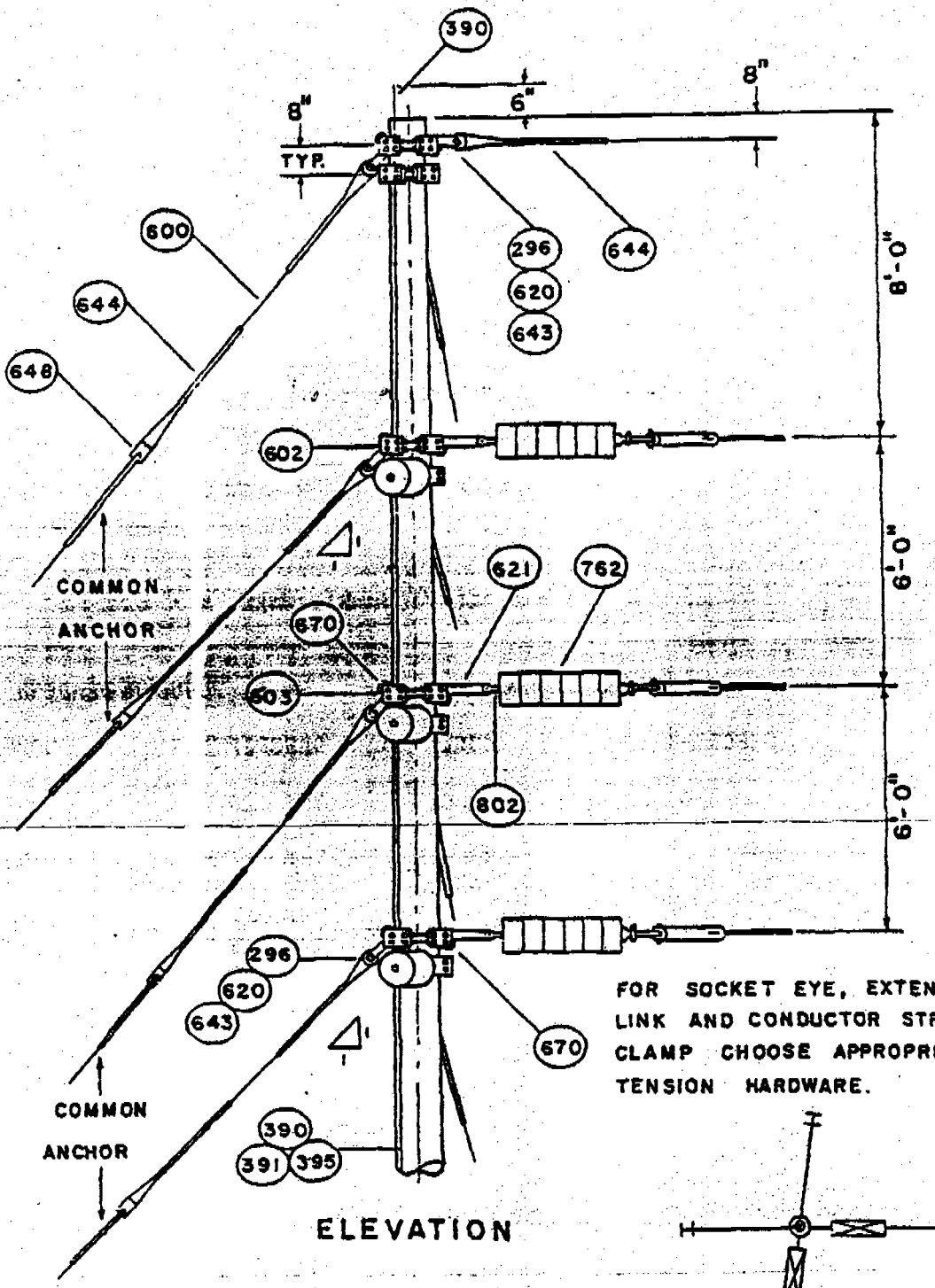
TRANSMISSION
23 JUNE 1978

UTAH POWER & LIGHT CO.

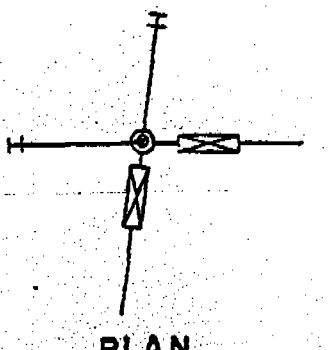
C2T 46 AND 69 KV STRUCTURE

(6 INSULATORS PER STRING)

MODULE 304611



FOR SOCKET EYE, EXTENSION LINK AND CONDUCTOR STRAIN CLAMP CHOOSE APPROPRIATE TENSION HARDWARE.



NOTE:

POLE GROUND WIRE TO BE CLIPPED TO POLE AT 2'-0" INTERVALS AND BONDED TO ALL POLE BANDS.

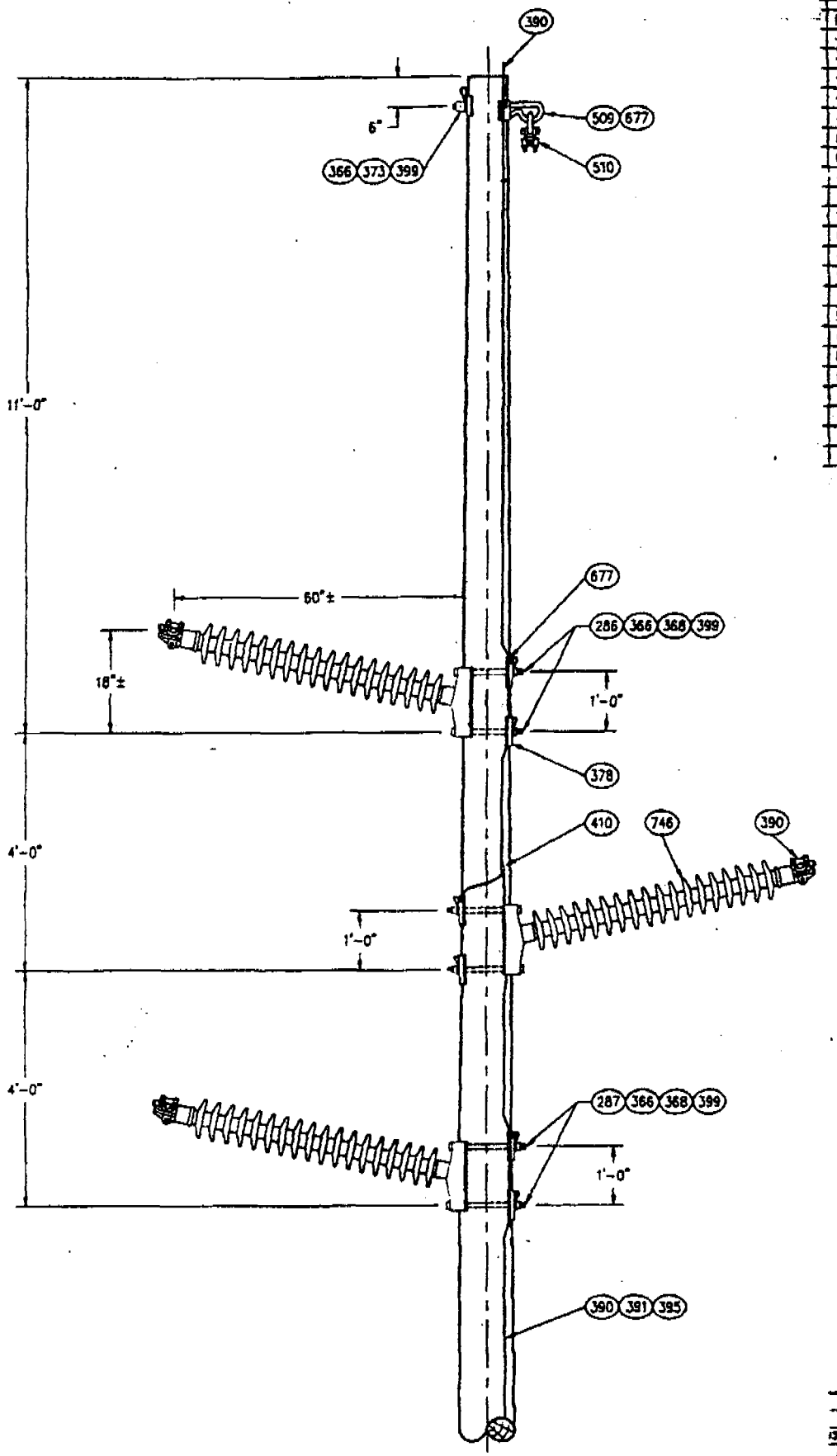
REVISIONS - GENERAL
4-29-83
SUPVR. TRANS. LINES ENG
APPROVED
DRAWN BY
CHECKED BY
CORRECT

FIGURE II-3

BILL OF MATERIALS

DESCRIPTION	STOC
POLE	
¾" X 16" MACHINE BOLTS	62
¾" X 18" MACHINE BOLTS	62
¾" SPRING WASHERS	62
¾" GALVANIZED NUTS	62
4" SQUARE CURVED WASHER	62
6" SQUARE CURVED WASHERS	15
GROUNDWIRE	45
GROUNDWIRE CLIPS	61
1½" STAPLES	50
10d GALVANIZED NAILS	50
COPPER BUTT PLATE	15
¾" LOCKNUTS	62
CABELOK CRIMPITS	46
¾" X 12" SHIELDWIRE BOLT	15
SUSPENSION CLAMP (SW) (IRON 0.2" TO 0.46")	64
GROUNDING CLIPS	15
HORIZONTAL POST INSULATORS	58
CLAMP TOP CLAMPS	AS S

14 CC



May be used in raptor areas

"HPS" RAPTOR SAFE
46/69 KV STRUCTURE
(POLYMER INSULATORS)

PACIFICORP TRANSMISSION ENGI

SCALE:NONE | SHEET 1 OF 1 | 00C41T

FIGURE II-4

TRANSMISSION

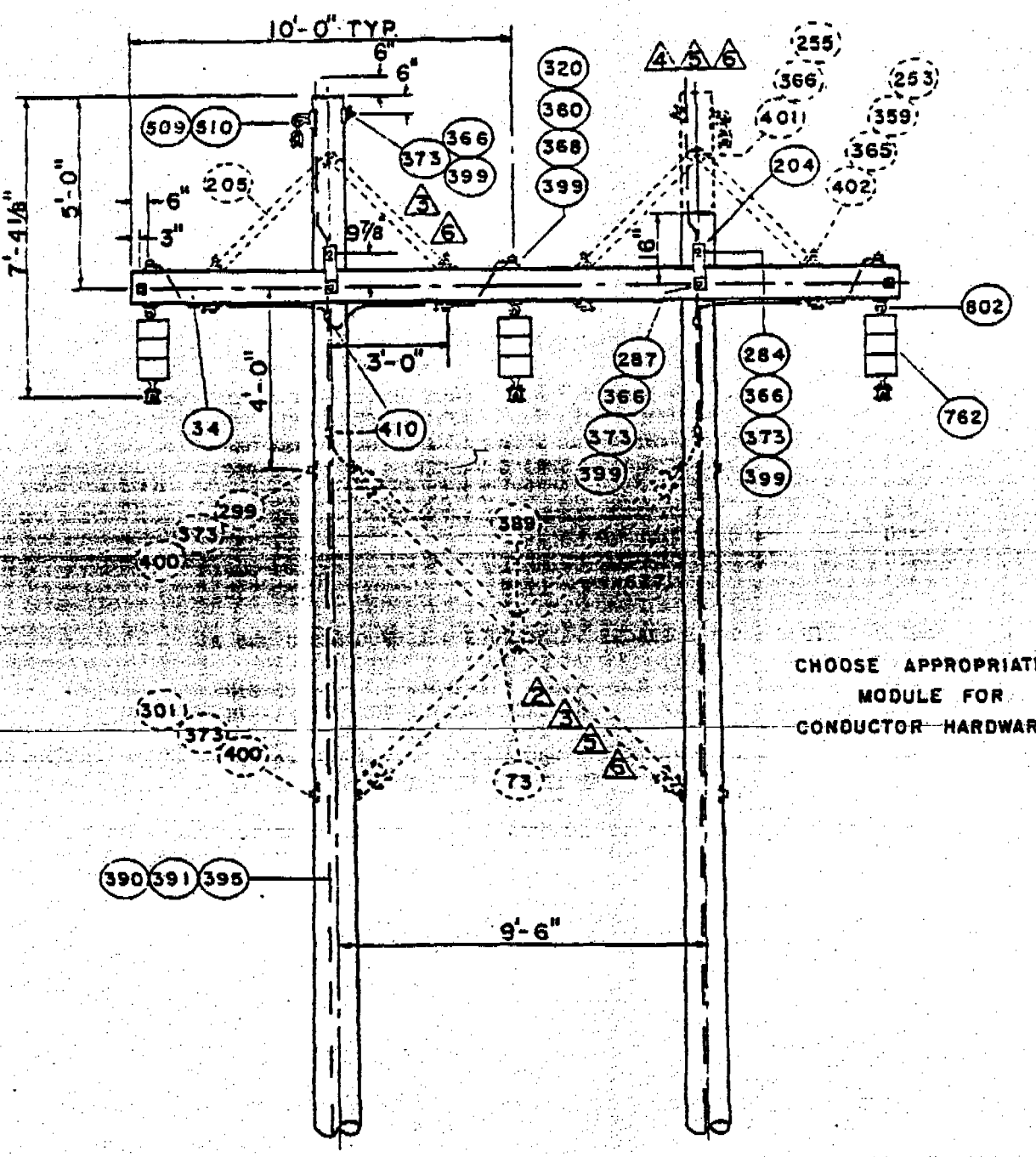
23 JUNE 1978

UTAH POWER & LIGHT CO.

ES 46 KV STRUCTURE*

(3 INSULATORS PER STRING)

1 SHIELD WIRE		2 SHIELD WIRES	
CASE 1	MODULE 304615	CASE 4	MODULE 304618
CASE 2	MODULE 304616 X-BRACE	CASE 5	MODULE 304619 X-BRACE
CASE 3	MODULE 304617 X-BRACE & V-BRACES	CASE 6	MODULE 304620 X-BRACE & V-BRACES



*FOR 69 KV STRUCTURE SEE NEXT PAGE.

NOTE: POLE GROUND WIRE TO BE CLIPPED TO POLE AT 2'-0" INTERVALS AND BONDED TO SHIELD WIRE BRACKET AND ALL THRU BOLTS.

GROUND ALL CROSSARM HARDWARE USING EXTRA NUT AS SHOWN.

5-4-83 REVISIONS - GENERAL

SUPVR TRANS LINES ENG

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FIGURE II-5

TRANSMISSION
17 MAR.1980

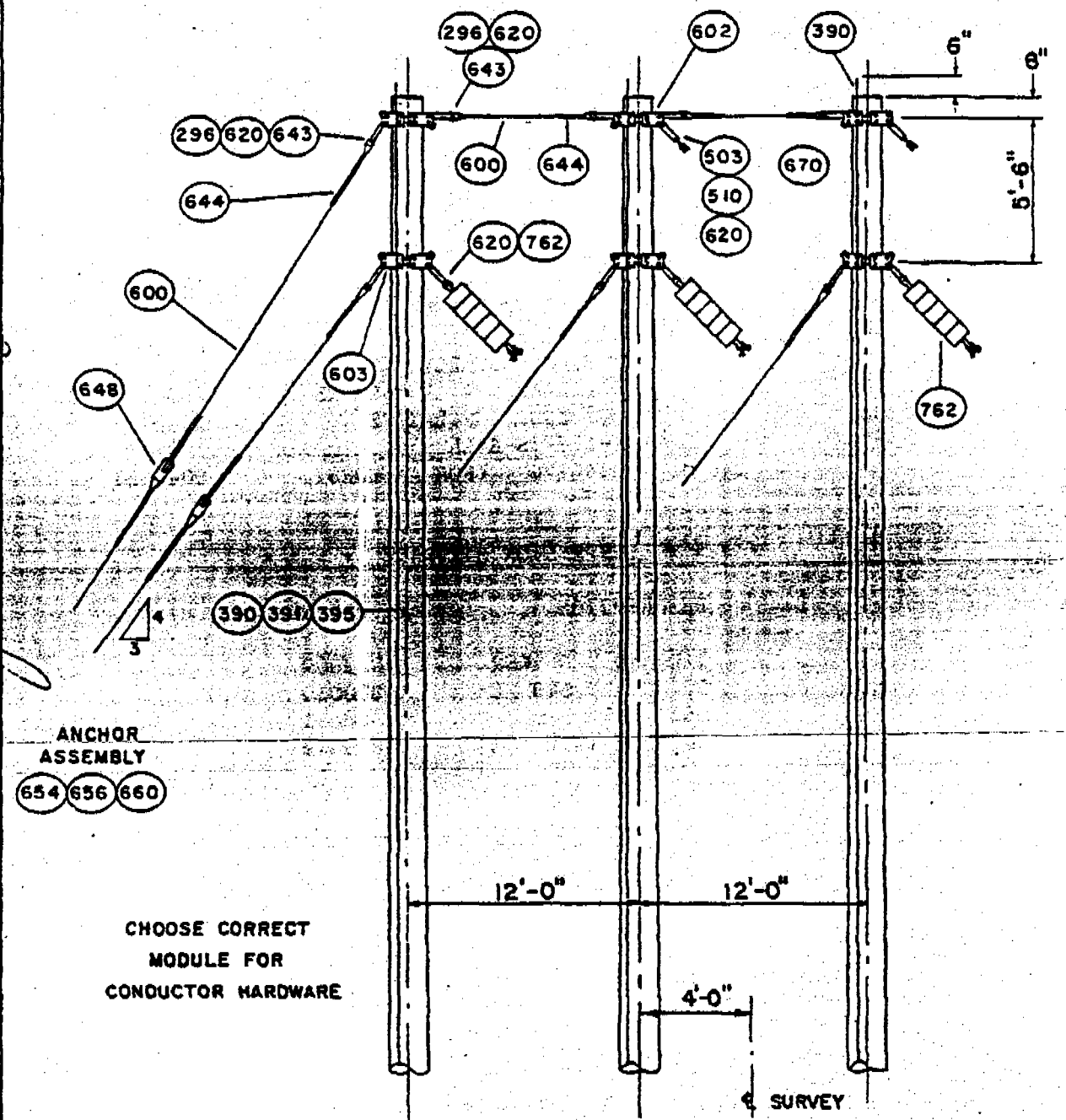
UTAH POWER & LIGHT COMPANY

C3P

46 & 69 K.V. STRUCTURE

MODULE 304624

(5 INSULATORS PER STRING)



CHOOSE CORRECT MODULE FOR CONDUCTOR HARDWARE

NOTE: GROUND WIRE TO BE CLIPPED TO POLE AT 2'-0" INTERVALS AND BONDED TO POLE BANDS.

APPROVED:

SUPVR. TRANS. LINES ENG.

5-3-83 REVISIONS - GENERAL

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CORRECT

FIGURE II-6

TABLE II-3

OWNERSHIP SUMMARY OF LAND AFFECTED BY PROPOSED WATER LINE

Ownership	Miles	Acres - 25/10' ROW (Construction)	Acres - 10' ROW (Operational)
BLM	4.83	7.34	5.85
State of Utah	1.10	1.98	1.33
UDOT	0.79	0.96	0.96
Private	1.56	4.73	1.89
TOTAL	8.28 Miles	15.01 Acres	10.03 Acres*

- No Surface Operational Surface Disturbance Anticipated

Construction crews would utilize a track hoe, back hoe, or other trenching equipment to excavate a two foot wide, four foot deep trench. Where new disturbance would occur, topsoil would be stripped to a depth of six inches and sidecast into a berm paralleling the trench for use during reclamation. Subsoil material removed from the trench would be stored separately from the topsoil. Crews would work in tandem during trenching and line assembly. Upon completion of assembly and placement of the line in the trench, crews would cover the line with the excavated subsoil and replace the stored topsoil. The area would then be revegetated with the appropriate seed mix and vegetation plan approved by the BLM and private landowner. No surface access roads would be left in place within the 10 foot operational ROW.

In order to lift the required volume of water to the mine, two 40 horsepower electric pump stations would be located adjacent to the water line and road. Two, 100 foot by 100 foot areas between the operational ROW's of the road and power line would be located in NW ¼ SW ¼ of Section 29 and the SW ¼ SW ¼ of Section 15. Sizing of these pads would allow for the siting of the pump house adjacent to the power line without the creation of an additional ROW for access. Construction crews would clear the immediate location of the 16 foot by 13 foot pump house using crawler tractors or graders. A 100 foot dirt access road within a 10 foot ROW would then be graded laterally from the proposed C Canyon road to each pump house. The pump houses would be constructed of cast-in-place concrete to minimize vandalism and painted with an approved BLM color to minimize visual impact. The pump houses would be heated and cooled to maintain the efficient operation of the pumps throughout the year. An above ground power line, approximately 100 feet in length, would tap the adjacent proposed power line at each pump house location. Pole mounted substations would be constructed within the pump house areas to convert the three phase power of the 69 kV line to single phase for use by the pumps.

Development of the West Ridge Mine - Upon completion of the proposed road, construction would commence on the surface facilities associated with the development of the West Ridge Mine within the lease modification area. The proposed surface disturbance area is shown on PLATE II-O. This plate depicts the maximum potential disturbance around the facilities that would be used for the life of the mine. The proposed maximum disturbance area amounts to approximately 29 acre and would

be composed of the anticipated on-the-ground disturbance (projected at about 25 acres) plus extra undisturbed buffer acreage around the perimeter of the facility. The proposed disturbed area would be the total disturbance needed for the life of the mine and would be reclaimed following the completion of underground mining activities.

Surface structures and facilities for the West Ridge Mine, an underground mine, would be constructed in C Canyon near the fork in the canyon within a proposed 80 acre lease modification area located at T. 14 S., R. 13 E., Section 10, SE ¼ SE ¼ and Section 15, NE ¼ NE ¼ (PLATE II and PLATE II-O). As described, the actual surface disturbance associated with the mine development would not exceed 29 acres. Therefore, approximately 55 acres of the lease modification area would remain undisturbed for the life of the mine. The function of the surface facility area would be to provide for mine access, mine ventilation, coal storage, coal loading, warehousing, offices, and the bathhouse.

WEST RIDGE is currently within the permit review process of a Mine and Reclamation Permit Application (MRP) for their Utah Division of Oil, Gas and Mining (UDOGM). This permit application with the UDOGM requires that all proposed mine and mining activities be described in full detail in relation to legal issues and bonding, as well as engineering and how it relates to soils, biology, land use, geology, and hydrology. In association with the proposed WEST RIDGE engineering actions, mitigation as recommended by the UDOGM in the form of operational stipulations and creation of successful reclamation procedures upon the cessation of mine operations have been incorporated into each resource discussion within the MRP. Therefore, each action as proposed within this EA has taken into consideration the various resources present and UDOGM requirements to minimize impacts to them. Actions as described within this EA have been summarized from the detailed WEST RIDGE MRP analysis.

The mine site surface facilities would be located in C Canyon where the Lower Sunnyside coal seam outcrops to the surface. Because of the narrowness of the canyon in this area, surface facilities would be confined to a narrow strip along the bottom of the canyon. Suitable surface area for the mine site would be created by constructing a series of earthen pads within the canyon bottom. This would be accomplished by hauling in fill material and by leveling out the area in the bottom of the canyon drainage. The average gradient of C Canyon in the mine site area is approximately 6.4 percent. Therefore, the mine pads would be constructed up through the canyon in a stair step manner. Each individual pad level would be dedicated to a specific function as part of the overall mine site operation. Access roads would connect the various pad levels with one another.

The proposed mine site is located in an area where the main canyon branches into two forks. For simplicity, the mine site can be delineated into four distinct areas: the area located within the left fork (left fork); the area located within the right fork (right fork); the area located within the main canyon south of the forks (main canyon); and the area where the main canyon and the two forks converge (confluence). These terms (right fork, left fork, main canyon and confluence) will be used during the remainder of this discussion to refer generally to these respective areas. The mine office, parking lot and a series of sediment ponds would be located within the main canyon. The proposed road which provides access to the mine site would enter the mine yard in this area. The truck loop and truck loadout would be located within the confluence area. The left fork would contain the crusher

building, the coal storage pile and a topsoil storage area. The right fork would contain the employee parking area, bath house, substation, portal area, shop/warehouse material storage area and a topsoil storage area.

As part of the overall mine site development plan, certain major construction tasks must be accomplished in a prescribed manner. Most of these construction tasks are common to many, if not all of the area described above. The following tasks are listed in order in which they would generally be expected to occur within any given area of the mine site. However, in practice many of these construction tasks would be occurring simultaneously, but at different areas, throughout the mine site. This is attributable to the fact that the mine site construction would be done over a long narrow stretch of the canyon bottom. Most construction tasks would begin at the lower, down-canyon end of the mine yard and proceed up canyon. As primary initial tasks are completed at the lower reaches of the site, secondary tasks can begin even though the primary tasks may not yet be completed in the upper reaches of the site. A more detailed construction and reclamation plan, as prepared by WEST RIDGE for their MRP is included as APPENDIX E.

The following discussion assumes that topsoil in certain areas of the C Canyon mine surface facility would be protected in place for the life of the mine. This would be an experimental practice subject to the Office of Surface Mining (OSM) as part of the permitting process. If this experimental practice is not approved, then all topsoil would be salvaged and stockpiled in the conventional manner.

Clearing and Grubbing - One of the earlier phases of construction would involve the removal of all trees and shrubs from the mine site area. Prior to harvesting of large commercially valuable trees, a BLM timber appraisal would be conducted to determine the value of these resources. WEST RIDGE would then reimburse the BLM for the value of these trees. Smaller pinyon and juniper trees would be cleared and transported to an off-site green wood storage area for public fuel harvesting use. Shrubs and all other slash material would be buried in a controlled manner within the pad fill in non-structural areas such as the coal storage pad in the left fork and the material storage area in the right fork. In order to avoid compaction complications, slash would be buried away from the bypass culvert which would be installed in the bottom of the existing drainage.

Installation of the Bypass Culvert - The initial phase of construction would involve installation of the undisturbed drainage culvert (bypass culvert). This culvert would be installed within approximately 1.11 miles of the existing channel and side drainages and designed to carry the natural canyon drainage underneath the mine site. This culvert system allows the natural drainage to "bypass" the disturbed area of the mine site. This separation also would allow the disturbed area drainage to report to sediment control features on the surface, thereby preventing intermingling with the natural undisturbed drainage flowing through the bypass culvert.

Prior to culvert installation the channel bottom would first be prepared. A backhoe would be used to smooth out and grade the channel bottom. Large boulders would be moved aside and irregularities (humps, bumps and depressions within the channel bottom) filled in utilizing native materials. Where needed, a thin layer of bedding material (imported crushed eight inch

borrow) may be laid in the channel bottom to aid in culvert installation. In areas of pronounced grade breaks additional bedding material may be required to provide an adequate vertical alignment for the culvert. In other areas where the existing channel is already smooth and uniform, no bedding material may be required. To the maximum extent possible the alignment of the bypass culvert installation would closely follow the existing stream channel. Culvert angle-joints would be pre-engineered and pre-fabricated to insure that the existing channel alignment can be followed as closely as possible.

Boulders would be removed from the culvert path and relocated up along the flanks of the channel. In this location the boulders would be in convenient proximity to be repositioned back into the stream channel upon final reclamation to replicate the pre-existing pre-mining geomorphology of the channel. Trees and shrubs would be removed from the channel prior to culvert installation. In areas where topsoil resources are located within and along the banks of the existing channel, trees and shrubs would be cut off about six to eight inches above the ground surface. Stumps and roots would be left in place to help stabilize the existing soil and the existing channel configuration.

After the channel has been readied for culvert installation (i.e., graded, bedding material placed, boulders removed and vegetation removed) the culvert would then be installed. The typical pre-culverted channel would be about 10 to12 feet wide across the bottom and would have natural 2:1 sideslopes. Before the culvert is installed in topsoil areas, the channel bottom would first be lined with a geotextile fabric placed across the full width of the channel and extending up the side banks at least five feet on either side of the channel. The purpose of the geotextile would be to provide a separation barrier to protect the channel and the stream bank topsoil, and to preserve it in its natural condition prior to being filled over during subsequent construction of the mine pads. This would help ensure that upon final reclamation the channel morphology could be adequately restored.

After the geotextile has been placed through the prepared channel, the culvert would then be installed on top of it. As explained earlier, the culvert alignment would closely follow the existing channel alignment. However, in a few selected areas the culvert alignment would be shifted slightly to accommodate important surface structures, such as the mine fan and the substation. After the culvert has been laid in place, it would immediately be back filled using the same imported eight-inch fill material that was used for the bedding. Vertical risers would be installed at various locations along the length of the culvert to aid in hydraulic venting and to serve as access for inspection and maintenance. After the culvert has been backfilled and compacted, the area over the top of the culvert could be used as an access way for machinery and material involved in the remainder of the site construction.

Construction of the Sediment Ponds - Once the culvert installation has progressed beyond the location of the sediment ponds, construction of the initial sediment ponds would commence. The sediment pond actually consists of three individual smaller ponds or cells. Each of these cells would be constructed in the bottom of the canyon directly over top of the bypass culvert. The lower pond (Cell C) would be constructed first, after the bypass culvert has been installed through that area. As construction of the culvert continues upstream the

remaining two pond cells would be installed in sequence. In this manner the sediment ponds would be installed as early as possible in the construction schedule. These ponds would then be in place for the entirety of the remaining construction activities and would provide maximum sediment control for the rest of the project.

The three-tiered multi-cell pond arrangement would be well suited to the steep gradient and narrow confines of the canyon. The ponds would be constructed in a cascading arrangement whereby most mine site disturbed area drainage would report initially to the uppermost pond. If the upper pond fills to capacity, excess runoff would report to the middle pond through an open channel spillway located between the ponds. If the second pond fills to capacity, the excess run-off would then report to the third and lowermost pond. The combined capacity of the three-celled pond would be well in excess of the 10 year, 24 hour precipitation event requirements. However, if the total pond capacity was exceeded, the over flow from the third pond would exit through a riser-type culvert primary spillway equipped with an oil skimmer. This riser spillway would lead directly to the main bypass culvert located below the sediment ponds. One advantage of the multi celled pond is that most sediment would tend to collect in the upper pond. This would greatly simplify sediment monitoring and clean out. The three-cell arrangement would also preclude the possibility of short-circuiting and simplify the process of decanting the pond in a manner that meets Utah Nonpoint Discharge Effluent Source (UNPDES) requirements.

All open channel spillways would be constructed to pass the 10 year, 24 hour storm event. Spillways would be lined with concrete or grouted rip rap, and have a bottom width of five feet; a freeboard depth of two feet; and 2:1 sideslopes. The lower pond would also be equipped with an open channel emergency spillway capable of handling a 25 year, 6 hour storm event. Rip rap would be installed at the outlet of all open channel spillways to protect the earthen structures from erosional forces.

Topsoil Removal, Salvage and Stockpiling - Within the mine site there are sideslope areas where topsoil presently exists. In these areas the topsoil resource would be carefully removed and stockpiled before any additional excavation continues. All topsoil salvaging would be completed under the direction of a soil scientist. Based on the soil surveys completed in this area, up to 24 inches of topsoil may exist in these areas which could be salvaged. Topsoil in these areas would be salvaged with backhoes, trackhoes and/or small front end loaders and hauled by dump trucks to the designated topsoil storage areas. If the topsoil depth in these areas averages 18 inches, as much as 6,506 cubic yards of topsoil could be available to be salvaged and stockpiled. All topsoil areas would be bermed and revegetated to ensure their stability.

Two topsoil storage areas are being proposed: one at the upper end of the material storage area in the right fork, the other at the upper end of the coal storage pad in the left fork. The right fork area would be the primary storage area. The left fork storage area would be utilized if needed in the event that the right fork area was filled to capacity and additional storage area was required. The left fork storage area may also be utilized if separate and segregated stockpiles are needed to maintain the integrity and identity of the individual soil

types present at the site for future reclamation.

An alternative 20 acre topsoil borrow area adjacent to the proposed road borrow area in T. 14 S., R. 13 E., Section 16, NE ¼ SE ¼ may be used to meet the reclamation standards of the proposed mine surface facility (PLATE II). This area would remain undisturbed for the life of the project and would be utilized only in the event that salvaged and stockpiled topsoil was not adequate for UDOGM reclamation success. Correspondence and permit applications associated with this site to the USITLA are included in APPENDIX B.

Face Up of Coal Seam/Preparation of Portal - As soon as possible after construction begins, the coal seam would be faced up and the portal area excavated. The portals would be located on the southeast side of canyon within the right fork. Prior to facing up the portals, the area would be cleared and grubbed, and topsoil salvaged. The extent of coal seam weathering and/or burn would dictate the extent of the pad site needed to access the solid coal face for the purpose of installing the portals. The pad would be constructed long enough to accommodate at least four portal openings (fan, belt, two intakes), while minimizing the cut face height. Minimizing the extent of the cut face is an important consideration not only in the initial mine development but also and even more so for final reclamation. The portal pad would be constructed and stabilized as necessary to conform to the safety requirements of MSHA. In order to achieve minimum disturbance of the canyon side slope, the portal pad would be cut into the solid rock as steeply as possible while still maintaining the necessary long term structural stability.

Construction of Earthen Pad and Access Roads - According to computer models of the mine site earthwork, approximately 100,000 cubic yards of borrow would have to be imported to achieve the proposed mine yard configuration. This material would be crushed to an eight inch product before being delivered to the site. Fill material, imported to the site from a commercial borrow site, would be chemically and physically similar to the native materials existing at the mine site.

Fill would be placed in 18 to 24 inch lifts and compacted to a minimum 90 percent density for nonstructural areas, and to 95 percent density in structural areas. Nonstructural areas include parking lots, material storage areas and coal storage areas. Structural areas include all areas under buildings, conveyor belts, substation, backfilled areas around culverts and reclaim tunnels, roadways, mine fan and reinforced earth retaining walls. Experience has shown that this material can usually exceed 95 percent compaction using standard wheel rolling methods, although vibratory compaction would be used in critical structural areas. All earthwork would be required to meet a minimum of 4000 pounds per square foot (psf) load-bearing capacity. Construction emphasis and priority would be given to those pad levels that are designed to accommodate key structural elements of the surface facilities. These include the pad levels associated with the coal pile reclaim system, the substation, the elevated conveyor gallery, bath house, and shop/warehouse building.

Although most of the pad levels would be constructed by filling the area with imported borrow, some pad construction would involve cutting into the existing side slopes. Under

normal construction situations sideslope cuts would be minimal, and would not usually extend up-slope more than about 20 feet above the completed pad level. The primary purpose of the sideslope cuts is not to generate fill volumes, but rather to provide uniform yard boundaries for proper alignment of ditches, roads, buildings and other peripheral structures. Cut slopes area would also be necessary to predefine the limits of the pads for the purpose of layout and engineering design. Clear slopes would also be needed to assure long term site maintenance. In order to meet the objective of yard limit definition, the slopes in some areas may actually be constructed by placing fill against the sides slopes rather than cutting into the existing hillside.

Before any slope cuts are made, topsoil would first be salvaged and stockpiled. After the topsoil has been removed and protected as described previously for topsoil stockpiling, the substrate material would be excavated. Cut material would be incorporated into the pad fill along with the imported fill material. Sideslope cuts may be greater in some selected area where pre-engineered design parameters dictate. These areas include roadways, portal highway, conveyor runs and various building sites.

