

# HORSE CANYON PROJECT

## FEASIBILITY STUDY

### FINAL REPORT

July 31, 2003

Prepared by  
Center for Mine Land Redevelopment  
University of Utah



This Report was Prepared Under an Award from the  
U.S. Department of Commerce  
Economic Development Administration

EDA Award No. 05-86-03788



This publication was prepared by the Center for Mine Land Redevelopment at the University of Utah. The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of the Economic Development Administration.

FILE IN:  
 Confidential  
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In C1007003 doc3. Submitting  
For additional information

## Acknowledgements

The investigators and authors of this report wish to express our deepest appreciation to the following people who, by offering their support, commitment, and the tremendous contribution of their time and resources, have made this project possible. To the many others who supported and contributed to this effort, but who are not named here, we also express our deepest gratitude.

Bryant Anderson, Dale Andrews, Stephan Benigno, Janeen Bennion, David Bergstedt, Clyde Borrell, Frank Brown, Don Burge, Terry Chatwin, Bonnie Dee Cook, Mel Coonrod, James Cordova, Melissa Coulam, Charlie Crump, Judy Donnell, Debra Dull, Merlin Eldred, Charles Evans, DeLynn Fielding, Gunter Fischli, Charles Foust, Kerry Frame, Dennis Geary, Pam Grubach Litig, Daron Haddock, John Harvey, Bill Howell, Bennie Jackson, Shaun Jepsen, David Jones, Cindy Kiel, Mike King, Brad King, Liz Kourianos, Sam Leonard, Richard Manwaring, Jay Marshall, Pam Miller, Mike Milovich, Mishele Mitchell, Bob Murray, Jason Needles, Mike Nelson, Steve Ott, Dave Patton, Tony Priete, Drew Sitterud, Doug Smith, Kent Smith, Steven Stephens, Ryan Thomas, George Uhlig, Don Wardell, John Zender, Carbon County Commissioners, Emery County Commissioners, and the Southeastern Association of Governments.

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## Abstract

Horse Canyon is a stunningly beautiful canyon rising into the Book Cliffs of central Utah. UtahAmerican Energy, Inc owns much of the land in Horse Canyon, and they have offered to donate approximately 1200 acres, including four large brick buildings, to the College of Eastern Utah (CEU) to develop an educational facility at that site.

The Center for Mine Land Redevelopment at the University of Utah received a grant from the Economic Development Administration to conduct a feasibility study to determine if such redevelopment was viable, and if it would benefit Emery and Carbon Counties and the communities within those counties. Another aspect of the feasibility study was to address questions that would facilitate the transfer of the land to CEU.

A business study was performed by a group of seven graduate students from the University of Utah. The students looked at the following activities as potential generators of revenue for the facility:

- Geology Field Camps
- Archeological Repository
- Production of Dinosaur Replicas
- Archeological Field Camps
- Paleontology Campos
- Elderhostel Programs
- Petroleum Company Camps

The Center concluded that a facility in Horse Canyon would probably be fully utilized by a variety of programs and could be profitable; however, none of the contemplated activities would generate a large amount of revenue. Therefore, on an operating-cost basis, the facility could be self-sustaining but would not justify a large capital outlay to create.

The buildings presently located on the site are very large for a facility that may have only 30 to 35 people utilizing it at any given time. The activities now contemplated for the site will not generate sufficient revenue to justify immediate renovation of the buildings for use as the primary structures on the premises. For a quick and relatively inexpensive start-up, modular buildings could be utilized effectively.

The existing buildings can still be used in a limited way now, and further renovation can be phased into the future. The buildings include:

- Building No. 1 is the office building, which will be the most likely to be renovated and used first for classrooms and offices.
- Building No. 2 is the bathhouse. A huge central room could accommodate a basketball court or auditorium.
- Building No. 3 is the warehouse. It could be used for storage or for indoor workspace.

- Building No. 4 is the shop building. It has an enormous interior space that is well suited for large-scale storage for hay bales, tractors, backhoes, or other equipment. It may be the most feasible for leasing to a third party.

The estimated cost for the full restoration is estimated to be approximately \$1.8 million. Using volunteer efforts do some of the restoration work could lower this cost.

Recreation, including hiking, mountain biking, horseback riding, river rafting, bird and wildlife watching, photography and travel to nearby attractions, should be developed as an integral component of the facility. This will create a unique reason for students and researchers to locate at Horse Canyon and take full advantage of its natural assets.

CEU could take advantage of the abandoned coal mine to develop programs that teach the geology, occurrence and mining of coal, and aspects of coal mining, such as mine ventilation, mine safety, coal-bed methane recovery, and coal-bed fire-fighting.

The transfer of the property is in progress. The Utah Attorney General's office has reviewed the proposal. The Utah Division of Oil, Gas and Mining (DOG M) determined what criteria will have to be met for approval. Arrangements for site services such as water, fire protection, emergency medical services and other necessary services have been made. An Environmental Site Assessment (Phase I ESA), in accordance with ASTM 1527, was performed, and it was determined that no "recognized environmental conditions" exist on the site. An environmental assessment (EA) examined the natural environment at Horse Canyon and concluded that, while wilderness study areas are located in proximity to Horse Canyon, planned activities would have relatively little impact. Activities at Horse Canyon will help promote appreciation of wilderness areas and will create a better understanding of their value.

Community involvement is critical for the future development of Horse Canyon. The site is located in Emery County, and Emery County must be a principal stakeholder in activities at the site.

The Horse Canyon project has been a tremendous success. The local communities are strongly behind the project and the College of Eastern Utah is moving aggressively toward taking ownership of the land and developing programs to maximize its use.

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## EXECUTIVE SUMMARY

Horse Canyon is a stunningly beautiful canyon rising into the spectacular Book Cliffs of central Utah. In the process of looking for potential sites for mine land redevelopment, the Center for Mine Land Redevelopment at the University of Utah (the Center) became aware that UtahAmerican Energy, Inc., the owner of the Horse Canyon coal mine land, would consider donating some of the land to a non-profit entity for a constructive, alternative, post-mining land use. In partnership with Emery County, where the majority of the land is located, the Center undertook a preliminary study to determine if there was an opportunity for redevelopment that would benefit Emery and Carbon Counties and the communities within those counties.

Because of the incredible natural beauty of the area and the proximity of extensive Wilderness Study Areas, the Center concluded that any redevelopment must be harmonious with, and not impair, the environment. A field camp or facility for the study of the natural environment, including geology, paleontology, biology, and other natural sciences, would be an asset to the College of Eastern Utah (CEU), located in Price, and would attract economic activity to Carbon and Emery Counties. Such a facility would take advantage of the many nearby natural wonders and could also be utilized for non-scientific purposes, such as for retreats. The Center applied to the Economic Development Administration for a grant to perform a feasibility study to create such a facility. The grant was approved, and work began on the project on August 1, 2002.

A business study was performed by a group of seven graduate students from the University of Utah under the supervision of Dr. Don Wardell of the Management Department of the David Eccles School of Business at the University of Utah. The students looked at the following activities as potential generators of revenue for the facility:

- Geology Field Camps
- Archeological Repository
- Production of Dinosaur Replicas
- Archeological Field Camps
- Paleontology Campos
- Elderhostel Programs
- Petroleum Company Camps

The Center concluded that a facility in Horse Canyon would probably be fully utilized by a variety of programs and could be profitable; however, none of the contemplated activities would generate a large amount of revenue. Therefore, on an operating-cost basis, the facility could be self-sustaining but would not justify a large capital outlay to create.

The buildings presently located on the site present a problem. They are large, in some respects, very large, for a facility that expects to have only 30 to 35 people utilizing it at any given time. Moreover, the activities now contemplated for the site will not generate

sufficient revenue to justify renovating the buildings for use as the primary structures on the premises. For a quick and relatively inexpensive start-up, modular buildings could be utilized effectively. Modular buildings can be moved in quickly and set up with a minimum of disturbance to the environment and can be sized to precisely meet the needs of the facility at the given time. They can be completely self-sufficient, with water tanks, pumps, sanitary tanks, and generators incorporated, and they are flexible so that sizes and configurations of buildings can be changed as requirements change. Perhaps most importantly, the cost for modular buildings is much lower than the cost for renovating the existing buildings, and the costs could be further mitigated by phasing in the facility; perhaps sleeping accommodations first, then bath, classroom, and office units.

Nevertheless, a prudent development plan will maximize the use of the existing buildings to the extent possible, either now or phased into the future. Ultimately, the existing buildings will be fully utilized by the facility. A suggested phased plan for the respective buildings is as follows:

- Post the property with signage saying, perhaps, “Site of the Future Horse Canyon Institute (or whatever the facility will be named) – Please Respect this Property,” in order to discourage vandalism.
- Clean up all buildings, remove broken glass and debris. Repair any broken beams, doors, etc. For the buildings that will not be used in the immediate future, board up windows (replacement windows probably would quickly be shot out, at this early stage of redevelopment). Fill in any holes in floors, such as the grease pits in the shop building. Interior fixtures, such as showers, parts storage bins, shop hood vents, or other features that will not be used by the facility, should be removed.
- Building No. 1 is the office building, which will be the most likely to be first utilized. It has rooms and offices that are properly sized for offices and classrooms. The roof is in need of serious repair. Renovation will include replacing or repairing the roof, ripping out and replacing sheetrock, replacing some flooring, rewiring to code, and painting the interior. While not trivial, these tasks are less expensive and less drastic than those required to renovate the other buildings, and they can be accomplished, as time permits, over an extended period. This work could begin at the time of the opening of the facility (in modular buildings) and continue until completed. Volunteers could do much of it. When completed, office and classroom activities, and perhaps a lab, could be located in the building.
- Building No. 2 is the bathhouse. The primary asset of this building is a huge central room (which was the dressing room for the miners). The room has a high ceiling and is of a dimension that could easily house a full-sized basketball court. The floor is concrete, and indoor tennis courts or a running track could also be accommodated. Because of the size of the room, it would make an ideal auditorium, as well. Folding chairs and a speaking platform or dais could quickly and temporarily convert the room for this purpose. Space around the central room could be used for storage or for additional office space.

- Building No. 3 is the warehouse. It has a lot of space available but it would require a major rebuild to convert it for habitation. It could be used for storage or for indoor workspace for projects that require a large area, such as laying out core samples.
- Building No. 4 is the shop building. It is constructed half of brick and half of corrugated metal. It is the least aesthetically pleasing of all the buildings on site. It has an enormous interior space that can be accessed through large doorways. It is likely to be the least useful for the facility; however, it is well suited for large-scale storage for hay bales, tractors, backhoes, or other equipment. Therefore, it may be the most feasible for leasing to a third party, such as local ranchers, the Utah Department of Transportation, or Emery County.
- Since the removal of Buildings 3 and/or 4 would be very expensive, and they are not likely to be used by the facility in the short term, alternative third parties should be sought out who would make use of the buildings. An agreement might be styled such that the third party would agree to clean up and restore the buildings in exchange for free use for a fixed period of time.

Several different groups estimated costs for this project. Because capital costs for full restoration are not consistent with the limited use that the facility will have, especially at first, a phased approach is recommended to enable programs to be developed and the facility utilized as soon as possible. The site could be cleaned up and a basic infrastructure put in place for a little over \$100,000. Modular classrooms, a lunchroom, sleeping quarters, and bath buildings could be added for \$248,000. Furnishings are estimated to cost approximately \$58,000. Thus, for a cost of between \$400,000 and \$500,000, the facility can be fully functional. Final restoration of the site would include restoration of the existing buildings, addition of permanent infrastructure and such amenities as an amphitheater, horse corrals, and biking trails. The estimated cost for the full restoration is estimated to be approximately \$1.8 million. Using volunteer efforts do some of the restoration work over a period of time could lower this cost.

For the facility to be successful it must have something unique to offer. Horse Canyon must be more than just a place to sleep in between trips to Moab, the dinosaur quarries, the San Rafael Swell, or other nearby attractions. If that is all it will be, then visitors might just as well stay in a motel in Price or Wellington. There has to be a reason to be *in Horse Canyon!* What Horse Canyon offers is spectacular natural beauty coupled with the opportunity for learning, travel to the nearby attractions, and recreation within Horse Canyon.

Recreation must be developed as an integral component of the facility. Opportunities abound, including hiking, mountain biking, horseback riding, river rafting, bird and wildlife watching, photography and travel to nearby attractions. By integrating these activities with the study and travel, there will be a unique reason for students and researchers to locate at the Horse Canyon facility and take full advantage of the natural assets of the site.

A second and unique aspect of Horse Canyon that can be taken advantage of is the presence of coal and an abandoned coal mine. The facility could make use of this attribute to develop programs that teach the geology, occurrence and mining of coal, and aspects of coal mining, such as mine ventilation and mine safety. Moreover, coal bed methane has become a tremendous resource in Carbon and Emery Counties and the site could be used to research technology to improve the drilling of the wells and enhance the recovery of methane. Dr. George Uhlig, a professor at CEU, has developed a technology for putting out coal bed fires that could be further developed and tested at the site. In conjunction with that, research on locating coal beds using seismic, electromagnetic, or other remote techniques is well suited to this location.

The transfer of the property is well underway. The Utah Attorney General's office has reviewed the situation and recommended a path forward for transfer. The Utah Division of Oil, Gas and Mining (DOG M) has determined what criteria will have to be met for approval of an alternative post-mining land use and release of Utah American's reclamation bond. Arrangements for site services such as water, fire protection, emergency medical services and other necessary services have been made within the local communities. An Environmental Site Assessment (Phase I ESA) in accordance with ASTM 1527 was performed, and it was determined that no "recognized environmental conditions" exist on the site that would delay or prohibit development. An environmental assessment (EA) examined the natural environment at Horse Canyon and evaluated potential negative impacts that might result from the proposed educational/recreational development plans. It concluded that, while wilderness study areas are located in proximity to Horse Canyon, planned activities would have relatively little impact. Indeed, activities at Horse Canyon will likely help promote appreciation of wilderness areas and will create a better understanding of their value.

Community involvement is critical to the future development of Horse Canyon. Public meetings would inform residents about the potential uses for the facility. Local fundraising could support activities for youth groups, nature-study organizations, and other local organizations. In particular, the site is located in Emery County, and Emery County must be a principal stakeholder in activities at the site. CEU should ensure that Emery County and Emery County communities are involved in programs at Horse Canyon.

The Horse Canyon project has been a tremendous success. The local communities are strongly behind the project and the College of Eastern Utah is moving aggressively toward taking ownership of the land and developing programs to maximize its use. The investigators at the Center for Mine Land Redevelopment appreciate the financial support and commitment of the Economic Development Administration and the project co-sponsors: Kennecott Utah Copper, Andalex Resources, Inc., Canyon Fuel Company, Utah Power, the College of Eastern Utah, the Center for Public Policy and Administration at the University of Utah, the College of Mines and Earth Sciences at the University of Utah, and all the others who helped contribute to this effort.

# **Horse Canyon Project – Feasibility Study Final Report**

## **1.0 INTRODUCTION**

Horse Canyon is a stunningly beautiful canyon rising into the spectacular Book Cliffs of central Utah. The Center for Mine Land Redevelopment at the University of Utah (the Center) is dedicated to finding constructive reuse alternatives for former mining properties. In the process of looking for potential sites for mine land redevelopment, the Center became aware that UtahAmerican Energy, Inc., the owner of the Horse Canyon coal mine land, would consider donating some of the land, which is located in Emery and Carbon Counties, to a non-profit entity for a constructive, alternative post-mining land use. In partnership with Emery County, where the majority of the land is located, the Center undertook a preliminary study to determine if there was an opportunity for redevelopment that would benefit Emery and Carbon Counties and the communities within those counties.

Highly intrusive activities such as industrial development were ruled out because of the spectacular and pristine setting of the canyon and the proximity of extensive wilderness areas. The College of Eastern Utah (CEU), located in Price, only 30 miles from Horse Canyon, operates many activities in the area, including the Prehistoric Dinosaur Museum in Price, and several world-class dinosaur quarries. CEU agreed that a number of educational programs could be developed at the Horse Canyon location, and it would be willing to accept a donation of land in the canyon and develop a facility and programs to take advantage of that site.

The Center for Mine Land Development, in partnership with Emery County, applied to the Economic Development Administration (EDA) for a grant to perform a feasibility study for the redevelopment of the site into an educational facility for CEU. The EDA granted Award No. 05-86-03788 to the Center and Emery County, and this feasibility study is being performed under that award.

CEU has initiated action for the property to be transferred. Specifically, it has contacted the Utah Attorney General's office for an evaluation and an approval of the transfer, and the Risk Management section of the Attorney General's office has begun an investigation. CEU's Board of Trustees and the State Board of Regents must also approve the transfer before it can become a reality.

## **1.1 Description of Center for Mine Land Redevelopment**

The mining industry has long had a role of strategic and economic importance in our country. Mining, however, has declined as a base industry in Utah. Unfortunately, far more mine closures than openings are now occurring, and the industry's future looks murky, at best. As mines close, many mining communities will suffer severe negative economic impacts once mineral resources are exhausted or mining is no longer profitable.

The Center for Mine Land Redevelopment at the University of Utah was created to help communities turn abandoned mine land into permanent, sustainable community assets. The former mining land becomes a tax base and a source of employment, community pride, and public involvement. The program has been well-received by mining companies, communities, and local governments.

The Center for Mine Land Redevelopment at the University of Utah has organized a multi-disciplinary, multi-organizational research, training, technology transfer, and outreach center that will help promote innovative solutions to mine redevelopment and reclamation, and will encourage sustainable development projects that will benefit mining communities.

The Center's activities can be summarized into three categories:

Identification of Opportunities – By being aware of abandoned mining properties and mine closures that have valuable assets in terms of infrastructure, location, or existing resources, the process of finding useful alternatives for these properties can begin.

Facilitation of Redevelopment – The Center will bring together a variety of stakeholders in any redevelopment scenario, including property owners, potential developers, financiers, local government representatives, and interested citizens. Town meetings will be hosted to explore beneficial possibilities. The Center has the necessary technical capabilities and can be a resource in finding solutions to potential environmental liabilities.

Information Transfer – The Center will encourage redevelopment by publishing success stories, writing and presenting papers, maintaining a Web site, and producing informative materials such as brochures and CD ROMs. Some of this information will detail how to overcome financial, technical, environmental, and legal hurdles to achieve successful redevelopment.

This center provides a valuable service to the mining industry and the communities that support it.

## **1.2 History of the Project**

Late in 2000, the Center for Mine Land Redevelopment (the Center) became aware of the Horse Canyon Mine, located a few miles south of the city of Price in Section 4, T16S - R14E, Carbon County, Utah. The locations of the mine, Utah's five national parks, and other natural attractions are shown on Figure 1-1. The Horse Canyon mine was a coal mine operated for years by Geneva Steel and most recently by UtahAmerican Energy, Inc. (UtahAmerican). The mine is now permanently closed, and UtahAmerican is in the process of obtaining permits for a new mine, the Lila Mine in Lila Canyon, just southeast of Horse Canyon. Four principal buildings are located on approximately four acres of the mine property at the mouth of Horse Canyon: a brick office building; a brick bathhouse;

a large brick warehouse building; and a shop building that is half brick, half corrugated metal. The brick buildings were constructed to withstand a potential air raid during WWII. No utilities are currently available on the site. A water tank located about a mile up the canyon from the buildings was fed by a persistent nearby spring. UtahAmerican must remove or otherwise deal with the now-abandoned buildings in order to complete its obligations for reclamation on the property and obtain release of its reclamation bond.

The Center was informed about the Horse Canyon site in 2002 by the Southeastern Association of Governments. Jack Hamilton, Gene Carr, Terry Chatwin, and Mike Nelson, all from the University of Utah, made an initial visit to the site. Mr. Mel Conrood, a local consultant for UtahAmerican, met the group and showed them around the site. The Center examined the Horse Canyon site to determine if it was a good candidate for redevelopment. They ruled out industrial redevelopment, since a parcel of land at the former Sunnyside Mine, north of Horse Canyon and south of Price, was previously designated and zoned as an industrial development zone, and it has yet to be utilized for that purpose.

Because of the natural beauty of the location, Center personnel believed that any redevelopment scenario should take advantage of the natural setting and should not, in any way, impair the environment. It appeared that the site was ideal for students of natural studies, including, but not limited to, geology, paleontology, botany, wildlife management, ecology, archeology, and other scientific subjects. It would also be an exceptional location for artists, photographers, writers, poets, and those seeking a quiet and scenic retreat for study or meditation. Moreover, Horse Canyon is centrally located within a half-day's drive of some of the most fantastic natural wonders in the United States. Those include Moab, Arches and Canyonlands National Parks, Lake Powell, the San Rafael Swell, the La Sal Mountains, the Wasatch Plateau, the Colorado and Green Rivers, and many others. The College of Eastern Utah (CEU) is located in Price, just 30 miles from Horse Canyon. CEU was contacted to determine if there would be an interest in pursuing the development of a field camp, or campus, located in Horse Canyon, to take advantage of the vast, unique potential of that location.

UtahAmerican initially indicated that it would be willing to donate approximately 900 acres of land, located mostly within the canyon, plus the four buildings located on the site. The four buildings include a shop building, a warehouse, a bathhouse, and an office building. Other structures on the site include two explosives magazine buildings, a fan-house and portal area, a water tank, and some small buildings. The disposition of these other buildings has not yet been determined. Some of them will likely be removed in order to comply with Division of Oil Gas and Mining regulations for closure with an alternative post-mining land use. UtahAmerican later amended its offer to include an additional area of approximately 400 acres located near the mouth of the canyon. The total specified acreage now is approximately 1200 acres.

CEU administrators who were contacted to discuss the offer included Dr. Ryan Thomas, President, Dr. Chuck Foust, Vice President for Academic Affairs, Dr. Michael King, Dean of Arts and Sciences, and Brad King, Vice President of Institutional Advancement

& Auxiliaries. Dr. Don Burge, Director of the Prehistoric Museum in Price, Carbon County Commissioner Mike Milovich, Emery County Commissioner Drew Sitterud, Southeastern Association of Governments Director Bill Howell, and others were also contacted. The universal consensus was that such a facility would be an asset to the community and to CEU, and would promote economic development in the two counties. It is critical, however, to create a plan for the development and management of the facility that would make it sustainable and financially independent in its various activities.

The Center for Mine Land Redevelopment approached the Economic Development Administration (EDA) in 2001 to determine if a feasibility study for the Horse Canyon Project would meet its criteria for funding. Subsequently, a proposal was written and funded by the EDA in August 2002 to develop a one-year feasibility study.

The goal of this feasibility study is to investigate ways to create a center for natural studies, perhaps to be called the "Horse Canyon Center," or the "Horse Canyon Institute," on the property. The prime consideration is for the center to be self-sustaining. In other words, funding for operations at the site must come from the site's activities. Capital expenditures may be funded on a one-time basis from various grants and other sources. The study includes an evaluation of existing buildings, building restoration versus new construction, legal aspects of the property transfer, environmental considerations, a community relations plan, and a business plan to be used to develop an approach for site development. It is intended that the feasibility study and the work that goes into it will facilitate the acquisition of the Horse Canyon site by the College of Eastern Utah and will help in the creation of the planned center.

### **1.3 History of Horse Canyon**

Horse Canyon was named for the wild horse herds that congregated there to drink at a natural spring, located not far above the mine site, and which was used to supply fresh water for the mining operation. That spring is the only one in the canyon that has a significant flow.

As World War II was approaching, the United States government launched a program to increase the steel production capacity of the nation. After the Pearl Harbor attack, the policy of establishing steel mills near the sources of raw materials and away from threatened bombing areas was adopted. The Geneva Steel Plant in Provo, Utah, was one of these plants, and it necessitated the opening of more coal mines. This was the reason for the establishment of the Geneva Mine at Horse Canyon.

The construction of the mine was started in the spring of 1942, and the actual underground work in the coal seam began in the following October. The main development openings were driven while the surface plant was still under construction. A small-capacity temporary tippie serviced the coal that was produced at this time. A 1300-foot rock tunnel was driven to the coal seam, and a rotary dumping station was installed.

The mine was developed and organized under the general direction of Mr. F. V. Hicks, the first general superintendent.

The mine buildings in Horse Canyon are themselves an interesting story. A brief description of the history of the buildings enriches an understanding of their significance. The Federal Defense Plant Corporation (DPC) acquired approximately 600 acres in the Book Cliffs of Emery County in 1942, the early years of World War II, for the mining of coal. The buildings were constructed at that time and were an integral part of the coal mine operation. There are just four buildings left remaining from an original cluster of nineteen. The buildings have been out of use since 1982 but are still in relatively good condition.

The federal government established the DPC in 1940 to finance and supervise the construction and equipping of industrial facilities. The agency soon became an important part of the war effort. The facilities were operated by private concerns sponsored by federal agencies administering defense and war programs. At the end of the war, in 1945, the DPC was dissolved and merged with the Reconstruction Finance Corporation. In 1946 the land and buildings were purchased by the United States Steel Corporation.

The coal mine was acquired to supply coal to fuel the huge Geneva Steel Plant that was under construction in Utah County. The "Book Cliff Field," approximately 120 miles east of the steel plant site at Geneva, was the most important of the developed regions of coking coal in Utah. In the field, a bed varying from ten to 16 feet in thickness would furnish coking coal primarily for the blast furnaces at Ironton and Geneva in Utah County.

Horse Canyon site had no methane problems compared to the nearby Sunnyside area, where the Kaiser mine was located. The coal seams are extensively mined at the Horse canyon location. Horse canyon had normal mining conditions, with coal quality averaging 12 to 13 thousand BTUs, and having good coking properties and relatively low ash. They mined thick pitching seams that generally slope eastward.

The coal seam that has been mined is called the Lower Sunnyside Seam, and it varies from seven to 16 feet in thickness. The elevation of this seam is 6355 feet at the mine portal. The seam is relatively free from bone or partings except in the extreme southeast and northern sections of the mine. Beneath the seam is a layer of sandstone that forms a shelf along the outcrop of the coal seam. Above the seam is a bed of thin sandstone and sandy shale that averages three feet in total thickness, and over this parting lies the Upper Sunnyside Seam, which is about three feet thick. This upper seam, often called the Rider Seam, was not mined. The coal that was mined is a hard, sub-bituminous, highly volatile coking coal with a low sulfur and ash content.

The Horse Canyon Mine, as well as the nearby sister mine at the Columbia site, exhibited carboniferous plants and leaves in the rock immediately above the coal seam. Also, a substantial number of dinosaur foot casts were observed in the roof of the mine. In the



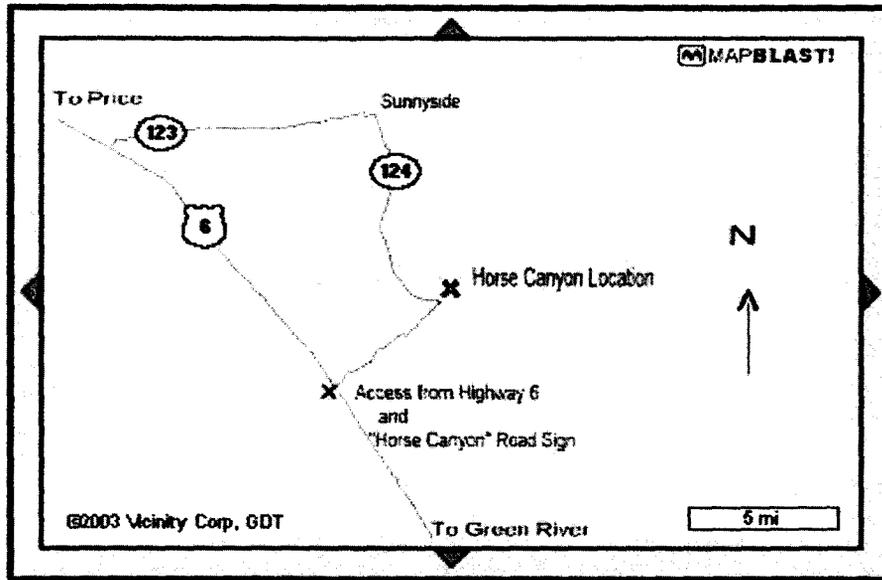


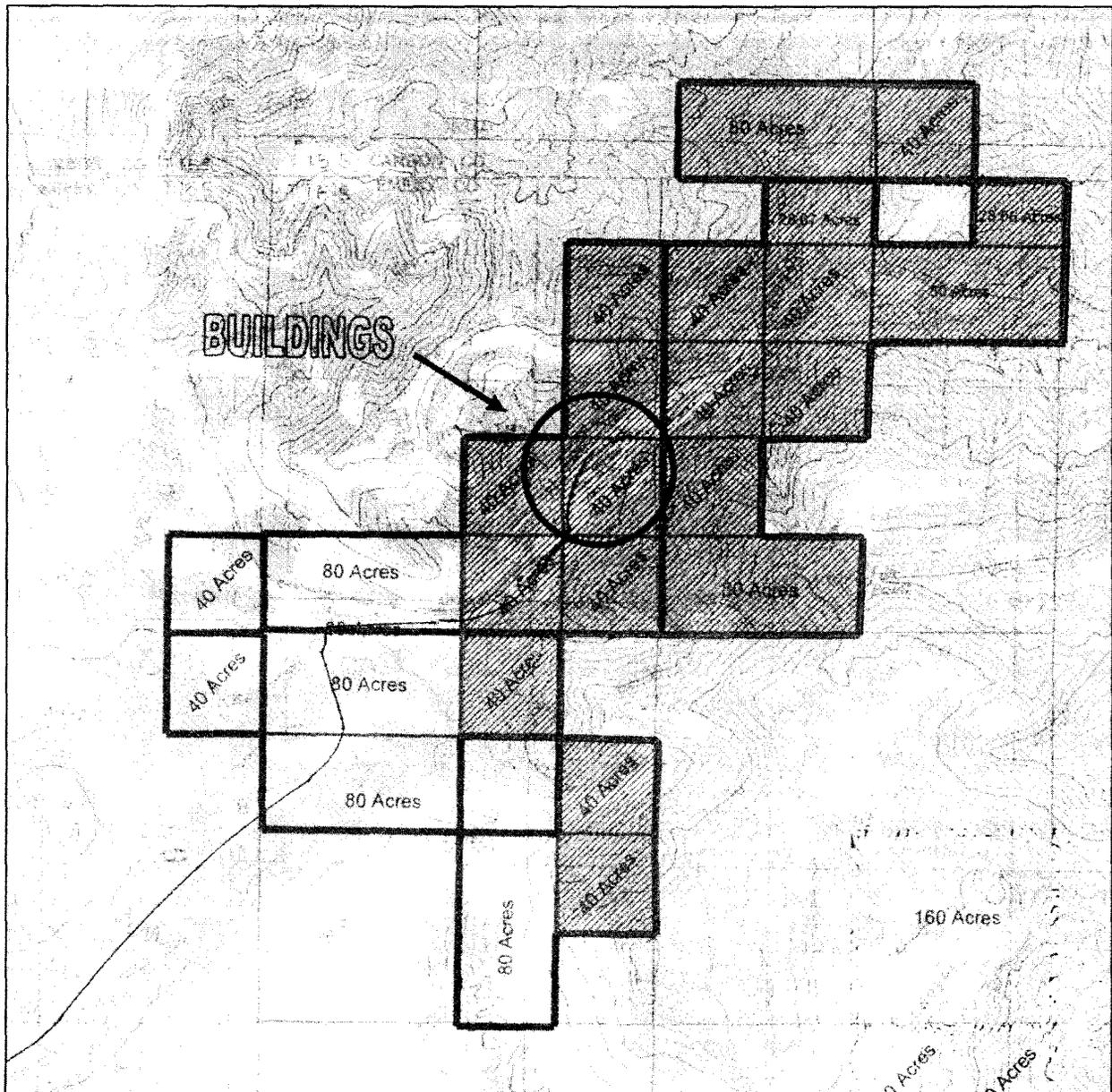
Figure 1-2 Location Map

### 1.5 Description of UtahAmerican Gift – Acreage/Buildings/Other

UtahAmerican Energy initially offered to donate approximately 900 acres of land located primarily within the canyon to the higher-education system of Utah; the most likely ultimate owner of the land will be the College of Eastern Utah, since it is located in Price, Utah, only 30 miles from Horse Canyon. The college also operates the local museum in Price and manages a number of dinosaur quarries in the vicinity, and thus is in an excellent position to maximize the use of the site. During the course of this feasibility study, UtahAmerican added approximately 200 additional acres to its original offer, bringing the total offered acreage to approximately 1200 acres. Table 1-1 summarizes the land included in the offer. The original acreage offered by UtahAmerican Energy is shaded in red, and is shaded red on Figure 1-1, the acreage map. The additional acreage is shaded in blue on the table, and is outlined in blue on the acreage map.

Table 1-1 UtahAmerican Fee Land Donation

| Legal Description                           |    | UEI to Retain Ownership   |               | Donate to State<br>College of Eastern Utah |                |
|---|----|---|---------------|--|----------------|
|   |    | Description   | Acres         | Description                                | Acres          |
| T.16S R.14E<br>Emery County<br>Fee Surface  | 3  |   |               | Lots 1,3,7,8,11                            | 176.13         |
|   | 4  | S2SW4   | 80            | NW4SE4, SE4SE4                             | 80             |
|   | 5  | SE4SE4  | 40            |  |                |
|   | 9  | S2NW4, W2SE4  | 160           | NW4NE4, SE4NE4, NE4SE4                     | 120            |
|   | 10 | SE4   | 160           |  |                |
|   | 15 | SE4NW4, N2NE4, SE4NE4   | 160           |  |                |
| T.15S R.14E<br>Carbon County<br>Fee Surface | 33 |   |               | S2SE4                                      | 80             |
|   | 34 |   |               | SW4SW4                                     | 40             |
| T.16S R.14E<br>Emery County<br>Fee Simple   | 3  |   |               | Lots 5, 6, 12, NW4SW4, S2SW4               | 240            |
|   | 4  |   |               | Lots 8, 9, NE4SE4, SW4SE4                  | 160            |
|   | 8  | NE4NE4  | 40            |  |                |
|   | 9  | N2NW4   | 80            |  |                |
| T.16S R.14E<br>Emery County<br>Fee Simple   | 15 | S2NE4, ALSO, Beginning at the NE corner of the NW4SE4, and running thence W 1000 feet; thence SE'y to a point 500 feet S of beginning; thence N 500 feet to beginning | 91.25         |  |                |
| <b>SUBTOTAL</b>                             |    | Additional Acreage  | <b>400.00</b> |  | <b>400.00</b>  |
| <b>TOTAL</b>                                |    |   | <b>811.25</b> |  | <b>896.13</b>  |
|   |    |   |               | <b>GRAND TOTAL</b>                         | <b>1296.13</b> |



**Figure 1-3 UtahAmerican Donated Acreage Map**

In addition to the acreage, UtahAmerican agreed to donate four buildings that are located on the property. Those include a shop building, a bathhouse, a warehouse building, and an office building. An existing water tank will also be donated. UtahAmerican, as a part of its mine closure, will remove other structures, including at least two explosives magazines, mine portals, and fan houses.

## 1.6 Map of Area

Figure 1-4, Area Map, illustrates the favorable location of Horse Canyon, located between Price and Green River, Utah. Three national parks, Arches, Canyonlands, and Capitol Reef, are located south of Horse Canyon, the San Rafael Swell and the Wasatch Plateau to the southwest, and the Green River to the east.

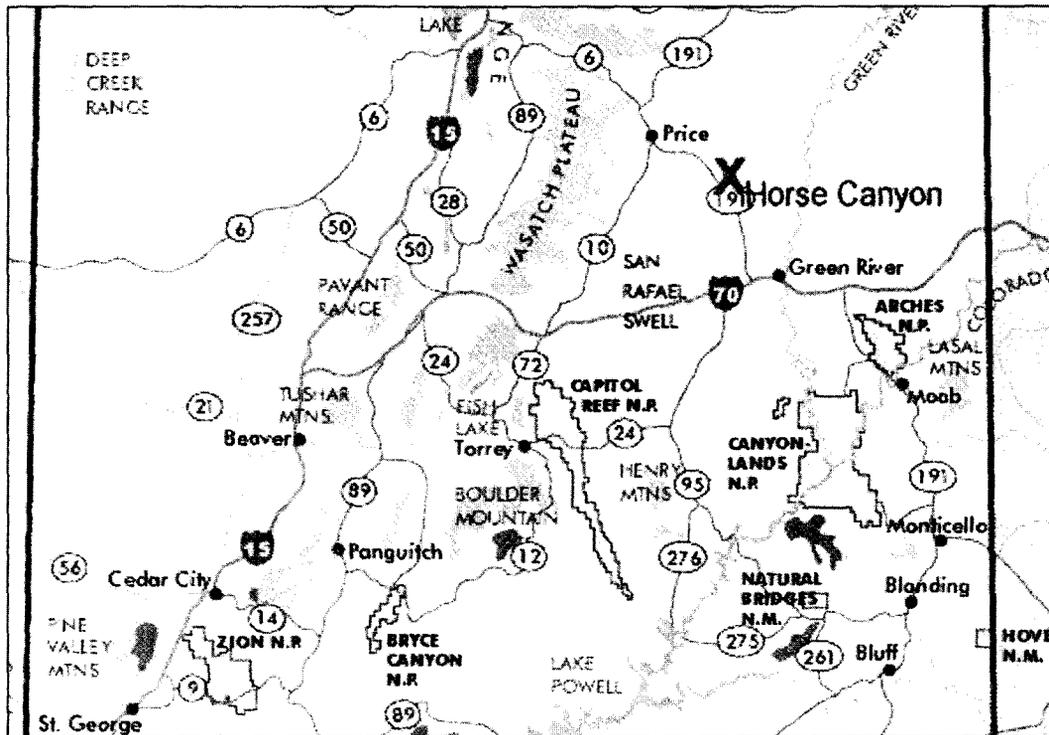


Figure 1-4 Area Map

## 1.7 Photographs

In order to establish a consistent terminology for this report, the photograph below, Figure 1-5, shows the four principal buildings: Building 1 – Office, Building 2 – Bathhouse, Building 3 – Warehouse, and Building 4 – Shop.

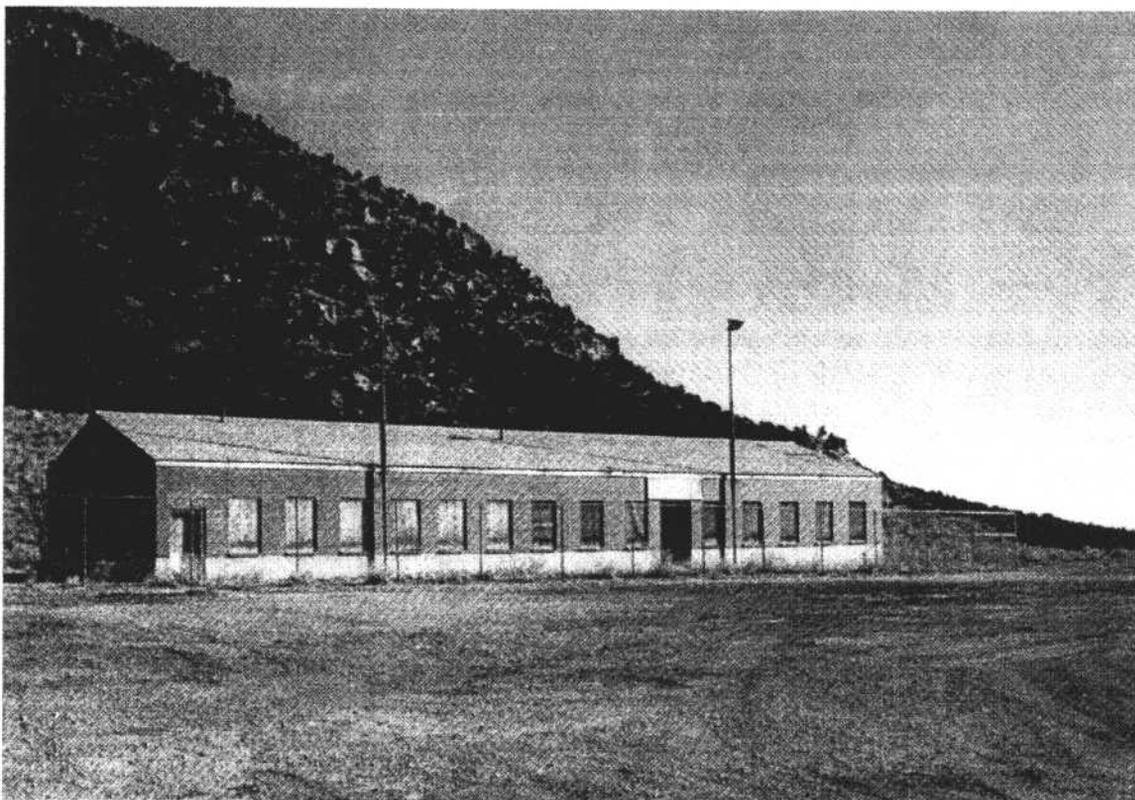


**Figure 1-5 Aerial Photo of Horse Canyon Buildings**

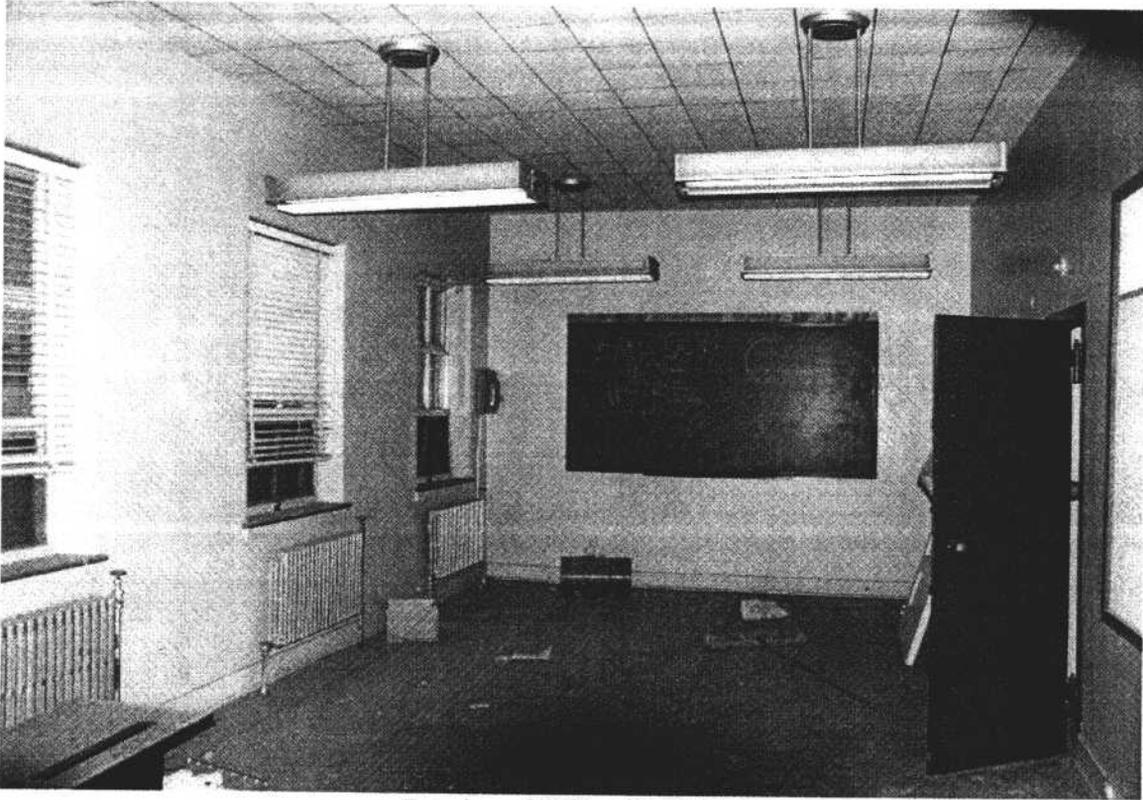
The following photographs are not numbered. They are intended to provide an overview of the Horse Canyon site and surrounding area.



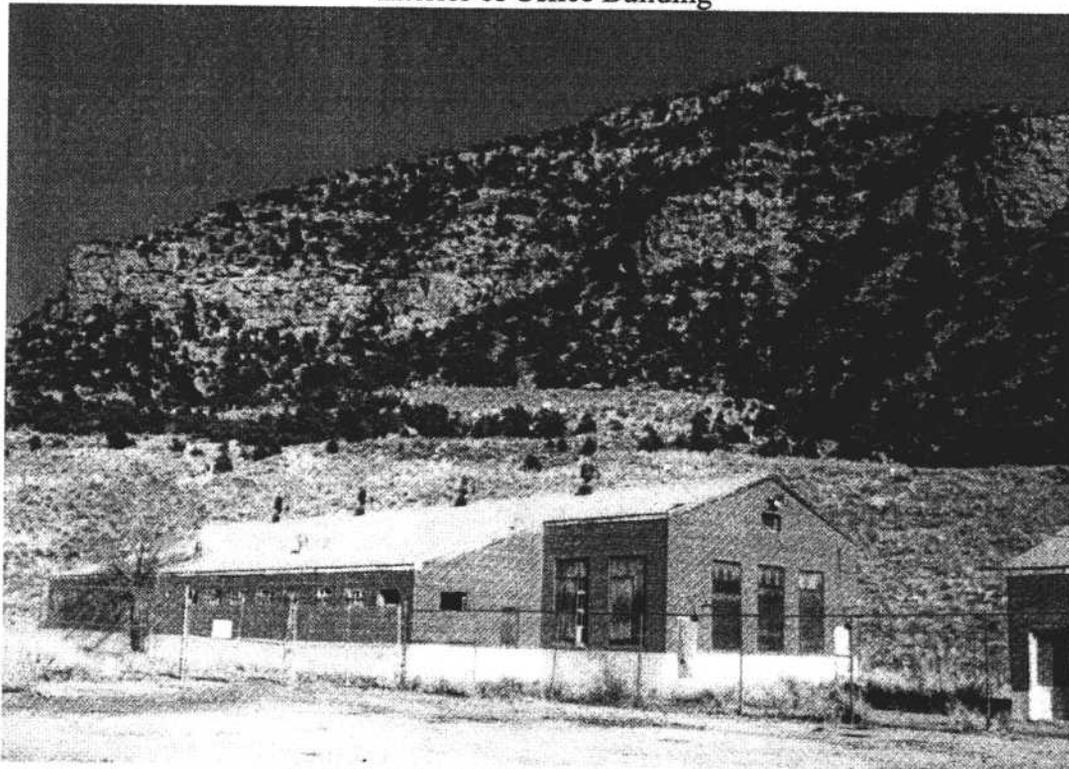
Aerial View of Entrance to Horse Canyon – Buildings on Left



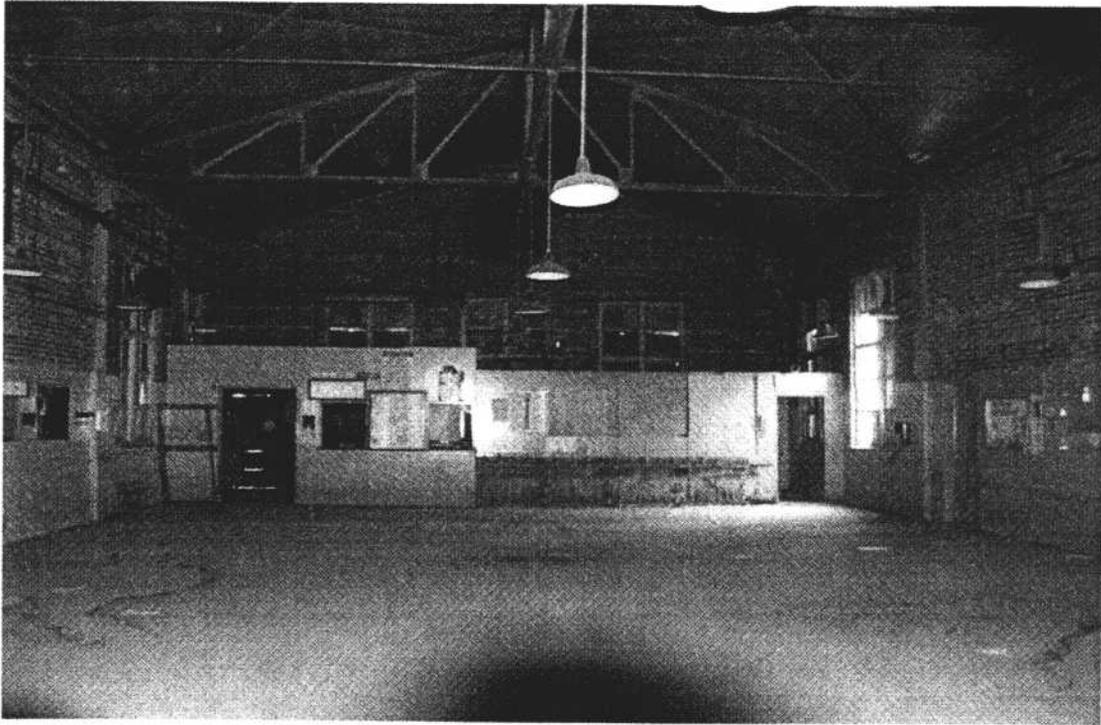
Building Number 1, Office Building



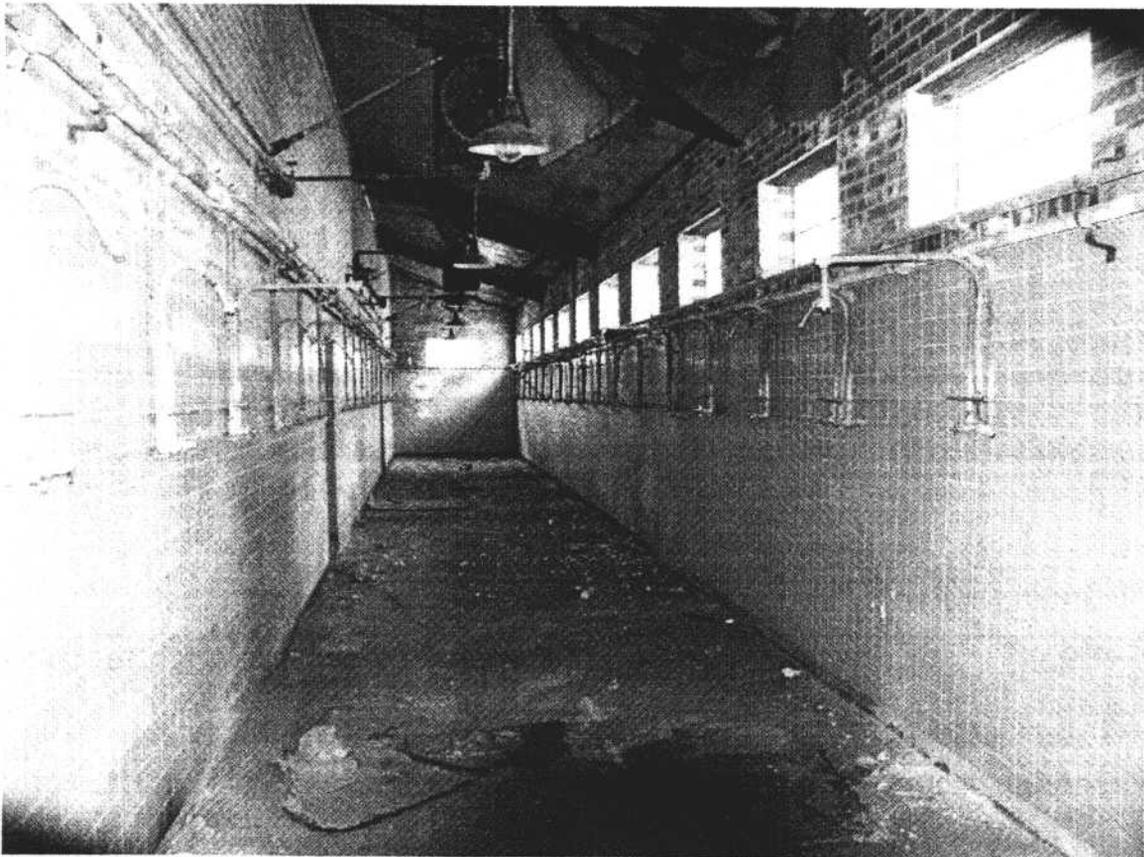
Interior of Office Building



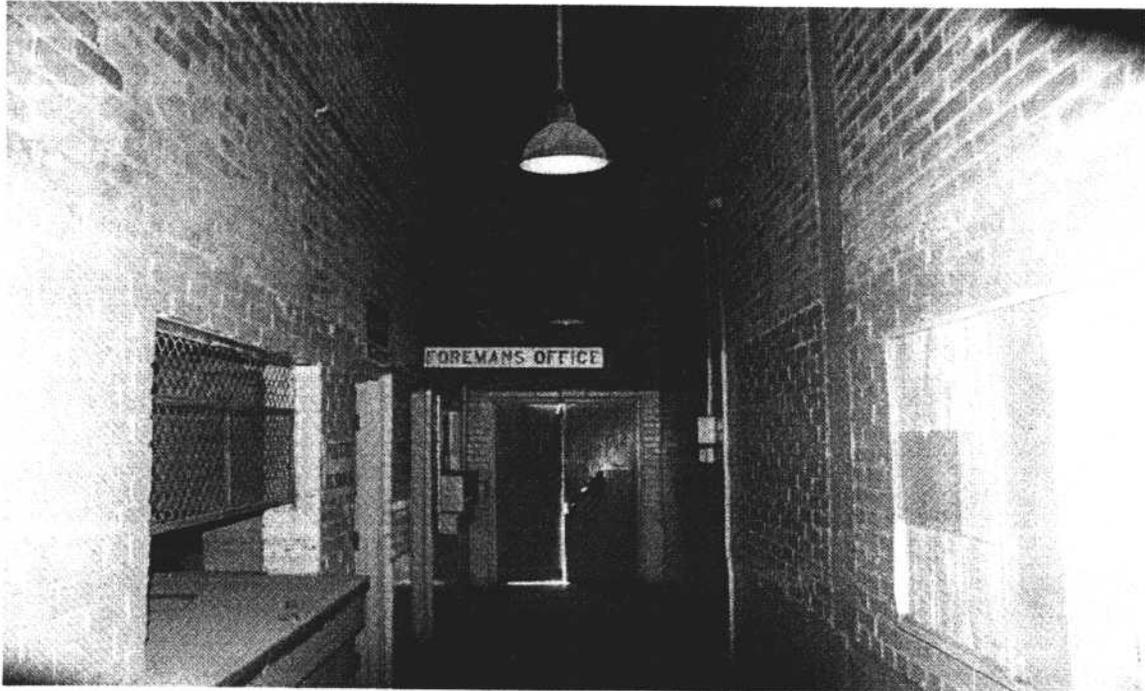
Building Number 2, Bathhouse Building



Large Central Room in Bathhouse Building



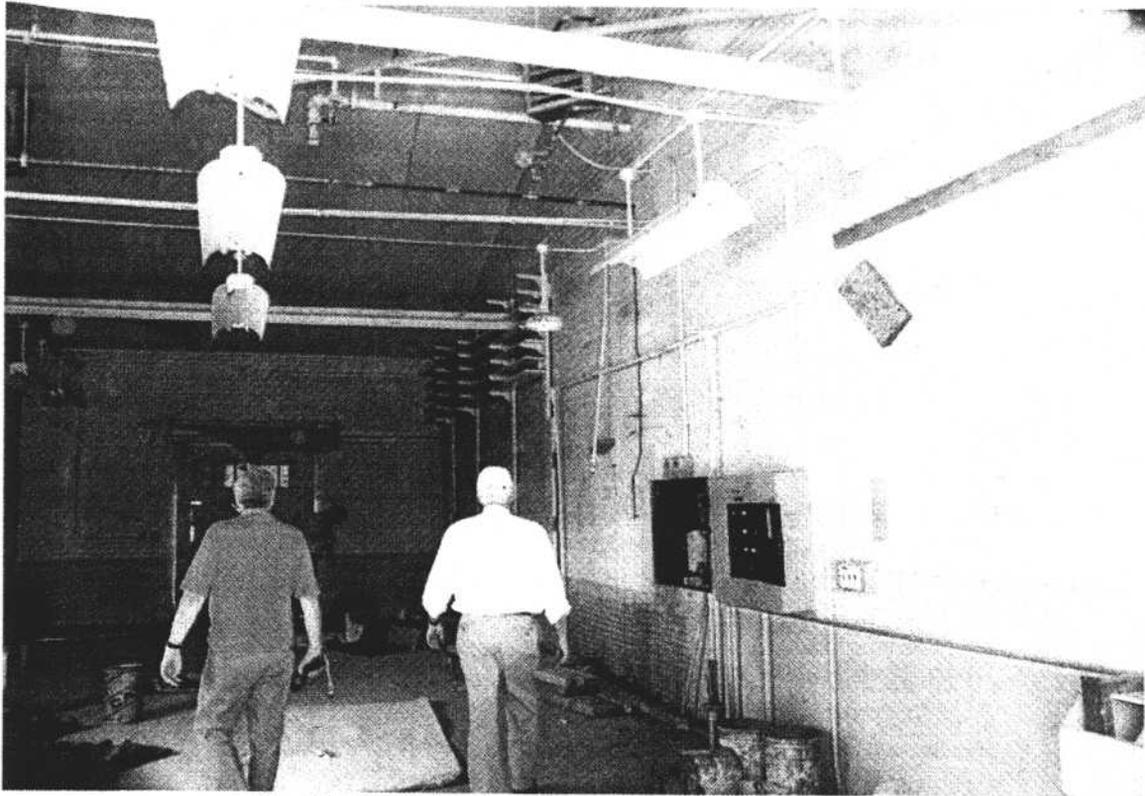
Shower Area of Bathhouse Building



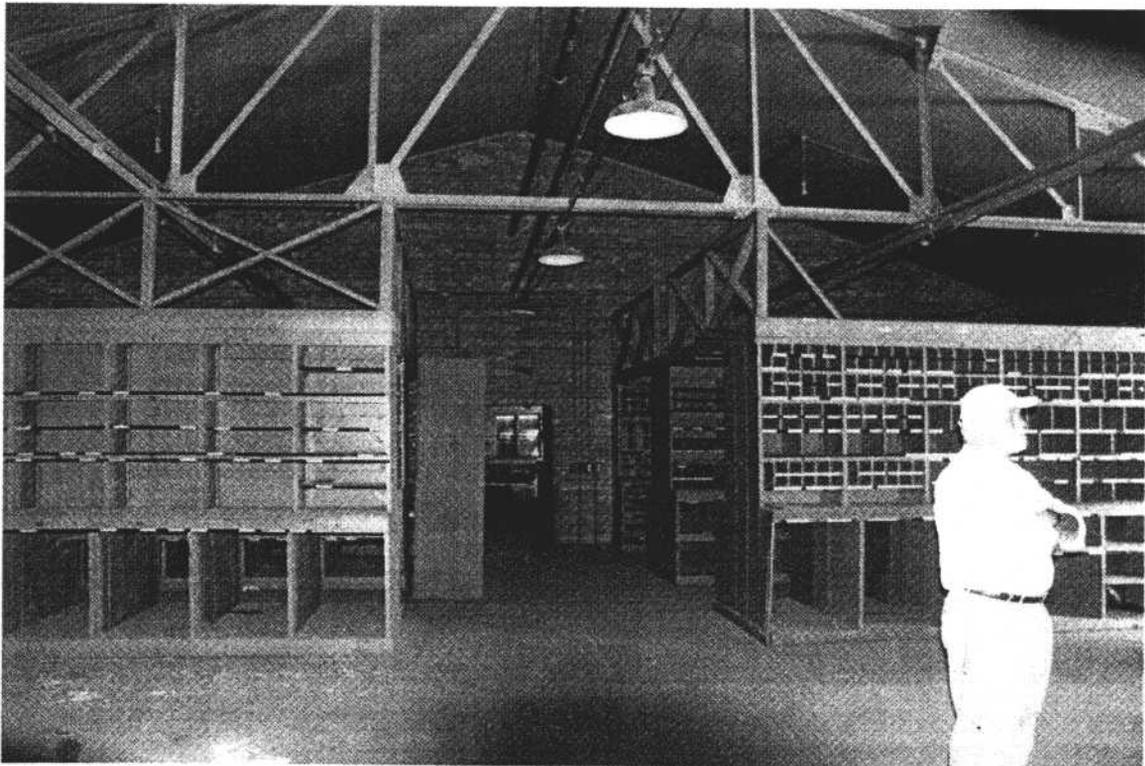
Office Area of Bathhouse Building



Building Number 3, Warehouse Building



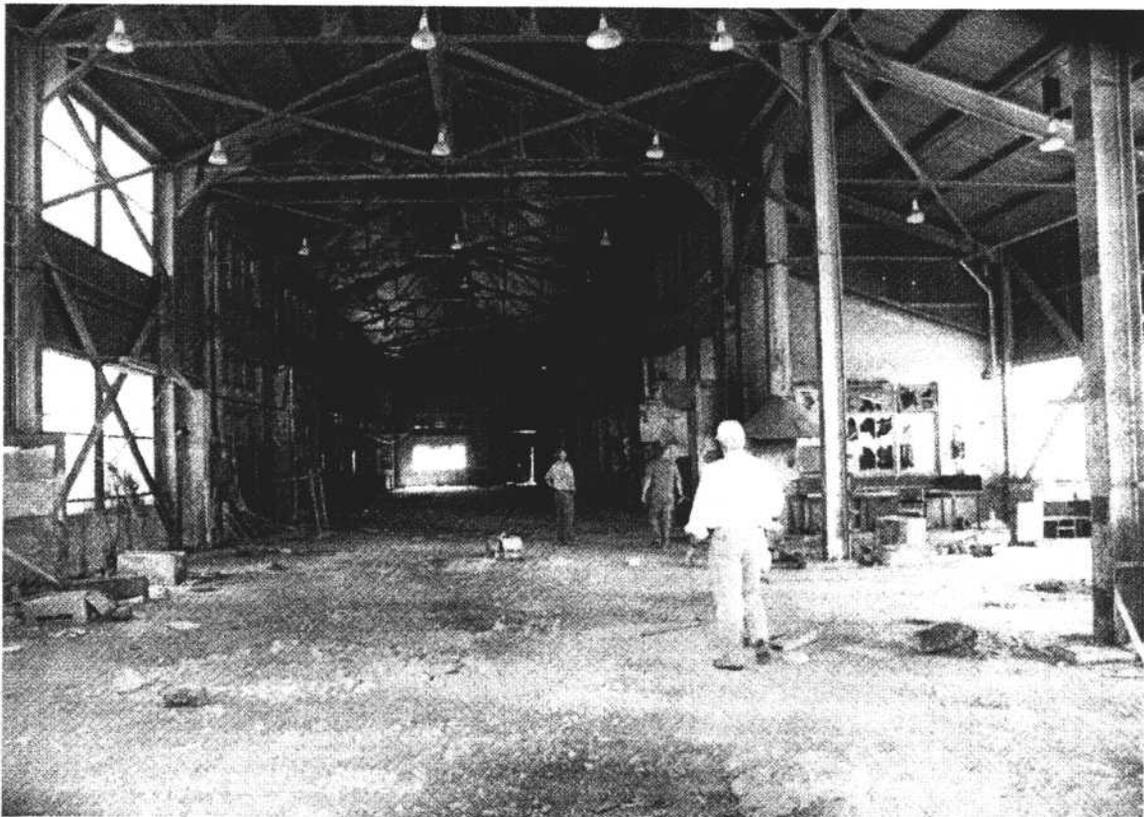
Small Room on West End of Warehouse Building