Installation of Drainage Controls - As previously stated, the sediment pond would be constructed as early as possible in order to provide maximum sediment control during the term of the construction project. Once the pad levels are constructed, along with the interconnecting roadways, drainage control ditches and culverts would be constructed and culverts installed. Disturbed area ditches and culverts would be designed to handle a 10 year, 24 hour storm event. Where necessary, ditches would be lined with concrete or rip rap to prevent erosion where velocities are expected to exceed five feet per second (fps). Culvert inlets would be designed to provide adequate freeboard for design flows; outlets would be rip rapped where necessary to prevent scouring.

Construction of Coal Handling and Associated Facilities - Construction of the coal handling facilities would be scheduled to allow the mine to get into full production as quickly as possible. The underground mining operation cannot function smoothly until the elevated conveyor gallery and discharge structure are fully operational. On the other hand, the mine conveyor cannot become fully operational until the mine working area is developed far enough underground from the portals to allow the conveyor to be extended into the mine works and become an integral working part of the continuous miner production section. Once the initial mine works have begun, connected up underground with crosscuts, the conveyor can then become operational.

Other integral components of the coal handling facilities necessary for full production include the coal reclaim tunnel, crusher building, truck loadout and interconnecting conveyors. Only after this system is completely operational, can mine development and coal production begin in earnest. Other important structures necessary for full-scale mine surface production include the main substation, the water delivery system, and the mine ventilation fan.

After the critical path coal handling facilities and mine development structures are fully operational and the underground mine development is proceeding on course, full attention

would be focused on completing the ancillary surface facilities. Once the permanent structures are finished, the temporary accommodations used during construction can be removed from the site.

Buildings to be constructed at the mine site include: an administrative office, a shop/warehouse building, and a bathhouse/lamphouse building. The shop/warehouse would be used to repair and store mine equipment and supplies. The yard area around these buildings would be used for additional outside storage and parking. The bathhouse and office buildings would be sized to accommodate a workforce of approximately 130 people.

PLATE II-O is an overview of the mine surface facility. The following facilities would be constructed in conjunction with the mining operation:

- Administration Office - The main office would be a framed building measuring approximately 40 feet wide by 60 feet long. It would handle the administrative functions such as accounting, engineering, payroll, marketing and management. The main office would be located on a dedicated pad at the lower (southernmost) extent of the mine yard. Parking would be made available in the area adjacent to the main office.

- Mine Fan - The mine fan would be located at the return air portal. It would be a 12 foot diameter, direct drive, 1,000 horsepower (hp), axial vane exhausting type fan. The fan housing would include airlock travel doors for machinery and personnel. The exhaust duct work would be equipped with acoustical sound-proofing material to keep noise levels at a minimum.

- Bathhouse/Lamphouse - The bathhouse building would be a pre-fabricated metal structure measuring approximately 40 feet wide by 120 feet long. It would be located in the central part of the mine yard in convenient proximity to the mine portals. An employee parking lot would be located nearby. The bathhouse would be sized to accommodate the anticipated workforce of about 130 employees. Located at one end of the bathhouse building would be the lamphouse and the offices for the mine supervisory personnel.

- Shop/Warehouse - The shop/warehouse building would be a pre-fabricated metal structure measuring approximately 60 feet wide by 160 feet long. It would be located in the northern part of the mine yard conveniently adjacent to the mine portals. A storage area for materials and supplies would be located nearby, as would be the fuel storage, rock dust storage and garbage repository (dumpster) facilities.

- Coal Stockpiling Facilities - Coal would be brought out of the mine and delivered to the surface via a 2,000 ton per hour, 60 inch wide mine conveyor belt. The mine conveyor would exit out of a portal located about 40 feet high on the east side of the right fork of C Canyon. Even though the mine portals are located in the right fork, the run of mine coal would be stockpiled in a storage area located in the left fork.

Coal would be transported from the right fork portals to the left fork stockpile by an 800 foot long, elevated overland conveyor gallery. This 2,000 ton per hour, 60 inch wide conveyor would be covered and supported along a series of box truss galleries, elevated approximately 50 to 60 feet above the right fork mine yard. These conveyor truss galleries would be supported by several two-legged steel bents spaced approximately 120 feet apart. After crossing the point that separates the right and left forks, the conveyor would terminate at a cantilevered discharge structure at a location above the coal stockpile area in the left fork. A conical coal pile would be built directly below the discharge structure. The pile would be about 80 feet high at full capacity and contain about 30,000 tons of coal. Additional storage can be obtained by pushing the pile northward onto the coal storage pad extending up the left fork.

- Coal Reclaiming Facilities - A 13 foot diameter multi-plate reclaim tunnel would be located below (underneath) the coal pile. Two reclaim draw down ports located at the end of the tunnel would allow coal to be reclaimed from the bottom of the pile directly onto a 54 inch reclaim conveyor located within the tunnel. Each reclaim port would contain a pile activator, a hydraulically operated single bladed shut-off gate, and a discharge chute leading to the reclaim conveyor. Each port would be capable of loading the reclaim conveyor at a full capacity of approximately 1,400 tons per hour. Once the coal has been loaded onto the reclaim conveyor, it would then be transported out from underneath the pile. The reclaim conveyor would bring the coal out of the tunnel and transport it to a crushing/screening building.

  The crusher building would be an open steel structure containing a 40 hp, eight by 20 foot scalping screen which would remove all minus two inch coal ahead of the crusher. The plus two inch coal from the top screen deck would be fed to a 300 hp hammermill impact crusher where the coal would be reduced to a two inch product. All transfer points within the crusher building would utilize enclosed chute work to contain and control fugitive dust emissions. These transfer points include the transfer from the reclaim conveyor to the screen, the screen unders (minus two inch) to the loadout conveyor, the screen overs (plus two inch) to the crusher, and the crusher discharge (minus two inch) to the loadout conveyor.

  Within the crusher building would also be located a self cleaning tramp iron magnet (located at the reclaim conveyor discharge pulley ahead of the crusher), and an automated sampling system. The crusher building and the coal reclaim tunnel would be separated by a 25 foot wire reinforced earth wall. The crusher building would be located on a bench on the lower (down-canyon) side of the wall and positioned in such a manner that gravity flow would aid the movement of coal through the screening, crushing, and sampling operations.

  From the crusher building the crushed and screened two inch coal would then be loaded onto a covered 48 inch wide loadout conveyor operating at a rate of 1,400 tons per hour. The coal would then be transported to an automated truck loadout station. The truck loadout would be an elevated steel frame structure constructed

high enough to allow the trucks to be positioned under a contained chute during loading. Electronic sensors would determine when the truck is properly positioned under the chute. The feed conveyors (i.e., loadout conveyor and reclaim conveyor) would start and stop automatically to load the individual truck trailers with a predetermined amount of coal. Certified belt scales would be used to control the loading process.

The truck loadout would be located at the upper end of the truck loop. The loop would be long enough to accommodate up to four empty trucks in the queuing lane waiting to be loaded. After being loaded, the trucks would leave the mine site and haul the coal to a train loading facility located off-site. All conveyors would be covered and all conveyor transfer points would be enclosed.

- Electrical power - As previously mentioned as part of the proposed action, an overhead 69 KV power line would be installed to the mine. The proposed power line would terminate at a substation on the mine site. The mine substation would be located in the right fork below the portal bench. The substation would contain a 12 MVA 69 kV/12.5 kV transformer, along with various other electrical power control apparatus (air-break switches, visual disconnects, bussing, ground fault detection, vacuum circuit breakers, power factor capacitor banks, metering equipment, and a control room). From the secondary side of the substation, power would be distributed throughout the mine yard and to the underground workings at 12.5 kV. At various locations within the mine yard, the power would be routed through a set of 12.5 kV/4160 V/480 V transformer banks and motor control centers to operate the surface equipment. These combination transformer/motor control center units would be located at the crusher building, overhead conveyor drive station, mine fan, and shop/warehouse.

- Water Facilities - As previously mentioned as part of the proposed action, a water line from East Carbon City would be constructed to serve the culinary/potable requirements of the proposed mine. Water storage facilities (tanks) would be located on the surface to provide storage for usage and as pre-storage before being pumped into the mine to an underground storage sump for use in the mining operation. The surface storage tanks would be located above the bath house to provide sufficient static head (pressure) for yard distribution. Sewage from the administrative office and bathhouse would be treated by separate underground septic tanks and drain fields.

- Other Structures - Additional, smaller structures include miscellaneous storage sheds, pump house, above ground storage tanks (for fuel, water, and dust control chemicals), powder magazines, rock dust storage tanks and trash containment structures. All buildings and structures would be made of conventional construction materials including wood, masonry, or steel. Buildings would be color coordinated to blend in with the natural surroundings.

Potential Mitigation Areas - Two areas have been identified as potential sites for mitigation projects covering operational impacts associated with the proposed action. An area identified by the BLM as potentially addressing mitigation required for the anticipated wildlife impacts of the proposed action, would be located on public land at S.L.B.&M. T. 14 S., R. 13 E., Section 22 and 23 (FIGURE II-7). Mitigation activities associated with this area would include the hand planting of approximately 320 acres with 200 seedlings per acre. The species would be selected for their forage potential for area winter big game.

To address potential impacts to grazing use of the area, creation of water sources within the area could be constructed. This could either involve the use of the proposed water line, with a constructed tap line to access various troughs within the grazing use pastures, or construction of surface water collection ponds (PLATE IV). The approximate location of troughs would be T. 14 S., R. 13 E., Section 29, NE 1/4 NW 1/4, and Section 30, SW 1/4 SW 1/4.

To reduce the direct impact of the proposed undertaking on site 42CB-1184, a research design would be developed to analyze the adaptive lifeways of the people of early twentieth century rural Utah in general, and of the Clark Valley in particular. The research design would be multi-disciplinary in approach and involve not only analysis of material culture, but also utilize data from supplemental floral and faunal analysis to provide detailed information. A program of historical research, detailed mapping and controlled excavation would be used to implement the research design. Completion of the research would greatly increase the historical information available on historical homesteading in rural Utah. Findings from this detailed investigation would be used during the Section 106 of the National Historic Preservation Act (NRHP) consultation with the Utah State Historic Preservation Officer (USHPO) regarding these sites.

Though actual project impacts associated with the proposed action are to be determined within this document, either, both, or a combination of these mitigation projects would adequately address operational life of project impacts.

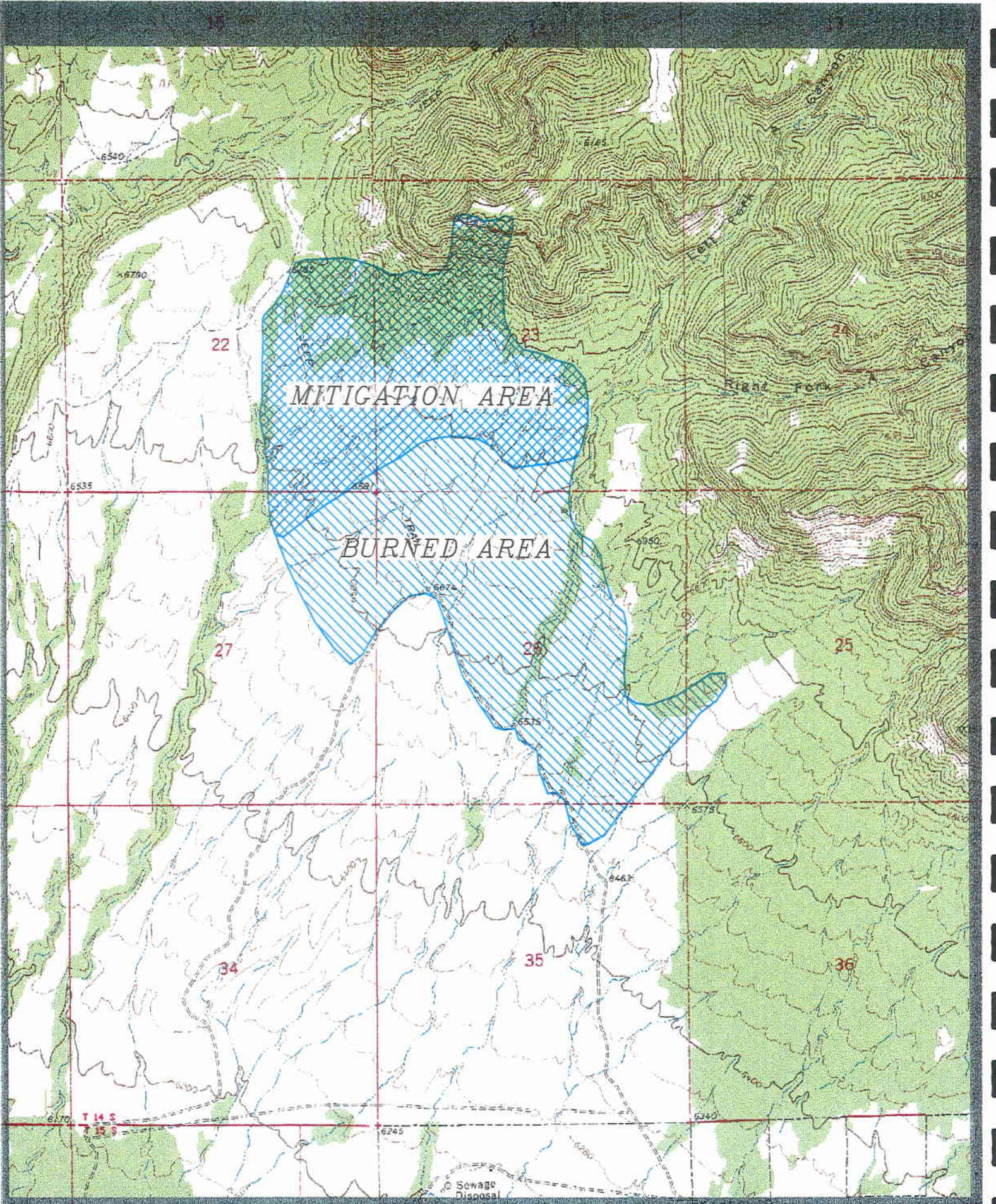

Figure II-7
BLM Mitigation Area
T 14 S, R 13 E, Sections 22, 23, 26

CONSTRUCTION SCHEDULE

Construction activities associated with the surface mine facility, power line, water line and telephone line/utility corridor would be conducted upon completion of the proposed road. Depending on various approvals being in place, construction on the proposed project could begin as early as June 1998 with an anticipated completion date of November 1999. Construction of the proposed road would begin in June 1998, with an anticipated completion in October 1998. Upon completion of the road and after the seasonal wildlife use period, construction of the proposed mine surface facility would commence in the spring of 1999, as would the construction of the power line, water line and underground telephone line. The power line and water line construction would commence mid-May 1999 and completed by September 1999, while the telephone line would be completed by July 1999. The mine surface facility as described would be completed by November 1999. A breakdown of activities is as follows:

June to September 1998

- Mobilization of earth moving equipment, temporary hydrologic controls constructed in drainages
- Clearing and removal of vegetation from road ROW
- Strip topsoil from borrow area and stockpile
- Excavation and construction of stream crossing
- Begin road grading, generate cut and fill needs

September to October 1998

- Begin paving and stripping associated with road
- Complete interim reclamation associated with road
- Remove interim sediment control
- Clean all construction debris from road site
- Demobilize all equipment used during road construction

October to November 1998

- Reclaim and reseed all disturbed areas associated with road - end year one construction

May to June 1999

- Begin year two construction, mobilize construction associated with mine surface facility, power line, water line, and telephone line
- Begin channel modification and soil protection associated with mine surface facility
- Excavate water line trench and power line pole sites
- Excavate phone line/utility corridor

June to July 1999

- Erect power poles, begin stringing line
- Construct and complete pumping stations
- Install and complete telephone line
- Begin ponds associated with mine surface facility

July to August 1999

- Complete hydrological controls (ponds, drainage channels, etc.) associated with mine surface facility
- Initiate cut and fill associated with mine surface facility

July to September 1999

- Begin construction of surface facilities associated with mine area
- Complete water line installation, complete associated reclamation
- Complete power line and substation construction

September to October 1999

- Complete coal handling facilities
- Begin interim mine surface facility stabilization
- Begin initial coal production

October to November 1999

- Complete reclamation of borrow sites and all other disturbed areas

STABILIZATION, MAINTENANCE AND OPERATION PLAN

Procedures that make up the following operation plan are designed to minimize and stabilize disturbances to resources present within the area of the proposed action during its construction, operation and maintenance. Construction activities as described for the mine surface facility were designed to minimize and stabilize disturbances associated with that portion of the proposed action. Support facilities would be operated and maintained in accordance with the permit issued for the West Ridge Mine and located, operated and maintained in a manner that prevents or controls erosion and siltation, water pollution and damage to public or private property. To the extent possible, the best technology currently available would be utilized to minimize damage to fish, wildlife, and related environmental values. The support facilities would be designed to minimize additional contributions of suspended solids to the stream flow or runoff outside the permit area and, should any contributions occur, such contributions will not be in excess of limitations of Utah or Federal law. A full description of the affected resources and impacts to them are described in CHAPTER III, AFFECTED ENVIRONMENT and CHAPTER IV, ENVIRONMENTAL CONSEQUENCES.

Soil disturbance during the construction of the road, water line and power line would be restricted to the ROW associated with each and to the borrow areas. Unauthorized cross-country vehicular travel by construction crews would be prohibited. Construction activities would be conducted to minimize erosion and in accordance with the natural topography where possible. Exposed areas resulting from construction and the excavation of the described sites would be stabilized using wood fiber mulch and tackifier with the approved BLM seed mix deemed to stabilize the slope and reduce erosion. On slopes exceeding 2:1, native shrubs with significant root structure may be hand planted on a 10 foot spacing.

In order to minimize watershed and erosion damage during wet or muddy periods, access to the

ROW's and mine construction site would be restricted. Construction procedures would be consistent with those described within the Utah Nonpoint Source Best Management Plan for Hydrologic Modification. Where runoff and drainage controls would be required, they would be constructed to BLM and/or UDOGM standards. Culverts underneath the road would be installed at a grade no greater than 3 percent, with rip-rap armoring on the outflow. In areas that warrant there use, perforated culverts may be used to minimize alteration of existing surface/subsurface water exchange. Where required, other flow control structures may include energy dissipaters and channel to sheet flow dispersion fans. As required, hydrological protection in the form of sediment and runoff controls would be installed below areas where construction of the road could impact any ephemeral drainages and/or Grassy Trail Creek with increased sediment loads. Straw bales would be installed in the established borrow ditch along all slopes in excess of 12 percent. Activities within all wash and gully areas would be limited, so as not to significantly impact the area.

Impacts to the hydrologic regime would be minimized by the installation and implementation of protection measures at all proposed crossings and drainage modifications. Concrete retaining walls, headwalls, and/or rip-rap armoring, would be constructed at the end of proposed alterations (box culvert, culverts, etc.). This would deter the potential for side cutting and further impact to the drainages surrounding the crossing.

All drainage from the mine site disturbed area would be conveyed to and treated by a sediment pond located within the disturbed area. The sediment pond size has been calculated based on a 10 year, 24 hour event. Ditch and culvert design are also based on a 10 year, 24 hour event. During routine operation, the pond would be visually inspected daily for unusual conditions and integrity. Maintenance of the mine surface facility would include the periodic cleaning of the sediment pond, drainage control ditches and culverts in order to maintain their function. Clean out material would be disposed of off-site in an approved solid waste disposal facility, such as East Carbon Development Corporation (approximately six miles southwest of the surface facility). A spill prevention control and countermeasure plan (SPCC plan) has been developed to protect the undisturbed drainages from accidental spills of oil or other petroleum products within the disturbed area. This plan (APPENDIX C) would be available for review at the West Ridge Mine site.

In the event of spills of petroleum based products during the construction of the proposed action, procedures outlined in the Carbon County and WEST RIDGE SPCC Plans (APPENDIX C) would be followed. The BLM, as well as the Department of Environmental Quality, would be notified if the release meets the definition of a hazardous waste as defined in 40 CFR 261.

During the operation and maintenance of the road, the use of tackifiers, and/or covered trucks to prohibit blow off of coal fines along the proposed road and State Road 123 would be used. Enforced speed limits of 50 MPH would also reduce the potential of coal blow-off, minimizing this impact to area soils as well as to Grassy Trail Creek.

A complete cultural clearance of all areas would be completed prior to construction. To maintain the cultural, historical and paleontological resource integrity of the area, construction crews and staff would be provided with instructional materials regarding the identification, value, legal protection and treatment of these resources. If any cultural, archeological or paleontological resources are

discovered during construction or any operations associated with the road, power line, phone line, or mine, all activities would cease at the area of the manifestation. The authorized agency would then be contacted to evaluate the importance and potential of the site. Mitigation measures would, at that time, be made for the value of the resource site. Construction and/or maintenance crews would avoid the site until the resource potential has been determined.

Disruption to range management facilities, such as fences, wells, reservoirs and other improvements, is not anticipated. Newly constructed range improvements, such as fences, would meet BLM, SITLA or private landowner standards. At one mile intervals along the constructed fence, a 12 foot wire gate would be installed to facilitate the utilization of the existing allotments. Fences, cattle guards and gates would be maintained by Carbon County during the life of the project. Upon review of roads to be removed as described within the proposed action, the establishment of cattle guards on any remaining roads intersecting the proposed road would be evaluated. With termination of use of the proposed road, maintenance of these facilities would be transferred to the BLM on public lands.

For reducing visual contrast, reduction of disturbance along the route of the road is the most effective operational technique. However, where disturbance is proposed, consideration would be given to the basic landscape (form, line, color, and texture) to minimize visual change, while meeting the safety and use capacity of the road. When possible, soil would be contoured using equipment necessary to conform with the terrain and adjacent land within the road ROW. To the extent possible, all foliage adjacent to the power line would remain undisturbed to provide maximum available screening of the line relative to the landscape character type. Visual disturbances would be minimized by using poles colored a shade darker in tone than the surrounding landscape, the use of non-reflective hardware, and by placing the poles out of public view where possible. To minimize the view of the power line from the proposed road, the construction and operational power line ROW's would be placed approximately 150 feet from the road surface.

Potential measures to help improve air quality for construction activities include proper maintenance of the construction equipment and limited travel on the construction ROW and dirt access roads. Dust generation from disturbed areas would be reduced through interim watering of active construction areas. Final reclamation, which includes revegetation of all disturbed areas, would eliminate further impacts associated with wind erosion.

An air quality permit for the West Ridge Mine would be obtained from the Utah Division of Air Quality prior to conducting operational activities. Coal dust associated with the operations of the mine surface facility would be controlled on the conveyor system and transfer points by enclosures and sprays as necessary. Dust from unpaved mine access roads would be controlled by applying water or a dust suppressing solution. Coal would be reclaimed from the bottom of the stockpile directly onto a conveyor belt located within an enclosed tunnel located under the pile. The coal moisture level within the coal pile would be maintained at approximately 6.5 percent or greater by water sprays located on the main mine conveyor.

Noise reduction and control measures for construction activities would include proper operation and maintenance of manufacturer-installed noise abatement equipment. During operational use, enforced speed limits would limit area wide noise impacts by reducing the need for Jake Brake application on descending grades along the proposed road.

Due to the increase in truck traffic along State Road 123 and U.S. Highway 6, the operation plan would include the installation of signs warning of heavy truck traffic. Enforcement of posted speed limits, especially from the proposed road tie-in to U.S. Highway 6, would increase the awareness of the truck drivers and the reaction time to potential hazards.

Vegetation removal necessitated by the proposed action would be confined to the ROW. Vegetation removed would be set aside during construction activities, and/or left in place upon completion of construction where possible. Vegetation removed would be limbed and lopped. This material would then be distributed over the disturbed or reclaimed area to increase solar protection for emerging vegetation. Reclamation or surface contouring to restore all disturbed areas would start upon completion of the project, or as specified by the BLM.

Reseeding associated with the proposed road, power line, phone line and water line would be completed between October 1 and November 15 for both years. The area would be drill seeded with the seed mixes shown in TABLE II-4, II-5 and II-6. The riparian seed mix in TABLE II-4 would be seeded along the reclaimed Grassy Trail Creek crossing, and all proposed ephemeral drainage crossings. This mix, as well as the mix in TABLE II-5, were designed for erosion control and slope stabilization, rather than wildlife enhancement. The mix in TABLE II-5, to be seeded along the edge of the road, power line, and utility corridor was especially designed as a wildlife repellant to deter big-game use along the road. Areas with slopes exceeding 2:1 would be hydroseeded and hydromulched at twice the seed rate outlined for drill seeding. The riparian seed mix would be applied to an area 30 feet on each side of the reclaimed Grassy Trail Creek crossing, and upon any part of the channel disturbed by reclamation activities. In association with the riparian seed mix, willow cuttings would be planted on a one per linear foot of stream-bank spacing.

Since a known population of canyon sweetvetch, *Hedysarum occidentale* var. *canone*, a candidate/sensitive plant species, occurs within C Canyon, seeds would be collected from this species prior to construction activities. The seeds would then be incorporated into the approved UDOGM mine site seed mix for topsoil stabilization plan and disturbed acres reseeding. Upon reclamation of the site, seed from this species would again be collected and used for revegetation of the reclaimed canyon.

In association with the areas that would be reclaimed, an effort would be made to reclaim the existing roads and four wheel drive trails that intersect the proposed road. Where road sections are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, 200 pounds per acre of 16-16-8 fertilizer would be incorporated into the top six inches of soil. In addition, 100 pounds per acre of 16-16-8 fertilizer would be incorporated into the mulch application. The seed mix in TABLE II-6, designed for slope stabilization and wildlife enhancement, would be utilized.

An awareness and appreciation of wildlife would be taught to all employees associated with the proposed action. All activities associated with the proposed action development would be coordinated to minimize impacts to all wildlife species. If active raptor nests are located within 0.5 miles of any portion of the proposed action, construction would not begin within that area until the young fledge or July 16. Construction would not occur upon critical deer and elk winter range until after May 15. Completion of all construction would occur on or before October 31 for each year, and prior to established winter big game use of the area. As previously stated, existing roads and

trails would be reclaimed to enhance wildlife habitat. Habitat would be enhanced to help offset the loss of forage in association with the construction losses.

All speed limits would be posted at 50 miles per hour or less on the new road. Where visibility along the road is limited by vegetation in excess of four feet, selective thinning would be conducted to minimize the potential for collision between vehicles and with wildlife and livestock.

ABANDONMENT AND RECLAMATION

The C Canyon Road would be a public road, and would be utilized by various user groups other than the West Ridge Mine. The expected life of the mine is 20 years, which upon cessation of activities, would be dismantled and reclaimed. WEST RIDGE is in the process of obtaining their operation MRP with the UDOGM. Activities described for construction are described in full detail within that document. A summary of proposed reclamation activities is included in APPENDIX E. At the time of closure and subsequent reclamation of the West Ridge Mine, Carbon County may find it to their advantage to cease full season maintenance of the paved road. However, elimination of the road is not expected to occur.

If WEST RIDGE finds that it would be to their advantage to terminate the use of the C Canyon Power Line, it would be done in accordance to the BLM guideline stipulations at the time of removal. An appropriate schedule for activities associated with dismantling of the power line would be established at that time. Upon dismantling of the line, a reclamation plan would be implemented for the established ROW. Use of the phone line, water line, as well as any other structure within the proposed utility corridor, would most likely be determined by the life of the mine. Upon cessation of mine activities, and in accordance with the best interests of the corridor users, an appropriate BLM procedure for removal would be initiated.

C. NO ACTION ALTERNATIVE

Under the No Action Alternative, the current situation would be maintained and no road development, power line establishment, or utility corridor would be constructed. The proposed West Ridge Mine would need to evaluate other means for support to its facility, as well as transport of anticipated coal produced.

TABLE II-4

RIPARIAN SEED MIX
FOR PROPOSED GRASSY TRAIL CREEK CROSSING

	LBS PLS/ACRE*
GRASSES	
Streambank wheatgrass	
Agropyron riparium	**2.0**
Alkali sacaton	
Sporobolus airoides	**1.0**
Reed canary grass	
Phalaris arundinacea	**1.0**
Saltgrass	
Distichlis spicata	**1.0**
Beaked sedge	
Carex rostrata	**1.0**
FORBS	
Strawberry clover	
Trifolium fragiferum	**1.0**
Blueleaf aster	
Aster glaucodes	**1.0**
SHRUBS	
Woods rose	
Rosa woodsii	**1.0**
Douglas rabbitbrush	
Chrysothamnus viscidiflorus	**1.0**
Squawbush	
Rhus trilobata	**1.0**
TOTAL	**11.0**

BARE ROOT STOCK (PLANTED SPRING 1999)

Narrowleaf cottonwood
Populus angustifolia (clumps of 5 every 20 linear feet of stream bank)
Coyote willow
Salix exigua (1 cutting every linear foot of stream bank)

- Rate is pounds per acre pure live seed drillseeded. Pure Live Seed (PLS) formula: % of purity of seed mixture times % germination of seed mixture = portion of seed mixture that is PLS.

TABLE II-5

RECOMMENDED SEED MIX FOR PROPOSED ROAD ROW

	LBS PLS/ACRE*
GRASSES	
Blue gramma	
Bouteloua gracilis	**2.0**
Galleta	
Hilaria jamesii	**2.0**
Sand dropseed	
Sporobolus cryptandrus	**2.0**
Alkali sacaton	
Sporobolus airoides	**1.0**
FORBS	
Purple verbana	
Verbana stricta	**1.0**
Nelson globemallow	
Sphaeralcea parvifolia	**1.0**
SHRUBS	
Black sagebrush	
Artemisia nova	**0.5**
Shadscale	
Atriplex confertifolia	**1.0**
Green ephedra	
Ephedra viridis	**1.0**
TOTAL	**11.5**

- Rate is pounds per acre pure live seed drillseeded. Pure Live Seed (PLS) formula: % of purity of seed mixture times % germination of seed mixture = portion of seed mixture that is PLS.

TABLE II-6

SEED MIX FOR RECLAIMED ROADS AND TRAILS

	LBS PLS/ACRE*
GRASSES	
Needle and Thread	
Stipa comata	2.0
Indian ricegrass	
Oryzopis hymenoides	2.0
Great basin wildrye	
Elymus cinereus	1.0
Thickspike wheatgrass	
Agropyron dasystachyum	1.5
Galleta	
Hilaria jamesii	1.5
Russian wildrye	
Elymus junceus	1.5
FORBS	
Lewis flax	
Linum lewisii	1.5
Yellow sweetclover	
Melilotus officinalis	1.5
Palmer penstemon	
Penstemon palmeri	1.0
Small burnet	
Sanguisorba minor	1.0
SHRUBS	
Black sagebrush	
Artemisia nova	0.5
Winterfat	
Eurotia lanata	1.0
Wyoming big sagebrush	
Artemisia tridentata wyomingensis	0.5
Douglas rabbitbrush	
Chrysothamnus viscidiflorus	1.0
Fourwing saltbush	
Atriplex canescens	1.0
Prostrate kochia	
Kochia prostrata	1.0
TOTAL	**19.5**

- Rate is pounds per acre pure live seed drillseeded. Pure Live Seed (PLS) formula: % of purity of seed mixture times % germination of seed mixture = portion of seed mixture that is PLS.

CHAPTER III. AFFECTED ENVIRONMENT

A. INTRODUCTION

The resources that make up the affected environment were identified through baseline studies done within the area of the proposed action, issues raised during the scoping process, and consultation with numerous public agencies as directed by the administering agency (BLM Price River/San Rafael Resource Area - Price Field Office). Description and explanation of all affected resources are in accordance of those provisions set out by the National Environmental Policy Act (NEPA) of 1969 and all subsequent regulations implementing that law.

The following resources have not been identified within the area impacted by the proposed project and, therefore, will not be addressed in the discussion of associated on-site resources (Affected Resources).

Environmental Justice

Floodplain, Wetlands and Prime or Unique Farm Lands (APPENDIX F)

Minority Populations

Native American Religious Concerns

Wild and Scenic Rivers

Wilderness Areas, Wilderness Study Areas and Areas of Critical Environmental Concern

B. GENERAL SETTING

The area is located within the Colorado Plateau Physiographic Province. The High Plateaus of Utah and the Canyonlands sections meet along the Book Cliffs, of which C Canyon cuts into. The project area is characteristic of the mid-elevations of the province, consisting of deep, rugged washes and open plateaus. The geologic structure of the region is controlled predominantly by the uplift of the San Rafael Swell, approximately 25 miles southwest of the project area. Beds are mostly uniform and are inclined from three to eight degrees away from the uplift. The strike of the beds are generally parallel to the face of the cliff. Exposed members of the Price River Formation and Black Hawk Formation are evident in the C Canyon Area. Immediate subsurface geology in C Canyon consists of the Upper Mudstone, and Sunnyside Members, with a thin cover of alluvial and colluvial material.

Elevations in the area of the proposed action ranges from 5,700 feet to 7,000 feet above sea level and is characterized by hot, dry summers and cold, moist winters. Most of the available water results from winter snow accumulation. Summer precipitation comes from short duration thunderstorms which often result in flooding and erosion (Lines et al, 1984). Characteristic vegetation includes Douglas fir in the highest elevations, pinyon-juniper forests over most of the bench areas, and a mixture of shrubs and grasses in the low areas. The area is predominantly a natural but disturbed

setting, with several dirt roads presumably constructed for grazing activities meandering through the area.

Soils

Soils located within the area of the proposed action are described in the Soil Survey of Carbon Area, Utah, a third order Soil Conservation Service (now Natural Resource Conservation Service (NRCS)) publication. The following soil unit, complex, and quality information was gathered from that source, as well as from data collected from the U.S. Department of Agriculture first order soil survey conducted for WEST RIDGE within the vicinity of the mine surface facility.

The area of the proposed action contains three general soil units. The Hernandez family-Mivida-Strych unit is located from U.S. Highway 6 to approximately 6,000 feet in elevation. This unit is generally present on the nearly level to moderately steep soils on the alluvial fan terrace below C Canyon and along Clark Valley. The Strych-Gerst-Travessillia unit is present upon the moderately steep bench slopes and nearly level out-wash plains below C Canyon. Within the proposed mine area and above, the Travessillia-Rock outcrop-Midfork family is predominant on the canyon sides and mountain slopes.

Ten soil types make up the described general soil units within the project area. These soils are shown on PLATE III. Haverdad loam, alkali, a 0-3 percent slope is predominant along the lower potion of the proposed road and power line. As the proposed road and power line gain elevation and move from the relatively flat topography of the Mancos shale derivative substrate, areas of the very deep, permeable and gravelly Haverdad loam, 1-8 percent slopes; Strych very stony loam, dry, 3-30 percent slopes; and Strych very stony loam, 3-15 percent slopes would be crossed. Due to the consistency of these gravelly soil resources, each of the proposed borrow areas would be located upon these soils as well.

As the proposed facilities ascend the benches to the mouth of C Canyon, soils become a mix of Mancos derivatives such as Hernandez family, 1-3 percent slopes; Hernandez family, 3-8 percent slopes; and alluvial soils such as Gerst-Strych-Badland complex, 3-50 percent slopes and Rock outcrop-Rubbleland-Travessilla complex, 30-50 percent slopes. Within the mine surface facility area, inclusions of seven different soil types were identified during the first order survey. With the exception of the Rock outcrop, Rubbleland and Badland soil types present along the canyon walls, the soils identified (Midfork very stony fine sandy loam, 10-50 percent slopes; Brycan loam, 2-6 percent slopes; Strych stony fine sandy loam, 3-30 percent slopes; and Atrac fine sandy loam, 2-15 percent slopes) are all deep, well drained and moderately erodible.