Interior of Warehouse Building



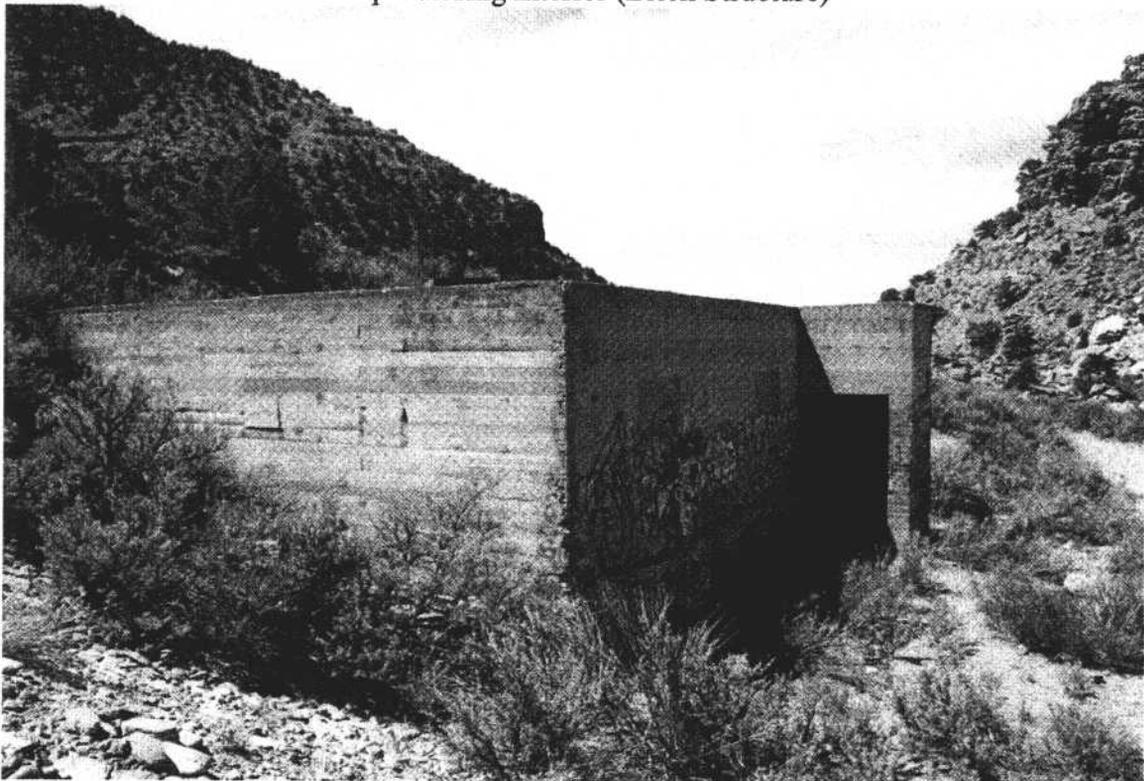
Building 4 - Shop Building Showing Metal Addition



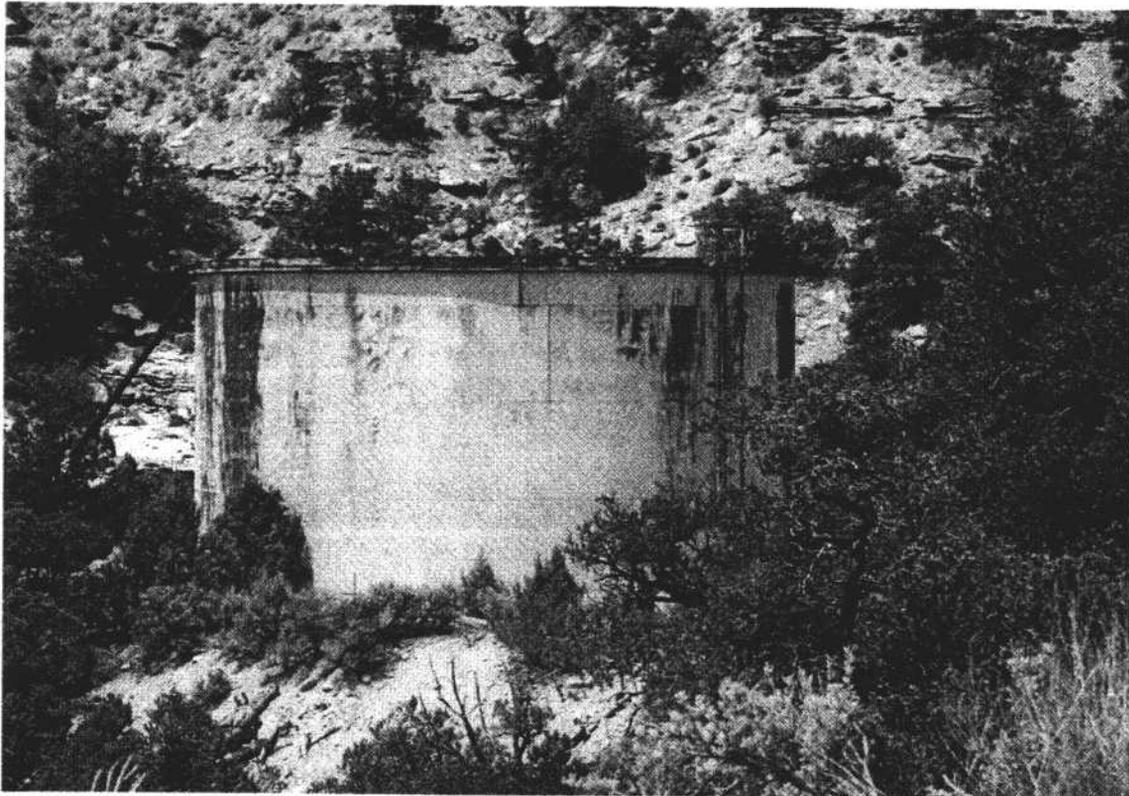
Shop Building Interior



Shop Building Interior (Brick Structure)



Explosives Magazine



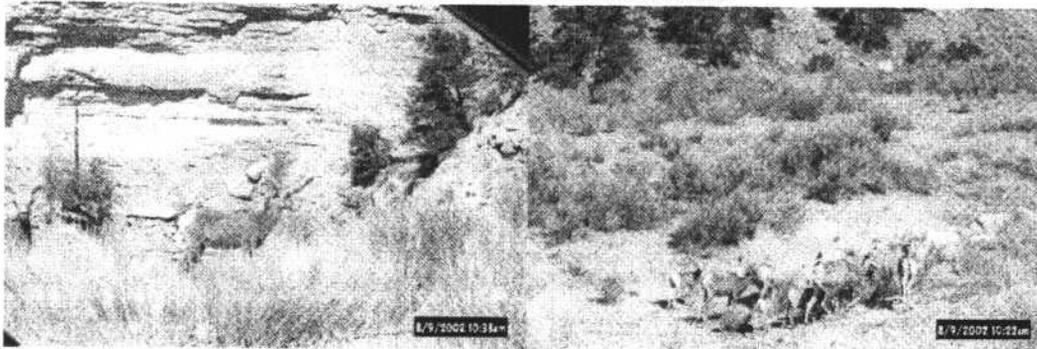
Water Tank



Dinosaur Dig at nearby Price River II Quarry



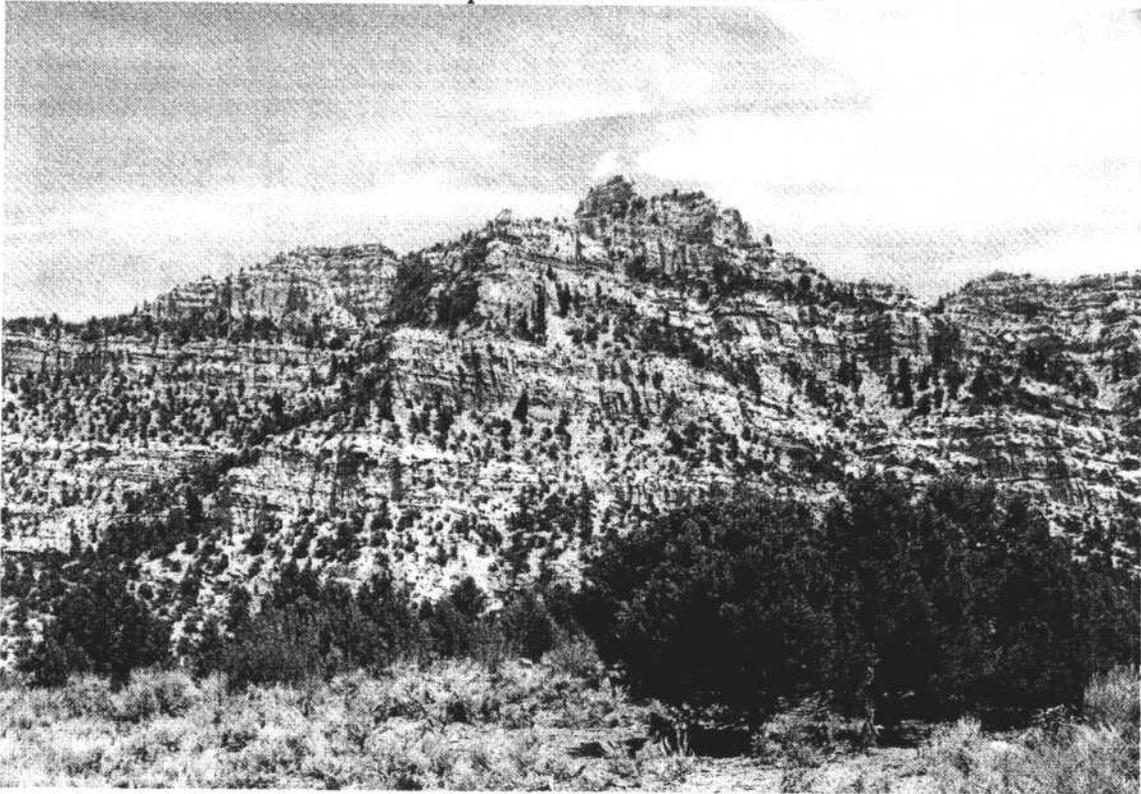
Gilson Tree Historical Landmark



Bighorn Sheep Within Sight of Horse Canyon Buildings



Rock Collapse Due to Mine Subsidence



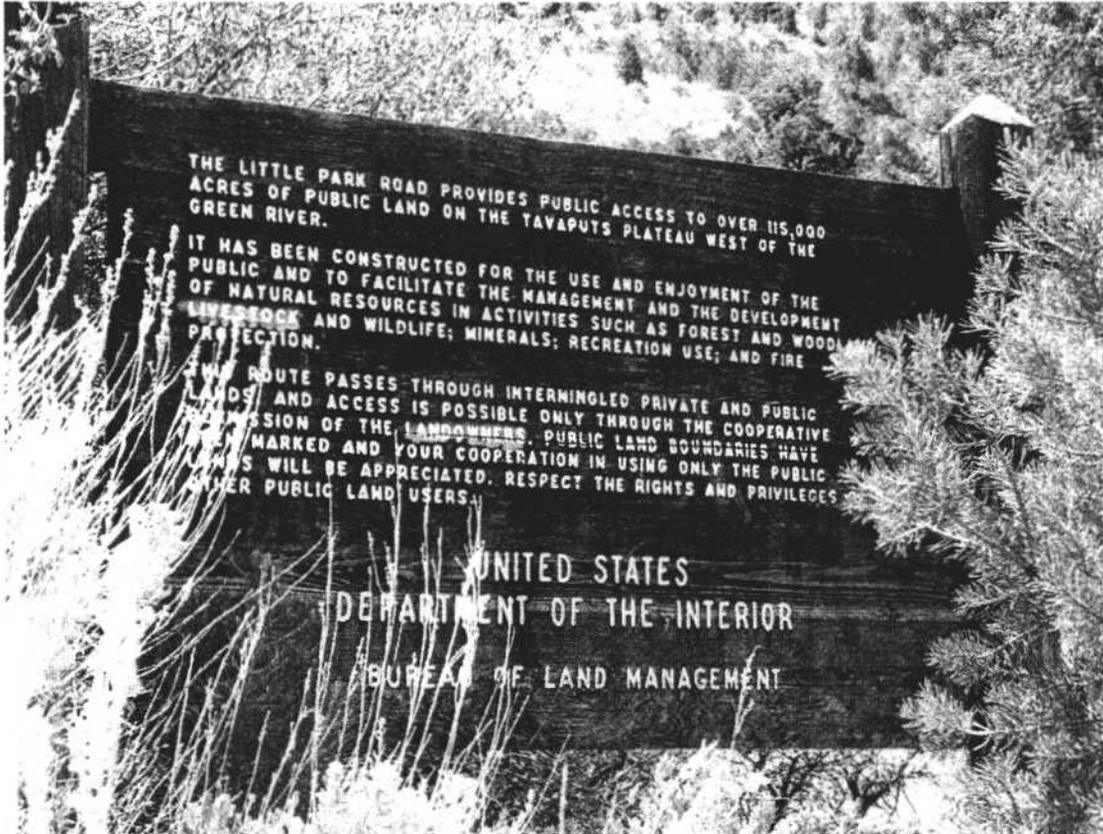
Horse Canyon Scenery



Horse Canyon Scenery



Horse Canyon Scenery



Sign on BLM Land Adjoining Horse Canyon Property

## 1.8 Concept, Goals, and Scope of This Project

The goal of the Center for Mine Land Redevelopment (the Center) in undertaking this project is to facilitate a constructive reuse of the Horse Canyon Property that will enhance the economies of the communities in Emery and Carbon Counties and will provide benefits to the residents of the area. Because of its pristine natural setting and Horse Canyon's proximity to the many natural attractions and resources in the area, educational and recreational activities were chosen as the best possible reuse for the land.

The College of Eastern Utah (CEU), located in Price, only 30 miles from Horse Canyon, operates many educational activities in the area, including the Prehistoric Dinosaur Museum in Price, and several world-class dinosaur quarries. CEU agreed that a number of educational programs could be developed at the Horse Canyon location, and it would be willing to accept a donation of land in the canyon and develop a facility and programs to take advantage of that site. Other universities and organizations, both inside and outside of the state, expressed an interest in developing or participating in activities in Horse Canyon.

The Center identified five principal objectives to address in order to facilitate the redevelopment of Horse Canyon. Those were:

- To stimulate local interest in redeveloping Horse Canyon
- To brainstorm and present a wide variety of ideas and options about what sort of activities may be feasible at Horse Canyon
- To realistically examine the economics of developing and running a facility at Horse Canyon
- To identify problems that may or will be encountered in the redevelopment activities, and to assess possible solutions or approaches to those problems
- Finally, to transfer the project to a public institution that will carry it forward to fruition.

The Center undertook this feasibility study, which is funded by the U.S. Economic Development Administration (EDA). The University of Utah, Andalex Coal, Canyon Fuels, Utah Power, Kennecott Utah Copper, and Carbon and Emery Counties supplied matching funds. CEU furnished in-kind support. The effect of this broad-based funding was to generate a widespread general interest in the project and to create community support. The goal of the Center was not to take the lead in developing a facility at Horse Canyon, but rather to incubate the project to the point where local interests could take over and bring the project forward.

A wide variety of redevelopment scenarios were offered for Horse Canyon. Basically they fell into two groups: core development scenarios that focus on educational aspects of programs developed by CEU or other educational institutions and outside development scenarios that may involve the schools, but focus on activities that would normally involve outside partners. Core scenarios include such things as a geology field camp, paleontology field camp, recreation management courses, academic retreats, mining workshops, and research. Many outside development scenarios for the property have been suggested, including storage for geological and archeological artifacts, dinosaur replication, a dinner theater, and an academy for the study of anti-terrorism. The most promising suggestions are examined in this study.

## 2.0 LEGAL

Legal issues encompass two principal aspects: requirements by the State of Utah Division of Oil, Gas and Mining (DOGGM) for approval of an alternative post-mining land use, and the requirements of the Utah educational system for CEU to accept the gift of land and buildings from UtahAmerican Energy, Inc.

### 2.1 Property Transfer Structure and Requirements, CC&R

In order for the property to be transferred, UtahAmerican must meet several requirements imposed by the state of Utah and the Utah Division of Oil, Gas and Mining (DOGGM). Most notably, the company must meet its requirements for reclamation through Phase III of the reclamation process under Utah State Code R645-301-880, which defines the requirements for the release of performance bonds, and must receive approval from DOGM for an alternative post-mining land use and bond release.

In interviews, DOGM has indicated that some additional reclamation work will be required for the property transfer to be approved. Principally, this will involve reclaiming the portal areas, since they are not compatible with the proposed post-mining land use in their present state.

#### 2.1.1 Performance Bond Release

Utah State Code R645-301-880 governs performance bonds. The relevant portions of the code are reproduced here:

##### **R64S-301-800. Coal Mine Permitting: Bonding and Insurance**

Revised August 1.2001

**880. Requirement to Release Performance Bonds.**

**880.100. Bond release application.**

**880.110.** The permittee may file an application with the Division for the release of all or part of a performance bond. Applications may be filed only at times or during seasons authorized by the Division in order to properly evaluate the completed reclamation operations. The times or seasons appropriate for the evaluation of certain types of reclamation will be identified in the approved mining and reclamation plan.

**880.120.** Within 30 days after an application for bond release has been filed with the Division, the operator will submit a copy of an advertisement placed at least once a week for four successive weeks in a newspaper of general circulation in the locality of the coal mining and reclamation operations. The advertisement will be considered part of any bond release application and will contain the permittee's name, permit number and approval date, notification of the precise location of the land affected, the number of acres, the type and amount of the bond filed and the portion sought to be released, the type and appropriate dates of reclamation work performed, a description of the results achieved as they relate to the operator's approved reclamation plan and the name and address of the Division to which written comments, objections, or requests for public hearings and informal conferences on the specific bond release may be submitted pursuant to R645-301-880.600 and R645-301- 880.800. In addition, as part of any bond release application, the

applicant will submit copies of letters which he or she has sent to adjoining property owners, local governmental bodies, planning agencies, sewage and water treatment authorities, and water companies in the locality in which the coal mining and reclamation operation took place, notifying them of the intention to seek release from the bond.

**880.130.** The permittee shall include in the application for bond release a notarized statement which certifies that all applicable reclamation activities have been accomplished in accordance with the requirements of the Act, the regulatory program, and the approved reclamation plan. Such certification shall be submitted for each application or phase of bond release.

**880.200.** Inspection by the Division.

**880.210.** Upon receipt of the bond release application, the Division will, within 30 days, or as soon thereafter as weather conditions permit, conduct an inspection and evaluation of the reclamation work involved. The evaluation will consider, among other factors, the degree of difficulty to complete any remaining reclamation, whether pollution of surface and subsurface water is occurring, the probability of future occurrence of such pollution and the estimated cost of abating such pollution. The surface owner, agent or lessee will be given notice of such inspection and may participate with the Division in making the bond release inspection. The Division may arrange with the permittee to allow access to the permit area, upon request of any person with an interest in bond release, for the purpose of gathering information relevant to the proceeding.

**880.220.** Within 60 days from the filing of the bond release application, if no public hearing is held pursuant to R645-301-880.600, or, within 30 days after a public hearing has been held pursuant to R645-301-880.600, the Division will notify in writing the permittee, the surety or other persons with an interest in bond collateral who have requested notification under R645-301-860.260 and the persons who either filed objections in writing or objectors who were a party to the hearing proceedings, if any, of its decision to release or not to release all or part of the performance bond.

**880.300.** The Division may release all or part of the bond for the entire permit area if the Division is satisfied that all the reclamation or a phase of the reclamation covered by the bond or portion thereof has been accomplished in accordance with the following schedules for reclamation, «•• of Phases I, II and III:

**880.310.** At the completion of Phase I, after the operator completes the backfilling and regrading (which may include the replacement of topsoil) and drainage control of a bonded area in accordance with the approved reclamation plan, 60 percent of the bond or collateral for the applicable

**880.320.** At the completion of Phase II, after revegetation has been established on the regraded mined lands in accordance with the approved reclamation plan, an additional amount of bond. When determining the amount of bond to be released after successful revegetation has been established, the Division will retain that amount of bond for the revegetated area which would be sufficient to cover the cost of reestablishing revegetation if completed by a third party and for the period specified for operator responsibility in UCA 40-10-17(t) of the Act for reestablishing revegetation. No part of the bond or deposit will be released under this paragraph so long as the lands to which the release would be applicable are contributing suspended solids to streamflow or runoff outside the permit area in excess of the requirements set by UCA 40-10-17(j) of the Act and by R645-301-751 or until soil productivity for prime farmlands has returned to the equivalent levels of yield as nonmined land of the same soil type in the surrounding area under equivalent management practices as determined from the soil survey performed pursuant to UCA 40-10-11(4) of the Act and R645-301-200. Where a silt dam is to be retained as a permanent impoundment pursuant to R645-301-700, the Phase II portion of the bond may be released under this paragraph

so long as provisions for sound future maintenance by the operator or the landowner have been made with the Division; and

**880.330.** At the completion of Phase III, after the operator has completed successfully all surface coal mining and reclamation operations, the release of the remaining portion of the bond, but not before the expiration of the period specified for operator responsibility in R645-301- 357. However, no bond will be fully released under provisions of this section until reclamation requirements of the Act and the permit are fully met.

**880.400.** If the Division disapproves the application for release of the bond or portion thereof, the Division will notify the permittee, the surety, and any person with an interest in collateral as provided for in R645-301-860.260, in writing, stating the reasons for disapproval and recommending corrective actions necessary to secure the release and allowing an opportunity for a public hearing.

**880.500.** When an application for total or partial bond release is filed with the Division, the Division will notify the municipality in which the coal mining and reclamation activities are located by certified mail at least 30 days prior to the release of all or a portion of the bond

**880.600.** Any person with a valid legal interest which might be adversely affected by release of the bond, or the responsible officer or head of any federal, state, or local governmental agency which has jurisdiction by law or special expertise with respect to any environmental, social or economic impact involved in the operation or which is authorized to develop and enforce environmental standards with respect to such operations, will have the right to file written objections to the proposed release from bond with the Division within 30 days after the last publication of the notice required by R645-301-880.120. If written objections are filed and a hearing is requested, the Division will inform all the interested parties of the time and place of the hearing and will hold a public hearing within 30 days after receipt of the request for the hearing. The date, time and location of the public hearing will be advertised by the Division in a newspaper of general circulation in the locality for two consecutive weeks. The public hearing will be held in the locality of the coal mining and reclamation operations from which bond release is sought, or at the location of the Division office, at the option of the objector.

## **2.1.2 Alternative Post Mining Land Use**

Utah State Code R645-301-400 governs alternative post-mining land uses. The state has summarized the requirements in a document titled "Guide to Applying for Post Mining Land Use Change (PMLU)." That document is reproduced here:

### **Guide to Applying for Post Mining Land Use Change (PMLU)**

(R645-301-400)

1. Provide a map of at least 1 inch/ 500 feet detail showing the portions of the approved permit area to be affected by the proposed postmining land use change.
2. Provide a legal description to the nearest 1/4,1/4,1/4,1/4 section (2.5 acre level of resolution) for the area(s) of the proposed change.
  - A. If the postmining change is determined administratively complete, this legal description will be used in the requisite public notice.
  - B. If the postmining land use proposal application is determined administratively complete by the Division, construction of a map by a registered surveyor depicting the

boundary of the permit change tied to permanent survey points will be a prerequisite to final approval.

3. Provide a narrative describing the approved postmining land use.
4. Provide a narrative describing the proposed alternative post mining land use, which includes a description of the business plan, if that is involved in the PMLU. Describe the proposed postmining land use for the area shown on the map required in Item #1. The narrative should include 1) the anticipated starting date for the proposed PMLU and 2) an outline and time line for the on- the-ground development stages required to implement this change. Include as exhibits any copies of agreements which make the case for needing the PMLU and any zoning documents.
5. Provide a listing and description of the mining-related "improvements" such as buildings, structures, utilities, roads, transportation features, etc (if any) that will be utilized if the proposed PMLU is approved. If these improvements are not identified on the map (Item #1), provide additional maps or engineering drawings which accurately depict the field configuration of the "improvements " that are proposed to be retained. Provide a narrative which discusses the need for retainment of each mining-related "improvement" structure, building, utility, road or other transportation feature and discuss how the feature is designed to meet the PMLU standards of:
  - higher and better use
  - the likelihood for achievement of this use
  - the use will not present actual or probable hazard to the public health or safety
  - the use will be practical and reasonable
  - the use will be consistent with applicable land use policies or plans
  - the use will not be long in being implemented
  - the use will not cause or contribute to violation of federal, local or Utah law.
6. Provide a letter from the land owner consenting to the PMLU proposed in this application.
  - A. If the land proposed in this application is to be leased from the land owner, provide copies of the lease and any addendums thereto.
7. Provide a letter from the local governmental authority consenting to the proposed PMLU.
8. Provide copies of the application(s) for environmental permits, that have been made to regulatory agencies responsible for the proposed postmining activities anticipated in this application, or provide copies of the permits already received for the proposed PMLU.
9. Submit this as an application to change the permit to include information requested above under a cover letter (including appropriate notarization) by an authorized agent of the permittee. Submit appropriate notice of the publication as required along with the appropriate C1 and C2 forms. Submit in a format for inclusion into the existing permit.

## **2.2 Discussion of Legal Status and Potential Problems**

The following was obtained from David C. Jones, Assistant Attorney General, Utah Attorney General's Office.

### **Legal Requirements for the donation of real property to the College of Eastern Utah**

#### **2.2.1 References**

Utah Code § 53B-2-101(2)(a)  
Utah Code § 53B-20-103

Utah Code § 53B-20-105

Utah Code § 53B-20-106

Board of Regents Rule R710-4 Subpart 4.5.4

Board of Regents Rule R710-4 Subpart 4.5.6 (including 4.5.6.1 and 4.5.6.2)

### **2.2.2 Transaction**

Corporation desires to donate to the College of Eastern Utah approximately 1200 acres of real property (referred to herein as the "Horse Canyon Property"). The majority of the property is undeveloped land (including water and mineral rights) but also includes four vacant buildings, which are boarded up and fenced off by a secure chain link fence, and a water tank.

### **2.2.3 Legal Standards**

The College of Eastern Utah can receive donated real property such as the Horse Canyon Property. See Utah Code § 53B-2-101(2)(a) wherein the College of Eastern Utah "may, subject to Section 53B-20-103, take, hold, lease, sell, and convey real and personal property as the interest of the institution requires."

Section 53B-20-103((2)(b) of the Utah Code allows the State Board of Regents, on behalf of the College of Eastern Utah, to "... accept building, land, or a combination of buildings and land, donated to an eligible higher education institution without obtaining approval of the donation from the director of the State of Utah Division of Facilities Construction and Management." See also UCA §63A-5-206(5).

Neither Section 53B-2-101 or 53B-20-103 is mandatory; they are rather permissive. However, the State Board of Regents will review and approve all institutional requests for property acquisition. See Board of Regents Rule R710-4 Subpart 4.5.4 . Additionally, if the use of the Horse Canyon Property is not primarily for approved academic and training purposes and associated support and is not part of the programmatic planning and facilities master plan requirements of the institution, then the Horse Canyon Property is not eligible for state-appropriated O & M funding (Operations and Maintenance funding). See Board of Regents Rule R710-4 Subpart 4.5.6(a). Therefore, the College of Eastern Utah's proposal to acquire the Horse Canyon Property by corporate donation must include arrangements as to how O & M funding will be assured (Board of Regents Rule R710-4 Subpart 4.5.6(1)) and the O & M funding plan must be consistent with Rule 4.5.6 and 4.5.6.1 in order "to receive Regent's acquisition approval." See Board of Regents Rule R710-4 Subpart 4.5.6(2).

After receiving the donated property, the College of Eastern Utah "may convert [the] property received by gift, grant, devise, or bequest, and not suitable for its use, into other property or into money." Additionally, the Horse Canyon Property will not be subject to any taxes or assessments once it is held by the College of Eastern Utah. UCA § 53B-20-106.

### **2.2.4 Comments From the Attorney General's Office**

The following points were received from David Jones, Assistant Attorney General, Utah Attorney General's Office, on June 23, 2003.

1. The College of Eastern Utah can receive, by donation, the Horse Canyon Property.
2. Board of Regents (as well as CEU Board of Trustees) review and approval should be obtained.
3. Funding for ongoing O & M costs needs to be addressed by the College of Eastern Utah. NOTE: O & M costs will be substantially reduced, if not all but eliminated, if the College of Eastern Utah accepts the donation on the condition that the buildings will be secured by a chain link fence, all windows boarded up with new plywood, all trash and personal property removed from the buildings, all building doors and entrances securely locked or sealed, and all pits and other below-ground spaces in the building pumped out and filled with fill dirt. Due diligence with regard to the underground mine fire and with regard to the closed mine entrances needs to be performed and addressed by the College of Eastern Utah.
4. Additional conditions to protect the College of Eastern Utah include the removal of any reclamation requirements by any state or federal agency (i.e. specifically requiring the State of Utah Division of Oil, Gas & Mining to amend the post-mining land use to an "educational" or "recreational" use and clearly indicating that removal of the buildings will not be a future reclamation requirement).
5. Any donation should also include appropriate warranties and representations by the corporation and an acceptable environmental indemnification from the corporation; i.e., the corporation should hold the College of Eastern Utah harmless from environmental claims or damages that arise out of the corporation's activities/use/possession of the property.

### **2.3 Phase I Environmental Site Assessment**

The following Phase I Environmental Site Assessment (ESA) was performed by Jack Hamilton, an experienced environmental assessor and Registered Environmental Assessor in the state of California. It is intended to stand alone to satisfy the requirements for due diligence under the "innocent landowner" defense criteria established under ASTM Standard 1527.

### 2.3.1 Phase I Executive Summary

As a part of a Feasibility Study being conducted by the Center for Mine Land Redevelopment at the University of Utah, the Utah Engineering Experiment Station (UEES) performed a Phase I Environmental Site Assessment in accordance with the Scope of Services outlined in Section 1.1, and in general conformance with the scope and limitations of ASTM Practice E1527, of a property comprised of a former coal mining property owned by UtahAmerican Energy, Inc. in Horse Canyon, Utah (the Property).

The Property includes 900 acres of land in the Book Cliffs, located about halfway between the cities of Price and Green River. Part of the Property is a site of approximately four acres where the mining facility was located. Four buildings are presently located on that site. The remainder of the Property is rugged wilderness and is contiguous with BLM land, several large local ranches, and other private property. The Property is located in Township 15 and 16 South, Range 14 East, Salt Lake Base and Meridian. Most of the Property is in Emery County; however, approximately 120 acres are in Carbon County. The closest town is Columbia, about six miles north of the site. Any exceptions to, or deletions from, the ASTM Practice are described in Section 2.3.3 of this report.

This assessment has revealed no evidence of "recognized environmental conditions" in connection with the Property. The information developed during this assessment did not suggest any reason to undertake an intrusive (Phase II) investigation.

The activities conducted to determine if any recognized environmental conditions (as that term is defined in ASTM Practice E1527) existed in connection with the Property included a visual inspection of the premises, interviews with selected individuals who might have knowledge of such recognized environmental conditions, a review of readily available aerial photographs, a brief walking inspection of the Property and accessible adjacent parcels, a review of environmental records that were made available to the assessor, and a review of a computer search of selected federal and state environmental databases for indications of the presence of hazardous substances on the Property or on nearby parcels from which those substances might migrate to the Property.

This report is based upon the Scope of Services and is subject to the Limitations and Restrictions, defined herein. It has been prepared for the use of the Center for Mine Land Redevelopment. The Center for Mine Land Redevelopment or its authorized agents may release all or part(s) of this report to third parties; however, such third party in using or relying on this report agrees that it shall have no legal recourse against the Utah Engineering Experiment Station or the University of Utah, and shall indemnify and defend them from and against all claims arising out of or in conjunction with such use or reliance.

### 2.3.2 Phase I Introduction

This Phase I Environmental Site Assessment report is for a property comprised of a former coal mining property owned by UtahAmerican Energy, Inc. in Horse Canyon, Utah (the Property). The Property includes approximately 900 acres of land in the Book Cliffs, located about halfway between the cities of Price and Green River. Part of the Property is a site of approximately four acres where the mining facility was located. Four buildings are presently located on that site. The remainder of the Property is rugged wilderness and is contiguous with BLM land, large local ranches, and other private property. The Property is located in Township 15 and 16 South, Range 14 East, Salt Lake Base and Meridian. Most of the Property is in Emery County; however, approximately 120 acres are in Carbon County. The closest town is Columbia, about six miles north of the site. The Utah Engineering Experiment Station prepared this report at the request of the Center for Mine Land Redevelopment at the University of Utah.

The location of the site is shown in Figure 2-1.

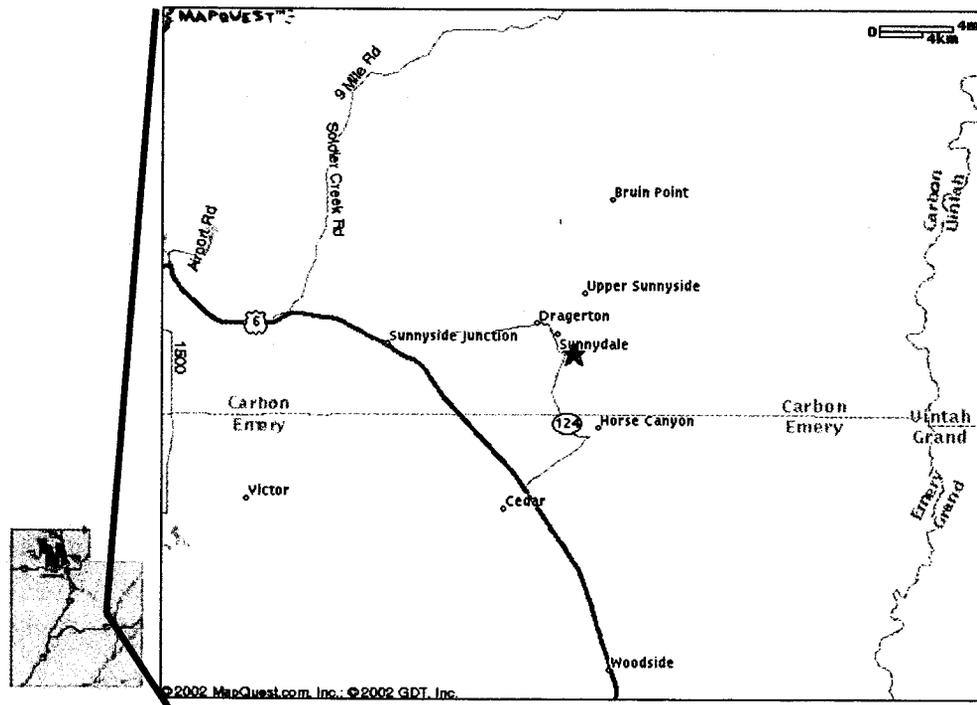


Figure 2-1 Horse Canyon Location

### 2.3.3 Scope of Services

The standard professional practices conducted to implement the Scope of Services included, among other things, visual inspections of the Property by Jack Hamilton on January 16, 2003, a review of readily available aerial photographs, a brief walking

inspection of accessible adjacent and nearby parcels, a review of site-related environmental records, and a computer search of selected federal and state environmental databases to investigate the possible presence of hazardous substances on or in the vicinity of the Property.

In general, the Scope of Services has been completed in accordance with the scope and limitations of ASTM Practice E1527 for a Phase I Environmental Site Assessment, with the exception that the historical usage of the Property was not fully researched back to the earlier of 1940 or the date of initial development. In particular: No Chain of Title or comparable record of historical ownership was obtained.

#### **2.3.4 Previous Assessments and Investigations**

The Interstate Power Agency (IPA) performed various assessments in conjunction with mine closure activities during the early 1990s. Some or all of that material is in possession of UtahAmerican Energy, Inc., the present owner. All of that material has been made available for this study.

In addition, a number of members of the Center for Mine Land Redevelopment have made personal inspections of the Property. Dr. Jack Hamilton, the principal investigator of the feasibility study and the principal author of this environmental site assessment, has made more than seven visits to the Property.

Some of the information developed for the prior assessments and during various previous site visits was used to assist the preparation of this Phase I Environmental Site Assessment. All environmental databases were re-checked for this assessment to determine if new information has been added since the other reports were submitted.

#### **2.3.5 Property Inspection**

Pertinent environmentally related findings are described below, along with brief descriptions of the Property and vicinity, so that the environmental information may be placed in the proper context.

##### ***2.3.5.1 General Property Description***

Jack Hamilton visited the Horse Canyon site on January 16, 2003. Joe Harvey, former superintendent of the mine, Liz Kourianos, Mr. Harvey's daughter and a member of the Price City Council, and Barbara Harvey, Mr. Harvey's wife, accompanied him. The time was 1:00 p.m. and the weather was clear and cold. The ground was partially covered with snow.

The Horse Canyon mine is located just northeast of Highway 124, approximately five miles from Highway 6, the major route between the cities of Price and Green River, Utah. Highway 124 is maintained in fair condition. The road to Horse Canyon intersects Highway 124 west of the towns of Columbia and East Carbon, and it becomes a fairly

well-maintained dirt road. It crosses Horse Creek via a small bridge. The creek was dry at the time of the visit and appeared to be normally dry; however, it has carved a deep gorge farther up the canyon in the recent geological past. Several areas of mine subsidence and concurrent rock collapse were observed on the way into the site.

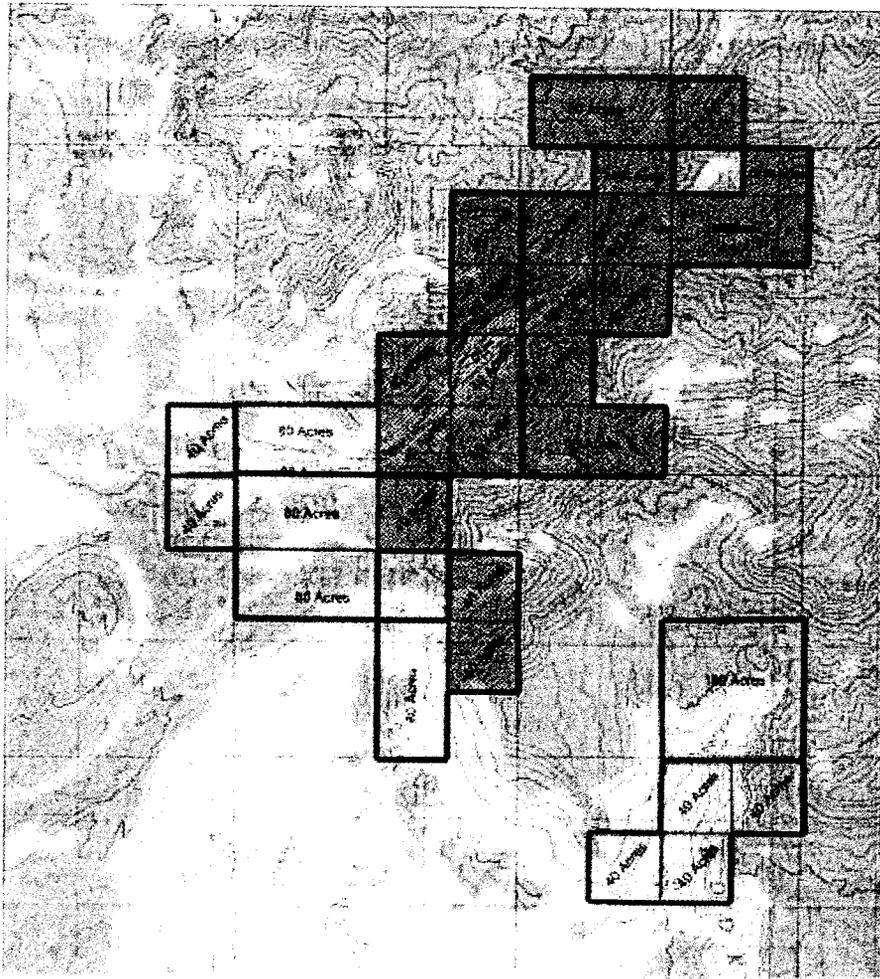
The "site" is defined as the area where the buildings are located and the surrounding area where structures, past or present, have been located. The site is comprised of a total of approximately four acres. The term "facility" refers to the site and the infrastructure located on it. The "Property" refers to the entire 900 acres that are being considered for transfer. It extends from approximately two miles south of the site to approximately two miles north of it. Figure 2-1 shows the location of the Property.

A parking area is situated on the west end of the site, and a large piece of earth-moving equipment was temporarily parked there on the day of the site visit. The area where the buildings are located is enclosed by a chain link fence and gate. Access to the site was gained by crawling through the gate that was slightly ajar. The gate was secured with a chain and a padlock, but the lock had been shot with a high-powered rifle and destroyed; however, it could not be opened without a bolt cutter.

Mr. Hamilton, Mr. Harvey, and Ms. Kourianos walked the site, with Mr. Harvey calling on his recollection of activities on the Property to help direct the investigation. Four principal buildings are currently located on the Property, although several more buildings were present in the past.

The area to the south of the facility is a steeply graded hillside that is the result of reclamation activities performed by the Interstate Power Agency for the Utah Division of Oil, Gas and Mining (DOG M) subsequent to the closure of the mine.

Figure 2-2 illustrates the area to be transferred in red, and the blue-outlined area is the acreage that will be retained by UtahAmerican Energy, Inc.



**Figure 2-2 Red-Shaded Area is the Property to be Transferred**

The first building visited was the warehouse building. The building is comprised of approximately six rooms, with the westernmost room being isolated and the other “rooms” being connected by large walkway openings.

The building, like all the buildings on the site, had many “trip, slip and fall” physical hazards with old equipment, boards, and debris scattered about. Most of the windows in the building had been broken out, as was the case in all the buildings. The structure of this building and the other buildings was extremely solid and intact. The buildings were constructed at the start of World War II and reportedly were built to withstand possible bombing. Most of the damage to the buildings was superficial, including a need for cleanup and repair of the walls, windows, roofs, and floors. Some paint was peeling. The paint may have been lead-based, since the buildings were constructed prior to 1978.

Mr. Harvey indicated that the warehouse had been used to store parts and equipment used in the mining operation. No solvents or materials that would qualify as hazardous materials were stored in this building. In the easternmost room of the building, several

pallets contained bags of rock dust that were labeled, "Rock Dust for use in Coal Mines -- Non-Toxic."

The second building visited was the shop building. This building is east of and aligned with the warehouse. This is the longest building on the Property and consists of two parts: an older section that is constructed of brick and an add-on section constructed of corrugated metal. The inside is comprised of one large space contained by both sections of the buildings and is about 50 feet high. The southeastern margin of the building was partitioned off into smaller rooms that were used as offices and for other purposes. A blacksmith area is located in the mid-area of the building, and it has a hood-vent that was used to capture and vent fumes from the operation. The most obvious areas for potential contamination are two pits and a long pit/sump that were used for working on the undersides of rail cars. The pits are lined with concrete and appear to be intact, although they were not closely inspected. They appeared to be relatively clean, with no obvious pools of oil apparent. Mr. Harvey reported that the oil and grease from the pits were collected in containers and removed for appropriate disposal. It is unlikely that significant oil, grease, or other materials could have leaked from the pits to contaminate soil or groundwater. A partially exposed pipe run was examined. The pipes were wrapped with insulation which appeared to be in good shape; however, it is unknown if the insulation contains asbestos.

Just south of the shop building is an open area where Mr. Harvey indicated the boiler was located for the entire facility. All traces of the boiler have been removed, and no stressed vegetation or stained soil was observed in the area.

The bathhouse was examined next. The building has a large central room with a concrete floor and high ceiling. In fact, the room has such dimensions that it might be utilized as a basketball court. Load-bearing walls frame this part of the building. On the north side, off the central room, is the shower area. It is a long, windowed room with many showerheads. All the windows were broken. The other side of the building has been partitioned into a locker-room, offices, and a lamp service facility. The lamp facility has a hood-vented work area to vent fumes. All floors are concrete.

The last building examined on the main site was the office building. Again, the building appeared to be structurally intact and in generally good shape. It is the only building that appeared to be insulated. The number of offices in the building was not counted, but there were more than ten. Restoration of this building would include roofing, windows, new floors and sheetrock. This would be the easiest of the four buildings to restore for human occupation.

A water tank located approximately one mile up the canyon was observed from a distance. Snow on the dirt road made closer inspection infeasible. The paint on the outside of the tank had clearly suffered deterioration but the tank itself appeared to be intact. When the mine was operating, the tank was filled with water from the nearby spring and the water was gravity-fed to the facility. The water supplied all site needs, including potable water, fire control (hydrants, which were still present on the site and

appeared to be in good condition), and sanitary water. Two concrete magazines for the storage of explosives are located about halfway between the facility and the water tank. They are beginning to fall apart; however, no signs of environmental stress were evident. Dr. Hamilton examined the magazines on an earlier visit as well and has not observed any recognized environmental conditions.

Mr. Harvey indicated that a gas/diesel refueling area was located in the area of the present parking lot, just west of the warehouse building. Underground tanks supplied the fuel for mine vehicles at this location. IPA removed the tanks in 1991. The area has been graded over for use as a parking lot, so no evidence of stressed vegetation was observable; however, no staining or odors were observed.

A sanitary leach field was located somewhere near the mouth of the canyon, but Mr. Harvey could not pinpoint the exact location. He thought that it might have been covered up by the DOGM reclamation activities. He stated that gray water from the showers was allowed to flow into the creek bed.

### *2.3.5.2 Environmental Characteristics*

The ground was covered with sparse vegetation. Much of the area underfoot had been paved at one time, preventing the development of much vegetation. The snow precluded seeing all of the ground area; however, all portions of the site could be clearly seen from the walked route. The wilderness area of the Property was viewed from the road and had been inspected by Dr. Hamilton on previous visits.

The Property is not currently used for any productive purpose. Some debris and scrap were seen on the site, but most of it was in the buildings, and it was not extensive. None was seen on the wilderness Property. Hunters utilize wilderness and the associated BLM land, so it is probable that some shell casings and other hunting remnants may be present on the land.

**Wetlands:** No area which might be subject to regulation as a wetland was observed on or adjacent to the Property, nor was any animal or plant observed on or adjacent to the Property that was recognized by the assessor as being on the EPA list of endangered species. No wetlands under the National Wetlands Inventory (1991) are shown on the Overview Map in Appendix B to be located within one-half mile of the Property.

**Tanks:** Information gathered during the Property inspection and background research indicated that there were underground storage tanks under the present parking area, which were removed by IPA in 1991. No leaking underground storage tanks have been reported within two miles of the Property.

**Radon:** No data on radon levels in Emery County was available.

### 2.3.5.3 Topography

As shown on the USGS Lila Point Quadrangle Topographic Map in Figure 2-3, the Property is in rugged terrain, with the buildings at an elevation of approximately 6380 feet above Mean Sea Level. Vertical relief on the Property exceeds 4000 feet. The local topography is characterized by the Book Cliffs north and east of the Property with rugged mountains east of the cliff face. West of the Book Cliffs the ground is largely composed of alluvial fan deposits of Quaternary age, while to the south, the terrain is a “badlands,” comprised predominantly of Mancos Shale and is mostly barren. The regional topography slopes west-southwest.

The topography is shown in Figure 2-3, a portion of the USGS Lila Point 7.5' topographic quadrangle. The red mark indicates the location of the buildings (the “site”).

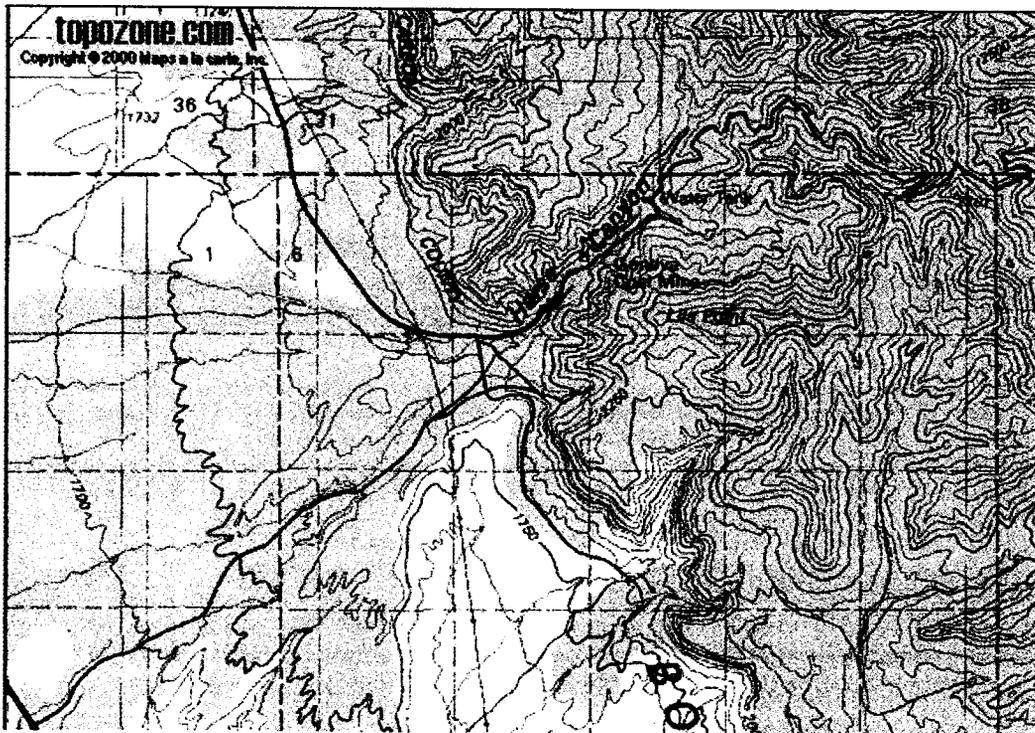


Figure 2-3 Horse Canyon Topography - USGS Lila Point Quadrangle

### 2.3.5.4 Geology

The Property is located at a canyon entrance to the Book Cliffs, the northernmost tier of the “Grand Staircase” region of the Colorado Plateau. Surface soil is extremely boulder-laden loam and bedrock that is characterized by moderate infiltration rates. The soil is well-drained.

The geology of the Book Cliffs in this area is largely comprised of upper Cretaceous formations, principally the Mesa Verde group. The formations are clastic terrigenous

sandstones and mudstones of various descriptions. The Blackhawk Formation of the Mesa Verde group is the principal coal-producing formation in the area. West and southwest of Horse Canyon the land is typical badlands comprised of marine shale of lower Cretaceous and upper Jurassic age. Much of the surface is Mancos Shale, which is known to have a high selenium content.

#### ***2.3.5.5 Hydrology***

Local hydrogeology is unknown, but regional flow is to the south or southwest. No direct information about groundwater is available for this site; however, Mr. Harvey reported a depth to groundwater of greater than six feet. The observed topography of the area suggests that the depth to groundwater may be significantly greater than six feet. Likewise, the topography of the mountains to the south of the Property and the regional topographic trend in the valley suggest that the direction of groundwater movement is to the west-southwest.

A number of small streams are shown draining the canyons and arroyos on and surrounding the Property. Most of the streams are ephemeral and were dry at the time of the site visit. A spring is located approximately two miles up the canyon from the site and was used to fill the water tank that supplied potable water to the mine.

The first receptor of surface water runoff would be Horse Canyon Creek. The eventual receptor would be the Green River. Regional drainage is into the Price River or the Green River.

The Federal USGS database search reported no water wells in the area.

#### ***2.3.5.6 Adjacent and Surrounding Parcel Usages***

The Property is located in a rugged, rural, predominantly undeveloped area. The Property itself was never put into agricultural or any other developed usage. Hunting and other outdoor activities have occurred on and around the Property.

The town of Columbia is located approximately six miles north of the entrance to Horse Canyon. Several ranches, notably the Wilcox Ranch and the Tavaputs Ranch, are accessed through Horse Canyon by the dirt roads in that area, and 115,000 acres of BLM land are also accessed through the canyon. Hunting and sheep and cattle grazing are the major activities on that land. Only light traffic occurs on the dirt roads.

Because there are no public roads into or immediately adjacent to the Property, environmental impacts to the Property resulting from surface spills or other surface activities are unlikely. No adjacent parcel was judged to have the potential for a significant adverse impact on the environmental condition of the Property. Future development is unlikely to affect the Property.

### 2.3.6 Property History

Horse Canyon was named for the wild horse herds that congregated there to drink at a natural spring, located not far above the mine site, and which was used to supply fresh water for the mining operation. That spring is the only one in the canyon that has a significant flow.

The mine buildings in Horse Canyon were built more than 50 years ago. The Defense Plant Corporation (DFC) acquired approximately 600 acres in the Book Cliffs of Emery County in 1942, the early years of World War II, for the mining of coal. The buildings were constructed at that time and were an integral part of the coal mine operation. There are just four buildings left remaining from an original cluster of nineteen. The buildings have been inoperative since 1982 but are still in relatively good condition.

The federal government established the DFC in 1940 to finance and supervise the construction and equipping of industrial facilities. The agency soon became an important part of the war effort. The facilities were operated by private concerns sponsored by federal agencies administering defense and war programs. At the end of the war, in 1945, the DFC was dissolved and merged with the Reconstruction Finance Corporation. In 1946, the land and buildings were purchased by the United States Steel Corporation.

The coal mine was acquired to supply coal to fuel the huge Geneva Steel Plant that was under construction in Utah County. The "Book Cliff Field," approximately 120 miles east of the steel plant site at Geneva, was the most important of the developed regions of coking coal in Utah. In the field, a bed varying from ten to 16 feet in thickness would furnish coking coal, primarily for the blast furnaces at Ironton and Geneva in Utah County.

The Horse Canyon site had no methane problems compared to the nearby Sunnyside area, where the Kaiser mine was located. The coal seams have been extensively mined at the Horse canyon location. Horse canyon had normal mining conditions, with coal quality averaged 12 to 13 thousand BTUs and with good coking properties and relatively low ash content. They mined thick pitching seams that generally sloped eastward.