The proposed waterline crosses Haverdad and Hernandez soils along State Road 123 and upon private land. As the line would turn to the north, northwest to meet the proposed road in Section 28, areas of Billings gullied land complex, 1-6 percent slopes; Gerst-Badland-Stromitt complex, 10-30 percent slopes and Strych very stony loam, 3-15 percent slopes would be crossed as well. From where the waterline would intersect the proposed road ROW, soils crossed by the waterline would be similar in nature to those transected by the road.

Soils present within the proposed wildlife mitigation area consist of the rocky and shallow Gerst-

Strych-Badland complex, 3-50 percent slopes; present within wash and drainage areas, and the predominant and very deep Strych very stony loam, 3-15 percent slopes; present on the gently sloping benches that characterize the area. The shallow, erodible Rock outcrop-Rubbleland-Travessilla complex, 30-50 percent slopes, is present below the cliffs and upon the out-wash benches of the mitigation site.

A table illustrating the various characteristic of the soils present within the project area, as well as a negative determination by the NRCS of prime farmlands is included within APPENDIX F.

Hydrology

A number of intermittent drainages exist in the area of the proposed action. These drain the canyons of the Book Cliffs, during spring runoff and summer events, eventually emptying into Grassy Trail Creek watershed. Downstream from the project area, Grassy Trail Creek, a listed non-attainment water body in Utah's 303d submission to congress, becomes a perennial stream that gathers water from the largest drainage area of any tributary to the Price River (Mundorff, 1972).

Precipitation in the general area ranges from eight to 10 inches per year in the lower elevations and 10-12 inches at the higher elevations. This area has a southern aspect with a high annual evaporation rate. Local geology and sparse vegetation are factors which prevent significant infiltration throughout most of the valley, though percolation likely occurs at major slope breaks and through alluvial deposits. Winter precipitation is primarily snow, resulting primarily from frontal-type storms moving across the area from west to east. Snow melt is the principal source of late spring and early summer runoff in the area, with summer precipitation generally resulting from thunderstorms moving through the area from the south. These storms are usually localized, short-duration but high-intensity events.

Snow melt is probably the most significant source of recharge to the subsurface. However, the intermittent nature of the drainages in the region indicate extensive surface to ground water exchange. Most of the drainages in the region, including those within the project area, have been altered by previous activities. Existing uses such as grazing and associated vehicle routes have reduced vegetative cover. Existing roads have resulted in degradation of natural channel dimensions to the extent that most channels within the region are currently unstable. Due to upstream diversions and disturbances to surface vegetation, Grassy Trail Creek is presently intermittent at the proposed crossing. Numerous springs and seeps are known to occur along the northern banks of the channel.

During precipitation events, ephemeral and intermittent drainages, such as C Canyon provides, channeled runoff to Grassy Trail Creek. Although water rights exist for uses within Grassy Trail Creek and the tributary drainages (including C Canyon), beneficial use of surface water in these channels is frequently impossible due to existing disturbed conditions. Numerous water rights are located within the area of the proposed project. APPENDIX G contains a listing detailing ownership, source, and type. Location of each water right is shown on PLATE IV. Current conditions which prohibit beneficial use of water are; lack of surface flows due to reduced retention, and degradation of water quality due to sheet and channel erosion

C Canyon has an intermittent flowing channel that begins at the West Ridge crest. Slopes are steep, and portions of the area consist of rock outcrops with little or no vegetation. Predominant vegetation types in the watershed are pinyon/juniper on the south-facing slopes and mixed mountain conifer on

the north-facing slopes. There is a fork in the main channel about two-thirds of a mile above where it exits the Book Cliffs. The left fork extends north, and the right fork extends northeast. A spring located within the right fork, found flowing in the fall of 1985, appears to be perennial but contributes flow to the channel for only a short distance downstream.

In general, water quality in drainages of the Book Cliffs tends to deteriorate in a downstream direction, as indicated by total dissolved solids (TDS). This is chiefly the result of geology. As flow passes through the more saline formation in the low lands at the base of the cliffs, major ions are contributed. A study of Grassy Trail Creek (Mundorff, 1972) measured TDS in Grassy Trail Creek near Sunnyside at about 650 milligrams per liter (mg/l). A reading taken downstream at the junction with Rock and Dugout Creek measured TDS at 1,240 mg/l.

Cultural Resources

There is a long and diverse cultural history associated with the Price and Green River Basins and the Book Cliffs region of east-central Utah. Occupation began in the Paleo-Indian Period dating from approximately 12,000 to 7,000 years before present (BP). This period is usually associated with hunting of large Pleistocene herbivores such as mammoths. These nomadic hunters made elaborate thrusting spear projectile points known as Clovis, Flosum and Plano, which are also subdivisions of the period itself. The Paleo-Indian period ended with the Pleistocene when the climate and flora and fauna became more modern in type.

The following Archaic period lasted from about 7,000 BP until roughly somewhere between 2,000 and 1,500 BP although it can be argued that the lifestyles inherent to the Archaic persisted into historic times. The Archaic Period was a time of nomadic but became more sedentary as they learned how to exploit the environment more efficiently. Throwing spears capped with dart points were the main weapon. The dart points became smaller and more refined over time. Ground stone technology evolved as processed seeds gained importance to the diet. Archaic populations utilized large portions of the environment and exploited areas near permanent water sources and areas of natural occurring raw materials for tool manufacture. They occupied large caves and rockshelters over long periods of time providing an exceptional record for the archeologist.

Sometime around 1,500 BP the bow and arrow was developed by Native American cultures. The bow and arrow was soon followed by the diffusion of agriculture to the Great Basin and Colorado Plateau. The Formative Period was the name for the time and Fremont was the name applied to the indigenous populations and cultures. The period lasted until approximately 700 BP. Agriculture was practiced in fertile valleys and the populations lived in pit houses. Nine Mile Canyon, just north of the project area, represented a unique form of Fremont occupation highlighted by extensive pictographs and petroglyphs. Nine Mile Canyon also acted as a conduit between the Price and Uintah Basins and probably received both population and cultural influences from the Green River to the east. Grassy Trail Creek, now a seasonal intermittent stream, was once a meandering stream that was a center for the Fremont occupation of the Clark Valley. Abundant remains of this time period exist in proximity to the project area.

Theories abound concerning the end of the Fremont and supposed abandonment of agriculture, but somewhere around 700 BP, the Fremont lifestyle either ended or reverted to more nomadic patterns. The succeeding phase has been called both the Late Prehistoric Period and the Numic or Shoshone

expansion phase. The well adapted Numic speakers again relied on a seasonal round of natural resource exploitation aided by the bow and arrow, pottery and probably supplemental agriculture. The Native American period began to phase into the Protohistoric Period with the introduction of the horse about 300 years ago. The addition of the horse enabled the Numic speakers to amplify the intensity of their exploitive behavior, most notable the hunting of Buffalo and other large game. The increased intensity, however, also tended to drive the bison out of the Great Basin and Colorado Plateau.

The Protohistoric and historic periods were marked most notably by the intrusion of Euro-American populations. While the American Revolution was waged heavily in the east, the Spaniards of the Dominguez-Escalante expedition passed through central Utah. They were followed by the ubiquitous trappers and explorers who were instrumental in expanding the boundaries of the infant nation.

Euro-American colonization of Utah began in earnest with the Mormon migration of 1847. Settlement of the Great Salt Lake Basin proceeded virtually unopposed by Native American populations. Areas outside the Salt Lake Valley were heavily populated by Ute, Shoshone and Paiute peoples making settlement there particularly difficult. Hostile colonization of areas outside of the Salt Lake Valley proceeded sporadically until 1877 when the remaining Utes were relocated to their reservation in the Uintah Basin. The rich coal resources of the Price Basin had been noticed by the Gunnison expedition of 1853. Mining began fitfully in the 1870s along with agriculture and grazing. The development of the narrow gauge "Calico Railroad" in 1879 linking the mines in Pleasant Valley (Scofield) and Springville, Utah stimulated interest in the Price Basin. The railroad was named for the financing which involved piece goods as capital. Not to be outdone, the Denver and Rio Grande railroad constructed a line between Denver and Salt Lake City in 1882 that competed successfully with the Union Pacific line from southwestern Wyoming. By the turn of the century, coal was being taken from all parts of the Price Basin including Soldier and Dugout Creek.

Because of the abundance of coal, Price was the early rail center for eastern Utah. Vernal and the Uintah Basin were more isolated and became dependent on Price as a supply route. A road from the Uintah Basin to Price was constructed through Gate, Nine Mile and Soldier Creek canyons. The Nine Mile Road, named for the canyon not for the actual length, was built by soldiers from Fort Duchesne in 1886. Nine Mile road served the growing population of the Uintah Basin into the early part of the twentieth century.

The succeeding century witnessed the boom and bust cycles of the mining industry supplemented by grazing and farming. The mining towns of Standardville, Wattis, Kenilworth and nearby Harper and Sunnyside waxed and waned with the demand for coal. Kiz was settled at the turn of the century as the center of homesteads in the Clark Valley. Early coal exploration led to the formation of mining towns throughout the Price Basin. As knowledge of the coal deposits grew, larger mines were developed which allowed the population to be concentrated in the more accessible towns of Helper, Price, and Wellington, which promoted the current cultural landscape.

The following cultural resources information is the result of files searches conducted in the Antiquities Section of the Division of State History and at the Price River Resource Area Bureau of Land Management by SENCO-PHENIX Archeological Consultants. The information presented is condensed from the general Mine Plan files searches.

A number of general level archeological investigations conducted as sample surveys for Central Utah in the early 1980's provided the general information regarding archeological site potential in the proposed project area. These studies suggest that significant prehistoric archeological sites are most likely to be found in areas with permanent water within pinyon-juniper vegetation zones. Historic site locations dictated primarily within proximity to early coal exploration and mines. Of particular reference to this project are the studies directed by Asa Nielson from 1981 to 1988 for various employers (Antiquities Section of the Division of State History, CRMS program at BYU, and AK Nielson Associates). Nielson's studies included block and expanded linear proposed access road, powerline, and waterline pass through corridors surveyed by Nielson. While the majority of the archeological sites located by Nielson were insignificant sites and isolates, two National Register Eligible sites are located in the area of the proposed water line. 42CB-426 is a prehistoric campsite with hearths and good depth potential. 42CB-427 is a historic cement dam with associated causeway.

Other studies which located National Register Eligible sites in the general vicinity of the proposed action include work on Fremont period archeological sites conducted by Abajo Archeology during upgrading of State Road 123. Abajo located 15 prehistoric sites, all of which were eligible for the NRHP. Eight of the sites were Fremont Period occupations. In 1997, SENCO-PHINIX Archeological Consultants tested Site 42CB-507 for eligibility. Radio carbon dates of 920 BP and 1140 BP from two hearth features place the site firmly within the Fremont period. Pollen analysis revealed the presence of processed corn meal and a species of Agave found only in central Arizona. The tests confirm the significance of 42-CB-507 and indicate that a rich tapestry of Fremont lifeways exist in the remaining Fremont sites.

During 1997 and 1998, SENCO-PHENIX Archeological Consultants surveyed the route of the proposed road, borrow areas, topsoil storage area, and mine site and located a total of seven archeological sites within the ROW. The six sites recommended as ineligible for the NRHP are as follows:

> 42CB-1182 is the remains of a historic dugout foundation with segments of a dry laid masonry wall. The site is situated in colluvial gravels with no potential for intact buried cultural remains. Recordation has exhausted the information potential of the site.
>
> 42CB-1183 is the remains of a livestock brush enclosure with an associated rusted tin can scatter. Recordation has exhausted the information potential of the site.
>
> 42CB-1185 is an episodic surficial domestic dumping zone which covers a large area. The site has been used periodically for dumping of domestic trash beginning in the 1930's, but predominantly in the 1960's and later. The site has no definitive features nor potential for buried cultural remains. Recordation has exhausted the information potential of the site.
>
> 42CB-1228 is the remains of a double dugout, three circular stone alignments, and domestic refuse consisting of a thin rusted tin can scatter and stove parts. Testing revealed no subsurface remains other than a single episode of ash dumping from the nearby stove which was then covered over with soil. Soils in the site area are thin colluvial gravels with large boulders. Recordation and testing has exhausted the information potential of the site.
>
> 42CB-1238 is an extremely widely dispersed lithic scatter on thin colluvial soils with a small

historic component consisting of a single dump area with rusted tin cans, and glass fragments. The thin soils have no potential for buried cultural remains. Recordation has exhausted the information potential of the site.

42CB-1241 is a historic trash scatter consisting of very small broken fragments of historic debris including tin cans, glass, brick, and wood. The fragmented condition of the artifacts and their wide dispersal indicates that the site is located within a former "plow zone." Historic GLO research indicates the historic trash may be the remains of the Hill McMillan tent house mentioned during a land survey conducted in 1909. The extensive disturbance and poor condition of the site make it ineligible for the NRHP.

One site located during the survey which is recommended for the nomination to the NRHP is 42CB-1184. The site is a large homestead complex dating to the early part of the twentieth century (1916-1926). The site consists of 5 depressions (some with lumber fragments), remains of a corral, remains of an outdoor baking oven, and an extensive scatter of domestic refuse including rusted tin cans, glass fragments, datable bottle bases, and metal fragments. Also present on the site were the remains of farm equipment and portions of a carriage top from an early twenties automobile. Testing of the oven remains revealed details of construction and use of this feature for food preparation. Testing of one of the depressions revealed a subsurface living floor with a concentration of intact and broken artifacts. Testing of the other depression revealed sequential deposits of an outhouse that was periodically moved. Historic research indicates that the site was not occupied at the time of the 1909 GLO land survey. The plot where the site is located was patented in 1916 by Gaetano Morlano and a deed was filed for the property in 1922. The site reverted back to Carbon County in the mid 1930's and was acquired by its current owner, the Wellington Cattle Association, in 1939. Site is recommended for nomination to the NHRP because of its potential to yield historic information regarding not only the lifeways or the early settlers of the Clark Valley, but also of rural Utah in general.

Land Use

Grazing - Two grazing allotments occur within the vicinity of the project area (See PLATE IV). The majority of the proposed road, power line, borrow sites, and mitigation area would occur within the Mud Springs Grazing Allotment which has two seasonal use periods throughout the year. In the March 1 to June 10 spring use period and October 20 to February 28 winter use period, the potential AUM's total is 1,009 head and 1,305 head of cattle respectively. Current use of the area during both seasonal use periods is 338 head of cattle. The Mud Springs Allotment has a rest rotation grazing system with five pastures (PLATE IV). The Bear Canyon pastures 1A and 1B are located in the north part of the allotment separated somewhat by a natural topographic boundary. Himonas pasture 2 is north of State Road 123 in the central portion of the allotment. The Sunnyside Junction pasture 3, south of State Road 123, is also in the central portion of the allotment. The Grassy Trail pasture 4 is located to the south of the Sunnyside Junction pasture.

The mine surface facility and upper portion of the road and power line ROW's would occur within the Bear Canyon Grazing Allotment. The Bear Canyon allotment has a seasonal use from May 16 to October 15 for 100 AUM's, with a current us by 40 head of cattle.

Recreation - No developed, or special recreation management areas exist within the actual project

area. Dispersed recreation (i.e., hunting, off-road vehicle use, scenic driving, wildlife viewing, mountain biking) occurs throughout this relatively pristine rural area, but is limited due to access availability (See Vehicular Travel). Since there is no winter maintenance of the various roads in the area, recreation activities are confined to spring, summer and fall.

Noise - Current noise levels in the vicinity of the proposed action are unknown. However, noise levels have been estimated, using published data (NAS, 1977). Current noise levels for a typical undeveloped rural area, like the area of the proposed road locations with a population density of 10 people per square mile and with no well defined noise source other than traffic, most likely never exceed 35 dBA. Based upon a partially developed, rural area, like East Carbon, with a population density of 25 people per square mile, potential noise levels along Route 123 to U.S. Highway 6 are between 45 and 50 dBA.

Vehicular Traffic - State Road 123, connecting U.S. Highway 6 to East Carbon and Sunnyside, had an annual average daily traffic of 3,715 vehicles in 1995 (Utah Department of Transportation, 1995). Travel to and from the area of the proposed action would use State Road 123, for approximately four miles from its intersection with U.S. Highway 6. Access to the Book Cliffs from State Road 123 is limited. A rough dirt road, which the proposed action would follow along the majority of its length, transects the project area. Access on this dirt road is limited due to weather conditions and maintenance. During inclement weather there are sections that are impassible, and since the road is not maintained on a regular basis, it is virtually inaccessible during late fall through early spring when snow and/or mud preclude conventional vehicles. The heaviest use occurs during the fall deer hunt with some additional travel involving wood gathering, recreational driving, site seeing, and wildlife viewing in the spring.

Visual Resources - The project area is located in an area of broad open landscapes, broken benches, and steep canyons characteristic of the regional landscape of Southeastern Utah. EXHIBIT III-1 and III-2 display views of the characteristic landscape of the project area from Key Observation Points along State Road 123 and U.S. Highway 6. From the intersection with State Road 123, the proposed action would proceed northeast across a broad, flat plain for approximately two miles before turning north-northwest and crossing behind a bare juniper bench (EXHIBIT III-1). From this point onto C Canyon, the proposed action would be located along the base of a pinyon-juniper bench out of the line of site from State Road 123. EXHIBIT III-2 is a long distance view of the overall project area from U.S. Highway 6. The project area is within an area managed as VRM Class III, as established by the Price River MFP.

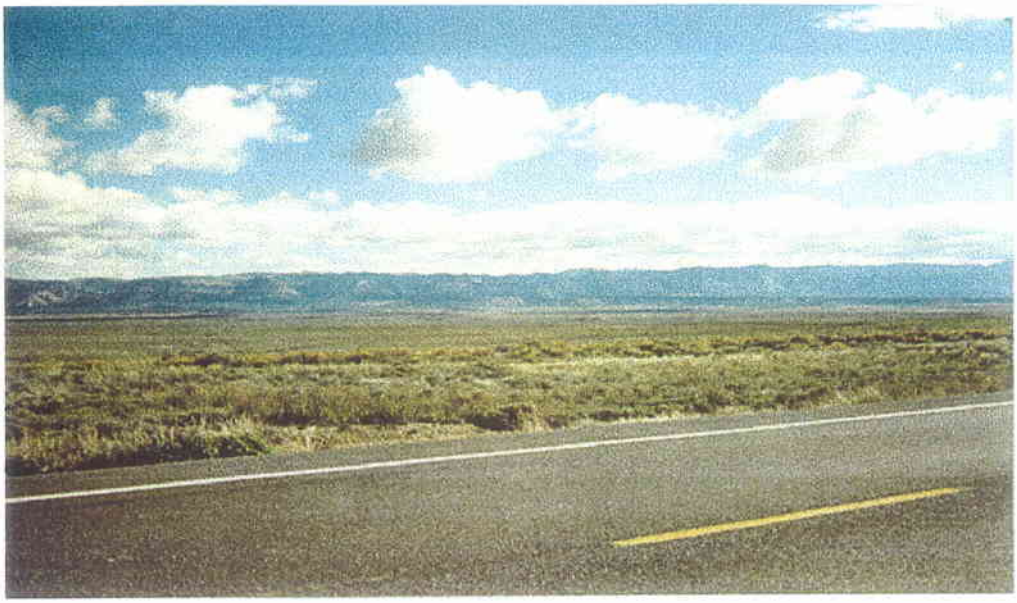

EXHIBIT III-1
VIEW OF PROPOSED ACTION - FROM STATE ROAD 123

EXHIBIT III-2
LONG DISTANCE VIEW OF PROJECT AREA - FROM U.S. HIGHWAY 6

Vegetation

Vegetation cover gradually changes with elevation within the immediate project area (PLATE V). Greasewood, the dominant vegetation near State Road 123, transitions into sagebrush and grass along the sloping benches. The benches in this area have widely spaced juniper trees. Approaching the cliffs, juniper becomes the dominant vegetation changing to pinyon and juniper near the base of the cliffs. In the canyons of the cliffs, Douglas fir mixes with the pinyon and juniper, eventually becoming the dominant vegetation type at the higher elevation.

The proposed action would traverse several plant communities. Near State Road 123, the dominant vegetation is greasewood, *Sarcobatus vermiculatus*, with shadscale, *Atriplex confertifolia*, cheatgrass, *Bromus tectorum*, and numerous herbs as groundcover. As the proposed route gains elevation near the rocky benches, the vegetation becomes dominated by basin big sage, *Artemisia tridentata*, black sage, *Artemisia nova*, needle-and-thread, *Stipa comata*, and Indian rice grass, *Oryozopis hymenoides*. As the elevation gradually increases, and water becomes more available, tree species become prevalent. The remainder of the route travels through a mosaic of habitats beginning with sections of widely spaced Utah juniper, *Juniperus osteosperma*. Areas of sagebrush and grass are still scattered throughout but become much smaller as the route enters the area dominated by pinyon pine, *Pinus edulis*, and Utah juniper. As the route enters C Canyon the vegetation changes to a transitional habitat that incorporates the end of the pinyon and juniper range with microsites, moist enough to support Douglas fir, *Pseudotsuga menziesii*. Vegetation cover within the wildlife mitigation area was largely burned during a range fire in 1996. Though reseeded, little vegetation cover, other than grasses and isolated patches of pinyon pine and Utah juniper are present. TABLE III-1 contains a list of the various plant species identified within the project area.

Special Status Plant Species - According to information within Utah Endangered, Threatened, and Sensitive Plant Field Guide, published by the USFWS Intermountain Region, and correspondence with the USFWS, no endangered or threatened species are known to occur within the project area. However, several candidate/sensitive species were indicated by USWFS as potentially occurring within the area. An inventory of the project area was conducted in the spring of 1997. A four hundred foot corridor along the proposed action route, as well as the surface disturbance area for the proposed mine, were surveyed for threatened, endangered and sensitive plants (TES). A previously documented population of canyon sweetvetch, *Hedysarum occidentale* var. *canone*, a candidate/sensitive species, was found from the mouth of C Canyon up into the area of the proposed mine. This species grows in mesic microsites along the drainage within the pinyon/juniper and the transitional pinyon/juniper zones. Field inventory revealed a density of 79 individuals per acre. No other candidate or sensitive species were located within the project area. APPENDIX H contains the correspondence with the USFWS, as well as the report prepared on the canyon sweetvetch population.

TABLE III-1

LIST OF PLANT SPECIES IDENTIFIED WITHIN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME
GRASSES	
cheatgrass	**Bromus tectorum**
needle-and-thread	**Stipa comata**
Indian ricegrass	**Oryzopis hymenoides**
wheatgrass	**Agropyron spp.**
FORBS	
mustard	**Brassica spp.**
locoweed	**Astragolus spp.**
cryptantha	**Cryptantha jonsia**
canyon sweetvetch	**Hedysarum occidentale var. canone**
SHRUBS	
greasewood	**Sarcobatus vermiculatus**
prickly pear	**Opuntia spp.**
yucca	**Yucca spp.**
shadscale	**Atriplex confertifolia**
claret cup cactus	**Echinocereus triglochidiatus**
basin big sagebrush	**Artemisia tridentata**
black sage	**Artemisia nova**
TREES	
narrowleaf cottonwood	**Populus angustifolia**
fremont cottonwood	**Populus fremontii**
tamarisk	**Tamarix ramosissima**
Utah juniper	**Juniperus osteosperma**
pinyon pine	**Pinus edulis**
Douglas fir	**Pseudotsuga menziesii**

Wildlife

Wildlife indigenous to the general area of the project include amphibians, reptiles, birds and mammals. General wildlife use of the area is shown on PLATE VI through PLATE IX.

Amphibians - There are six species of amphibians known to occur within the general area of the Wasatch Plateau and Book Cliffs. These species are classified as common, but are limited to mesic areas. These species could be present within the C Canyon and Grassy Trail Creek riparian areas, but their occurrence is not known. The pinyon/juniper and sagebrush/grass areas that make up most of the affected habitat are not considered important or limiting to their survival (Dalton et al, 1990).

Reptiles - There are ten species of reptiles known to inhabit the region. The habitat requirements for these species ranges in value from critical to substantial. The limited acreage of disturbance within the area of the proposed action, however, is not considered a significant threat to these species. This is due to the abundance of the preferred pinyon and juniper habitat, as well as sagebrush and grass

habitat throughout the area.

Birds - There are approximately 185 bird species that could possibly by either year long residents or frequent the site during portions of the year. The riparian area associated with Grassy Trail Creek is of some importance to migratory neotropical birds. Numerous common nighthawks, *Chordeiles minor*, were present or nesting along the lower juniper benches of the project area. An intensive survey of both the proposed action and the alternative route revealed the presence of nesting loggerhead shrikes, *Lanius ludovicianus*, near the proposed road and power line ROW's (APPENDIX I and PLATE VIII-A). This species is dependent upon the broad, open sagebrush and grass plain, as well as the presence of widely spaced pinyons and junipers.

Raptor surveys, completed in June of 1997 and May of 1998 by the UDWR, revealed a number of active and inactive nest sites on the open lower benches and cliff faces in and surrounding C Canyon (APPENDIX I and PLATE VIII-A and B). In 1998, six tended and six inactive golden eagles, *Aquila chrysaetos*, nests were located along the cliffs surrounding the C Canyon area. Six old, dilapidated historic golden eagle nests were monitored, as well as an inactive prairie falcon, *Falco mexicanus*, nest northwest of the proposed mine site, and an inactive buteo hawk nest near the mouth of C Canyon. A golden eagle nest near the proposed road and within the area of the water line was found to be active with two chicks in 1998.

An inventory for Northern goshawks, *Accipiter gentilis*, was conducted in May 1997. The inventory did not indicate the presence or use of the C Canyon area by this species. Large stick nests, observed in the cottonwood trees along Grassy Trail Creek during field surveys conducted in the June and July of 1997, were not in use by any tree nesting raptors. An inventory in July and August 1997 for burrowing owls, *Athene cunicularia*, and ferruginous hawks, *Buteo regalis*, did not reveal the presence of these species within the project area.

Mammals - Ninety-two (92) species of mammals are known to exist in, or have the potential to inhabit the region. Of these species, mule deer, *Odocoileus hemionus*, elk, *Cervus elaphus*, and pronghorn antelope, *Antilocapra americana*, have been identified within the area associated with the proposed action. The proposal area lies within Range Creek mule deer management Unit 32 of the UDWR. The optimal herd unit population, managed for mule deer, is 6,000 deer, with a current population at 50 percent of that. This unit area encompasses not only critical winter range and high priority winter range for mule deer, but antelope year-long high priority range and fawning habitat, and borders elk high priority winter range (PLATE VII).

Many other mammal species utilize the pinyon and juniper, as well as sagebrush and grass habitat for cover and forage. Black bear, *Ursus americanus*, and moose, *Alces alces*, may utilize the mesic upper benches and draws along the Book Cliffs and C Canyon area (PLATE VI). Small mammals in particular use the abundant ground litter deposited among the pinyon and juniper stands.

Special Status Wildlife Species - The USFWS was consulted regarding the presence of any TES wildlife species in the project area. Currently, the USFWS is evaluating the presence of two inactive nests near the proposed mine surface facility. WEST RIDGE has applied for a take permit for these nests. Copies of the take permit applications, as well as USFWS correspondence regarding these nests and TES species in general is included in APPENDIX I. No other TES species were identified

by the USFWS as potentially occurring, or have been located through field inventories conducted within the affected area.

Social Economics

As of July 1997, the unemployment rate for Carbon County was 4.4 percent, with a modest decline projected for the next ten years. Emery County's unemployment rate was slightly higher, for the same period, at 6.5 percent. Statistics and projections from the Utah Department of Employment show Carbon County has been and will continue to experience moderate economic and employment growth over the next 10 years. The local coal based industry is considered stable with the potential for increase, due to the use of coal for electric generation in the area and the expansion of exportation (Hunting, 1997). Because of limited housing in both Carbon and Emery Counties, construction related employment has increased and should continue to increase with the demand for multi home tracts (Hunting, 1997). This and the possible development of the nearby coalbed methane field could trigger growth in a number of related areas of employment for both Carbon and Emery Counties.

CHAPTER IV. ENVIRONMENTAL CONSEQUENCES

A. IMPACTS ASSOCIATED WITH PROPOSED ACTION

For sake of discussion in this section, the proposed action is defined as the proposed road, power line, telephone line, water line, mine surface facility, borrow sites, staging areas, pump stations, access roads and switching station. Impacts resulting from the use of the alternative topsoil borrow area will not be analyzed since how and if it is to be used during reclamation is yet to be determined. Quantification of impacts of the proposed mitigation will not be analyzed since their incorporation into the proposed action are dependent upon the degree of impact from the listed facilities. Therefore, TABLE IV-1 shows how activities associated with the construction and operation of the proposed road, power line, water line, telephone line, mine surface facility, and the associated support facilities affect the area around it in various ways.

TABLE IV-1
AREAS OF IMPACT ASSOCIATED WITH THE PROPOSED ACTION

Category	Area (acres)	Remarks
Soils	306.41	Construction Disturbance
	125.56	Operational Disturbance
Cultural	Varies	Dependent Upon NRHP Status
Vegetation/Habitat	306.41	Construction Disturbance
	125.56	Operational Disturbance
Hydrology	0.34	Stream Crossings
	2.70	C Canyon Channel Culvert
Wildlife	306.41	Direct Construction Disturbance
	125.56	Direct Operational Disturbance
	5,593.31	800 Meter Displacement On Each Side of ROW Corridor (ELK)
	1,398.30	200 Meter Displacement On Each Side of ROW Corridor (DEER)
	53.24	Direct Antelope High Priority/Fawning Range
Stock Grazing	306.41	Construction Disturbance
	125.56	Operational Disturbance
Visual	Minor	Varies From KOP
Reclamation	$\geq$ 186.23	Reduction of ROW Corridor and Reclaimed Road Sections

Soils

The combined construction impact to soil resources from the proposed action would be 306.41 acres. This figure includes 188.29 acres of road ROW disturbance associated with the required cut and fill slopes and staging area construction. The grading required for construction would displace topsoil and associated horizons throughout the total length of the proposed road alignment. In association with grading, and the road cuts proposed, the additive effect of lost vegetation cover and productivity during construction would also contribute to soil erosion along the entire length of the road, especially upon the steep and loose Gerst, Strych and Travessilla type soils encountered with the associated road cuts. Creation of the two borrow areas for use during road construction would remove substrate material over a combined area of 68 acres. Though topsoil would be salvaged prior to excavation and replaced during reclamation of the sites and/or construction ROW, a loss in topography and soils chemical character could result in diminished vegetation cover and alteration of endemic vegetation community structure. Though not a significant impact from the proposed action, any loss of vegetative cover on the loose soils could contribute to areal sediment loss and potential of water quality degradation to downstream hydrological resources.

Due to the limited access requirements, and the fact that no grading would be required, the acreage of potential construction impact to soil resources by the establishment of the power line has been calculated to be 10 percent of the ROW. With the construction ROW acreage, shared staging area, pull sites and switching station, the potential impact to soils would be 8.55 acres. Within the proposed power line ROW, surface impact to soil resources at specific pole sites is insignificant (approximately 0.03 acres). A temporal compaction impact to soil could occur within the ROW where construction vehicles would access and utilize the ROW for pull sites and the switching station. Though resulting in the immediate loss of vegetative cover at the compaction site which in turn could lead to increased sediment loss on the loose soils and to diminished downstream hydrological quality, this action would be limited only to the partial two year construction season. No impact to soils would occur during the operation of the power line.

All of the telephone ROW and most of the water line ROW would be located within the proposed road ROW impact acreage. However, approximately 12 acres of soils would be impacted by the construction of the proposed water line that is not adjacent to the road, as well as the required pump stations and access roads. Though excavation and compaction of in-place soils would result from construction and trenching vehicles within a 25 foot ROW and upon the pad areas created for the pump stations, no significant impact to soils, or to other resources from soils would occur.

Soils within a 29 acre area of the proposed mine surface facility would be displaced during construction. The majority of these soils would be salvaged and stored within the upper portion of the surface facility area for use during reclamation of the mine. On-site erosion during construction, and/or impact to off-site resources would be insignificant due to the stringent UDOGM standards and SPCC plan as required for mine facility construction and operation.

Operational impacts to soils would be reduced to 125.56 acres, and associated with the operational road, power line and utility ROW's, pump stations, switching station and 25 acre mine surface facility area. Borrow sites and staging sites would be reclaimed with no anticipated life-of-project impacts. The potential for 20 year/life of mine accumulation in the soil of dissolved solids and salts resulting from runoff from the paved surface and from coal fines blowing of haul trucks could alter soil

chemistry along the entire length of the proposed road, as well as to those present along the coal haul route on State Road 123 and U.S. Highway 6. An unquantifiable impact to the watershed quality and cumulative salt loading impact could occur as a result.

Hydrology

As described within the affected environment, the Grassy Trail Creek watershed is nonfunctional. The water stored and released by the existing watershed does not meet the quantity or quality requirements of the beneficial uses attached to its associated water rights. Reduction of surface vegetation would decrease infiltration and increase runoff. Sheet erosion would increase and water quality would be affected by greater sediment loading. This impact would be cumulative with similar currently occurring impacts. The impacts of the proposed action, though not significantly impacting the existing subsurface regime, would be cumulatively additive with the existing actions which have caused the watershed to be nonfunctional.

Approximately 0.23 acres of surface disturbance would be associated with the proposed creek crossing required for the road, and 0.11 acres of disturbance associated with the water line crossing. The main potential for adverse impact to Grassy Trail Creek would be temporal, and in the form of an increased possibility of erosion and sedimentation resulting during the construction of the proposed creek crossings and road alignment. However, an increase in flow velocities resulting from a constricted channel flow at the creek crossing and channel realignments (particularly at culvert outlets) would cause widening and consequent down cutting of channels and possibly resulting in the lowering of bank storage water levels. Since the mine surface facility would be located within the narrow bottom of C Canyon, the entire length of the ephemeral drainage within the disturbed mine area would be culverted and buried. Impacts to 2.70 acres of the C Canyon drainage, though designed with protection and salvage on on-site resources for later reclamation in mind, would be on going during the operation of the mine. Loss of endemic hydrologic structure and prevention of percolation for recharge to alluvial deposits that could transport water to the Grassy Trail creek channel would occur. However, reclamation of the channel to a stable versus the existing condition present would be a beneficial impact to watershed function.

Cultural Resources

Archeological site 42CB-1184, the Italian homestead, has been recommended for nomination to the NRHP. The access road would pass over approximately 60 percent of the site, thereby directly impacting the site.

The numerous NRHP eligible Fremont Period prehistoric sites would be indirectly affected by the proposed undertaking. The newly constructed road and mine facility would increase traffic and bring in additional people which would raise the chance of vandalism to the sites.

There may be undiscovered cultural resources impacted by the route of the power line and water line. While much of the route of the power line and water line are within previously surveyed corridors, some unsurveyed areas may be impacted when their final engineering plans are completed. Furthermore, previously recorded eligible sites 42CB-426 (prehistoric camp) and 42CB-427 (historic dam complex) are in the vicinity of the proposed water line corridor and may be impacted by construction.

Land Use

Grazing - Since construction associated with the proposed road would occur within the use periods of the Mud Springs and Bear Canyon Grazing Allotments, livestock grazing use would be restricted during the active construction periods over a two year period. Livestock would be allowed on the Mud Springs and Bear Canyon Allotments, but excluded from the active work areas associated with the proposed action.