The Horse Canyon Mine, as well as the nearby sister mine at the Columbia site, exhibited carboniferous plants and leaves in the rock immediately above the coal seam. Also, a substantial number of dinosaur foot casts were observed in the roof of the mine. In the geologic past, shale or sandstone covered the coal bed (swamp), thus creating casts of the dinosaurs' footprints.

At times, the miners would encounter an area in the coal seam that had been a congregation area for dinosaurs in the swamp. In these areas, the coal bed thinned and the roof was disturbed, which required increased roof support methods in the mines to compensate for the roof instability.

### 2.3.6.1 *Property Ownership And Usage*

The Property is now owned by UtahAmerican Energy, Inc. and was previously owned by the Interstate Power Agency (IPA). UtahAmerican has not conducted active mining on the property, but it has filed for permits to open a mine in Lila Canyon, one canyon to the south of Horse Canyon. Some hunting and sheep grazing take place on the Property, and the Property straddles the access to private ranches and property to the north, to Range Creek and the Green River.

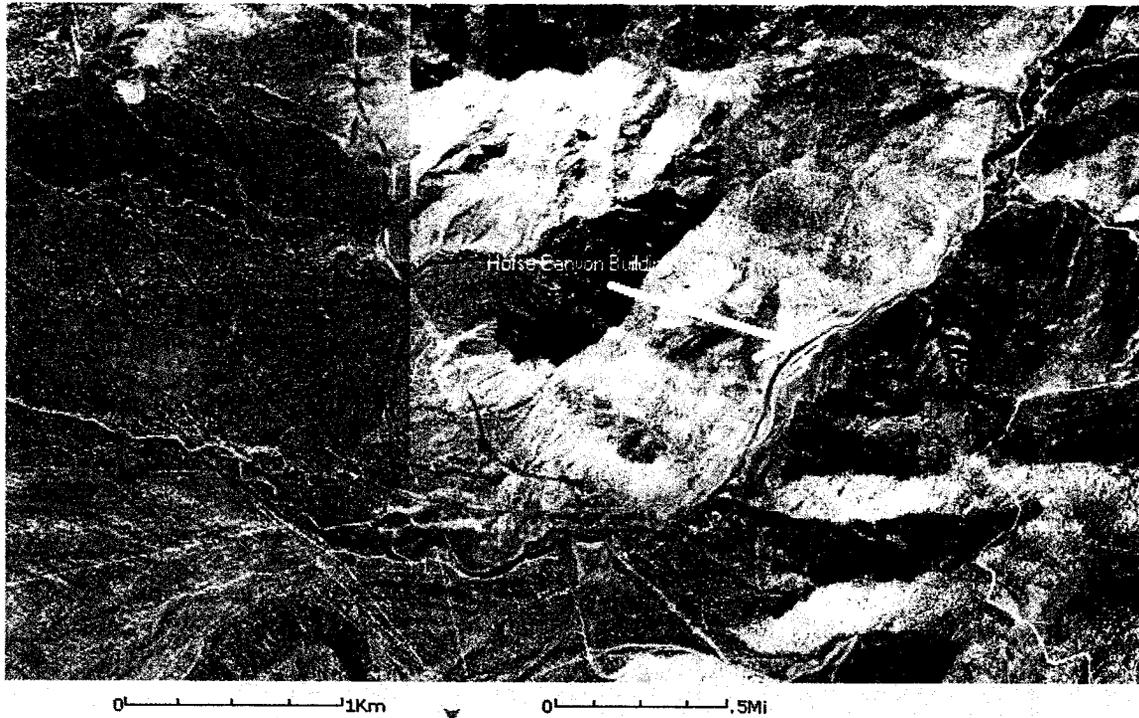
### 2.3.6.2 *Aerial Photographs*

The aerial photograph of the Property and its surroundings in Figure 2.4 was reviewed on the Internet at <http://terraserver.homeadvisor.msn.com/> on February 3, 2003. The photo was taken July 4, 1997 and is part of the USGS database. A close-up of the photo is shown in Figure 2-4, and the surrounding area is shown in large-scale photo Figure 2-5. A summary of the observations follows:



**Figure 2-4 Horse Canyon Buildings**

The four major buildings can be easily seen; from the bottom: the office, the bathhouse, the warehouse, and the shop. The area that was reclaimed by IPA is the smoothed surface southeast of the buildings. The streambed is located west of the buildings. The road comes in from the south and passes west of the buildings. The water tank is present but off the top of this photograph and cannot be seen. No other construction or activity is evident.



**Figure 2-5 Overview of the Horse Canyon Area**

This is clearly rugged terrain with more than 4,000 feet of vertical relief. The buildings can barely be discerned and are located about midway between the top and bottom of the photograph, above the “.5MI” on the photo scale. The road(s) and Horse Canyon Creek can be clearly seen. No other development is seen.

### ***2.3.6.3 Historical Fire Insurance Maps***

After reviewing its files, the Sanborn Map Company certified that no Sanborn historical fire insurance map coverage exists for the Property (confirmation in the computer database search).

### **2.3.7 Environmental Database Reviews**

Databases containing the National Priorities List (NPL), the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List, the RCRA list of sites that have been identified as hazardous waste Generators and TSD Facilities, and other lists of sites of concern were reviewed via a computer search by a commercial service to determine if the Property was listed or if any listed facility was located nearby. Most of the information in this Section has been extracted from the report in Section 2.5.14, which describes the results of that search. The database information has been evaluated in conjunction with the results of the Property inspection and geological setting evaluation (Section 2.0). Except as specifically discussed, listed

sites that were determined not to be actually or potentially upgradient from the Property were judged not to represent an environmental concern with respect to the Property.

#### ***2.3.7.1 NPL and CERCLIS List***

The Property was not on the NPL or CERCLIS List. No site on the NPL was indicated as being located within one mile of the Property.

No site on the CERCLIS List was indicated as being located within one-half mile of the Property.

#### ***2.3.7.2 Hazardous Waste Generators***

One site was identified as a small-quantity generator on the RCRIS database. That was:

Intermountain Power Agency

EPA ID: 988066460

Location: East Carbon

Further information is available in the computer database search.

#### ***2.3.7.3 Hazardous Waste TSD Facilities***

No site located within one mile or an Orphan site within one mile was identified as being a RCRA Treatment, Storage, or Disposal Facility.

#### ***2.3.7.4 Registered UST and Leaking UST Sites***

A review of the information in the database reveals that there are no underground storage tank (UST) and no leaking underground storage tank (LUST) sites located on the Property or within one-half mile of the Property. The information is summarized in Insert 1.

#### ***2.3.7.5 Other Lists of Sites of Concern***

Other federal databases searched include ERNS (Spills), PADS (PCB), RAATS, TRIS, TSCA, and HMIRS. Other state databases searched included oil and chemical spill locations, solid waste disposal facilities, and hazardous waste locations.

The database search performed on October 23, 2002 (Appendix C), listed 24 Orphan sites, ten of which were listed as being located in "Emery County." Those sites are reported in Table 2-1:

**Table 2-1 Orphan Sites**

| <b>Orphan Site</b>             | <b>Database(s)</b> |
|--------------------------------|--------------------|
| Four Corners Property          | RCRIS-SQG, FINDS   |
| Energy Fuels Chute Canyon      | RCRIS-SQG          |
| Energy Fuels Strike            | RCRIS-SQG          |
| Energy Fuels Dime              | RCRIS-SQG          |
| Energy Fuels Dike              | RCRIS-SQG          |
| Energy Fuels Arliean           | RCRIS-SQG          |
| Energy Fuels Acerson           | RCRIS-SQG, FINDS   |
| Energy Fuels Tomsich           | RCRIS-SQG          |
| Energy Fuels Lucky Strike Mine | RCRIS-SQG          |
| Energy Fuels Ekker             | RCRIS-SQG          |

No other concern was identified by the database search. The Property was not on any of the other lists searched, nor was any listed site indicated as being located near the Property and in a location that is, or might be, topographically or hydraulically upgradient from it, nor any Orphan site determined to actually be located within an applicable search range and upgradient from the Property.

### **2.3.8 Document Reviews**

Federal, state, and private records were reviewed for this assessment.

#### **2.3.8.1 Property Records**

The Property owner made all records accessible. A box of documents received from IPA in Los Angeles contained all records relating to previous mine closure activities. No information was contained in those records that would indicate the existence of a recognized environmental condition at the Horse Canyon site.

#### **2.3.8.2 Agency Records**

The DEQ Incident Notification (hazardous material spill) database was searched on January 31, 2003, to determine the reported incident closest to the Property. Spills occurring in the towns of East Carbon, Sunnyside, Price, Columbia, and Green River were reviewed. Those incidents are summarized in Table 2-2. Notations within the table are as they appear in the official database.

Table 2-2 Spill Incidents

| Near Town   | Incident Address                               | Hwy               | Date       | Incident Summary  |
|-------------|--|-------------------|------------|---|
| East Carbon | East Carbon Residence                          |                   | 6/10/2001  | Residents found dynamite in their basement.   |
| East Carbon | Gun range: 2 miles west of SR-124 (milepost 7) |                   | 3/21/2002  | The East Carbon City Police Department had found 12 sticks of old dynamite in an abandoned house  |
| Green River |  | I-70              | 3/6/1989   | PCB oil spill PCB 30 gal  |
| GREEN RIVER | STATE ROAD 6                                   |                   | 11/11/1994 | 50 TO 60 GALLONS OF DIESEL SPILLED ON STATE ROAD 6 NEAR GREEN RIVER UTAH.   |
| Green River | 121 E. Main, Green River, UT                   |                   | 1/25/1995  | On Sunday, November 6, 1994, a truck driver accidentally overfilled his tank causing a spill.   |
| Green River | HWY 50 and 6, 3 mi. East of Green River        | I-70              | 5/15/1995  | 500-1000 gallons of used oil spilled when a pipe broke at the used oil recycling facility. The site has 8 above ground storage tanks with no means of containment. Spill has been blown by heavy winds and now covers a half-mile radius. |
| Green River | 118 West Main                                  |                   | 7/27/1995  | Project to pump gasoline out of the groundwater is causing a strong gasoline smell around the motel.  |
| Green River | 118 West Main                                  |                   | 7/28/1995  | Project to pump gasoline out of the groundwater is again causing a strong gasoline smell around the motel.  |
| Green River | 118 West Main                                  |                   | 8/9/1995   | Tenant smelled gas inside & outside of room. Leaking UST next door is being remediated. Pumping gas from just above water table at Chevron station. 5 feet of gas on top of water table.  |
| Green River | I-70 West of Green River                       | I-70              | 3/23/1997  | A tanker partially filled with liquid helium rolled on I-70 west of Green River. The tanker was mostly empty and the decision was made to vent the tanker to release any residual pressure.   |
| Green River | 185 S. Broadway                                |                   | 6/4/1997   | Adventure River is a river rafting business and has a number of vehicles and motors. They've been dumping leftover car and motor oil around the main building onto the ground.  |
| Green River | I-70 Mile marker 169                           | I-70              | 6/9/1999   | A tanker hauling hydrofluoric acid has rolled over on an isolated section of I-70 near Green River. No acid has leaked to this point.   |
| Green River | I-70 near Cisco, Utah exit                     | I-70              | 9/29/1999  | A semi-truck tractor/trailer driving on I-70 blew out a tire, overturned and spilled approximately 10 tons of low-level radioactive Uranium Hexafluoride. Occurred near Cisco, Utah.  |
| Green River | 585 E. Main Street                             |                   | 11/29/2000 | Workers at the West Winds Truck Stop pulled the cover off the diesel fuel dispenser and discovered it had been leaking. They estimated it had leaked about 40 to 50 gallons of diesel.  |
| Green River | Green River                                    | State Highway 191 | 9/5/2001   | Traffic accident resulted in 100 gallons of diesel being released from the saddle tanks.  |
| PRICE       | 50 MILES N.W. OF PRICE                         |                   | 3/13/1991  | CHLORINATOR TAKENOFF CHLORINE 50 LBS.   |
| PRICE       | 50 MI. N.W. OF PRICE                           |                   | 3/13/1991  | TOOK OFF CHLORINATOR CHLORINE 25 LBS.   |

|       |   |                            |            |   |
|-------|---|----------------------------|------------|---|
| PRICE | 945 E. 2640 SOUTH                                 |                            | 11/10/1991 | WTR.& GAS IN YARD . SUBSTANCES RELEASED:  |
| Price | Price Port of Entry                               | 28                         | 4/2/1992   | Leaking Tanker PCB's 1 Pint   |
| Price | Port of Entry, State Road 6, MP 231               | Route 6                    | 4/30/1992  | Leaking Trailer PCB 1 Gal.  |
| PRICE | ACCO LOADOUT CASTLE VALLEY SPUR                   |                            | 12/16/1992 | ROUTINE USE OF ANTIFREEZE AGENT TO SPRAY DOWN SIDES OF RAILCAR : ETHYLENE GLYCOL 200 LBS  |
| PRICE |   | 6                          | 6/3/1994   | ACCIDENT ON HIGHWAY 6 - SPRING - APPROX 100-200 GAL. OF DIESEL SPILLED ONTO GROUND I  |
| Price | 1501 E. 150 S., Price, UT. 84501                  | US-6                       | 1/16/1995  | Ms. Barner lives next to Jay Manufacturing. Gas and oil in thaw water drained onto lot. Jay Mfg has re-routed runoff which flows to wetland 3 blocks away.  |
| Price | 332 West Railroad Ave                             |                            | 10/31/1995 | Approximately 30 gallons of petroleum product was found on the Morely property on Oct. 18, 1995. The product came from the Pierce Oil bulk plant.   |
| Price | Cyprus Plateau Mine, 23 miles southwest of Price  |                            | 1/8/1996   | 300 gallons diesel release from truck & hose was loose causing spill  |
| Price | 23 miles southwest of Price, Utah                 |                            | 1/11/1996  | A portable diesel tank was punctured by a dozer and approximately 50 gallons of diesel was released. It spilled onto a refuse bin area, was scooped up & put on their run-of-mine coal pile.  |
| Price | 143 East 200 North                                |                            | 3/19/1996  | Transformer in residential yard "exploded" when shorted by broken electrical wire during high wind event.   |
| Price | 23 miles southwest of Price City Rd 290           |                            | 9/1/1997   | Refilling a transformer, over-filled resulting in a release of approx. 50 gallons of transformer oil, non-PCB, onto soils.  |
| Price | Canyon near Price                                 |                            | 7/31/1998  | While cleaning a natural gas pipeline approximately 2-3 barrels of sludge/oil/glycol was spilled on to the ground. Questar is having site cleanup.  |
| Price | T13SR10E Sect. 23, approx. 5 miles north of Price |                            | 8/25/1998  | Carter Reed was riding mountain bike and found box of solid granular or powder type material.   |
| Price | Dugway Canyon                                     |                            | 3/10/1999  | 4 cases of crystallized T-N-T were found in Dugway Canyon near the Duchesne/Carbon County border. Tooele Army Depot Bomb Squad was dispatched to take care of the material.   |
| Price | 322 West 1100 North Price                         |                            | 5/21/1999  | Release of 50 to 100 barrels of natural gas liquids - commonly referred to as condensate.   |
| Price | Hot Asphalt Plant on Airport Road                 |                            | 8/30/1999  | Reported spill of about 1000 gallons of diesel and 500 gallons of tack oil at hot asphalt plant on Airport Road.  |
| Price | 750 North (Farm Road)                             | 750 North milepost t 620.5 | 10/4/1999  | This summary is a compilation of two reports, both submitted to the NRC, one by Union Pacific 501116, and the second by Amtrak 501121. 09:29 Central Time - NRC Report 501116: Amtrak passenger train struck an automobile at grade crossing. |
| Price | Between Price and Green River                     |                            | 4/4/2000   |   |

|           |  |                         |            |   |
|-----------|--|-------------------------|------------|---|
| Price     | Coal Bed: 2 miles NE of Price                    |                         | 6/3/2000   | SRP is dumping Brine on coal bed.   |
| Price     | Carbon County T14S R10E Section 2 State well A-4 |                         | 10/2/2000  | Flow line from a production well ruptured. Approximately 30-40 bbls of produced water was released from the well. Anadarko estimates 5-6 barrels left the location.   |
| Price     | Section 3 T14S R10E                              |                         | 2/14/2001  | 35 barrels of Diethanol Amine (DEA) solution was released from a pump at the Helper Central Production Facility. P  |
| Price     | Sec 8 T14S R10E                                  | Hwy 10 (South of Price) | 4/5/2002   | A pump failure for an above ground storage tank resulted in the release of 100 barrels of produced water. Produced water is primarily sodium chloride (13,000 ppm)  |
| Price     | Mile Marker 170.5 Highway 191                    |                         | 4/29/2002  | Flatbed truck was en-route to a drilling operation when the straps securing a 300-gallon tote of Ethylene glycol came loose. The tote fell off the truck and released 200 gallons of ethylene glycol to the surrounding soils.                                |
| SUNNYSIDE | NEAR SUNNYSIDE, UTAH, U.S.-6/191                 | U.S.-6/191              | 12/5/1994  | TRACTOR-TRAILER ACCIDENT BETWEEN PRICE AND GREEN RIVER, NEAR SUNNYSIDE, ON U.S.-6/191. SPILLED ABOUT 80 GALLONS OF DIESEL.  |
| Sunnyside | Sunnyside Coal Generating Plant                  |                         | 3/1/1995   | Merten reported a water well is being drilled near the Sunnyside Coal Generating Plant in Carbon County. Drilling fluids, including polymers are being released into Grassy Creek.  |
| Sunnyside | Highway 123                                      | State 123               | 4/3/1995   | Sunnyside Coal Mine is in the process of being decommissioned. In preparation for 2 UST removals, a methanol release was noted in surficial soils. Approximately 200 gallons of methanol remain in the 500-gallon tank. The tank has not been pumped out yet, |
| Sunnyside | #1 Power Plant Road                              |                         | 11/22/1999 | A sulfuric acid tank leaked, outer containment tank failed, and containment basin was not designed to hold full amount of acid. Spill was discovered and it is unknown why spill occurred. Estimated that up to 200 gallons of 98% sulfuric acid spilled      |

### 2.3.9 Interviews

#### 2.3.9.1 Representatives of the Property Owner

Jack Hamilton interviewed Mr. Jay Marshall, the Project Engineer for UtahAmerican Energy, Inc., by phone on February 3, 2003. The responses to the interview are as follows:

1. What is your title? *Project Engineer.*
2. What is your responsibility regarding the Horse Canyon mining property? *Overseeing property, meeting environmental requirements, and performing maintenance.*
3. Are you aware of any situation that would constitute a "known environmental situation" on or near the property in the past? This would include such things as

- spills of chemicals or hazardous waste, leaking underground tanks, environmental cleanups mandated by EPA or the state of Utah, fines or sanctions imposed on the mining companies as a result their activities on the site, or anything else that could potentially adversely affect the environment. Please describe. *No.*
4. What are the outstanding environmental obligations of the present owner regarding the property? *To reclaim the site in accordance with the DOGM permit; to reclaim the buildings, tank, and portal areas. The remainder of the site is under Phase II reclamation.*
  5. What actions have been performed in the past as part of mine closure or as environmental corrective actions? *IPA did extensive reclamation work. The tibble, rail, and old facilities were removed, reclaimed, and revegetated.*
  6. What environmental studies or assessments have been performed on the site? Who performed them, and what were the general conclusions? Are they available to the general public? *IPA has most of those records. Asbestos was removed, and no PCBs were on the site.*
  7. Are you aware of any environmentally related reasons why this property should not be transferred to the College of Eastern Utah for use as a natural field-study facility? Please describe. *No.*
  8. Is there anything else I should know or anyone else that I should talk to? *No – maybe Bill Engels with IPA.*

### 2.3.9.2 Government and Agency Personnel

Jack Hamilton interviewed three employees of the Utah Division of Oil, Gas and Mining (DOG M) on January 29, 2003. Those employees were:

|                           |                            |
|---------------------------|----------------------------|
| <u>MaryAnn Wright</u>     | Associate Director, Mining |
| <u>Daron Haddock</u>      | Permit Supervisor          |
| <u>Pam Grubaugh Litig</u> | Permit Supervisor          |

#### Questions asked were:

1. What is your responsibility regarding the Horse Canyon mining property? *Pam and Daron – Permit supervisors for the coal program. Responsibilities include post-mining land use and bond removal.*
2. Are you aware of any situation that would constitute a “known environmental situation” on or near the property in the past? This would include such things as spills of chemicals or hazardous waste, leaking underground tanks, environmental cleanups mandated by EPA or the state of Utah, fines or sanctions imposed on the

- mining companies as a result their activities on the site, or anything else that could potentially adversely affect the environment. Please describe. ***Only the coal seam fire that is burning near the property. An asbestos removal project was done around 1993. JBR Consulting did the work.***
3. What are the outstanding environmental obligations of the present owner regarding the property? ***Reclamation. There are still portals on the property that have not been closed. Those will have to be closed because they are not consistent with the proposed alternative post-mining land use. The fire is outside the permit area, so it is the responsibility of the AML (Abandoned Mine Land) program. The current owner has no responsibility for the fire.***
  4. What actions have been performed in the past as part of mine closure or as environmental corrective actions? ***Partial reclamation. A Phase II bond release has been granted on all the reclaimed land. IPA, who acquired the property out of bankruptcy in 1991, did this partial reclamation.***
  5. What environmental studies or assessments have been performed on the site? Who performed them, and what were the general conclusions? Are they available to the general public? ***Water data is available on-line. Call Dana Dean at 538-5320 and she will walk you through it. Data on vegetation, wildlife, and so forth is available at the DNR.***
  6. Are you aware of any environmentally related reasons why this property should not be transferred to the College of Eastern Utah for use as a natural field-study facility? Please describe. ***Only the fire. There is a small potential for subsidence; however, it has been many years since the mining, and most of the subsidence has probably already occurred.*** [Note: No mining took place under the buildings area, so subsidence is not a concern there.]
  7. Is there anything else I should know or anyone else that I should talk to? ***Bill Engels, who is with the Los Angeles Department of Water and Power. He was the person who did the reclamation work for IPA in 1991. His phone number is 213-367-0289. Also talk to Paul Clark, who was the former mayor of East Carbon.***

At this point, Lucy Malin, who is with DOGM, came into the room and located the fire on a topographic map. The location is just off the property, and the fire is believed to be migrating in a direction away from the property.

### ***2.3.9.3 Former Plant Superintendent***

Mr. Joseph A. Harvey was interviewed by Elizabeth Kourianos (his daughter) in January 2003, and responded to a list of questions submitted by Jack Hamilton.

Name of Interviewer: ***Elizabeth Kourianos***

Name of Interviewee: **Joseph A. Harvey**  
City, State: Springville, Utah  
Phone Number: **801-489-6609**

1. Please state your name. **Joseph A. Harvey.**
2. What was your role at the facility? **Operations superintendent.**
3. What was the period of time that you were associated with the facility? **1968 or 1969 to April 1974.**
4. *What was the ownership of the facility while you were there?* **U.S. Steel Corp.**
5. Can you describe the activities that took place at the site? **General coal mining operations.**
6. Were hazardous materials, e.g., solvents, chemicals, herbicides, petroleum products, etc., used at the site? **Fuel for surface vehicles, #4 fuel for heating steam boiler, also machine lubricants, cleaning solvents and hydraulic fluids.**
7. Where were those materials stored, used, and how were they handled? **All handled, stored and disposed of properly. All storage and disposal was regulated by Federal MSHA procedure and policy, with regular on-site inspection and training to ensure compliance.**
8. Were any underground tanks or aboveground tanks (other than water tanks) located on the property? **Yes.** If so, where were they located? **Gasoline was stored in underground tanks located just before the office and warehouse buildings. The area where these fuel tanks were located appears to have been reclaimed. The #4 fuel tanks were located near the existing buildings in a heat plant building, which also appears to have been previously reclaimed.** What was stored in them? **Auto fuel and #4 fuel for steam boiler heating**
9. Are you aware of any spills – oil, fuel, etc. – on or near the property? **None that I am aware of during my tenure or previous to it.**
10. How was waste disposed of at the facility? **As per procedure and policy as directed by federal inspectors.** Were pits used for waste disposal? **No.** If so, where were they located?
11. What was the usage of the surrounding parcels of land? **Wildlife area and sheep ranching.**
12. *Are you aware of any situations that might have impacted the environment on or near the property?* **No knowledge of any spills or impoundments of any fuel, oil, or solvents of any consequence.**

13. Is there anything else I should know about the property? *No.*
14. Is there anyone else that I should talk to? *You may wish to speak to Jack Presset of Price, Utah. He was a personnel manager and an electrician while employed by U.S. Steel. He has photos of the area and could also reference you to other former employees who are still living there locally.*

#### 2.3.9.4 Other Interviews

Mr. Bill Engles was the project manager for the Interstate Power Agency who performed the reclamation work that was done in 1990 and 1991, when that agency owned the Property. He was interviewed by telephone by Jack Hamilton on February 4, 2003.

Name of Interviewer: *Jack Hamilton*

Date of Interview: 2-04-03

Name of Interviewee: *Bill Engels*

Phone Number: 213-367-0289

1. What is your title? *Coal Supply Engineer for the city of Los Angeles and the Interstate Power Agency (IPA).*
2. What was your responsibility regarding the Horse Canyon mining property? *I was property manager and project manager for the reclamation in 1990 and 1991 and the IPA property manager after that. IPA acquired the land from Geneva and subsequently sold it to UtahAmerican.*
3. Are you aware of any situation that would constitute a "known environmental situation" on or near the property in the past? This would include such things as spills of chemicals or hazardous waste, leaking underground tanks, environmental cleanups mandated by EPA or the state of Utah, fines or sanctions imposed on the mining companies as a result their activities on the site, or anything else that could potentially adversely affect the environment. Please describe. *There were never any regulatory citations or fines. When IPA acquired the property we interviewed all the "old-timers" to find out if there were any environmental problems. There had been some motor oil dumped in the river bed, and that sort of thing. IPA disposed of a number of industrial chemicals, including weed killer and some thermite. About six or eight PCB transformers were removed and disposed of. IPA has all the disposal records.*
4. What actions have been performed in the past as part of mine closure or as environmental corrective actions? *Friable asbestos was removed, but there is still some asbestos in the roof tiles. There was a firewall in one of the buildings [could not remember which one] that used asbestos. The insulation was sprayed and sealed in accordance with the rules. There were underground utility corridors that used asbestos, and in 1995, DOGM required us to open those corridors and remove the asbestos. IPA removed the underground storage*

*tanks. There is also the old landfill site, which is on the south side, just as Hwy. 124 from East Carbon turns into Horse Canyon.*

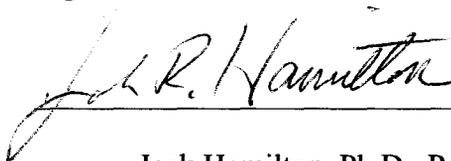
5. What environmental studies or assessments have been performed on the site? Who performed them, and what were the general conclusions? Are they available to the general public? *Lots of wildlife and archeological studies that were done for DOGM. They are publicly available from DOGM.*
6. Are you aware of any environmentally related reasons why this property should not be transferred to the College of Eastern Utah for use as a natural field study facility? Please describe. *No.*

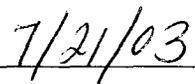
### 2.3.10 Phase I Conclusions

As a part of a Feasibility Study being conducted by the Center for Mine Land Redevelopment at the University of Utah, the Utah Engineering Experiment Station (UEES) performed a Phase I Environmental Site Assessment in accordance with the Scope of Services outlined in Section 1.1, and in general conformance with the scope and limitations of ASTM Practice E1527, of a property comprised of a former coal mining property owned by UtahAmerican Energy, Inc. in Horse Canyon, Utah (the Property). The Property includes 900 acres of land in the Book Cliffs, located about halfway between the cities of Price and Green River. Part of the Property is a site of approximately four acres where the mining facility was located. Four buildings are presently located on that site. The remainder of the Property is rugged wilderness and is contiguous with BLM land, several large local ranches, and other private property. The Property is located in Township 15 and 16 South, Range 14 East, Salt Lake Base and Meridian. Most of the Property is in Emery County; however, approximately 120 acres are in Carbon County. The closest town is Columbia, about six miles north of the site. Any exceptions to, or deletions from, the ASTM Practice are described in Section 2.3.3 of this report. This assessment has revealed no evidence of "recognized environmental conditions" in connection with the Property. The information developed during this assessment did not suggest any reason to undertake an intrusive (Phase II) investigation.

This Phase I Environmental Site Assessment was performed in accordance with the standard guidelines of ASTM Practice E1527. All information presented herein is believed to be true and accurate, to the best of my knowledge, and within the limitations and accuracy of the referenced resources. No relevant information has been falsified or withheld from this report. Opinions are solely mine and are based on my professional training and experience.

Signed:

  
\_\_\_\_\_  
Jack Hamilton, Ph.D., R.E.A.

  
\_\_\_\_\_  
Date

### 2.3.11 References

Lila Point Quadrangle: USGS 7 ½ Minute Topographic Quadrangle Map

Patmos Head Quadrangle: USGS 7 ½ Minute Topographic Quadrangle Map

### 2.3.12 Limitations and Restrictions

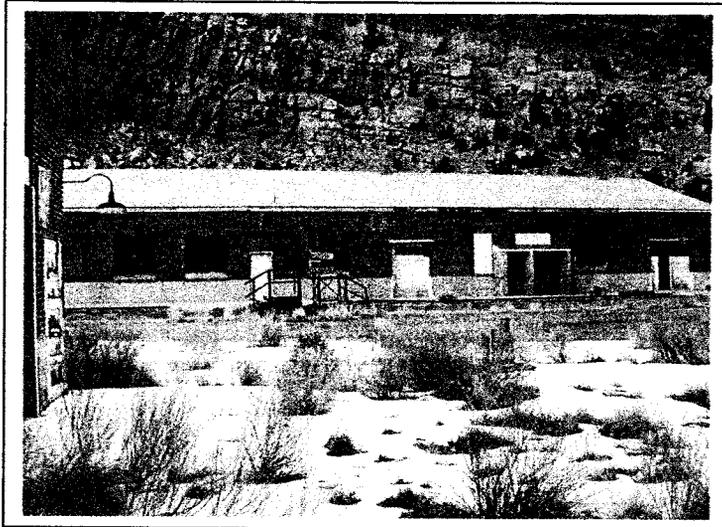
This assessment was restricted to the Scope of Services as defined herein. No representations or warranties are made concerning the nature or quality of the air, soil, water, building materials, or any other substance on the Property, other than the visual observations as stated in this report.

In preparing this report, the Utah Engineering Experiment Station has relied upon certain verbal information and representations provided by government and Property employees, documents provided by the Property owner and/or operator, and upon a computer search of government databases by a firm that provides that service. Except as discussed, the Utah Engineering Experiment Station did not attempt to independently verify the accuracy or completeness of that information, but did not detect any inconsistency or omission of a nature that might call into question the validity of any of it. To the extent that the conclusions in this report are based in whole or in part on such information, they are contingent on its validity. The Utah Engineering Experiment Station assumes no responsibility for any consequence arising from any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to the Utah Engineering Experiment Station.

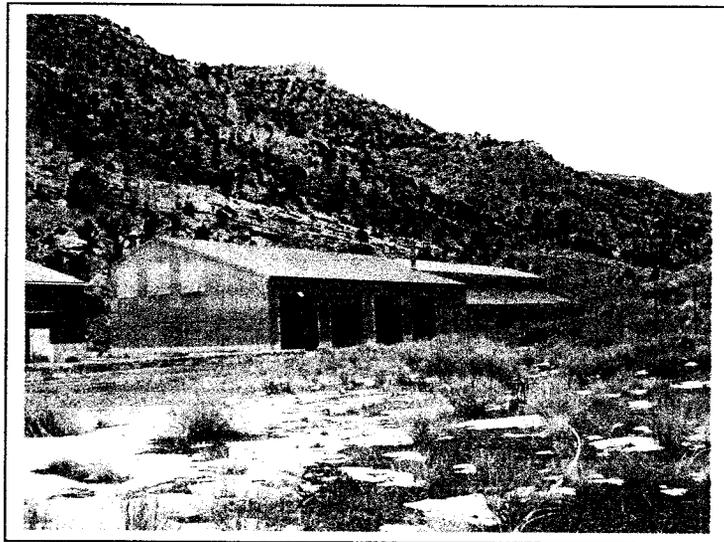
Within the limitations of the agreed-upon Scope of Services and limited site-access, as stated above, this assessment has been undertaken and performed in a professional manner, in accordance with generally accepted practices, using the degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, express or implied, is made.

This report is based upon the Scope of Services, and is subject to the Limitations and Restrictions, defined herein. It has been prepared for the use of the Center for Mine Land Redevelopment and its legal counsel. No other person or organization is entitled to rely upon any part of it without the prior written consent of the Utah Engineering Experiment Station. The Center for Mine Land Redevelopment may release all or part(s) of this report to third parties; however, such third party in using or relying on this report agrees that it shall have no legal recourse against the Utah Engineering Experiment Station or the University of Utah, and shall indemnify and defend them from and against all claims arising out of or in conjunction with such use or reliance.

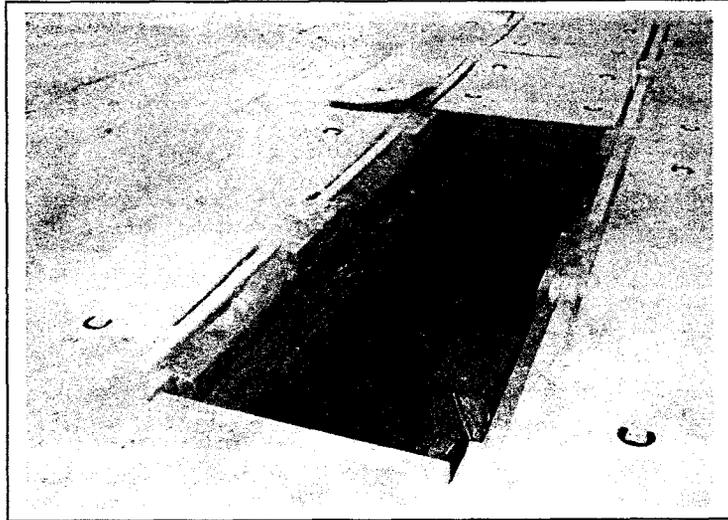
**2.3.13 Photographs**



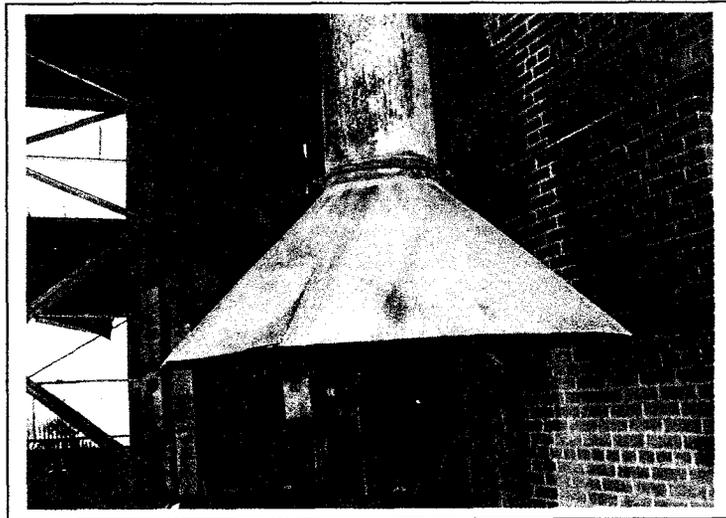
**Warehouse Building – From the East**



**Shop Building (Corrugated Metal Addition)**



**Grease Pit Used For Working Of Railcars**



**Hood-Vent In Welding Shop, Shop Building**

### **2.3.14 Environmental Database Search**

Section 2.3.14, Environmental Database Search, is a PDF file obtained from Environmental Data Resources (EDR) and is page-numbered as that file was received. A table of contents for this section is included in the section. Normal page numbering for this document resumes at the end of this section.

**EDR**

## **Environmental Database Search**

(*Juniperus* spp). A diverse understory community is often lacking over wide expanses of the ecosystem (Dalton et al 1990). A majority of the Horse Canyon property is comprised of the Pinyon-Juniper ecosystem type.

Mountain Brush ecosystems are dominated by either gambel oak (*Quercus gambeli*) or maple (*Acer* spp). However, other shrub species may be dominant and are almost always present. Grasses and forbs comprise the understory (Dalton et al 1990). This ecosystem type is found on the higher elevations of the property, but extensively on properties adjacent to the mine site.

### 3.1 Geology/Soil

The Horse Canyon mine area straddles two major geological areas. These areas are the Mancos Shale lowlands and the western edge of the Book Cliffs-Roan Plateau, both subsections of the Colorado Plateau (Stokes 1977).

Generally, the soils on terraces and fans are very deep, coarse-textured, and well-drained. These are primarily glacial and alluvial soils which form a cap over a shale and sandy shale bedrock. The narrow canyon floors are comprised of colluvial and alluvial soils that are stony, very deep and well-drained (ICF Kaiser Engineers 1990). The steep slopes and high-energy erosion common in the Book Cliffs area allow for little soil development on slopes. In the sections of Mancos Shale lowlands, soil is almost nonexistent except under vegetation, where shallow loams may develop (Southward and Nielson 1986).

Common soil types include the Gerst-Badland-Rubbleland, Rock Outcrop-Rubbleland-Travesilla Complex, and the Gerst-Strych-Badland Complex soils on canyon slopes, terraces, escarpments. These soils are comprised of more rock or rock debris than soil material. Strych soils are deeper rocky soils of the alluvial fans and glacial terraces. The Glenberg soils, which are also derived from alluvium, are found in the narrow canyon bottom (ICF Kaiser Engineers 1990).

### 3.2 Water Resources

Surface water in the mine area drains into the Price River. From the Price River, water flows to the Green River and then ultimately on to the Colorado River. There is not enough base flow from groundwater discharge or from snowmelt and runoff to maintain a perennial flow in Horse Canyon Creek. Water flow in the Horse Canyon drainage area is intermittent at best. Flows occur in the spring after snowmelt and may also occur in the Horse Creek drainage as a result of isolated summer thunderstorms.

Two wells are located in the area. These wells are supplied by small aquifers. In 1985,

19 springs and seeps were found in the Horse Canyon mine area by the JBR Consultants Group (JBR 1986). Flows occurred from either sandstone beds located over shale, or from alluvium located within or adjacent to stream channels. Flow rates varied from one gallon per minute to ten gallons per minute (JBR 1986). One spring has shown flows of up to 15 gallons per minute (Marshall 2003).

Groundwater has also been detected in the Horse Canyon Mine itself (ICF Kaiser Engineers 1990).

### 3.3 Topography

The majority of the mine area is located in northwestern Emery County, with a few acres in southeastern Carbon County, UT. It is part of the geologic formation known as the Tavaputs Plateau. The mine itself is confined to the dominant topographic feature of the area, Horse Canyon. Horse Canyon is a narrow, steep-sided canyon comprised of rocky, talus slopes.

The canyon is formed by the juncture of North Fork and South Fork Canyons. Side canyons enter Horse Canyon principally from the north and the south. Horse canyon proper drains to the west, with surface water eventually entering the Price River drainage.

Horse Canyon is relatively dry, with only intermittent water flowing in the Horse Canyon creek bed. The canyon opens to an alluvial fan on the lower elevations (ICF Kaiser Engineers 1990).

### 3.4 Vegetation

The general area of the mine is located in the Book Cliffs region of eastern Utah. Based on the US Forest Service's ecoregion method for vegetation delineation, the mine area is considered as the Book Cliffs portion of the Tavaputs Plateau (Bailey 1995; *Description of the Ecoregions of the United States, 2<sup>nd</sup> ed.*, USDA-Forest Service Miscellaneous Publication 1391, Washington, D.C.) The major vegetation types found in the Book Cliffs area near the Horse Canyon mine site include: Pinyon-Juniper Woodlands, Riparian, Sagebrush, Desert Shrub, and Mixed Mountain Brush. Though these vegetation types are located in the area, the only major vegetation type in the mine site area is the Pinyon-Juniper Woodland type.

Within the Pinyon-Juniper Woodland type, there are areas dominated by barren-rock outcrops, salina wild rye (*Elymus salinus*), and sagebrush (*Artemisia tridentata*). Specific plants common in the area include Utah juniper (*Juniperus osteosperma*), pinon pine (*Pinus edulis*), big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia*

*sorothrae*), four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), rabbitbrush (*Chrysothamnus* spp), greasewood (*Sarcobatus vermiculatum*), Mormon tea (*Ephedra viridis*), Indian rice grass (*Oryzopsis hymenoides*), three awn (*Aristida longiseta*), galleta (*Hilaria jamesii*), and other similar species.

Since the Horse Canyon Mine has been closed, mine owners have initiated vegetation reclamation. An approximate total of 51 acres of disturbed mine property has been revegetated. The permanent seed-planting list was generated from three sources, including native plants found in the area, successful plants from interim plantings, and species recommended by the Utah Division of Wildlife Resources (DWR).

Impending vegetation surveys will determine the vegetation composition of the revegetated areas and the similarity between revegetated areas and a reference area typical of Pinyon-Juniper communities in the area (Marshall 2003). A summary of the permanent seed mix is included in Table 3-1 below. The seeding mix was developed for a post-mining land use as wildlife habitat.

**Table 3-1 Permanent Seed Mixture for Horse Canyon Mine Revegetation**

| <i>Species</i>                | <b>Seeds/lb</b> | <b>% of Mix</b> |
|-------------------------------|-----------------|-----------------|
| <b>Grasses</b>                |                 |                 |
| <i>Agropyron smithii</i>      | 110,000         | 9               |
| <i>Agropyron spicatum</i>     | 117,000         | 9               |
| <i>Elymus cinerius</i>        | 130,000         | 9               |
| <i>Oryzopsis hymenoides</i>   | 235,000         | 10              |
| <i>Sitanion hystrix</i>       | 192,000         | 10              |
| <i>Sporobolus cryptandrus</i> | 5,298,000       | 15              |
| <b>Legumes</b>                |                 |                 |
| <i>Melilotus officinalis</i>  | 260,000         | 7               |
| <i>Medicago satavia</i>       | 210,000         | 5               |
| <i>Hedysarum boreale</i>      | 33,600          | 1               |

| <i>Species</i>                            | <b>Seeds/lb</b>  | <b>% of Mix</b> |
|---|------------------|-----------------|
| <b>Forbs</b>                              |                  |                 |
| <i>Sphaeralcea coccinea</i>               | 500,000          | 1               |
| <i>Penstemon palmeri</i>                  | 610,000          | 1               |
| <i>Linum lewisii</i>                      | 285,000          | 1               |
|   |                  |                 |
| <b>Shrubs</b>                             |                  |                 |
| <i>Artemisia tridentata tridentata</i>    | 2,576,000        | 7               |
| <i>Artemisia nova</i>                     | 907,000          | 5               |
| <i>Atriplex canescens</i>                 | 52,000           | 2               |
| <i>Chrysothamnus nauseosus albicaulis</i> | 400,000          | 3               |
| <i>Ceratoides lanata</i>                  | 56,700           | 3               |
| <i>Cowania mexicana</i>                   | 64,600           | 3               |
| <b>Total per acre</b>                     | <b>3,503,940</b> | <b>100</b>      |

### 3.5 Wildlife

The Horse Canyon Mine has been classified as being within the Upper Sonoran life zone (ICF Kaiser Engineers 1990). Vegetation of the higher elevations is typical of Pinyon-Juniper communities, whereas the lower elevations are more typical of the Greasewood-Shadscale Desert Shrub community.

The Upper Sonoran life zone can provide habitat for approximately 142 species of wildlife. The Utah Division of Wildlife Resources (DWR) has identified species having potential to inhabit the region. According to DWR officials, wildlife species that occupy similar habitat types include: pocket gophers (*Thomomys* spp), woodrats (*Neotoma* spp), kangaroo rats (*Dipodomys* spp), mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), black-tailed jackrabbits (*Lepus californicus*), desert cottontail rabbits (*Sylvilagus audubonii*), rock squirrels (*Spermophilus variegatus*), black bear (*Ursus americanus*), cougar (*Felis concolor*), bobcats (*Lynx rufus*), badgers (*Taxidea taxus*), coyote (*Canis latrans*), magpies, horned larks, chukars, pinyon jays, red-tailed hawks, golden eagles (*Haliaeetus leucocephalus*), Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*), and pronghorn antelope (*Antilocapra americana*) (ICF Kaiser Engineers

1990).

A limited number of reptile and amphibian species also may be found in the area. Snake dens are unknown in the talus slopes.

Species of high interest in the local area are the pronghorn antelope and the Rocky Mountain bighorn sheep. Pronghorn are found as year-long residents within and adjacent to the permit area. Rocky Mountain bighorn sheep were relocated to the area and have been seen on the mine property numerous times.

The pinyon-juniper woodlands and interspersed sagebrush parks are winter range for mule deer. Many of the drier slopes are essentially juniper stands of scattered trees. The mule deer winter use is restricted to periods when snow is available or surface water is present during snowmelt in the early spring, and the UDWR has rated this winter range as high priority. Elk winter range is located at higher elevations than that of the permit area and is not a factor in the disturbed site.

The cliffs in the area generally face north, and have potential as raptor nesting sites. Raptor surveys have been completed in the area during each of the last five years. The entire Book Cliffs escarpment, as well as a one-mile buffer zone around areas of potential development, was inventoried for cliff-nesting raptors. Inventory results indicate that none of the eagle nests in the close proximity to the mine's surface facilities (less than 1/4 mile) has been active or tended in the last three years. However, historically, one active and one tended golden eagle nest are within close proximity to the mine's surface facilities.

After consultation with the US Fish and Wildlife Service, DWR, and the Bureau of Land Management, it was determined that there was a high probability these nest sites would be abandoned. A cooperative agreement with the regulatory agencies and UtahAmerican was finalized and has been made part of the mitigation for the Lila Canyon EA. Since the nests are located so close to the mine surface facility, the nests' future potential use was deemed to be lost. That loss was mitigated by a prey-based, off-site vegetation treatment project approved by the USFWS, UDWR and BLM.

The mitigation process was developed based on the premise that there are sufficient nest sites in the area to accommodate the population base. The limiting factor appears to be available prey base. Mitigation is designed to enhance the prey base while concurrently enhancing habitat for big game, deer, elk, and bighorn sheep (UtahAmerican Energy, Inc. 2000).

### 3.5.1 Threatened and Endangered Species

Previous environmental assessments of the Horse Canyon property and the nearby proposed Lila Canyon Mine site have determined that both properties are within the possible range for several species of concern.

In 1999, as part of its effort to open the Lila Canyon extension of the Horse Canyon Mine, UtahAmerican contracted EIS Environmental & Engineering Consulting (EIS) to do a Threatened and Endangered Species inventory for the area to be impacted by the proposed mine site. The proposed Lila Canyon Mine site is located approximately two miles southeast of the Horse Canyon Mine site. This inventory indicated that 13 endangered, threatened or proposed endangered species live or have suitable habitat in Emery County, UT (EIS Environmental & Engineering Consulting 2000). The species identified are included in Table 3-2 below.

EIS did not find any of the species listed below during its inventory. Bald eagles have been spotted in the region, but they are considered to be winter residents of the area. No bald eagles nest in the vicinity of the Horse Canyon area.

**Table 3-2 Threatened and Endangered Species of Emery County, UT**

| Species                | Scientific Name                 | Status     |
|------------------------|---------------------------------|------------|
| Bald eagle             | <i>Haliaeetus leucocephalus</i> | Threatened |
| Barneby reed mustard   | <i>Schoenocrambe barnebyi</i>   | Endangered |
| Black-footed ferret    | <i>Mustela nigripes</i>         | Endangered |
| Bonytail chub          | <i>Gila elegans</i>             | Endangered |
| Colorado pikeminnow    | <i>Ptychocheilus lucius</i>     | Endangered |
| Humpback chub          | <i>Gila cypha</i>               | Endangered |
| Jones cycladenia       | <i>Cycladenia humilis</i> var   | Threatened |
| Last chance townsendia | <i>Townsendia aprica</i>        | Threatened |
| Maguire daisy          | <i>Erigeron maguirei</i>        | Endangered |

|                        |                               |            |
|------------------------|-------------------------------|------------|
| Razorback sucker       | <i>Xyrauchen texanus</i>      | Endangered |
| San Rafael cactus      | <i>Pediocactus despainii</i>  | Endangered |
| Winkler cactus         | <i>Pediocactus winkleri</i>   | Endangered |
| Wright fishhook cactus | <i>Sclerocactus wrightiae</i> | Endangered |

DWR recently updated the above list based on US Fish and Wildlife Service lists to include the Mexican spotted owl (*Strix occidentalis lucida*), a federally designated Threatened Species, as a resident of Emery County and the yellow-billed cuckoo (*Coccyzus americanus*), a federally designated Threatened Species candidate as a possible resident of Emery County (DWR 2003, US Fish and Wildlife Service 2003). Though the Mexican spotted owl has not been observed near the mine property, UtahAmerican has plans to conduct inventories of potential habitat to determine the presence of these owls on mine properties (Marshall 2003).

DWR lists the species in Table 3-3 below as residents or potential residents of Carbon County (DWR 2003).

**Table 3-4 Federally Listed Threatened, Endangered, and Candidate Species for Carbon County, UT**

| Common Name                       | Scientific Name                  | Status                     |
|-----------------------------------|----------------------------------|----------------------------|
| Uinta Basin hookless cactus       | <i>Sclerocactus glaucus</i>      | Threatened                 |
| Graham beardtongue                | <i>Penstemon grahamii</i>        | Candidate                  |
| Humpback chub                     | <i>Gila cypha</i>                | Endangered                 |
| Bonytail chub                     | <i>Gila elegans</i>              | Endangered                 |
| Colorado pikeminnow               | <i>Ptychocheilus lucius</i>      | Endangered                 |
| Razorback sucker                  | <i>Xyrauchen texanus</i>         | Endangered                 |
| Bald eagle                        | <i>Haliaeetus leucocephalus</i>  | Threatened                 |
| Yellow-billed cuckoo (possibly)   | <i>Coccyzus americanus</i>       | Candidate                  |
| Mexican spotted owl (possibly)    | <i>Strix occidentalis lucida</i> | Threatened                 |
| Black-footed ferret (unconfirmed) | <i>Mustela nigripes</i>          | Endangered<br>(Extirpated) |

In 1998, EIS Environmental Consulting conducted Threatened and Endangered Species inventories for the proposed Lila Canyon Extension of the Horse Canyon mine, approximately two miles from the Horse Canyon Mine site (EIS Consulting 1998). It was specifically looking for evidence of species of concern including loggerhead shrike (*Lanius ludovicianus*), Creutzfeldt-flower (*Cryptantha creutzfeldtii*), burrowing owl (*Athene cunicularia*), canyon sweetvetch (*Hedysarum occidentale* var. *canone*), dispain footcactus (*Pediocactus despainii*), and Wright's fishhook cactus (*Sclerocactus wrightiae*). No evidence was found of loggerhead shrike, Creutzfeldt-flower, or burrowing owl. However, canyon seetvetch was located in one area of the proposed Lila Canyon Mine permit area. They recommended that the population of canyon sweetvetch be monitored annually to assess effects of disturbance activities associated with mining operations.

Other plant species of concern in the immediate Horse Canyon area include the canyon sweetvetch (*Hedysarum occidentale* var. *canone*) and the Book Cliffs stickleaf (*Mentzelia multicaulus* var. *librina*) (England 1990, Tuhy 1990). Two other rare species,

though not known to inhabit the immediate vicinity specifically, are located within a few miles of Horse Canyon. These are the yellow blanketflower (*Gaillardia flava*) and *Psoralea polyadenia* var. *jonesii*. (Trotter 1990).

### 3.5.2 Archaeological and Historical Resources

A comprehensive Archaeological and Historical Inventory of the Horse Canyon Mine permit area was conducted in 1986 by Brigham Young University (Southworth and Nielson 1986). During this inventory, investigators found seven culture resource sites. Of the seven, five were classified as historic and two were regarded as prehistoric (see table below).

One site, 42 Em 1222, is a tree with an inscription reading "Sam Gilson by God June 1878." Sam Gilson was a rancher, US Marshal, and the discoverer of gilsonite. The site has been placed on the National Register of Historic Places. It is currently marked and protected by a white, painted fence and considered significant by the inventory team. The other historical sites include the old mine facilities, dump areas, campsites, etc. All were considered to be insignificant.

The inventory team also found two prehistoric sites. Both of these sites are classified as lithic scatter. The sites were identified by small flakes of chert and quartzite. Two projectile points and a possible drill fragment were found at these sites. The projectile points are consistent with points of the Athabaskan-Numic period approximately A.D. 1500 (Homer and Weder 1980). Both sites were considered to be insignificant by the inventory team. Archeological and historical sites are shown in Table 3-4.

**Table 3-4 Horse Canyon Archaeological and Historical Resources Inventory Summary**

| Site Number | Site Type     | Cultural Affiliation | Significance/<br>Natl. Reg. | Recommendation |
|-------------|---------------|----------------------|-----------------------------|----------------|
| 42 Em 1222  | Inscription   | Historical           | Yes                         | Avoid          |
| 42 Em 2096  | Mine facility | Historical           | No                          | None           |
| 42 Em 2097  | Campsite      | Historical           | No                          | None           |

|           |                   |   |    |      |
|-----------|-------------------|---|----|------|
| 42Em 2098 | Campsite/<br>dump | Historical                                  | No | None |
| 42Em 2099 | Mine (Geneva)     | Historical                                  | No | None |
| 42Em 2100 | Lithic scatter    | Prehistoric<br>Unknown                      | No | None |
| 42Em 2101 | Lithic scatter    | Prehistoric<br>Numic - (approx. AD<br>1500) | No | None |

### 3.6 Environmental Site Assessment

This section is a brief summary of the environmental issues affecting the development of the Horse Canyon site.

#### 3.6.1 Purpose and Need for the Action

UtahAmerican Energy, Inc. (UtahAmerican) is proposing to transfer 1200 acres of its Horse Canyon Mine site to the College of Eastern Utah (CEU). The coal mine was operated for a number of years by Geneva Steel and most recently was acquired by UtahAmerican (Utah Division of Oil, Gas, and Mining 2003).

The mine was permanently closed for mining in 1984. As a result of the closure, UtahAmerican must remove, or otherwise deal with the abandoned buildings left on the mine site in order to complete its obligations for reclamation of the property. This must be done for UtahAmerican to obtain release of its reclamation bond.

The proposed transfer would donate the land and existing buildings to CEU. In so doing, UtahAmerican would relieve itself from ongoing reclamation responsibility as well as receive a tax credit for the donation of the property and buildings. CEU would assume ownership of the property and make use of it to support its educational mission in southeastern Utah.

#### 3.6.2 Affected Environment

The proposed land donation directly affects the 1200 acres under consideration. A detailed description of the area is provided in section 2.4 - Natural Environment. In addition to the natural resources in the area, several human resources may be affected.

The resources most likely to be affected include: 1) Land Use, 2) Socioeconomic Resources, 3) Fish and Wildlife Resources, 4) Vegetation Resources, 5) Recreation Resources, 6) Cultural and Heritage Resources, and 7) Visual and Aesthetic Resources.

Air Quality, Transportation Resources, Threatened and Endangered Species, Wetland and Riparian Resources, and Soils and Geology were considered as resources that may have been impacted by the proposed action, but it was determined that they will not likely be affected.

### **3.6.3 Management Direction**

Should CEU receive the Horse Canyon Mine property from UtahAmerican, it would use the land to support its educational mission in southeastern Utah. The college has active educational programs in several disciplines that could make use of the property and the surrounding areas to enhance offerings in geology, ecology, archaeology, paleontology, environmental science, natural resource management, outdoor education, recreation, etc. The property would be used primarily as a resource to augment classroom discussions with hands-on activities in the field.

In 2002, students in the University of Utah's MBA program, in conjunction with the University of Utah's Center for Mine Land Redevelopment, completed an economic feasibility study and market analysis on potential uses of the Horse Canyon site. Their study indicated good potential to carry out educational programs in the disciplines mentioned above (Management 6800 Team 2002).

Current plans for educational programming would include the Horse Canyon area in an array of unique natural settings at CEU's disposal. Other unique features in the area include Range Creek, ten miles to the east, Desolation Canyon of the Green River, 20 miles to the east, the San Rafael Swell, twenty miles to the west, etc. These areas provide a diversity of geological, ecological, archaeological, paleontological, and historical resources that can easily enhance educational programs. Initially, the area would be used for CEU courses. However, should the programs be successful, the scope could be expanded and opportunities made available for other educational groups.

The Horse Canyon property could be used very effectively to show contrasts between relatively natural areas and those disturbed by industries like mining. Because of the revegetation and reclamation work already done on the property, it provides an excellent example of what can be done to return disturbed sites to more natural conditions.

### 3.6.4 Proposed Action and Alternatives

#### *Alternative 1: Proposed Action*

The Proposed Action is for UtahAmerican to donate a 1200-acre parcel of land, including buildings on the property, to the College of Eastern Utah (CEU) from a portion of its holdings in the area of the Horse Canyon Mine. CEU would thus assume ownership of the property relieving UtahAmerican from the reclamation requirements of the Horse Canyon Mine permit.

As the discussions for property transfer developed, David Jones, CEU's attorney from the Utah State Attorney General's Office, spoke with Mary Ann Wright, DOGM's Mining Division Chief, to determine requirements that would have to be met to facilitate this land transfer. In response to that discussion, David Jones indicated that if the transfer were to occur so that CEU would have the property free and clear of the reclamation requirements tied to UtahAmerican's permit, the following will have to occur (Jones 2003):

1. UtahAmerican needs to request changing the post-mining land use from whatever it is now to an "educational" or "recreational" purpose to amend the permit. This permit amendment will need to be approved by the Division of Oil, Gas, and Mining (DOGM).
2. UtahAmerican will need to request a bond release.
3. UtahAmerican will need to eliminate any environmental liabilities on the property, or provide CEU with compensation to do so after the property is transferred. The four buildings on the property are currently in various states of disrepair and constitute safety concerns.
4. Once the permit is amended to reflect the change in the post-mining land use to "educational" or "recreational" purposes and once the bond is released, the land will no longer be subject to any further reclamation.
5. The land transfer will also require the approval of CEU's Board of Trustees and the Utah Board of Regents.

#### *Alternative 2: No Action*

The Alternative Action would be for no property to be donated to CEU by UtahAmerican. This would mean that UtahAmerican would continue to be responsible for the reclamation

requirements for the Horse Canyon Mine permit. Use of the area would continue as the status quo.

There is no expectation of increased mining activity at the site in the immediate future. UtahAmerican would continue to carry out reclamation work as required by its permit. There would also be no expectation of increased educational programs in the area by CEU.

### **3.6.5 Environmental Consequences**

#### ***3.6.5.1 Land Use***

If the land transfer occurs, the land use of the Horse Canyon Mine area will change significantly. The property would change from mining to educational/recreational uses. Since the mine has been permanently closed since 1984, there has been relatively little activity in the mine area. Activities on the mine property have been limited to vegetation and land reclamation projects.

The surrounding areas, both private and public lands, have been used primarily for livestock and recreational activities. The activities on surrounding private and public lands are not expected to change significantly as a result of the proposed action.

The mine property itself would be the site of CEU-directed educational and/or recreational activities. These activities would generally be conducted for small groups and would not significantly affect the area. Some of these college activities would spill over onto public and private lands, but these activities would not have a significant negative impact and would not preclude the use of other lands by traditional users.

In the past, owners of the Tavaputs Ranch, located in the Range Creek area east of the mine property, have driven their cattle to and from summer and winter ranges on the county road that passes through the middle of the mine property. This activity would not be impacted by the change of ownership. Any individual or group would still be able to travel through the property to access other areas.

Recreationists (primarily hunters, hikers, and mountain bikers) accessing the Horse Canyon, Range Creek, and Green River areas would still have access to these areas via the county road that bisects the Horse Canyon property.

#### ***3.6.5.2 Socioeconomic Resources***

Currently, the Horse Canyon Mine is closed. Its economic contribution to the region is very limited. However, should the proposed action occur, there is a potential to increase economic input into the area.

If CEU chooses to promote the Horse Canyon area as a destination spot for various educational programs, there will be an increase in the number of visitors to the region. This influx of people into the area will provide a boost in monies being spent in the local communities for lodging, food, and entertainment.

The increase of visitors into the area will be directly tied to the size of the programs offered by the college. Initially, the scope of the programs would be limited to small groups, given that there are no housing or food facilities at the mine site. Most programs would be based at the CEU campus in Price, and groups would be transported to the Horse Canyon site.

### ***3.6.5.3 Fish and Wildlife Resource***

The educational/recreational programs implemented by the college would offer participants the opportunity to view wildlife resources in their natural habitats. These programs would bring an increased number of humans into the area, but the activities would be designed to be unobtrusive and will likely have little impact on wildlife. There would be small groups using the area at various times of the year, but these groups would only be in the area for short periods and would not pose a significant disturbance.

Educational programming would increase understanding of wildlife species needs and promote responsible wildlife watching. Programs would teach students how to observe wildlife with minimal disturbance. As part of the educational programming, wildlife inventories would be conducted at levels not previously done by the mining companies that have owned the property. This information would contribute to the understanding of wildlife/habitat relationships in the area.

Because the educational programs would bring an increase of people into the area, there would be a concurrent increase in vehicular traffic at various times of the year. This increase could possibly cause an increase in the number of vehicle/wildlife collisions, resulting in wildlife fatalities. However, the road conditions in the area are such that vehicles typically would not travel at high speeds, and drivers most likely would be able to react in sufficient time to avoid hitting animals that may be crossing the road. Though some increase in wildlife deaths may occur, it is not expected that these increases would be significant.

Should the existing buildings be demolished, the wildlife species using the buildings in their current state would be displaced. Currently, there are a variety of rodents that use the buildings. There may also be a few birds that nest and bats that roost in the old structures. They would likely relocate to the natural habitats adjacent to the buildings. Immediate plans by the college do not call for building demolition.

In the event that CEU should construct new facilities, the area would also be disturbed, but the impact on resident wildlife should be minimal. The disturbed area would be limited to the site occupied by existing buildings.

No fish live in the intermittent Horse Canyon Creek. No fish species would be impacted by this action.

#### ***3.6.5.4 Vegetation Resources***

The land transfer will not negatively affect vegetation resources. UtahAmerican has been involved in vegetation reclamation on the property for several years in an attempt to return the land to a state close to pre-mining conditions.

These revegetated areas would be allowed to continue to grow and would be used in educational programs. The increased use of the area would not pose any threat to the natural vegetation on the mine property, and the college would continue to protect the revegetated areas.

Educational programs would increase the understanding of plant species' needs and help students identify sensitive plants. Programs would teach students how, with minimal disturbance, to study and observe plants.

In order to develop meaningful educational programs, CEU would systematically inventory plant species of the property in much greater detail than the previous mining companies did. This increase in inventory and monitoring activity will help track plant health, and the occurrence and abundance of sensitive plant species, at a level previously not known.

#### ***3.6.5.5 Recreation Resources***

The recreational resources in the area would be minimally impacted by the proposed action. Development of college programs in the area would increase visitation to the area at certain times of the year. However, most of the activities would occur on the CEU property in areas that have not had public access for over fifty years.

Recreationists who use the surrounding private and public lands would be minimally affected. One of the major recreational uses in the area is hunting. Hunting occurs in the fall months on both public and private lands. Most CEU programs would occur during summer months and would not coincide with hunting seasons.

CEU does not allow hunting on its property, so there would be no increased hunting opportunity in the area. Hunting levels on private and public lands would remain the same.

The Turtle Canyon Wilderness Study Area is situated a few miles to the southeast of the Horse Canyon Mine property. Based on the 1999 Utah Wilderness Inventory conducted by the Bureau of Land Management (BLM), the Turtle Canyon area is considered to offer exceptional opportunities to experience solitude and to engage in a variety of primitive and unconfined recreational activities (BLM 1999). The area is rich with cultural, scenic, geological, botanical, and wildlife values. In addition, farther to the east is the Desolation Canyon Wilderness Study Area that runs parallel to the Green River.

There are human imprints scattered throughout these areas that relate to previous ranching and coal exploration drilling. However, according to the Wilderness Inventory, all of the intrusions have been minor and have been reclaimed or are in various stages of rehabilitation. In addition, the disturbances are well screened by vegetation and topography and are relatively unnoticeable (BLM 1999).

Educational programs at and near the Horse Canyon Mine site could have an impact on the Turtle Canyon and Desolation Canyon Wilderness Study Areas. Since they are in such close proximity to the Horse Canyon area, they could be included in educational and related activities. However, the numbers of individuals that would be taken to the two areas would be small and should have relatively little impact on the wilderness values of the area. Educational programming would be designed to give students an appreciation of the wilderness values present in the Turtle Canyon and Desolation Canyon Wilderness Study areas.

#### ***3.6.5.6 Cultural and Heritage Resources***

The existing buildings at the Horse Canyon Mine site have been on the property for over fifty years. These buildings represent the mining culture that has been so important in the history of both Emery and Carbon counties. If the buildings are removed, these “monuments” to the region’s mining culture will be lost. However, the buildings, if left as they are, may pose significant health and safety issues to future visitors.

CEU’s educational programs have the potential to actually increase the awareness of the significance of the mining industry to the region. Every effort would be made to preserve the historically significant features of the property.

#### ***3.6.5.7 Visual and Aesthetic Resources***

The proposed action may or may not have significant impact on the visual and aesthetic resources of the area. The current direction for college programs is to use the area as a “staging” location for outdoor/environmental educational programs.

If the college chooses to leave the existing buildings on the property and either leave them in

their current condition or improve them, impacts to visual and aesthetic resources will be minimal. The property's appearance will not change.

If CEU chooses to demolish the buildings, visual resources will be impacted. Buildings that have been part of the landscape for over fifty years would be gone. Many would argue that removal of the buildings would improve the visual and aesthetic resources by bringing the area into conditions more similar to a time prior to the development. Others will argue as mentioned above that the buildings have cultural significance.

The college may also choose to replace the old buildings with new facilities. Should this occur, the new buildings would alter the vistas in the area as well. Given the history of the buildings in the area, a new facility designed to blend in with the surrounding environment should not negatively impact the aesthetics of the area.

### 3.6.6 Consultation and Coordination

During the collection of information for this Environmental Assessment, CEU personnel or their representatives contacted the following individuals and organizations:

Utah Division of Oil, Gas and Mining (DOG M) - Mary Ann Wright  
(Associate Director - Mining), Priscilla Burton (Soils Reclamation  
Specialist), Susan White (Mining Program Coordinator), Pam Grubaugh-  
Littig (Permit Supervisor); Salt Lake City, UT

Utah State Attorney General's Office - David Jones (CEU attorney in  
USAG office); Salt Lake City, UT

Utah Division of Wildlife Resources - Chris Colt (Regional Habitat  
Biologist), Brad Crompton (Regional Wildlife Biologist); Price, UT

Bureau of Land Management - Jack Wood (GIS Specialist); Price, UT

Tavaputs Ranch - Butch Jensen (Ranch Owner); Price, UT

Center for Mine Land Redevelopment - Jack Hamilton, Eugene Carr  
(Co-directors); Salt lake City, UT

UtahAmerican Energy, Inc. - Jay Marshall (Horse Canyon Project  
Engineer); Price, UT

### 3.6.7 Environmental Assessment References

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## 4.0 FACILITIES ASSESSMENT

Four main buildings are present on the site: an office building (building # 1), a warehouse building (building # 3), a bathhouse (building # 2), and a shop building (building # 4). In addition, a pump house, two cap and powder magazines, a water tank, and mine portals are on the site. The buildings are brick construction dating from the World War II era, and they appear to be structurally sound. Some vandalism has occurred, including shooting out windows and painting graffiti in and on the buildings. The main buildings will remain on the site. CEU initially indicated that it desired that the shop building be removed. UtahAmerican, however, located a rancher who offered to use the building. CEU seems to be agreeable, so the involved parties are now negotiating the details of the arrangement.

Information for the Facilities Assessment was developed by three sources. First, Jack Hamilton and Gene Carr, Project Managers, visited the site on numerous occasions, photographed the buildings and site conditions, and logged their observations. Those observations were used to generate cost estimates for building renovation, which were developed by John Huish, Assistant Vice-President for Facilities Management for the University of Utah. In-house estimating software was used and costs are based on renovation of similar buildings elsewhere.

Second, Dr. George Uhlig of the College of Eastern Utah performed a Facilities Assessment as part of the CEU matching contribution to this project. Dr. Uhlig's evaluation was based on certain assumptions made by CEU regarding how it will initially use the property and how it plans to phase in various programs.

Third, Kent Smith, AIA, is the architect assigned to the project. His assessment was based on a "dual vision." The first is that the buildings will be fully restored and utilized to create a campus on the site, thus presenting a picture of what the site ultimately could be. At the same time, realizing that a phased approach will be necessary to develop the facility, he presents a scenario where the buildings are not fully utilized at first, but remain on the site for future development.

The three evaluations are not completely consistent because they were prepared from three quite different perspectives by individuals who may have different ideas about the best development path for the facility. Therefore, rather than trying to integrate the material, which would create irreconcilable inconsistencies, the three documents are presented here as three separate sections identified as the University of Utah Report, the College of Eastern Utah Report, and the Architect's Report.

### 4.1 University of Utah Report

These estimates reflect bringing the buildings up to university standards for use as domiciles or classroom buildings and were generated by estimating software. Therefore, site-specific conditions were not considered when making these estimates. Two tables are presented for each building: the first estimates construction costs, the second adds

various fees and contingencies to come up with an estimated total cost for renovation. These costs should be regarded as order-of-magnitude costs only and should be used for overall planning, not as a specific workplan for renovation. In general, architectural and engineering fees of 9.55% and contingencies of 15% were added to the estimated costs. Those costs are presented in the tables in this section. A section for general site renovation is also included.

#### 4.1.1 Office Building (Building # 1)

**SCOPE OF WORK:** Renovate Office Building One (3,500 GSF) - a one-story brick building with a high-bay construction and a pitched roof with asphalt shingles. This building appears to be an industrial building. The exterior of the building will need to have the face brick repointed and all windows and doors replaced. The interior of the building will need to be redone - new walls, new flooring, and new ceiling throughout the building. The mechanical system (HVAC), the plumbing system and the electrical service to the building will have to be redone.

| CSI#   | DESCRIPTION OF WORK               | QUANTITY    | UNIT COST | TOTAL COST |
|--|-----------------------------------|-------------|-----------|------------|
| <u>DIVISION 02-OFFICE CONSTRUCTION</u>               |                                   |             |           |            |
| SELECTIVE DEMOLITION                                 |                                   |             |           |            |
|  | MISC SITE IMPROVEMENTS            | 3,500 SQ FT | \$2.86    | 10,000     |
|  | TOTAL DIVISION 02-SITWORK         |             |           |            |
| <u>DIVISION 03-CONCRETE</u>                          |                                   |             |           |            |
|  | MISC CONCRETE                     | 3,500 SQ FT | 0.43      | 1,500      |
| <u>DIVISION 04-MASONRY</u>                           |                                   |             |           |            |
|  | REPOINT FACE BRICK                | 3,800 SQ FT | 2.11      | 8,000      |
| <u>DIVISION 05-METALS</u>                            |                                   |             |           |            |
|  | MISC METALS, ALLOWANCE            | 3,500 SQ FT | 0.63      | 2,200      |
| <u>DIVISION 06-WOOD &amp; PLASTICS</u>               |                                   |             |           |            |
|  | MISC ROUGH CARPENTRY              | 3,500 SQ FT | 0.63      | 2,200      |
|  | ARCHITECTURAL CASEWORK            | 1 SUM       | 6,500.00  | 6,500      |
|  | TOTAL DIVISION 06-WOOD & PLASTICS |             |           | 8,700      |
| <u>DIVISION 07-THERMAL &amp; MOISTURE PROTECTION</u> |                                   |             |           |            |
|  | EXTERIOR WALL INSULATION          | 3,744 SQ FT | 0.83      | 3,100      |
|  | ROOF INSULATION                   | 3,500 SQ FT | 0.71      | 2,500      |

|   |             |         |         |
|---|-------------|---------|---------|
| ASPHALT SHINGLES, 260-300 LBS                   | 3,500 SQ FT | \$2.00  | \$7,000 |
| SHEET METAL FLASHING & DRIP EDGE                | 312 LIN FT  | 8.01    | 2,500   |
| TOTAL DIVISION 07-THERMAL & MOISTURE PROTECTION |             |         | 15,100  |
| <u>DIVISION 08-DOORS AND WINDOWS</u>            |             |         |         |
| DOORS   |             |         |         |
| INTERIOR  | 15 EACH     | 685.00  | 10,275  |
| EXTERIOR  | 6 EACH      | 1200.00 | 7,200   |
| WINDOWS   |             |         |         |
| INTERIOR  | 749 SQ FT   | 29.38   | 22,000  |
| EXTERIOR  | 630 SQ FT   | 22.22   | 14,000  |
| TOTAL DIVISION 08-DOORS & WINDOWS               |             |         | 53,475  |
| <u>DIVISION 09-FINISHES</u>                     |             |         |         |
| WALLS   | 3,500 SQ FT | 3.65    | 12,775  |
| FLOORS  | 3,500 SQ FT | 2.45    | 8,575   |
| CEILINGS  | 3,500 SQ FT | 2.65    | 9,275   |
| TOTAL DIVISION 09-FINISHES                      |             |         | 30,625  |
| <u>DIVISION 10-SPECIALTIES</u>                  |             |         |         |
| MISC SPECIALTIES, ALLOWANCE                     | 3,500 SQ FT | 0.95    | 3,325   |
| <u>DIVISION 11-EQUIPMENT</u>                    |             |         |         |
| <u>DIVISION 12-FURNISHINGS</u>                  |             |         |         |
| <u>DIVISION 13-SPECIAL CONSTRUCTION</u>         |             |         |         |
| <u>DIVISION 14-CONVEYING SYSTEMS</u>            |             |         |         |
| <u>DIVISION 15-MECHANICAL</u>                   |             |         |         |
| SELECTIVE DEMOLITION                            | 3,500 SQ FT | 0.85    | 2,975   |
| PLUMBING  | 3,500 SQ FT | 3.57    | 12,495  |
| HVAC  | 3,500 SQ FT | 22.35   | 78,225  |
| TOTAL DIVISION 15-MECHANICAL                    |             |         | 93,695  |
| <u>DIVISION 16-ELECTRICAL</u>                   |             |         |         |
| SELECTIVE DEMOLITION                            | 3,500 SQ FT | 0.45    | 1,575   |
| POWER DISTRIBUTION                              | 3,500 SQ FT | 6.85    | 23,975  |

|                                   |             |          |           |
|-----------------------------------|-------------|----------|-----------|
| LIGHTING SYSTEMS                  | 3,500 SQ FT | 4.65     | 16,275    |
| SPECIAL SYSTEMS                   | 3,500 SQ FT | 1.25     | 4,375     |
| TOTAL DIVISION 16-ELECTRICAL      |             |          | 46,200    |
| SUBTOTAL                          |             |          | 272,820   |
| GENERAL CONTRACTOR MARKUPS        | 15.00%      |          | 40,923    |
| DESIGN CONTINGENCY                | 15.00%      |          | 40,923    |
| TOTAL ESTIMATED CONSTRUCTION COST | 3,500 GSF   | \$101.33 | \$354,666 |

**CAMPUS DESIGN & CONSTRUCTION PROJECT BUDGET**

|                                    |  |          |         |
|------------------------------------|--|----------|---------|
| PROJECT TITLE.....                 | HORSE CANYON MINE<br>BUILDING RENOVATIONS -<br>BUILDING #1 |          |         |
| OFFICE TOTAL COST                  |  |          |         |
| PROJECT NUMBER.....                |  |          |         |
| PROJECT MANAGER.....               | JOHN HUIISH  |          |         |
| STAGE OF ESTIMATE.....             | ORDER OF MAGNITUDE   |          |         |
| DATE.....                          | 05-Jun-03  |          |         |
| <br>                               |  |          |         |
| ITEM                               |  |          | TOTALS  |
| <b>Preliminary Costs</b>           |  |          |         |
| Programming                        |  |          | \$0     |
| Testing/Inspection                 |  |          | 0       |
| Geotech (Soils Report)             |  |          | 0       |
| Total Preliminary Costs            |  |          | 0       |
| <b>Construction Costs</b>          |  |          |         |
| Base Cost                          |  |          | 354,666 |
| Site Improvements                  |  |          | 0       |
| Utility Relocations                |  |          | 0       |
| Total Construction Cost            | 3,500 GSF  | \$101.33 | 354,666 |
| <b>Fees</b>                        |  |          |         |
| Architectural & Engineering Fee    | 9.55%  |          | 33,871  |
|                                    | 6.00%  |          | 0       |
| Total Fees                         |  |          | 33,871  |
| <b>Furnishings &amp; Equipment</b> |  |          |         |
| Furnishings & Equipment            |  |          | 0       |

|  |                  |                 |                  |
|--|------------------|-----------------|------------------|
| Moving/Occupancy Cost                  |                  |                 | \$0              |
| Total Furnishings & Equipment          |                  |                 | 0                |
| Other Costs                            |                  |                 |                  |
| Utility Shutdowns & Campus Work Orders |                  |                 | 0                |
| Lock Cylinders (\$60/Dr)               |                  |                 | 1,020            |
| Signage                                |                  |                 | 0                |
| Telecommunications (\$240/Outlet)      |                  |                 | 4,320            |
| Hazardous Materials                    |                  |                 | 0                |
| Total Other Costs                      |                  |                 | 5,340            |
| Construction Contingency               |                  |                 |                  |
| Construction Contingency               | 15.00%           |                 | 53,200           |
| Total Construction Contingency         |                  |                 | 58,540           |
| <b>TOTAL PROJECT COSTS</b>             | <b>3,500 GSF</b> | <b>\$129.26</b> | <b>\$452,417</b> |

#### 4.1.2 Bathhouse (Building # 2)

SCOPE OF WORK: Renovate Bathhouse building Two (7,600 GSF) - a one-story brick building with a high-bay construction and a pitched roof with asphalt shingles. This building appears to be an industrial building. The exterior of the building will need to have the face brick repointed and all windows and doors replaced. The interior of the building will need to be redone - new walls, new flooring, and new ceiling throughout the building. The mechanical system (HVAC), the plumbing system and the electrical service to the building will have to be redone.

| CSI#  | DESCRIPTION OF WORK       | QUANTITY    | UNIT COST | TOTAL COST |
|---|---------------------------|-------------|-----------|------------|
| <u>DIVISION 02- BATH HOUSE CONSTRUCTION EST</u> |                           |             |           |            |
| SELECTIVE DEMOLITION                            |                           |             |           |            |
|   | MISC SITE IMPROVEMENTS    | 7,600 SQ FT | \$1.32    | \$10,000   |
|   | TOTAL DIVISION 02-SITWORK |             |           |            |
| <u>DIVISION 03-CONCRETE</u>                     |                           |             |           |            |
|   | MISC CONCRETE             | 7,600 SQ FT | 0.20      | 1,500      |
| <u>DIVISION 04-MASONRY</u>                      |                           |             |           |            |
|   |                           | 3,800 SQ FT | 2.11      | 8,000      |
| <u>DIVISION 05-METALS</u>                       |                           |             |           |            |
|   | MISC METALS, ALLOWANCE    | 7,600 SQ FT | 0.29      | 2,200      |

|  |             |          |           |
|--|-------------|----------|-----------|
| <u>DIVISION 06-WOOD &amp; PLASTICS</u>               |             |          |           |
| MISC ROUGH CARPENTRY                                 | 7,600 SQ FT | \$0.29   | \$2,200   |
| ARCHITECTURAL CASEWORK                               | 1 SUM       | 8,000.00 | 8,000     |
| TOTAL DIVISION 06-WOOD & PLASTICS                    |             |          | 10,200    |
| <u>DIVISION 07-THERMAL &amp; MOISTURE PROTECTION</u> |             |          |           |
| EXTERIOR WALL INSULATION                             | 3,744 SQ FT | 0.83     | 3,100     |
| ROOF INSULATION                                      | 7,600 SQ FT | 0.33     | 2,500     |
| ASPHALT SHINGLES, 260-300 LBS                        | 7,600 SQ FT | 0.92     | 7,000     |
| SHEET METAL FLASHING & DRIP EDGE                     | 434 LIN FT  | 5.76     | 2,500     |
| TOTAL DIVISION 07-THERMAL & MOISTURE PROTECTION      |             |          | 15,100    |
| <u>DIVISION 08-DOORS AND WINDOWS</u>                 |             |          |           |
| DOORS  |             |          |           |
| INTERIOR   | 25 EACH     | 685.00   | \$17,125  |
| EXTERIOR   | 6 EACH      | 1,200.00 | \$7,200   |
| WINDOWS  |             |          |           |
| INTERIOR   | 9,120 SQ FT | 22.50    | \$205,200 |
| EXTERIOR   | 2,580 SQ FT | 28.45    | \$73,401  |
| TOTAL DIVISION 08-DOORS AND WINDOWS                  |             |          | \$302,926 |
| <u>DIVISION 09-FINISHES</u>                          |             |          |           |
| WALLS  | 7,600 SQ FT | 3.65     | \$27,740  |
| FLOORS   | 7,600 SQ FT | 2.45     | \$18,620  |
| CEILINGS   | 7,600 SQ FT | 2.65     | \$20,140  |
| TOTAL DIVISION 09-FINISHES                           |             |          | \$66,500  |
| <u>DIVISION 10-SPECIALTIES</u>                       |             |          |           |
| MISC SPECIALTIES, ALLOWANCE                          | 7,600 SQ FT | 0.95     | \$7,220   |
| <u>DIVISION 11-EQUIPMENT</u>                         |             |          |           |
|  |             |          | \$0       |
| <u>DIVISION 12-FURNISHING</u>                        |             |          |           |
|  |             |          | \$0       |
| <u>DIVISION 13-SPECIAL CONSTRUCTION</u>              |             |          |           |
|  |             |          | \$0       |
| <u>DIVISION 14-CONVEYING SYSTEMS</u>                 |             |          |           |
|  |             |          | \$0       |

|                                   |             |          |           |
|-----------------------------------|-------------|----------|-----------|
| <u>DIVISION 15-MECHANICAL</u>     |             |          |           |
| SELECTIVE DEMOLITION              | 7,600 SQ FT | \$0.85   | \$6,460   |
| PLUMBING                          | 7,600 SQ FT | 3.57     | 27,132    |
| HVAC                              | 7,600 SQ FT | 22.35    | 169,860   |
| TOTAL DIVISION 15-MECHANICAL      |             |          | 203,452   |
| <u>DIVISION 16-ELECTRICAL</u>     |             |          |           |
| SELECTIVE DEMOLITION              | 7,600 SQ FT | 0.45     | 3,420     |
| POWER DISTRIBUTION                | 7,600 SQ FT | 6.85     | 52,060    |
| LIGHTING SYSTEMS                  | 7,600 SQ FT | 4.65     | 35,340    |
| SPECIAL SYSTEMS                   | 7,600 SQ FT | 1.25     | 9,500     |
| TOTAL DIVISION 16-ELECTRICAL      |             |          | 100,320   |
| SUBTOTAL                          |             |          | 727,418   |
| GENERAL CONTRACTOR MARKUPS        | 15 %        |          | 109,113   |
| DESIGN CONTINGENCY                | 15 %        |          | 109,113   |
| TOTAL ESTIMATED CONSTRUCTION COST | 3,500 GSF   | \$270.18 | \$945,643 |

**CAMPUS DESIGN & CONSTRUCTION PROJECT BUDGET**

|                         |                                    |         |
|-------------------------|------------------------------------|---------|
| PROJECT TITLE.....      | HORSE CANYON MINE                  |         |
| BATHHOUSE TOTAL COST    | BUILDING RENOVATIONS - BUILDING #2 |         |
| PROJECT NUMBER.....     |                                    |         |
| PROJECT MANAGER.....    |                                    |         |
| STAGE OF ESTIMATE.....  | ORDER OF MAGNITUDE                 |         |
| DATE.....               | 05-Jun-03                          |         |
| ITEM                    |                                    | TOTALS  |
| Preliminary Costs       |                                    |         |
| Programming             |                                    | 0       |
| Testing/Inspection      |                                    | 0       |
| Geotech (Soils Report)  |                                    | 0       |
| Total Preliminary Costs |                                    | 0       |
| Construction Costs      |                                    |         |
| Base Cost               |                                    | 945,643 |
| Site Improvements       |                                    | 0       |
| Utility Relocations     |                                    | 0       |

|  |                  |                 |                    |
|--|------------------|-----------------|--------------------|
| Total Construction Cost                | 7,600 GSF        | \$124.43        | \$945,643          |
| <b>Fees</b>                            |                  |                 |                    |
| Architectural & Engineering Fee        | 9.55%            |                 | 90,309             |
| Furnishings & Equipment                | 6 %              |                 | 0                  |
| Total Fees                             |                  |                 | 90,309             |
| <b>Furnishings &amp; Equipment</b>     |                  |                 |                    |
| Furnishings & Equipment                |                  |                 | 0                  |
| Moving/Occupancy Cost                  |                  |                 | 0                  |
| Total Furnishings & Equipment          |                  |                 | 0                  |
| <b>Other Costs</b>                     |                  |                 |                    |
| Utility Shutdowns & Campus Work Orders |                  |                 | 0                  |
| Lock Cylinders (\$60/Door)             |                  |                 | 1,020              |
| Signage                                |                  |                 | 0                  |
| Telecommunications (\$240/Outlet)      |                  |                 | 4,320              |
| Hazardous Materials                    |                  |                 | 0                  |
| Total Other Costs                      |                  |                 | 5,340              |
| <b>Construction Contingency</b>        |                  |                 |                    |
| Construction Contingency               | 15 %             |                 | 141,847            |
| Total Construction Contingency         |                  |                 | 147,187            |
| <b>TOTAL PROJECT COSTS</b>             | <b>7,600 GSF</b> | <b>\$156.38</b> | <b>\$1,188,479</b> |

#### 4.1.3 Warehouse (Building # 3)

SCOPE OF WORK: Renovate Warehouse Building Three (10,200 GSF) - a one-story brick building with a high-bay construction a pitched roof with asphalt shingles. This building appears to be an industrial building. The exterior of the building will need to have the face brick repointed and all windows and doors replaced. The interior of the building will need to be redone - new walls, new flooring, and new ceiling throughout the building. The mechanical system (HVAC), the plumbing system and the electrical service to the building will have to be redone.

| CSI#                                      | DESCRIPTION OF WORK    | QUANTITY     | UNIT COST | TOTALCOST |
|---|------------------------|--------------|-----------|-----------|
| <b>DIVISION 02-WAREHOUSE CONSTRUCTION</b> |                        |              |           |           |
| <b>SELECTIVE DEMOLITION</b>               |                        |              |           |           |
|   | MISC SITE IMPROVEMENTS | 10,200 SQ FT | \$0.98    | \$10,000  |
| <b>TOTAL DIVISION 02-SITWORK</b>          |                        |              |           |           |

|  |              |          |         |
|--|--------------|----------|---------|
| <u>DIVISION 03-CONCRETE</u>                          |              |          |         |
| MISC CONCRETE  | 10,200 SQ FT | \$0.15   | \$1,500 |
| <u>DIVISION 04-MASONRY</u>                           |              |          |         |
| REPOINT FACE BRICK                                   | 5,928 SQ FT  | 1.35     | 8,003   |
| <u>DIVISION 05-METALS</u>                            |              |          |         |
| MISC METALS, ALLOWANCE                               | 10,200 SQ FT | 0.22     | 2,200   |
| <u>DIVISION 06-WOOD &amp; PLASTICS</u>               |              |          |         |
| MISC ROUGH CARPENTRY                                 | 10,200 SQ FT | 0.22     | 2,200   |
| ARCHITECTURAL CASEWORK                               | 1 SUM        | 6,500.00 | 6,500   |
| TOTAL DIVISION 06-WOOD & PLASTICS                    |              |          | 8,700   |
| <u>DIVISION 07-THERMAL &amp; MOISTURE PROTECTION</u> |              |          |         |
| EXTERIOR WALL INSULATION                             | 5,928 SQ FT  | 0.52     | 3,100   |
| ROOF INSULATION                                      | 10,200 SQ FT | 0.25     | 2,500   |
| ASPHALT SHINGLES, 260-300 LBS                        | 10,200 SQ FT | 0.69     | 7,000   |
| SHEET METAL FLASHING & DRIP EDGE                     | 494 LIN FT   | 5.06     | 2,500   |
| TOTAL DIVISION 07-THERMAL & MOISTURE PROTECTION      |              |          | 15,100  |
| <u>DIVISION 08-DOORS AND WINDOWS</u>                 |              |          |         |
| DOORS  |              |          |         |
| INTERIOR   | 45 EACH      | 685.00   | 30,825  |
| EXTERIOR   | 6 EACH       | 1,200.00 | 7,200   |
| WINDOWS  |              |          |         |
| INTERIOR   | 1,600 SQ FT  | 29.38    | 47,008  |
| EXTERIOR   | 1,186 SQ FT  | 22.20    | 26,320  |
| TOTAL DIVISION 08-DOORS AND WINDOWS                  |              |          | 111,353 |
| <u>DIVISION 09-FINISHES</u>                          |              |          |         |
| WALLS  | 10,200 SQ FT | 3.65     | 37,230  |
| FLOORS   | 10,200 SQ FT | 2.45     | 24,990  |
| CEILINGS   | 10,200 SQ FT | 2.65     | 27,030  |
| TOTAL DIVISION 09-FINISHES                           |              |          | 89,250  |
| <u>DIVISION 10-SPECIALTIES</u>                       |              |          |         |
| MISC SPECIALTIES, ALLOWANCE                          | 10,200 SQ FT | 0.95     | 9,690   |

|   |              |         |           |
|---|--------------|---------|-----------|
| <u>DIVISION 11-EQUIPMENT</u>            |              |         |           |
| <u>DIVISION 12-FURNISHINGS</u>          |              |         |           |
| <u>DIVISION 13-SPECIAL CONSTRUCTION</u> |              |         |           |
| <u>DIVISION 14-CONVEYING SYSTEMS</u>    |              |         |           |
| <u>DIVISION 15-MECHANICAL</u>           |              |         |           |
| SELECTIVE DEMOLITION                    | 10,200 SQ FT | 0.85    | \$8,670   |
| PLUMBING                                | 10,200 SQ FT | 3.57    | 36,414    |
| HVAC                                    | 10,200 SQ FT | 22.35   | 227,970   |
| TOTAL DIVISION 15-MECHANICAL            |              |         | 273,054   |
| <u>DIVISION 16-ELECTRICAL</u>           |              |         |           |
| SELECTIVE DEMOLITION                    | 10,200 SQ FT | 0.45    | 4,590     |
| POWER DISTRIBUTION                      | 10,200 SQ FT | 6.85    | 69,870    |
| LIGHTING SYSTEMS                        | 10,200 SQ FT | 4.65    | 47,430    |
| SPECIAL SYSTEMS                         | 10,200 SQ FT | 1.25    | 12,750    |
| TOTAL DIVISION 16-ELECTRICAL            |              |         | 134,640   |
| SUBTOTAL                                |              |         | 663,490   |
| GENERAL CONTRACTOR MARKUPS              | 15 %         |         | 99,524    |
| DESIGN CONTINGENCY                      | 15 %         |         | 99,524    |
| TOTAL ESTIMATED CONSTRUCTION COST       | 10,200 GSF   | \$84.56 | \$862,537 |

|  |  |
|--|--|
| <b>CAMPUS DESIGN &amp; CONSTRUCTION PROJECT BUDGET</b> |  |
| PROJECT TITLE.....                                     | HORSE CANYON MINE<br>BUILDING RENOVATIONS<br>- BUILDING #3 |
| WAREHOUSE TOTAL COST                                   |  |
| PROJECT NUMBER.....                                    |  |
| PROJECT MANAGER.....                                   | JOHN HUISH   |
| STAGE OF ESTIMATE.....                                 | ORDER OF MAGNITUDE   |
| DATE.....  | 05-Jun-03  |
| ITEM   | TOTALS   |
| Preliminary Costs                                      |  |

|  |            |          |             |
|--|------------|----------|-------------|
| Programming                            |            |          | \$0         |
| Testing/Inspection                     |            |          | 0           |
| Geotech (Soils Report)                 |            |          | 0           |
| Total Preliminary Costs                |            |          | 0           |
| <b>Construction Costs</b>              |            |          |             |
| Base Cost                              |            |          | 862,537     |
| Site Improvements                      |            |          | 0           |
| Utility Relocations                    |            |          | 0           |
| Total Construction Cost                | 10,200 GSF | \$84.56  | 862,537     |
| <b>Fees</b>                            |            |          |             |
| Architectural & Engineering Fee        | 9.55%      |          | 82,372      |
| Furnishings & Equipment                | 6 %        |          | 0           |
| Total Fees                             |            |          | 82,372      |
| <b>Furnishings &amp; Equipment</b>     |            |          |             |
| Furnishings & Equipment                |            |          | 0           |
| Moving/Occupancy Cost                  |            |          | 0           |
| Total Furnishings & Equipment          |            |          | 0           |
| <b>Other Costs</b>                     |            |          |             |
| Utility Shutdowns & Campus Work Orders |            |          | 0           |
| Lock Cylinders (\$60/Door)             |            |          | 1,020       |
| Signage                                |            |          | 0           |
| Telecommunications (\$240/Outlet)      |            |          | 4,320       |
| Hazardous Materials                    |            |          | 0           |
| Total Other Costs                      |            |          | 5,340       |
| <b>Construction Contingency</b>        |            |          |             |
| Construction Contingency               | 15 %       |          | 129,381     |
| Total Construction Contingency         |            |          | 134,721     |
| <b>TOTAL PROJECT COSTS</b>             |            |          |             |
|  | 10,200 GSF | \$106.37 | \$1,084,970 |

**4.1.4 Shop Building (Building # 4)**

SCOPE OF WORK: Renovate Shop Building #Four (12,000 GSF) - a brick, one-story building with a high-bay construction a pitched metal roof with metal siding. This building appears to be an industrial building. The mechanical system (HVAC), the plumbing system and the electrical service to the building will have to be redone.

| CSI# DESCRIPTION OF WORK                             | QUANTITY     | UNIT COST | TOTAL COST |
|--|--------------|-----------|------------|
| <b>DIVISION 02-SITWORK – SHOP CONSTRUCTION</b>       |              |           |            |
| SELECTIVE DEMOLITION                                 |              |           |            |
| MISC SITE IMPROVEMENTS                               | 12,000 SQ FT | \$0.83    | \$10,000   |
| TOTAL DIVISION 02-SITWORK                            |              |           |            |
| <u>DIVISION 03-CONCRETE</u>                          |              |           |            |
| MISC CONCRETE  | 12,000 SQ FT | 0.62      | 7,440      |
| <u>DIVISION 04-MASONRY</u>                           |              |           |            |
|  |              |           |            |
| <u>DIVISION 05-METALS</u>                            |              |           |            |
| MISC METALS, ALLOWANCE                               | 12,000 SQ FT | 5.00      | 60,000     |
| <u>DIVISION 06-WOOD &amp; PLASTICS</u>               |              |           |            |
|  |              |           |            |
| <u>DIVISION 07-THERMAL &amp; MOISTURE PROTECTION</u> |              |           |            |
|  |              |           |            |
| <u>DIVISION 08-DOORS AND WINDOWS</u>                 |              |           |            |
| DOORS  |              |           |            |
| INTERIOR DOORS                                       | 6 EACH       | 875.00    | 5,250      |
| OVERHEAD DOORS                                       | 8 EACH       | 2,500.00  | 20,000     |
| TOTAL DIVISION 08-DOORS AND WINDOWS                  |              |           |            |
|  |              |           |            |
| <u>DIVISION 09-FINISHES</u>                          |              |           |            |
| WALLS  | 12,000 SQ FT | 0.50      | 6,000      |
| FLOORS   | 12,000 SQ FT | 0.43      | 5,160      |
| CEILINGS   | 12,000 SQ FT | 0.85      | 10,200     |
| TOTAL DIVISION 09-FINISHES                           |              |           |            |
|  |              |           |            |
| <u>DIVISION 10-SPECIALTIES</u>                       |              |           |            |
| MISC SPECIALTIES, ALLOWANCE                          | 12,000 SQ FT | 0.35      | 4,200      |

|   |              |         |           |
|---|--------------|---------|-----------|
| <u>DIVISION 11-EQUIPMENT</u>            |              |         |           |
| <u>DIVISION 12-FURNISHINGS</u>          |              |         |           |
| <u>DIVISION 13-SPECIAL CONSTRUCTION</u> |              |         |           |
| <u>DIVISION 14-CONVEYING SYSTEMS</u>    |              |         |           |
| <u>DIVISION 15-MECHANICAL</u>           |              |         |           |
| SELECTIVE DEMOLITION                    | 12,000 SQ FT | 0.35    | 4,200     |
| PLUMBING                                | 12,000 SQ FT | 2.75    | 33,000    |
| HVAC                                    | 12,000 SQ FT | 18.75   | 225,000   |
| TOTAL DIVISION 15-MECHANICAL            |              |         | 262,200   |
| <u>DIVISION 16-ELECTRICAL</u>           |              |         |           |
| SELECTIVE DEMOLITION                    | 12,000 SQ FT | 0.25    | 3,000     |
| POWER DISTRIBUTION                      | 12,000 SQ FT | 5.45    | 65,400    |
| LIGHTING SYSTEMS                        | 12,000 SQ FT | 3.85    | 46,200    |
| SPECIAL SYSTEMS                         | 12,000 SQ FT | 1.00    | 12,000    |
| TOTAL DIVISION 16-ELECTRICAL            |              |         | 126,600   |
| SUBTOTAL                                |              |         | 542,300   |
| GENERAL CONTRACTOR MARKUPS              | 15 %         |         | 81,345    |
| DESIGN CONTINGENCY                      | 15 %         |         | 81,345    |
| TOTAL ESTIMATED CONSTRUCTION COST       | 12,000 GSF   | \$58.75 | \$704,990 |

|  |                        |        |
|--|------------------------|--------|
| <b>CAMPUS DESIGN &amp; CONSTRUCTION PROJECT BUDGET</b> |                        |        |
| PROJECT TITLE.....                                     | HORSE CANYON MINE      |        |
| SHOP TOTAL COST  | BUILDING RENOVATIONS - |        |
| PROJECT NUMBER.....                                    | BUILDING #4            |        |
| PROJECT MANAGER.....                                   | JOHN HUIISH            |        |
| STAGE OF ESTIMATE.....                                 | ORDER OF MAGNITUDE     |        |
| DATE.....  | 04-Jun-03              |        |
| ITEM   |                        | TOTALS |
| Preliminary Costs                                      |                        |        |
| Programming  |                        | \$0    |
| Testing/Inspection                                     |                        | \$0    |

|  |                   |                |                  |
|--|-------------------|----------------|------------------|
| Geotech (Soils Report)                 |                   |                | 0                |
| Total Preliminary Costs                |                   |                | 0                |
| <b>Construction Costs</b>              |                   |                |                  |
| Base Cost                              |                   |                | 704,990          |
| Site Improvements                      |                   |                | 0                |
| Utility Relocations                    |                   |                | 0                |
| Total Construction Cost                | 12,000 GSF        | \$58.75        | 704,990          |
| <b>Fees</b>                            |                   |                |                  |
| Architectural & Engineering Fee        | 9.55%             |                | 67,327           |
| Furnishings & Equipment                | 6 %               |                | \$0              |
| Total Fees                             |                   |                | 67,327           |
| <b>Furnishings &amp; Equipment</b>     |                   |                |                  |
| Furnishings & Equipment                |                   |                | 0                |
| Moving/Occupancy Cost                  |                   |                | 0                |
| Total Furnishings & Equipment          |                   |                | 0                |
| <b>Other Costs</b>                     |                   |                |                  |
| Utility Shutdowns & Campus Work Orders |                   |                | 0                |
| Lock Cylinders (\$60/Door)             |                   |                | 1,020            |
| Signage                                |                   |                | 0                |
| Telecommunications (\$240/Outlet)      |                   |                | 4,320            |
| Hazardous Materials                    |                   |                | 0                |
| Total Other Costs                      |                   |                | 5,340            |
| <b>Construction Contingency</b>        |                   |                |                  |
| Construction Contingency               | 15 %              |                | 105,749          |
| Total Construction Contingency         |                   |                | \$111,089        |
| <b>TOTAL PROJECT COSTS</b>             | <b>12,000 GSF</b> | <b>\$74.06</b> | <b>\$888,745</b> |

#### 4.1.5 Site Work

Site work will consist of basic site improvements including fencing, signage, clearing and grubbing, replacement of asphalt or groundcover, road improvement, and lighting.

| CSI#                                      | DESCRIPTION OF WORK               | QUANTITY   | UNIT COST   | TOTAL COST |
|---|-----------------------------------|------------|-------------|------------|
| <b>DIVISION 02-SITE CONSTRUCTION COST</b> |                                   |            |             |            |
| SITE IMPROVEMENTS                         |                                   |            |             |            |
|   | MISC LANDSCAPING & IRRIGATION     | 1 SUM      | \$25,000.00 | \$25,000   |
|   | MISC SITE IMPROVEMENTS            | 1 SUM      | 15,000.00   | 15,000     |
|   | TOTAL SITE IMPROVEMENTS           |            |             | 40,000     |
| UTILITIES                                 |                                   |            |             |            |
|   | WATER LINES                       | 300 LIN FT | 13.33       | 4,000      |
|   | SEWER LINES                       | 300 LIN FT | 26.67       | 8,000      |
|   | POWER LINES, OVERHEAD             | 300 LIN FT | 25.00       | 7,500      |
|   | TELEPHONE LINES, OVERHEAD         | 300 LIN FT | 5.33        | 1,600      |
|   | MISC SITE UTILITIES               | 1 SUM      | 5,000.00    | 5,000      |
|   | TOTAL SITE UTILITIES              |            |             | 26,100     |
|   | SUBTOTAL                          |            |             | 66,100     |
|   | GENERAL CONTRACTOR MARKUPS        | 15.00%     |             | 9,915      |
|   | DESIGN CONTINGENCY                | 15.00%     |             | 9,915      |
|   | TOTAL ESTIMATED CONSTRUCTION COST |            |             | \$85,930   |

| ITEM                            | SITE TOTAL COST | TOTALS |
|---------------------------------|-----------------|--------|
| Preliminary Costs               |                 |        |
| Programming                     |                 | \$0    |
| Testing/Inspection              |                 | 0      |
| Geotech (Soils Report)          |                 | 0      |
| Total Preliminary Costs         |                 | 0      |
| Construction Costs              |                 |        |
| Base Cost                       |                 | 0      |
| Site Improvements               |                 | 85,930 |
| Utility Relocations             |                 | 0      |
| Total Construction Cost         |                 | 85,930 |
| Fees                            |                 |        |
| Architectural & Engineering Fee | 9.55%           | 8,206  |
| Furnishings & Equipment         |                 | 0      |
| Total Fees                      |                 | 8,206  |

|  |                  |                |                  |
|--|------------------|----------------|------------------|
| <b>Furnishings &amp; Equipment</b>       |                  |                |                  |
| Furnishings & Equipment                  |                  |                | \$0              |
| Moving/Occupancy Cost                    |                  |                | 0                |
| <b>Total Furnishings &amp; Equipment</b> |                  |                | <b>0</b>         |
| <b>Other Costs</b>                       |                  |                |                  |
| Utility Shutdowns & Campus Work Orders   |                  |                | 0                |
| Lock Cylinders (\$60/Door)               |                  |                | 0                |
| Signage                                  |                  |                | 0                |
| Telecommunications (\$240/Outlet)        |                  |                | 0                |
| Hazardous Materials                      |                  |                | 0                |
| <b>Total Other Costs</b>                 |                  |                | <b>0</b>         |
| <b>Construction Contingency</b>          |                  |                |                  |
| Construction Contingency                 | 15 %             |                | 12,890           |
| <b>Total Construction Contingency</b>    |                  |                | <b>12,890</b>    |
| <b>TOTAL PROJECT COSTS</b>               | <b>3,500 GSF</b> | <b>\$30.58</b> | <b>\$107,026</b> |

## 4.2 College of Eastern Utah Report

The College of Eastern Utah (CEU) prepared the following report and cost estimate to reflect a realistic approach to develop the programs it envisions for the site. The principal investigator for this study was Dr. George Uhlig, a professor of chemistry at CEU. This report addresses the following items:

- Structures including mine portals, shot and cap magazines, and buildings.
- Electrical
- Telephone
- Potable Water
- Sewage
- Security
- Fire Protection
- Recreational trails and roads
- Financials for immediate needs

The assessment addresses the present state of the facilities as well as estimates to bring these facilities up to code. Cost estimates will be given in current dollars with both a high and low value. Costs will also be included to make this area on the forefront of ecological development from a facilities standpoint. Total cost estimates range from \$810K (low) to \$1,211K (high) including an infrastructure upgrade.

## 4.2.1 Buildings

There are at present four buildings, consisting of the mine office, the bathhouse, the warehouse, and the shop building. Each of these buildings will be addressed individually. All are of double-brick construction with good insulating properties, except the high-bay area in the shop building. Temperatures inside are in the low 70s when the outside temperature is in the mid 90s, thus lowering the need for air conditioning tonnage to a manageable level.

### 4.2.1.1 Office Building

This building shows the most potential to be brought up to code in the fastest possible manner. It can serve as a office/classrooms/living area for security personnel. The roof in the northwest room needs to be fixed. About 40 square feet of roofing material will be needed. Heating of this building, which is about 7000 square feet, will be divided into four zones, each with a 100-KBTU furnace, and four tons of air conditioning. This will facilitate the construction of two 1200-square-foot apartments to be built for two to four caretakers, possibly students, who will act as security guards for the overall facility. It will also give separate heating and cooling systems to classrooms on either side of the existing hall down the middle of the building. Bathroom fixtures are in excellent shape in this building and can simply be cleaned up. Existing galvanized pipe will be replaced with copper potable water lines. Plumbing costs are estimated based on keeping the present cast iron drain lines, which look in good shape, or replacing the entire sewage system with ABS plastic. It also includes making one of the common toilets ADA-compliant. One set of washer/dryers, two dishwashers, two refrigerators, and two stoves are included in the cost estimate for the two apartments. The caretakers who act as security guards could furnish their own furniture, or a thrift shop could be used to obtain apartment furnishings. Existing conduit for electrical circuits could be used, but new wire, some light fixtures, new duplex receptacles and switches, along with new breaker panels, will be necessary. Some wall relocation, along with a drop ceiling in all areas, will also be included in the cost estimate. Steam tunnels would be used for heating ducts; air conditioning ducts will be installed between the present ceiling and the new drop ceiling. All new windows will be needed to replace those vandalized, and a fire sprinkler system installed throughout the building.

The exterior of this building is in excellent shape and needs only new fascia boards and new gutters. No settling has been noted and no tuck pointing appears necessary.

### 4.2.1.2 Bathhouse

This building is located to the northeast of the office building. This building could serve as the community center of the facility. As such, it should be considered as the second building to be renovated and brought up to code. Old conduit is in good shape and needs new wire along with the respective breaker boxes. New toilet facilities are needed to segregate the men's and women's showers/facilities. Modesty panels will be needed between showers to give each person a sense of privacy. This will mean installing a new

five-toilet area with ten showers for either gender. A sixth toilet and a private shower facility will be designed and constructed to meet ADA requirements. The main room will be equipped with two basketball hoops (portable to start with) along with eyebolts in the walls for a volleyball net. Rooms in the southeast wing will be devoted to a towel room, locker room and, so forth, and two of the rooms will be partitioned to meet men's and women's needs. The other large room is where the miners stored their personal belongings by placing them in a basket and hanging them from the top of the room. This room could conceivably become a game room for playing board games, card games, and so forth. Rooms will be heated, as in the case of the mine office building (four systems, with two being used for the basketball room), and extensive re-plumbing will be necessary. Four electrical panels will be scheduled for this area. Some roof damage exists, about 144 square feet.

The outside of this building needs all new windows, with glass-brick windows in the shower area (P-4). New steel outer doors equipped with the ASSA locking system need to be installed. A fire sprinkler system should be installed as well.

**NOTE:** Once construction is begun on this facility, the infrastructure needs to be expanded. It is at this point that a three-phase line will be brought in from the existing 46-KVA line between the Columbia and Green River substations, and a larger reverse-osmosis water purification system will need to be installed, along with a 1000-gallon potable water tank for the reverse-osmosis system to feed into. If money were available, installation of a self-composting septic system could also be installed to make sewage disposal ecologically feasible.

#### **4.2.1.3 Warehouse Building**

This building can become the area where dinosaur bones are stored from various digs throughout the area. Extensive storage shelves exist in this building and should remain in place. The old shipping and fire doors between rooms can be left in place. Existing conduit is to be used to rewire the facility. Similar HVAC (heating, ventilation and air conditioning) as described above for the other buildings will be needed, with the old steam heaters in the ceiling being removed. Four furnaces can be used to zone heat/cool the rooms of the facility. This facility can be winterized during the winter months by shutting off the heat and water. In the southwest room of this building, about 144 square feet of roof needs replacing. Two toilets need to be renovated, but the fixtures are in excellent shape and have not been vandalized. One of these toilets should be dedicated for compliance with ADA requirements. A fire sprinkler system also needs to be installed. Windows need replacing as well and can be aluminum-framed thermopane.

This building is the only building that needs tuck pointing. This would be necessary only on the southeast corner. Additionally, the loading platform needs extensive concrete work, and a ramp should be placed at both ends for those who use wheelchairs. Steel double doors should replace three out of six warehouse loading doors on the southeast side.

#### **4.2.1.4 Shop Building**

The old grease pits will be filled by the deeding agency. All other parts of this facility can remain as they are. Conduit will be reused for wiring. New garage door openers need to be installed on the four main doors. Window glass needs replacing, but for the most part, the window sashes are fine. Gas-fired heaters will be used in the high-bay area to heat the facility for people researching and working with dinosaur bones collected in the area. A rapid-intervention vehicle for fighting grass fires could be stored in this area, as well as snow equipment and snow recreational equipment. This building will also eventually house reverse-osmosis water purification for the entire facility, with the mine being the source for raw water. No air conditioning is planned for this facility except for the office areas. This will necessitate one four-ton air-conditioning unit and one 100 KBTU furnace.

#### **4.2.1.5 Pump House**

The pump is still in place over the spring located on the northwest side of the road. The spring needs to be tested and the water treated if necessary. The spring is rumored to have a flow of 8 to 10 gallons/min. The house can be left as it is, water can be stored in an underground 500-gallon fiberglass tank, and water can be treated as it is used in the mine office building. A new water line needs to be run from this pump house to the old mine office building. If, for some reason, this well is dry, Redden Spring is available for use, as is the water in the mine.

#### **4.2.1.6 Cap and Powder Houses**

These buildings are presently scheduled for demolition; however, it is recommended that they be kept intact. The cap house (the smaller of the two houses) can be used to house the diesel-powered motor generator set along with the fuel tank. A pre-stressed concrete roof can replace the present board roof and would be removable should the need arise to replace the motor generator set. The powder house can be used to store mountain bikes for three planned mountain bike trails. The building will require that a pre-stressed roof be added.

#### **4.2.1.7 Mine Portals**

These are currently scheduled for demolition; however, it is recommended that they be retained. The College of Eastern Utah offers a mine rescue course. It would be realistic training for mine rescue teams to fill this portal with smoke from an artificial source, about 300 feet from the portal. This would require a variance from MSHA and it would enable training in the mine. Additionally, the main portal and the access door would have to be kept in place to tap into the mine water for a good supply of potable water for the reverse-osmosis system eventually envisioned for this site (see the area under potable water for how this would be accomplished).

## **4.2.2 Electrical**

### **4.2.2.1 Existing Power Lines:**

There is a three-phase, 46-KVA line running a mile from this facility, between the Columbia, UT, substation and a substation just north of Green River. However, Utah Power and Light (UP&L) does not recognize the existence of this line and instead is cognizant only of a single-phase, 240-volt line running up to a cell phone tower owned by Verizon. The cost of new construction for a three-phase, 240-volt line with requisite transformers at the Horse Canyon end of the line is \$80K/mile, with seven miles needed.

### **4.2.2.2 Meeting Future Power Needs:**

A diesel-powered motor generator of 100-KVA should be installed in the cap house to eventually meet the emergency electrical needs of the entire facility. Initially, just meeting the power needs of the mine office building will be necessary. Students in the College of Eastern Utah heavy equipment program could do trenching for the conduit. Installation of the wire could be done by a master electrician and journeyman electrician on the faculty. The feed would enter the facility through the shop building and enter the utility tunnel at this point leading to the main mine building. It would then go from a main breaker box housing four 22-amp main breakers to the four 22-amp switch panels. This would insure sufficient breakers for future use; each breaker box would have room for 42 single circuits.

Once the bathhouse comes on line, a substation would be constructed to meet the power requirements of the entire facility. It is anticipated that by this time, the mine in Lila Canyon will have opened, and CEU can cost-share the expense of the three-phase line construction. The motor generator will be used for emergencies only at this point. The presence of this motor generator may give CEU an "edge" in negotiating power rates with UP&L. The cost per ton of Lila Point coal is low (about \$17/ton) due to a high sulfur content. The coal market is "soft" for Utah coal of this quality, and hence the mine may not open for several more years, until a better economic climate is reached. When the mine might open is unclear.

## **4.2.3 Telephone and Internet Connections**

### **4.2.3.1 Present Situation:**

The old telephone cable is in place, but it needs to be located. Emery Telephone indicates that the old cable may not be useable due to water having penetrated the insulation of the cable.

### **4.2.3.2 Overcoming the Present Situation:**

It is proposed that cell phones would be used at the opening of the old mine office for Internet, fax and voice. By the time the bathhouse facility opens, the telephone line for

the new mine at Lila Point may be in place. If the Lila Point Mine never opens, cell phones will remain a viable option. Satellite connections for both telephone and Internet will be investigated as an alternative.

#### **4.2.4 Potable Water**

##### ***4.2.4.1 Present Situation:***

There is no potable water in the facility. All water supply lines are dry. When Horse Canyon Mine was running, potable water was hauled to the facility. Water for flushing of toilets, and so forth, was pumped from the spring to the northwest of the road. Water was also stored in a 500,000-gallon water tank, which is dry at the present. Two springs, however, are located on the property and can be tapped for water if treated. The Redden Spring, located off the road to Lila Point, will be shared with the Lila Canyon Mine when it opens, until water in the mine is found. The output of this spring will then be turned over to CEU. There is also a spring to the northwest of the road where the present pump house is located. Both springs flow at about 8 to 10 gallons/min.

##### ***4.2.4.2 Immediate Needs:***

The output from the present well to the northwest of the road could furnish all water needs for the mine office. This would necessitate running a 1.5-inch plastic line underground from the pump house to an underground 500-gallon fiberglass tank, then through a water treatment plant furnished by Culligan and into an 85-gallon bladder tank. This would furnish more than enough potable water for cooking, dish washing, showering and drinking by caretakers and permanent staff. A second system would be used for the flushing of toilets with water from the spring that has had its pH lowered, been softened, and had a sediment filter installed.

##### ***4.2.4.3 Future Supply:***

Water from the mine would supply the water for firefighting needs and for potable water. This would mean going into the old mine workings until water is found and tapping into this supply. A variance from MSHA would be necessary, but if the mine tunnel is used for mine rescue classes. The Culligan system would be enlarged to furnish water to all buildings using the output of the mine water. Mine water could also be piped up to the 500,000-gallon water tank for the purposes of firefighting and charging the sprinkler lines, should that need arise.

#### **4.2.5 Sewage**

##### ***4.2.5.1 Present Situation:***

The original facility had a 50,000-gallon holding tank for sewage located southwest of the mine office. This tank has been removed during reclamation and the sewage lines were terminated somewhere near the location of this tank.

#### **4.2.5.2 Immediate Needs:**

A septic system consisting of a holding tank and a leach field may have to be installed. This would serve the entire facility once it is in place. There is a ravine running to the southwest of the buildings that could be used for the leach field. Included in the cost estimates for the septic system would be the percolation tests needed to support the size of the leach field.

#### **4.2.5.3 Future Needs:**

This site would be supported as a model for future ecological and environmental uses and studies. As part of this, a self-composting waste treatment facility similar to the ones used by the Colorado Department of Transportation in Glenwood Canyon along Interstate 70 could eventually be installed. These toilet facilities, while expensive initially, are self-composting, with the compost being used to support the vegetation surrounding the facilities.

### **4.2.6 Security Issues**

#### **4.2.6.1 Present Situation:**

A chain link fence is presently used to secure the four buildings. The powder and cap magazines are not secured; nor is the pump house. The mine openings are sealed about 30 to 50 feet back in the tunnel with dirt being compacted from the barrier to the front of the portals. (Two portals are sealed in this fashion. One portal to the northwest was sealed by dumping large rocks over it.) Vandalism has occurred just in the past few weeks, with all the glass brick being shot out of the bathhouse and most of the windows and doors being broken, including glass and sashes. In short, presently there is no security, and in one building, evidence of an attempt to start a fire using coal and charcoal fluid was found.