The implementation of the proposed action would affect four of the five pastures within the Mud Springs Allotment. The Himonas pasture would be split by the fenced road, creating two smaller pastures while eliminating a water source on the northern pasture. The road and fencing associated with it would have a positive impact to the Bear Canyon 1A and 1B pastures in one regard, since it would create the complete separation of use of these two pastures. The negative impact of the proposed action on these pastures would be the separation of livestock from a viable water source. The potential exist for vegetation near the road being made unpalatable to livestock from coal dust lost during coal transportation, and the possibility of vehicular mortality of livestock that get through the fence on each side of the proposed road. However, due to the small loss of acreage associated with the operation of the proposed action, and the fact that the allotments are not currently being fully utilized, no reduction in AUM's is anticipated by the proposed action.

Recreation - To facilitate construction equipment and project safety concerns, a complete loss of access within the proposed action area limited to the active construction periods over the two year construction time frame would occur. The operation of a paved road maintained year long could increase recreational use in the area. Year round use would become possible where it was once limited by snow pack and muddy road conditions. The possible increase of recreation, such as stop-go traffic along the road, would have a negative displacement affect on wildlife and a congestive impact to coal traffic. Some recreational activities would experience a loss of quality (hunting, wildlife viewing, and mountain biking) surrounding the area of the proposed action as a result of heavy traffic. Removal of existing dirt access roads on public lands near the proposed road, as described within the proposed action, though reducing the potential displacement impact to wildlife, would be a negative impact to road recreation use in the area since it would result in restricted road access in an area that is currently open.

Public lands currently available for dispersed recreational activities within the C Canyon/Clark Valley area would be impacted by increased vehicular travel and audible intrusions resulting from the establishment of the proposed road. Upgrade of the power line and water line corridor would be conducted during the second year of the two year construction time frame. With the exception of visual/scenic impact resulting from establishment of the power line and pump stations, no additional impacts would be created on recreational use in the area.

Noise - Noise levels would also be affected from both construction and operation activities. Noise levels associated with construction would be temporary and transient and would vary widely during the day. Noise levels associated with the road construction and resultant traffic upon the road are expected to be less than the levels considered protective of human health and welfare. Vehicular traffic is expected to dominate operational noise levels, though surface facilites (i.e., ventilation fans) associated with the mine site would contribute to noise impacts. Vehicular traffic would include commuting to and from the site and all coal haul traffic. Associated impact upon road use within the

area is expected to occur primarily during the daytime hours. Based on past noise studies conducted by WEST RIDGE for their Tower facility, the noise level from coal haul traffic along the proposed road would be estimated to be between 60 dBA at 50 feet driving 40 miles per hour to 80 dBA at 30 feet at 55 miles per hour. Ventilation fan levels and the combined noise of other mine site facilities (equipment, coal loading) would be expected to range from 60 to 90 dBA, in close proximity to the mine site. Outside of the narrow canyon, noise impacts associated with the mine should be minimal.

Vehicular Traffic - Construction crews associated with the development of the proposed action would travel to and from the work site via U.S. Highway 6 and State Road 123. During construction of the proposed road approximately 30 people would be employed. Construction of the power line, water line and telephone line in the second year of construction could employ as many as 20 people. WEST RIDGE would employ as many as 30 people during the construction of the mine surface facility. This added traffic would have minimal impacts based on the relatively short construction schedule of approximately 120 days over the two year time frame.

Impacts associated with transport and production of an estimated three million tons of coal a year would be greater since the personnel associated with the mine and the transport of the coal via the proposed road and State Road 123/U.S. Highway 6 would result in a substantial volume of traffic. Currently, traffic volumes along the existing dirt access road to C Canyon are negligible. Traffic on State Road 123, the primary access to East Carbon City, to U.S. Highway 6 is 3,400 vehicles per day. From the State Road 123 junction to the Consumer Road Junction with U.S. Highway 6, there are as many as 10,600 vehicles per day. WEST RIDGE has indicated that at full capacity, as many as 300 coal haul trucks per day would travel from the proposed mine, through Wellington, and onto the loadout site in Consumers, off U.S. Highway 6. This additional volume of traffic, as well as the increase traffic resulting from as many as 100 mine employees and support traffic, would result in a 23.5 percent daily increase in traffic along State Road 123 and a 7.5 percent daily increase along U.S. Highway 6. The potential for an unquantifiable increase in vehicle-vehicle accidents, as well vehicle-wildlife accidents would be increased as well.

Visual Resources - Effects to visual resources were assessed for the construction, operation, and closure of the proposed action. Two issues were addressed in determining impacts: 1) the type and extent of actual physical contrast resulting from the proposed action and related activities to existing conditions; and 2) the level of visibility. The majority of the proposed road is situated along the base of foothills on the southern edge of Clark Valley below C Canyon. Visual contrast of the road is reduced due to topography and vegetation screening. Road cuts created by the realignment of the new road would be evident from a short distance, but should not have a long range physical contrast. However, the two mile section of the proposed road and power line across private land and near the intersection of State Road 123, would be visible and in conformance with the VRM III criteria along a 1.5 mile section of State Road 123. State Road 123 would be the key observation point (KOP) for the lower portion of the proposed road and power line (See EXHIBIT III-1). Though the water line would be buried, the two pump stations would be visible from the proposed road. Since the mine surface facility would be located within the narrow C Canyon, visibility of the facility from any KOP would be minimal.

The visual impacts of the power line would be an increase in contrast to the surrounding landscape. However, since minimal vegetation removal would be required, ROW physical contrast over the entire area would be insignificant. Since the power line would be an average of 150 feet from the

road at any given time, and the fact that a cleared ROW would not be created, adequate screening of the power line should be maintained and in conformance with the VRM III criteria.

Vegetation

The vegetation disturbed by the proposed action is shown in TABLE IV-2. As previously discussed, the area of the proposed action construction could compromises as much as 306.41 acres. Vegetation and habitats impacted are not limiting nor specific to the project area. Therefore, the acreage of impact would not significantly affect the local community structure. Most of this disturbance would result from the extensive road alignments established to minimize operational and maintenance impacts that would result if the road was built on a Mancos substrate. These realignments would predominantly exist within the pinyon-juniper habitat. Vegetation bordering the proposed road would be eliminated in most cases to minimize the potential for vehicle-wildlife incidents. Vegetation and the population of canyon sweetvetch within C Canyon would be disrupted by construction and operation of the proposed road, power line and mine. Vegetation within 25 acres of the 29 acre mine surface facility would be removed for the life of the operation. Impact to sweetvetch populations away from the road and mine site would be insignificant, and dependent upon construction needs associated with the power line. If necessary, poles and structures could be shifted to miss spot occurrences of this plant. Vehicular travel along the power line ROW may flatten and crush ground cover. In the pinyon-juniper, it may be necessary to trim or remove some trees. No impact to the sagebrush-grass habitat is expected. No impact to any habitat type would be expected during the operation of the power line or water line. Disturbance to reclaimed areas would be temporal, from 24 to 36 months, and/or until vegetation becomes fully established. Upon reclamation of the borrow sites, road cuts, water line and unused portions of the mine surface facility, operational impacts to vegetation would be minimized to 125.56 acres. This life of project acreage would encompass the 100 foot ROW of the road, mine surface area, pump houses and power line facilities.

TABLE IV-2

ACTUAL HABITAT DISTURBANCE ASSOCIATED WITH THE PROPOSED ACTION

Habitat Type	Construction(Acres)	Operation (Acres)
Road:		
Salt Desert Shrub	37.88	17.94
Sagebrush-Grass	47.52	23.76
Pinyon-Juniper	102.89	51.45
Canyon Sweetvetch	5.19	2.60
Power Line *:		
Salt Desert Shrub	0.45	0.36
Sagebrush-Grass	4.60	3.68
Pinyon-Juniper	3.50	2.80
Canyon Sweetvetch	0.62	0.50
Water Line:		
Salt Desert Shrub	7.12	0
Sagebrush-Grass	1.52	0
Pinyon-Juniper	3.33	0.57
Borrow Sites:		
Sagebrush-Grass	6.80	0
Pinyon-Juniper	61.80	0
Mine Surface Facility:		
Pinyon-Juniper	5.0	5.0
Transitional Pinyon-Juniper	21.30	17.30
Riparian	2.70	2.70
Canyon Sweetvetch	29.0	25.0
TOTAL ACREAGE	**306.41**	**125.56**

*** Disturbance Determined as 10 Percent of Power Line ROW**

Wildlife

The primary concerns relative to wildlife within the area of the proposed action are; 1) loss of habitat, and 2) impact to raptor nests and nesting use..

The Price River MFP restricts disturbance on critical and high value deer and elk winter range between November 1 and May 15, and between May 10 and June 20 on antelope high priority/ fawning range. The MFP also establishes 10 acres as a threshold of significance for surface disturbance impacts on big game winter range. Direct impact of the proposed action during construction would be the loss of 306.41 acres of habitat and 125.56 acres during operation. The approximate acreage loss of habitat by vegetation type is as shown in TABLE IV-2. Seasonal use impacts are minimized by the timing of construction activity to occur when big game are not present. The two year construction would be initiated after the November 1 to May 15 seasonal use period

established for big-game winter range and restricted between May 10 and June 20 on impacted antelope fawning areas.

The proposed action would result in the displacement of local antelope and resident wintering deer and elk herds within the area of the road ROW and its adjacent buffer zone, during the year round operation of the road and mine. Displacement zones recognized for mule deer and elk are 200 meters and 800 meters. Approximately 5,593 acres of habitat used by elk and 1,398 acres of habitat used by deer would be impacted by vehicular traffic, stop-go recreational visitation associated with and along the road, and noise and operation impacts associated with the mine site. Antelope high priority/fawning range, does not have a recognized displacement zone, but would be directly impacted on 53.24 acres. Road use and traffic impacts associated with the operation of the project would result in altered use and behavior patterns, as well as a negative impact to winter range utilization. These impacts in combination could result in an eventual unquantifiable decrease in big game populations within the general vicinity. TABLE IV-3 shows the acreage of operational impacts for the various wildlife range boundaries shown on PLATE I and IX.

Considering the partial screening of the majority of the road by mature pinyon-juniper woodland and the fact that coal haul traffic would be constant and non-stop, some adaptation and acceptance of the intrusion by these species could occur. However, increased year-long recreational use would result in localized areas of displacement, with little habituation of species. Displacement impacts to moose and bear within the C Canyon area would occur, but should not prove detrimental to these species.

Another operational impact of the proposed road would be the increased incidence of vehicle-wildlife fatalities. UDWR management guidelines for Herd Unit 32 within the Range Creek area allow for 12 to 30 deer/elk deaths by vehicular travel per year. The proposed operation and expected joint vehicular travel upon the proposed road, State Road 123 and U.S. Highway 6 would result in an unquantifiable year-long increase in mortality of deer, elk and antelope from vehicular travel.

Planning guidelines outlined in the MFP allow for no obtrusive (permanent) disturbance within 0.5 miles of an active (documented within three years) raptor nest. If an action is unobtrusive (periodic), no disturbance may occur within 0.5 miles of an active raptor nest between February 1 and July 15. Raptor inventories conducted by WEST RIDGE and the UDWR in 1997 and 1998 did identify raptor nesting activity within 0.5 miles of portions of the proposed action (See APPENDIX H and PLATE VIII-A and B). Nest 9/20, an inactive buteo nest in 1998, but tended in 1997, is located at the mouth of C Canyon. The impact of the proposed project (approximately 0.75 miles of the proposed road and power line, and five acres of the mine surface facility area) on this nest is currently being evaluated by the USFWS, BLM and UDWR. Two golden eagle nests located within C Canyon were documented during these inventories as well. Nest 12/19 was documented as inactive during 1997 and 1998 and is currently considered abandoned under the established BLM guidelines. Nests 16 and 14/17, tended in 1997 and inactive in 1998, are above the proposed mine surface facility. Due to topographical and vegetative restriction of line of site impacts to the proposed mine, a site specific buffer outside of the mine area was established by the UDWR. Impacts from construction and operation activities to raptor species within C Canyon would be minimal, due to the lack of use within this area. However, operational actions associated with the project could have a long term, unquantifiable negative impact to raptor use and populations within the general area.

TABLE IV-3

WILDLIFE DIRECT AND DISPLACEMENT OPERATIONAL ACREAGE ASSOCIATED WITH PROPOSED ACTION

Range Boundary	Direct (Acres)	Displacement (Acres)
Mule Deer:		
Road/Power Line/Water Line		
Year-long Limited Range	18.78	194.10
High Priority Winter Range	49.33	647.45
Critical Winter Range	32.45	380.15
Mine		
High Priority Winter Range	25.00	176.60
Elk:		
Road/Power Line/Water Line		
Winter Limited Range	12 .33	489.96
Winter High Priority Range	47.08	2,239.83
Winter Substantial Range	41.09	2,157.11
Mine		
Winter High Priority Range	25.00	706.31
Antelope:		
Road/Power Line/Water Line		
Year-long Critical Range	17.48	*
Year-long High Priority/Fawning Range	53.24	*
Moose:		
Mine		
Year-long Limited Habitat Range	12.50	*
Bear:		
Road/Power Line/Water Line		
Year-long High Priority Range	3.28	*
Mine		
Year-long High Priority Range	10.00	*

Social Economics

Social economic analysis of the construction and operation of the proposed action was conducted using an established model created by the Utah Governors Office of Planning and Budget for analyzing the direct impact of expenditures on the local economy. This model takes into consideration local employment, purchasing activity and overall regional economic health.

Anticipated labor associated with the construction is estimated at 80 employees over a two year period. It is unknown at this time if the individual contracts for each portion of the proposed action would be awarded to a local firm or a company that is outside of the area. If the latter is the case, an infusion of dollars could enter into the motels and restaurants of Wellington and Price. A more substantial benefit to the area would come as a direct impact of the benefit to the opening of the mine. The construction costs associated with the development of the proposed action would be approximately 4.5 million dollars. Based on the model, an additional 24 service related jobs could

be created with an additional 1.8 million dollars pumped into the local economy during construction. Upon operation of the mine, 116 employees, with wages totaling 150.8 million dollars over the life of the project would be created. In addition to the mine wages created, an additional 28.4 million dollars in support service related consumption could occur. These jobs would create a trickle affect that could realistically cause a net increase in regional mine and mine related employment and result in a 1.24 percent decrease in the current unemployment rate.

This additional work force is readily available in Carbon County. In addition the infrastructure (schools, housing, churches, medical services, etc.) is more than adequate to absorb any or all of the anticipated increase if the entire work force were to immigrate to this area. It would be expected that the majority of new mine workers would be employed from local communities and only a slight increase in population would occur.

B. IMPACTS ASSOCIATED WITH ALTERNATIVE I - NO ACTION

Associated impacts identified with the No Action alternative are derived from the inability to supply the necessary utilities and access requirements to the proposed coal mine in C Canyon. The proposed facility would therefore be required to establish some other means of access or transport, as well as an alternative power and utility source. Potential lay-offs and facility closures at the existing WEST RIDGE mine could result if an adequate solution was not found. Planned development for the facilities described, as well as future development would certainly be impacted. An unquantifiable negative impact to the socioeconomic condition of the Carbon County area would result from the curtailed development.

Impact to natural resources would remain as they currently exist.

C. CUMULATIVE AND ASSOCIATED IMPACTS

As previously described, the cumulative impacts of existing surface disturbing activities have already altered the natural hydrologic flow regime of Clark Valley and the associated drainages. The proposed road and associated actions are consistent with this on-going cumulative impact. To address the current nonfunctioning condition of the Grassy Trail watershed, the proposed action should (and does) incorporate measures which would minimize the specific impacts associated with it, as well as address the problems inherent to the current non-attainment of beneficial use standards.

The cumulative impact of an operational mine in close proximity to the proposed Dugout Mine and Soldier Creek Mine upon vehicular traffic is substantial. Congestion on U.S. Highway 6 from the proposed mine traffic volume previously described could potentially lead to an increase in vehicular accidents and additional roadway repair costs. Management decisions for the proposed use of the state and federal highways should take into consideration the increase of future recreational use, as well as the volume of mine haul traffic.

The construction and operation of the proposed actions would impact wildlife species as previously described. With each new road development within special use habitat, movement of big game wildlife and nesting use by raptors is further restricted and displaced. This impact must be addressed

for future land use decisions that could occur in the area. Associated impacts resulting from mining and gas development within the Carbon County area, such as the Soldier Creek Mine, Dugout Canyon Mine, and Helper and Castlegate coalbed methane fields, is far greater than the actual disturbance planned. Because of the combined impact of these area activities, every opportunity should be taken to mitigate the direct disturbance and displacement impacts of the proposed action.

D. MITIGATION OF PROPOSED ACTION

Procedures that would be followed for the construction, stabilization and maintenance of the proposed action (CHAPTER II: PROPOSED ACTION AND ALTERNATIVES - Stabilization, Maintenance and Operations Plan) were designed to minimize most impacts to resources within the area of the proposed action. Due to the extent of sensitive issues within the area (cultural, vehicular use, wildlife), alignment of the road was reevaluated to reduce the impact.

Impacts mitigated are; 1) potential of impacts to a potential NRHP cultural resource candidate site; 2) wildlife impacts resulting from vehicular traffic within the area; 3) impacts associated with displacement of wildlife; 4) those associated with disturbances resulting from the actions within the proposed ROW of the road and mine surface facility area; 5) impacts to raptor use; and 6) impact to livestock grazing allotment use. Mitigation designed to aid big game would likewise enhance small mammal populations by enhancing both forage and cover, which in turn would benefit raptor species within the area. Mitigation designed to aid livestock grazing use in turn could benefit antelope and other big game use of the area by providing a partial year water source. All or a portion of the mitigation options would be implemented as determined by the BLM.

Cultural Resource Evaluation - To reduce the direct impact of the proposed undertaking on site 42CB-1184, a research design would be developed to analyze the adaptive lifeways of the people of early twentieth century rural Utah in general, and of the Clark Valley in particular. The research design would be multi-disciplinary in approach and involve not only analysis of material culture, but also utilize data from supplemental floral and faunal analysis to provide detailed information. A program of historical research, detailed mapping and controlled excavation would be used to implement the research design. Completion of the research would greatly increase the historical information available on historical homesteading in rural Utah and a finding of No Adverse Effect would be appropriate.

To reduce the secondary impact of the proposed undertaking on the Fremont Period prehistoric sites which are located in close proximity, a similar research design would be developed to refine our definition of the Fremont Period complex and to understand the prehistoric populations adaptive lifeways to the same environment. The research design would utilize a multi-disciplinary approach and involve not only analysis of material culture, but alsoutilize data from supplemental floral and faunal analysis to provide detailed information. A program of detailed mapping and controlled excavation would be used to implement the research design. Completion of the research would greatly increase the information available about Fremont Period lifeways in this portion of central Utah and a finding of No Adverse Effect would be appropriate.

The results produced by both cultural resource impact reduction programs would produce a unique comparison of the adaptive strategies of diverse populations to the same environmental setting.

To reduce the impact of the power line and water line to cultural resources, those portions of the lines that have not previously been surveyed would be surveyed when the final engineering and staking of the lines has been completed. Appropriate measures would be taken to avoid or reduce the impact of newly discovered significant cultural resources. In addition, previously recorded eligible sites 42CB-426 and 42CB-427 would be relocated and plotted so that they may be avoided during the engineering design phase. The objective of No Effect would be foremost during these latter stages of the proposed undertaking.

Vehicular Mitigation - To reduce vehicle wildlife accidents and mortality and minimize wildlife use displacement, the construction, operation and maintenance of the road would:

A. Increase visibility by selective thinning within 100 foot road ROW.

B. Posted maximum speed limit of 50 MPH.

C. Provide UDWR awareness training to educate coal haulers and mine personnel of wildlife habitat requirements..

D. Manipulate habitat in the same general area to attract winter mule deer and elk away from the proposed road. Use a seed mix consisting of less desirable species on seeded areas adjacent to roads (see Stabilization, Maintenance and Operations Plan in Chapter II).

Habitat Disturbance and Displacement - The entire area of actual road disturbance is located within critical and high priority winter mule deer range, as well as elk high priority and substantial winter range. The mitigation outlined for actual habitat disturbance is designed toward habitat manipulation within the same area identified within the displacement mitigation. This would maximize and increase available winter forage to big game. It is BLM policy to mitigate public land impacts on public lands at a minimum of one acre of mitigation for one acre of disturbance on critical winter range. Displacement of wintering mule deer and raptors within the impacted area of the proposed action could be mitigated by the enhancement of the 320 acre area previously identified as a potential site for mitigation projects covering operational impacts associated with the proposed action.

Therefore, by combining the direct 32.45 acres of disturbance on mule deer critical winter range and indirect 380.15 acres of mule deer critical winter range displacement, mitigation activities associated with this area would include the hand planting of approximately 412 acres (rather than 320 acres) with 200 seedlings per acre. The species would be selected for their forage potential for area winter big game. Though actual project impacts associated with the proposed action are to be determined within this document, either, both, or a combination of these mitigation projects would adequately address any operational life of project impacts.

Raptor Nest Protection - To mitigate impacts to raptor nests and utilization of the project area, projects that would monitor and benefit raptor species would be conducted. These actions would include:

A. Restriction of construction access during the established February 1 to July 15 nesting use period.

B. Creation of line of site zone of protection buffer areas around active nests and yearly monitoring of raptor use within the C Canyon area.

C. Construction of artificial nest sites through coordination with the USFWS, UDWR and BLM biologists.

D. In association with the big game wildlife enhancement area, creation of an area to provide an adequate prey base for raptor use.

Livestock Grazing - Impacts resulting from the separation of the Himonas pasture could be mitigated by the establishment of a permanent water source and/or series of troughs within the allotment area (PLATE IV). Incorporation of this mitigation would also provide for the correct utilization of the Bear Canyon 1A and 1B pastures. Approximately two miles of 1.25 inch high density polyethylene pipe, buried at a depth of two feet could be installed from the proposed water line. The installed pipeline would serve six, 500 gallon troughs located within the affected pastures, creating water sources within the area usable by both wildlife and livestock. Another option to provide the mitigation of impacts described would be to create a series of surface water collection ponds within the affected pasture areas. Though not as reliable as a piped source, creation of ponds would facilitate water source requirements within the area.

CHAPTER V. CONSULTATION AND COORDINATION

A. AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONTACTED

Numerous contacts with associated land use agencies, interested parties and individuals have been made during the course of this environmental assessment. The input from meetings, briefings and conversations during the months of February 1997 through May 1998 has resulted in the completion of this document. A list of specific individuals contacted is listed under references.

Public Government/Public Agencies

1. U.S. Department of Agriculture
    a. Natural Resource Conservation Service - Soil Resources
2. U.S. Department of the Interior
    a. Bureau of Land Management - Resource and Regulatory Analysis
    b. U.S. Fish and Wildlife Service - Threatened and Endangered Species and Raptors

State of Utah

1. Department of Community and Economic Development
    a. State Historical Preservation Office - Cultural Resources
2. Department of Employment Security - Social and Economic Resources
3. Department of Natural Resources
    a. Division of Water Rights - Hydrological Impacts and Stream Alterations
    b. Division of Wildlife Resources - Wildlife Resources
4. Department of Transportation - Road Crossings
5. Office of Rehabilitation
    a. School and Institutional Trust Lands Administration - State Land Easements

Local Governments and Organizations

1. Carbon County Recorder - Land Use and Resource Analysis
2. Carbon County Building Inspector - Zoning
3. Carbon County Road Department - Road Design and Proposed Action
4. Carbon County Engineer - Road Design
5. Carbon County Commissioners - Land Use and Easements

Industry and Business

1. WEST RIDGE Resources, Inc; Salt Lake City, Ut. - Proposed Action
2. Creamer and Noble Engineers; St. George, Ut. - Proposed Action and Design
3. Utah Power & Light; Salt Lake City, Ut. - Proposed Action Design
4. East Carbon City; East Carbon, Ut. - Proposed Action Agreement
5. SENCO-PHENIX ACS; Mount Pleasant, Ut. - Cultural Resources

B. LIST OF PREPARERS

CONSULTING INTERDISCIPLINARY TEAM - EIS ENVIRONMENTAL; HELPER, UTAH

David Steed	**Project Manager and Coordinator, Soils, Hydrology, Cultural Resources, Land Use, Wildlife and Vegetation** B.S. Ecology
Melvin Coonrod	**Wildlife, Vegetation, Construction and Operations, Reclamation** B.S. Chemistry and Invertebrate Zoology M.S. Silviculture
Allison Traficonte	**Hydrology and Maps** B.S. Environmental Engineering
Patrick Glenn	**Social Economics and Land Use** B.S. Accounting M.S. Human Resource Management
John Senulis	**Cultural Resources - SENCO-PHENIX ACS** B.A. Anthropology M.A. Anthropology Ph.D. Anthropology

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APPENDICES

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APPENDIX B	**BORROW SITE PERMITS - USITLA**
	TOPSOIL BORROW PERMIT - USTILA
APPENDIX C	**SPCC PLAN - CARBON COUNTY**
	SPCC PLAN - WEST RIDGE
APPENDIX D	**ROW APPLICATION FOR WATER LINE - STILA**
APPENDIX E	**WEST RIDGE CONSTRUCTION AND RECLAMATION PLAN - UDOGM**
APPENDIX F	**SOILS CHARACTERISTICS**
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	REGRADING PRIME FARMLAND
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APPENDIX H	**CANYON SWEETVETCH INVENTORY**
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	RAPTOR INVENTORY

APPENDIX A

STREAM ALTERATION PERMIT

DIVISION OF WATER RIGHTS

CARBON COUNTY

120 EAST MAIN, PRICE, UTAH, 84501
(435)-636-3200 FAX: (435)-636-3210

STRENGTH THROUGH DIVERSITY

April 20, 1998

Greg Mladenka
Department of Natural Resources
Division of Water Rights
1636 West North Temple, Suite 220
Salt Lake City, Utah 84116-3156

Dear Mr. Mladenka:

On February 26, 1993 Carbon County applied for a stream channel alteration permit for Grassy Trail Creek as part of the County's plans to construct the C Canyon road near East Carbon City, Utah. The county has recently revised the alignment of the road, which will now cross Grassy Trail Creek in the S1/2 of Section 1, T15S, R12E. Enclosed is a revised application form and a new set of engineering plans. Division of Water Rights engineer Mark Page is familiar with this change of plans.

If you have any question or comments please contact me or Dave Shaver at 435/637-5385.

Sincerely,

William D. Krompel

William D. Krompel
Carbon County Commissioner

cc: Jim Snyder, Creamer and Noble
Mark Page, Division of Water Rights
Mark Mackiewicz, Bureau of Land Management
Dave Steed, E.I.S.

JOINT PERMIT APPLICATION FORM

U. S. ARMY CORPS OF ENGINEERS - FOR SECTIONS 404 AND 10
UTAH STATE ENGINEER'S OFFICE - FOR NATURAL STREAM CHANNELS

Application Number _____ / _____
(Assigned by:) Corps State Engineer

Applicant's Name (Last, First M.I.)	Authorized Agent	Telephone Number and Area Code
Carbon County Commission		**(435) 636-3226**

Applicant's Address (Street, RFD, Box Number, City, State, Zip)
120 East Main. Price. UT 84501

PROJECT LOCATION

Quarter Section(s)	Section	Township	Range	Base & Meridian
SW1/2NW1/4SE1/4	**1**	**15 S**	**12 E**	**Salt Lake** **XX**

County	Watercourse to be altered	Check one: ___Within city limits ___ Outside city limits List town or nearest town:
Carbon	**Grassy Trail Creek**	**East Carbon City**

Project location or address:
The "C" Canyon Road alignment originates at State Route 123 (milepost 2.9) and trends northeast approximately 8 miles. terminating at the proposed West Ridge Minesite.

Brief description of project:
Construction of the "C" Canyon Road will require crossing Grassy Trail Creek with a double-barrel 14x10 concrete box culvert.

Purpose (justification) of project:
The "C" Canyon Road will be a Carbon County public road. It will provide public access to State and Federal resources located in the West Ridge area of the County for multiple-use activities including recreation, hunting, rangeland and wildlife management, and development of grazing, mineral, timber and water resources.

Is this a single and complete project or is it part of a larger project, continuing project, or other related activities? If so, please describe the larger project or other related activities.
NEPA analysis for reconstruction of the "C" Canyon Road is being addressed in the West Ridge Project Environmental Analysis (EA) being prepared by the Bureau of Land Management.

If project includes the discharge of dredged or fill material: **There will be no discharge of dredged or fill material.**

Cubic yards of material:

Acreage or square footage of waters of the United States, including wetlands, affected by the project:

Source and type of fill material:

Alternatives (other ways to accomplish the project purpose):

The NEPA alternatives being considered in the EA include a different alignment for the "C" Canyon Road. This alternate alignment would also have to cross Grassy Trail Creek, but would be located several miles upstream.

Names and addresses of adjacent property owners or other individuals who may be affected by this project:

Wellington Cattle Association. 1400 South 3250 East. Price. UT 84501, attn: Funnon Shimmon. President

List other authorizations required by Federal, state or local governments (i.e.; National Flood Insurance Program), and the status of those authorizations.

Right-of-way across BLM land: awaiting completion of the EA.

Estimated starting date of project	Estimated completion date
June, 1998	**November, 1998**

(If project has already been partially or totally completed, indicate date of work. Indicate existing work on drawings).

Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete and accurate. I further certify that possess the authority to undertake the proposed activities or am acting as the duly authorized agent of the applicant.

Signature of applicant	Date
William D. Krompel **William D. Krompel. Carbon County Commission**	4/20/98

hereby certify that _____ is acting as my agent for this project.

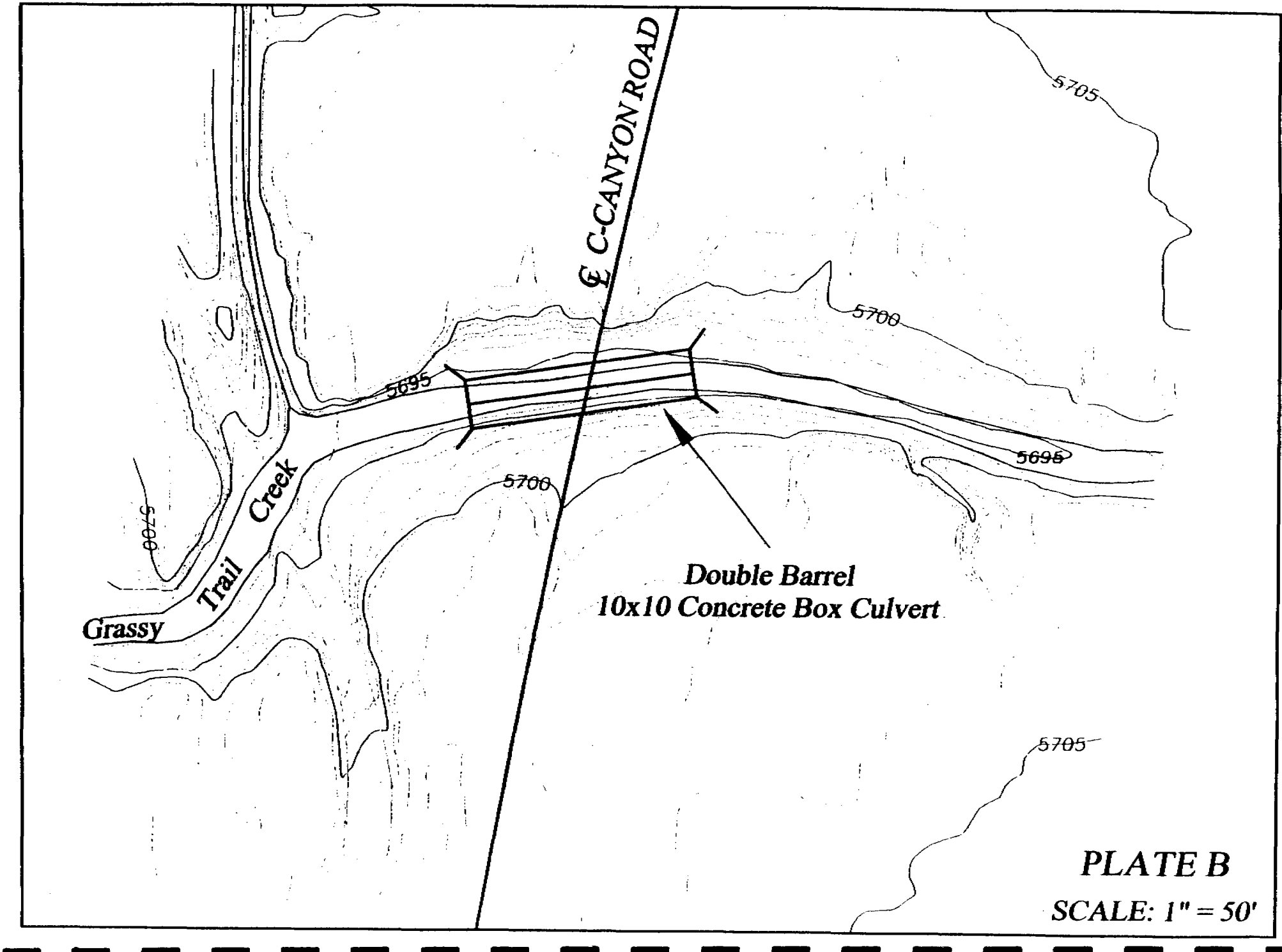
Agent's address and telephone number

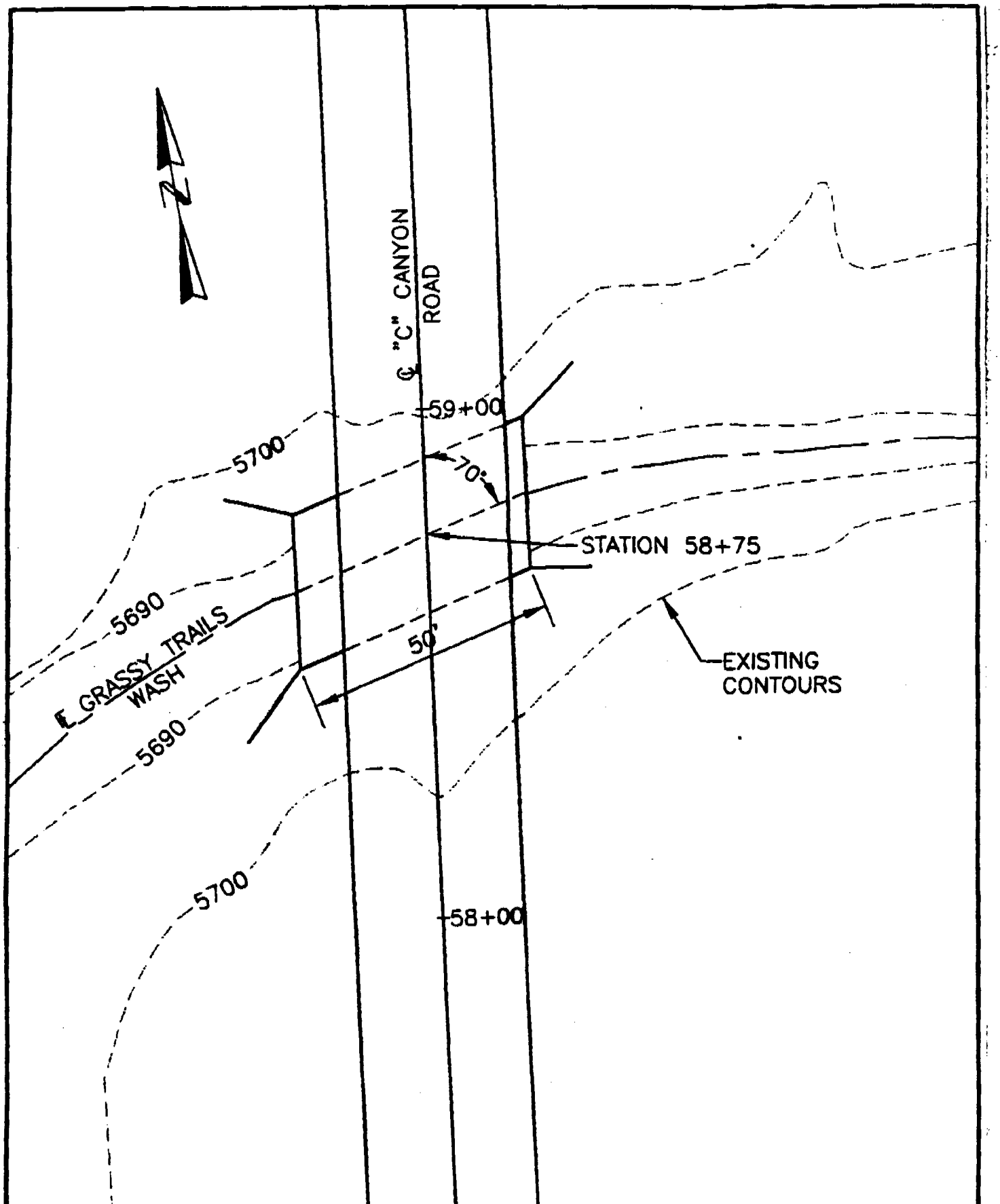
INSTRUCTIONS

Applications which do not include the following will not be processed.