#### **4.2.6.2 Immediate Needs:**

A locked gate should be placed immediately in front of the north end of the bridge. A sign should be erected indicating who to call for permission to enter the facility. Additionally, the area should be posted as a "No Hunting" area to try to preserve what is left. Barbed wire should be placed over the existing chain link fence to keep people from entering the facility by climbing over the fence. The existing gates should be strengthened, as well. The rancher who uses this road should be given the key to the lock to allow access. Permanent caretakers on this facility could be deputized to make arrest, if need be. While the office building is being remodeled, vandalism is unlikely. After the new facility is completed, a permanent security surveillance will be necessary.

#### **4.2.6.3 Future Needs:**

Caretakers would be selected to be in charge of this facility, deputized and armed if necessary, to keep people off the property. Hunting groups would be allowed to traverse the property to get to their hunting locations off CEU or state property. The resident caretakers would call the Emery Sheriff's Department to address violations.

#### **4.2.7 Fire Protection**

##### **4.2.7.1 Present Situation:**

Old fire hydrants exist in the area of the four buildings, but they are not hooked up or functional.

##### **4.2.7.2 Immediate Needs:**

The BLM or Forest Service could be invited to keep a rapid-intervention vehicle in the shop building in case of grass fires in this area. The mine office building would have a sprinkler system installed when completed. The valve on the 500,000--gallon water tank would be closed so the tank would fill, and a four-inch line would run from this tank to the building locations as the water source for fire protection water. A sprinkler system should be installed in the mine office building. The pumps for that system could be located in the mine shop area or in the utility tunnels of the mine office building.

##### **4.2.7.3 Future Needs:**

The 500,000-gallon tank could be filled with mine water to feed the sprinkler systems if needed. All buildings should be equipped with sprinkler systems for fire suppression. If money permits, a rapid-intervention fire truck with a 500-gallon water tank should be purchased to extinguish possible grass fires in the canyon.

#### **4.2.8 Recreational Roads and Trails**

##### **4.2.8.1 Present Situation:**

The main road from Columbia to Horse Canyon belongs to Emery County, as does the bridge over the creek at Horse Canyon. This road is in excellent condition. The road coming in from US 6/191 would need resurfacing in the near future. Roads and trails on the property are graded and fairly smooth for a passenger vehicle, though some roads eventually disintegrate into four-wheel-drive roads. There is the possibility of creating three mountain-biking trails in this area off the main road.

**4.2.8.2 Present Needs:**

The roads into and on the property are in good condition.

**4.2.9 Financial Data for Immediate Needs**

The financial estimates are found in the spreadsheets below. All infrastructure needs should be funded, as well as the renovation of the mine office building. The mine office building renovation would provide accommodations for the facility caretakers. The infrastructure items are necessary even if portable office units are used. The costs are estimates, and actual costs may exceed those listed by as much as a factor of two. The low-cost estimates assume work being done by volunteers or the faculty and staff of the College of Eastern Utah.

**4.2.9.1 Infrastructure**

| <b>I. Infrastructure Needs</b>  |                 |                 |
|---|-----------------|-----------------|
|   | <b>Low</b>      | <b>High</b>     |
|   | <b>Cost</b>     | <b>Cost</b>     |
|   | <b>\$1,000s</b> | <b>\$1,000s</b> |
| <b>Sewage Disposal</b>  |                 |                 |
| Septic System- 5000-gal holding tank, percolation studies, leach field installation; suitable for 100 people; 6-inch ABS drain line installed to utility tunnel in old mine office building | 7.5             | 10              |
| <b>Total</b>  | <b>7.5</b>      | <b>10</b>       |
| <b>Potable Water Source: 70 - 100 gal/day</b>   |                 |                 |
| Twin tower water softener   | 1.8             | 2               |
| Injection pump  | 0.5             | 0.5             |
| Residential reverse-osmosis system  | 0.75            | 1               |
| 500-gal holding tank  | 0.4             | 0.6             |
| 85-gal bladder tank   | 0.8             | 1               |
| <b>Total</b>  | <b>4.25</b>     | <b>5.1</b>      |
| <b>Gray-water treatment for flushing toilets</b>  |                 |                 |
| Refurbish pump house and well   | 5               | 7.5             |
| Run 1-1/2 inch ABS line buried from pump house to old mine office   | 1               | 2               |
| 500-gal holding tank  | 0.4             | 0.6             |
| 100-gal bladder tank  | 1               | 1.5             |
| Sedimentation filter  | 0.9             | 1.2             |
| <b>Total</b>  | <b>8.3</b>      | <b>12.8</b>     |
| <b>Electrical Power</b>   |                 |                 |
| Motor generator; turn-key 100KW   | 25              | 35              |
| *optional run 1-mile, 3-phase line  | 80              | 90              |
| Run conduit to main office building   | 1.5             | 3               |
| Pre-cast roofs for cap and powder building  | 5               | 10              |
| 2000-gal diesel fuel tank   | 5               | 7.5             |
| Fuel costs/yr   | 3               | 8               |
| <b>Total</b>  | <b>36.5</b>     | <b>65.5</b>     |
| <b>Telephone (4 options)</b>  |                 |                 |
| Fiber optic cable   | 250             | 260             |

|  |                             |                           |
|--|-----------------------------|---------------------------|
| Buried copper wire-50 pair                 | 250                         | 260                       |
| Radio-24 dial tones                        | 65                          | 70                        |
| Cell phones-8 phones/yr charge             | 5                           | 8                         |
| <b>Security</b>                            |                             |                           |
| Gate at road                               | 1.5                         | 2                         |
| Barbed Wire on top of fence, fence repairs | 10                          | 15                        |
|  | <b>Total</b>                | <b>11.5 17</b>            |
|  | <b>Total Infrastructure</b> | <b>\$68,050 \$118,400</b> |

#### 4.2.9.2 Office Building (Building # 1)

| <b>II. OFFICE BUILDING</b>  |              |                      |
|---|--------------|----------------------|
|   | \$1,000s     | \$1,000s             |
| <b>Plumbing</b>   |              |                      |
| Use existing cast iron drain pipe/replace with ABS                    | 0            | 10                   |
| Replace galvanized steel pipe with copper-potable                     | 8            | 10                   |
| Gray-water lines for toilet flushing                                  | 4            | 6                    |
| Two -ADA-compliant toilets  | 2            | 4                    |
| Two restrooms, one/gender. 4 stools/4 urinals men's; 6 stools women's | 7.5          | 12                   |
|   | <b>Total</b> | <b>21.5 42</b>       |
| <b>Electrical</b>   |              |                      |
| Replace wire using existing conduit                                   | 15           | 20                   |
| Duplex receptacles, switches, misc. parts                             | 1            | 1.25                 |
| Four breaker boxes, 225-amp, 42 breakers                              | 0.5          | 0.75                 |
| Main breaker for facility   | 0.75         | 1.5                  |
|   | <b>Total</b> | <b>17.25 23.5</b>    |
| <b>Roofing</b>  |              |                      |
| Fix roof  | 1            | 2                    |
| Gutters, fascia boards  | 1.5          | 2.5                  |
|   | <b>Total</b> | <b>2.5 4.5</b>       |
| <b>Heating</b>  |              |                      |
| 1000-gal propane tank, annual rent                                    | 0.005        | 0.005                |
| Filling once a year   | 0.8          | 1                    |
| Furnaces, AC, sheet metal   | 25           | 35                   |
|   | <b>Total</b> | <b>25.805 36.005</b> |
| <b>Interior modifications</b>   |              |                      |
| Two 1200-square-foot apartments                                       | 40           | 50                   |
| New windows   | 10           | 15                   |
| New steel doors   | 4            | 6                    |
| Appliances for apartments   | 6            | 7                    |
| Drop ceiling  | 7.5          | 10                   |
| Sprinkler system and fire protection                                  | 10           | 15                   |
| Paint   | 1            | 1.5                  |
| New light fixtures where necessary                                    | 3            | 5                    |
|   | <b>Total</b> | <b>81.5 109.5</b>    |
| <b>Exterior modifications</b>   |              |                      |

|   |   |   |
|---|---|---|
| Cement work                             | 1 | 2 |
| Clean-up                                | 1 | 2 |
| Total                                   | 2 | 4 |
| Total for building, \$150,555 \$219,505 |   |   |

#### 4.2.9.3 Bathhouse (Building # 2)

| III. Bathhouse                            |          |          |
|---|----------|----------|
|   | \$1,000s | \$1,000s |
| <b>Plumbing</b>                           |          |          |
| Two 15-stall shower areas                 | 10       | 20       |
| Six ADA-compliant toilets                 | 3        | 4        |
| Four restrooms, 2/gender                  | 15       | 25       |
| Gray-water plumbing                       | 2        | 3        |
| Use existing drain lines/replace with ABS | 0        | 10       |
| Two gas-fired 250-gal water heaters       | 6        | 10       |
| Total                                     | 36       | 72       |
| <b>Electrical</b>                         |          |          |
| Replace wiring using existing conduit     | 15       | 20       |
| Duplex receptacles, switches              | 1        | 1.5      |
| Four breaker boxes, 225-amp, 42 breakers  | 0.5      | 0.75     |
| Main breaker for facility                 | 1.5      | 2.5      |
| Total                                     | 18       | 24.75    |
| <b>Roofing</b>                            |          |          |
| Fix roof                                  | 1        | 2        |
| New gutters, fascia boards                | 1.5      | 2.5      |
| Total                                     | 2.5      | 4.5      |
| <b>Heating</b>                            |          |          |
| Four furnaces & AC, sheet metal           | 25       | 35       |
| Total                                     | 25       | 35       |
| <b>Interior modifications</b>             |          |          |
| Modify walls                              | 20       | 25       |
| Replace glass brick in shower room area   | 6        | 8        |
| Replace windows                           | 10       | 15       |
| New steel doors and frames; ASSA locks    | 4        | 6        |
| Sprinkler system for fire protection      | 10       | 15       |
| Paint                                     | 1        | 1.5      |
| Drop ceilings in office areas             | 5        | 8        |
| Total                                     | 56       | 78.5     |
| <b>Exterior Modifications</b>             |          |          |
| Cement work                               | 3        | 5        |
| Clean-up                                  | 1        | 2        |
| Total                                     | 4        | 7        |
| Total for building \$141,500 \$221,750    |          |          |

**4.2.9.4 Warehouse (Building # 3)**

| <b>IV. Warehouse</b>                     |                           |                 |                  |
|--|---------------------------|-----------------|------------------|
|  | \$1,000s                  | \$1,000s        |                  |
| <b>Plumbing</b>                          |                           |                 |                  |
| Four restrooms, two/gender               | 15                        | 25              |                  |
| Two ADA-compliant toilets, one/gender    | 1                         | 1.5             |                  |
| Gray-water plumbing                      | 2.5                       | 3               |                  |
| Use existing drain line/replace with ABS | 0                         | 10              |                  |
|  | <b>Total</b>              | <b>18.5</b>     | <b>39.5</b>      |
| <b>Electrical</b>                        |                           |                 |                  |
| Replace wiring using existing conduit    | 15                        | 20              |                  |
| Duplex receptacles, switches, misc       | 1.5                       | 2               |                  |
| Four breaker boxes, 225-amp, 42 breakers | 0.5                       | 1               |                  |
| Main breaker for the facility            | 1.5                       | 2.5             |                  |
|  | <b>Total</b>              | <b>18.5</b>     | <b>25.5</b>      |
| <b>Roofing</b>                           |                           |                 |                  |
| Fix roof                                 | 1                         | 2               |                  |
| New fascia                               | 1                         | 1.5             |                  |
| New gutters                              | 0.5                       | 1               |                  |
|  | <b>Total</b>              | <b>2.5</b>      | <b>4.5</b>       |
| <b>Heating</b>                           |                           |                 |                  |
| Two furnaces/AC                          | 10                        | 15              |                  |
| Ceiling heaters for high-bays            | 1.5                       | 2               |                  |
|  | <b>Total</b>              | <b>11.5</b>     | <b>17</b>        |
| <b>Interior modifications</b>            |                           |                 |                  |
| Modify walls                             | 10                        | 15              |                  |
| Replace windows                          | 2                         | 2.5             |                  |
| Steel doors and frames                   | 7.5                       | 10              |                  |
| Sprinkler system and fire detection      | 10                        | 15              |                  |
| Paint                                    | 1                         | 1.5             |                  |
| Drop ceilings in office areas            | 5                         | 8               |                  |
|  | <b>Total</b>              | <b>35.5</b>     | <b>52</b>        |
| <b>Exterior modifications</b>            |                           |                 |                  |
| Cement work                              | 10                        | 25              |                  |
| Clean-up                                 | 1                         | 2               |                  |
|  | <b>Total</b>              | <b>11</b>       | <b>27</b>        |
|  | <b>Total for building</b> | <b>\$97,500</b> | <b>\$165,500</b> |

**4.2.9.5 Shop Building (Building # 4)**

| <b>V. Shop Building</b>                        |          |          |  |
|--|----------|----------|--|
|  | \$1,000s | \$1,000s |  |
| <b>Plumbing</b>                                |          |          |  |
| 2 restrooms, one /gender                       | 5        | 7.5      |  |
| Two ADA-compliant toilets, one each/gender     | 1        | 1.5      |  |
| Gray-water plumbing                            | 1        | 1.5      |  |
| Use existing cast iron drains/replace with ABS | 0        | 5        |  |

|  |                    |          |           |
|--|--------------------|----------|-----------|
|  | Total              | 7        | 15.5      |
| <b>Electrical</b>                        |                    |          |           |
| Four breaker boxes, 225-amp, 42 breakers |                    | 0.5      | 1         |
| Replace wiring using existing conduit    |                    | 20       | 25        |
| Duplex receptacles, switches, misc       |                    | 2        | 2.5       |
| Main breaker for facility                |                    | 1.5      | 2.5       |
|  | Total              | 24       | 31        |
| <b>Roofing</b>                           |                    |          |           |
| Contingency                              |                    | 0        | 2         |
|  | Total              | 0        | 2         |
| <b>Heating</b>                           |                    |          |           |
| Seven high-bay gas heaters               |                    | 3.5      | 4         |
| One furnace/AC                           |                    | 5        | 7.5       |
|  | Total              | 8.5      | 11.5      |
| <b>Interior modifications</b>            |                    |          |           |
| Replace glass windows where needed       |                    | 2.5      | 3         |
| Four garage door openers                 |                    | 8        | 10        |
| Two new big-bay doors                    |                    | 5        | 7.5       |
| Modify walls                             |                    | 5        | 10        |
| Paint                                    |                    | 2        | 2.5       |
| Fire protection system                   |                    | 10       | 15        |
| Drop ceilings in office area             |                    | 7.5      | 10        |
|  | Total              | 40       | 58        |
| <b>Exterior modifications</b>            |                    |          |           |
| Concrete work                            |                    | 10       | 15        |
| Clean-up                                 |                    | 3        | 5         |
|  | Total              | 13       | 20        |
|  | Total for building | \$92,500 | \$138,000 |

#### 4.2.9.6 Mine Portals

| <b>VI. Mine Portals</b>              |          |                   |
|--------------------------------------|----------|-------------------|
|                                      | \$1,000s | \$1,000s          |
| <b>Permitting</b>                    |          |                   |
| Open the portals and breach the seal | 10       | 15                |
| New wall 300 feet back w/access door | 10       | 15                |
| Security gates on portals            | 2        | 3                 |
|                                      | Total    | \$20,000 \$33,000 |

|   |                  |                  |
|---|------------------|------------------|
| <b>Grand total for facility modifications, \$1,000s</b> | <b>\$570.105</b> | <b>\$896.155</b> |
|---|------------------|------------------|

#### 4.2.9.7 Infrastructure Up-grades

| <b>VII. Infrastructure Up-grades Made During Change House Upgrade</b> |   |                  |                  |
|---|---|------------------|------------------|
|   |   | \$1,000s         | \$1,000s         |
| <b>Potable Water</b>  |   |                  |                  |
| Reverse-osmosis plant-located in shop area                            |   | 150              | 200              |
| 1000-gallon water storage tank, fiberglass                            |   | 10               | 15               |
|   | <b>Total</b>                              | <b>160</b>       | <b>215</b>       |
| <b>Electrical Power</b>   |   |                  |                  |
| Run one mile of new construction from existing 46-KVA line            |   | 80               | 100              |
|   | <b>Total</b>                              | <b>80</b>        | <b>100</b>       |
|   | <b>Total for infrastructure up-grades</b> | <b>\$240,000</b> | <b>\$315,000</b> |
| Revision: 6-06-03   |   |                  |                  |

|  |                  |                    |
|--|------------------|--------------------|
| <b>Grand Total for all costs associated with this campus</b> | <b>\$810,110</b> | <b>\$1,211,160</b> |
|--|------------------|--------------------|

### 4.3 Architect's Report

The architecture firm retained for this project was:

A.K. Smith, A.I.A.  
 Architecture, Planning, & Interiors  
 3194 South 1100 East, Suite102  
 Salt Lake City, Utah, 86106

The firm was asked to perform the following tasks:

- Document the buildings as they are
- Prepare as-is drawings and elevations of the buildings
- Outline work needed to bring these structures to usable condition
- Prepare a concept drawing of the developed facility, including modular buildings
- Suggest possible options for adaptability to future uses.

#### 4.3.1 Architect's Overview

Horse Canyon and the four existing buildings offer a unique opportunity for development. The location has great potential to explore many academic as well as recreational opportunities. The biological interest, geological formations, paleontological digs and archeological sites are obvious possibilities, along with the proximity to hunting and fishing. This site is located less than 35 miles from Price, Utah.

#### 4.3.2 Existing Buildings

In general, the buildings are in good condition. Three building are made entirely of masonry with wood trim, wood windows, and composite shingle roofs over wood and steel roof structures. The shop building is a combination of masonry walls at the office

areas and metal sheathing in the shop repair area. The masonry in general is in good condition, and there is only minimal cracking in any of the foundations. The structural steel is in very good condition, was painted and well maintained during the mining operations and has held up well since the operation closed. Three buildings have composition shingle roofing, while the shop has a galvanized, corrugated metal roof over the shop repair area and composite shingles over the masonry portion of the building and the lower office area. The shingles are applied over plywood with 1x8 wood fascia boards. The fascia boards on all four buildings are in fair to poor condition. They have not been painted in many years and the elements have taken their toll. The walls exposed to sunlight on the south and west sides are the most damaged. The Building Elevation sheets show these areas. From a visible check, there is some water getting into three of the buildings through the roofs due to missing shingles and roofing paper. Because of the low rainfall in this climate, the damage is limited but is continuing.

Typically, windows are the most urgently in need of replacement and repair. Target shooters have damaged most beyond repair, and the resulting infiltration of the elements into the buildings is an ongoing problem. Approximately 80% of the windows in the complex have been destroyed. Of those damaged, a majority have been covered with plywood and secured. The plywood does seal the buildings, but it is not waterproof, and some infiltration of water, wind and dirt is apparent.

Three buildings have toilet and shower/bath facilities. Most of these bathrooms would not meet current Plumbing Codes and none of them would meet ADA Codes. Most of the fixtures are dated and virtually everything would need to be replaced. Piping for the water lines is now galvanized pipe, and the drain lines are cast iron. Due to age and conditions, all of the piping would need to be replaced.

Heating and ventilating may be the most challenging situation. Natural gas is not available at the site, and propane was used in the past but has been removed. New supply tanks, lines and heating equipment will need to be installed. The office building is the most spatially divided of all the buildings and has some ducting in the attic and under floors. All of this is dated and would need to be replaced. Space heaters appear to have been the major heating sources in the other buildings, and designing a similar system with modern units would be the best approach.

Water is not available and would need to be trucked in.

There is no apparent sewer system or drain field. Trucking waste out would initially be the most effective system. In the long run, however, a sewer and drain field would seem to be the most efficient.

### **4.3.3 Office Building**

The office building has a wood roof structure that appears in good condition. As mentioned above, roofing materials have been damaged, allowing water to enter into the roof system, which has caused further damage to dropped ceilings, lighting and gypsum

board on walls. The ceiling and lighting fixture will need to be replaced. There are two small toilet/shower/sink baths and one larger toilet room with toilet stalls, urinals, and sinks. All fixtures, drains and supply lines need to be replaced. The heating system is in poor condition and needs to be replaced as well. There are 35 window, 33 at approximately 5'6"x 3'7" and two at 3'9" x 3'0". The majority are covered with plywood but damaged beyond repair. (See sheets A-2.1 and A-3.1)

#### **4.3.4 Warehouse Building**

The warehouse building has a steel roof structure, wood sheathing with asphalt shingles. There is some damage to the shingles and sheathing along the southwest corner, allowing water to enter into the roof system, thus causing minor damage. The ceiling is completely open. The west bay is separated from the other three bays with a solid masonry wall. Masonry walls with large doorways divide the remaining bays. All floors are concrete slab on grade. There are no offices, rooms, or toilets in this building. Along the exterior walls there are (30) 6'3" x 6'0" windows, mostly boarded up and damaged beyond repair. (See sheets A-2.2 and A-3.2)

#### **4.3.5 Bathhouse**

The bathhouse has steel roof trusses, wood sheathing and asphalt shingles. There is some damage on the southwest corner of the roof. Water is damaging some of the walls and ceilings below. Spatially, there is one large central dressing/storage area 40 feet wide x 103 feet long, with pitched ceilings up to 30 feet tall. Along the north side there is a 20-foot bay with 15 open showers stalls and two toilet rooms with three toilets, two urinals and two sinks. Along the south there is another 20-foot bay divided into offices with dropped ceilings over most of the area. There is also a 4-spout shower with a toilet and sink in this area. All the walls are gypsum board over wood frame. The windows are large. There are (13) 4'9"x 9'8", (7) 5'6"x 7'0", (19) 4'0" x 2'0" glass block inserts and several smaller windows, all of which are in total disrepair. (See sheets A-2.3 and A-3.3)

#### **4.3.6 Shop Building**

This is the largest and most open of the spaces. The roof structure is steel trusses. The west portion is the repair area with a tin roof and tin walls with some translucent panels to allow light. Along the southwest end are four large roll-up doors. The east end of the building is open on the north 50 feet, with masonry walls and asphalt shingle roofing. There are large windows along these 24-foot-high walls. Along the southeast there is a lower office area and one small toilet room. The roofs are in good condition and no water appears to be getting in. The windows are severely damaged and, although most of them are covered, there is a great deal of exposure and infiltration of the elements through several broken windows and broken and open doors. (See sheets A-2.4 and A-3.4)

The Architects prepared a cost breakdown of the buildings based on their best estimates and comparisons with recent projects. To make this information as comparative as

possible, the cost table was formatted to match with the cost estimates prepared by the University of Utah.

#### 4.3.7 Cost Estimate

This cost estimate is presented using the template of the College of Eastern Utah (CEU) low and high estimates, for comparative purposes. Mine portals were included in the estimate; however, UtahAmerican has agreed to close the portals in accordance with DOGM requirements.

| I. Infrastructure Needs  | CEU                  | CEU                  | Architect<br>Est. |
|--|----------------------|----------------------|-------------------|
|  | Estimate<br>\$1,000s | Estimate<br>\$1,000s |                   |
| Sewage Disposal  |                      |                      |                   |
| Septic System- 5000-gal holding tank, percolation studies, leach field installation; suitable for 100 people; ABS drain line installed to utility tunnel in old mine office building | Low<br>7.5           | High<br>10           | AKS               |
| Total  | 7.5                  | 10                   |                   |
| Potable water source: 70 - 100 gal/day   |                      |                      |                   |
| Twin tower water softener  | 1.8                  | 2                    |                   |
| Injection pump   | 0.5                  | 0.5                  |                   |
| Residential reverse osmosis system   | 0.75                 | 1                    |                   |
| 500-gallon holding tank  | 0.4                  | 0.6                  |                   |
| 85-gallon bladder tank   | 0.8                  | 1                    |                   |
| Total  | 4.25                 | 5.1                  |                   |
| Gray-water treatment for flushing toilets  |                      |                      |                   |
| Refurbish pump house and well  | 5                    | 7.5                  |                   |
| Run 1-1/2 inch ABS line buried from pump house to old mine office  | 1                    | 2                    |                   |
| 500-gallon holding tank  | 0.4                  | 0.6                  |                   |
| 100-gallon bladder tank  | 1                    | 1.5                  |                   |
| Sedimentation filter   | 0.9                  | 1.2                  |                   |
| Total  | 8.3                  | 12.8                 |                   |
| Electrical Power   |                      |                      |                   |
| Motor generator set; turn key 100 KW   | 25                   | 35                   |                   |
| *Optional run one-mile 3-phase line  | 80                   | 90                   |                   |
| Run conduit to main office building  | 1.5                  | 3                    |                   |
| Pre-cast roofs for cap and powder building   | 5                    | 10                   |                   |
| 2000-gal diesel fuel tank  | 5                    | 7.5                  |                   |
| Fuel costs/yr  | 3                    | 8                    |                   |
| Total  | 36.5                 | 65.5                 |                   |
| Telephone (4 options)  |                      |                      |                   |
| Fiber optic cable  | 250                  | 260                  |                   |
| Buried copper wire-50 pair   | 250                  | 260                  |                   |
| Radio-24 dial tones  | 65                   | 70                   |                   |
| Cell phones-8 phones/yr charge   | 5                    | 8                    |                   |
| Security   |                      |                      |                   |
| Gate at road   | 1.5                  | 2                    |                   |
| Barbed wire on top of fence, fence repairs   | 10                   | 15                   |                   |
| Total  | 11.5                 | 17                   |                   |
| <b>Total Infrastructure</b>  | <b>\$68,050</b>      | <b>\$118,400</b>     | <b>\$118,000</b>  |

| <b>II. OFFICE BUILDING</b>                         |                  |                  |                  |
|--|------------------|------------------|------------------|
|  | \$1,000s         | \$1,000s         | \$1,000s         |
| <b>Plumbing</b>                                    |                  |                  |                  |
| Use existing cast iron drain pipe/replace with ABS | 0                | 10               | 13               |
| Replace galvanized steel pipe with copper-potable  | 8                | 10               | 11               |
| Gray-water lines for toilet flushing               | 4                | 6                | 7                |
| Two ADA-compliant toilets                          | 2                | 4                | 2.5              |
| Two restrooms, one/ gender                         | 7.5              | 12               | 14               |
| <b>Total</b>                                       | <b>21.5</b>      | <b>42</b>        | <b>47.5</b>      |
| <b>Electrical</b>                                  |                  |                  |                  |
| Replace wire using existing conduit                | 15               | 20               | 21               |
| Duplex receptacles, switches, misc. parts          | 1                | 1.25             | 1.5              |
| Breaker boxes 225 amps, 42 circuits                | 0.5              | 0.75             | 1.5              |
| Main breaker for facility                          | 0.75             | 1.5              | 2.5              |
| <b>Total</b>                                       | <b>17.25</b>     | <b>23.5</b>      | <b>26.5</b>      |
| <b>Roofing</b>                                     |                  |                  |                  |
| Fix roof   | 1                | 2                | 2.5              |
| Gutters, fascia boards                             | 1.5              | 2.5              | 1.8              |
| <b>Total</b>                                       | <b>2.5</b>       | <b>4.5</b>       | <b>4.3</b>       |
| <b>Heating</b>                                     |                  |                  |                  |
| 1000-gal propane tank, yearly rent                 | 0.005            | 0.005            |                  |
| Filling once a year                                | 0.8              | 1                |                  |
| Furnaces, AC, sheet metal                          | 25               | 35               |                  |
| <b>Total</b>                                       | <b>25.805</b>    | <b>36.005</b>    | <b>36</b>        |
| <b>Interior modifications</b>                      |                  |                  |                  |
| Two 1200-square-foot apartments                    | 40               | 50               | 45               |
| New windows  | 10               | 15               | 16.5             |
| New steel doors                                    | 4                | 6                | 6                |
| Appliances for apartments                          | 6                | 7                | 5                |
| Drop ceiling                                       | 7.5              | 10               | 7.6              |
| Sprinkler system and fire protection               | 10               | 15               | 12               |
| Paint  | 1                | 1.5              | 3                |
| New light fixtures where necessary                 | 3                | 5                | 6.9              |
| <b>Total</b>                                       | <b>81.5</b>      | <b>109.5</b>     | <b>102</b>       |
| <b>Exterior modifications</b>                      |                  |                  |                  |
| Cement work  | 1                | 2                | 3                |
| Clean-up   | 1                | 2                | 1                |
| <b>Total</b>                                       | <b>2</b>         | <b>4</b>         | <b>4</b>         |
| <b>Total for building:</b>                         | <b>\$150,555</b> | <b>\$219,505</b> | <b>\$322,300</b> |
| <b>III. Bathhouse</b>                              |                  |                  |                  |
| <b>Plumbing</b>                                    |                  |                  |                  |
| Two 15 stall shower areas                          | 10               | 20               | 35               |
| Six ADA-compliant toilets                          | 3                | 4                | 4                |
| Four restrooms, two ea gender                      | 15               | 25               | 26               |
| Gray water plumbing                                | 2                | 3                | 3                |
| Use existing drain lines/replace with ABS          | 0                | 10               | 12               |
| Two ea gas fired 250-gal water heaters             | 6                | 10               | 8                |
| <b>Total</b>                                       | <b>36</b>        | <b>72</b>        | <b>23</b>        |
| <b>Electrical</b>                                  |                  |                  |                  |

|  |           |           |           |
|--|-----------|-----------|-----------|
| Replace wiring using existing conduit    | 15        | 20        | 25        |
| Duplex receptacles, switches             | 1         | 1.5       | 2         |
| Breaker boxes, 225-amp, 42 breakers      | 0.5       | 0.75      | 1.5       |
| Main breaker for facility                | 1.5       | 2.5       | 2.5       |
| Total                                    | 18        | 24.75     | 31        |
| <b>Roofing</b>                           |           |           |           |
| Fix roof                                 | 1         | 2         | 3.5       |
| New gutters, fascia boards               | 1.5       | 2.5       | 4         |
| Total                                    | 2.5       | 4.5       | 7.5       |
| <b>Heating</b>                           |           |           |           |
| Four furnaces & AC, sheet metal          | 25        | 35        | 35        |
| Total                                    | 25        | 35        | 35        |
| <b>Interior modifications</b>            |           |           |           |
| Modify walls                             | 20        | 25        |           |
| Replace glass brick in shower room area  | 6         | 8         | 10        |
| Replace windows                          | 10        | 15        | 18        |
| New steel doors and frames; ASSA locks   | 4         | 6         | 10        |
| Sprinkler system for fire protection     | 10        | 15        | 12        |
| Paint                                    | 1         | 1.5       | 6         |
| Drop ceilings in office areas            | 5         | 8         | 6         |
| Total                                    | 56        | 78.5      | 62        |
| <b>Exterior Modifications</b>            |           |           |           |
| Cement work                              | 3         | 5         | 10        |
| Clean-up                                 | 1         | 2         | 5         |
| Total                                    | 4         | 7         | 15        |
| Total for building                       | \$141,500 | \$221,750 | \$173,500 |
| <b>IV. Warehouse</b>                     |           |           |           |
| <b>Plumbing</b>                          | \$1,000s  | \$1,000s  | \$1,000s  |
| Four- restrooms, two/gender              | 15        | 25        | 20        |
| Two ADA-compliant toilets, one/gender    | 1         | 1.5       | 1.5       |
| Gray-water plumbing                      | 2.5       | 3         | 3         |
| Use existing drain line/replace with ABS | 0         | 10        | 10        |
| Total                                    | 18.5      | 39.5      | 34.5      |
| <b>Electrical</b>                        |           |           |           |
| Replace wiring using existing conduit    | 15        | 20        | 25        |
| Duplex receptacles, switches, misc.      | 1.5       | 2         | 2         |
| Four breaker boxes, 225-amp, 42 breakers | 0.5       | 1         | 1.5       |
| Main breaker for the facility            | 1.5       | 2.5       | 2.5       |
| Total                                    | 18.5      | 25.5      | 31        |
| <b>Roofing</b>                           |           |           |           |
| Fix roof                                 | 1         | 2         | 1.5       |
| New fascia                               | 1         | 1.5       | 1.2       |
| New gutters                              | 0.5       | 1         | 2         |
| Total                                    | 2.5       | 4.5       | 4.7       |
| <b>Heating</b>                           |           |           |           |
| Two furnaces/AC                          | 10        | 15        |           |
| Ceiling heaters for high-bays            | 1.5       | 2         |           |
| Total                                    | 11.5      | 17        | 17        |

|  |                           |                 |                  |                  |
|--|---------------------------|-----------------|------------------|------------------|
| <b>Interior modifications</b>                  |                           |                 |                  |                  |
| Modify walls                                   | 10                        | 15              | 18               |                  |
| Replace windows                                | 2                         | 2.5             | 16               |                  |
| Steel doors and frames                         | 7.5                       | 10              | 10               |                  |
| Sprinkler system and fire detection            | 10                        | 15              | 15               |                  |
| Paint  | 1                         | 1.5             | 5                |                  |
| Drop ceilings in office areas                  | 5                         | 8               | 2.5              |                  |
|  | <b>Total</b>              | <b>35.5</b>     | <b>52</b>        | <b>66.5</b>      |
| <b>Exterior modifications</b>                  |                           |                 |                  |                  |
| Cement work                                    | 10                        | 25              | 25               |                  |
| Clean-up                                       | 1                         | 2               | 3                |                  |
|  | <b>Total</b>              | <b>11</b>       | <b>27</b>        |                  |
|  | <b>Total for building</b> | <b>\$97,500</b> | <b>\$165,500</b> | <b>\$153,700</b> |
| <br>   |                           |                 |                  |                  |
| <b>V. Shop Building</b>                        |                           |                 |                  |                  |
|  |                           | <b>\$1,000s</b> | <b>\$1,000s</b>  | <b>\$1,000s</b>  |
| <b>Plumbing</b>                                |                           |                 |                  |                  |
| Two restrooms, one/gender                      | 5                         | 7.5             | 12               |                  |
| ADA-compliant toilets, one/gender              | 1                         | 1.5             | 2                |                  |
| Gray-water plumbing                            | 1                         | 1.5             | 1.5              |                  |
| Use existing cast iron drains/replace with ABS | 0                         | 5               | 5                |                  |
|  | <b>Total</b>              | <b>7</b>        | <b>15.5</b>      | <b>20.5</b>      |
| <b>Electrical</b>                              |                           |                 |                  |                  |
| Four 225-amp, 42-circuit breaker boxes         | 0.5                       | 1               | 5                |                  |
| Replace wiring using existing conduit          | 20                        | 25              | 30               |                  |
| Duplex receptacles, switches, misc.            | 2                         | 2.5             | 3                |                  |
| Main breaker for facility                      | 1.5                       | 2.5             | 4                |                  |
|  | <b>Total</b>              | <b>24</b>       | <b>31</b>        | <b>42</b>        |
| <b>Roofing</b>                                 |                           |                 |                  |                  |
| Contingencies                                  | 0                         | 2               | 3                |                  |
|  | <b>Total</b>              | <b>0</b>        | <b>2</b>         | <b>2</b>         |
| <b>Heating</b>                                 |                           |                 |                  |                  |
| Seven-high-bay gas heaters                     | 3.5                       | 4               | 5                |                  |
| One furnace/AC                                 | 5                         | 7.5             | 8                |                  |
|  | <b>Total</b>              | <b>8.5</b>      | <b>11.5</b>      | <b>13</b>        |
| <b>Interior modifications</b>                  |                           |                 |                  |                  |
| Replace glass windows where needed             | 2.5                       | 3               | 20               |                  |
| Four garage door openers                       | 8                         | 10              | 10               |                  |
| Two new big-bay doors                          | 5                         | 7.5             | 4                |                  |
| Modify walls                                   | 5                         | 10              | 12               |                  |
| Paint  | 2                         | 2.5             | 6                |                  |
| Fire protection system                         | 10                        | 15              | 12               |                  |
| Drop ceilings in office area                   | 7.5                       | 10              | 4                |                  |
|  | <b>Total</b>              | <b>40</b>       | <b>58</b>        |                  |
| <b>Exterior modifications</b>                  |                           |                 |                  |                  |
| Concrete work                                  | 10                        | 15              | 8                |                  |
| Clean-up                                       | 3                         | 5               | 5                |                  |
| Exterior Siding                                |                           |                 | 7.5              |                  |
|  | <b>Total</b>              | <b>13</b>       | <b>20</b>        | <b>20.5</b>      |
|  | <b>Total for building</b> | <b>\$92,500</b> | <b>\$138,000</b> | <b>\$98,000</b>  |

| <b>VI. Mine Portals</b>  |                   |                  |                  |
|--|-------------------|------------------|------------------|
| <b>Permitting</b>  |                   |                  |                  |
| Open the portals and breach the seal                               | 10                | 15               |                  |
| New wall 300 ft back w/man door                                    | 10                | 15               |                  |
| Security gates on portals  | 2                 | 3                |                  |
| <b>Total</b>   | <b>\$20,000</b>   | <b>\$33,000</b>  | <b>\$15,000</b>  |
| <b>Grand total for facility modifications</b>                      |                   |                  |                  |
|  | <b>\$570,1050</b> | <b>\$896,155</b> | <b>\$880,500</b> |
| <b>VII. Infrastructure Up-grades Made During Bathhouse Upgrade</b> |                   |                  |                  |
|  | <b>\$1,000s</b>   | <b>\$1,000s</b>  | <b>\$1,000s</b>  |
| <b>Potable Water</b>   |                   |                  |                  |
| Reverse-osmosis Plant-Locate in Shop area                          | 150               | 200              |                  |
| 1000-gallon water storage tank, fiberglass                         | 10                | 15               |                  |
| <b>Total</b>   | <b>160</b>        | <b>215</b>       |                  |
| <b>Electrical Power</b>  |                   |                  |                  |
| Run one mile of new construction from existing 46KVA line          | 80                | 100              |                  |
| <b>Total</b>   | <b>80</b>         | <b>100</b>       |                  |
| <b>Total for infrastructure upgrades, \$1,000s</b>                 | <b>\$240</b>      | <b>\$315</b>     | <b>\$315</b>     |

Revision: 6-06-03

### 4.3.8 Options

The conclusion of the Field Study Team from the MBA program at the University of Utah's David Eccles Business School was that there are many potential uses for the Horse Canyon site. At this time the project does not have a specific function or program committed to the use of this facility. University programs such as geology field camps, archeology and paleontology camps and repositories, however, are all very viable. ExxonMobil has voiced interest in training programs at this site. Elderhostel and federal government research programs are also potential uses.

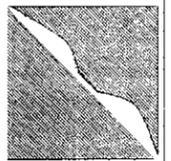
Some similar requirements surface from each of these possible uses. Housing, including toilets, bathing and eating facilities, would be required. College groups could function much like college dormitories with ratios of one toilet and shower to every five to six beds. Other groups, such as Elderhostel program, require a private bath for each room, as would professional training programs. Continuing education, religious groups, and families could also use this facility.

There are many unknowns in refurbishing this facility both in extent of work, time, and staffing to accomplish the goal. One suggestion is to install temporary facilities on-site. This provides a fixed cost and immediate availability. Placement of temporary buildings at the northeast end of the project near the shop building would be the best location (see Site Plans A-1.1 and A1.2.). The central area between the existing buildings, the temporary buildings and a potential amphitheater is ideal for a Plaza. The placement of an amphitheatre in the hillside would establish a cross-axis to the major axis between the

**General Notes**

1. ALL DIMENSIONS SHOWN ARE TO FACE OF ROUGH FRAMING.
2. THESE PLANS ARE AN INSTRUMENT OF SERVICE AND ARE THE PROPERTY OF A.K. SMITH. THEY MAY NOT BE USED FOR ANY PROJECT WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.
3. ALL DISCREPANCIES OR OMISSIONS ON DRAWINGS MUST BE BROUGHT TO THE ARCHITECT BY THE G.C. PRIOR TO THE START OF ANY WORK. FAILURE BY THE G.C. TO IDENTIFY ERRORS OR OMISSIONS WILL NOT BE GROUNDS FOR EXTRAS.
4. ALL WORK MATERIALS AND CONSTRUCTION DETAILS MUST COMPLY WITH AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL BUILDING, HEALTH, AND FIRE CODES.
5. THE G.C. IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, MEASUREMENTS, AND FLOOR ELEVATIONS AT THE SITE. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS SHALL BE REPORTED TO THE ARCHITECT.
6. THE G.C. IS RESPONSIBLE FOR ALL CONDITIONS AT THE SITE INCLUDING ANY OBSTACLES TO CONSTRUCTION.
7. ANY REQUESTS FOR EXTRAS MUST BE APPROVED IN WRITING BY THE OWNER.
8. CONTRACTOR SHALL OBTAIN ALL LICENSES, PERMITS, APPROVAL, AND CERTIFICATES NECESSARY TO COMPLETE CONTRACTORS WORK. PRIOR TO CONTRACTOR'S APPLICATION FOR A BUILDING PERMIT, HE SHALL SECURE FROM THE ARCHITECT, APPROVAL OF THE PROJECT VALUE TO BE USED FOR PERMIT PURPOSES. AT THE OPTION OF THE ARCHITECT, THE ARCHITECT MAY OBTAIN ANY OF THE LICENSES OR PERMITS.
9. THE G.C. IS RESPONSIBLE FOR ALL FINAL INSPECTIONS.
10. ANY ADDITIONAL WORK PERFORMED BY THE G.C. SHALL BE APPROVED IN WRITING BY THE OWNER OR THE OWNER'S AGENT, PRIOR TO THE WORK COMMENCING.
11. GENERAL CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS DURING THE BID PERIOD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT OF ANY DISCREPANCIES AFFECTING AN INCREASE TO THE BID AMOUNT AS DOCUMENTED.

# HORSE CANYON PROJECT HORSE CANYON Near Price, Utah



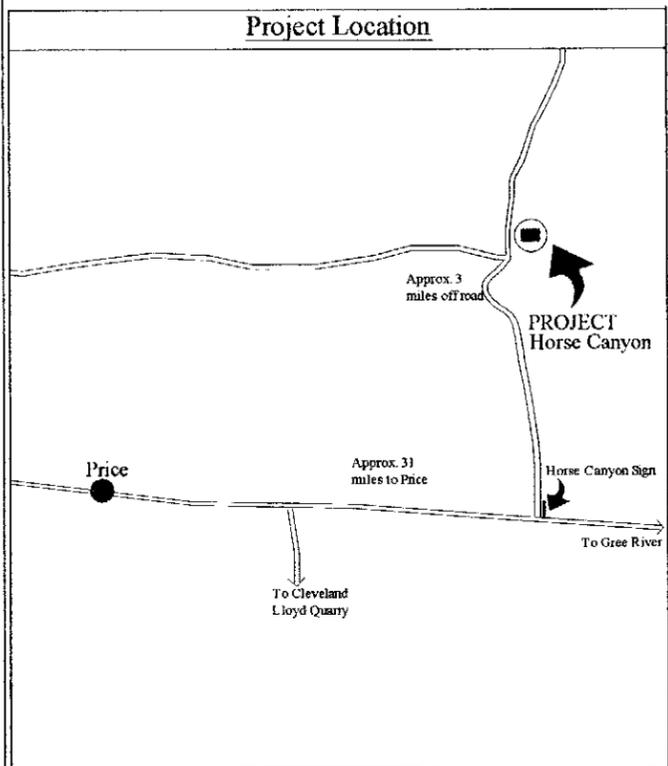
**A.K. Smith Architects**  
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SALT LAKE CITY, UTAH 84106  
801.483.2434

DATE  
3.03.03  
REV.



**Horse Canyon Project**  
Horse Canyon  
Price, Utah

COVER SHEET  
A-0



| Material Symbols |                  |
|------------------|------------------|
| Solid Member     | Plywood          |
| Wood Framing     | Finish Lumber    |
| Plaster          | Steel            |
| Concrete         | Acoustic Tile    |
| Ceramic Tile     | Bat Insulation   |
| Gypsum Board     | Rigid Insulation |
| Masonry          | Glass            |

| Site Symbols    |             |
|-----------------|-------------|
| Revised Contour | Existing    |
| Property Line   | New Contour |
| Fence           |             |

| Graphic Symbols               |                                  |
|-------------------------------|----------------------------------|
| Key Notes                     | Room Number                      |
| Equipment Number              | Revision Note                    |
| Door Letter                   | Elevation Marker                 |
| 100'-0" Spot Elev.            | Construction Note                |
| Finish Note                   | Window Number                    |
| Detail Number                 | Section Letter                   |
| Sheet on which detail appears | Sheet on which elevation appears |
| Interior Elevation            | Wall Section                     |

| Index of Drawings |                                 |
|-------------------|---------------------------------|
| A-0               | Cover Sheet                     |
| A1.1              | Site Layout                     |
| A1.2              | Site w/ Contours                |
| A2.1              | Admin. Floor Plan               |
| A2.2              | Bath House Floor Plan           |
| A2.3              | Warehouse Floor Plan            |
| A2.4              | Shop Floor Plan                 |
| A3.1              | Admin. Building Elevations      |
| A3.2              | Bath House Elevations           |
| A3.3              | Warehouse Elevations            |
| A3.4              | Shop Elevations                 |
| A3.5              | Bath Elevations- Glazed End     |
| A4.1              | Bath Section w/ Housing Modules |

| PROJECT DESCRIPTION   |  |
|---|--|
| Renovate and update 4 existing brick buildings from the WW II, 1942 era. Improvements to include retrofitting new windows in existing openings, new doors and frames, repair roofing, facias, gutters and weather flashings. Clean up of exteriors, new concrete patio central court area and amphitheater cut into hillside. |  |
| Use of temporary structures for sleeping, showers, eating and class rooms are included.   |  |
| Windows in existing openings, new doors and frames, repair interior doors, trims, ceilings, lighting and floor coverings along with drywall repair/replacement and painting.  |  |

| Project Data                       |  |
|------------------------------------|--|
| OWNER                              | COLLEGE OF EASTERN UTAH                                |
| FACILITOR                          | UNIVERSITY OF UTAH                                     |
| CENTER FOR MINE LAND REDEVELOPMENT |  |
| CO-DIRECTOR                        | JACK HAMILTON  |
| TELEPHONE                          | 801.581.6348   |
| MAILING ADDRESS                    | 1495 Ea. 100 So. Rm. 138<br>Salt Lake City, Utah 84112 |

| Project Area              |               |
|---------------------------|---------------|
| APPROXIMATELY 4 ACRE SITE |               |
| Administrative Building-  | 3,815 sq.ft.  |
| Bath Building-            | 9,760 sq.ft.  |
| Warehouse Building-       | 10,512 sq.ft. |
| Shop Building             | 12,347 sq.ft. |

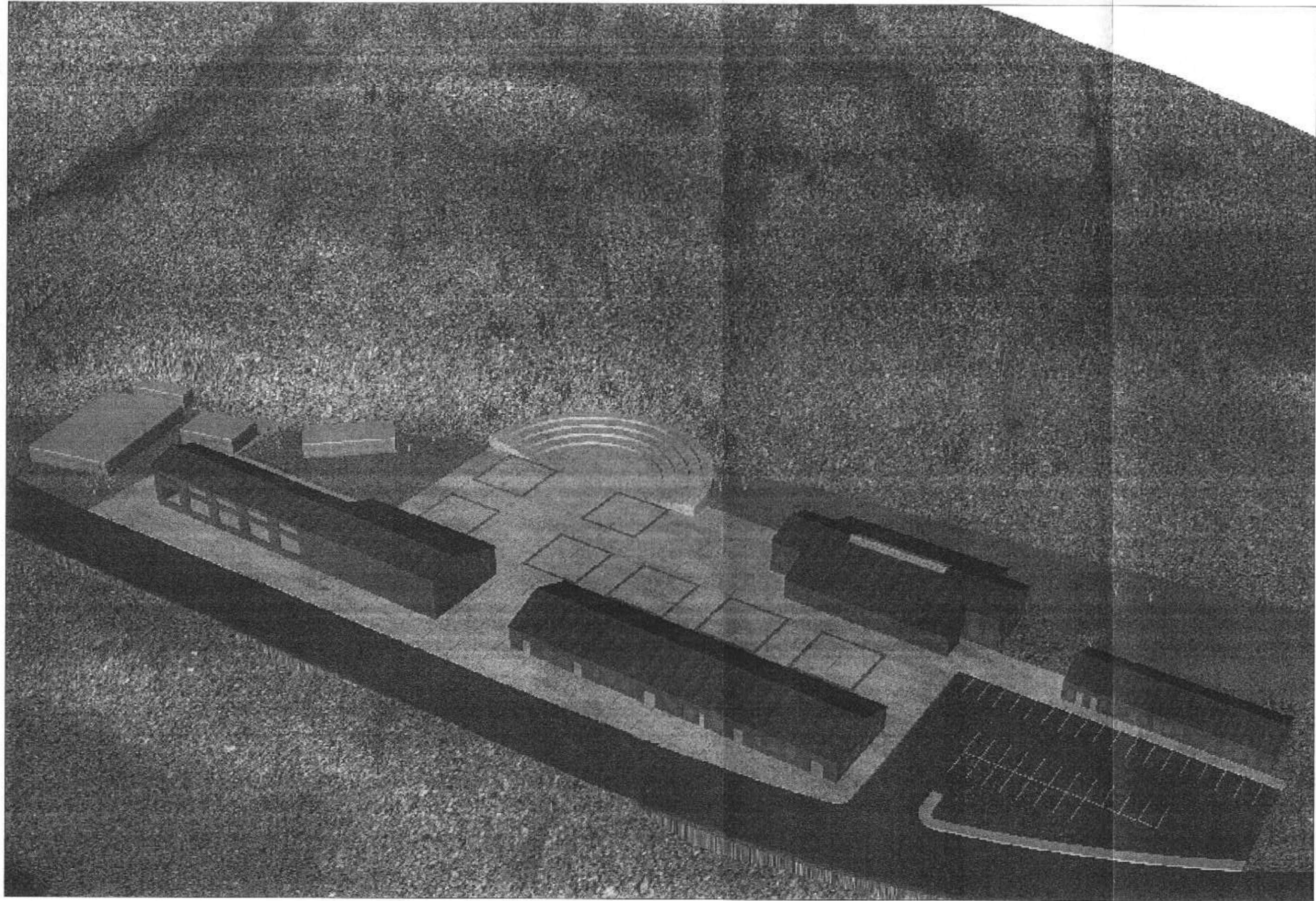
  

| Design Team         |  |
|---------------------|--|
| ARCHITECT           | A. K. Smith Architects<br>3194 South 1100 East<br>Salt Lake City, Utah 84106<br>801.483.2434 |
| Principal in Charge | A. Kent Smith  |

| Code Criteria                             |  |
|---|--|
| INTERNATIONAL BUILDING CODE, 2000 EDITION |  |

The drawings, designs, ideas, arrangements and plans herein are the sole property of A.K. SMITH ARCHITECTS and are subject to copyright of A.K. SMITH ARCHITECTS and its assigns. These plans are developed and created for use on and in connection with the specific project. Any unauthorized use of the drawings, designs and information contained herein, including but not limited to copying or reproduction not expressly authorized by A.K. SMITH ARCHITECTS is strictly prohibited and is an infringement of its copyright.



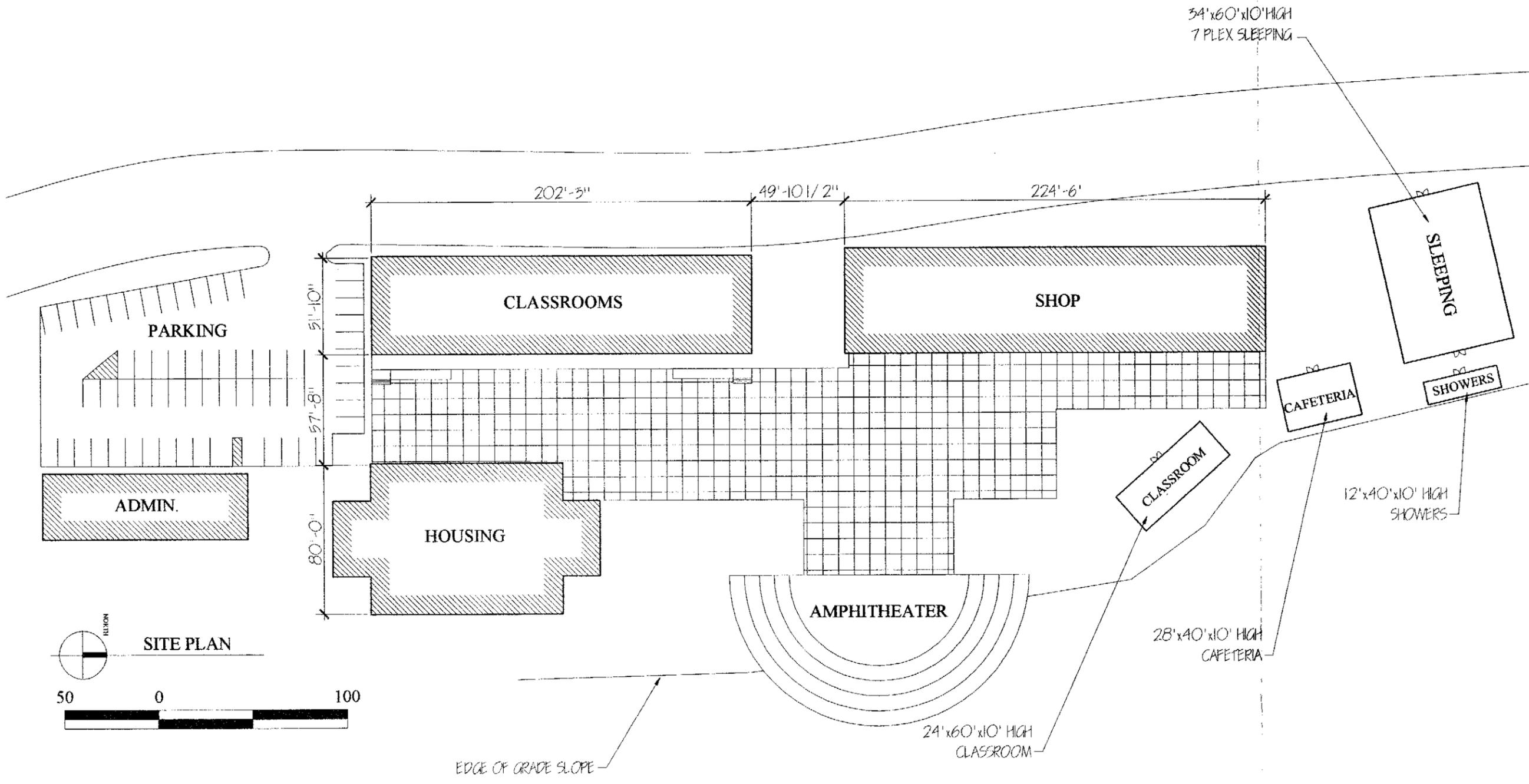
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801.483.2434

| DATE    | REV. |
|---------|------|
| 3.03.03 |      |



Horse Canyon Project  
Horse Canyon  
Price, Utah

RENDERING  
**A.01**



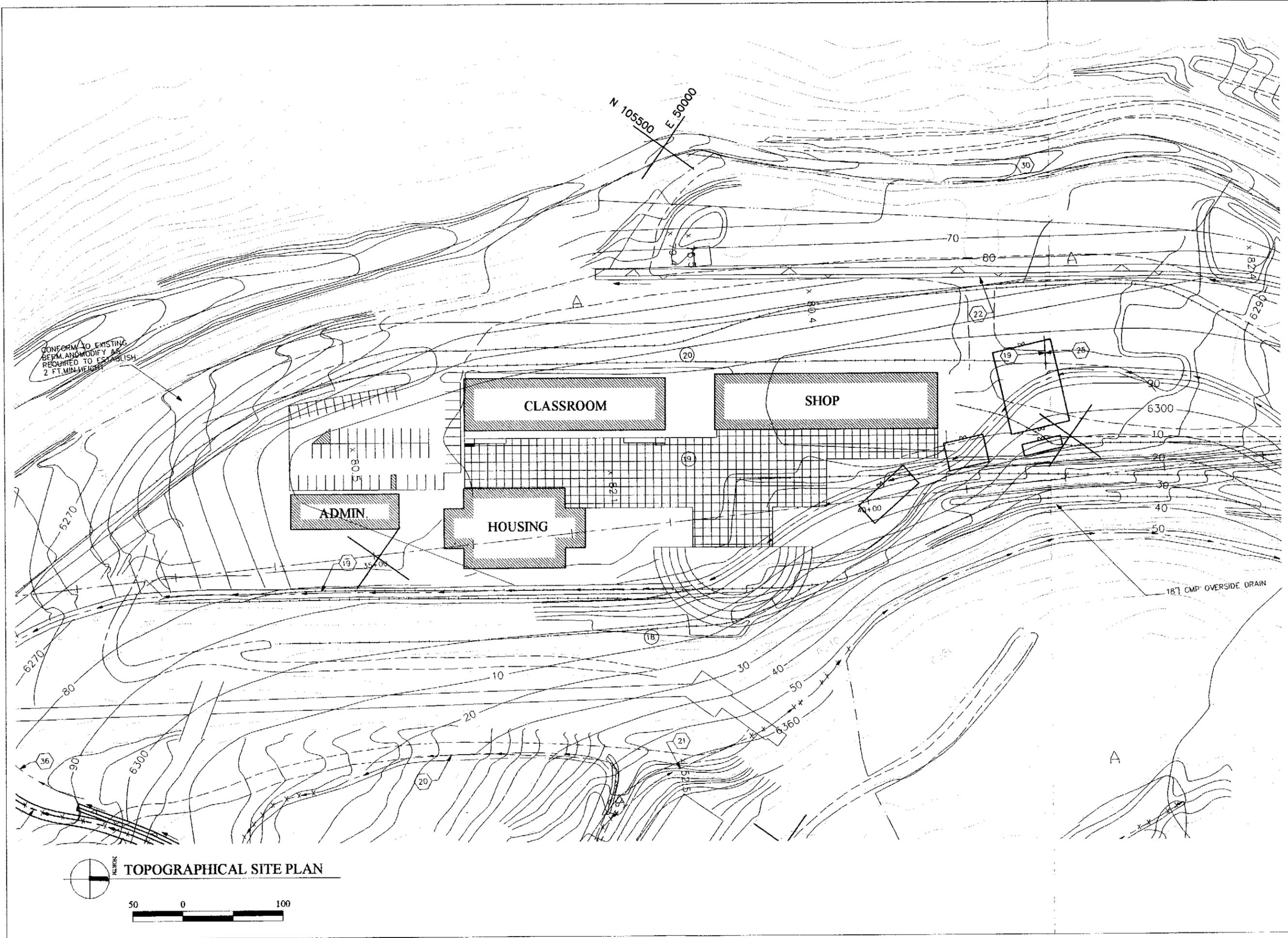
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 801.483.2434

DATE  
 3.03.03

REV.

**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

SITE PLAN  
**A-1**

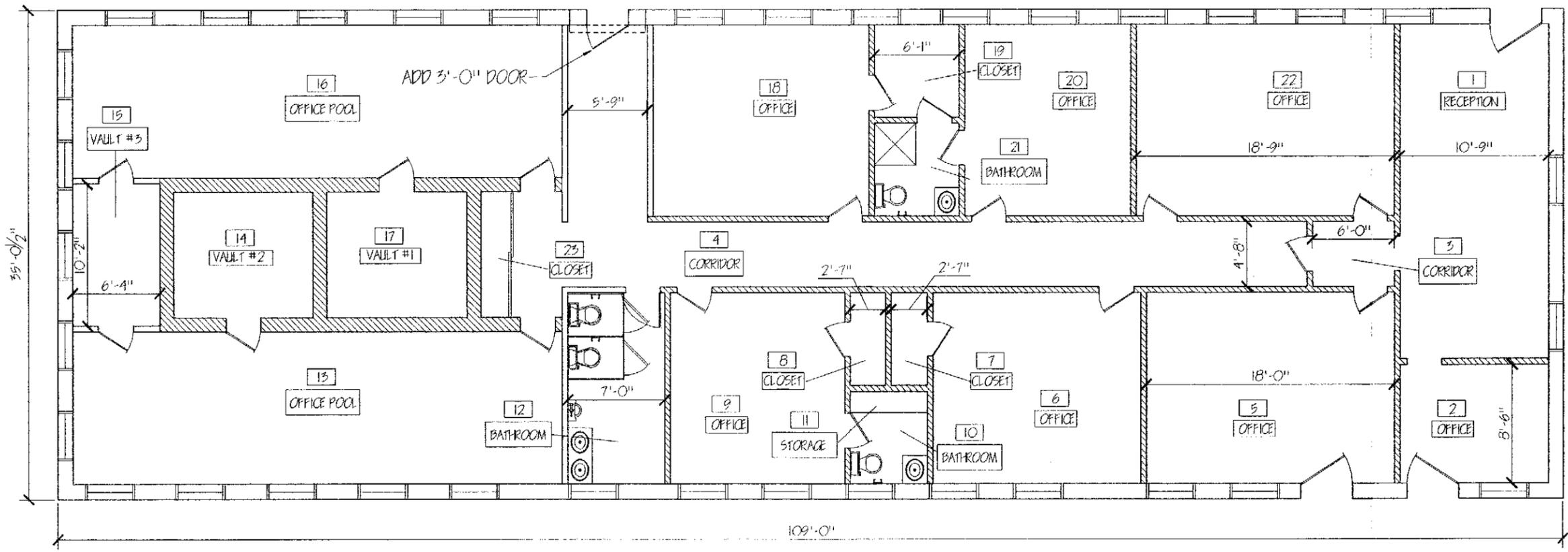


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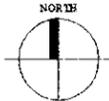
|      |         |
|------|---------|
| DATE | 3.03.03 |
| REV. |         |

**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

SITE PLAN  
**A-1.2**



ADMIN. BUILDING EXISTING FLOOR PLAN



SUMMARY OF ADMIN BLDG.

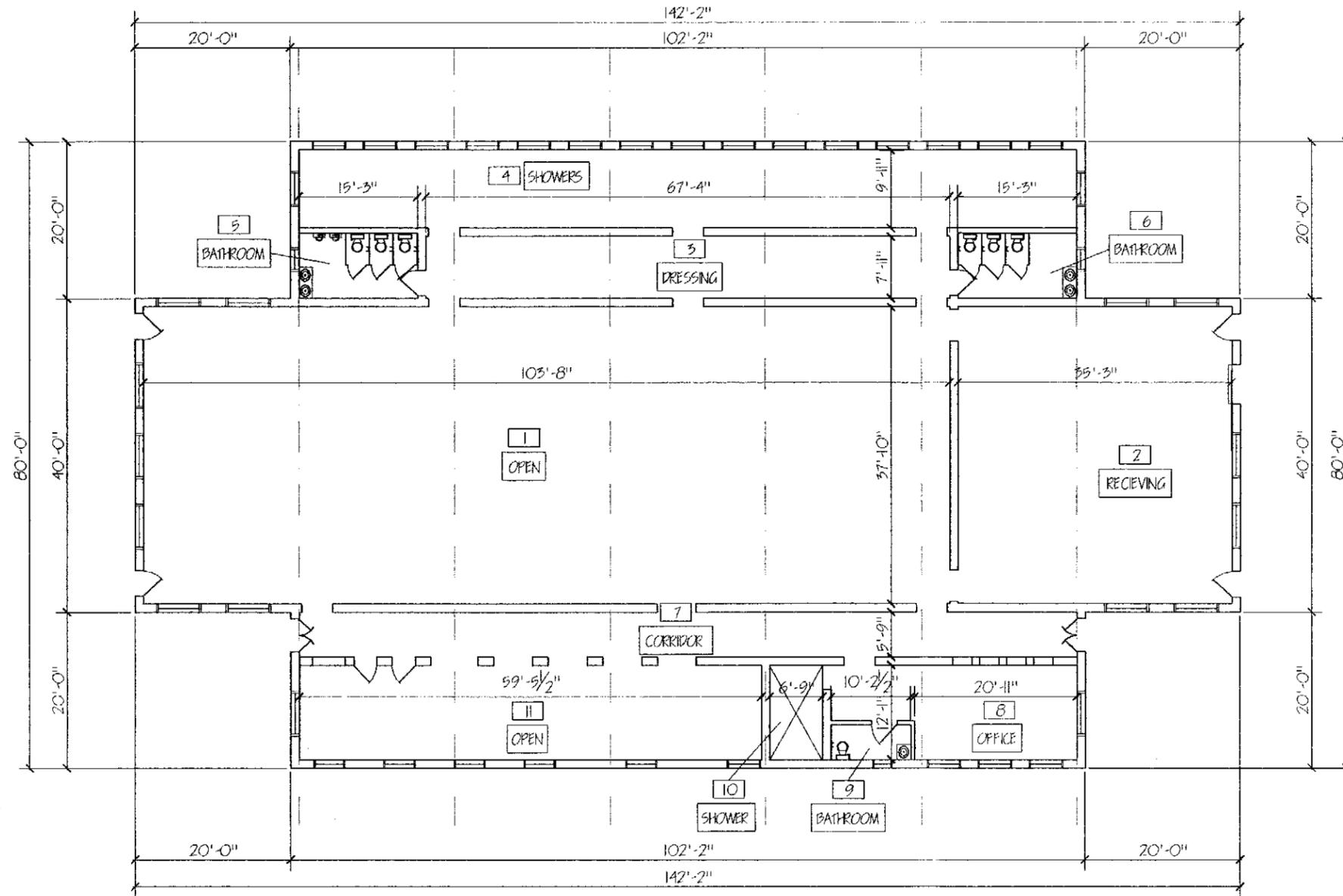
| ROOM # | AREA SQ. FT. | USE       | FIXTURES                         | ROOM # | AREA SQ. FT. | USE      | FIXTURES                         | ROOM # | AREA SQ. FT. | USE         | FIXTURES                         | ROOM # | AREA SQ. FT. | USE      | FIXTURES                         |
|--------|--------------|-----------|----------------------------------|--------|--------------|----------|----------------------------------|--------|--------------|-------------|----------------------------------|--------|--------------|----------|----------------------------------|
| 1      | 257.6        | RECEPTION | WINDOWS 5'5x3'7 (3)<br>DOOR (1)  | 9      | 172.9        | OFFICE   | WINDOWS 5'5x3'7 (2)<br>DOORS (3) | 15     | 386.8        | OFFICE POOL | WINDOWS 5'5x3'7 (7)<br>DOORS (3) | 21     | 40.4         | BATHROOM | DOORS (2)<br>TOILET (1)          |
| 2      | 91.4         | OFFICE    | WINDOW 5'5x3'7 (1)<br>DOOR (1)   | 10     | 28.7         | BATHROOM | WINDOW 3'9x3'7 (1)<br>DOORS (1)  | 14     | 90.9         | VAULT       | DOOR (1)<br>SINK (1)             |        |              |          |                                  |
| 3      | 28.0         | CORRIDOR  | DOORS (3)                        |        |              |          | TOILET (1)                       | 15     | 64.4         | VAULT       | WINDOW 5'5x3'7 (1)<br>DOOR (1)   | 22     | 256.6        | OFFICE   | WINDOWS 5'5x3'7 (3)<br>DOORS (2) |
| 4      | 350.6        | CORRIDOR  | DOORS (10)                       |        |              |          | SINK (1)                         | 16     | 386.8        | OFFICE POOL | WINDOWS 5'5x3'7 (7)<br>DOORS (3) | 23     | 52.5         | CLOSET   | SLIDING DOORS (1)                |
| 5      | 246.4        | OFFICE    | WINDOWS 5'5x3'7 (2)<br>DOORS (2) | 11     | 8.4          | STORAGE  | -                                |        |              |             |                                  |        |              |          |                                  |
| 6      | 205.3        | OFFICE    | WINDOWS 5'5x3'7 (2)<br>DOORS (2) | 12     | 28.7         | BATHROOM | WINDOW 3'9x3'7 (1)<br>DOORS (1)  | 17     | 90.9         | VAULT       | DOOR (1)                         |        |              |          |                                  |
| 7      | 17.1         | CLOSET    | DOOR (1)                         |        |              |          | URINALS (1)                      | 18     | 214.6        | OFFICE      | WINDOWS 5'5x3'7 (3)<br>DOORS (2) |        |              |          |                                  |
| 8      | 17.1         | CLOSET    | DOOR (1)                         |        |              |          | SINKS (2)<br>STALLS (2)          | 19     | 40.4         | CLOSET      | DOOR (1)                         |        |              |          |                                  |
|        |              |           |                                  |        |              |          |                                  | 20     | 163.7        | OFFICE      | WINDOWS 5'5x3'7 (2)<br>DOORS (2) |        |              |          |                                  |

OFFICE AREA:  
 2474.4 SQ. FT.

CORRIDOR AREA:  
 358.6 SQ. FT.

PLUMBING FIXTURES:  
 TOILETS - 4  
 SINKS - 4  
 URINALS - 1  
 STALLS - 2  
 SHOWERS - 1

WINDOW SIZE AND COUNT:  
 5'-5" x 3'-7" = 33  
 3'-9" x 3'-7" = 2




**FLOOR PLAN - BATH HOUSE-BLDG. #2**  


SUMMARY OF ADMIN BLDG.

| ROOM # | AREA SQ. FT. | USE       | FIXTURES  |
|--------|--------------|-----------|---|
| 1      | 3922.0       | OPEN      | WINDOWS 10'2x5'9" (7)<br>DOORS (2)  |
| 2      | 1333.6       | RECEIVING | WINDOWS 10'2x5'9" (6)<br>DOORS (2)<br>OVERHEAD DOOR (1)                                   |
| 3      | 533.1        | DRESSING  | DOORS (2)   |
| 4      | 991.7        | SHOWERS   |   |
| 5      | 127.1        | BATHROOM  | WINDOW 4'0x3'0" (1)<br>DOORS (1)<br>TOILETS (3)<br>URINALS (2)<br>SINKS (2)<br>STALLS (3) |
| 6      | 127.1        | BATHROOM  | WINDOW 4'0x3'0" (1)<br>DOORS (1)<br>TOILETS (3)<br>URINALS (?)<br>SINKS (2)<br>STALLS (3) |
| 7      | 575.0        | CORRIDOR  | DOUBLE DOORS (2)  |
| 8      | 328.6        | OFFICE    | WINDOWS 4'0x3'0" (3)<br>WINDOW 7'0x5'9" (1)   |
| 9      | 46.0         | BATHROOM  | WINDOW 4'0x3'0" (1)<br>DOORS (1)<br>TOILETS (1)<br>SINK (1)                               |
| 10     | 81.6         | SHOWER    |   |
| 11     | 718.5        | OPEN      | WINDOWS 10'2x5'9" (6)<br>WINDOWS 4'0x2'0" (1)<br>DOORS (2)                                |

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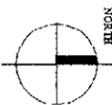
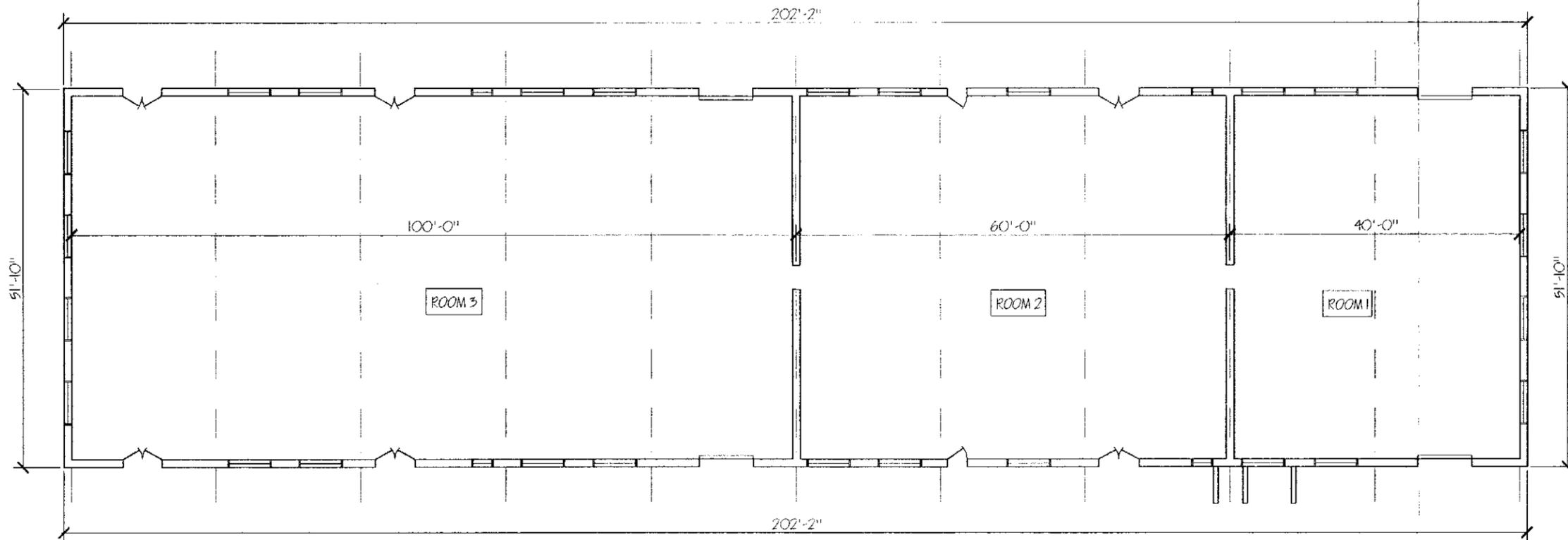
DATE  
 3-03-03

REV.

**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

SITE PLAN

**A2.2**



FLOOR PLAN - WAREHOUSE-BLDG. #3



SUMMARY OF CLASSROOM BLDG.

| ROOM # | AREA SQ. FT. | USE  | FIXTURES   |
|--------|--------------|------|--|
| 1      | 1959.8       | OPEN | WINDOWS 6'3x6'0" (8)<br>OVERHEAD DOORS (2)                                     |
| 2      | 2926.2       | OPEN | WINDOWS 6'3x6'0" (6)<br>WINDOWS 6'3x3'0" (2)<br>DOORS (2)<br>DOUBLE DOORS (2)  |
| 3      | 4959.8       | OPEN | WINDOWS 6'3x6'0" (12)<br>WINDOWS 6'3x3'0" (2)<br>DOORS (2)<br>DOUBLE DOORS (4) |

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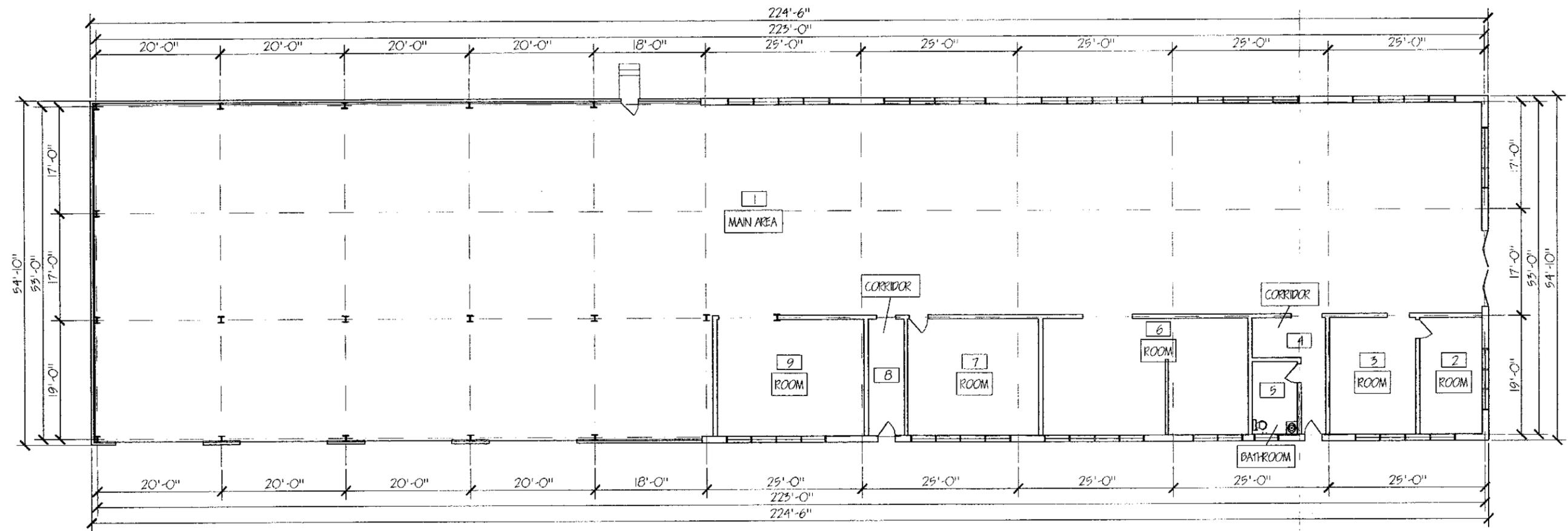
DATE  
3.03.03

REV.

Horse Canyon Project  
Horse Canyon  
Price, Utah

SITE PLAN

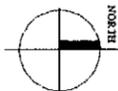
A2.3



SUMMARY OF ADMIN BLDG.

| ROOM # | AREA SQ. FT. | USE       | FIXTURES  | ROOM # | AREA SQ. FT. | USE      | FIXTURES                                  |
|--------|--------------|-----------|---|--------|--------------|----------|---|
| 1      | 9445.9       | MAIN AREA | WINDOWS 16'4x10'4 (5)<br>WINDOWS 16'4x4'0 (10)<br>WINDOW 9'9x10'4 (1)<br>OVERHEAD DOORS (4)<br>FOLDING DOOR<br>DOOR | 6      | 604.4        | ROOM     | WINDOW 16'4x6'0 (1)<br>WINDOW 8'0x6'0 (1) |
| 2      | 184.8        | ROOM      | WINDOW 9'9x5'2 (1)<br>DOOR  | 7      | 388.5        | ROOM     | WINDOW 16'4x6'0 (1)<br>DOOR               |
| 3      | 253.8        | ROOM      | WINDOWS 16'4x6'0 (4)  | 8      | 106.4        | CORRIDOR | DOOR                                      |
| 4      | 122.8        | CORRIDOR  | DOOR  | 9      | 437.8        | ROOM     | WINDOW 16'4x6'0 (1)                       |
| 5      | 85.9         | BATHROOM  | WINDOW 4'0x4'0 (1)<br>DOOR<br>TOILET (1)<br>SINK (1)  |        |              |          |   |

FLOOR PLAN - SHOP BLDG.#4



5 0 10

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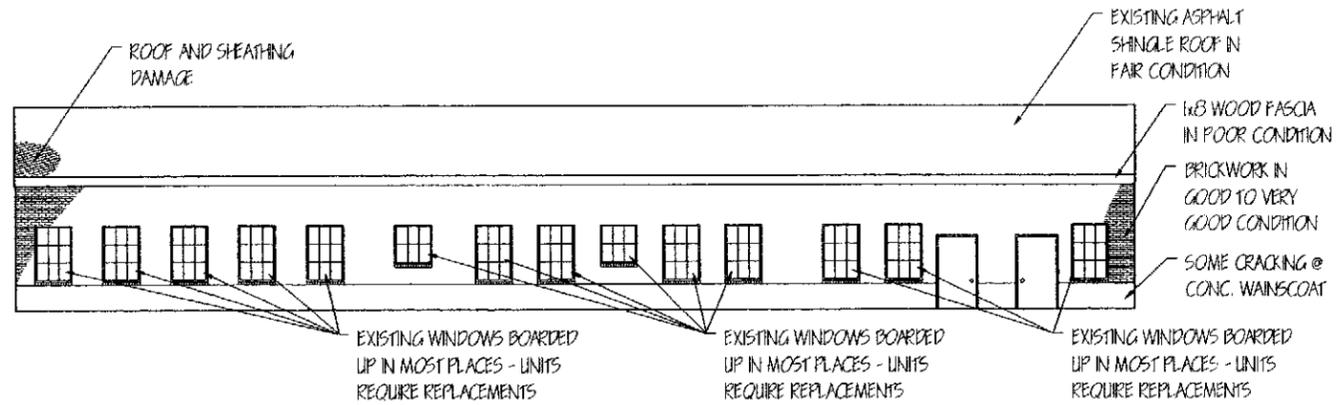
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3-03-03

REV.

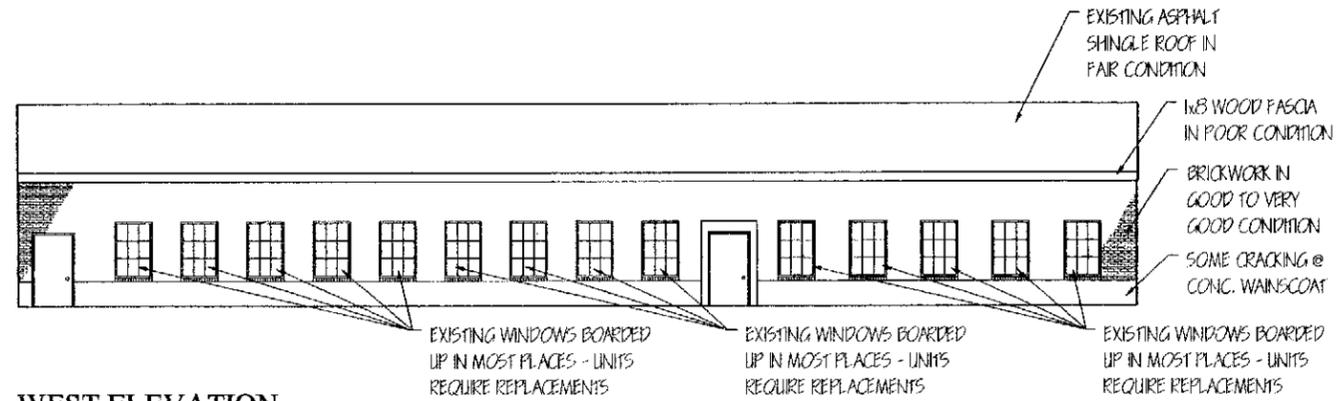
Horse Canyon Project  
Horse Canyon  
Price, Utah

SITE PLAN

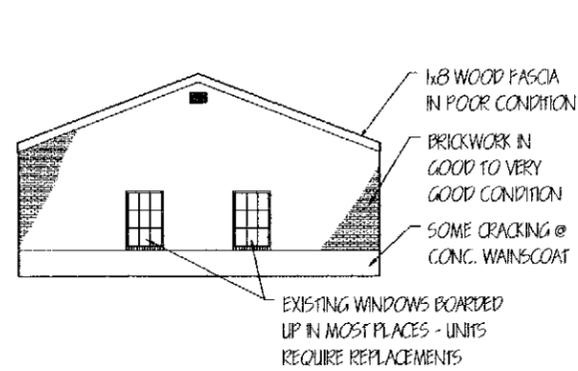
A2.4



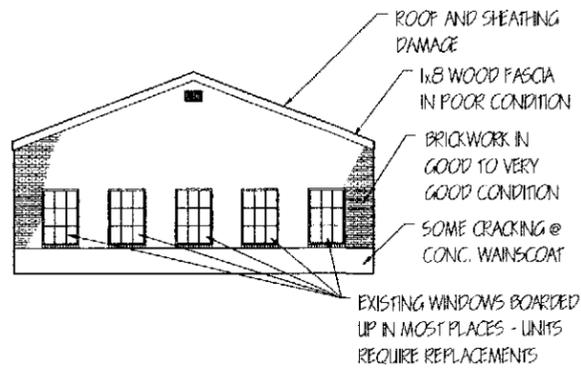
**EAST ELEVATION**



**WEST ELEVATION**



**NORTH ELEVATION**



**SOUTH ELEVATION**

**ADMINISTRATION BUILDING**



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3-03-03

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**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

ELEVATION

A-3.1



## **The EDR Radius Map with GeoCheck®**

**Horse Canyon  
Highway 6  
Emery County, UT 84525**

**Inquiry Number: 868286.1s**

**October 23, 2002**

## ***The Source For Environmental Risk Management Data***

3530 Post Road  
Southport, Connecticut 06890

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

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**Thank you for your business.**  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

### TARGET PROPERTY INFORMATION

#### ADDRESS

HIGHWAY 6  
EMERY COUNTY, UT 84525

#### COORDINATES

Latitude (North): 39.458300 - 39° 27' 29.9"  
Longitude (West): 110.357200 - 110° 21' 25.9"  
Universal Transverse Mercator: Zone 12  
UTM X (Meters): 555302.0  
UTM Y (Meters): 4367625.0

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property: 2439110-D3 LILA POINT, UT  
Source: USGS 7.5 min quad index

### TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 5 of the attached EDR Radius Map report:

| <u>Site</u>   | <u>Database(s)</u> | <u>EPA ID</u> |
|---|--------------------|---------------|
| CARBON COUNTY RAILROAD YARD<br>HORSE CANYON MINE<br>EAST CARBON, UT 84520 | RCRIS-SQG<br>FINDS | UTD988066460  |

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ( "reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

### FEDERAL ASTM STANDARD

NPL..... National Priority List  
Proposed NPL..... Proposed National Priority List Sites  
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System  
CERC-NFRAP..... CERCLIS No Further Remedial Action Planned  
CORRACTS..... Corrective Action Report  
RCRIS-TSD..... Resource Conservation and Recovery Information System  
RCRIS-LQG..... Resource Conservation and Recovery Information System  
ERNS..... Emergency Response Notification System

### STATE ASTM STANDARD

SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list.

## EXECUTIVE SUMMARY

|             |  |
|-------------|--|
| SWF/LF..... | List of Landfills                            |
| LUST.....   | Sites with Leaking Underground Storage Tanks |
| UST.....    | List of Sites with Underground Storage Tanks |
| VCP.....    | Voluntary Cleanup Sites List                 |

### FEDERAL ASTM SUPPLEMENTAL

|                   |   |
|-------------------|---|
| CONSENT.....      | Superfund (CERCLA) Consent Decrees  |
| ROD.....          | Records Of Decision   |
| Delisted NPL..... | National Priority List Deletions  |
| HMIRS.....        | Hazardous Materials Information Reporting System  |
| MLTS.....         | Material Licensing Tracking System  |
| MINES.....        | Mines Master Index File   |
| NPL Liens.....    | Federal Superfund Liens   |
| PADS.....         | PCB Activity Database System  |
| RAATS.....        | RCRA Administrative Action Tracking System  |
| TRIS.....         | Toxic Chemical Release Inventory System   |
| TSCA.....         | Toxic Substances Control Act  |
| SSTS.....         | Section 7 Tracking Systems  |
| FTTS.....         | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) |

### STATE OR LOCAL ASTM SUPPLEMENTAL

|             |             |
|-------------|-------------|
| SPILLS..... | Spills Data |
|-------------|-------------|

### EDR PROPRIETARY HISTORICAL DATABASES

|               |  |
|---------------|--|
| Coal Gas..... | Former Manufactured Gas (Coal Gas) Sites |
|---------------|--|

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the target property includes a tolerance of +/- 10 feet. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in *bold italics* are in multiple databases.

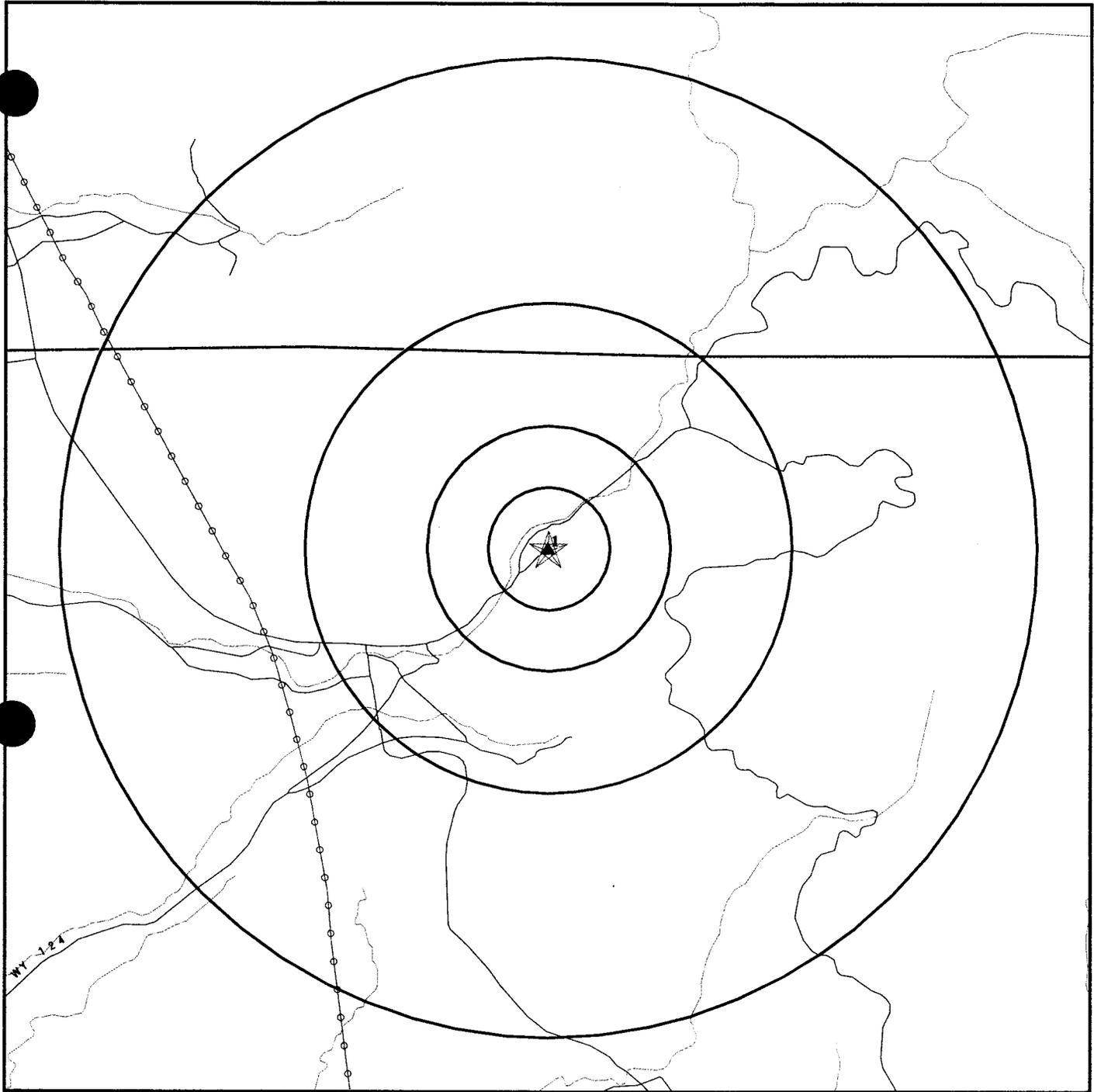
Unmappable (orphan) sites are not considered in the foregoing analysis.

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

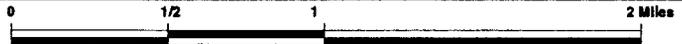
| <u>Site Name</u>                     | <u>Database(s)</u> |
|--------------------------------------|--------------------|
| US ARMY GREEN RIVER LAUNCH COMPLEX   | CERCLIS, FINDS     |
| GREEN RIVER CYANIDE DRUMS            | CERC-NFRAP         |
| HAL'S SERVICE, INC.                  | LUST, UST          |
| GREEN RIVER TRI-MART #1042           | LUST, UST          |
| AT&T GREEN RIVER RS                  | LUST, UST          |
| CARBON GROCERY CO.                   | UST                |
| LLOYD HUNT                           | UST                |
| PHILLIPS 66 SHORT STOP/BURGER KING   | UST                |
| WILCOX CONNOCO SERVICE               | UST                |
| ECDC ENVIRONMENTAL L.C.              | RCRIS-SQG, FINDS   |
| FOUR CORNERS PROPERTY                | RCRIS-SQG, FINDS   |
| ENERGY FUELS CHUTE CANYON            | RCRIS-SQG          |
| ENERGY FUELS STRIKE                  | RCRIS-SQG          |
| ENERGY FUELS DIME                    | RCRIS-SQG          |
| ENERGY FUELS DIKE                    | RCRIS-SQG          |
| ENERGY FUELS ARLIEAN                 | RCRIS-SQG          |
| ENERGY FUELS ACERSON                 | RCRIS-SQG, FINDS   |
| ENERGY FUELS TOMSICH                 | RCRIS-SQG          |
| ENERGY FUELS LUCKY STRIKE MINE       | RCRIS-SQG          |
| ENERGY FUELS EKKER                   | RCRIS-SQG          |
| SPTCO GREEN RIVER                    | RCRIS-SQG, FINDS   |
| M-I DRILLING FLUIDS CO (GREEN RIVER) | RCRIS-SQG, FINDS   |
| ENERGY FUELS SAHARA                  | RCRIS-SQG, FINDS   |
| BOOK CLIFFS ENERGY                   | RCRIS-SQG, FINDS   |

# OVERVIEW MAP - 868286.1s - Mountain Geo.



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- ▨ National Priority List Sites
- ▩ Landfill Sites

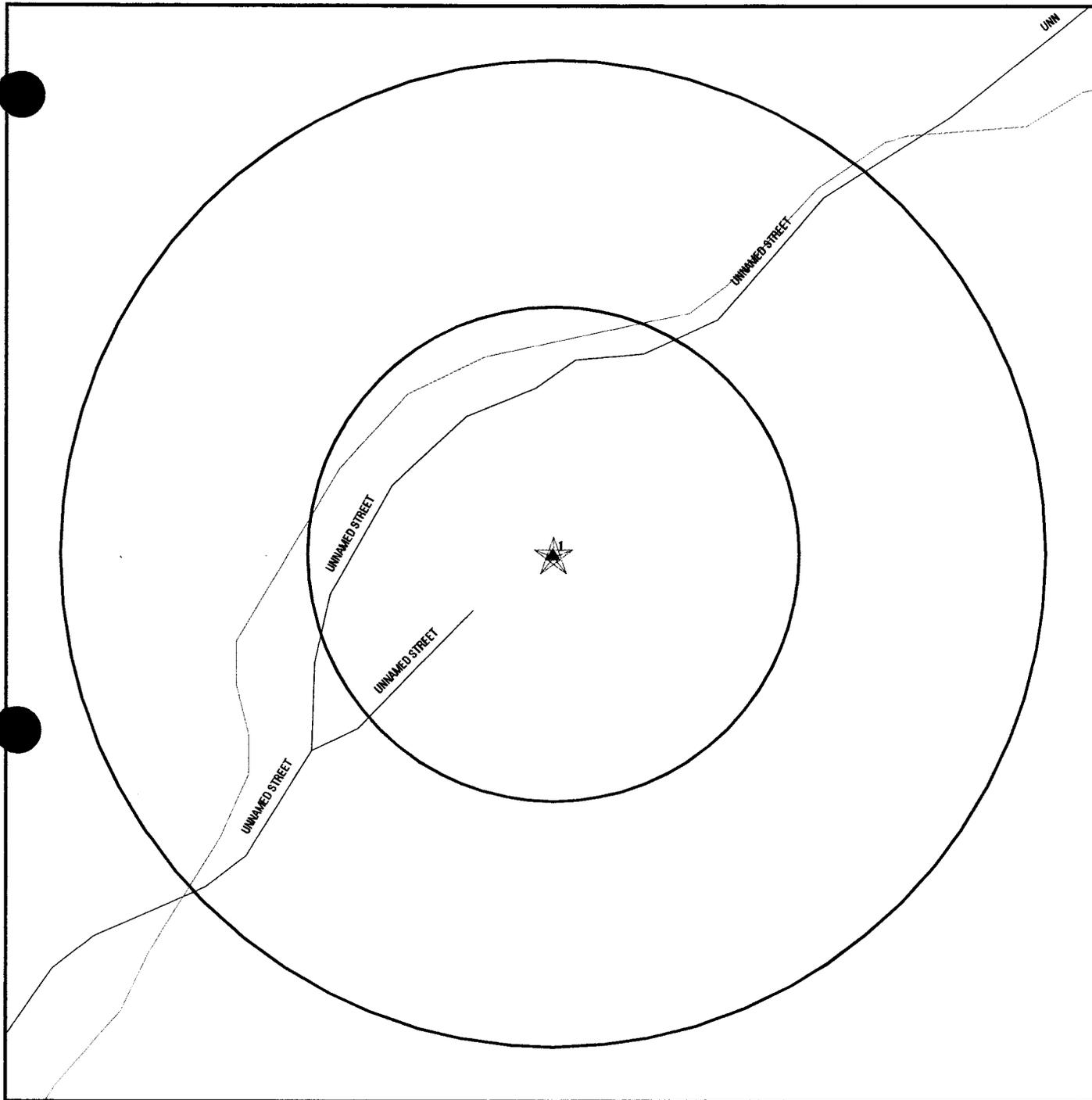
- ▭ County Boundary
- ⚡ Power transmission lines
- ⚡ Oil & Gas pipelines



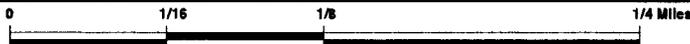
**TARGET PROPERTY:** Horse Canyon  
**ADDRESS:** Highway 6  
**CITY/STATE/ZIP:** Emery County UT 84525  
**LAT/LONG:** 39.4583 / 110.3572

**CUSTOMER:** Mountain Geo.  
**CONTACT:** Jack Hamilton  
**INQUIRY #:** 868286.1s  
**DATE:** October 23, 2002 1:11 pm

**DETAIL MAP - 868286.1s - Mountain Geo.**



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- ♣ Sensitive Receptors
- ▨ National Priority List Sites
- ▨ Landfill Sites



- ▭ County Boundary
- ⚡ Power transmission lines
- ▭ Oil & Gas pipelines



**TARGET PROPERTY:** Horse Canyon  
**ADDRESS:** Highway 6  
**CITY/STATE/ZIP:** Emery County UT 84525  
**LAT/LONG:** 39.4583 / 110.3572

**CUSTOMER:** Mountain Geo.  
**CONTACT:** Jack Hamilton  
**INQUIRY #:** 868286.1s  
**DATE:** October 23, 2002 1:11 pm

## MAP FINDINGS SUMMARY

| <u>Database</u>                                     | <u>Target Property</u> | <u>Search Distance (Miles)</u> | <u>&lt; 1/8</u> | <u>1/8 - 1/4</u> | <u>1/4 - 1/2</u> | <u>1/2 - 1</u> | <u>&gt; 1</u> | <u>Total Plotted</u> |
|---|------------------------|--------------------------------|-----------------|------------------|------------------|----------------|---------------|----------------------|
| <b><u>FEDERAL ASTM STANDARD</u></b>                 |                        |                                |                 |                  |                  |                |               |                      |
| NPL   |                        | 2.000                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| Proposed NPL  |                        | 2.000                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| CERCLIS   |                        | 1.500                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| CERC-NFRAP  |                        | 1.250                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| CORRACTS  |                        | 2.000                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| RCRIS-TSD   |                        | 1.500                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| RCRIS Lg. Quan. Gen.                                |                        | 1.250                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| RCRIS Sm. Quan. Gen.                                | X                      | 1.250                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| ERNS  |                        | 1.000                          | 0               | 0                | 0                | 0              | NR            | 0                    |
| <b><u>STATE ASTM STANDARD</u></b>                   |                        |                                |                 |                  |                  |                |               |                      |
| State Haz. Waste                                    |                        | N/A                            | N/A             | N/A              | N/A              | N/A            | N/A           | N/A                  |
| State Landfill                                      |                        | 1.500                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| LUST  |                        | 1.500                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| UST   |                        | 1.250                          | 0               | 0                | 0                | 0              | 0             | 0                    |
| VCP   |                        | 0.500                          | 0               | 0                | 0                | NR             | NR            | 0                    |
| <b><u>FEDERAL ASTM SUPPLEMENTAL</u></b>             |                        |                                |                 |                  |                  |                |               |                      |
| CONSENT   |                        | 1.000                          | 0               | 0                | 0                | 0              | NR            | 0                    |
| ROD   |                        | 1.000                          | 0               | 0                | 0                | 0              | NR            | 0                    |
| Delisted NPL  |                        | 1.000                          | 0               | 0                | 0                | 0              | NR            | 0                    |
| FINDS   | X                      | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| HMIRS   |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| MLTS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| MINES   |                        | 0.250                          | 0               | 0                | NR               | NR             | NR            | 0                    |
| NPL Liens   |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| PADS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| RAATS   |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| TRIS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| TSCA  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| SSTS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| FTTS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| <b><u>STATE OR LOCAL ASTM SUPPLEMENTAL</u></b>      |                        |                                |                 |                  |                  |                |               |                      |
| SPILLS  |                        | TP                             | NR              | NR               | NR               | NR             | NR            | 0                    |
| <b><u>EDR PROPRIETARY HISTORICAL DATABASES</u></b>  |                        |                                |                 |                  |                  |                |               |                      |
| Coal Gas  |                        | 1.000                          | 0               | 0                | 0                | 0              | NR            | 0                    |
| AQUIFLOW - see EDR Physical Setting Source Addendum |                        |                                |                 |                  |                  |                |               |                      |

TP = Target Property

NR = Not Requested at this Search Distance

\* Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

Map ID  
Direction  
Distance  
Distance (ft.)  
Elevation

MAP FINDINGS

Database(s) EDR ID Number  
EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

1  
Target  
Property

CARBON COUNTY RAILROAD YARD  
HORSE CANYON MINE  
EAST CARBON, UT 84520

RCRIS-SQG 1000164211  
FINDS UTD988066460

RCRIS:

Owner: INTERMOUNTAIN POWER AGENCY  
(999) 999-9999  
EPA ID: UTD988066460  
Contact: DAVID-W ANDERSON  
(213) 481-4104

Classification: Small Quantity Generator  
Used Oil Recyc: No  
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:  
Facility Registry System (FRS)  
Resource Conservation and Recovery Act Information system (RCRAINFO)

## ORPHAN SUMMARY

| City             | EDR ID     | Site Name                            | Site Address                | Zip   | Database(s)      |
|------------------|------------|--------------------------------------|-----------------------------|-------|------------------|
| EAST CARBON      | U000561591 | CARBON GROCERY CO.                   | ~ 191 W. UTAH HWY 123       | 84520 | UST              |
| EAST CARBON      | 1001969429 | ECDC ENVIRONMENTAL L.C.              | 1111 WEST HIGHWAY 123       | 84520 | RCRIS-SQG, FINDS |
| EAST CARBON      | U000813895 | LLOYD HUNT                           | WEST HWY 123                | 84520 | UST              |
| EMERY COUNTY     | 1000472278 | FOUR CORNERS PROPERTY                | (ATLAS MINERALS)            |       | RCRIS-SQG, FINDS |
| EMERY COUNTY     | 1000472303 | ENERGY FUELS CHUTE CANYON            | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472332 | ENERGY FUELS STRIKE                  | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472306 | ENERGY FUELS DIME                    | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472305 | ENERGY FUELS DIKE                    | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472300 | ENERGY FUELS ARLIEAN                 | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472298 | ENERGY FUELS ACERSON                 | NOT AVAILABLE               |       | RCRIS-SQG, FINDS |
| EMERY COUNTY     | 1000472334 | ENERGY FUELS TOMSICH                 | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472315 | ENERGY FUELS LUCKY STRIKE MINE       | NOT AVAILABLE               |       | RCRIS-SQG        |
| EMERY COUNTY     | 1000472307 | ENERGY FUELS EKKER                   | NOT AVAILABLE               |       | RCRIS-SQG        |
| GREEN RIVER      | 1001091736 | SPTCO GREEN RIVER                    | 90 WEST GREEN RIVER BLVD    | 84525 | RCRIS-SQG, FINDS |
| GREEN RIVER      | U003733129 | PHILLIPS 66 SHORT STOP/BURGER KING   | 1224 E MAIN                 | 84525 | UST              |
| GREEN RIVER      | U003544795 | WILCOX CONNOCO SERVICE               | 165 W MAIN ST               | 84525 | UST              |
| GREEN RIVER      | U000813873 | HAL'S SERVICE, INC.                  | 138 W MAIN ST               | 84525 | LUST, UST        |
| GREEN RIVER      | U000559637 | GREEN RIVER TRI-MART #1042           | 365 W MAIN ST               | 84525 | LUST, UST        |
| GREEN RIVER      | 1000111155 | M-I DRILLING FLUIDS CO (GREEN RIVER) | SW OF TOWN W/IN CITY LIMITS | 84525 | RCRIS-SQG, FINDS |
| GREEN RIVER      | 1001122153 | US ARMY GREEN RIVER LAUNCH COMPLEX   | 1.2 MI SE OF GREEN RIVER    | 84525 | CERCLIS, FINDS   |
| GREEN RIVER      | 1003877584 | GREEN RIVER CYANIDE DRUMS            | SEC 15 T 21S R 16E          | 84525 | CERC-NFRAP       |
| GREEN RIVER      | U000813872 | AT&T GREEN RIVER RS                  | 6 MI W OF GREEN RIVER       | 84525 | LUST, UST        |
| GREEN RIVER      | 1000472329 | ENERGY FUELS SAHARA                  | 12 MI W OF GREEN RIVER      | 84525 | RCRIS-SQG, FINDS |
| NEAR GREEN RIVER | 1004604972 | BOOK CLIFFS ENERGY                   | 2.5 MILES ON OLD MOAB HWY   | 84525 | RCRIS-SQG, FINDS |

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Elapsed ASTM days:** Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

## FEDERAL ASTM STANDARD RECORDS

### **NPL: National Priority List**

Source: EPA  
Telephone: N/A

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/18/02  
Date Made Active at EDR: 09/20/02  
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/01/02  
Elapsed ASTM days: 50  
Date of Last EDR Contact: 08/01/02

### **NPL Site Boundaries**

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 8  
Telephone: 303-312-6774

EPA Region 4  
Telephone 404-562-8033

### **Proposed NPL: Proposed National Priority List Sites**

Source: EPA  
Telephone: N/A

Date of Government Version: 05/29/02  
Date Made Active at EDR: 09/20/02  
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/01/02  
Elapsed ASTM days: 50  
Date of Last EDR Contact: 08/01/02

### **CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System**

Source: EPA  
Telephone: 703-413-0223

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 05/15/02  
Date Made Active at EDR: 08/08/02  
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 06/24/02  
Elapsed ASTM days: 45  
Date of Last EDR Contact: 09/23/02

### **CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned**

Source: EPA  
Telephone: 703-413-0223

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/15/02  
Date Made Active at EDR: 08/08/02  
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 06/24/02  
Elapsed ASTM days: 45  
Date of Last EDR Contact: 09/23/02

**CORRACTS:** Corrective Action Report

Source: EPA

Telephone: 800-424-9346

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/02/02  
Date Made Active at EDR: 07/15/02  
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 05/06/02  
Elapsed ASTM days: 70  
Date of Last EDR Contact: 09/09/02

**RCRIS:** Resource Conservation and Recovery Information System

Source: EPA/NTIS

Telephone: 800-424-9346

Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 07/10/02  
Date Made Active at EDR: 09/20/02  
Database Release Frequency: Varies

Date of Data Arrival at EDR: 07/26/02  
Elapsed ASTM days: 56  
Date of Last EDR Contact: 09/24/02

**ERNS:** Emergency Response Notification System

Source: EPA/NTIS

Telephone: 202-260-2342

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/01  
Date Made Active at EDR: 07/15/02  
Database Release Frequency: Varies

Date of Data Arrival at EDR: 07/02/02  
Elapsed ASTM days: 13  
Date of Last EDR Contact: 07/24/02

## FEDERAL ASTM SUPPLEMENTAL RECORDS

**BRS:** Biennial Reporting System

Source: EPA/NTIS

Telephone: 800-424-9346

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/99  
Database Release Frequency: Biennially

Date of Last EDR Contact: 09/16/02  
Date of Next Scheduled EDR Contact: 12/16/02

**CONSENT:** Superfund (CERCLA) Consent Decrees

Source: EPA Regional Offices

Telephone: Varies

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A  
Database Release Frequency: Varies

Date of Last EDR Contact: N/A  
Date of Next Scheduled EDR Contact: N/A

**ROD:** Records Of Decision

Source: EPA

Telephone: 703-416-0223

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/21/01  
Database Release Frequency: Annually

Date of Last EDR Contact: 07/09/02  
Date of Next Scheduled EDR Contact: 10/07/02

**DELISTED NPL:** National Priority List Deletions

Source: EPA  
Telephone: N/A

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/18/02  
Database Release Frequency: Quarterly

Date of Last EDR Contact: 08/01/02  
Date of Next Scheduled EDR Contact: 11/04/02

**FINDS:** Facility Index System/Facility Identification Initiative Program Summary Report

Source: EPA  
Telephone: N/A

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/21/02  
Database Release Frequency: Quarterly

Date of Last EDR Contact: 07/08/02  
Date of Next Scheduled EDR Contact: 10/07/02

**HMIRS:** Hazardous Materials Information Reporting System

Source: U.S. Department of Transportation  
Telephone: 202-366-4555

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 05/31/02  
Database Release Frequency: Annually

Date of Last EDR Contact: 07/22/02  
Date of Next Scheduled EDR Contact: 10/21/02

**MLTS:** Material Licensing Tracking System

Source: Nuclear Regulatory Commission  
Telephone: 301-415-7169

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/12/02  
Database Release Frequency: Quarterly

Date of Last EDR Contact: 10/08/02  
Date of Next Scheduled EDR Contact: 01/06/03

**MINES:** Mines Master Index File

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959

Date of Government Version: 06/05/02  
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 09/30/02  
Date of Next Scheduled EDR Contact: 12/30/02

**NPL LIENS:** Federal Superfund Liens

Source: EPA  
Telephone: 205-564-4267

Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/91  
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 08/26/02  
Date of Next Scheduled EDR Contact: 11/25/02

**PADS: PCB Activity Database System**

Source: EPA  
Telephone: 202-564-3887

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/28/02  
Database Release Frequency: Annually

Date of Last EDR Contact: 08/02/02  
Date of Next Scheduled EDR Contact: 11/11/02

**RAATS: RCRA Administrative Action Tracking System**

Source: EPA  
Telephone: 202-564-4104

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95  
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 09/10/02  
Date of Next Scheduled EDR Contact: 12/09/02

**TRIS: Toxic Chemical Release Inventory System**

Source: EPA  
Telephone: 202-260-1531

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/00  
Database Release Frequency: Annually

Date of Last EDR Contact: 09/24/02  
Date of Next Scheduled EDR Contact: 12/23/02

**TSCA: Toxic Substances Control Act**

Source: EPA  
Telephone: 202-260-5521

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98  
Database Release Frequency: Every 4 Years

Date of Last EDR Contact: 09/09/02  
Date of Next Scheduled EDR Contact: 12/09/02

**FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)**

Source: EPA  
Telephone: 202-564-2501

Date of Government Version: 04/25/02  
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/24/02  
Date of Next Scheduled EDR Contact: 12/23/02

**SSTS: Section 7 Tracking Systems**

Source: EPA  
Telephone: 202-564-5008

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/00  
Database Release Frequency: Annually

Date of Last EDR Contact: 07/19/02  
Date of Next Scheduled EDR Contact: 10/21/02

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**FTTS:** FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Source: EPA/Office of Prevention, Pesticides and Toxic Substances

Telephone: 202-564-2501

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/25/02  
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/24/02  
Date of Next Scheduled EDR Contact: 12/23/02

## STATE OF UTAH ASTM STANDARD RECORDS

**SHWS:** This state does not maintain a SHWS list. See the Federal CERCLIS list.

Source: EPA

Telephone: 703-413-0223

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A  
Date Made Active at EDR: N/A  
Database Release Frequency: N/A

Date of Data Arrival at EDR: N/A  
Elapsed ASTM days: N/A  
Date of Last EDR Contact: 09/03/02

**SWF/LF:** List of Landfills

Source: Department of Environmental Quality

Telephone: 801-538-6170

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/01/02  
Date Made Active at EDR: 06/28/02  
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 05/17/02  
Elapsed ASTM days: 42  
Date of Last EDR Contact: 07/31/02

**LUST:** Sites with Leaking Underground Storage Tanks

Source: Department of Environmental Quality

Telephone: 801-536-4115

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 07/02/02  
Date Made Active at EDR: 09/06/02  
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/19/02  
Elapsed ASTM days: 18  
Date of Last EDR Contact: 08/19/02

**UST:** List of Sites with Underground Storage Tanks

Source: Department of Environmental Quality

Telephone: 801-536-4115

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/02/02  
Date Made Active at EDR: 09/06/02  
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/19/02  
Elapsed ASTM days: 18  
Date of Last EDR Contact: 08/19/02

**VCP:** Voluntary Cleanup Sites List

Source: Department of Environmental Quality

Telephone: 801-536-4100

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/07/02  
Date Made Active at EDR: 06/14/02  
Database Release Frequency: Varies

Date of Data Arrival at EDR: 05/23/02  
Elapsed ASTM days: 22  
Date of Last EDR Contact: 09/03/02

## STATE OF UTAH ASTM SUPPLEMENTAL RECORDS

### **SPILLS:** Spills Data

Source: Department of Environmental Quality  
Telephone: 801-536-4100  
Incidents reported to the Division of Environmental Response and Remediation

Date of Government Version: 05/01/02  
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 08/16/02  
Date of Next Scheduled EDR Contact: 11/11/02

## EDR PROPRIETARY HISTORICAL DATABASES

**Former Manufactured Gas (Coal Gas) Sites:** The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

### **Disclaimer Provided by Real Property Scan, Inc.**

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## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

**Oil/Gas Pipelines/Electrical Transmission Lines:** This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### STREET AND ADDRESS INFORMATION

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## GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM

### TARGET PROPERTY ADDRESS

HORSE CANYON  
HIGHWAY 6  
EMERY COUNTY, UT 84525

### TARGET PROPERTY COORDINATES

|                                |                             |
|--------------------------------|-----------------------------|
| Latitude (North):              | 39.458302 - 39° 27' 29.9"   |
| Longitude (West):              | 110.357201 - 110° 21' 25.9" |
| Universal Transverse Mercator: | Zone 12                     |
| UTM X (Meters):                | 555302.0                    |
| UTM Y (Meters):                | 4367625.0                   |

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2439110-D3 LILA POINT, UT  
Source: USGS 7.5 min quad index

## GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General WNW

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## FEMA FLOOD ZONE

Target Property County  
EMERY, UT

FEMA Flood  
Electronic Data  
Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: Not Reported

## NATIONAL WETLAND INVENTORY

NWI Quad at Target Property  
NOT AVAILABLE

NWI Electronic  
Data Coverage  
Not Available

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

| <u>MAP ID</u> | <u>LOCATION FROM TP</u> | <u>GENERAL DIRECTION GROUNDWATER FLOW</u> |
|---------------|-------------------------|---|
| Not Reported  |                         |   |

## GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

## GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

### ROCK STRATIGRAPHIC UNIT

### GEOLOGIC AGE IDENTIFICATION

|         |   |           |                      |
|---------|---|-----------|----------------------|
| Era:    | Cenozoic                                    | Category: | Continental Deposits |
| System: | Tertiary                                    |           |                      |
| Series: | Paleocene                                   |           |                      |
| Code:   | Txc (decoded above as Era, System & Series) |           |                      |

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

|                       |  |
|-----------------------|--|
| Soil Component Name:  | MIDFORK FAMILY   |
| Soil Surface Texture: | bouldery - loam  |
| Hydrologic Group:     | Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures. |
| Soil Drainage Class:  | Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.                                  |

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

| Soil Layer Information |          |           |                      |   |   |                           |                        |
|------------------------|----------|-----------|----------------------|---|---|---------------------------|------------------------|
| Layer                  | Boundary |           | Soil Texture Class   | Classification  |   | Permeability Rate (in/hr) | Soil Reaction (pH)     |
|                        | Upper    | Lower     |                      | AASHTO Group  | Unified Soil  |                           |                        |
| 1                      | 0 inches | 7 inches  | bouldery - loam      | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.                   | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay   | Max: 2.00<br>Min: 0.60    | Max: 7.80<br>Min: 6.60 |
| 2                      | 7 inches | 60 inches | very channery - loam | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | COURSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.<br>COURSE-GRAINED SOILS, Gravels, Gravels with fines, Clayey Gravel. | Max: 2.00<br>Min: 0.60    | Max: 8.40<br>Min: 7.40 |

### OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinator soil types may appear within the general area of target property.