For a complete application, you **MUST** include the following on 8 1/2 by 11 paper (for large projects, multiple sheets with a key may be used). Clear, hand-drawn plans approximately to scale are acceptable.

1. An accurate location map (USGS quadrangle map preferred)
2. A plan view of the proposed activity (as seen from above) including dimensions of work.
3. A cross-section view of the proposed activity (may use typical cross-section for large projects) including dimensions.
4. For projects which include wetlands, an accurate wetland delineation must be prepared in accordance with the current method required by the Corps.


℄ C-CANYON ROAD
5705
5700
5695
5700
5695
5700
5700
Grassy Trail Creek
Double Barrel
10x10 Concrete Box Culvert
5705
PLATE B
SCALE: 1" = 50'



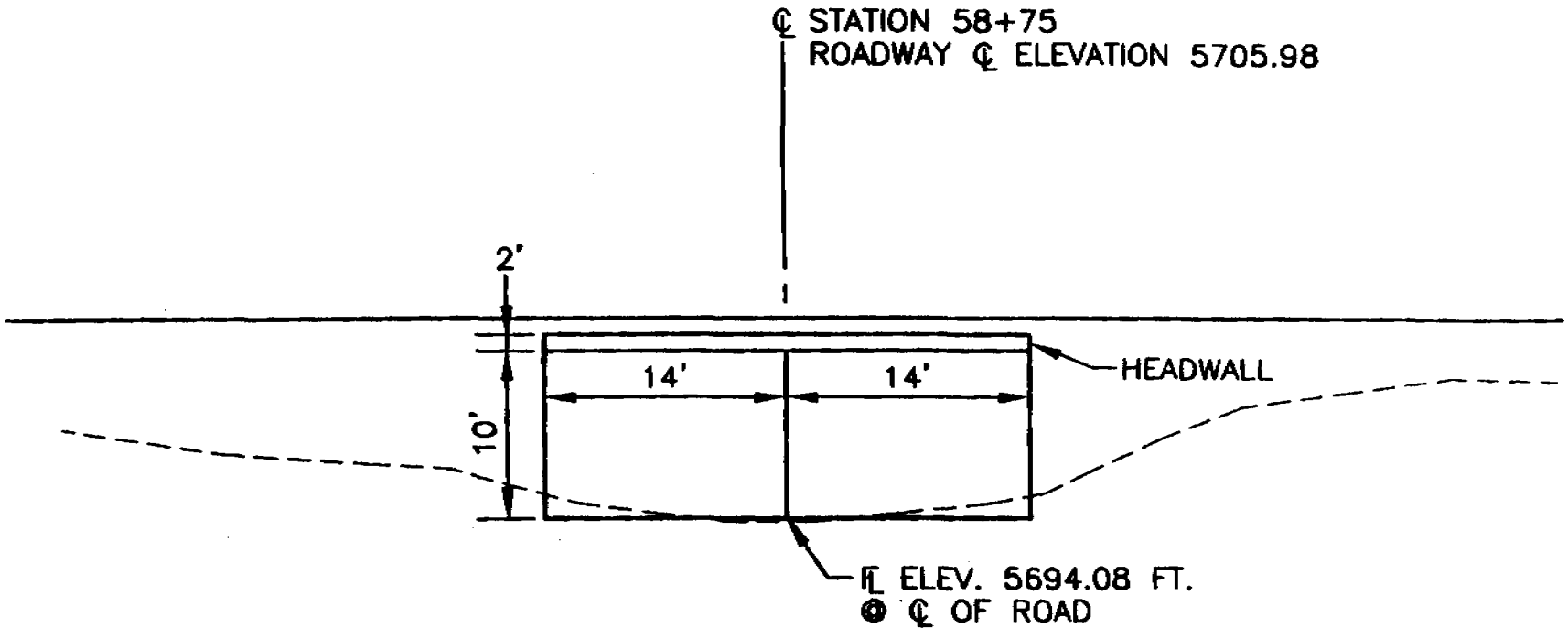
"C" CANYON ROAD

DOUBLE BARREL 14'x10' CONCRETE BOX CULVERT
GRASSY TRAILS CROSSING

PLAN VIEW

CREAMER & NOBLE ENGINEERS
ST. GEORGE, UTAH

EXHIBIT NO.: 1



"C" CANYON ROAD

DOUBLE BARREL 14'x10' CONCRETE BOX CULVERT
GRASSY TRAILS CROSSING

CROSS SECTION AT ROADWAY CENTERLINE

CREAMER & NOBLE ENGINEERS
ST. GEORGE, UTAH

EXHIBIT NO.: 2

APPENDIX B

BORROW SITE PERMITS - USITLA

TOPSOIL BORROW PERMIT - USTILA

CARBON COUNTY

120 EAST MAIN, PRICE, UTAH, 84501
(435)-636-3200 FAX: (435)-636-3210

STRENGTH THROUGH DIVERSITY

April 20, 1998

Jim Cooper
Assistant Director
Utah School & Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, UT 84102

RE: Material Permit 191, Sec. 32

Dear Mr. Cooper,

On January 29, 1998, Carbon County applied for Material Permit 191 to provide borrow material for construction of the C Canyon road (Easement 450). Due to the complication of a nearby eale nest, the county has realigned the C Canyon road. This realignment will result in a relocation of the borrow source covered under MP 191. By way of this letter, we hereby amend MP 191 accordingly. Enclosed with this letter is an amended application form, a revised legal description of the borrow site, and a revised location map.

Please note that the new site is in the same section 32 T14S, R13E, as the original site. Archeology clearances have been prepared for the new site. If you have questions please call me or Dave Shaver at 435/637-5385.

Sincerely,

William D. Krompel

William D. Krompel
Carbon County Commissioner

Neil Breinholt, William Krompel, Mike Milovich — Commissioners

DESCRIPTION OF MATERIAL BORROW SITE (MP 191)
(CARBON COUNTY)
April 20, 1998

Beginning at a point 1,800' east of the NW corner of Sec. 32, T14S, R13E, and lying on the north section line of said section, thence south 1,200;, thence west 1,500', thence north 1,200', thence east 1,500' to the point of beginning, containing 41.3 acres, more or less.

William D. Krompel

William D. Krompel
Carbon County Commissioner

THE STATE OF UTAH
SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION

MATERIALS PERMIT APPLICATION
for Ordinary Sand & Gravel

PERMIT NO. MP191 (Amended) Date: 4/20/98

NAME, ADDRESS & PHONE
Carbon County
120 East Main
Price, Utah 84501
attn: William D Krompel, Commissioner
phone (435) 636 3226

I hereby make application pursuant to Title 53C, as amended and Trust Lands Administration rule, to acquire a materials permit on the following described State land situated in Carbon County, for a term of _____ years (not to exceed five (5) years).

SUBDIVISION	SECTION	TOWNSHIP	RANGE	ACRES
Within the NW¼	32	14S	13E	41.3
Attach additional sheets if necessary			TOTAL ACRES:	41.3

With this application I submit a one-time bonus bid in the amount of _____. I also declare that I will excavate not less than _____ cubic yards of ☐ granular borrow, ☐ washed sand or rock, ☐ road chips or pea gravel, or ☐ crushed or screened road base (a different minimum royalty is associated with each category) every _____ for a period of _____, or pay a minimum royalty in advance based on this amount (if an explanation is needed, please attach). Information provided on request

I acknowledge that submission of this application will initiate a competitive process in accordance with Trust Lands Administration rules and provides no right of priority, and that no permit will be issued for less than $10.00 per acre rental and the Board-approved minimum royalty. The Trust Lands Administration reserves the right to reject permit applications at any time prior to the execution of the permit by the Director. Applicants acquire no vested rights prior to the execution of the permit.

SOCIAL SECURITY NUMBER (if applicant is an individual):

_____/_____/_____

or TAX I.D. NUMBER (if applicant is a corporation):

_____/_____

Will D. Krompel
APPLICANT'S SIGNATURE

William D Krompel
Carbon County Commissioner
TITLE

Form Revised: August 15, 1996

CARBON COUNTY

120 EAST MAIN, PRICE, UTAH, 84501
(435)-636-3200 FAX: (435)-636-3210

STRENGTH THROUGH DIVERSITY

January 29, 1998

Jim Cooper
Assistant Director
Utah School & Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, UT 84102

RE: C Canyon road, materials permit (Sec. 16, T. 14 S., R. 13 E.)

Dear Mr. Cooper,

Carbon County is actively pursuing plans to construct the C Canyon Road near East Carbon City, Utah. This will be a public county road providing access to state and federal public land resources in this part of the county, including coal reserves in the West Ridge area. Detailed design engineering for the road is nearing completion, and the BLM is in the final stages of completing the Environmental Analysis.

As part of this road construction project Carbon County will need to acquire a source of borrow material in convenient proximity to the road alignment. Carbon County's engineering firm, Creamer & Noble, has identified a suitable area which is located on school trust lands in the area. Carbon County would intend to sub-let the borrow site to a commercial contractor chosen by the county to construct the road. Borrow material from this site would be used for construction of the road and other construction projects in the area.

By way of this letter, Carbon County hereby makes application for a materials permit for granular borrow on the following school trust lands:

> Sec 16, T14S, R13E; Beginning at a point 600' north of the southeast corner of Sec 16 and located along the eastern section line of said section, thence 1,000' west, thence 1,000' north, thence 1,000' east, thence 1,000' south to the point of beginning, containing 23 acres, more or less, said parcel being located entirely within the SE¼ of Sec 16.

Neil Breinholt, William Krompel, Mike Milovich — Commissioners

Enclosed with this letter is a completed materials permit application and a map showing the material site area of interest. Please note that a cultural resource clearance (archeology, paleontology) has been completed for this area and filed with the Utah State Historical Preservation Office. We appreciate your prompt consideration of this matter. If you have questions or comment please contact me at your earliest convenience.

Sincerely,

William D. Krompel

William D. Krompel
Carbon County Commissioner

THE STATE OF UTAH
SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION

MATERIALS PERMIT APPLICATION
for Ordinary Sand & Gravel

PERMIT NO. _____ Date: 1/29/98

NAME, ADDRESS & PHONE
Carbon County
120 East Main
Price, Utah 84501
attn: Wm D Krompel, Commissioner
phone (435) 636 3226

I hereby make application pursuant to Title 53C, as amended and Trust Lands Administration rule, to acquire a materials permit on the following described State land situated in Carbon County, for a term of _____ years (not to exceed five (5) years).

SUBDIVISION	SECTION	TOWNSHIP	RANGE	ACRES
within the SE 1/4	16	14 S	13 E	23
Attach additional sheets if necessary		TOTAL ACRES:		23

With this application I submit a one-time bonus bid in the amount of _____. I also declare that I will excavate not less than _____ cubic yards of ☐ granular borrow, ☐ washed sand or rock, ☐ road chips or pea gravel, or ☐ crushed or screened road base (a different minimum royalty is associated with each category) every _____ for a period of _____, or pay a minimum royalty in advance based on this amount (if an explanation is needed, please attach). Information available on request

I acknowledge that submission of this application will initiate a competitive process in accordance with Trust Lands Administration rules and provides no right of priority, and that no permit will be issued for less than $10.00 per acre rental and the Board-approved minimum royalty. The Trust Lands Administration reserves the right to reject permit applications at any time prior to the execution of the permit by the Director. Applicants acquire no vested rights prior to the execution of the permit.

SOCIAL SECURITY NUMBER (if applicant is an individual):

_____/_____/_____

or TAX I.D. NUMBER (if applicant is a corporation):

_____/_____

William D. Krompel
APPLICANT'S SIGNATURE
William D Krompel

Carbon County Commissioner
TITLE

Form Revised: August 15, 1996

ANDALEX
RESOURCES, INC.
Tower Division

P.O. BOX 902
PRICE, UTAH 84501
PHONE (801) 637-5385
TELECOPIER (801) 637-8860

January 29, 1998

Jim Cooper
Assistant Director
Utah School & Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, UT 84102

RE: West Ridge Mine, topsoil special use lease

Dear Mr. Cooper,

Andalex Resources is presently pursuing plans to develop an underground coal mine in the West Ridge area of Carbon County, Utah. As part of the mining project, Andalex will need to acquire a long term source of topsoil material for possible future use during final reclamation of the mine. We have identified a suitable borrow area located on school trust lands in convenient proximity to the West Ridge minesite.

By way of this letter Andalex hereby makes application for an industrial special use lease for future topsoil borrow located on the following school trust lands located in section 16, T14S, R13E, SLBM:

> Sec 16: Beginning at a point 1600' north of the southeast corner of Sec 16 and located along the eastern section line of said section, thence 600' west, thence 700' north, thence 600' east, thence 700' south to the point of beginning, containing 9.6 acres more or less, said parcel being located entirely with in the SE ¼ of Sec 16.

The mine life is expected to be approximately 20 years, but could be more or less depending on future marketing conditions and/or the availability of additional state and federal coal reserves. Therefore, the term of the topsoil borrow special use lease needs to be tied to the life of the mine, so that the soil material would be available on an as needed basis at the time of during reclamation. Also, an additional 10 years is typically required beyond final reclamation in order to meet the vegetation success standards necessary for the bond release. Therefore, this industrial special use lease is requested for a term of 30 years. Once the reclamation bond has been released Andalex will relinquish the special use lease.

It should be noted that in all probability, salvage of topsoil material from this site will not be required in order to successfully reclaim the mine. However, the topsoil needs to be available and dedicated for possible reclamation use just in case it is needed in the future. Assurance of a suitable and dedicated topsoil source is required by the Utah Division Oil, Gas, & Mining as a condition for approval of the West Ridge Mine permit.

Enclosed with this letter is a completed special use lease application and a map showing the area of interest. Please note that a cultural resource clearance (archeology, paleontology) has been completed for this area and filed with the Utah State Historical Preservation Office.

We appreciate your prompt consideration of this matter. If you have any questions or comments regarding this application please feel free to contact me.

Sincerely,

Dave Shaver
Manager, Technical Services

THE STATE OF UTAH
SCHOOL & INSTITUTIONAL TRUST LAND ADMINISTRATION

LEASE OF TRUST LAND APPLICATION

Topsoil

SPECIAL USE LEASE NO. _____ Date: 1/29/98

Name, Mailing Address, and Phone Number
Andalex Resources, Inc
PO Box 902
Price, Utah 84501

Phone (435) 637 5385

Fund_____

I (we) hereby make application, pursuant to Title 53C, as amended, and Trust Lands Administration rule, to lease the following described trust land situated in Carbon County for the term of 30 years, and for the purpose(s) which I (we) have described in a letter, which is attached to and made a part of this application.

SUBDIVISION	SEC.	TWP.	RGE.	ACRES
within the SE 1/4	16	14S	13E	9.6
(Attach additional sheets if necessary)		TOTAL	ACRES	9.6

I acknowledge that submission of this application will initiate a competitive process and provides no right of priority, and that no lease will be issued for less than fair market value. The Trust Lands Administration reserves the right to reject special use lease applications at any time prior to the execution of the lease by the Director. Applicants acquire no vested rights prior to the execution of the lease.

Please mark one of the following statements. (Failure to mark one of the statements will result in the Trust Lands Administration concluding that an applicant wishes to claim Business Confidentiality.)

☐ I wish to claim Business Confidentiality on the information and records associated with this application, pursuant to UCA 63-2-308 (See reverse). NOTE: Business Confidentiality will only apply through the competitive process.

☐ I do not wish to claim Business Confidentiality on the information and records associated with this application.

SOCIAL SECURITY NUMBER (if applicant is an individual):

_____/_____/_____

or TAX I.D. NUMBER (if applicant is a corporation):

61 / 0931325

David S Shaver
APPLICANT'S SIGNATURE

David Shaver
Manager, Technical Services
TITLE

Form Revised: August 15, 1996

APPENDIX C

SPCC PLAN - CARBON COUNTY

SPCC PLAN - WEST RIDGE

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

CARBON COUNTY

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN
SURFACE STORAGE

CARBON COUNTY

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SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

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Section I - Oil Spill Control and Countermeasures (SPCC) Plan (Non-PCB)

5-1.0.0 Purpose

The purpose of this Oil Spill Prevention, Control and Countermeasure (SPCC) Plan is to identify potential sources of oil spill, establish measures of prevention and delineate control and cleanup procedures for all sites where oil and/or diesel is temporarily stored at facilities located in Carbon County, Utah.

Responsibility for compliance with this plan lies with the Superintendent of Maintenance or other Responsible Individuals for this facility who has signed this plan and with the Company official who has signed this plan for Company management.

5-1.1.0 Legal Reference

Preparation of this plan is pursuant to Section 311, Oil and Hazardous Substance Liability of the Federal Water Pollution Control Act (Public Law 92-500 as amended): which requires "establishing procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and from onshore facilities and offshore facilities, and to contain such discharges."

The regulations published in response to the Act specify the elements of the SPCC Plan and have been published in the Code of Federal Regulations (40 CFR, Ch.1, Subpart D, Part 112) and in the Federal Register Dec. 11, 1973, Vol. 38 No. 237, Part III "Oil Pollution Prevention: Nontransportation Related Onshore and Offshore Facilities."

5-1.2.0 Scope of Application

The above-referenced regulations state that the same apply if an onshore nontransportation related facility has oil containers holding more than 660 gallons in a single container or 1320 gallons or more in several above-ground containers, a SPCC Plan must then be prepared, implemented and kept on file (40 CFR 112.1 (d) (1-4).

5-1.3.0 Definition of Oil Spill

A legally reportable "oil spill" is any spillage, leakage, discharge or disposal of oil, grease or

other such petroleum product that enters or is threatening to enter any waterway.

A "waterway" includes any river, stream, canal, lake, sewer, drain or pond. Further definition is given in 40 CFR, 112.2 (a). Environmental Industrial Services reporting procedures are described below in Section 5-5.5.0.

5-2.0.0 Surface Storage Description

5-2.1.0 General - Construction Site "Mobile Portable Storage"

There is a potential for 300 to 500 gallon diesel tank and multiple 55 and 5 gallon oil drums contained in a bermed area.

5-2.2.0 Potential Sources of Diesel and Oil.

The shop, office area and construction sites are equipped with diesel and oil storage tanks.

5-2.2.1 Central Storage (At shop)

(1) Diesel - 500 to 10,000 gallons above ground storage tank.

(2) 500 gallons engine oil (and/or 55 gallon drums).

(3) Gasoline - 55 gallons to >2,000 gallons above ground storage.

5-2.2.2 Maintenance Materials

(1) 55 gallons anti-freeze

(2) 55 gallons gear lube.

(3) 5 gallons grease and lube oils.

5-2.2.3 Used Oil

Used oil is stored in 55 gallon drums and disposed of as needed via an approved carrier to an EPA approved reclaimer.

Volume varies month to month and never exceeds 550 gallons in storage for disposal. Used oil is sent back to main shop in 55 gallon drums.

5-3.0.0 Prevention and Control of Oil Spills

Prevention measures are centered around proper design, inspection and maintenance of oil-filled apparatus. The apparatus is inspected regularly for leaks. If leaks do occur, they are immediately mopped or cleaned up as part of regular operating procedure. Spent cleanup material, gravel, soil and other cleanup debris is disposed of in accordance with Section 5-4.2.0 below.

5-3.1.0 Control At Office/Shop Area

Oil(s) will be controlled by concrete containments or within structures with concrete floors. All used oil-filled barrels are transported to Carabon County Road shop for temporary storage and disposal.

5-4.0.0 Countermeasures

The area described above is designed to contain oil leaks, should they occur, and thus mitigate the possibility of oil getting into a watercourse. In the case of small leaks which are confined to small areas, cleanup is part of the ordinary operating procedure. Countermeasures as outlined in Section 5.4.1.0 are to be taken immediately when there is any danger of oil entering any waterway and in case of any large oil leak.

5-4.1.0 Direct Countermeasures

In the case of a spill, direct countermeasures include the necessary actions to terminate the source of flow of the oil. Make sure the spill is totally contained. Plug the leak, close the valve. Dig a trench or dike or do whatever else is necessary to stop the spill from leaving the property or entering a waterway. Get help if necessary. If the oil has already left the property, upon discovery, effort must be made to place appropriate oil-absorbent materials (sand, soil, straw bales or floor dry) in watercourses or take other actions necessary to minimize environmental damage as a result of the spill. After this is accomplished, the in-house reporting procedure described in Section 5.1.0 should be initiated immediately. Once the countermeasure and reporting functions have been accomplished, cleanup will begin in accordance with Section 5-4.2.0.

5-4.2.0 Non-PCB Spill Cleanup Procedures

Direct operating responsibility for the work site

rests with the Project Supervisor. He will be responsible for cleanup operations.

5-4.2.1 Who to contact for Cleanup

In most cases, the entire cleanup operation will be directed and performed by Carbon County employees under the direction of the Project Supervisor. If the supervisor cannot be reached, call the site Superintendent of the Maintenance and/or Environmental Engineer, 637-4700 as described in Section 5-5.1.1 below to initiate this notification sequence. If available operating personnel cannot contain the spill, call in outside contractors as described in Section 5-4.2.2.

5-4.2.2 List of Contractors

Should Carbon County personnel be unable to perform the cleanup operation, and it is necessary for cleanup to begin immediately, one of the following outside contractors may be notified.

1. Nelco, Inc.
   Neil Frandsen
   P.O. Box 282
   Price, Utah 84501
   (801) 637-3495

2. Eph Henrie Construction
   Route 2, Box 17
   Price, Utah 84501
   (808) 637-0204

3. Nielson Construction Co.
   P.O. Box 620
   Huntington, Utah 84528
   (801) 687-2494

Other contractors with light earth-moving capability who are willing to do oil spill work may also be contacted and used. However, it is necessary to inform the contractor that the oil-contaminated material he is hauling must be deposited in a state-approved sanitary landfill. If the spill is massive, special cleanup effort such as those provided by the Coast Guard may be necessary. In this case, call the Environmental Engineer at (801) 637-4700. Do not call the Coast Guard yourself.

5-4.2.3 Supply of Cleanup Materials

Sufficient quantities of sorbent material such as sand, straw bales and/or floor dry and other cleanup equipment are maintained at all sites to accomplish cleanup of oil spills should they occur.

5-4.2.4 Cleanup Procedures

In conjunction with the countermeasures of Section 5-4.1.0 and the reporting of Section 5-5.1.2, cleanup must be started. If the spilled material has been determined to be a *non*-PCB fluid or otherwise nonhazardous material, the cleanup procedure is as follows:

1. Remove all oil-saturated earth and oil-coated rock and prior to hauling the oil-contaminated material to an approved sanitary landfill, listed in Section 5-4.2.6.

a. Aerate the diesel and gasoline soaked soils by spreading and turning the soil to remove hydrocarbons

b. Take a soil sample on all oil (motor, hydraulic, transmission etc.) contaminated soils and test for TCLP, B-TEX, and TPH's, then wait for analyses to return and final approval for Utah State Department of Environmental Health.

This would also include oil on the surface of waterways and stream banks.

2. Clean concrete and metal surfaces with rags and degreasing agents. Use gloves or whatever is necessary to keep the agents off your skin and dispose of the rags with the other oil spill material cleaned up.

3. Repair all facilities designed for oil containment purposes should they be damaged during the spill or cleanup operations.

4. Submit recommendations, if any, on preventative measures to prevent or control future oil spills.

5-4.2.5 Disposal of Spent Cleanup Material

All spent cleanup material such as rags, sorbent,

oil, blankets, etc., must be disposed of in the same manner as contaminated rock and earth removed from the spill site - that is, taken to an approved sanitary landfill as listed in Section 5-4.2.6.

5-4.2.6 Approved Solid Waste Landfills

When disposing of spent cleanup materials or oil-contaminated rock and earth at an approved landfill, an Environmental Engineer will notify the landfill operator in advance to make sure the landfill is still in operation and has "approved" status from the State Bureau of Solid and Hazardous Waste.

Current information on approved landfills will be supplied by:

Utah State Department of Environmental Health
Dave Ariotti
(801) 637-3671

At the present time, the approved landfills in Carbon and Emery Counties are:

1. East Carbon Hazardous Waste Site
   East Carbon, Utah
   Carbon County

2. Emery County Landfill near Orangeville, Utah
   Dave Ariotti
   Utah State Department of Environmental Health
   (801) 637-3671

3. Barney Landfill (Emery Recycling)
   Next to Emery County Landfill
   Near Orangeville, Utah
   Ronald Barney
   (801) 384-2779

If any numbers given above do not provide the necessary information, call Utah State Bureau of Solid and Hazardous Waste at (801) 538-6170

5-5.0.0 Reporting

Reporting is very important and must be done carefully, accurately and timely.

5-5.1.0 When to Report and When Not to Report

As defined above in Section 5-1.3.0, a legally

reportable "oil spill" is any spillage, leakage, discharge or disposal of oil, grease, or other such petroleum product that enters or is threatening to enter any river, stream, canal, sewer, drain, lake or pond.

At all work sites, any leakage or spillage of oil that is in danger of leaving the property must be reported immediately to the Superintendent of Maintenance, Environmental Engineer, Shift Foreman, or Safety Manager. After the above people are notified, the Environmental Coordinator at Carbon County should be informed.

5-5.1.1 In-House Verbal Reporting

Any personnel discovering leakage or spillage at a site described in Section 5-5.1.0 above must notify their immediate supervisor, who will report it to the site Manager.

5-5.1.2 In-House Written Reporting

For any legally reportable spill, a complete written report must be submitted by the Environmental Engineer within five days of the original verbal report. The written report must address the same components described in Section 5-5.1.3 below and any additional issues deemed important by operating personnel.

5-5.1.3 The Environmental Engineer will execute all reporting to the agencies under direction of the Legal Department. Verbal notification to the agencies must be made within 24 hours of a legally reportable spill. In Utah, legally reportable oil spills are reported to:

1. U.S. Environmental Protection Agency
   Denver Place, Suite 1300
   999 18th Street
   Permits and Technical Support Branch
   (303) 293-1742

2. Utah Division of Health
   Bureau of Water Pollution Control
   288 North 1460 West
   P.O. Box 16690
   Salt Lake City, Utah 84116-0690
   (801) 538-6146

No one but a representative of Carbon County is authorized to call the Coast Guard concerning spills.

The following information must be included in the verbal report:

1. The company name
2. The name of the person reporting, including title and phone number
3. The location of the spill, including type of terrain and nearest waters or drains and anticipated movement of spilled material
4. The time the spill was first observed
5. Existing weather conditions
6. The device or activity involved when the spill occurred
7. The cause of the spill
8. The material spilled
9. The estimated quantity of the spill
10. When and what action was taken for countermeasures, control and cleanup
11. The effectiveness of cleanup operations

5-6.0.0 Compliance Schedule

5-6.1.0 Spill Control Facilities

The collection system and sediment pond in the permit area will prevent any discharge of oil from leaving the permit area and entering any waterway.

5-6.1.1 Drainage - Where feasible, oil and/or diesel tanks are to be bermed with total containment of all fluids.

5-6.2.0 Schedule of Compliance Actions

The various work Sites' Surface Storage is inspected by Ray Hanson or Carl Schade on a monthly basis to insure all necessary control facilities in place.

Section II - Verification and Authorization

To gain acceptance by the Utah Division of Health, Bureau of Water Pollution Control and EPA, this Spill Prevention Control and Countermeasures Plan must be signed by (1) a professional engineer, (2) a representative of management, and (3) Environmental Engineer. The stamp of the professional engineer certifies that the elements of the Plan, including the Compliance Schedule, are in accordance with good engineering practice and that the Compliance Schedule does not suggest any changes which will be contrary to good engineering practice. The signature of management certifies that management has knowledge of the Plan and that the necessary financial arrangements will be made for its implementation. The Environmental Engineer's signature certifies that he has knowledge of the plan and has notified and briefed the necessary operations personnel of the procedures required to implement the Plan. It will be the responsibility of the owners or the Environmental Engineer to assure that the Compliance Schedule is completed expeditiously and in accordance with the rest of the Plan.

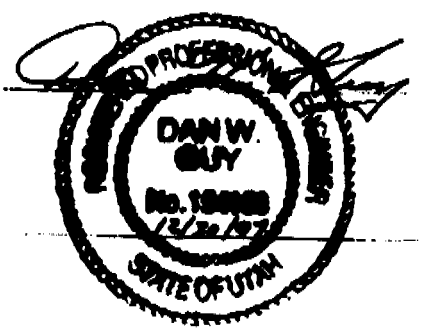
Section III - Signatures

Superintendent of Maintenance	Date
Carbon County Commissioner	Date
Professional Engineer stamp	Date

12/30/97

WEST RIDGE MINE
SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC)
40 CFR 112.7

I certify that the Spill Prevention Control And Countermeasure Plan (SPCC) has been prepared under my direction and in accordance with applicable regulations and prudent engineering practices. Designs presented in this plan meet or exceed associated performance standards.



WEST RIDGE MINE
SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
40 CFR 112.7

The following Spill Prevention Control and Countermeasure Plan is written in accordance with the guidelines of 40 CFR 112.7 for the West Ridge Mine, Carbon County, Utah. The proposed mine facility is to be located approximately 6 miles northeast of East Carbon City, Utah, in Township 14 South, Range 13 East, portions of Sections 10, 11, 14 and 15, for a total of approximately 29 acres. Surface facilities will be constructed to support underground coal mining activities conducted by Andalex Resources, Inc. This plan shall apply to surface fuel and lubricant storage areas within the proposed mine yard.

REGULATORY REQUIREMENTS:

40 CFR 112.7 (a)

The facility is a proposed site and therefore has not experienced any spill events in the past.

40 CFR 112.7 (b)

Gasoline and diesel storage tanks will be located within the mine facility area near the building area, as shown on Map 5-5. Gasoline and diesel will be stored in surface storage tanks of a maximum 2,000 gallons each. The tanks will be constructed and recommended for fuel storage use. Visual observations will be made on the tanks for signs of deterioration and leakage. The fuel will be utilized for mine related equipment.

Fuel storage tanks will be situated so that if one of the tanks were to leak or rupture, the contents of the largest tank would be contained within a concrete or steel enclosure.

Five gallon containers of oil and grease will also be stored in the mine yard area. These containers will be stored within a fire resistant area to keep rain and snow off the containers and prevent accidental contact from moving equipment. Containers will be stored on a concrete slab or other impermeable surface capable of containing spillage to prevent soil contamination in the event of a spill or leak.

Although the storage tanks will be designed for storage of petroleum products and will be tested prior to being put into service, the possibility exists that a tank could leak or rupture. If discharge occurred, contents from the tank (up to 2,000 gallons) would be contained within the storage area. Immediate action would be taken to remove the spilled fuel from the storage site and properly dispose of it at a treatment facility.

Spillage from the oil and grease storage site would also be contained at the site within an impervious containment structure. If necessary, absorbent materials will be used to contain the spill.

40 CFR 112.7 (c)

A discussed in (b) above, enclosure and containment at the storage site will act as a primary measure of control. Should the enclosure leak, rupture or otherwise be rendered inadequate, runoff from the enclosure site would flow to the sediment pond as a secondary measure of containment. The sediment pond has been designed to contain runoff from the yard area and will be constructed at the south end of the mine yard. All drainage from the mine yard will flow to and be contained within the pond. The sediment pond would be used only as a secondary line of defense. Efforts will be made to prevent spills from reaching the pond through primary containment and rapid remedial response using absorbent material.

The sediment pond is designed to contain all runoff, from the mine site area, as a result of a 10 year-24 hour precipitation event. Should a significant runoff event occur, water would be held in the pond until suspended solids had settled (or a minimum of 24 hours) then, if it met quality requirements of the UPDES discharge permit issued for the facility, would be decanted into the natural drainage channel. Water held in the pond would not be discharged unless it met the standard for quality under the UPDES discharge permit issued for the facility. The primary spillway of the sediment pond will be equipped with an oil skimmer to prevent any oil or grease from discharging into the natural drainage.

The sediment pond has been designed in accordance with State regulations and guidelines. Runoff from the disturbed area, plus adjacent undiverted drainage areas, will be contained within the proposed pond. Design calculations for the pond also include a storage volume for three years of sediment accumulation from contributing areas. A maximum of 60 percent of this storage volume will be utilized. Sediment will be cleaned out of the pond upon reaching the 60 percent level, thus restoring 100% of the sediment storage volume.

Ditches within the mine yard will be designed and constructed to divert water away from natural drainage channels and convey the flow to the sediment pond. The ditches have been sized to handle the flow of a 10 year - 24 hour precipitation event.

The approximate distance to any flowing stream is about 8.5 miles. Grassy Trail Creek would be the closest receiving water.

Absorbent material would be kept on-hand at the warehouse to control spills.

40 CFR 112.7 (d)

A description of proposed structures to control and contain accidental discharges is presented in (c) above.

40 CFR 112.7 (e)

Drainage from the mine site will be routed to the sediment pond for containment as described above in 112.7 (c). The conveyance system, composed of ditches and culverts, has been designed to operate efficiently by gravity flow of drainage.

Bulk oil will not be stored in tanks at the mine site. However, in the event a tank containing diesel or gasoline ruptured and was contained by the sediment pond, the stored material will be pumped out into a tanker truck and properly disposed of at a commercial treatment facility.

There will be no buried petroleum storage tanks at the mine site.

INSPECTION AND RECORDS

All storage tanks containing petroleum products will be inspected visually on a daily basis.

Storage containment facilities will be inspected visually on a weekly basis.

Ditches and culverts will be inspected visually on a weekly basis.

The sediment pond will be inspected visually on a daily basis.

Should any leak or spill be detected, action will be taken to immediately stabilize conditions and initiate remedial action.

SECURITY

Access to the storage locations at the mine site will be restricted. Locks will be placed on all dispensing devices to prevent unauthorized discharge.

The valve controlling discharge from the sediment pond will be locked in a closed position.

PERSONNEL, TRAINING AND SPILL PREVENTION PROCEDURES

Employees at the mine site will receive training regarding the proper use and operation of the storage sites and sediment pond. Spill prevention briefings will be incorporated into weekly safety and training meetings held with the employees at the site. Employees will be instructed in how to respond to emergency situations at the facility.