Soil Surface Textures: extremely bouldery - fine sandy loam  
unweathered bedrock

Surficial Soil Types: extremely bouldery - fine sandy loam  
unweathered bedrock

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: very stony - loam  
unweathered bedrock

### ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## WELL SEARCH DISTANCE INFORMATION

| <u>DATABASE</u>  | <u>SEARCH DISTANCE (miles)</u> |
|------------------|--------------------------------|
| Federal USGS     | 1.000                          |
| Federal FRDS PWS | Nearest PWS within 1 mile      |
| State Database   | 1.000                          |

## **FEDERAL USGS WELL INFORMATION**

| <u>MAP ID</u>  | <u>WELL ID</u> | <u>LOCATION FROM TP</u> |
|----------------|----------------|-------------------------|
| No Wells Found |                |                         |

## **FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

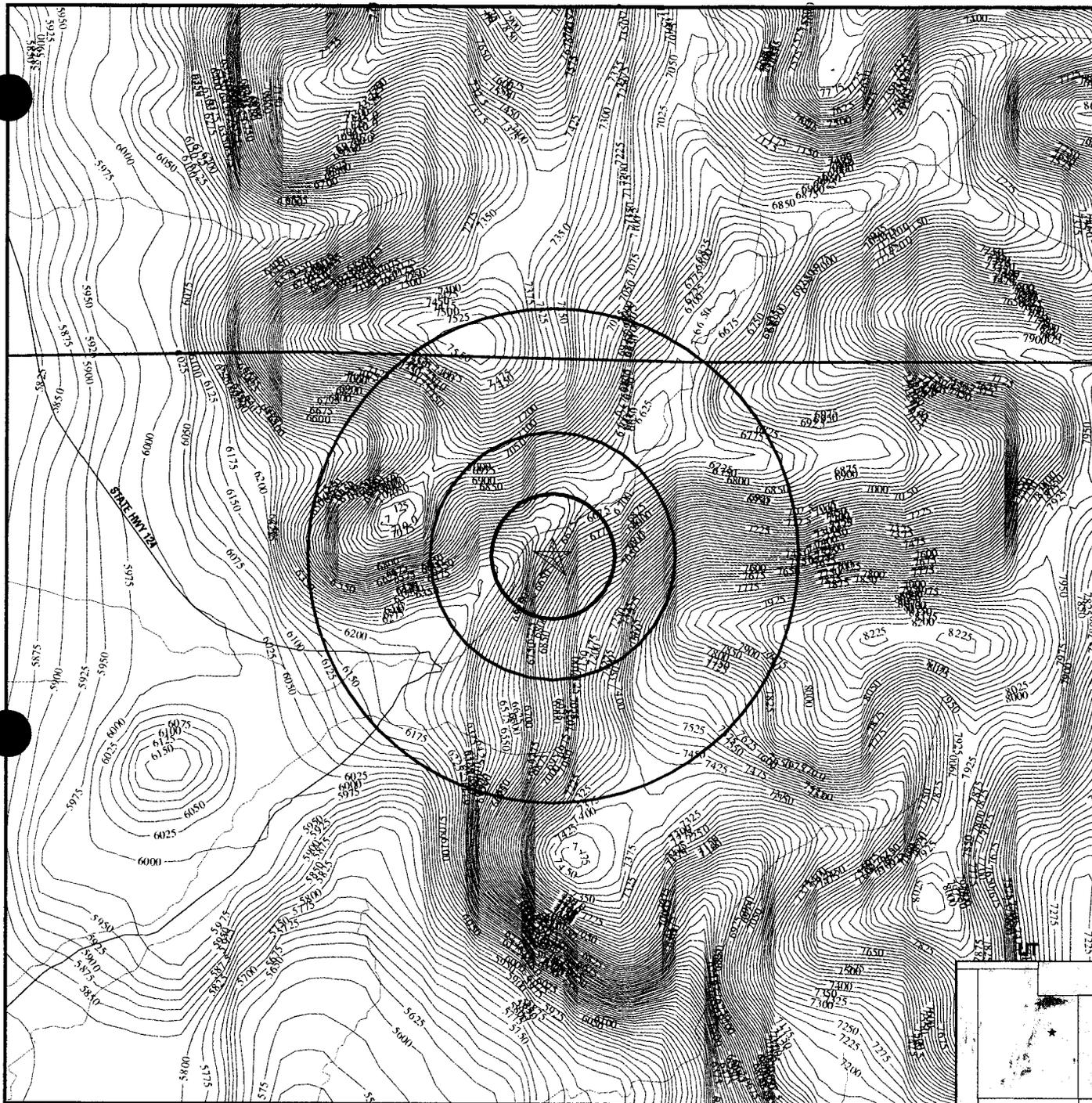
| <u>MAP ID</u>       | <u>WELL ID</u> | <u>LOCATION FROM TP</u> |
|---------------------|----------------|-------------------------|
| No PWS System Found |                |                         |

Note: PWS System location is not always the same as well location.

## **STATE DATABASE WELL INFORMATION**

| <u>MAP ID</u>  | <u>WELL ID</u> | <u>LOCATION FROM TP</u> |
|----------------|----------------|-------------------------|
| No Wells Found |                |                         |

# PHYSICAL SETTING SOURCE MAP - 868286.1s



- County Boundary
- Major Roads
- Contour Lines
- Water Wells
- Public Water Supply Wells
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Cluster of Multiple Icons
- Earthquake epicenter, Richter 5 or greater
- Oil, gas or related wells

**TARGET PROPERTY:** Horse Canyon  
**ADDRESS:** Highway 6  
**CITY/STATE/ZIP:** Emery County UT 84525  
**LAT/LONG:** 39.4583 / 110.3572

**CUSTOMER:** Mountain Geo.  
**CONTACT:** Jack Hamilton  
**INQUIRY #:** 868286.1s  
**DATE:** October 23, 2002 1:11 pm

**GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS  
RADON**

**AREA RADON INFORMATION**

Federal EPA Radon Zone for EMERY County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level  $\geq$  2 pCi/L and  $\leq$  4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Not Reported

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

## HYDROGEOLOGIC INFORMATION

### **AQUIFLOW<sup>®</sup> Information System**

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### **Geologic Age and Rock Stratigraphic Unit**

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### **STATSGO: State Soil Geographic Database**

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

## ADDITIONAL ENVIRONMENTAL RECORD SOURCES

### **FEDERAL WATER WELLS**

#### **PWS: Public Water Systems**

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### **PWS ENF: Public Water Systems Violation and Enforcement Data**

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

**USGS Water Wells:** In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### STATE RECORDS

#### Utah Public Drinking Water Well Sources

Source: Department of Environmental Quality  
Telephone: 801-536-4200

#### Utah Oil, Gas and Mining Database

Source: Department of Natural Resources  
Telephone: 801-538-5257

### RADON

#### Area Radon Information

Source: EPA  
Telephone: 303-236-1525

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### EPA Radon Zones

Source: EPA  
Telephone: 202-564-9370  
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

### OTHER

#### Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

### 3.0 NATURAL ENVIRONMENT

The Horse Canyon Mine permit area is located in the Book Cliffs range of eastern Utah. The Book Cliffs are part of a larger geographic area known as the Tavaputs Plateau. The proposed transfer parcels total approximately 1200 acres, predominantly in Emery County, but with a few acres in Carbon County as well. Price, Utah, the largest city in the area, is located approximately 30 miles to the northwest. Salt Lake City, Utah is located approximately 150 miles northwest.

The Book Cliffs range includes steep canyon walls and escarpments composed of alternating siltstones, shale, and sandstone (Osterwald et al 1981). Transfer parcel elevations range from approximately 6000 feet near the mouth of Horse Canyon to approximately 7600 feet. Book Cliffs elevations east of the mine site exceed 9000 feet.

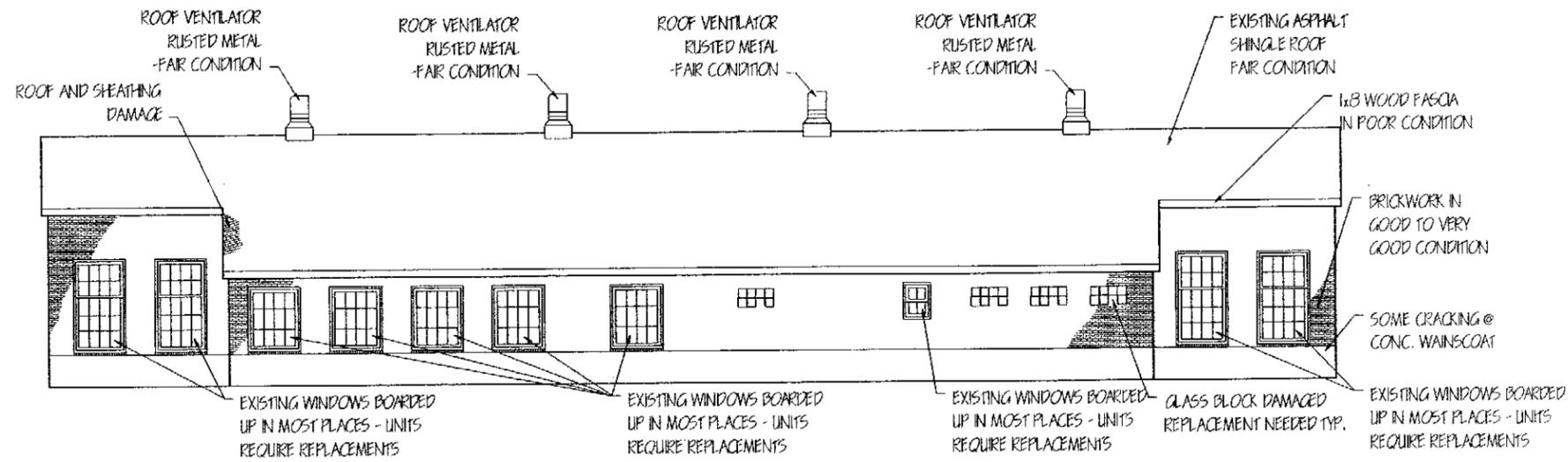
The climate in the area is characterized by hot summers and cold winters. Temperatures can exceed 100°F in the summer months, contrasted with temperatures that fall below freezing during the winter. The area is relatively dry, with the annual precipitation averaging approximately 12 inches per year (ICF Kaiser Engineers 1990). Based on a climate study done for the Horse Canyon Mining and Reclamation Plan, precipitation in the nearby Sunnyside, Utah, area falls in all months of the year, but is heaviest in the spring (March through May), and late summer/early fall (August through October). The Sunnyside area is located just seven miles north of the Horse Canyon site in almost identical terrain (ICF Kaiser Engineers 1990).

Dalton et al (1990) describe 14 ecosystem types that are found in the Tavaputs Plateau region, which ranges from 5,500 to 10,118 feet of elevation. Of the 14 ecosystems, four are located on the Horse Canyon property or immediately juxtaposed to it. These four include: Saltbush/Grass, Sagebrush/Grass, Pinyon/Juniper, and Mountain Brush.

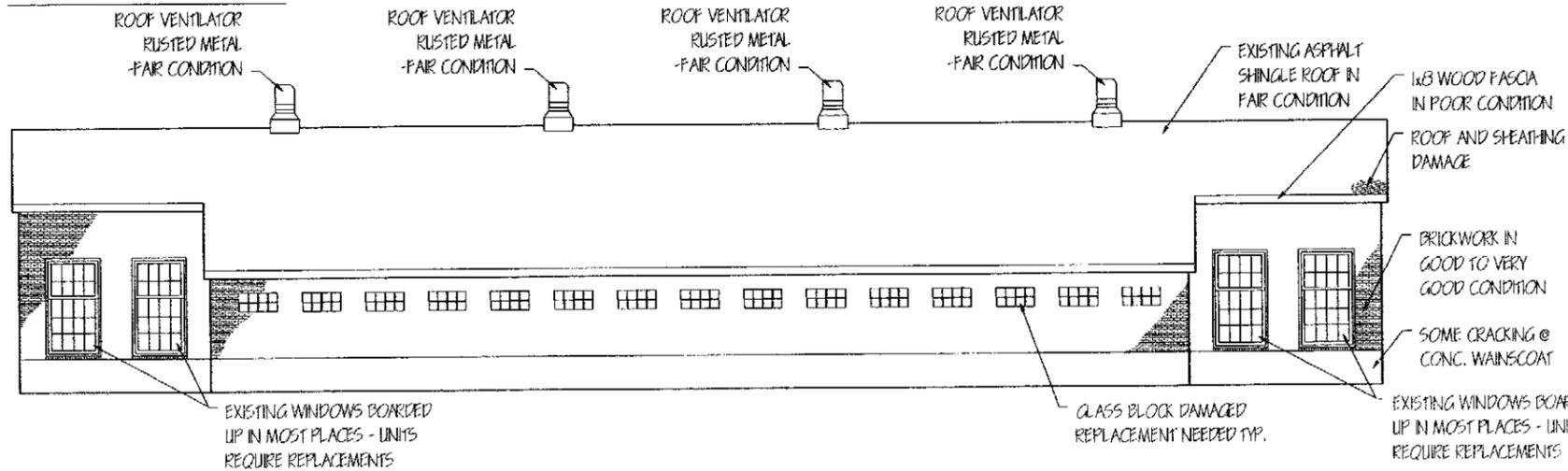
Saltbush/Grass ecosystems are dominated by a variety of saltbushes (*Atriplex* spp) usually associated with Indian rice grass (*Oryzopsis hymenoides*) and broom snakeweed (*Gutierrezia sorothrae*). Forbs are more or less abundant depending on range conditions (Dalton et al 1990). This ecosystem is found at elevations between 3700 and 5800 feet and found at the lower elevations just to the west of the Horse Canyon property.

Sagebrush/Grass ecosystems are dominated by sagebrush (*Artemisia* spp) and grass species. Forbs can be abundant. The relative abundance of each vegetation class varies with range conditions. This ecosystem can support a few other shrubs and trees (Dalton et al 1990). It can be found on the higher, relatively flat slopes of the property.

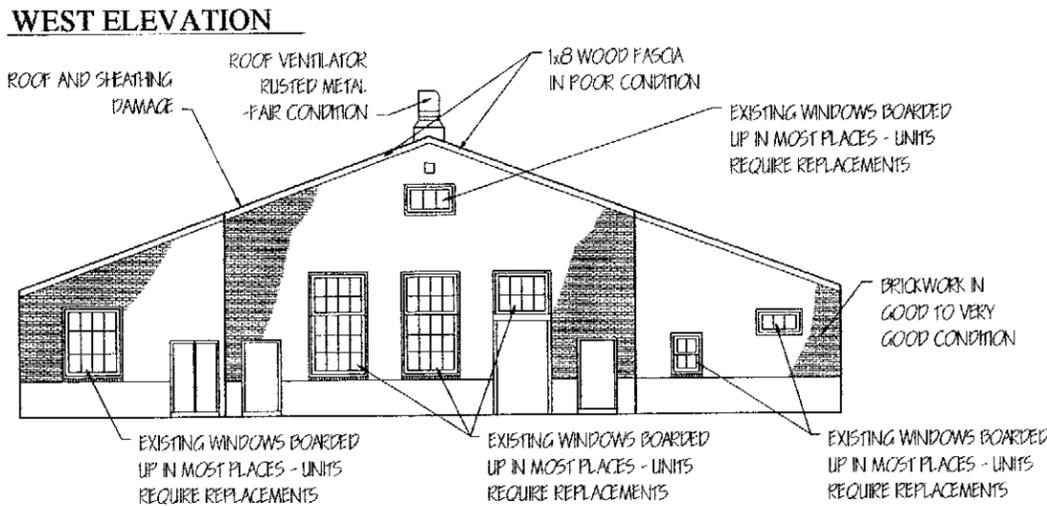
Pinyon-Juniper ecosystems are dominated by pinyon pine (*Pinus edulis*) and juniper



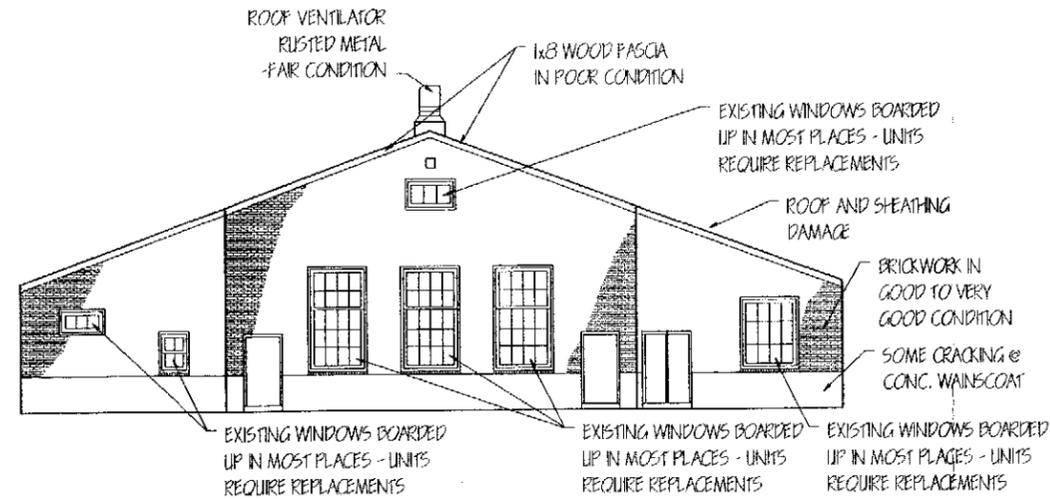
**EAST ELEVATION**



**WEST ELEVATION**



**NORTH ELEVATION**



**SOUTH ELEVATION**

**A.K. Smith Architects**

3194 SOUTH 1100 EAST  
SALT LAKE CITY, UTAH 84106  
801.483.2434

DATE  
3.03.03

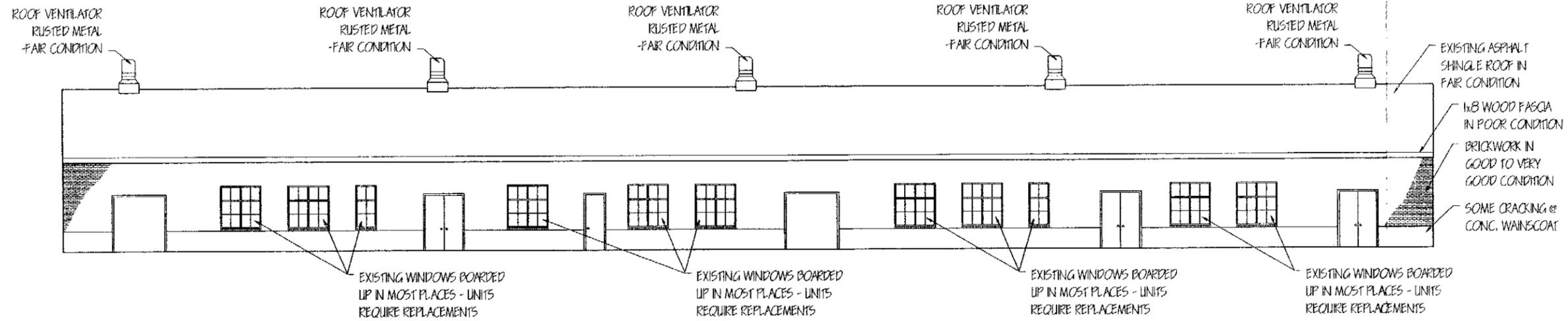
REV.

**Horse Canyon Project**

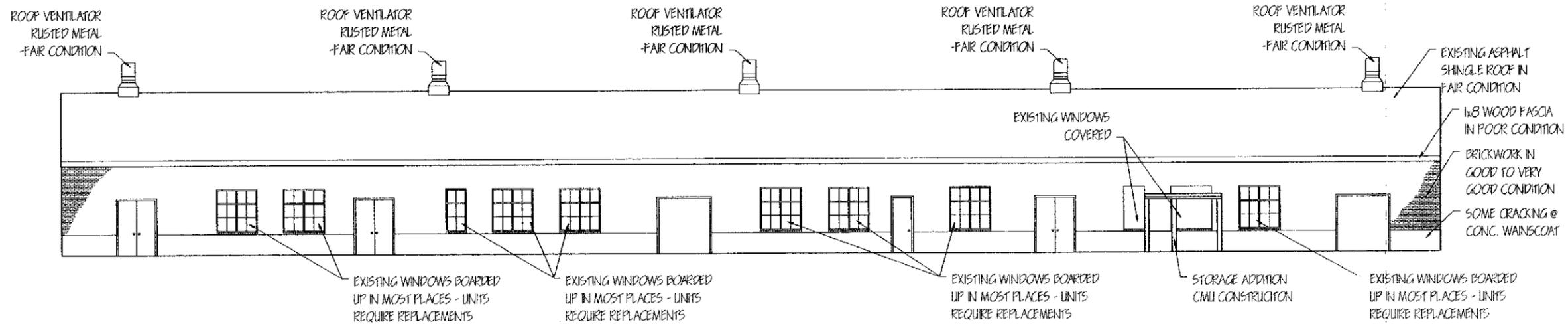
Horse Canyon  
Price, Utah

ELEVATION

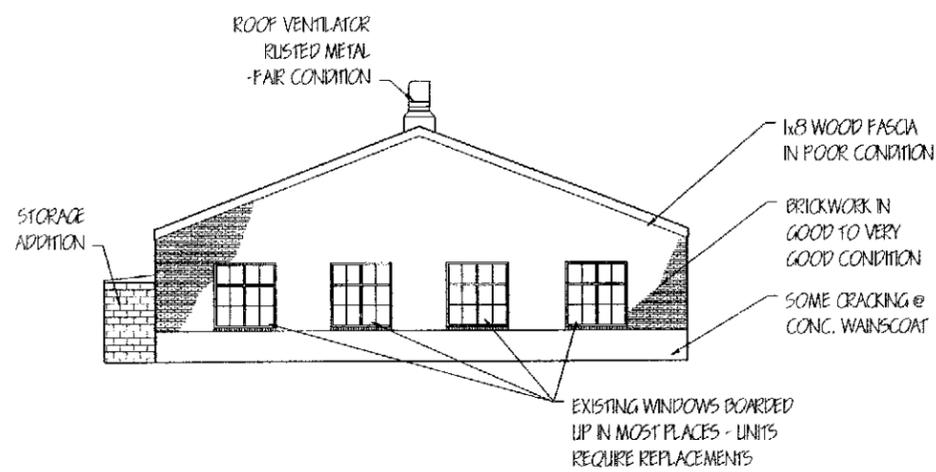
A-3.2



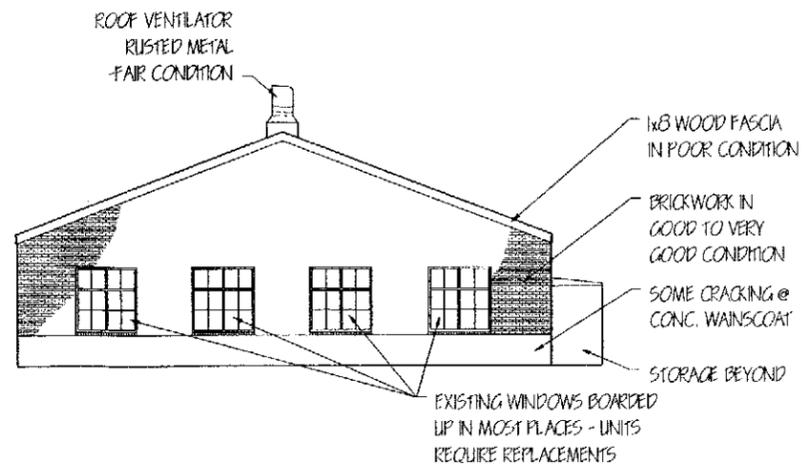
**EAST ELEVATION**



**WEST ELEVATION**



**NORTH ELEVATION**



**SOUTH ELEVATION**

**CLASSROOM ELEVATION**



**A.K. Smith Architects**  
 3194 SOUTH 1100 EAST  
 SALT LAKE CITY, UTAH 84106  
 801.483.2434

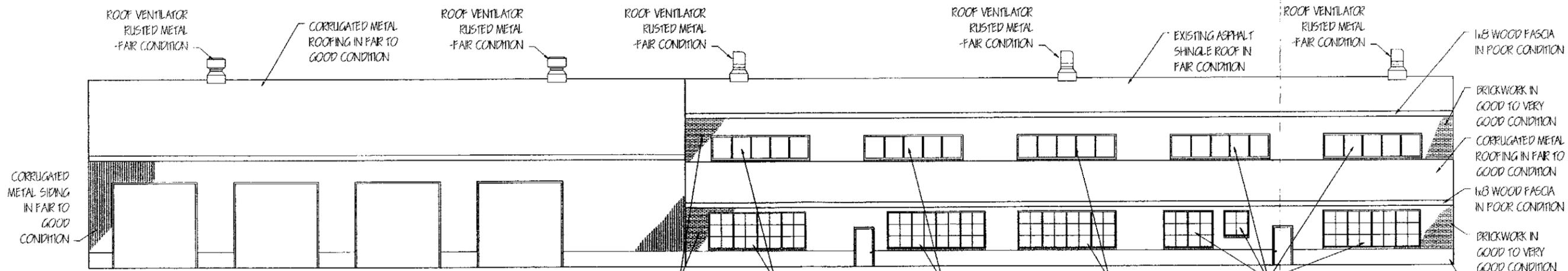
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3-03-03

REV.

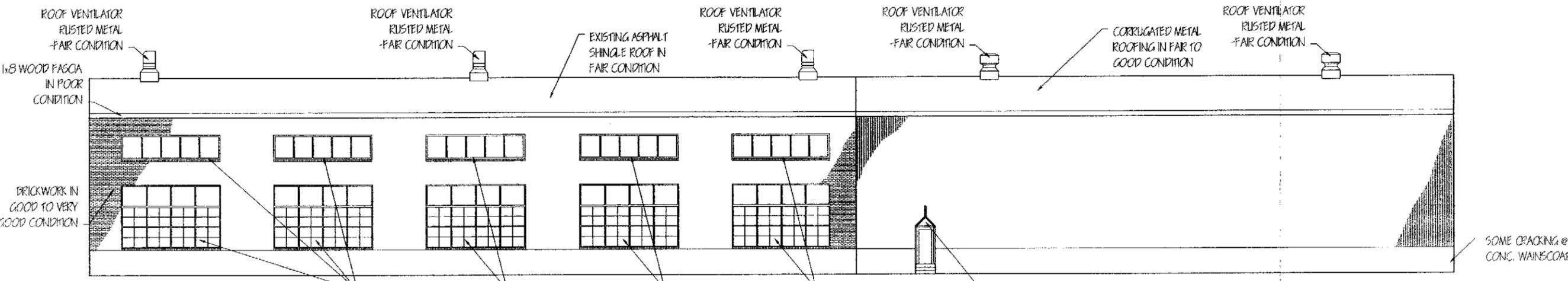
**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

ELEVATION

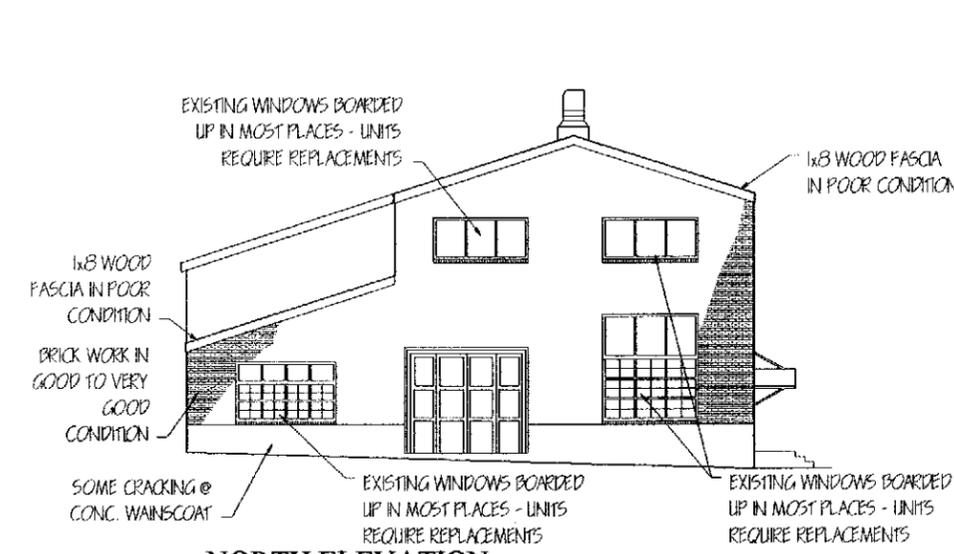
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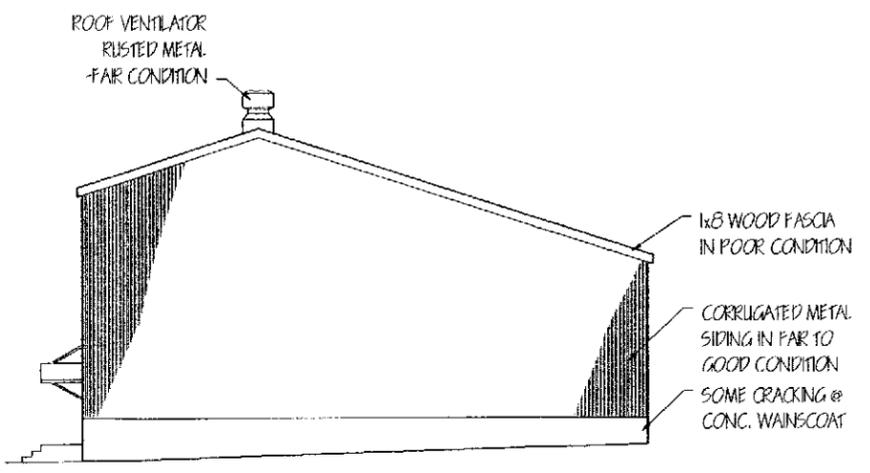
**EAST ELEVATION**



**WEST ELEVATION**



**NORTH ELEVATION**



**SOUTH ELEVATION**

**SHOP ELEVATION**



**A.K. Smith Architects**  
 3194 SOUTH 1100 EAST  
 SALT LAKE CITY, UTAH 84106  
 801.483.2434

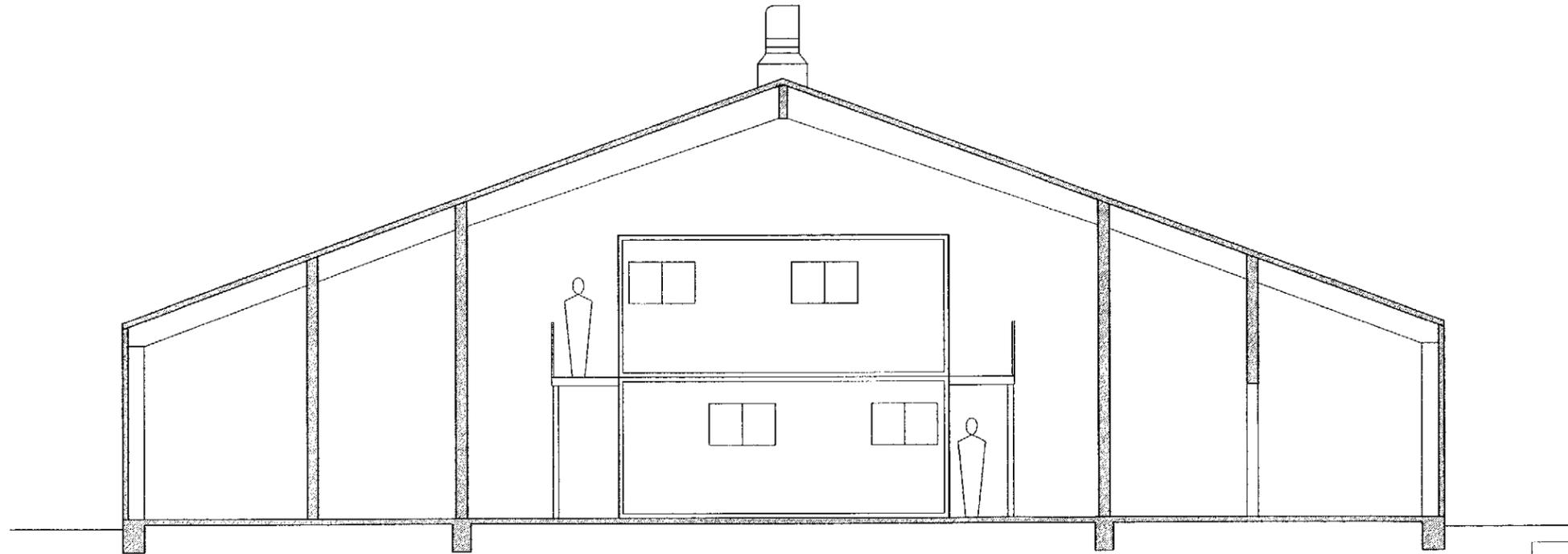
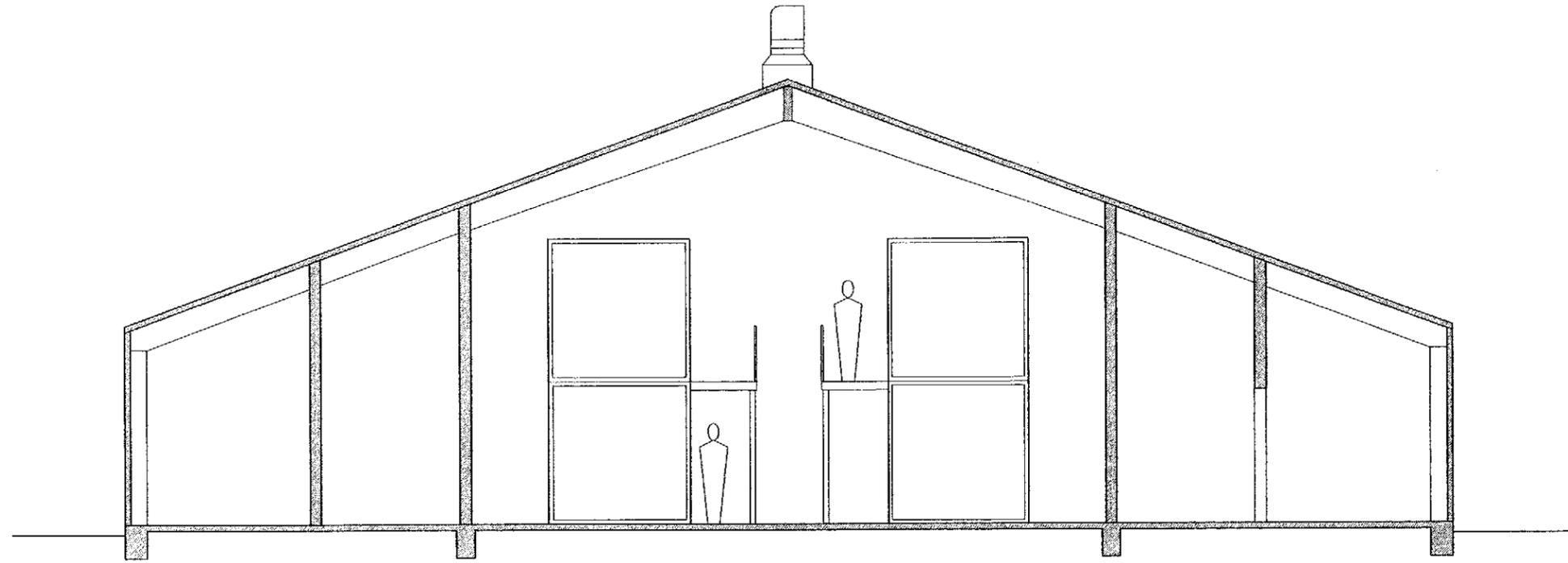
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REV.

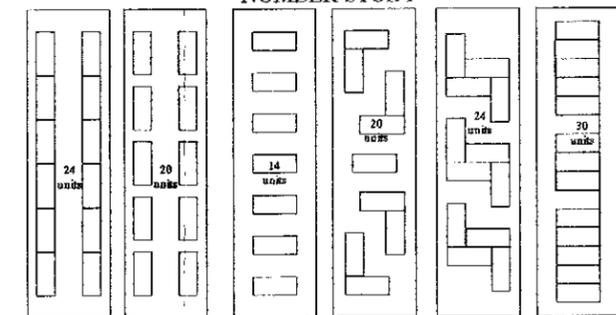
**Horse Canyon Project**  
 Horse Canyon  
 Price, Utah

ELEVATION

A-3.4



ALTERNATE HOUSING SECTIONS



CONFIGURATION  
AND UNIT  
NUMBER STUDY

A.K. Smith Architects  
3194 SOUTH 1100 EAST  
SALT LAKE CITY, UTAH 84106  
801.483.2434

DATE  
3.03.03

REV.

Horse Canyon Project  
Horse Canyon  
Price, Utah

SECTION  
A-4

#### **4.4 Roads**

The road to Horse Canyon from East Carbon City and Sunnyside, in Carbon County, is in excellent condition and is maintained by the state. Highway 125 runs directly from State Highway 6 to Horse Canyon, a distance of about seven miles; however, it is in relatively poor condition. Emery County officials confirm that when development occurs in Horse Canyon, Highway 125 will be repaired and maintained by the county.

#### **4.5 Ancillary Facilities**

Only low-cost ancillary facilities are feasible, given the low revenue that will be generated by the initial site operations. Current planning includes an outdoor amphitheater and a horse corral. The water tank now located on the site appears to be in useable condition and so will remain. The operators of the facility will preserve a designated historical site in the canyon, a tree carved with an inscription by Sam Gilson (discoverer of gilsonite). UtahAmerican will remove the pump house, explosives magazines, mine portals, and other structures that would not be utilized by the facility, as part of its closure requirements and a requirement for property transfer.

#### **4.6 New Construction**

The four main brick buildings on the site are very large, thus renovation to meet current building codes is not feasible for a small-scale startup that will not generate a great deal of revenue. Later, as the facility develops in scope and activity level, occupation of the buildings may be desirable and economically justified. While a higher use than just remaining empty is sought for the existing buildings, it is suggested that modular buildings be considered for the initial phase of program development at Horse Canyon. Modular buildings offer the following advantages:

- They can be moved in quickly and set up with a minimum of disturbance to the environment.
- They can be sized to precisely meet the needs of the facility at the given time.
- The cost is comparable to, or less than, new, permanent construction.
- They can be leased, or leased-to-buy if purchase is not feasible at a given time.
- They can be completely self-sufficient, with water tanks, pumps, sanitary tanks, and generators incorporated, so that the running of utilities from the outside (possibly over a long distance) is unnecessary.
- They offer flexibility, so that sizes and configurations of buildings can be changed as the needs of the facility change.
- They can be made attractive on the outside to be harmonious with the environment and on the inside to provide comfortable living and working quarters.

The project team consulted with GE Capital, the largest purveyor of modular housing in the country, to determine an appropriate configuration for the facility. The following

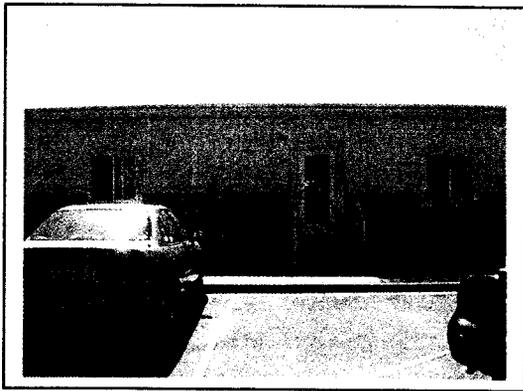
page shows pictures of some typical modular buildings in Utah that are similar to what might be utilized at the Horse Canyon site for a startup facility.



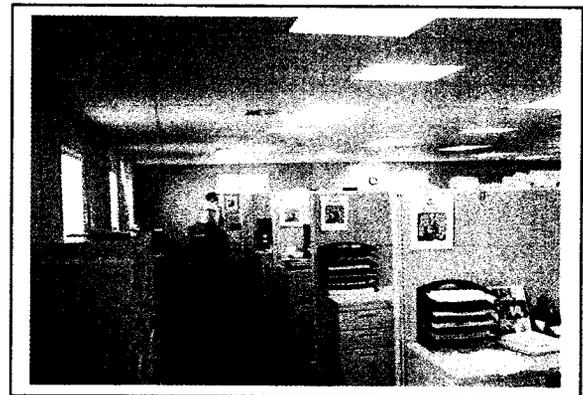
Exterior GE Capital Modular Building



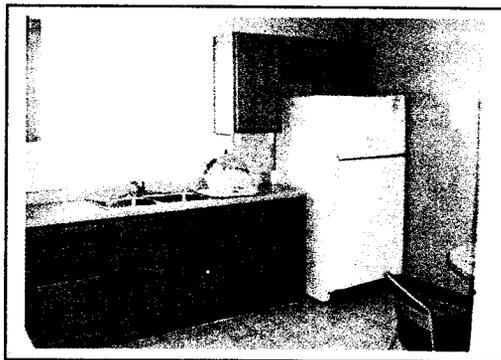
Interior GE Capital Modular Building



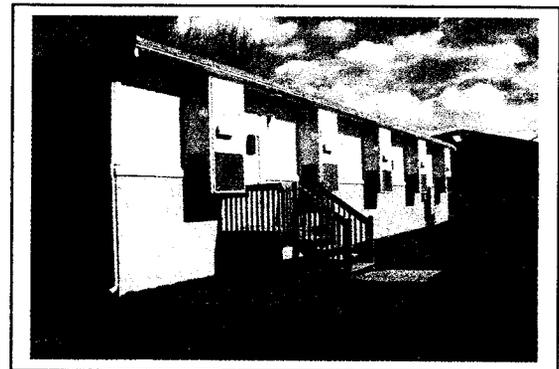
Layton Hospital Modular Building



Interior, Layton Hospital Building



Kitchen Area, Layton Building



HVAC Units, Layton Building

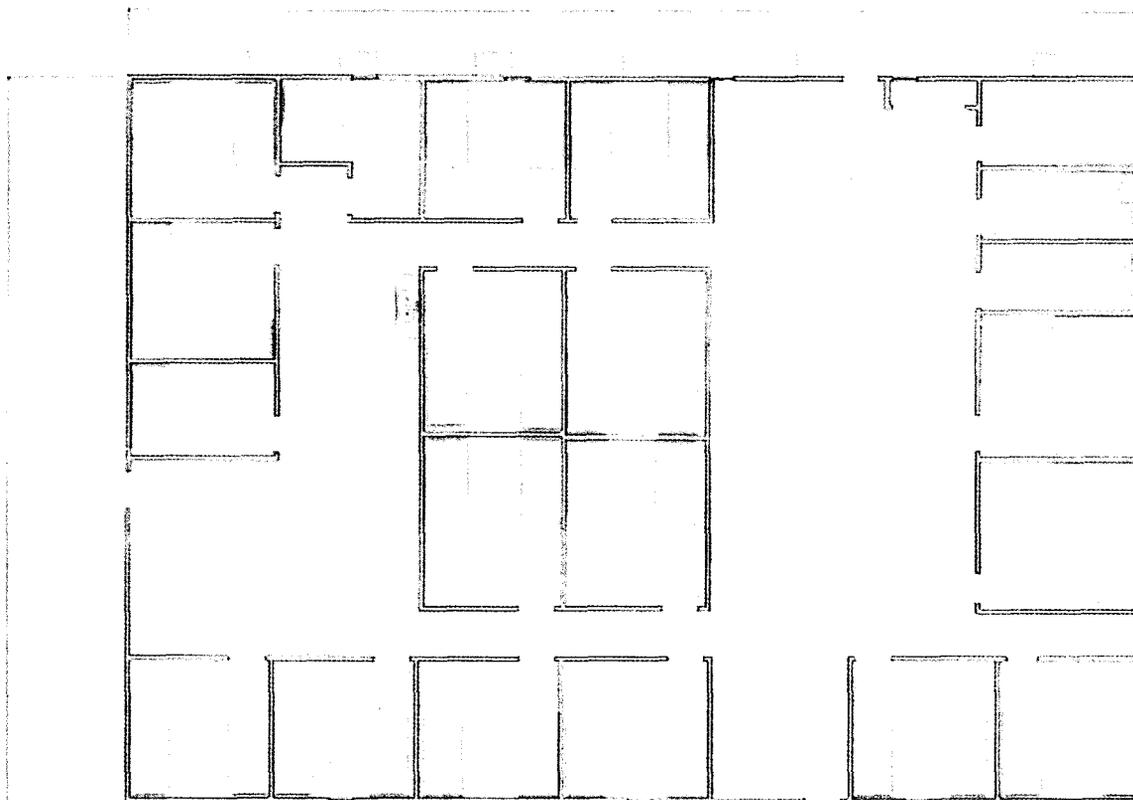
A proposed startup configuration that would house up to 35 students and faculty is offered here. The proposed modular construction would be able to handle all the needs of a facility startup with a full schedule of activities and classes. The estimated costs for this example are typical for modular construction; they could be higher or lower, depending on the desired level of accommodation. They are presented here as a point of reference. Certainly, facility utilization could begin with a much lower level of accommodation (one or two basic trailers) at a far lower cost.

Four modular buildings are suggested: a sleeping area, a locker/shower facility, a kitchen/dining building, and a classroom/study area. Possible configurations are shown in the figures below:

### Sleeping Area

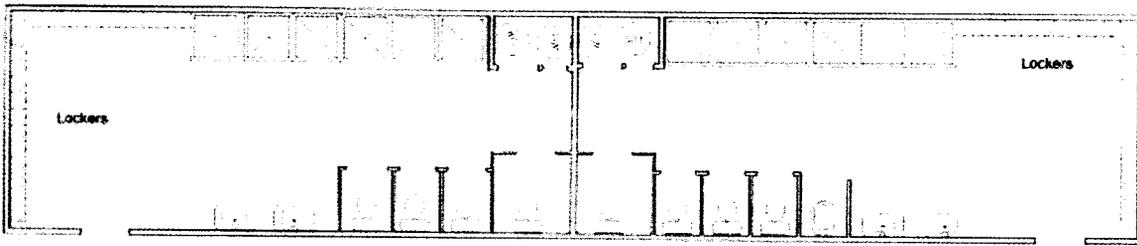
84' X 60' 7-plex

UNIT #  
067451-4,067804,516,519



### Locker/Shower

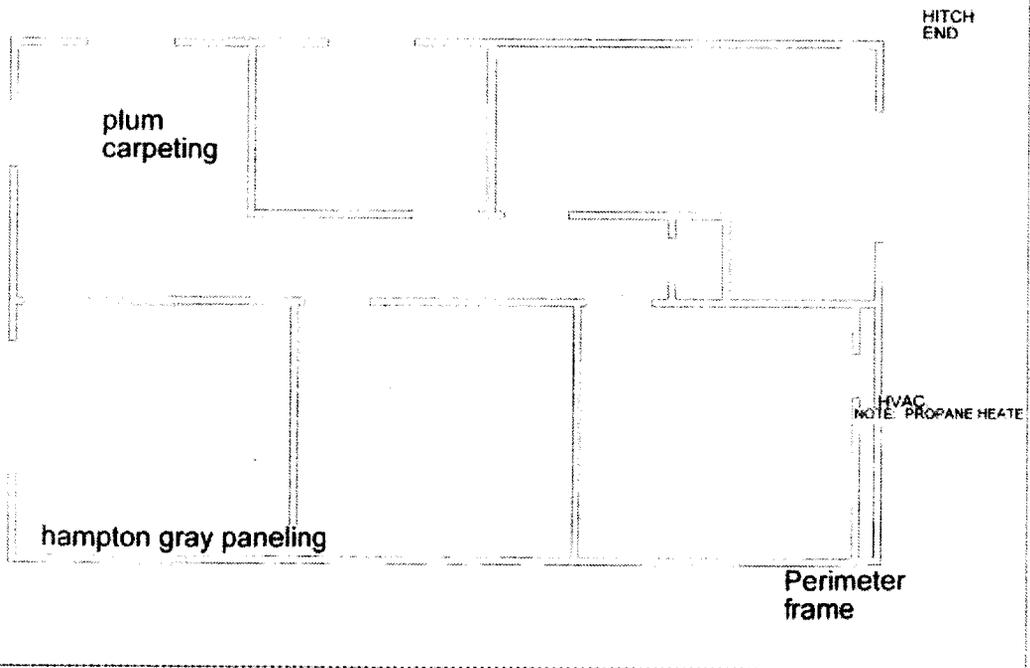
19 X 10



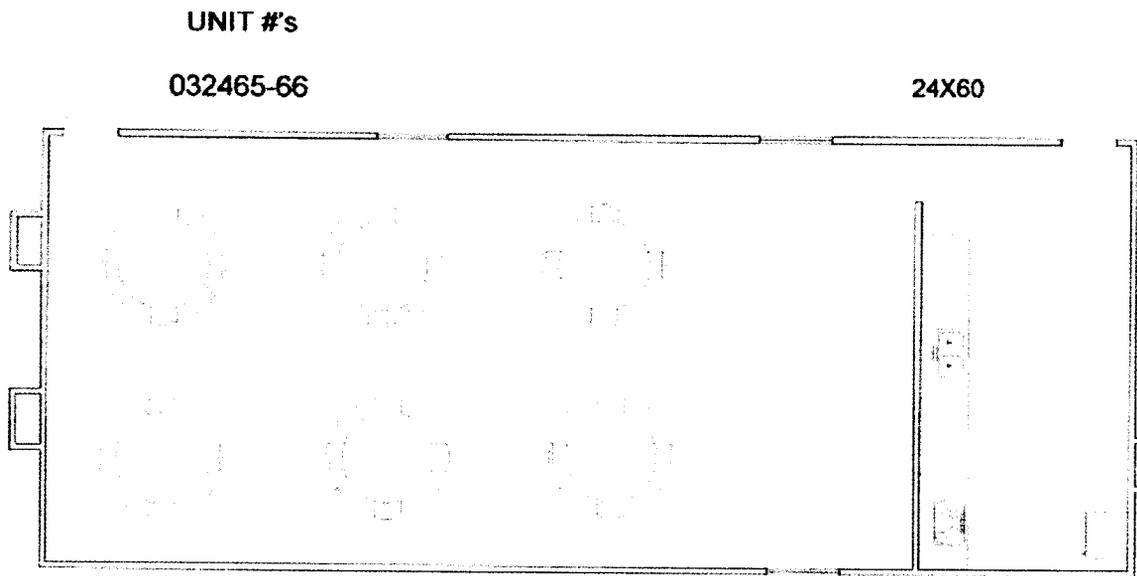
### Study Area

24' X 40' Classroom  
UNIT # 181109-181110

SERIAL #5529 & #5530



## Dining Area



### 4.6.1 Modular Equipment Costs

The following estimates were obtained from GE Modular for equipment suitable for use at Horse Canyon. While in actuality, equipment may differ and may be phased in, these quotes will provide a good estimate of what the potential costs may be.

**GE Capital Modular Space**

modspace.com

BRANCH OFFICE:  
**SALT LAKE CITY**  
 2885 West Directors Row  
 SALT LAKE CITY UT 84104  
 Contact: **MISHELE MITCHELL**  
 Phone: **801-974-5628**  
           **1-800-523-7918**  
 Fax: **801-972-5210**

**Quotation**

Quote No.: **438009**  
 Quote Expires: **03/25/200**  
 Date: **04/30/200**  
 Page No.: **1**

Customer

University of Utah  
 Attn: Jack Hamilton  
 1495 East 100 South  
 Room 138  
 Salt Lake City UT 84112  
 Phone: **801-581-6348**  
 Fax: **801-581-5440**

Deliver To

Horse Canyon  
 PRICE UT 84501

| LINE | DESCRIPTION   | AMOUNT           | PERIOD   |
|------|---|------------------|----------|
| 001  | <u>Sale</u><br>Class: SHRS Unit Width = 12', Unit Length = 40'<br>Pricing for NEW 12x40 Shower trailer<br>(Qty: 2 at \$26,952.00) | 53,904.00        |          |
|      | STEPS (Qty: 4 at \$125.00)  | 500.00           | one time |
|      | BUILDING DELIVERY (Qty: 2 at \$390.00)  | 780.00           | one time |
|      | BLOCK AND LEVEL (Qty: 2 at \$150.00)  | 300.00           | one time |
|      | ANCHOR/TIE DOWN (Qty: 8 at \$35.00)   | 280.00           | one time |
|      | Option 1: SKIRTING - WOOD (Qty: 2 at \$832.00)  | 1,664.00         | one time |
|      | <b>Total</b>  | <b>57,428.00</b> |          |

BLOCKING PRICE INCLUDES HOOKING UNIT TO THE SLEEPING  
 QUARTERS BUILDING.

OPTIONAL :

40 LOCKERS AND 2 8' BENCHES - \$8,052.00



# GE Capital Modular Space

modspace.com

BRANCH OFFICE:  
SALT LAKE CITY  
Contact: MISHELE MITCHELL  
Phone: 801-974-5628  
1-800-523-7918  
Fax: 801-972-5210

## Quotation

Quote No.: 438009  
Quote Expires: 03/25/2003  
Date: 04/30/2003  
Page No.: 2

| LINE | DESCRIPTION  | AMOUNT    | PERIOD   |
|------|--|-----------|----------|
| 002  | <u>Sale</u><br>Class: MULT Unit Width = 24', Unit Length = 56'<br>Lunchroom Facility | 26,313.00 |          |
|      | STEPS (Qty: 2 at \$125.00)   | 250.00    | one time |
|      | BUILDING DELIVERY (Qty: 2 at \$390.00)   | 780.00    | one time |
|      | ANCHOR/TIE DOWN (Qty: 10 at \$35.00)   | 350.00    | one time |
|      | SET-UP COMPLEX   | 2,000.00  | one time |
|      | Option 1: SKIRTING - WOOD  | 1,040.00  | one time |
|      | Total  | 30,733.00 |          |

DOES NOT INCLUDED PRICING FOR COOKTOP OR REFRIGERATOR.

|     |   |            |          |
|-----|---|------------|----------|
| 003 | <u>Sale</u><br>Class: MULT Unit Width = 84', Unit Length = 60'<br>Sleeping Quarters | 113,250.00 |          |
|     | STEPS (Qty: 2 at \$125.00)  | 250.00     | one time |
|     | BUILDING DELIVERY (Qty: 7 at \$390.00)  | 2,730.00   | one time |
|     | ANCHOR/TIE DOWN (Qty: 20 at \$35.00)  | 700.00     | one time |
|     | SET-UP COMPLEX  | 10,000.00  | one time |
|     | Option 1: SKIRTING - WOOD   | 1,872.00   | one time |
|     | Total   | 128,802.00 |          |

PRICING DOES NOT INCLUDED BEDS.


**GE Capital Modular Space**

modspace.com

**Quotation**

BRANCH OFFICE:  
SALT LAKE CITY  
Contact: MISHELE MITCHELL  
Phone: 801-974-5628  
1-800-523-7918  
Fax: 801-972-5210

Quote No.: 438009  
Quote Expires: 03/25/2003  
Date: 04/30/2003  
Page No.: 3

| LINE | DESCRIPTION   | AMOUNT  | PERIOD   |
|------|---|---|--|
| 004  | <u>Sale</u><br>Complex: 181109 (Consists of 2 units) Complex Size = 24' x 44'<br>Option #1 Classroom<br>Serial#: 5529<br>STEPS (Qty: 2 at \$150.00)<br>BUILDING DELIVERY (Qty: 2 at \$390.00)<br>ANCHOR/TIE DOWN (Qty: 10 at \$35.00)<br>SET-UP COMPLEX<br><br>Option 1: SKIRTING - WOOD    | 12,200.00<br><br>300.00<br>780.00<br>350.00<br>2,000.00<br><br>884.00   | <br><br>one time<br>one time<br>one time<br>one time<br><br>one time |
|      | Total   | 16,514.00   |  |
| 005  | <u>Sale</u><br>Complex: 022399 (Consists of 2 units) Complex Size = 28' x 44'<br>Option # 2 Classroom<br>Serial#: 97805A<br>STEPS (Qty: 2 at \$125.00)<br>BUILDING DELIVERY (Qty: 2 at \$543.00)<br>ANCHOR/TIE DOWN (Qty: 10 at \$35.00)<br>SET-UP COMPLEX<br><br>Option 1: SKIRTING - WOOD | 25,800.00<br><br>250.00<br>1,086.00<br>350.00<br>2,000.00<br><br>884.00 | <br><br>one time<br>one time<br>one time<br>one time<br><br>one time |
|      | Total   | 30,370.00   |  |

#### 4.7 Facility Furnishings, Equipment, Computers

At this state of planning it is impossible to ascertain a precise estimate of the costs to furnish the facility because building requirements and phased restoration timetables remain uncertain. Assuming a normal occupancy of 35 people, costs for beds, desks, lighting, personal storage, and one computer for every four individuals, a rough estimate of \$1,200 per person was assumed, for a total cost of \$42,000. Office furnishings and equipment are estimated to total \$10,000. A contingency of 10% is assumed, for a grand total estimate of \$57,200 to furnish the facility.

#### 4.8 Anticipated Potential Problems

Potential problems of sustainability in terms of cash flow will have to be addressed by CEU and/or other participating institutions. Program development will be perhaps the most formidable challenge faced by those parties. The remoteness of the site may create some logistics problems in supplying goods and services to the facility, but those problems should be manageable. The bridge over the creek might pose a restriction to moving very large equipment such as some modular housing onto the site. A crane could be used as a last resort to move objects too large to cross the bridge. Utilities, including electricity, water, telephone, and sewage, could pose problems because of the high installation cost involved and the relatively small number of people that would be served, probably for only a part of the year. Cooperation by and support from the utilities will be essential to develop the potential of the site.

#### 4.9 Summary of Costs

##### Facility Costs

These numbers represent a summary of the costs to fully develop the site, including modular buildings, that will allow a quick start-up, and eventual rehabilitation of the existing buildings in a phased program. Estimates for building rehabilitation were taken from the Architect's Report and modular costs were taken from GE Modular.

**Table 4-1 Summary of Site Redevelopment Costs**

| Task   | Cost in \$1000's |
|--|------------------|
| Initial infrastructure needs and site clean-up | <b>\$118</b>     |
| Modular Buildings                              |                  |
| Classroom Building (Option 2)                  | 30               |
| Lunchroom                                      | 31               |
| Sleeping Quarters                              | 129              |
| Shower Unit                                    | 58               |
| <b>Total Modular Building Cost</b>             | <b>\$248</b>     |

|  |                    |
|--|--------------------|
|  |                    |
| Furniture, Facilities and Computers                    | \$58               |
|  |                    |
| <b>Total Startup Cost for Facility using Modulars</b>  | <b>\$424</b>       |
| At this point, the facility could be fully operational |                    |
|  |                    |
| Building Rehabilitation                                |                    |
| Bld. 1 Office  | 322                |
| Bld. 2 Bathhouse                                       | 173                |
| Bld. 3 Warehouse                                       | 153                |
| Bld. 4 Shop  | 98                 |
| <b>Total Building Rehab.</b>                           | <b>\$746</b>       |
|  |                    |
| Additional Infrastructure                              | \$315              |
|  |                    |
| <b>Total Cost for Complete Site Redevelopment</b>      | <b>\$1,851,000</b> |

## 5.0 BUSINESS PLAN

The Business Plan examined a limited number of activities deemed to have the greatest potential for development at the facility. No one specific activity was determined to be the clear choice for the facility; therefore, a combination of activities would be developed that would grow and evolve over time.

### 5.1 Business Plan Introduction

A research team, comprised of six students and a faculty advisor from the MBA program at the University of Utah's David Eccles School of Business, studied the economic feasibility of conducting various activities at the Horse Canyon site, about 25 miles southeast of Price, Utah. This study was conducted for the Center for Mine Land Redevelopment at the University of Utah.

Possible future uses for the Horse Canyon site were investigated. The team studied the following potential activities:

- Geology Field Camps
- Archeological Repository
- Production of Dinosaur Replicas
- Archeological Field Camps
- Paleontology Camps
- Elderhostel Programs
- Petroleum Company Camps

There are a number of possible future uses of the Horse Canyon site that could potentially be profitable. One possible use could be the development of a world-class paleontology facility. Since many people are willing to pay a premium to experience a dinosaur dig, housing these campers at Horse Canyon could be profitable. The Horse Canyon site could also potentially make money from Elderhostel programs. If federal government research grants could be obtained, then archeology field camps could become a profitable activity at Horse Canyon. The site could be used for the storage of archeological artifacts if the federal government changes the structure of how it finances archeological storage. The site could become a viable location for the production of dinosaur replicas if a suitable partner could be found. Finally, ExxonMobil is interested in possibly moving its training programs to the Horse Canyon site. The Center of Mine Land Redevelopment should encourage ExxonMobil to move its camp to Horse Canyon.