SPCC PLAN SUMMARY

- Fuel will be contained in steel construction storage tanks that are built, designed and approved for the storage of petroleum products. The tanks will be tested prior to their use as a precaution against leaks.

- Primary containment of any leakage from the fuel storage tanks will be provided at the storage tank location. Primary containment will consist of concrete walls or a steel liner sufficient to contain the contents of the largest storage tank. Total containment at the site will be considered a first line of defense. Absorbent materials will be used, where necessary, to minimize impact of any leak or spill.

- The storage location for oil and grease will be fire-resistant and have an impermeable floor to prevent subsurface contamination and sides to contain spillage within the storage site.

- Should the primary containment structures fail, drainage from the storage locations will be routed to and contained by the sediment pond. The sediment pond will be considered only as a secondary line of defense.

- Diversionary structures will be constructed at the mine site to divert and convey a spill, in the event of an emergency, into the sediment pond. Storage in the sediment pond would preclude any discharge into natural drainage ways.

- Should a spill event occur, all oil/fuel collected and contained within the sediment pond will be removed from the pond and disposed in an approved manner.

- The sediment pond will have sufficient capacity to contain run-off from the 10 year-24 hour precipitation event in the area as well as the maximum amount of oil/fuel stored in the largest tank on-site. The principal spillway of the sediment pond will be equipped with an oil skimmer.

- Visual inspection of all storage tanks will be conducted by a designated person on a routine basis. This inspection will also include an evaluation of the foundation supporting the tank.

- Storage tank valves that permit outward flow of the tank contents will be locked in a closed position when in a non-operating mode.

- The loading/unloading connections of all storage tanks will be securely capped.

- All personnel will be instructed in the operation and maintenance of the storage equipment to prevent discharge from the tanks.

- This plan will be posted at the site.

EMERGENCY REPORTING PROCEDURES:

In the event of a spill, the Mine Superintendent or other mine personnel will contact the following personnel:

Person	Office Number	Home Number
Jean Semborski	435/637-5385	637-7369
Tom May	435/637-5205	

In the absence of the above personnel, the following person should be contacted:

Person	Office Number	Home Number
Kent Pilling	435/637-4750	

Reports on the spill shall be made to the EPA and the State of Utah at the following phone numbers:

Agency	Office Number
U.S. Environmental Protection Agency (EPA)	303/293-1788 or 800/424-8802 (24 hour contact)
Utah Bureau of Water Pollution Control	801/538-6146
Utah Division of Oil, Gas and Mining	801/538-5340

APPENDIX D

ROW APPLICATION FOR WATER LINE - STILA

ANDALEX
RESOURCES, INC.
Tower Division

P.O. BOX 902
PRICE, UTAH 84501
PHONE (801) 637-5385
TELECOPIER (801) 637-8860

January 29, 1998

Jim Cooper
Assistant Director
Utah School & Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, UT 84102

RE: West Ridge Mine, waterline easement

Dear Mr. Cooper,

Carbon County is pursuing plans to construct the C Canyon road near the city of East Carbon. This public road will provide access to state and federal lands in the West Ridge area of Carbon County. The road would also provide access to the proposed Andalex West Ridge coal mining operation located in C Canyon. As currently proposed by Carbon County, the C Canyon road would cross Utah School Trust Lands in Sec 32, T14S, R13E.

Water will be provided to the mine via a 6" cast iron buried water pipeline. The waterline will be installed (buried) along the outer edge (western edge) of the Carbon County road but well within the road's nominal 60' easement. The centerline of the waterline easement would be 22.5' from the centerline of the road. The waterline easement would be about 5540' long and 15' wide through this section, involving 1.9 acres, more or less. The term of the easement would be 30 years.

Andalex proposes to construct the waterline. It is anticipated, however, that at some time in the near future ownership of the waterline will be transferred to East Carbon City. Andalex is serving as the authorized agent for all permitting and environmental compliance requirements for East Carbon City relative to this waterline easement.

By way of this letter, application is hereby made for an easement for this buried 6" waterline to be located within the Carbon County C Canyon road easement across said Section 32. Enclosed as part of this application is a completed easement application form, a center line description of the road along which the water line would be buried, and a map showing the water line alignment.

If you have any questions or comments regarding the matter please call me.

Sincerely,

Dave Shaver
Manager, Technical Services

cc: William D. Krompel, Carbon County Commissioner
Paul Clark, Mayor, East Carbon City

CENTERLINE DESCRIPTION

WEST RIDGE WATERLINE EASEMENT
(ANDALEX RESOURCES)
LOCATED WITHIN CARBON COUNTY'S C CANYON ROAD EASEMENT

Described as follows:

Beginning at a point located on the south section line of section 32; T14S, R13E; said point being located 2477.308 feet west of the SE corner of said sec 32; thence N23°40'14"E, 152.263 feet to the point of a 2451.525 foot radius curve to the left; thence 1725.104 feet along the arc of said curve; thence N16°38'52"W, 1029.25 feet to the point of a 2735.936 foot radius curve to the right; thence 399.290 feet along the arc of said curve; thence N8°17'09"W, 440.86 feet to the point of a 1684.190 foot radius curve to the right; thence 785.447 feet along the arc of said curve; thence N18°26'06"E, 306.800 feet to the point of a 2019.647 foot radius curve to the right; thence 700.247 feet along the arc of said curve to a point located on the north section line of section 32, T14S, R13E; said point being located 2211.33 feet west of the NE corner of said section 32.

Total Length: 5,540 Feet or 1.05 Miles

David Shaver
Manager, Technical Services

THE STATE OF UTAH
SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION

EASEMENT APPLICATION

Waterline

EASEMENT NO. _____

Date: 1/29/98

Name and Mailing Address

Andalex Resources
PO Box 902
Price, Utah 84501
phone (435) 637 5385

Fund: _____

I (we) hereby make application, pursuant to Title 53C, as amended, and Trust Lands Administration rule, for an Easement on the following described State lands situated in Carbon County, for a term of 30 years.

SUBDIVISION*	SEC.	TWP.	RGE.	ACRES
Refer to centerline	32	14S	13E	1.9
description attached				
to this application				
			TOTAL ACRES	1.9

*Attach a centerline description and platted survey if applicable.

I understand that the issuance of an easement will be based on the payment of at least fair market value as determined by the Trust Lands Administration, and that the application must be received with a non-refundable application fee.

SOCIAL SECURITY NUMBER (if applicant is an individual):

_____/_____/_____

or TAX I.D. NUMBER (if applicant is a corporation):

61 / 0931325

David Shaver
APPLICANT'S SIGNATURE

David Shaver

Manager, Technical Services
TITLE

Form Revised: August 15, 1996

APPENDIX E

WEST RIDGE CONSTRUCTION AND RECLAMATION PLAN - UDOGM

APPENDIX 5-5
WEST RIDGE MINE
CONSTRUCTION/RECLAMATION PLAN

PART I - CONSTRUCTION PLAN

The construction of the West Ridge minesite is described in outline and detail below. To a very great extent, the precepts of initial construction are inter-related to and inter-dependant upon the methods and techniques employed during final reclamation. In many ways reclamation at the West Ridge site is similar to the construction, but only in reverse order. To the extent that reclamation techniques and initial construction techniques are so inter-related, it is imperative to consider the reclamation plan (as presented in Part II of this plan) as an integral part of the construction plan and vice versa. The two separate plans constitute a whole and should be considered as such.

The following discussion of the construction plan is designed to describe the following items:

1) A general description of the C-Canyon minesite area, and the layout of the surface facilities within this area.

2) A general description of the soil resources presently existing in the minesite area.

3) A brief description of the experimental approach to topsoil protection proposed for this area.

4) A brief description of the nature of the fill material which will be used at the minesite.

5) A summary outline of the various area types within the minesite and how construction methods vary with each specific area.

6) A summary outline of the various construction tasks proposed for the minesite.

7) A detailed discussion of the various area types within the minesite and how construction methods vary with each specific area.

8) A detailed discussion of the various construction tasks proposed for the minesite.

1) A general description of the C-Canyon minesite area, and the layout of the surface facilities within this area.

The minesite surface facilities will be located in C-Canyon where the Lower Sunnyside coal seam out-crops to the surface. Because of the narrowness of the canyon in this area, surface facilities will be confined to a narrow strip along the bottom of the canyon. Suitable surface area for the minesite will be created by constructing a series of earthen pads within the canyon bottom. This will be accomplished by hauling in fill material and by leveling out the area in the bottom of the canyon drainage. The average gradient of C-Canyon in the minesite area is approximately 6.4%. Therefore, the mine pads will be constructed up through the canyon in a stair step manner. Each individual pad level will be dedicated to a specific function as part of the overall minesite operation. Access roads will connect the various pad levels with one another.

The proposed minesite is located in an area where the main canyon branches into two forks and resembles the letter Y. For simplicity, the minesite can be delineated into four distinct areas: the area located within the left fork (left fork); the area located within the right fork (right fork); the area located within the main canyon south of the forks (main canyon); and the area where the main canyon and the two forks converge (confluence). These terms (right fork, left fork, main canyon and confluence) will be used during the remainder of this discussion to refer generally to these respective areas.

Within the main canyon will be located the mine office and parking lot, and a series of sediment ponds. The Carbon County public road which provides access to the minesite will enter the mineyard in this area. Within the confluence area will be located the truck loop, and the truck loadout. The left fork will contain the crusher building, the coal storage pile and a topsoil storage area. The right fork will contain the employee parking area, bath house, substation, portal area, shop/warehouse material storage area and a topsoil storage area.

2) A general description of the topsoil resources presently existing in the minesite area.

Detailed topsoil surveys have been conducted at the minesite area by Jim Nyenhuis, a certified, profession soil scientist during the summer of 1997. These surveys were done in close consultation with DOGM's technical staff. As a result of these surveys the topsoil resources in this area have been adequately defined in terms of soils type, depth and areal extent. The results of these site specific surveys are in close agreement with the regional surveys conducted by the National Resource Conservation Service as presented in the "Soil Survey of Carbon Area, Utah".

At the C-Canyon minesite most of the topsoil exists in the confluence area and in the right fork. The confluence area contains pods of Brycan, Strych and Midfork. Within the right fork Strych is located along the canyon bottom near the flanks of the stream channel. Midfork also exists

along the more densely vegetated south slope (ie, north facing slope) of the right fork. In these areas topsoil depths vary from 2" to 24" and average about 12". The remainder of the minesite is predominantly rock outcrop/rubbleland which is essentially devoid of topsoil. Small isolated patches of Travessilla do occur within this rock outcrop/rubbleland, however. Map 2-2 depicts the location of the soil types in the mine yard, as well as the areal extent of each type. Appendix 2-2 describes the soil resources in greater detail.

3) A brief description of the experimental approach to topsoil protection proposed for this area.

The regulation for which Andalex is proposing to use an experimental practice would be R645-301-232 Topsoil and Subsoil Removal. Rather than removing the topsoil from the proposed mine yard area, Andalex proposes to protect the soil resource in-place by covering the soil surface with a geotextile fabric, then placing fill material over the fabric. At the time of reclamation, the fill material will be removed. The geotextile will then be removed, exposing the original, intact soil surface. To enhance the ability of the soil to absorb moisture, a mixture of PAM (Polyacrylamide) or best technology currently available at the time of reclamation, will be applied to the soil surface. PAM is designed to relieve compaction of the soil and open up channels for air and water penetration. The re-exposed soil structure will most likely be undamaged but lacking in microbes and nutrients. In order to regenerate naturally existing soil organisms and assist in reactivating soil activity, an inoculum will be applied to the soil to reestablish soil bacteria, microhorizia and mycelium. To enhance soil microbial establishment and promote more rapid stabilization of the soil, the seed mixture (as listed in Chapter 3) will be hand broadcast over the area and raked into the soil surface. A wood fiber mulch will be applied over the seed bed then the surface will be sprayed with a bonded fiber matrix tackifier. This type of tackifier has appeared to have a much greater ability than regular tackifier to hold and stabilize the soil surface. The bonded fiber matrix tackifier will be applied at a rate of 3,500 pounds per acre (or manufacturer's recommended application if greater).

The proposal to leave the existing topsoil in place and protected by a geotextile barrier within the filled areas of the minesite is considered an experimental procedure as defined in section R645-302-210 of the State of Utah Coal Mining Rules and SMCRA. The practice of protecting the topsoil in-place with a geotextile fabric has been previously approved in Utah in steep slope conditions (Genwal Resources, Crandall Canyon Mine, ACT 015/032).

Based on recommendations from experienced reclamation consultants there is every reason to believe that this procedure will be successful in meeting the reclamation standards required by SMCRA. However, as an added element of assurance for the success of reclamation at the West Ridge minesite, Andalex has preserved, under long-term lease, a separate source of high quality topsoil which can be used to reclaim the minesite if needed. The sole purpose of this topsoil borrow site is to be used for final reclamation on an as needed basis in the unlikely event that the left-in-

place topsoil at the minesite cannot be sufficiently revitalized and re-utilized at the time of final reclamation. Sufficient tests have been completed on this potential topsoil borrow site to determine that the topsoil resource exists in sufficient quality and quality to completely reclaim the minesite. This alternate topsoil borrow site is conveniently located within two miles of the minesite and contains soil material which is nearly identical in chemical and physical characteristics to the topsoil naturally existing at the minesite.

4) A brief description of the nature of the fill material which will be imported to the minesite to construct the mine pads.

The minesite earthen pads will be constructed using standard cut-and-fill techniques. However, based on computer generated earthwork models, fill volumes are expected to exceed available cut volumes by approximately 100,000 cubic yards. Therefore, additional fill material will have to be imported to complete the construction of the mine pads. Borrow material will be procured from an independent commercially operated material site located nearby. This material site will be a borrow pit licensed by Carbon County and developed primarily to serve the construction needs of the nearby Carbon County public road. The borrow site will be located on Utah School Trust Land and will be permitted, licensed, operated and reclaimed according to all applicable state environmental regulations.

The occurrence of construction-grade borrow material in this area is invariably associated with the pediment terraces which are located at the foot of the Book Cliffs. These pediment terraces slope away from the cliffs and are topped with a layer of gravelly material consisting of sandstone boulder fragments and cobbles within a fine grained matrix. This material is composed of weathered remnants of the nearby Book Cliffs stratigraphy (ie, Black Hawk Formation). This borrow material is chemically and physically identical to the native materials existing naturally in the vicinity of the minesite. Tests have determined that this borrow material is, in and of itself, a suitable topsoil (growth medium) material. In fact, in its natural condition it supports the exact vegetation types and species that are found close by at the minesite. Numerous such suitable borrow sites containing this type of material are located within a mile or two of the minesite which can be accessed to provide borrow material for construction of the county road as well as the minesite. Prior to being used as a construction medium the pit run material will first be run through a crusher to produce a 8" x 0" product. Therefore the fill material hauled to the minesite for pad construction will contain a high percentage of larger (8") rock fragments.

5) A summary outline of the various area types within the minesite and how construction methods vary with each specific area.

Construction/reclamation areas within the minesite can be defined accord to the following three criteria:

a) Whether the area lies within the canyon channel bottom or is located up along the canyon sideslopes away from the bottom (Channel or Slope)

b) Whether the area presently contains topsoil or whether it is rock outcrop/rubbleland presently devoid of topsoil (Topsoil or Rock)

c) Whether the area is to be filled over or else cut away during construction of the mine pads (Fill or Cut).

This delineation is important because construction in these various area types is, in large part, predicated on the requirements for final reclamation in those same areas. In these area-types, construction and reclamation are inter-related and inter-dependant. On an area-by-area basis initial construction methods are influenced by final reclamation requirements and final reclamation techniques are, in turn, dependant upon initial construction methods.

Any given area within the minesite can be defined in terms of a combination of the aforementioned criteria. Different construction and reclamation methods apply to each specific area type. Therefore, for the purpose of defining construction/reclamation methodologies the minesite can be categorized into the following area types.

a) Areas within and immediately adjacent to the stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which will be filled over during construction of the mine pads:
Channel (C), Rock (R), Fill (F) = C/R/F

b) Areas within and immediately adjacent to the stream channel; where topsoil is present; which will be filled over during construction of the mine pads:
Channel (C), Topsoil (T), Fill (F) = C/T/F

c) Areas located up along the canyon sideslope away from the channel; where topsoil is present; which will be filled over during construction of the mine pads: Slope (S), Topsoil (T), Fill (F) = S/T/F

d) Areas located along the canyon sideslopes away from the stream channel; where topsoil is present; which will be cut away during construction of the mine pads: Slope

(S), Topsoil (T), Cut (C) = S/T/C

e) Areas located up along the canyon sideslope away from the stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which will be filled over during construction of the mine pads:
Slope (S), Rock (R), Fill (F) = S/R/F
f) Areas located up along the canyon sideslope away from the stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which will be cut away during construction of the mine pads:
Slope (S), Rock (R), Cut (C)= S/R/C

Note: Refer to item 7) for details of these construction area types.

6) A summary outline of the various construction tasks proposed for the minesite.

In addition to the construction area-types mentioned previously, the minesite construction area can also be defined in terms of the major tasks that are necessary for completion of the surface facilities. These tasks, listed in approximate order of completion, include the following:

a) Clearing and grubbing of trees and shrubs
b) Installation of the bypass culvert and in-place protection of channel with geotextile
c) Construction of sediment pond
d) Protection of in-place topsoil resources
e) Topsoil removal, salvage and stockpiling
f) Face-up of coal seam, preparation of portal highwall area
g) Construction of various earthen pad levels and interconnecting access roads
h) Installation of ditches, culverts and other drainage controls
i) Construction of coal handling facilities and associated structures

Note: Refer to item 8) for details of these construction tasks

7) A detailed discussion of the various area types within the minesite and how construction methods vary with each specific area.

7a) AreaType C/R/F [Channel (C), Rock (R), Fill (F)] : Areas within and immediately adjacent to the stream channel; which is predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which will be filled over during construction of the mine pads. These areas occur primarily in the bottom of the main canyon and in the bottom of the left fork.

Construction Method: Before any pad construction can occur in this area, the bypass culvert must first be installed. Since no topsoil exists in these areas, topsoil salvage/protection is not a factor during construction. Construction will start at the lower (downstream) end of the minesite and progress up canyon. The alignment of the culvert installation will closely follow the existing channel alignment, both vertically and horizontally. This will insure a replicated sinuosity and gradient of the original channel upon final reclamation when the culvert is removed and the channel is restored to its existing configuration. A backhoe will advance up the channel bottom and prepare the bottom for the culvert as it progresses. Large boulders will be moved out of channel and placed up along the bank out of the way. These boulders will be repositioned along the bank in a manner that allows them to be conveniently accessible during final reclamation at which time they will be relocated back into the channel as the channel is being restored to its approximate original morphology. After the boulders have been moved out of the way, the channel bottom will be graded as necessary to accommodate the culvert installation. Humps will be smoothed out and depressions will be filled in using native materials. A thin lift of imported borrow material may be added in places to serve as a bedding material and supplement the grading process, especially in certain areas where grade breaks are more pronounced.

Immediately after the channel has been prepared the culvert will be installed. Angled culvert joints will be pre-engineered and pre-fabricated as necessary to insure that the culvert can be curved as needed to closely follow the existing channel alignment and preserve the natural stream bed sinuosity. Shortly after the culvert is laid in the prepared channel it will be backfilled using an imported crushed borrow material. This borrow material will be obtained from a nearby source and will have chemical and physical properties which are nearly identical to the native earth materials existing naturally at the C-Canyon minesite. As culvert installation and backfilling progresses, the covered-over culvert area will provide an access way into the area for construction equipment and materials for the remainder of the minesite earthwork construction activity.

7b) Area Type C/T/F [Channel (C), Topsoil (T), Fill (F)]: Areas within and immediately adjacent to the stream channel; where topsoil is present; which will be filled over during construction of the mine pads. This occurs primarily along the bottom of the right fork.

Construction Method: Before any pad construction can occur in this area the bypass culvert must first be installed. Culvert installation will follow the same procedures as described previously for the channel bottom/rock rubble area. There will be one major exception however. Because soil resources presently exist along the flanks of the channel in the topsoil area special procedures will be implemented to preserve and protect these topsoil resources. After the channel bottom has been prepared for the culvert, but before the culvert is actually installed, the channel will be draped with a geotextile material. The geotextile will line the channel and will extend up and over the banks on either side of the channel for distance

sufficient to adequately preserve the existing channel geomorphology. Based on field observations and cross sectional measurements the geotextile drape will probably average about 20-30 wide throughout most of the zone.

7c) Area Type S/R/F [Slope (S), Rock (R), Fill (F)]: Areas located up along the canyon sideslope away from the stream channel; which is predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which will be filled over during construction of the mine pads. This area occurs primarily in the interior portions of the canyon in the main canyon and the left fork.

Construction Methods: In order to create the mine pads necessary for the long-term operations, fill material will be hauled in and placed over these sideslope areas. Prior to placing fill over these areas they will first be grubbed and cleared of vegetation. Also, some larger boulders may have to be broken up or relocated so that they will not pose complications for subsequent construction of footers and foundations for the buildings and structures which will later be built on top of these pads. These boulders may be relocated adjacent to the culvert in the deepest part of the fill. This location is advantageous from a future reclamation standpoint. It allows these same boulders to be uncovered lastly in the reclamation process so that they can be relocated back onto the reclaimed sideslopes. This will help mimic and replicate the naturally existing premining boulder surface condition.

Fill material will be brought in from a nearby off-site commercial borrow source. (As explained earlier, this fill material will have chemical and physical properties very similar to the native earth materials existing naturally at the minesite). Fill will be placed in 18"-24" lifts and compacted to at least 90% (modified proctor) in non structural pad areas and at least 95% in structural areas.

7d) Area Type S/T/F [Slope (S), Topsoil (T), Fill (F)]: Areas located up along the canyon sideslope away from the channel; where topsoil is present; which will be filled over during construction of the mine pads. This area occurs primarily in the interior portion of the right fork and the confluence.

Construction methods: In order to create the mine pads necessary for the long-term mine operations, fill material will be hauled in and placed in the sideslope areas. For the most part fill placement will follow the same procedures as describes previously for the rock/fill (S/R/F) areas. There will be one major exception, however. Because of the topsoil resources presently existing in these areas special procedures will be implemented to preserve and protect these soil resources. Prior to placing fill over these areas they will first be grubbed and cleared of vegetation. Trees will be cut off about 6" above the ground. The stumps and roots will be left in place to help stabilize the soil and to help maintain the soil's organic composition. After the area has been grubbed a layer of long-lasting geotextile will be

placed over the entire surface area to be filled. After the geotextile has been laid in place fill material will then be imported and placed in compacted 18"-24" layers as described earlier.

7e) Area Type S/R/C [Slope (S), Rock (R), Cut (C)]: Areas contained rock outcrop/rubbleland and which wil be cut away. These areas occur along the sides of the canyon where the sideslopes adjoin the upper (surface) level of the fill pads, particularly in the main canyon, the left fork, and the northwest side of the right fork.

Construction methods: Cut areas along the hillslopes within the mineyard are designed to expand and define the yard limits to best accommodate the necessary surface structures, to provide neat-line adjustments for linear features such as roadways and ditches, and to provide clear slopes to facilitate long-term yard maintenance. Like all areas within the proposed minesite these areas will first be grubbed to remove the existing shrubs and vegetation. Rubble from the cuts will be placed in the pad fill along with the imported borrow material. Within the rubbleland areas, cut banks will normally be held to 1:1 slopes or less. In the rock outcrop areas cuts will consist of little more than clearing the slopes of loose weathered rubble and detritus down to bedrock.

7f) Area Type S/T/C [Slope (S), Topsoil (T), Cut (C)]: Areas located along the canyon sideslope away from the stream channel; where topsoil is present; which will be cut away during construction of the mine pads: This occurs primarily along the southeast side of the right fork, at the confluence, and isolated locations within the left fork.

Construction methods. Construction methods in these areas will be similar to those previously described for cuts in the rock outcrop/rubbleland areas with one major exception. After the area has been grubbed, topsoil will be carefully salvaged and hauled to a dedicated storage area. Topsoil salvage and stockpiling will be accomplished under the direction of a trained soil scientist familiar with the soil resources of the area. The soil scientist will be on-site at all times during the soil salvage operations. After all topsoil has been salvaged the substrate material can then be cut back to accommodate the overall design of the minesite. Cut substrate material will be placed in the pad fill, along with the imported borrow material. If the to-be-salvaged topsoil in different areas is distinctly different in terms of chemical and physical classification, the soils will then be segregated according to soil type and stockpiled in separated piles. This is to insure that upon final reclamation specific topsoils can be reapplied back to their specific original locations.

Designated topsoil storage areas are located at the upper end of the material storage area in the right fork and (if needed) the upper end of the coal storage area in the left fork. Prior to receiving salvaged topsoil, the storage areas will first be prepared. Large boulders will be relocated to make it easier to reclaim the topsoil in the future during final reclamation. These areas will not be grubbed however. Naturally existing organic vegetative material will do

nothing but enhance the quality of the future soil resources stored on these areas.

8) A detailed discussion of the construction tasks proposed for the minesite.

As part of the overall minesite development plan, certain major construction tasks must be accomplished in a prescribed manner. Most of these construction tasks are common to many, if not all the area-types described above. The following tasks are listed in order in which they would generally be expected to occur within any given area of the minesite. However, in practice many of these construction tasks will be occurring simutaneously, but at different areas, throughout the minesite. This is attributable to the fact that the minesite construction will be done over a long narrow stretch of the canyon bottom. Most construction tasks will begin at the lower, down-canyon end of the mineyard and proceed up canyon. As primary initial tasks are completed at the lower reaches of the site, secondary tasks can begin even though the primary tasks may not yet be completed in the upper reaches of the site.

8a) Clearing & grubbing. One of the earlier phases of construction will involve the removal of all trees and shrubs (ie, clearing and grubbing) from the 25 acre minesite area. Larger commercially valuable trees will be harvested and hauled away. Smaller trees and shrubs will be cleared and disposed of on-site. This slash material will be buried in a controlled manner within the pad fill in non-structural areas such as the coal storage pad in the left fork and the material storage area in the right fork. In order to avoid compaction complications, slash will be buried away from (ie, not in close proximity to) the bypass culvert which will be installed in the bottom of the existing drainage.

8b) Installation of the bypass culvert The initial phase of construction will involve installation of the undisturbed drainage culvert (bypass culvert). This culvert will be installed within the existing channel and is designed to carry the natural canyon drainage underneath the minesite. This culvert system allows the natural drainage to "bypass" the disturbed area of the minesite. This separation also allows the disturbed area drainage to report to sediment control features on the surface thereby preventing intermingling with the natural undisturbed drainage flowing through the bypass culvert.

Prior to culvert installation the channel bottom will first be prepared. A backhoe will be used to smooth out and grade the channel bottom. Large boulders will be moved aside and irregularities (humps, bumps and depressions within the channel bottom) will be filled in utilizing native materials. Where needed, a thin layer of bedding material (imported crushed 8" x 0" borrow) may be laid in the channel bottom to aid in culvert installation. In areas of pronounced grade breaks additional bedding material may be required to provide an adequate vertical alignment for the culvert . In other areas where the existing channel is already

smooth and uniform no bedding material may be required. To the maximum extent possible the alignment of the bypass culvert installation will closely follow the existing stream channel. Culvert angle-joints will be pre-engineered and pre-fabricated to insure that the existing channel alignment can be followed as closely as possible.

Boulders will be removed from the culvert path and relocated up along the flanks of the channel. In this location the boulders will be in convenient proximity to be repositioned back into the stream channel upon final reclamation to replicate the pre-existing pre-mining geomorphology of the channel. Trees and shrubs will be removed from the channelway prior to culvert installation. In areas where topsoil resources are located within and along the banks of the existing channel, trees and shrubs will be cut off about 6'-8" above the ground surface. Stumps and roots will be left in place to help stabilize the existing soil and the existing channel configuration.

After the channel has been readied for culvert installation (ie, graded, bedding material placed, boulders removed and vegetation removed) the culvert can then be installed. The typical pre-culverted channel will be about 10'-12' wide across the bottom and will have natural 2:1 sideslopes. Before the culvert is installed in the topsoil areas (C/T/F) the channel bottom will first be lined with a geotextile fabric. This fabric will be placed across the full width of the channel and will extend up the side banks at least 5' on either side of the channel. The purpose of the geotextile is to provide a separation barrier to protect the channel and the stream bank topsoil, and to preserve it in its natural condition prior to being filled over during subsequent construction of the mine pads. This will help insure that upon final reclamation the channel morphology can be adequately restored.

After the geotextile has been placed through the prepared channel, the culvert will then be installed on top of it. As explained earlier, the culvert alignment will closely follow the existing channel alignment. However, in a few selected areas the culvert alignment will have to be shifted slightly to accommodate important surface structures, such as the mine fan and the substation. After the culvert has been laid in place it will immediately be back filled using the same imported 8" x 0" fill material that was used for the bedding material. Vertical risers will be installed at various locations along the length of the culvert to aid in hydraulic venting and to serve as access for inspection and maintenance. After the culvert has been backfilled and compacted, the area over top the conveyor can be used as an access way for machinery and material involved in the remainder of the site construction.

8c) Construction of the Sediment Ponds. Installation of the bypass culvert will begin at the lower (down canyon) end of the minesite. Once the culvert installation has progressed up canyon approximately 500', construction of the initial sediment ponds can begin. The sediment pond actually consist of three individual smaller ponds or cells. Each of these cells will be constructed in the bottom of the canyon directly over top the bypass culvert. The

lower pond (cell C) will be constructed first, after the bypass culvert has been installed through that area. As construction of the culvert continues upstream the remaining two pond cells will be installed in sequence. In this manner the sediment ponds will be installed as early as possible in the construction schedule. These ponds will then be in place for the entirety of the remaining construction activities and will provide maximum sediment control for the rest of the project.

The three-tiered multi-cell pond arrangement is well suited to the steep gradient and narrow confines of the conveyor. The ponds will be constructed in a cascading arrangement whereby most minesite disturbed area drainage reports initially to the uppermost pond. If the upper pond fills to capacity, excess runoff will report to the middle pond through an open channel spillway located between the ponds. If the second pond fills to capacity, the excess run-off will then report to the third and lowermost pond. The combined capacity of the three-celled pond is well in excess of the 10 yr 24 hr requirements. However, if the total pond capacity is exceeded, the over flow from the third pond will exit through a riser-type culvert primary spillway equipped with an oil skimmer. This riser spillway will lead directly to the main bypass culvert located below the sediment ponds. One advantage of the multi-celled pond is that most sediment will tend to collect in the upper pond. This will greatly simplify sediment monitoring and clean out. The three-cell arrangement also precludes the possibility of short-circuiting and simplifies the process of decanting the pond in a manner that meets UPDES discharge requirements.

All open channel spillways will be constructed to pass the 10 yr 24 hr storm event. Spillways will have a bottom width of 5'; a freeboard depth of 2'; and 2:1 sideslopes and will be lined with concrete or grouted riprap. The lower pond will also be equipped with an open channel emergency spillway capable of handling a 25 yr 6 hr storm event. Riprap will be installed at the outlet of all open channel spillways to protect the earthen structures from erosional forces.

8d) Protection of in-place topsoil. Within the minesite there are sideslope areas where topsoil presently exists and which will be filled over during construction (S/T/F area type). In these areas the topsoil resource will be protected in place and preserved in its existing state. Prior to placing fill material over these areas they must first be cleared and grubbed of trees and shrubs. Trees will be cut off about 6"-8" above the ground and the roots will be left in place to stabilize the soil until the time of final reclamation. After the area has been grubbed it will be completely draped with a long-lasting geotextile fabric. Once the fabric is in place the area will then be filled over with an imported borrow material. This pad fill will be placed in compacted lifts. As the fill is built higher and higher up the slopes, additional layers of geotextile will be added to maintain the separation between the left-in-place topsoil and the newly placed pad fill.

The purpose of the geotextile is to protect the existing topsoil resources in their present in-place condition, and to provide a barrier between the in-place topsoil and the imported fill material. By using the geotextile, the existing topsoil located on the channel and slopes can be left in place. Leaving the soil intact and in-place will maintain the soil cohesiveness. Roots and soil structure will help promote soil stability, minimize the potential for erosion and soil sloughage. The soil horizons will remain intact to help promote faster revegetation of the slopes. During final reclamation the fill material and geotextile will be removed to re-expose the existing topsoil.

It is anticipated that after the fill is removed and the geotextile fabric is peeled away, the underlying soil material along the channel banks and slopes will be somewhat compacted. To enhance the ability of the soil to absorb moisture, a mixture of PAM (Polyacrylamide) or best technology currently available at the time of reclamation, will be applied to the soil surface. PAM is designed to relieve compaction of the soil and open up channels for air and water penetration.

8e) Topsoil removal, salvage and stockpiling. Within the minesite there are sideslope areas where topsoil presently exists and which will be cut away during construction (S/T/C area type). In these areas the topsoil resource will be carefully removed and stockpiled before any additional excavation continues. All topsoil salvaging will be done under the direction of a competent soils scientist. Based on the soil surveys completed in this area up to 24" of topsoil may exist in these areas which could be salvaged. Topsoil in these areas will be salvaged with backhoes, trackhoes and/or small front end loaders it will be hauled by dump trucks to the designated topsoil storage areas. If the topsoil depth in the S/T/C areas averages 18" up to 6,506 cubic yards of topsoil may be available to be salvaged and stockpiled.

It should also be noted that small isolated pockets of Travessilla soils exist within the rock outcrop/rubbleland areas of the minesite. In fill areas (S/R/F) these soils will be protected with geotextile as described above; in cut areas (S/R/C) these soils will be salvaged under the direction of the soil scientist.

Two topsoil storage areas are being proposed: one at the upper end of the material storage area in the right fork, the other at the upper end of the coal storage pad in the left fork. The right fork area will be the primary storage area. The left fork storage area will be utilized if needed in the event that the right fork area is filled to capacity and additional storage area is required. The left fork storage area may also be utilized if separate and segregated stockpiles are needed to maintain the integrity and identity of the individual soil types present at the site (ie, Brycan, Strych and Midfork) for future reclamation.

8f) Face up of coal seam/preparation of portal highwall. As soon as possible after construction begins the coal seam will be faced up and the portal highwall will be excavated. The portals will be located on the southeast side of canyon within the right fork. Prior to facing up the portals the area will first be cleared and grubbed, and topsoil will be salvaged. The extent of coal seam weathering and/or burn will dictate the extent of the highwall needed to access the solid coal face for the purpose of installing the portals. The highwall must be constructed long enough to accommodate at least four portal openings (fan, belt, two intakes). However, the mine opening has been designed to require the absolute minimum of highwall length. Minimizing the extent of the highwall is an important consideration not only in the initial mine development but also and even more so for final reclamation. All efforts will be made to not only minimize the length of the highwall, but also to minimize its height as well. The highwall will be constructed (and stabilized as necessary) to conform to the safety requirements of MSHA. In order to achieve minimum disturbance of the canyon side slope the highwall will be cut into the solid rock as steeply as possible while still maintaining the necessary long term structural stability.

8g) Construction of the various earthen pad levels and interconnecting access roads. As mentioned previously fill material (borrow) will have to be imported to the site in order to construct the mine pads necessary to accommodate the long term operational requirements of the mine. This material will come from a commercial borrow pit located in the near vicinity of the minesite. The borrow material will be chemically and physically similar to the native materials existing at the minesite.

According to computer models of the minesite earthwork, approximately 100,000 yds of borrow will have to be imported to achieve the proposed mineyard configuration. This material will be crushed to an 8" x 0" product before being delivered to the site. It will be placed in 18"-24" lifts and compacted to a minimum 90% density for nonstructural areas, and to 95% density in structural areas. Nonstructural areas include parking lots, material storage areas and coal storage areas. Structural areas include all areas under buildings, conveyor bents, substation, backfilled areas around culverts and reclaim tunnels, roadways, mine fan and reinforced earth retaining walls (Hilfiker). Experience has shown that this material can usually exceed 95% compaction using standard wheel rolling methods, although vibratory compaction will be used in critical structural areas. All earthwork will be required to meet a minimum of 4000 psf load-bearing capacity.

Prior to placement of fill material, the site will first be cleared and grubbed. In topsoil areas, geotextile will be placed in the channel bottom to preserve the geomorphology of the channel for final reclamation. Geotextile will also be placed over topsoil areas along the sideslopes to preserve the in-place soil resources for final reclamation.

Pad construction cannot begin until after the bypass culvert has been installed and backfilled,

trees and shrubs removed, and geotextile laid down. In general, the individual pad levels will be constructed beginning with the downstream working areas and will proceed upstream as completion of the culvert allows. However, emphasis and priority will be given to those pad levels that are designed to accommodate key structural elements of the surface facilities. These include the pad levels associated with the coal pile reclaim system, the substation, the elevated conveyor gallery, bath house, and shop/warehouse building.

Although most of the pad levels will be constructed by filling the area with imported borrow, some pad construction will involve cutting into the existing side slopes. Under normal construction situations sideslope cuts will be minimal, and will not usually extend up-slope more than about 20' above the completed pad level. The primary purpose of the sideslope cuts is not to generate fill volumes, but rather to provide uniform yard boundaries for proper alignment of ditches, roads, buildings and other peripheral structures. Cut slopes area also necessary to predefine the limits of the pads for the purpose of layout and engineering design. Clear slopes are also needed to assure long term site maintenance. In order to meet the objective of yard limit definition, the slopes in some areas may be actually constructed by placing fill against the sides slopes rather than cutting into the existing hillside.

In topsoiled areas (S/T/C areas), before any slope cuts are made, topsoil will first be salvaged and stockpiled. All topsoil salvaging will be under the direction of a qualified topsoil scientist. After the topsoil has been removed, the substate material will be excavated. Cut material will be incorporated into the pad fill along with the imported fill material. Sideslope cuts may be greater in some selected area where pre-engineered design parameters dictate. These areas include roadways, portal highway, conveyor runs and various building sites.

8h) Installation of ditches, culverts and other drainage controls. As stated earlier, the sediment pond will be constructed as early as possible in order to provide maximum sediment control during the term of the construction project. Once the pad levels are constructed, along with the interconnecting roadways, drainage control ditches and culverts will be constructed and culverts installed. Disturbed area ditches and culverts will be designed to handle a 10 yr 24 hr storm event. Where necessary, ditches will be lined with concrete or riprap to prevent erosion where velocities are expected to exceed 5 feet/sec. Culvert inlets will be designed to provide adequate freeboard for design flows; outlets will be riprapped where necessary to prevent scouring.

8i) Construction of coal handling facilities and associated structures. Construction of the coal handling facilities will be scheduled to allow the mine to get into full production as quickly as possible. The underground mining operation cannot function smoothly until the elevated conveyor gallery and discharge structure are fully operational. On the other hand, the mine conveyor cannot become fully operational until the mine working are developed far enough underground from the portals to allow the conveyor to be extended into the mine works and become an integral working part of the continuous miner production section. Once the initial mine works have began connected up underground with crosscuts, the conveyor can then become operational.

Other integral components of the coal handling facilities necessary for full production include the coal reclaim tunnel, crusher building, truck loadout and interconnecting conveyors. Only after this system is completely operational can mine development and coal production begin in earnest. Other important structures necessary for full-scale mine surface production include the main substation, the water delivery system, and the mine ventilation fan.

After the critical path coal handling facilities and mine development structures are fully operational and the underground mine development is proceeding on course, full attention can be focused on completing the ancillary surface facilities. These include permanent structures such as the mine office, bath house, shop/warehouse and support structures such as the bulk rock-dust system, oil and grease storage, etc. Once the permanent structures are finished the temporary accommodations used during construction can be removed from the site.

PART II - RECLAMATION PLAN

The reclamation of the disturbed areas of the West Ridge minesite is described in outline and detail below. To a very great extent the precepts of reclamation are inter-related to and inter-dependant upon the methods and techniques employed during initial construction. In many ways reclamation at the West Ridge site is similar to the construction, but only in reverse order. To the extent that reclamation techniques and initial construction techniques are so interrelated it is imperative to consider the reclamation plan as an integral part of the construction plan (as presented in Part I of this plan) and vice versa. The two separate plans constitute a whole and should be considered as such.

Andalex recognizes that development of a feasible reclamation plan for final reclamation of the expansion area containing the best available reclamation methodology is an essential part of the permitting process. Therefore, Andalex has contacted consultants with revegetation and reclamation experience to gather together the best reclamation techniques for reclamation of the C-Canyon area. JBR Environmental Consultants, who has had prior experience with reclamation in difficult areas, has provided a letter detailing reclamation methodology that they believe will contribute to the successful reclamation of this area. This letter, included as Attachment 1, was written in response to Andalex discussions held with JBR as the reclamation plan was being conceived. Andalex feels that incorporation of the various reclamation techniques that JBR has identified as being successful in past situations will greatly enhance the success of this reclamation effort. Andalex also recognizes that in the time between now and when final reclamation is actually done, technology may evolve new and better reclamation ideas. Andalex commits to modifying the reclamation plan prior to final reclamation should better reclamation products and methodology become available. This reclamation plan will be reviewed prior to implementation to incorporate applicable methodology and techniques which are considered best technology currently available (BTCA) at the time of reclamation.

The regulation for which Andalex is proposing to use an experimental practice would be R645-301-232 Topsoil and Subsoil Removal. Rather than removing the topsoil from the proposed mine yard area, Andalex proposes to protect the soil resource in-place by covering the soil surface with a geotextile fabric, then placing fill material over the fabric. At the time of reclamation, the fill material will be removed. The geotextile will then be removed, exposing the original, intact soil surface. To enhance the ability of the soil to absorb moisture, a mixture of PAM (Polyacrylamide) or best technology currently available at the time of reclamation, will be applied to the soil surface. PAM is designed to relieve compaction of the soil and open up channels for air and water penetration. The re-exposed soil structure will most likely be undamaged but lacking in microbes and nutrients. In order to regenerate naturally existing soil organisms and assist in reactivating soil activity, an inoculum will be applied to the soil to reestablish soil bacteria, microhorizia and mycelium. To enhance soil microbial establishment and promote more rapid stabilization of the soil, the seed mixture (as listed in Chapter 3) will be hand broadcast over the area and raked into the soil

surface. A wood fiber mulch will be applied over the seed bed then the surface will be sprayed with a bonded fiber matrix tackifier. This type of tackifier has appeared to have a much greater ability than regular tackifier to hold and stabilize the soil surface. The bonded fiber matrix tackifier will be applied at a rate of 3,500 pounds per acre (or manufacturer's recommended application if greater).

The proposal to leave the existing topsoil in place and protected by a geotextile barrier within the filled areas of the minesite is considered an experimental procedure as defined in section R645-302-210 of the State of Utah Coal Mining Rules and SMCRA. The practice of protecting the topsoil in-place with a geotextile fabric has been previously approved in Utah in steep slope conditions (Genwal Resources, Crandall Canyon Mine, ACT 015/032).

Based on recommendations from experienced reclamation consultants there is every reason to believe that this procedure will be successful in meeting the reclamation standards required by SMCRA. However, as an added element of assurance for the success of reclamation at the West Ridge minesite, Andalex has preserved, under long-term lease, a separate source of high quality topsoil which can be used to reclaim the minesite if needed. The sole purpose of this topsoil borrow site is to be used for final reclamation on an as needed basis in the unlikely event that the left-in-place topsoil at the minesite cannot be sufficiently revitalized and re-utilized at the time of final reclamation. Sufficient tests have been completed on this potential topsoil borrow site to determine that the topsoil resource exists in sufficient quality and quality to completely reclaim the minesite. This alternate topsoil borrow site is conveniently located within two miles of the minesite and contains soil material which is nearly identical in chemical and physical characteristics to the topsoil naturally existing at the minesite.

The primary goals of reclamation at the West Ridge minesite are:

1) Re-establish approximate original contour
2) Eliminate all mine-related highwalls
3) Re-apply topsoil in areas where topsoil was salvaged during construction
4) Re-establish the original stream channel geomorphology
5) Prevent erosion of the reclaimed minesite and excess siltation in the undisturbed drainages.
6) Re-establish vegetation cover and density equivalent to the pre-mining condition

Construction/reclamation areas within the minesite can be defined according to the following three criteria:

a) Whether the area lies within the canyon channel bottom or is located up along the canyon sideslopes away from the bottom (Channel or Slope)

b) Whether the area presently contains topsoil or whether it is rock outcrop/rubbleland presently devoid of topsoil (Topsoil or Rock)

c) Whether the area is to be filled over or else cut away during construction of the mine pads (Fill or Cut).

This delineation is important because reclamation in these various area types is, in large part, predicated on the methods of initial construction used in those same areas. In these area-types, construction and reclamation are inter-related and inter-dependant. On an area-by-area basis initial construction methods are influenced by final reclamation requirements and final reclamation techniques are, in turn, dependant upon initial construction methods.

Any given area within the minesite can be defined in terms of a combination of the aforementioned criteria. Different construction and reclamation methods apply to each specific area type. Therefore, for the purpose of defining construction/reclamation methodologies the minesite can be categorized into the following six area types. These area types are identical to the area types described previously in the construction plan (Part I of this plan), and repeated here for completeness:

a) Areas within and immediately adjacent to the [pre-existing] stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which were filled over during construction of the mine pads:
Channel (C), Rock (R), Fill (F) = C/R/F

b) Areas within and immediately adjacent to the [pre-existing] stream channel; where topsoil is present [and has been protected in-place with geotextile]; which were filled over during construction of the mine pads:
Channel (C), Topsoil (T), Fill (F) = C/T/F

c) Areas located up along the [pre-existing] canyon sideslopes away from the channel; where topsoil is present [and has been protected in-place with geotextile]; which were filled over during construction of the mine pads: Slope (S), Topsoil (T), Fill (F) = S/T/F

d) Areas located up along the canyon sideslope away from the [pre-existing] stream channel; where topsoil was previously present [but was salvaged and stockpiled during construction]; which were cut away during construction of the mine pads: Slope (S), Topsoil (T), Cut (C) = S/T/C

e) Areas located up along the canyon sideslope away from the [pre-existing] stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of

topsoil; which were filled over during construction of the mine pads:
Slope (S), Rock (R), Fill (F) = S/R/F

f) Areas located up along the canyon sideslope away from the [pre-existing] stream channel; which are predominantly rock outcrop/rubbleland and therefore devoid of topsoil; which were cut away during construction of the mine pads:
Slope (S), Rock (R), Cut (C)= S/R/C

Note: Refer to item 7) for details of these construction area types.

In outline form the key reclamation tasks are as follows:

1) Remove all structures, dispose of off-site
2) Back fill and regrade all cut areas
3) Reapply topsoil to backfilled cut slopes (S/T/C areas)
4) Revegetate the regraded cut slopes
5) Remove pad fill/re-expose and revitalize the left-in-place topsoil
6) Re-expose the original rock outcrop/rubbleland surface and revegetate
7) Remove the bypass culvert/re-expose the original stream channel
8) Revitalize and revegetate the channel.
9) Install silt traps and other suitable sediment control features.

These activities are listed in the approximate sequential order in which they will be performed. However, just as during construction, certain later-stage tasks may be on-going in certain areas of the minesite while other early-stage tasks are just beginning in other areas.

1) Remove all structures, dispose off-site; All coal handling facilities, buildings and ancillary structures will be dismantled, disassembled, demolished and then hauled away from the site. Materials which cannot be salvaged or recycled will be disposed of in an approved solid waste land fill such as the ECDC facility located nearby in East Carbon. Structures to be removed include (but are not limited to) the mine office, bath house, shop/warehouse, substation, conveyor gallery and bents, discharge structure, reclaim tunnel, crusher building, reclaim conveyor, truck loadout, loadout conveyor, rock dust bins, water tanks, fuel tanks, garbage vaults, power lines, water lines, culverts, pump house, powder magazines, portals, mine fan, concrete, etc. Asphalt, cleaning solvents, paints and other similar materials will be disposed of in an approved RCRA disposal site.

The coal pile in the left fork will be completely removed from the site prior to final reclamation. Any coal fines which remain on the hill slopes immediately adjacent to the coal

stockpile area will be vacuumed clean prior to beginning final reclamation.

2) Backfill and re-grade all cut areas; All cut areas (S/T/C and S/R/C areas) will be restored to approximate original contour. These areas will be backfilled and regraded using fill material taken from the adjacent pad area. Fill will be placed in the cuts in 18"-24" lifts and compacted sufficiently to achieve adequate structural stability. Tests have shown that this fill material can achieve structural stability with a safety factor much greater than 1.3 on slopes as steep as 1:1. (Refer to Appendix 5-4) In general, restored cut slopes will have a final slope of about 2:1 which is close to the predominate slope angle existing naturally in the canyon in its pre-mining condition.

Track hoes, dozers, and/or front end loaders will be used to backfill the cuts. Heavy equipment will utilize the existing adjacent pads as work platforms from which the backfilling operation can be staged. Fill material will be inspected and tested to insure that it is free of salts, oils, petroleum products and any other contaminants before being used as backfill in the cut areas. The surface of the regraded backfilled area will be roughed with a backhoe to provide a suitable surface for subsequent top soiling and/or reseeding applications. Boulders and large rocks will be harvested from the nearby vicinity and placed along the surface of the regraded slopes to replicate the pre-mining slope condition.

Special backfilling techniques will be applied at the highwall area and the conveyor nose cut. Of the entire minesite these are only areas that involve steep slope cuts. The pre-existing pre-mining slopes in these areas are as much as 40 degrees (i.e. nearly 1:1) measured from horizontal. In order to adequately access (face up) the coal seam while minimizing the amount of hillside disturbance, the highwall cut slope will have been made as steep and sheer as safely possible during initial construction. From a reclamation standpoint the challenge of the portal area is to re-establish approximate original contour, eliminate the highwall, and maintain the stability of the backfill material in the process. This will be accomplished in the portal area and nose cut area by utilizing large boulders. Large angular boulders will be stacked one on top of the other along the outer edge of the portal bench along the toe of the slope. Fill slopes reinforced with large boulders, in this manner, can easily stand at the requisite 40 degree incline needed to reestablish the natural slope in this area. Regular 8" x 0" fill material could be used to fill in the void behind the boulders on the inside of the bench where the stability criteria is not as critical a factor. Boulders, and other backfill, would be placed using a backhoe starting at the up dip (southern) end of the portal bench and working northward. As the boulder slope is completed, topsoil would be placed into the surface nooks between the boulders. The surface of the boulder slope would then be revegetated in the same manner as the rest of the reclaimed site. Due to the steepness of the boulder slope some of the topsoil may slide off, leaving the boulder surface visible as bare rock. However, this rocky appearance will be very much in keeping with the natural appearance of the canyon slope in its pre-existing pre-mining conditions. In fact, the coal seam sits atop a massive sandstone which presently manifests itself as a broad bare rock outcrop in the vicinity of the proposed portals. It should be

noted that all principals of reclamation described herein for the portal highwall apply to the conveyor nose cut equally as well.

Note: Final reclamation of the portal highwall will not take place until after the pad backfill material has been removed from the pads, transported into the portals, and placed permanently in the underground mine workings as described in item 5) below.

3) Reapply topsoil to the backfilled cut slopes; After the cut (S/T/C areas) slopes have been backfilled and regraded to approximate original conditions and regraded to approximate original conditions the slopes will then be re-topsoiled. Prior to replacing the topsoil the surface of the slopes will be roughened and pitted with a backhoe bucked to prevent slippage of the topsoil layer and promote root penetration. To the extent practicable, pre-existing topsoil types will be returned to their original locations during reclamation; Brycan topsoil will be returned to the Brycan area near the confluence area. Midfork soils will be returned to the Midfork areas on the southeast slope of the right fork and other isolated areas as identified on Map 2-2. Topsoil will not be reapplied to the rock outcrop/rubbleland areas (i.e., S/R/C areas) which, by definition, are naturally devoid of topsoil.

Topsoil will be reapplied to the slopes in the conventional manner. Topsoil will be hauled in by truck and spread with a front end loader and/or backhoe. Areas to receive topsoil will be marked with stakes indicating the depth of application. A reclamation supervisor will oversee the topsoil redistribution operation. Topsoil will be left in a roughened condition prior to seeding to minimize compaction and erosion as well as promote infiltration of precipitation.

After approximate original contour (AOC) is achieved, the surface will be prepared according to the R-M-V (roughen, mulch, revegetate) method. Pocking consists of imprinting the surface with a pattern of depressions measuring approximately 18" x 24" x 8" deep. The purpose of these pocks is to capture and retain water (moisture), and provide a cradle for seedlings and other plant materials.

Andalex has committed to adding nutrients and determined by laboratory analysis conducted on topsoil samples taken before topsoil redistribution and during final reclamation. The method used to ensure adequate and representative samples from different locations and depths within the topsoil stockpile include: taking two soil samples per stockpile and collecting samples with a soil auger at two foot increments. Samples of the undisturbed soil adjacent to the regraded site will also be taken for a baseline chemical reference. Fertilizer will be added to the redistributed topsoil as indicated by laboratory results.

4) Revegetate the regraded cut slopes; After the cut slopes have been re-contoured and/or re-topsoiled they can then be revegetated. Much of the revegetation efforts on these slopes can be accomplished by using the adjacent pad fill areas as a work platform for equipment and materials.

Revegetation procedures for the regraded cut slopes involves a four step program: 1) application of fertilizer (if laboratory testing indicates a need, 2) hydroseed, 3) hydro mulch the entire area with a wood fiber mulch to stabilize soil during vegetative growth and control runoff, 4) plant containerized stock to further stabilize the soil provide vegetative diversity. Hydro seeding will combine the tackifier and small amount of mulch with the seed mix (to mark the area of coverage) during application to the redistributed topsoil. All seed utilized on the site will be certified pure live seed. After the seeding step, the mulch (wood fiber and hay/straw) and tackifier will be applied to the seed bed surface. The plant containerized stock will be planted in the second year of reclamation. Revegetation work will not be done until fall (September-October).

5) Remove pad fill/re-expose and revitalize the left-in-place topsoil (S/T/F areas); After the surface facilities have been demolished and removed from the site, and after the cut slopes have been re-contoured and revegetated, removal of the pad material can begin. Pad fill will be removed in 5'-10' lifts using dozers, end loaders and/or backhoes. The material will be loaded into dump trucks and hauled to the portals. A conveyor belt will be installed to transport this fill material from the surface back into the underground mine works. From the conveyor's underground discharge point, the fill material will be picked up by mine LHD (load/haul/dump) vehicles, and transported to the final underground storage area. Because of the steep dip of the coal seam (13%), the fill material will be relatively easy to transport and dump into the abandoned mine workings.

A specified area of the main entries (and connecting cross-cuts) will be designated as the final repository for the pad fill upon final reclamation. Assuming a 25% swell factor for the reposited fill, approximately 1,950 feet of main entries (measured inby from the portal seals) will be needed to adequately store the fill material.

After all the pad fill has been excavated and transported into the mine workings, the mine portals will be permanently sealed. All seals will be constructed according to MSHA standards. After the seals have been constructed, the remaining length of entries from the seals outby to the portal openings will then be backfilled with a last remnant of pad fill material. After the portals have been sealed and backfilled, the highwall will be reclaimed to approximate original contour as described earlier in item 2.

During the fill removal process the bypass culvert inlet structures will be left in place at the upstream end of the mine site in both the right fork and the left fork. The bypass culvert system will remain intact throughout the fill removal process to keep the undisturbed drainage separated from the ongoing reclamation earthwork underway at the minesite. A 40' wide berm will be left intact at the culvert inlets to continue to serve as the culvert headwall and to continue to divert the undisturbed drainage into the bypass culvert.

Fill will be removed from the pads in 5-10 foot lifts starting from the upper end of the yard and proceeding down canyon. At the intersection of the pre-existing topsoiled slope and the pad fill, the geotextile fabric will be re-located. The pad fill will be carefully removed from on top of the geotextile fabric as the yard fill is being excavated. This will allow reclamation to be done on vertical increments of the hillside that will be easy to access from the adjacent yard level. Removal of fill material adjacent to the slopes will be done very carefully in order not to disturb the in-place soil resources located under the geotextile. Fill removal in this area will be done with small earth-moving equipment (Bobcats, backhoes, etc.) and/or by hand if necessary in order to minimize disturbance of the topsoil. Once the geotextile fabric has been exposed, the fabric will be carefully peeled away from the soil and the condition of the underlying soil materials observed at this time. The soil will be reclaimed and revegetated in 5-10 foot horizontal zones that can be easily accessed and worked by hand from the adjacent pad fill level. After each level has been reclaimed as described below, another lift (5-10 feet of fill) will be removed from the fill. Revegetation work will then continue on the next increment of hillside below the previously reclaimed level. This work will be done in continued successive lifts, involving fill removal, peeling away the geotextile, revitalization of the in-place topsoil, and revegetation of the newly exposed increment. Reclamation of the slopes will take place in vertical increments (lifts) simultaneously with the removal of the fill material in corresponding lifts. As fill lifts are being removed, the adjacent newly exposed hillside will be reclaimed and revegetated. It should be noted that approximate original contour of the filled area will also be re-established as the fill is being removed in lifts as described previously.

Sediment control during pad fill excavation will be met by continued use of the sediment pond located at the downstream end of from the yard area. The main bypass culvert inlets and an adequate amount of fill to maintain the existing headwall will be left intact during this phase of the fill retrieval process.

It is anticipated that after the pad fill is removed in lifts and the geotextile fabric is peeled away in vertical increments, the underlying soil material could be somewhat compacted. To enhance the ability of the soil to absorb moisture, a mixture of PAM (Polyacrylamide) or best technology currently available at the time of reclamation, will be applied to the soil surface. PAM is designed to relieve compaction of the soil and open up channels for air and water penetration. This treatment will be applied in successive 5-10 foot lifts as the fill is removed and the hillside is exposed.

The re-exposed soil structure will most likely be undamaged but lacking in microbes and nutrients. In order to regenerate naturally existing soil organisms and assist in reactivating soil activity, an inoculum will be applied to the soil to reestablish soil bacteria, microhorizia and mycelium. To enhance soil microbial establishment and promote more rapid stabilization of the soil the seed mixture (as listed in Chapter 3) will be hand broadcast over the area and raked into the soil surface. A wood fiber mulch will be applied over the seed bed, then the surface will be sprayed with a bonded fiber matrix tackifier. This type of tackifier has appeared to have a much greater ability than regular tackifier to hold and stabilize the soil surface. The bonded fiber matrix tackifier will

be applied at a rate of 3,500 pounds per acre (or manufacturer's recommended application if greater).

By removing the fill in 5-10 foot lifts and simultaneously reclaiming the slopes in corresponding lifts, the pad area can then serve as convenient operating platform for the machinery and supplies used during the reclamation effort. In this manner heavy machinery will not be required to maneuver on the slopes. All reclamation work performed directly on the slopes will be done with hand labor and tools. The reclamation process will be supported by heavy equipment staged on the adjacent pad level.

After approximate original contour (AOC) is achieved, the surface will be prepared according to the R-M-V (roughen, mulch, revegetate) method. Pocking will be the primary method used to roughen the surface. Pocking consists of imprinting the surface with a pattern of depressions measuring approximately 18" x 24" x 8" deep. The purpose of these pocks is to capture and retain water (moisture), and provide a cradle for seedlings and other plant materials.

6) Re-expose the original rock outcrop/rubbleland surface and revegetate; Topsoil will not be applied to the re-exposed rock outcrop/rubbleland slopes which, by definition, are naturally devoid of topsoil, However, as the pad fill is being removed in lifts an 18" layer of this fill material will be left in place on the rock outcrop/rubbleland slopes to help re-establish vegetation. Tests have shown that this fill material is, in and of itself, a suitable growth medium (i.e., topsoil material). This material is chemically and physically the same as the native material existing naturally in the minesite area. In fact, in its natural condition the fill material supports the exact vegetation types and species that are found at the minesite area. The fill material is composed of weathered remnants of the Black Hawk Formation from the adjacent Book Cliffs. By leaving a layer of this fill material in place on the rock outcrop/rubbleland areas these slopes will have a growth medium which is as good as or better than the original rock outcrop/rubbleland in supporting reclamation revegetation. This residual fill material will then be processed as any other topsoil material in terms of revegetation. Prior to revegetation the area will be roughened and pitted with a backhoe bucket.

After approximate original contour (AOC) is achieved, the surface will be prepared according to the R-M-V (roughen, mulch, revegetate) method. Pocking will be the primary method used to roughen the surface. Pocking consists of imprinting the surface with a pattern of depressions measuring approximately 18" x 24" x 8" deep. The purpose of these pocks is to capture and retain water (moisture), and provide a cradle for seedlings and other plant materials.

Revegetation procedures for the rock/rubbleland slopes involves a four step program: 1) application of fertilizer (if laboratory testing indicates a need), 2) hydroseed, 3) hydro mulch the entire area with a wood fiber mulch to stabilize soil during vegetative growth and control runoff, 4) plant containerized stock to further stabilize the soil and provide vegetative diversity. Hydro seeding will combine the tackifier and small amount of mulch with the seed mix (to mark the area of

coverage) during application to the residual topsoil material. All seed utilized on the site will be certified pure live seed. After the seeding step, the mulch (wood fiber and hay/straw) and tackifier will be applied to the seed bed surface. The plant containerized stock will be planted in the second year of reclamation. Revegetation work will not be done until fall (September-October).

Andalex has committed to adding nutrients as determined by laboratory analysis conducted on samples taken before and during final reclamation. The method used to ensure adequate and representative samples from different locations and depths within the borrow site include: taking two soil samples per stockpile and collecting samples with a soil auger at two foot increments. Samples of the undisturbed soil adjacent to the regraded site will also be taken for a baseline chemical reference. Fertilizer will be added to the redistributed topsoil, prior to seeding, if needed is indicated by laboratory results. The fertilizer will be spread on the redistributed topsoil and either disked or hand-raked into the soil (depending on the steepness of the slope).

In order for the remnant layer of fill material to adequate serve as a suitable topsoil material (growth medium) during final reclamation it is imperative that it not become contaminated during the operational life of the mine. This consideration applies equally as well to the left-in-place topsoil. Of primary concern as contaminant sources are salts and petroleum products. Salts are typically used in winter time for de-icing the roadways. Petroleum products (oils, grease, diesel fuel, etc.) are used extensively as part of the day-to-day mine operations.

Salts are not expected to be a problem for the following reasons: a) Because of its geographic location in the drier Book Cliffs, its relatively low elevation (7000'), and its southern exposure orientation, snow fall at the minesite is not expected to be heavy, nor long-lasting. Therefore, salt usage is expected to be minimal; b) The overall gradient of the minesite is a relatively steep 6.4 %. Therefore any salt accumulation along the roadways should be quickly and harmlessly washed away to the sediment pond, and; c) In the event that any salts happen to remain on the surface they are not likely to migrate downward into the fill or the left-in-place soil. Because the evapo-transpiration rate substantially exceeds the precipitation rate in this area, salts would more likely gravitate upward to the surface rather than downward from the surface.

Contamination from petroleum products is not expected to present a problem to the fill material nor the left-in-place topsoil. All oil and grease products will be stored on site in sealed steel containers within a protected weather-tight enclosure. Nearly all of these oil and grease cans will be taken underground before they are opened and used. Diesel fuel will be stored on the surface in substantially constructed steel tanks, and each tank will be located within a concrete/steel enclosure capable of holding the entire content of the tank in the event of rupture. All petroleum products will be delivered, stored and transferred in accordance with an EPA approved Spill Prevention Control and Counter-measure Plan (SPCC as required by Clean Water Act).

7) Remove the bypass culvert/re-expose the original stream channel; As pad fill material is removed in successive vertical lifts and the re-exposed sideslopes are reclaimed, approximate original contour will be re-established. Once the fill has been removed to the bottom of the canyon the bypass culvert will be encountered and exposed. In order to reclaim the channel the culvert will have to be removed. Before culvert removal begins, a minimum of four silt fences will be installed in the natural drainage below the minesite. Removal of the culvert will begin at the up-canyon ends of both the right fork and left fork. The culvert inlets and remnant headwalls will first be removed. At this stage of reclamation the sediment ponds will still be in place at the down canyon end of the reclamation site, and will still be the primary source of sediment control from the site. As the culvert is removed (starting at the upstream end) the geotextile located immediately under the culvert will be exposed. The geotextile will be carefully peeled away, re-exposing the original channel in the process. Many of the larger boulders located adjacent to the channel way (which were originally in the channel but had been relocated out of the way during construction) will now be replaced back into the restored channel.

Within the right fork, most of the stream channel is flanked by Strych soil (C/T/F areas). In some areas the Strych horizon actually forms the banks of the stream channel. This soil resource was protected in place by the geotextile laid down at the time of construction. Once the culvert is removed from this area and the geotextile peeled off, the soil material along the channel banks will be re-exposed.

It is anticipated that after the culvert is removed and the geotextile fabric is peeled away, the underlying soil material along the stream banks will be somewhat compacted. To enhance the ability of the soil to absorb moisture, a mixture of PAM (Polyacrylamide) or best technology currently available at the time of reclamation, will be applied to the soil surface. PAM is designed to relieve compaction of the soil and open up channels for air and water penetration.

As the channel is being restored, silt traps will be constructed in the channel bottom. These traps will consist of depressions measuring about 2-3 feet deep which will be dug into the bottom of the channel. These silt traps will be spaced about 200' apart and, where possible, will be located in areas of naturally occurring grade breaks. The purpose of these silt traps is to collect silt minor quantities which may originate from the adjacent reclaimed side slopes prior to the time that vegetation becomes established.

The re-exposed soil structure will most likely be undamaged by lacking in microbes and nutrients. In order to regenerate naturally existing soil organisms and assist in reactivating soil activity, an inoculum will be applied to the soil to reestablish oil, bacteria, microhorizia and mycelium. To enhance soil microbial establishment and promote more rapid stabilization of the soil, the seed mixture (as listed in Chapter 3) will be hand broadcast over the area and raked into the soil surface. A wood fiber mulch will be applied over the seed bed, then the surface will be sprayed with a bonded fiber matrix tackifier. This type of tackifier has appeared to have a much greater ability

than regular tackifier to hold and stabilize the soil surface. The bonded fiber matrix tackifier will be applied at a rate of 3,500 pounds per acre (or manufacturer's recommended application of greater).

It should be noted that even in non-topsoil areas (i.e., rock outcrop/rubbleland (C/R/F areas)) the channel and channel banks will be revegetated. Within the rock/rubble areas, a layer of fill material will be left behind as a suitable topsoil material (growth media) as described earlier. Therefore, in the channel areas of the rock outcrop/rubbleland, revegetation measures will be identical as for the slope areas.

Revegetation procedures for the rock/rubble channel involves a four step; program: 1) application of fertilizer (if laboratory testing indicates a need), 2) hydroseed, 3) hydro mulch the entire area with at wood fiber mulch to stabilize soil during vegetative growth and control runoff, 4) plant containerized stock to further stabilize the soil to provide vegetative diversity. Hydro seeding will combine the tackifier and small amount of mulch with the seed mix (to mark the area of coverage) during application to the redistributed topsoil. All seed utilized on the site will be certified pure live seed. After the seeding step, the mulch (wood fiber and hay/straw) and tackifier will be applied to the seed bed surface. The plant containerized stock will be planted in the second year of reclamation. Revegetation work will not be done until fall(September-October).

The channel restoration process (ie, remove culvert, peel away geotextile, replace boulders, revegetate channel) will continue to progress down-stream until the sediment pond area at the lower end of the minesite has been reached. Then, one by one, the pond impoundments will be taken out. Culvert removal will continue until the entire culvert has been removed. In addition to re-establishing the approximate original contour of the channel, the original channel geomorphology will have been replicated in the following ways:

a) The original channel sinuosity and gradient will have been preserved and replicated.

b) The profile, configuration and the composition of the channel and the adjacent channel banks will have been preserved and replicated.

c) The boulder-stream nature of the original channel will have been restored.

8) Summary; By the time the last section of culvert is removed and the last segment of channel has been restored, the primary goals of reclamation for this site will have been achieved, namely:

a) Re-establishment of approximate original contour

b) Elimination of all highwalls

c) Re-establishment of the original stream channel morphology

d) Topsoil replacement and/or revitalization along with re-seeding in anticipation of successful future revegetation, and

e) Implementation of an adequate sedimentation and erosion control plan to protect the newly reclaimed site until revegetation has been successfully re-established.

G:\WP\ENG\JMS\WRIDGE\APP5-5.WPD

APPENDIX F

SOILS CHARACTERISTICS

CORRESPONDENCE - NRCS

REGRADING PRIME FARMLAND

PROPERTIES OF SOILS LOCATED WITHIN THE AREA OF THE PROPOSED ACTION

Name	Depth	Slope	Permeability	Water Erosion Potential	Salinity mmhos/cm
(7) Beje-Trag complex:					
Beje	Shallow	3-15%	Moderate	Moderate	<2
Trag	Very Deep	3-30%	Moderate	Moderate	<2
(9) Billings - Gullied land complex:					
Billings	Very Deep	1-6%	Slow	Moderate	>8
(21) Croydon loam, 8-30% slopes:					
	Deep	8-30%	Moderately Slow	Slight	<2
(35) Gerst - Badland - Stromitt complex:					
Gerst	Shallow	30-60%	Moderately Slow	Moderate	<2
Badland	Rock				
Stromitt	Very Deep	10-30%	Moderate	High	<2
(36) Gerst - Strych - Badland complex, 3-50% slopes:					
Gerst	Shallow	15-50%	Moderately Slow	Severe	<2
Strych	Very Deep	3-15%	Moderately Rapid	Severe	<2
(48) Haverdad loam, 1-8% slopes:					
	Very Deep	1-8%	Moderate	Moderate	<2

(49) Haverdad loam, alkali, 0-3% slopes:

	Very Deep	0-3%	Moderate	Moderate	<2-4

(51) Hernandez family, 1-3% slopes:

	Very Deep	1-3%	Moderate	Moderate	<2-4

(52) Hernandez family, 3-8% slopes:

	Very Deep	3-8%	Moderate	Moderate	<2-4

(96) Rock outcrop - Rubbleland - Travessilla complex:

Travessilla	Shallow	30-50%	Moderately Rapid	Severe	<2

(113) Strych very stony loam, 3-15% slopes:

	Very Deep	3-15%	Moderately Rapid	Moderate	<2

(114) Strych very stony loam, dry, 3-30% slopes:

	Very Deep	3-30%	Moderately Rapid	High	<2

UNITED STATES
DEPARTMENT OF
AGRICULTURE

NATURAL RESOURCES
CONSERVATION
SERVICE

PRICE FIELD OFFICE
350 NORTH 400 EAST
PRICE, UTAH 84501

DATE: June 12, 1997

FILE CODE: 290-11-11-5

SUBJECT: PRIME FARMLAND DETERMINATIONS

TO: Mike Hubbard
EIS
4855 North Spring Glen Road
Spring Glen, UT 84526

RE: Proposed Coal Facility Near East Carbon

After site investigation, the Natural Resources Conservation Service has determined that no prime farmland or farmland of statewide importance occurs at the project site or on the access road or alternative access road to the site for the following reasons:

1. No developed irrigation system on arid soils.

2. Soils north of section 32 T.14S. R.13E. have slope x K(erodibility factor of greater than 2.

Location map is enclosed.

Remarks: There is a small irrigated area near the preferred alignment that is prime farmland and there are alluvial soils along Grassy Trail Creek and other small streams in the area. Care should be taken when distrubance occurs in these areas.

Leland Sasser Leland Sasser

cc: William Broderson, State Soil Scientist, NRCS, UT

APPENDIX G

WATER RIGHTS

WATER RIGHTS TABLE

WATER RIGHT #	OWNER	SOURCE	USE
180	Himonas, Mike J.	Well	
2650	USA BLM	Unnamed Stream	
3358	Martinez, Paul B.	Grassy Trail Creek	
3359	Martinez, Paul B.	Grassy Trail Creek	
3753	Wellington Cattle Association	Grassy Trail Creek	
3756	USA BLM	Grassy Trail Creek	
3848	Himonas, George (et al)	Spring	
3849	Himonas, George	Stream	
3850	Himonas, George	Stream	
3851	Himonas, George	Unnamed Stream	Stockwatering
3852	Himonas, George	Unnamed Stream	
3853	Himonas, George	Unnamed Stream	
3854	Himonas, George	Unnamed Stream	
3855	Himonas, George (et al)	Stream	
3857	Himonas, George (et al)	Stream	
4393	USA BLM	Ephemeral Wash	Stockwatering Other
4405	USA BLM	Ephemeral Wash	Stockwatering Other
4573	USA BLM	Unnamed Tributary to Grassy Trail Creek	Stockwatering Other

APPENDIX H

CANYON SWEETVETCH INVENTORY

CORRESPONDENCE WITH USFWS REGARDING TES SPECIES

INVENTORY FOR THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES FOR THE PROPOSED WEST RIDGE MINE ACCESS ROAD

CONDUCTED BY

EIS ENVIRONMENTAL CONSULTING

JUNE 11 THRU JUNE 24, 1997

INTRODUCTION

Andalex Resources, Inc. has proposed to build a mine facility located within C Canyon of the Book Cliffs/Roan Cliffs Plateau Physiographic Region. An access road would accompany the project from State Route 123 to the mine facility. Two routes have been proposed for the access road, the Preferred Alignment and the Alternative Alignment (See attached map).

From June 11 thru June 24 1997, an inventory for threatened, endangered, and sensitive (TES) plant species was conducted by EIS Environmental Consulting in accordance with the Bureau of Land Management (BLM). The purpose was to determine the presence of any TES plants within the potential areas of disturbance from the access road.

METHODS

Inventory work on the two routes of the proposed access road was conducted in the period from June 11 to June 24, 1997. Two Category 2 plants are known to occur in Carbon County (Creutzfeldtii-flower, *Cryptantha creutzfeldtii*, and Canyon sweetvetch, *Hedysarum occidentale* var. *canone*) while several other Category 2 plants are found in adjoining counties. In accordance with suggestions from the BLM, two surveyors walked along one side of the flagged centerline, zigzagging back and forth, within a 200 foot corridor. The same section of road was then walked on the other side of the centerline. Habitat present on each side of the proposed access routes was noted along with the general topography. When either known or suspected TES plants were found, the area was marked and a positive identification was later made.

A quantitative survey was conducted within the population boundary of a TES plant species. Because the population was spread over a large area and the individuals tended to grow in clumps the transect plot method was used. A transect tape was run perpendicular to the road 100′ on each side for a total of 200′. The number of TES plant species found within 2′ of the tape was recorded, making a plot size of 400 square feet. Ten transect were run a set distance apart from each other along the access road.

RESULTS

Starting from State Route 123 the vegetation goes through a gradual change as the elevation increases. Greasewood is the dominant vegetation near State Route 123 transitioning into sagebrush-grass. The benches in this area have widely spaced juniper trees. Approaching the cliffs juniper becomes the dominant vegetation changing to pinyon/juniper near the base of the cliffs. In the canyons of the cliffs, Douglas fir mixes with the pinyon/juniper and eventually becomes the dominant vegetation type as the elevation increases.

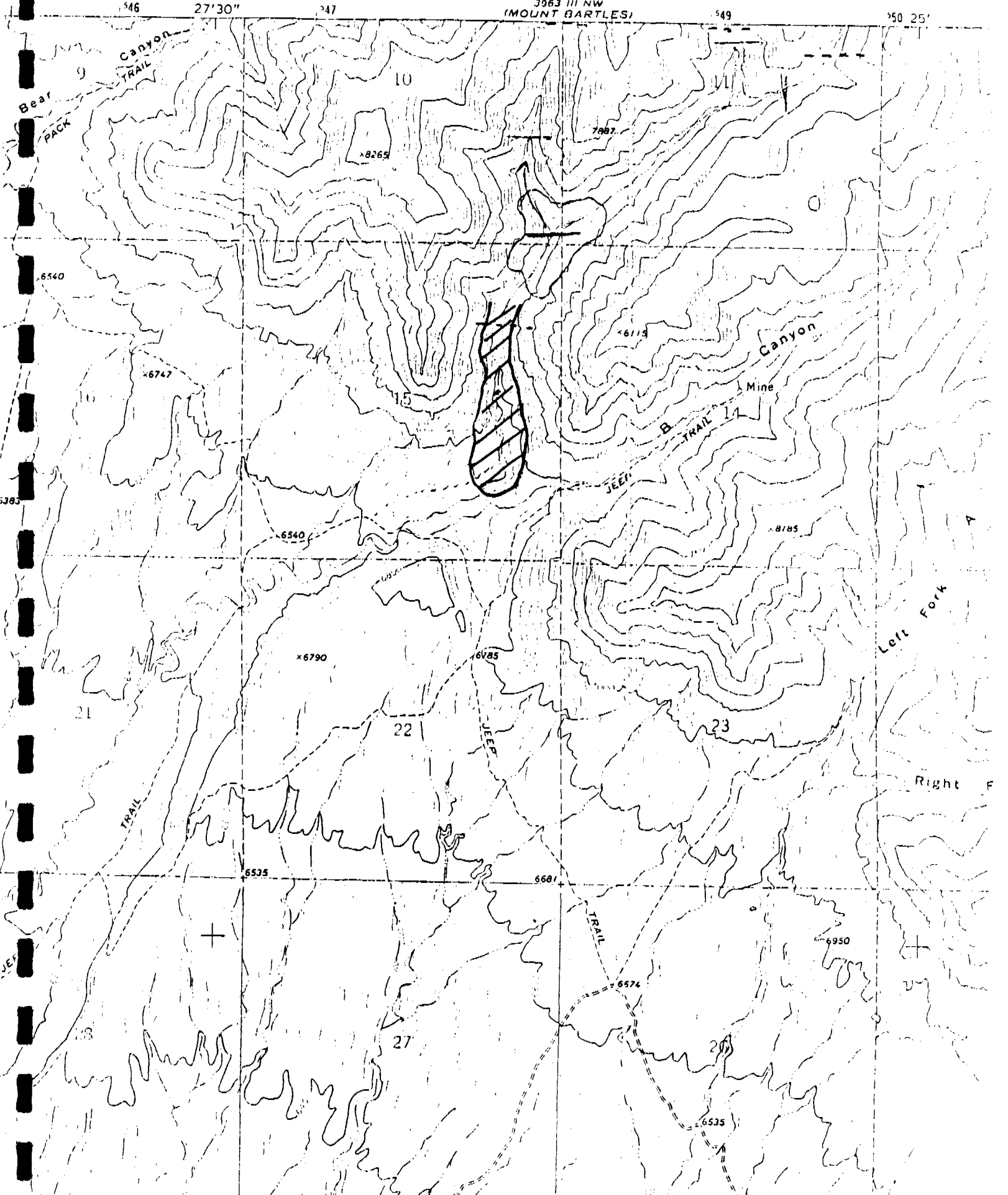
A population of Canyon sweetvetch was found in the Southeast and the Northeast quarters of section 15, T. 14 South R. 13 East (See attached map). The population begins at the mouth of C Canyon and continues up the canyon into the area of proposed surface disturbance for the mine. Our survey looked at the portion of the population, south of the mine area, within 200 feet of the proposed access road. A total of 73 individual were counted during the entire survey (See Table 1) giving an average density, within the population boundary, of 79 individuals per acre.

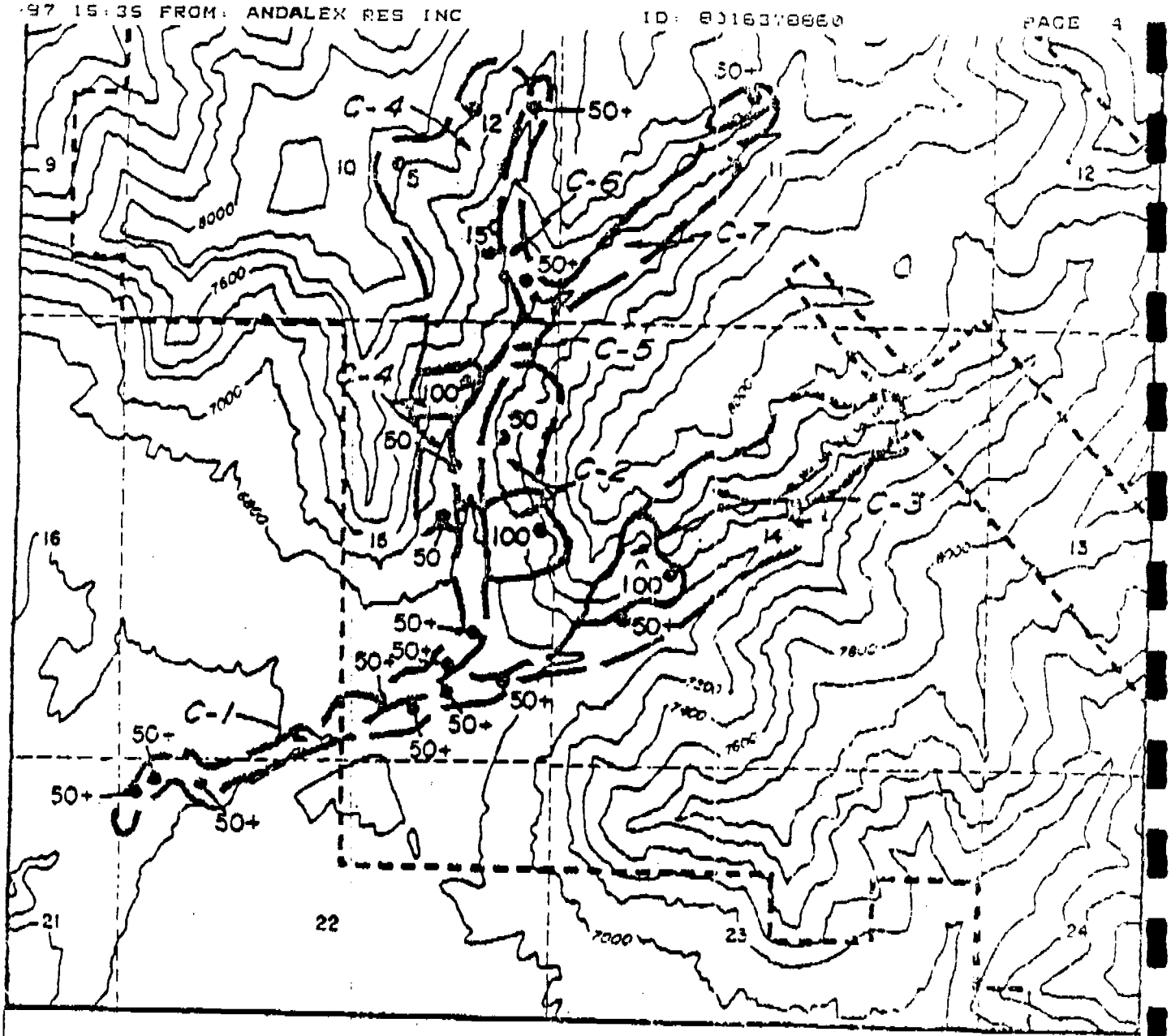
Table 1.

Quantitative Survey of Canyon Sweetvetch (*Hedysarum occidentale* var. *canone*)

Transect	Number of Canyon Sweetvetch
1	12
2	12
3	6
4	10
5	5
6	9
7	3
8	8
9	7
10	1
Total	**73**

STATE OF UTAH
UTAH GEOLOGICAL AND MINERAL SURVEY





LEGEND

- PERMIT BOUNDARY
- ACTUAL POPULATION
- SPORADIC OCCURANCE
- •50 PLANT COMMUNITIES SHOWING NUMBER OF INDIVIDUALS
- AREA OF STUDY

N

2000' 1000' 0 2000'

SCALE

CONTOUR INTERVAL 200'

WESTERN SWEETVETCH PLANT DISTRIBUTION

FIGURE 9-1

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
LINCOLN PLAZA
145 EAST 1300 SOUTH, SUITE 404
SALT LAKE CITY, UTAH 84115

In Reply Refer To
(CO/KS/NE/UT)

July 16, 1997

Mike Hubbard
Environmental Industrial Services
4855 North Spring Glen Road
Spring Glen, Utah 84526

Dear Mr. Hubbard:

We have received and reviewed your letter of June 10, 1997, concerning the development of a proposed coal facility near East Carbon, Carbon County. The U.S. Fish and Wildlife Service advises that no federally listed threatened or endangered species are known to occur on the project site. Please advise us if we can be of any further assistance.

Sincerely,

Robert D. Williams
Assistant Field Supervisor

APPENDIX I

LOGGERHEAD SHRIKE INVENTORY

NORTHERN GOSHAWK INVENTORY

RAPTOR INVENTORY

LOGGERHEAD SHRIKE AND BURROWING OWL INVENTORIES FOR THE PROPOSED WEST RIDGE MINE ACCESS ROAD

CONDUCTED BY

EIS ENVIRONMENTAL CONSULTING

JUNE 11 THRU JUNE 24, 1997

INTRODUCTION

Andalex Resources, Inc. has proposed to build a mine facility located within C Canyon of the Book Cliffs/Roan Cliffs Plateau Physiographic Region. An access road would accompany the project from State Route 123 to the mine facility. Two routes have been proposed for the access road, the Preferred Alignment and the Alternative Alignment (See attached map).

From June 11 thru June 24 1997, a ground inventory for loggerhead shrikes, *Lanius ludovicianus*, was conducted by EIS Environmental Consulting in accordance with the Bureau of Land Management (BLM). The purpose was to determine the presence of shrike's, within the potential areas of disturbance from the access road, and to locate active nests if possible. The inventory also took into consideration the potential presence of burrowing owls, *Athene cunicularia*. However, neither route for the proposed access road was within the vicinity of active white-tailed prairie dog (*Cynomys leucurus*) towns, the preferred nesting habitat type for burrowing owls.

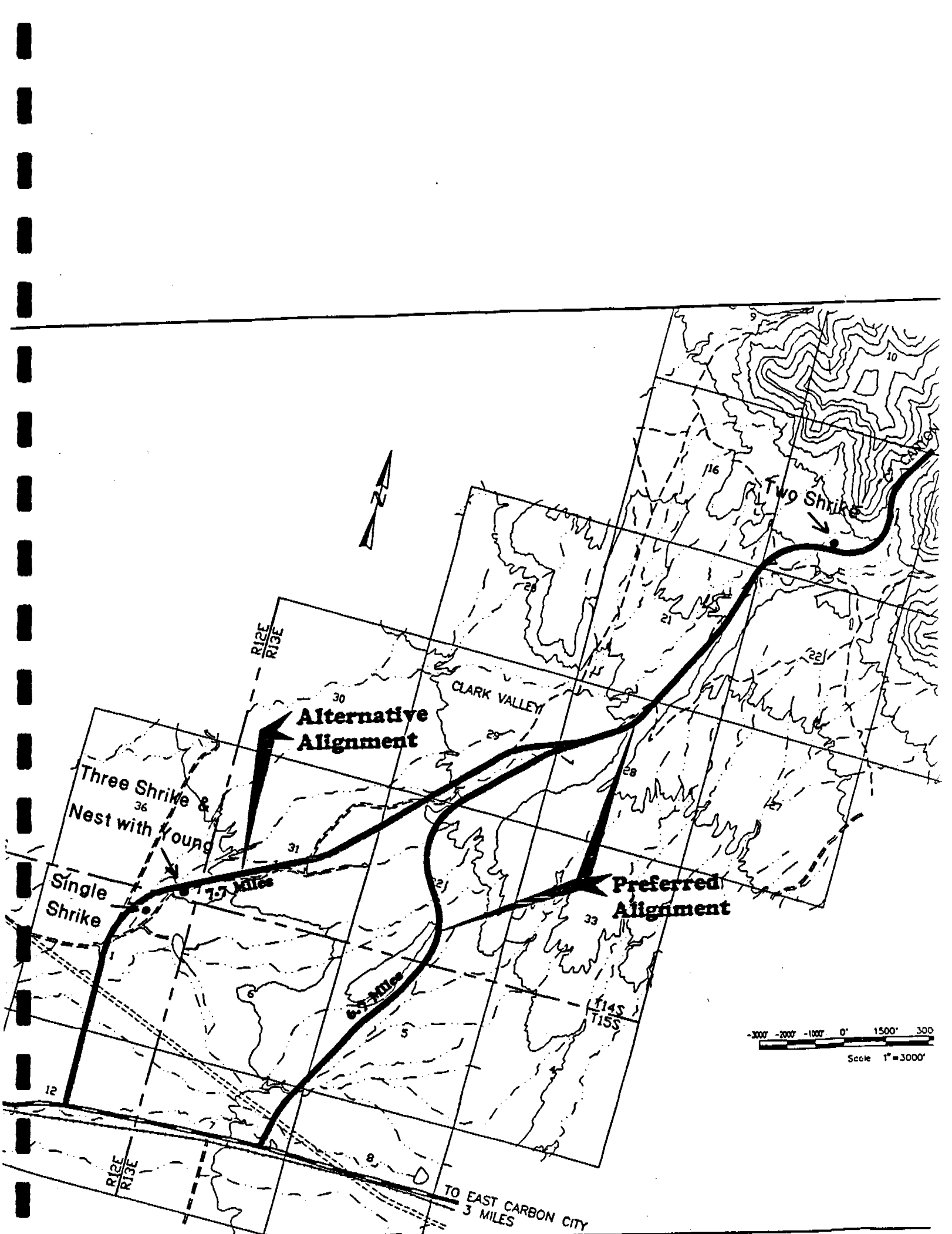
METHODS

Inventory work, on the two routes of the proposed access road, was conducted from 6:00 a.m. to 11:00 a.m. (period of highest bird activity) from June 11 to June 24, 1997. In accordance with suggestions from the BLM, surveyors walked within a 400 foot corridor of the flagged routes using binoculars to note shrike activity, other bird species activity, and white-tailed prairie dog communities. Habitat present on each side of the proposed access routes was noted along with the general topography. When shrike's were found their behavior was recorded and nests were looked for in the area of activity.

RESULTS

Loggerhead shrike's were observed on four different occasions.

On June 11 at 7:00 a.m., a single loggerhead shrike was observed flying to a juniper tree in the Northwest quarter of the Northeast quarter section 1, T. 15 South R. 12 East. After observing the bird and making a positive identification, the area was searched but no nests were found.


Two Shrike
Alternative Alignment
Preferred Alignment
Three Shrike & Nest with Young
Single Shrike
7.7 Miles
6.7 Miles
CLARK VALLEY
R12E
R13E
T14S
T15S
TO EAST CARBON CITY 3 MILES
Scale 1"=3000'

GOSHAWK INVENTORY FOR PROPOSED WEST RIDGE MINE AND ACCESS ROAD

CONDUCTED BY

EIS ENVIRONMENTAL CONSULTING

MAY 15, 1997

INTRODUCTION

Andalex Resources, Inc. has proposed to build a mine facility located within C Canyon of the Book Cliffs/Roan Cliffs Plateau Physiographic Region. The mouth of this canyon, located in T. 14 S., R. 13 E., Section 15, cuts northward into the cliffs and diverges in two directions at a fork approximately 0.7 miles from the mouth. This canyon is a mid-elevation drainage that has a wide bottom and shallow side slopes near its mouth. As C Canyon cuts up into the cliffs it becomes narrower with steep side slopes.

On May 15. 1997, a ground inventory for Northern goshawks, *Accipiter gentilis*, was conducted by EIS Environmental Consulting in accordance with the Bureau of Land Management (BLM) to determine the presence of nesting goshawks or suitable goshawk habitat within the potential areas of disturbance. The inventory also took into consideration the potential presence of all raptor species, including Sharp Shinned Hawks, *Accipiter striatus* and Cooper's Hawks, *Accipiter cooperii*. A previous study, Toone (1995), determined the lower portion of C Canyon to be too dry with sparse vegetation not suitable for goshawks.

METHODS

On May 15 1997, an intensive survey was conducted by the staff of EIS. Methodology followed techniques previously determined to be effective by the BLM, Utah Division of Wildlife Resources (UDWR), and EIS. A transect was walked in the bottom of C Canyon, within and up canyon of the area studied by Toone (1995), and up each of the forks (See Map 1). At stations approximately 200 Meter apart a taped nesting goshawk distress call was played, using a portable Johnny Stewart MS512MR Wildlife Caller, for 15 seconds followed by a 30 second listening period. This process was conducted in four cardinal directions for two sequences. At the end of the last sequence, there was a 5 minute waiting period for late responding goshawks. During these sequences there was an observer stationed, with binoculars, on each side slope and one within the canyon bottom looking and listening for responding goshawks.

RESULTS

No goshawks or other raptor species were heard or seen during the survey. Mature Douglas fir habitat, considered good for goshawk nesting (Toone, 1992), was present within the upper portion of C Canyon along the narrow bottom and on the northeast facing slopes.

The lower portion of C Canyon and its left fork had a transitional plant community consisting of pinyon pine, *Pinus edulis*, and Utah juniper, *Juniperus osteosperma*, on the drier side slopes and Douglas fir, *Pseudotsuga menziesii*, within the canyon bottom and shadier side slopes. Five call stations were established within this portion of the canyon, no response calls or evidence of goshawk activity was observed.

Within the right fork of C Canyon, a narrow portion with steep side slopes, Douglas fir established itself as the dominant canopy tree with an understory inhabited with Rock Mountain maple, *Acer glabrum*. The southeast facing slope was more open with pinyon pine and Utah juniper present. Five calling stations were used in the main branch of this fork with no goshawks responding to the tape.

The two sub-forks of the right fork each had mature Douglas fir habitat with some exposed cliff faces. Three calling stations were established in each sub-fork and no evidence of goshawks was seen. A untended, inactive stick nest situated on a cliff face was observed in the left sub-fork (See Map). It is unclear if the nest was a raptor or raven nest.

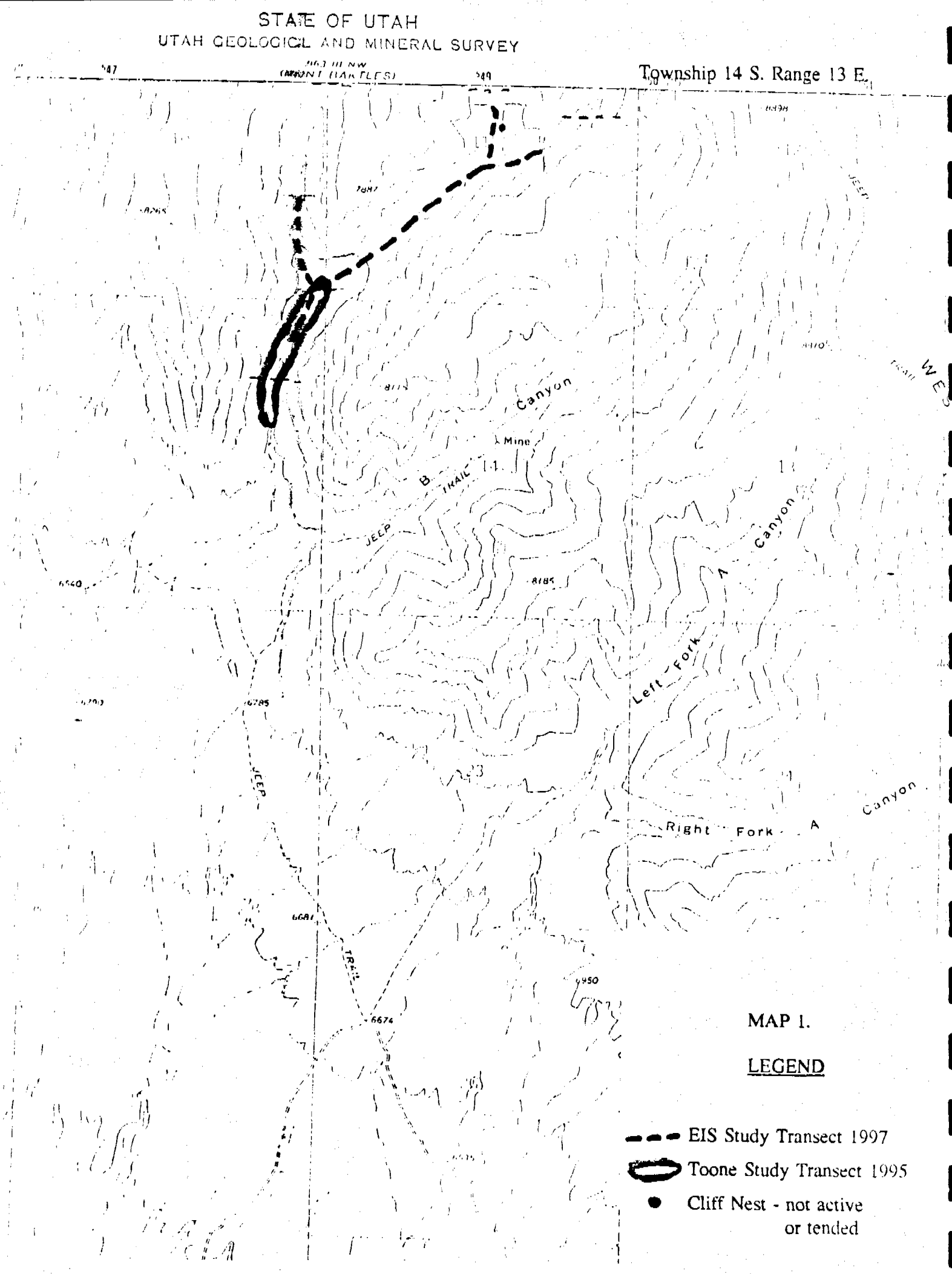
Literature Cited:

Toone, Robin A. 1995. General Inventory for Goshawks (Accipiter gentilis) on the Price River Resource Area, Utah. Cooperative Challenge Cost Share Project Agreement No. 1422J060P40088.

Toone, Robin A. 1992. General Inventory for Northern Goshawks (Accipiter gentilis) on the Price River, Book Cliffs, Grand, and Henry Mountain Resource Areas of the Bureau of Land Management in Utah. Utah Natural Heritage Program, Utah Department of Natural Resources, Salt Lake City, Utah.

STATE OF UTAH
UTAH GEOLOGICAL AND MINERAL SURVEY

Township 14 S. Range 13 E.



MAP 1.

LEGEND

- EIS Study Transect 1997
- Toone Study Transect 1995
- Cliff Nest - not active or tended

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Robert G. Valentine
Division Director

Southeastern Region
455 West Railroad Avenue
Price, Utah 84501-2829
801-637-3310
801-637-7361 (Fax)

July 7, 1997

Andalex
Attn: Jean Semborski
195 North 100 West
P.O. Box 1201
Huntington, Utah 84528

Jean:

Enclosed is the raptor maps and reports for the mine proposed near Sunnyside. The survey was done on June 3, 1997, by Ben Morris, UDWR, Paul Baker DOGM, Dave Mills, BLM, and yourself.

The survey found 21 golden eagle nests, six tended, five old/dilapidated, nine inactive and one active with two chicks. Two falcons nests were found, one tended, and one inactive. Two hawk nests were found, one active, and one tended. One inactive ferruginous hawk nest was also found.

If you have any questions call Ben Morris at 636-0279.

Sincerely,

Ben Morris
Habitat Biologist

Copy: Raptor File
Dave Mills

Enclosure: 9

Mines:SUNSDRPT.97

(map no)	Quad	Year	Species	Nest Typ	Status	Yo	AGE WKS	Eggs	X	Y	
1	SUNNYSIDE	1997	BUTEO (RAVEN?)	TREE	ACTIVE	0	0	0			
2	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	544515	4379610	
3	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	544500	4379695	
4	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	548550	4383050	
5	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	548900	4383100	
6	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	549310	4383210	
7	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	549695	4383305	
8	SUNNYSIDE	1997	U/I FALCON	CLIFF	INACTIVE	0	0	0	551080	4382999	GPS
									550430	4382480	D.MILLS
9	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	550230	4381600	
10	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	550750	4381390	
11	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	550920	4381580	
12	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	OLD-D	0	0	0	543920	4382855	
13	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	544350	4382740	
14	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	OLD-D	0	0	0	544595	4381990	
15	SUNNYSIDE	1997	FERRUGINOUS HAWK	TREE	INACTIVE	0	0	0	543400	4383200	
16	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	549050	4384305	
17	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	TENDED	0	0	0	549250	4385780	
18	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	OLD-D	0	0	0	549140	4385835	
19	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	547800	4384800	
20	SUNNYSIDE	1997	BUTEO	CLIFF	TENDED	0	0	0	547500	4384345	
21	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	OLD-D	0	0	0	547440	4385080	
22	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	546420	4385180	
23	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	INACTIVE	0	0	0	546620	4385030	
24	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	OLD-D	0	0	0	546330	4385175	
25	SUNNYSIDE	1997	PRAIRIE FALCON	CLIFF	TENDED	0	0	0	546720	4385210	
26	SUNNYSIDE	1997	not thought to be a rapto	TREE	INACTIVE0	0	0	0	546400	4374945	
27	SUNNYSIDE	1997	FERRUGIOUS HAWK	TREE	not found	0	0	0	551365	4378460	
28	SUNNYSIDE	1997	GOLDEN EAGLE	CLIFF	ACTIVE	2	0	0	551340	4378430	
29	SUNNYSIDE	1997	FERRUGIOUS HAWK	TREE	not found	0	0	0	551265	4381255	
30	SUNNYSIDE	1997	FERRUGIOUS HAWK	TREE	not found	0	0	0	550775	4381230	

WEST RIDGE - C CANYON
MAY 22, 1998
START 7:30
END 9:15

BILL BATES
JEAN SEMBORSKI
BEN MORRIS

NUMBER	SPECIES	STATUS	ELEVATION	COMMENTS
1	GE	Inactive	7400	
2	FAL	Inactive	7400	
3	GE	O,D	7400	
4	GE	Tended	7700	
5	GE	O,D	7800	
6	GE	Tended	7800	
7	GE	O,D	7800	
8	GE	Tended	7800	
9	Buteo	Inactive	7400	C Canyon
10	Raven	Inactive	7200	Nest started but not finished
11	Raven	Active	7200	2 chicks
12	GE	Inactive	7500	
13	Raven	Inactive	7400	
14	GE	Inactive	7500	Owls may have used
15	GE	O,D	7500	
16	GE	O,D	7500	
17	GE	Tended	7400	Start of B Canyon Survey
18	GE	O,D	7800	
19	GE	Inactive	7500	
20	GE	Tended	7600	
21	GE	Tended	7900	
22	GE	Inactive	7800	
23	GE	Inactive	7700	

WEST RIDGE PROJECT
PROJECT LOCATION MAP

ENVIRONMENTAL INDUSTRIAL SERVICES
HELPER, UTAH

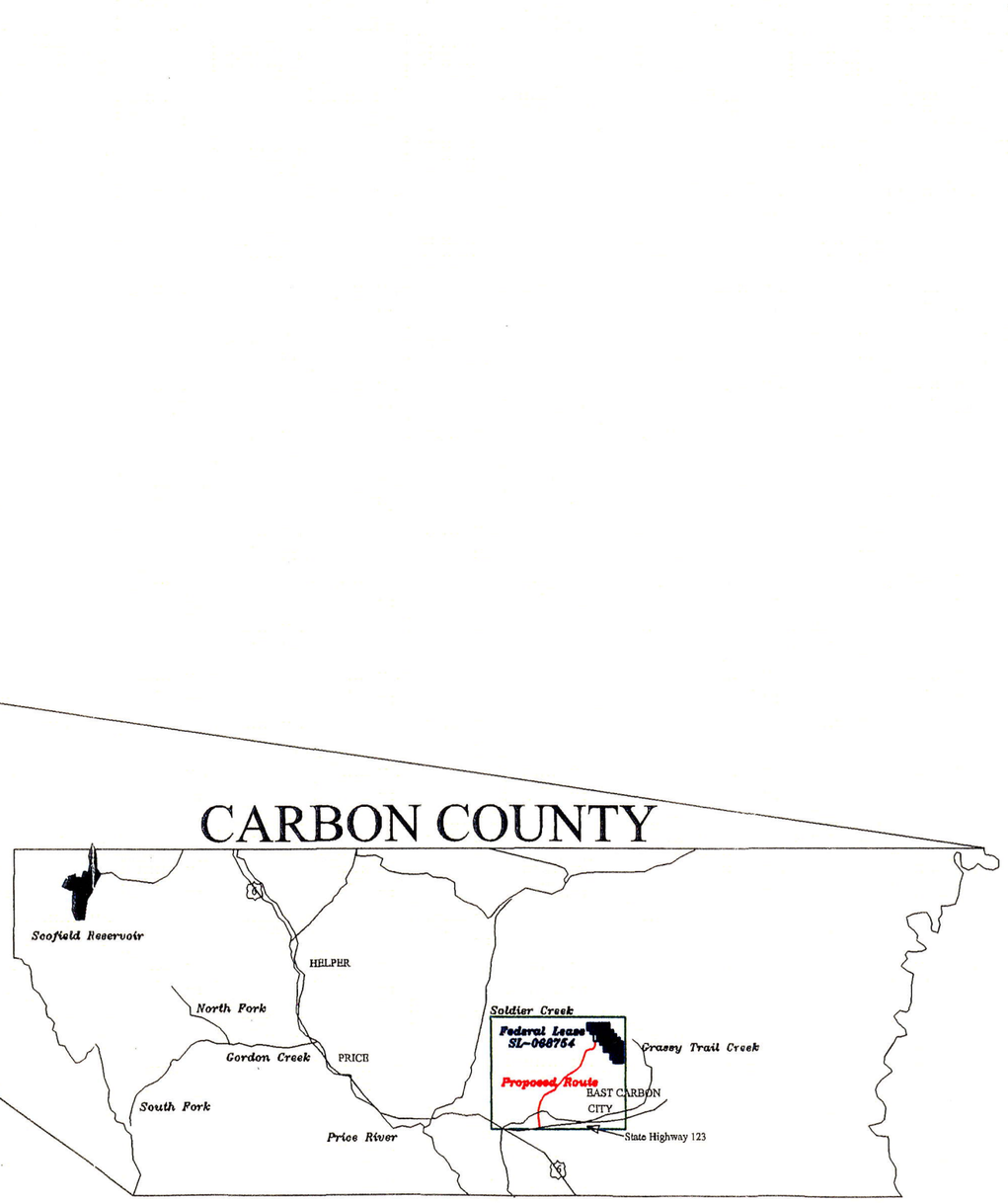



Plate No.: PLATE I