The Horse Canyon site, located just outside of Price, Utah, represents an interesting development opportunity. Previously used as a coal mining operation by U.S. Steel, Geneva Steel and most recently by Utah American Energy, Inc., the site has four principal buildings located on about four acres of mine property at the mouth of Horse Canyon. In addition to the vacant mining buildings, Utah American Energy, Inc. has offered to donate over 900 acres of contiguous land to the University of Utah. The

buildings may be renovated or rebuilt to accommodate a number of different business and educational opportunities. The land has great value as an educational setting for various disciplines such as geology, paleontology and archaeology.

A business plan is presented here for the purpose of assessing the ongoing financial feasibility of the Horse Canyon Project. As established in the Letter of Understanding dated and submitted August 30, 2002, this business plan includes the following components: identification of potential uses and users of the Horse Canyon facilities, assessment of similar competing facilities, development of a management plan and financial analysis. Marketing possibilities of the Horse Canyon site were also explored.

Each section of the business plan has been researched in great detail with input from business, academic and government leaders. Many possible uses were considered and analyzed in an effort to determine the best possible use of the land and facilities. The goal was to develop a plan based on thorough research and deliberation that would enable the Horse Canyon facility to become a self-sustaining entity from year to year.

This report is organized into a number of sections. The first section presents an overview of the Horse Canyon site, including lists of potential benefits and problems associated with developing the site. The following six sections contain a detailed analysis of possible uses for the site that were examined within the scope of the study. The final section of the paper presents future development opportunities for the Horse Canyon site. The original report by the research team contains an appendix, which is a compilation of information collected to analyze the potential uses. It also includes best estimates of the costs of implementing various activities at Horse Canyon. It is available from the Center for Mine Land Redevelopment.

## **5.2 Horse Canyon Overview**

Various possibilities exist for utilizing the facilities at Horse Canyon for activities that would contribute revenue and help the center sustain itself. These possibilities include the following:

- A geology field camp station for housing, teaching and exploring the geology of Eastern Utah.
- A paleontology field camp station for housing, teaching, exploring, and excavating the 50 or so dinosaur quarries within the area.
- A dinosaur bone and archaeology artifact storage repository. Utah repositories currently have little or no storage space. Archaeologists need a place to categorize findings before builders/developers are able to continue construction on lands where artifacts have been discovered.
- A dinosaur casting facility for production of molds to be sold on the open market and exchanged from museum to museum.

- A geology station for oil or natural gas companies, such as Chevron/Texaco, ExxonMobil, and Excel Natural Gas for the training of geologists.
- A year-round ranch for troubled adolescents.

### **Benefits of the Horse Canyon Site**

There are a number of potential benefits associated with the development of the Horse Canyon site. The list below enumerates several of these benefits:

- The buildings and land are being donated for free
- The site is contiguous to the Wilcox Ranch, an area rich in archaeological artifacts
- There is the possibility of partnership with the College of Eastern Utah for ongoing maintenance, operation and educational instruction. Such a possibility would also create employment opportunities for people in Price.
- The property is in a central location. It is close to many unique geological sites and dinosaur digs.
- The renovated buildings have the potential to house classrooms as well as research facilities for geology and paleontology camps.
- The center could advertise for free on the National Scenic Byway Web site.
- The site offers the potential to store dinosaur bones in climate-controlled buildings or in the adjacent mines.

### ***Challenges of the Horse Canyon Site***

There are a number of potential challenges associated with the development of the Horse Canyon site. The list below enumerates several of these challenges:

- The immediate surrounding terrain does not have complex geological structures and much of the ground is of layer-cake sedimentary formation.
- The site is three hours from the closest commercial airport (Salt Lake City International Airport). Note – Price has a small general aviation airport.
- To remodel the facility would require a large capital outlay to meet specifications.
- Utility infrastructure is not currently in place and would have to be developed at Horse Canyon.
- To store dinosaur bones in the mines would require a large cost outlay to bring power to the mines.
- Much of the land is difficult to access during periods of inclement weather

### 5.3 Geology Field Camps

The area near the abandoned Horse Canyon mining camp has a wide variety of interesting geological features. This diversity of geological features would make Horse Canyon a quality site for a base camp for college students studying geology.

#### *Geology of East-Central Utah*

There are many different types of sedimentary rocks in east-central Utah. They range in color from dull gray to bright red and are from eras ranging from the Pleistocene Era to the Permian Period. The Horse Canyon abandoned mining site is located at the base of the Book Cliffs. The Book Cliffs are primarily composed of sandstone, mudstone and limestone rocks of Cretaceous age. Large amounts of coal are found in the Book Cliffs.

The most prominent geologic feature near the Horse Canyon site is the San Rafael Swell, which is just a few miles east of the abandoned mine. The San Rafael Swell was formed during the early Cenozoic Era. The San Rafael Swell has a wide variety of geologic lithologies – including sandstone, siltstone, mudstone, shale, quartzite, sublitharenites, subarkoses, and lithic arenites. Uranium is present as well. The area is also home to some spectacular canyons.

#### *Geology Camps*

The group examined the operations of 70 geology camps offered by American colleges and universities. Three of the field camps run by American academic institutions were in foreign countries: Argentina, Ireland, and Italy. Most of the other camps are located in the Rocky Mountain states, as this part of the United States offers the most geologic variety. In these states, there are a number of exposed cliffs that give the students the opportunity to map many different strata. Many of these field camps are six weeks in duration; the average number of days spent at field camp was 36 days. Students attending most of these camps sleep in tents, college dormitories, or hotel rooms.

Students attending these camps pay an average of \$1,144 in in-state tuition or \$1,747 in out-of-state tuition. Many schools charge out-of-state students the same tuition rate as in-state students for summer field camp. In addition to tuition, there are other charges: housing, meals, and transportation. For the 18 field camps for which the housing and meals component could be determined, students paid an average of \$24.74 per day for their lodging and food.

Of the 70 camps studied, eight of them visit Utah. The Field Camp directors of those eight schools believe that the terrain in Utah provides a stimulating learning environment for their students and excellent exposure to a wide variety of geological features. The students map structures and sedimentary features at various locations in Utah.

Eight universities own geology camps. These camps were built many decades ago. The schools either employ a caretaker to stay on their property year-round or have neighbors look after their properties.

Geology departments were contacted at four universities in northern Utah – the University of Utah, Utah State University, Brigham Young University, and Weber State University – to determine if those schools would be interested in sending their students to a geology camp at Horse Canyon. Utah Valley State College was not contacted because it is currently planning to develop a site in southern Utah to be used as a geology camp. Southern Utah University, which operates a camp in southern Utah, also was not contacted.

Among the four universities contacted, there are varying levels of interest in sending students to the Horse Canyon site. Utah State University, Brigham Young University and Weber State University all are willing to consider the Horse Canyon site for a portion of their school's geology camp – provided that the camp is renovated to meet their needs. Brigham Young University has about 20 students attend field camp each year. At Utah State University, about 15 to 20 students attend field camp every other year. Weber State University offers a field camp every other year. Attendance at Weber State University's field camp has been steadily declining; only four students attended the last field camp. The chair of the Geology Department at the University of Utah is not very interested in the Horse Canyon site, but she would consider using the facility if the camp were offered at a low price – no more than \$15 per day per person for lodging.

The three schools where a substantial interest has been expressed in the Horse Canyon site want the site to have certain amenities. These include: a classroom, housing for students, food preparation and storage facilities, work space including a room with tables where students could draw geological maps, a computer lab, bathroom and shower facilities, electricity and drinking water. Representatives at these schools all think that the area around the Horse Canyon site would offer good mapping and stratigraphy projects. However, they believe that there is not enough geologic diversity in east-central Utah for them to consider having their entire camp based at Horse Canyon. For example, Weber State University wants to continue some long-term projects near Jackson, Wyoming. Students working on these projects investigate some geological features that are not available near Horse Canyon.

In addition to the universities in Utah, it would be possible to market the Horse Canyon site to other schools in the United States that have geology programs. Many of those schools do not run a field camp; their students currently attend field camps run by other universities.

Based on the team's research, it seems likely that two universities or colleges might be willing to sponsor camps each year at Horse Canyon. There is a good chance that one of those schools would be Brigham Young University, which would use the camp for three weeks in May. The other camp would be either another Utah school or a university or college from another state. This second camp would likely take place in June or July.

This likely scenario of two camps per year is dependent upon the camp having the facilities that geology professors need; for example, proper classroom facilities. It is also dependent on Horse Canyon officials successfully marketing the camp to geology professors.

Under the scenario listed above, \$600-plus tuition could be charged for the three weeks at Horse Canyon. Six-week camps charge between \$1,145 and \$1,195 for food, lodging and transportation. Students probably would be willing to spend \$1,200 for a geology camp that included spending three weeks at Horse Canyon and three weeks elsewhere. Half of that amount is \$600. In addition, based on research for this project, \$215 probably is a reasonable transportation fee for the portion of the camp at Horse Canyon. This results in the following calculation of revenue from geology camps:

$$(30 \text{ students} * 2 \text{ camps} * \$600) + (30 \text{ students} * 2 \text{ camps} * \$215) = \$48,900$$

### ***Marketing of Geology Camps***

If the decision is made to hold geology camps at the Horse Canyon site, then it will be necessary to market those camps to college professors and potential campers. The first priority in marketing a geology camp at Horse Canyon is to contact those universities in Utah that have expressed an interest in using the site. The Director of the Center for Mine Land Redevelopment should organize tours of the Horse Canyon site for the geology departments at the University of Utah, Utah State University, Weber State University, and Brigham Young University. These tours should take place both after the plans for the renovation of the Horse Canyon site are completed and after the renovation itself is finished. This personal contact will be instrumental in getting one or more of those universities to run all or part of their geology camp out of the Horse Canyon site.

Near the time when the renovations to the Horse Canyon site are completed, the manager of the site should attend the annual conference of the Geological Society of America. This is the nation's premiere geology conference. The Geological Society of America's annual conference takes place in October or November of each year. A number of universities and colleges exhibit at the conference. The schools listed below exhibited at the 2002 Geological Society of America conference in Denver, Colorado:

- Baylor University
- Colorado School of Mines
- Desert Research Institute
- Louisiana State University
- Mississippi State University
- Ohio State University
- University of Chicago
- University of Denver
- University of Nevada at Las Vegas
- University of Nevada at Reno

- University of South Florida
- University of Tasmania
- University of Texas
- University of Wyoming
- Wright State University

The Horse Canyon manager should attend the 2004 Geological Society of America Conference in Denver, Colorado, and the 2005 conference in Salt Lake City, Utah. At these conferences, the Horse Canyon manager should staff a booth, where he or she would describe the site to professors from colleges and universities around the country. The manager should also attempt, at some point during the conference, to give a formal presentation about the virtues of the Horse Canyon site.

It appears from our analysis that only about 15 to 20 students from Utah will attend each geology camp at Horse Canyon. As a result, the camp must be marketed to out-of-state geology students. In addition, the camp could be marketed to college and university geology departments in Canada and Europe.

There are two ways to market the geology camp to out-of-state students. First, a brochure could be developed that describes the courses held at the camp. Second, a Horse Canyon Geology Camp Web site could be developed. Many students find a geology camp to attend by browsing Web sites. As a result, the Horse Canyon Geology Camp Web site should have a professional design that will be attractive to potential students.

## **5.5 Archaeological Repository**

In the past few years, there has been a curation crisis in Colorado and Arizona. Utah is also reaching a point where archaeological excavation has or will be put on hold until more artifact storage space is located. The Bureau of Land Management (BLM) and the United States Forest Service have a significant role in the creation of new repositories and the projects that are associated with them. Archaeology, and more specifically, artifact storage, is regulated by federal statute.

The National Archives and Records Administration regulates the storage of federally owned and administered archaeological collections through regulation 36 CFR 79 (See Exhibit B). Some of the requirements for establishing a repository include maintaining an environment of 35 percent humidity and 68 degrees Fahrenheit. Additionally, the repository must be secure 24 hours a day. A full-time archaeologist with at least a master's degree must work on-site to manage the repository. The repository environment must also have filtered air with few or no windows, dust control and animal/insect protection. The federal regulations also establish the importance of each repository serving an educational role.

Archaeologists rarely initiate archaeological excavations. In fact, 95 percent of Utah's archaeological excavations begin with a land, gas or utility developer that is interested in

utilizing the land in some way. When archaeological excavations are located on public land, federal agencies, such as the BLM, get involved. An archaeological site is first identified to determine if it is significant or not. If deemed an important site, special funding, such as grants or corporate contributions, is obtained to hire an archaeological contractor to work the site. In Utah, there are about 60 such contractors. Government permits are then obtained and a repository agreement is signed.

Currently, the University of Utah's Museum of Natural History and the College of Eastern Utah's (CEU) Prehistoric Museum are the only two nationally accredited repositories in Utah—repositories that meet the regulations outlined in 36 CFR 79. There are about a half dozen other federal repositories throughout the state working toward full compliance with this statute. These other repositories are currently struggling for additional artifact storage space.

Typically, a repository is connected with a museum. CEU's museum will be full after receiving its next two artifact shipments. The repository at BYU is also full. The University of Utah's museum is at full capacity and is currently renting a warehouse in downtown Salt Lake City for additional storage. To solve this storage problem, the University of Utah recently secured \$15,000,000 from the federal government to build a new natural history museum and storage facility next to the Red Butte Arboretum.

According to Dr. Pam Miller, a CEU archaeologist, the going rate for artifact storage ranges from \$300 to \$500 per cubic foot. The University of Utah's current fee is \$300. Dr. Miller believes the rate may increase to \$1,000 in the future. Similarly, in proximate years BYU's artifact storage rate is expected to increase to \$1,000 per cubic foot. Dr. Duncan Metcalfe, a University of Utah archaeologist, notes that in some areas repositories can earn up to \$2,500 per cubic foot for artifact curation. This storage fee is a one-time assessment paid by the agency or corporation that is excavating an archaeological site. The fee is usually not enough to support a museum on a long-term basis. When the repository eventually runs out of money from these up-front fees, the storage costs then become the responsibility of the university or museum responsible for the repository and ultimately the taxpayers of the state of Utah.

According to Dr. Metcalfe, most repositories have a self-sustaining business plan. In Utah, museums use approximately one-third of the curation money for cataloguing, preparation, and short-term care of the artifacts. The remaining two-thirds of the money is placed in an interest-bearing trust account for long-term care of the repository. Dr. Metcalfe's studies show that the duration of this trust fund is usually six years. When the money runs out, the repository and/or museum is responsible for generating the finances to continue operations. Utah's Museum of Natural History is subsidized through the University of Utah and the State of Utah, but additional grants are also used to support the annual budget. Most museums struggle to come up with sufficient funds to keep their repositories going.

The \$300-per-cubic-foot storage rate is currently insufficient because the funding for professional studies and artifact excavation has increased, but the corresponding rates for

artifact storage have not. This discrepancy discourages potential repositories and slows further excavation projects because of the lack of storage space. Dr. Miller believes, however, that within the next two years repositories will be able to charge and receive \$1,000 per square foot of storage space. This rate could become the norm for each federal repository. Even with an increase in the curation fee, federal repositories are usually not a cash generator. For this reason, creating an archeological repository as a source of revenue for the Horse Canyon Project is not the best option at this time.

Another alternative to a repository in the Horse Canyon buildings is to place the repository in one of the abandoned mines near the deserted buildings. This option, however, does not seem feasible, as large expenses could be incurred to: run electricity to the mines, prepare the mines for a climate-controlled environment, structurally secure the mines from collapse, and remove groundwater – a potentially ongoing problem. The road to these mines is also dangerous when wet with steep drop-offs to the canyon floor. These risks make mine storage a difficult and costly alternative at this time.

## 5.6 Dinosaur Replicas

In the 1960s and 1970s, Jim Madsen, owner and operator of Dino Labs, in conjunction with the University of Utah and the Cleveland Lloyd Quarry, sold approximately 65 dinosaur replicas of various types and sizes to museums around the world. Museum directors at the College of Eastern Utah have ventured into the replica business on two occasions but with no success. According to Don Burge, Director of the Prehistoric Museum at CEU, and Dr. Miller, scientists who lacked business know-how led these two business attempts. Money was poorly managed and marketing efforts were limited due to a lack of financial resources. Consequently, both attempts failed, and a replica business in the Price, Utah area remains an unproven alternative.

According to Dr. Burge, the cost of creating a dinosaur mold from point of discovery to delivery of the replica is about one million dollars. The process involves preparing existing bones in conjunction with molding, casting, and using scientific knowledge to fill in gaps where no bones exist. Only a 35 percent real-bones factor in a replica is required to be deemed a “real dinosaur.” There are no 100 percent real dinosaur fossil displays anywhere. Creating the first mold can take up to five years depending on the type of discovery. After a mold has been created, Dr. Burge believes it only takes three months to create a replica.

The CEU museum has also suffered from legislative budget cuts, but they do have two mammoths constructed and ready for sale. Beyond that there is no present replica operation in Price. However, there is a demand for dinosaur replicas. Many overseas museums display dinosaur replicas. A variety of businesses supply these replicas. Individuals close to the industry believe the only way for the Horse Canyon site to be successful as a replica operation is for an existing business to expand or move to Horse Canyon as a business partner. There are nearly 60 nearby quarries in the area, but the rural setting appears to hinder possible partnerships with other replica retailers. Transportation issues and increased costs also exist due to the location of Horse Canyon.

Dr. Burge, however, believes his Prehistoric Museum is capable of creating molds and casting replicas in Price, since many have already been created.

### ***Replica Business Operations***

Jim Madsen was an excellent source of information about the dinosaur replica business. He became involved in the replica making business over 35 years ago primarily to fund his own research expeditions of dinosaur fossil artifacts. Currently, the company has two full-time employees and one part-time employee, with his son Chris now running the shop. Dino Labs currently has 4,000 molds that present a storage capacity challenge. They recently constructed a \$250,000 "Supersaurus" for the Thanksgiving Point Museum. Mr. Madsen says his revenues were near break-even for the Supersaurus project. On other smaller-scale projects, the break-even point occurred after six or seven replicas had been sold, depending on their size and selling price. Over the years, he has made enough of a profit to provide for his family. He did mention that he had some difficult times when he struggled to make enough money to survive.

Mr. Madsen said that his company could finish many molds within two or three weeks, depending on their complexity. His company often rents its replicas, making about \$1,000/month on the rental.

### ***Competitors***

The largest local competitors to a potential Horse Canyon dinosaur replica lab are Dino Labs in Salt Lake City and the Thanksgiving Point Museum in Lehi. Other national competitors include: Valley Anatomical in California; the Black Hills Institute of Geological Research; Triebold Paleontology, in Woodland Park, Colorado; Gaston Design, in Grand Junction, Colorado, and many others. Another competitor is the illegal trade, where bones are excavated on government land and later sold overseas. Triebold Paleontology produces full-sized dinosaur replicas and parts, including albertosaurs, elasmosaurs, triceratops and tylosauruses, at a retail price of up to \$67,500. The Black Hills Institute sells a triceratops-mounted skull for \$7,925 including shipping charges. Valley Anatomical is one of the largest national competitors and has all aspects of the fossil spectrum for sale, beginning at \$1 and extending up to \$33,500 for some items in their on-line catalog. Mr. Madsen believes that Dino Labs does state-of-the-art work and could compete with any competitor with multiple sizes and specimens. He also believes there are always new museums with a need for new bones and replicas.

Mr. Madsen said his business had a slight conflict of interest in building the "Supersaurus" for Thanksgiving Point because the museum is a competitor of his company. He doesn't believe that Thanksgiving Point is doing very well financially, and he feels that many replica-makers are struggling in the economy because of competition and current economic conditions in the US and abroad.

### *Market*

International sales are necessary to sustain an operation that is making larger-sized replicas. Many firms compete in the dinosaur replica market. Foreign producers, including the Chinese, tend to make poorer quality products and ship them all over the world. Museums are the largest target market for replica sales and rentals. A smaller target market exists with private individuals and companies that have an interest in owning their own fossils or replicas or displaying them in their corporate environments.

American Dinosaur Fossils Exchange markets and brokers replica companies' products for a fee (a percentage of the purchase price), providing one way of selling products on the open market. This company sells products that large manufacturers make, as well as fossils. Neal Brown, the owner, said he wouldn't recommend getting into the replica business because of the amount of competition and because Horse Canyon really needs an accessible place to showcase its products. Showcasing the replicas for the public to buy would be difficult to do at Horse Canyon. It would require turning one of the buildings into a showroom. In addition, advertising and signage would be needed to direct potential buyers to the Horse Canyon site. A better place to showcase replicas would be in a museum or in a building in a large city, where people can come and see for themselves what product offerings are available. A Web site can be valuable – except when trying to sell expensive items for \$10,000 or more.

Predicting potential sales revenues for an operation of this magnitude is nearly impossible because of the vast number of variables involved. These include, but are not limited to, the following: the skill level of the people making the replicas; the transportation costs of bringing fossils to the site; the time frame needed to produce different-sized replicas with different materials; the market demand for a particular piece; the ability to ship and assemble these pieces on the premises of national and international customers, and the competitive advantages of other competitors. Here is an idea of the possible revenue from production of a particular replica:

A \$7,900 retail-priced triceratops skull would take approximately three months to mold correctly. If sales were similar to Dino Labs' six-item break-even point, revenues of \$47,400 would be necessary to break even. If the market demanded ten heads per year, Horse Canyon could make \$31,600 profit per year. If the facility were to produce a more complicated Utah raptor, production might take upwards of six months, with a break-even point occurring after three sales with a sales price of \$30,000 each.

Building a successful replica business would require two to three years of development, production, market studies, and sales in order to make a profit, assuming the economy will support the products of such a facility. This business would need capital to fund its labor and material costs for these first years, due to the remoteness of the facility and the fact that it has not yet established a reputation. If an injection molding system is purchased, new opportunities may present themselves, but a larger initial capital outlay

would be required. In addition, reputation and superior products are two key ingredients to being recognized in the museum community as a quality supplier of dinosaur replicas.

The Horse Canyon facility is capable of year-round replica production, one of its few possible uses in the wintertime. It would likely take two to three years of operation before this type of business can make a profit. This assumes that experienced personnel can be hired to avoid a costly learning curve. It also assumes that sufficient capital is available to fund the start-up of the business. If modeled after Dino Labs in Salt Lake City, this business could potentially make between \$40,000 and \$80,000 a year in profits.

The variability and uncertainty of the replica market, according to the opinions of several people interviewed, the availability of skilled individuals to properly construct replicas full-time, and the uncertainty surrounding the sales and profitability of replicas make it difficult to justify a full-scale replica operation in Horse Canyon at this time.

## 5.7 Paleontology Camps

Paleontology field camps are attractive to dinosaur enthusiasts and paleontology students. Research of paleontology or dinosaur field camps included the following locations: Alberta, Colorado, Florida, Kansas, Montana, North Dakota, Saskatchewan, South Dakota, Utah and Wyoming. These areas seem to have the most popular and well-organized camps, along with the greatest resources for paleontological study.

Most of the researched camps are organized through either a local museum that can capture the interest of its patrons in providing an organized fossil dig or through private individuals. Individuals offer the camps because of their passion for the hobby of fossil excavation. Some of these individuals had PhD's in paleontology, but most did not. Both museums and private individuals cultivate interest in their programs through their Web pages and through occasional advertising on other Web sites. Both realistically feed upon the "word-of-mouth" reputation that former participants spread after a positive experience. Many of the camps are not located near major metropolitan centers, and they therefore feed on the interest of people in the region along with a few out-of-staters that hear about a particular dig-site. Because of the limited number of camps that are offered during the summer, these programs are not a large "cash cow" for the sponsoring organizations and provide only minimal profits. The sponsors conduct camps more to provide social and educational experiences than to earn profits.

Because dinosaur enthusiasts come from all walks of life, each camp is designed with a family package as well as an individual package. Some camps even have grandparent/grandchild programs. There are also specialized "dino digs" for youngsters. Most of the researched paleontology camps were up to one week in duration and were held two or three times a summer. It appears that this is more than adequate to meet demand. Each weeklong camp averages 15 students.

One company that offers an alternative to a field camp is Funny Bones USA, an educational service that offers traveling seminars and fossil digs to kids and adults. Neal

Brown, the owner, offers several camps for kids costing up to \$250 per week for five three-hour sessions of instruction. His schedule is packed with students over the summer – he travels extensively to meet demand. Because his headquarters are in New Jersey, he can capitalize on a very urban part of the country, unlike the rural setting of Horse Canyon. A traveling fossil dig/seminar is feasible for an employee of Horse Canyon, provided he or she is willing to travel around the state of Utah, and particularly along the urban Wasatch Front.

In an interview with Corey Carleson, the general manager of the Thanksgiving Point Museum, he stated that many of his patrons ask, “Where could I go to do a dinosaur dig with my family?” His museum does not have anything to offer and therefore cannot capitalize on revenues that may be generated from this niche. He stated that his museum would entertain the idea of a partnership of some sort with Horse Canyon. His museum may even be interested in operating the research and replica process at Horse Canyon and/or marketing it through his facility. A partnership with his museum would have to give him some form of benefit, either financial or otherwise.

### *University Paleontology Camps*

While most colleges and universities do not have a paleontology department, they do offer paleontology courses through their Departments of Geology or Geosciences. In some cases, a field camp or study is offered as part of the paleontology coursework. Sometimes paleontology students are required to attend these camps, which typically range from two days to two weeks. Because these camps are associated with a particular excavation or set of excavations, the professors and students typically have to travel to the remote location, set up tents, and provide their own food and supplies. As students often finance these camps on a shoestring budget and camp locations are rarely close to nearby motels, camping becomes the best alternative for housing. Various professors estimate that most schools have between five and ten participants in these camps. The department leaders also have their paleontology camp locations already chosen. Switching to a new camp is not out of the question for them, but the new camp definitely needs to provide value by offering learning opportunities unavailable at other dig sites. Professors usually hold a field camp based on the demand of the students. In many cases, a professor will hold a camp every other year if enough student demand exists. Professors also choose dig-site locations based on their particular area of expertise or level of interest, as well as the proximity and travel distance to the location.

In an interview, Dr. Daniel Fisher, a paleontologist at the University of Michigan, reported that most universities do a field camp through their geology departments. The University of Michigan’s camp is located in Jackson, Wyoming. His camps are usually organized informally based on student demand, and the fees he charges pay for the expense of the expedition. The camps usually last a week or so, with an occasional two-week expedition. He feels that student interest in paleontology is on the rise at the elementary-school level, while demand for paleontology classes at the graduate level has tapered off. When asked if he would be interested in bringing a group of students to a facility such as Horse Canyon, he stated that he would not be interested because of his

current research and association with other interesting sites. He also feels that most university professors are busy disseminating the current research information they are gathering from other dinosaur quarries. Other professors in highly regarded paleontology programs in the country verify the consistency of this information. Most paleontologists have plenty of research opportunities at locations much closer to their campuses than Horse Canyon. Professors are usually interested in new finds; however, funding, location, and area of interest are the prime driving factors that determine whether these paleontologists would be willing to travel to distant locations to "have a peek themselves." In order for them to bring a group of students, significant educational value must be associated with the dig to justify the journey.

### ***Potential Paleontology Camp Demand***

After analyzing Utah colleges and universities, the research team concluded that one camp per summer would be realistic in the beginning. Later, as demand for and awareness of Horse Canyon grows, the offerings could be expanded. For public camps, two camps per summer are suggested, depending on the preliminary marketing efforts in getting the word out about the facility.

Existing paleontology camps offer a wide spectrum of services. Some camps run a minimal operation where camping, food, and travel expenses are not included in the program fees and must be paid for separately by each participant. These inexpensive camps charge around \$500. On the other end of the spectrum are all-inclusive camps where lodging, food, travel and everything associated with the camp and dig are included in the program fees. These camps cost \$1,000 or more. Almost all field camps center on a dinosaur dig that is sponsored through a museum.

With the Horse Canyon facility, paleontology campers would have more of an all-inclusive experience as lodging, meals, and travel would be included with the dinosaur digs and other related studies. If participants were charged \$1,000 for a five-day camp, the Horse Canyon facility would gross \$45,000 (three groups of 15 times \$1,000). There is more of a profit margin in hosting public campers because they do not have the tuition expense that would be charged to college students.

## **5.8 Archeology Field Camps**

Several key points came up often in discussions with faculty members about the potential use of the Horse Canyon site as an archeological field school. As professors at Utah universities were more familiar with the Horse Canyon site, they are separately listed below the findings of the current state of Utah archeological field camps and those camps run by out-of-state schools.

### ***Utah Archeology Camps***

Most Utah archeology professors were familiar with Horse Canyon, but many were unfamiliar with the specific archeological aspects of the area. All agreed that the site has

the potential to be attractive to archeologists. However, many professors were quick to point out that site location is not necessarily the most important aspect of an archeologically centered field school.

Utah archeology professors agree that it is vitally important that interesting research questions can be investigated in the area. It is also important that long-term projects can be established and maintained by local archeologists.

Many of the professors surveyed identified locations of current and past field schools. Table 5-1 is not a comprehensive list of field school locations, it does give some insight as to where these schools have research interests. Many schools maintain long-term projects jointly with government agencies such as the Bureau of Land Management (BLM), United States Forest Service, and the National Park Service. These agencies subsidize most of the field school expenses and provide grant money for research work.

**Table 5-1 Field School Sites**

| <b>Institution</b>       | <b>Location of current and former field school sites</b>  |
|--------------------------|---|
| Brigham Young University | Grand Staircase – Escalante National Monument (3 years)<br>Capitol Reef National Park (3 years) |
| Southern Utah University | Little Creek (25 years)   |
| University of Utah       | Salina, Capitol Reef National Park, and Mesa Verde  |
| Utah State University    | Kanab, Utah   |
| Weber State University   | Caribou and Targhee National Forests, Idaho   |

A higher percentage of Utah university archeological programs require field studies for graduation than out-of-state programs. Table 5-2 is a listing of Utah schools and their policies on field school attendance:

**Table 5-2 Utah School Field Study Policies**

| <b>University</b>        | <b>Contact Name</b>                              | <b>Is an archeological field study required for graduation?</b>      |
|--------------------------|--|--|
| Brigham Young University | Joel Janetski                                    | Yes  |
| Southern Utah University | Barbara Franks                                   | No degree offered  |
| University of Utah       | James Oconnel (Director of Archeological Center) | No for anthropology, but there is a field school                     |
| Utah State University    | Steve Sims                                       | Yes  |
| Weber State University   | Brook Arkush                                     | Yes, archeology students must take at least 5 hours of field school. |

Field schools range between four and eight weeks in duration and nearly all of them are held during the summer. Students earn three to six credit hours for their successful completion of an archeological field camp. Table 5-3 table describes the length and timing of Utah archeological field camps:

**Table 5-3 Length and Timing of Utah Archeology Camps**

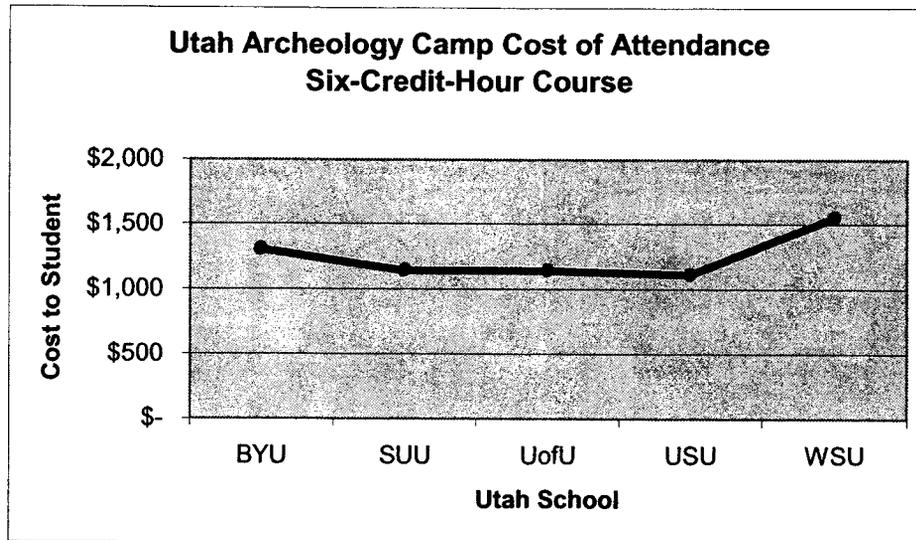
| University               | What is the required length of a field school? | When are field studies conducted? |
|--------------------------|--|-----------------------------------|
| Brigham Young University | 8 weeks  | Summer Session                    |
| Southern Utah University | 8 weeks (two four-week sessions)               | June and July                     |
| University of Utah       | 4 to 8 weeks                                   | Summer Session                    |
| Utah State University    | 6 weeks  | Summer Session                    |
| Weber State University   | 1 month  | Summer Session                    |

Table 5-6 summarizes the costs that students at Utah schools pay to attend an archeology field school course, and the data is shown graphically in Figure 5-1:

**Table 5-4 Archeology Field School Costs**

| University               | What is the approximate cost per student to attend a field study camp? | Average Total Cost to Student for 6 Credit Hours* |
|--------------------------|--|---|
| Brigham Young University | \$350 subsistence fee + tuition 6 hours                                | \$1,307.50  |
| Southern Utah University | \$1150 including school tuition  | \$1,150.00  |
| University of Utah       | \$800-\$1500   | \$1,150.00  |
| Utah State University    | 5 credits of tuition and \$400   | \$1,119.00  |
| Weber State University   | \$330 (3 hours) or \$660 (6 hours) + tuition + \$25 per week           | \$1,556.00  |
| Average of Utah Schools  |  | \$1,256.50  |

\*Average total cost is calculated using current tuition and fee rates at 6 credit hours, unless otherwise stated. All tuition rates are assumed in-state and undergraduate. BYU rates were calculated using half of the average LDS and non-LDS full-time rate.



**Figure 5-1 Archeology Camp Cost**

### *Out-of-State Archeology Programs*

Archeology professors at a dozen colleges and universities in other western states were interviewed. Most out-of-state professors were not familiar with Horse Canyon. Many of their responses relied on descriptions that were given to them concerning the archeological aspects of the area. Many professors agreed that the site has the potential to be attractive to archeologists. Like the Utah professors, the out-of-state professors pointed out the importance of long-term projects that research interesting archeological questions.

Many out-of-state schools also maintain long-term projects jointly with government agencies such as the BLM, United States Forest Service, and the National Park Service. Table 5-7 is a partial list of archeological field camps run by out-of-state schools:

**Table 5-5 Field Camps Run by Out-of-State Schools**

| University                        | Where have you currently and in the past conducted field schools?                        |
|-----------------------------------|--|
| University of Nevada at Las Vegas | Cyprus, central New Mexico   |
| University of Nevada at Reno      | Alaska, eastern Nevada, Colorado, central Nevada and local sites including Virginia City |
| Arizona State University          | New Mexico & Arizona   |
| University of Arizona             | Fort Apache Indian Reservation, Arizona and Mexico                                       |

|                                 |  |
|---------------------------------|--|
| New Mexico Highlands University | Pueblo Indian sites near the University              |
| New Mexico State University     | Southern New Mexico and Belize                       |
| University of New Mexico        | Eastern flank of Jemez Mountains                     |
| Colorado College                | Kim, Colorado  |
| Colorado State University       | Hudsonmang, northeast Nebraska                       |
| Fort Lewis College              | Durango, Colorado and Lowery Ruins, Montezuma County |
| Boise State University          | Treasure Valley, Idaho and Southwest Idaho           |
| University of Idaho             | Idaho and Washington State                           |

\*Only two of the twelve out-of-state universities studied required undergraduates to attend a field school as a requirement for graduation, shown in Table 5-8. Most of the other archeological programs recommend a field study experience to their students. Some professors at those schools estimated that between 20 and 30 percent of archeology majors attend a field camp.

**Table 5-6 Field Study Requirements for Graduation**

| University                        | Is an archeological field study required for graduation?      |
|-----------------------------------|---|
| University of Nevada at Las Vegas | No, but recommended   |
| University of Nevada at Reno      | No, but strongly recommended                                  |
| Arizona State University          | Encouraged for undergraduates, required for graduate students |
| University of Arizona             | No  |
| New Mexico Highlands University   | No  |
| New Mexico State University       | Encouraged for undergraduates, required for graduate students |
| University of New Mexico          | Yes   |
| Colorado College                  | Yes   |
| Colorado State University         | No  |
| Fort Lewis College                | No  |
| Boise State University            | No  |
| University of Idaho               | No, but recommended   |

Unlike the Utah schools, out-of-state schools have a much greater variety of choices when archeological field camps are held. All schools hold a field school during the summer session but many also offer courses at other times of the year. Most out-of-state camps are three to six credit hours. Out-of-state field schools range from one week to a full term in duration. Table 5-9 on the next page describes the length and timing of out-of-state archeological field camps:

**Table 5-7 Length and Timing of Out-of-State Archeological Camps**

| University                        | What is the required length of a field school? | When are field studies conducted?  |
|-----------------------------------|--|--|
| University of Nevada at Las Vegas | 1- 8 weeks                                     | Summer Session   |
| University of Nevada at Reno      | 5 weeks  | Summer Session   |
| Arizona State University          | 5 - 12 weeks                                   | Summer, Fall, and Spring Sessions locally<br>Jordan field school in the winter |
| University of Arizona             | 6 - 9 weeks                                    | Summer Session   |
| New Mexico Highlands University   | 4 weeks  | Intercession between spring and summer<br>(May and the first part of June)     |
| New Mexico State University       | 6 weeks to full term                           | All terms  |
| University of New Mexico          | 4-6 weeks                                      | Summer   |
| Colorado College                  | 5 weeks  | September and early October  |
| Colorado State University         | 8 weeks  | Summer and local winter site   |
| Fort Lewis College                | 6-7 weeks                                      | Summer   |
| Boise State University            | 6 weeks  | Summer   |
| University of Idaho               | 3-6 weeks                                      | Summer   |

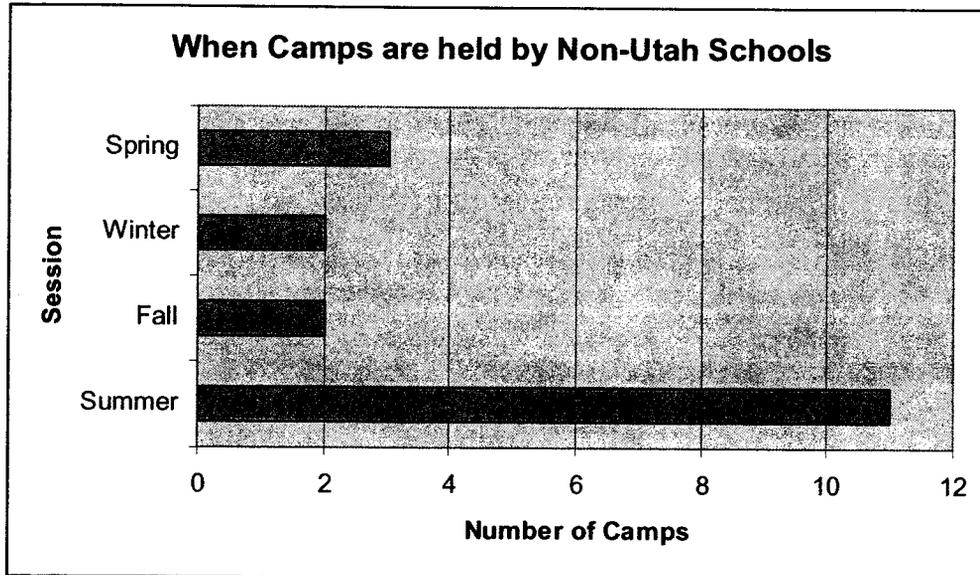
**Figure 5-2 Camp Timing for Non-Utah Schools**

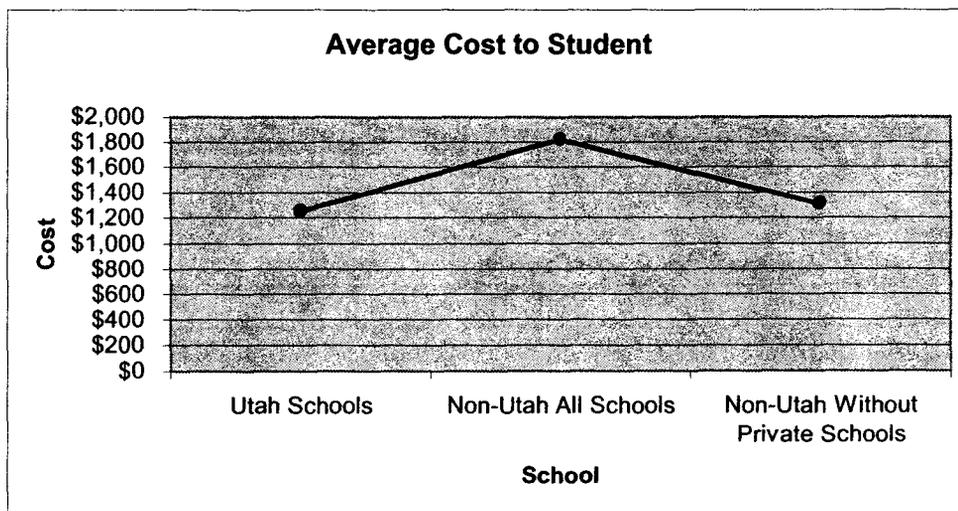
Table 5-10 summarizes the costs that students at Utah schools pay to attend an archeology field school course:

**Table 5-8 Costs for Utah Students at Archeology Field Schools**

| University                        | What is the approximate cost per student to attend a field study camp?                                     | Estimated Average Cost to In-State Student |
|-----------------------------------|--|--|
| University of Nevada at Las Vegas | \$750 + tuition  | \$1,281                                    |
| University of Nevada at Reno      | \$700-\$1000 undergraduates, \$800-\$1150 graduate students + \$500-\$600 travel                           | \$1,348                                    |
| Arizona State University          | Local tuition plus a \$750 field fee, which covers transportation and room and board                       | \$1,536                                    |
| University of Arizona             | \$1450   | \$1,450                                    |
| New Mexico Highlands University   | Tuition only.  | \$546                                      |
| New Mexico State University       | \$300-\$600 paid by students<br>Also funded by a National Science Foundation grant                         | \$1,254                                    |
| University of New Mexico          | \$126.1 - \$139.2 /hour tuition (6 credits) + room and board + additional fees if at university-owned site | \$1,246                                    |
| Colorado College                  | \$5300 + tuition   | \$6,871                                    |
| Colorado State University         | \$1600 for in-state tuition, \$6000 out-of-state tuition + fees =  | \$2,459                                    |
| Fort Lewis College                | \$800 in-state, \$1200 out-of-state + tuition  | \$1,276                                    |
| University of Idaho               | Tuition + meals  | \$761                                      |
| Average of Non-Utah Schools       |  | \$1,821                                    |

\*Average total cost is calculated using current tuition and fee rates at 6 credit hours or 1/2 of full-time costs, unless otherwise stated. Estimated tuition cost column assumes undergraduate, in-state tuition.

Figure 5-3 shows that the average cost that a student pays for a field camp at an out-of-state school is greater than the costs of attendance at a Utah school.



**Figure 5-3 Field Camp Costs**

### ***Advantages and Disadvantages of the Horse Canyon Site***

Below are some of the main advantages and disadvantages that professors have indicated about hosting archeological camps at the Horse Canyon site:

#### **Advantages:**

- Close proximity to BLM land. (Most field studies are conducted through a joint venture with government agencies)
- Opportunity to conduct both historic (mining) and prehistoric (Native American) research.
- Pristine conditions of surrounding areas.
- Close to Freemont Indian sites.

#### **Disadvantages:**

- Some professors are unimpressed with the Native American rock-art in the area.
- Distance from universities.
- Lack of long-term relationships with other sites.
- Many out-of-state professors are unfamiliar with the area.

Most archeology professors interviewed would not want to change the location of their field camp to Horse Canyon for the following reasons:

- They have already received government grants for their current research. They need to finish these grants before they would consider moving their research to Horse Canyon.
- Their current field school locations are generally correlated with a professor's area of study.
- Their current projects will last for several years.
- Horse Canyon is not a site that interests them.

### **Archeology Camp Opportunities**

The research group believes that there will be some demand for archeological camps at Horse Canyon. Therefore, local archeologists from the College of Eastern Utah (CEU) and the University of Utah could begin defining research questions that could be investigated near Horse Canyon.

Because of the close proximity to BLM land, there should be excellent opportunities for research grants. Students from other universities could be invited once a year to assist with ongoing projects. Visiting students probably would pay tuition to the research

professor's school. Students from several universities probably would attend, but the majority of students would be from Utah schools.

Professors have a great influence over students when recommending field camps to students. It is important that professors conducting archeological research at the Horse Canyon site remain in contact with other archeology professors.

An archeology field camp should be held during the summer because this is when the majority of students would be able to attend. The archeology camp should be four to six weeks in length and be held simultaneously with another camp since the attendance may be low. At least five credit hours should be given for field camp attendance. Many schools require at least five credit hours for students attending a field camp. It is anticipated that 15 to 25 students would attend a camp held during the summer session.

A research grant should be established before advertising the Horse Canyon site, due to the high cost of running an archeology field camp. Without a grant the revenue paid by students would not cover the costs of running an archeological camp. The grant would have to come from the BLM because it owns land near the Horse Canyon site that is home to some artifacts that can be studied by archeologists.

## **5.9 Elderhostel Program**

The Elderhostel program is an educational and travel organization for adults aged 55 and over. The Elderhostel program was founded in 1975. It is a not-for-profit organization that caters to retired professionals. Elderhostel courses are offered worldwide. Inspired by the youth hostel concept of Europe, Elderhostel founders Marty Knowlton and David Bianco set out to create a similar concept here in the United States for older Americans who want to learn and remain active.

The Elderhostel program has since become a wonderful opportunity for retirees to get out and enjoy a wide variety of activities in a learning environment. Offered practically worldwide now, each program is all-inclusive. This means that meals, lodging, activities, and instruction are all included for one price. The Elderhostel program tries to keep its prices low and thereby accessible to all. It even offers financial aid for those who qualify. As quoted by one of its customer service reps, "They [Elderhostelers] are pretty hearty people."

Elderhostel information is accessible on its fully functional Web site located at [www.elderhostel.org](http://www.elderhostel.org). A more detailed history is available on the Elderhostel Web site. In addition to its Web site, Elderhostel markets its programs via a toll-free telephone number and brochures.

### ***Programs Offered***

With more than 10,000 offerings a year in more than 100 countries, Elderhostel programs are as unique and diverse as their participants. Elderhostel programs offer:

- Educational excellence
- Comfortable accommodations & delicious meals
- Extraordinary value
- The company and companionship of fellow Elderhostelers

The words “experienced” and “expert” are often used to describe Elderhostel group leaders. Having experts teach courses is an important aspect of the programs. There are seven different types of programs. Each is listed and explained below:

#### Traditional Programs

These programs are based on Elderhostel's early programs and deal with almost any conceivable topic. These traditional programs are offered in almost every part of the world. These programs usually involve historical and cultural attractions. This includes courses on literature, art, philosophy, and traditions.

#### Exploring North America

These itinerary-based programs trace themes through areas of the United States and Canada. These programs are segmented into seven types: American Heritage, American Landscapes, Cultural Arts, Food & Wine, Houses & Gardens, National Parks, and Signature Cities. Elderhostelers basically are on one big field trip though a given part of North America. Elderhostelers on one program visit Utah's national parks and monuments.

#### Active Outdoor

Active outdoor programs spend at least a third of their time in the outdoors doing a variety of activities ranging from hiking to boating. There are several of these in the Four Corners area.

#### Service Programs

Service programs live up to their name. They involve both learning and a hands-on experience serving the needs of a community. Mostly they include doing good works in communities such as building homes for the less fortunate. The dinosaur museum in Montana considers its dinosaur dig program a service program wherein participants help dig, clean, and categorize bones.

#### Adventures Afloat Programs

Basically these programs are a cruise ship that is partly segmented off for the hostelers. There they visit sites and study a variety of topics such as art, ancient cities, culture, and philosophies.

#### Intergenerational Programs

There is a grouping of programs for Elderhostelers and their age-eligible grandchildren or young companions who study subjects that appeal to both young and old. According to Elderhostel agents, the intergenerational programs are very popular and usually sell out.

#### Multigenerational Programs

This is a new program. In multigenerational programs, parents attend along with their parents and children.

There are only four grandparent-grandchild courses offered by the Elderhostel program. One is a two-week cruise to Alaska; another is a 1830s-style adventure in New England; another is a ski trip to Park City sponsored by Utah Valley State College; and the last is a "crazy" winter excursion in Minnesota at a lodge with daily outdoor activities regardless of the weather. Utah Valley State College (UVSC) sponsors another intergenerational program involving dinosaurs. This program is based out of motels in Vernal and includes a visit to the Dinosaur National Monument. The program is six days at a cost of \$695 per participant and includes trips to the sites of the Utah Dinosaur Triangle. Participants stay in "clean hotels," and this program includes a river-rafting trip near Vernal. This site is not located on the official Elderhostel Web site.

The following was taken from the Utah Valley State College Web site:

In 1994, intergenerational programs were developed to bring grandparent and grandchild together in adventurous and educational settings. Intergenerational programs have seen phenomenal success and continue to build memories and incredible bonds between generations.

Traveling programs such as 'Sample Utah' and 'Dinosaur Triangle' were introduced with overwhelming popularity in 1998. These moving programs sample the wonders and breathtaking beauty of national and state parks and many other popular sites in Utah.

A sample program is the "Utah Dinosaur Triangle":

#### **Utah Dinosaur Triangle**

Investigate the characteristics, time frame, and way of life of the most captivating creatures who ever walked the earth. Dinosaur experts at each site of the Utah Dinosaur Triangle will give fascinating presentations on every aspect of dinosaurs. Field trips will include the College of Eastern Utah Prehistoric museum, Dinosaur National monument in Vernal, North American museum of Ancient Life, and more! In addition to the world-class museums and quarries, grandparents and grandchildren will have great opportunities to bond while participating in challenging ropes course and while river rafting together through Split Mountain Gorge in the Dinosaur National Monument.

This program is for hostellers and their grandchildren 8 to 11 years old; one child per hosteler, or two per couple.

The children's fee is \$695. Grandparents and hosteler's children will share a room with two full or queen beds. After confirmation of hostler's registration, the sponsor will send registration forms and information for children.

The average cost for these grandparent-grandchild programs is \$641 excluding the Alaskan cruise. They are a relatively new thing for the Elderhostel program and may prove to be valuable for Horse Canyon. According to Eric Bilow, a manager at the Elderhostel Reservation Center, the intergenerational programs are very successful and vary diversely in topic. The average number of participants for this type of program is approximately 30 to 40 participants and is usually scheduled in the late spring or early summer months.

### ***Dinosaur-Related Elderhostel Programs***

Several dinosaur-related programs are available. The programs concentrate in the Four Corners area, are six days in duration, and range from \$425 to \$625. Additional information about each site is located in the exhibits and in the Elderhostel spreadsheet. It is important to note that all of the programs offer private, double-occupancy rooms with private baths.

#### **1) From the Jurassic to the Laboratory: Dinosaur Bone Preservation**

This program is very similar to what might be able to occur in Horse Canyon. It is a true dinosaur-focused program. Included in the program are visiting the Wyoming Dinosaur Center Museum, which focuses on the Jurassic Period, field-site digs (pay-for-digs), and expert instruction on all aspects of dinosaurs. This program offers an in-depth look at dinosaurs. The accommodations are at a local motel located in Thermopolis, Wyoming, on the Big Horn Basin. This program is the lowest cost of all the dinosaur-related programs at \$425. The program is sponsored by the Big Horn Basin Foundation, which offers pro bono work in the community.

#### **2) Albuquerque's First Hundred Million Years: From Dinosaurs to Present Day**

This program is sponsored by the College of Santa Fe/Albuquerque and is run out of a hotel. The meals are provided at the hotel restaurant and lectures take place at the hotel. Students in the program examine dinosaurs at the local museum and Indian ruins at Coronado State Monument. This is a multidisciplinary program.

**3) Kohl's Ranch, Archaeology: Unearthing the Lost World of Prehistoric Mogollon People, the Petrified Forest and Painted Desert: The Story Behind the Scenery, Astronomy and Autumn Colors: Aspens, Birds, and Wildlife, of the White Mountains.**

Located at Kohl's Ranch in Arizona, two hours outside of Phoenix, this camp offers a taste of archaeology, prehistoric geology, and astronomy. This is a nice resort and there appears to be less learning and more leisure in this program. The rooms have a private bath, and meals are at the ranch. Day transportation is provided to nearby attractions.

**4) Utah Valley State College Dinosaur Diamond**

This is a six-day program offered by Utah Valley State College (UVSC) that provides tours the Dinosaur Diamond area. This program is not listed on the Elderhostel Web site. The cost of the program is \$695 per participant and the program is intergenerational. This would be the main competition to a potential Elderhostel course at Horse Canyon.

***Utah-Based National Parks Programs***

**1) Canyon Country Ramble: Bicycling Utah's Arches and Canyonlands National Parks**

This program is put on by Colorado State University and entails seven days of biking through the Moab area. Bicycles are provided. Guides explain about the geology and ecology of the area.

**2) Hiking the National Parks of the Moab Area**

This program is sponsored by Colorado State University and entails six days of hiking through the Moab area. Guides and natural history experts explain the geology and ecology of the area. Half the day is spent hiking.

**3) Utah National Parks and Other National Attractions**

This program is sponsored by Dixie State College and is based out of St. George hotels and an Elderhostel center. The group travels to Arches, Bryce, Canyon Lands, Capitol Reef, and Zion National Parks; Dead Horse Point State Park; and Pipe Springs, Rainbow Bridge, and Staircase-Escalante National Monuments. The camp also includes a float down the Colorado River and a day trip boating along Lake Powell. This program is very extensive and costs \$1450 per person.

**4) Slick Rock, Slot Canyons, Red Rocks Hiking Adventure**

This program includes hiking around the Lake Powell area and is based out of hotel accommodations on the lake. Daily hikes range from three to six miles in length and include hidden arches, slot canyons, ancient petroglyphs, surrealistic rock formations and scenic views.

### ***Dinosaur Multi-Generational Experience***

There are approximately 300 Web sites related to dinosaurs and 5000 dinosaur products-for-sale sites. Most dinosaur items sold are books. A search on Amazon.com for children's dinosaur books produced 808 individual titles. The 1993 movie *Jurassic Park* to date has grossed \$902 million. Thousands of dinosaur-enthusiastic youngsters exist everywhere in the world.

A multigenerational dinosaur program would be an attractive Elderhostel program to pursue. According to the expert opinion of Eric Bilow, the average number of participants would be from 30 to 40 for a grandparent/grandchild excursion, and this program would be popular. According to the Utah Valley State College Web site the college has been very successful as well with this hosting of a multigenerational dinosaur program. A dinosaur program may be tailored for grandparents, parents, and children in a "multigenerational" program. Horse Canyon could be the premier dinosaur program of its kind (the only one, as well) to be offered on the Elderhostel Web site and catalogue.

Activities at a Horse Canyon Dinosaur Elderhostel Program could include:

- Preparing dinosaur bones
- Digging for dinosaur bones
- Visiting the Price Dinosaur Museum
- Helping file and document bones
- Visiting nearby ancient Indian ruins
- Floating down the Green River
- Horseback riding

Meals and local transportation would be provided in a Horse Canyon Dinosaur Elderhostel Program. Group members would need to arrive at Price on their own. A key feature of these intergenerational programs is that the program must provide expert instructors, experienced group leaders, and helpful staff. These instructors should include a dynamic leader and several summer staff members who can involve and entertain the children. According to the regional Elderhostel office in Oregon, it is important that the grandparents also have some free time each day separate from the grandchildren.

According to Eric Bilow, programs of this type usually have 30 to 40 participants and are offered one to two times per year, usually in the late spring or early summer. Comparable with the UVSC program, it is suggested that the program could charge \$650 per participant. This would generate \$19,500 to \$26,000 of revenue per program and approximately \$4,500 to \$8,340 in profits.

***Other Potential Elderhostel Uses for Horse Canyon***

Other Elderhostel courses that could be offered at Horse Canyon:

- Dinosaurs for Adults (5 programs already discussed)
- Indian Ruins (10 programs, mostly in Arizona and New Mexico – one in Utah)
- Ecology of the Desert (13 programs, mostly in Arizona, New Mexico – one in Utah)
- Hike, Bike and Learn about Utah's National Parks (15 programs)
- Corporate Mining Towns, then and now (no programs)

The advantages of offering the traditional Elderhostel programs without children are that the program could be offered during the early spring and fall, when fewer support staff are needed, and a wide variety of expertise can be drawn from the Price area e.g. ecologists, and other scientists geologists from CEU).

***Elderhostel Programs at Horse Canyon – When and How Many Programs***

The majority Elderhostel programs occur in the months of September, October, March, and April. The existing Elderhostel intergenerational programs occur in the months of December, February, and July. UVSC offered its program June 16-22, 2003. An intergenerational dinosaur camp at Horse Canyon would need to occur when school is out of session for the summer.

The number of programs would depend on facility availability and program demand. Most programs are offered between one and four times per year (usually one or two times back to back in the spring or fall). Therefore, one to four Elderhostel programs can take place per year at Horse Canyon.

***Resources Needed***

The resources that are needed to run an Elderhostel program include:

- Fee paid to Elderhostel for inclusion in program (Web site included)
- Food for participants
- Transportation for 30-40 people
- Accommodations
- Expert instructor/program leader
- Staff/support personnel
- Arrangements with Price Museum
- Course material (if any)
- Insurance

The amount of revenues that can be expected from hosting a multigenerational Elderhostel dinosaur camp at Horse Canyon is dependant on the number of people attending the camp. If 25 people attend a camp at \$650 each, there would be a yield \$16,250 of revenue. A 40-person camp will yield \$26,000 of revenue.

### *Accommodations*

The Horse Canyon facility would need to have separate showers and baths built into the plan. It is not necessary to have the rooms attached to the baths. Elderhostelers do not want to shower in a large, group-shower facility. This is the only significant issue with offering Elderhostel programs at the Horse Canyon facility. As a result, a more feasible option may be to have the campers stay in a nearby hotel. They would then travel to Horse Canyon for classroom activities.

If Elderhostelers do stay at Horse Canyon, then laundry service would need to be provided for the campers.

### ***Application Process with Elderhostel***

A preliminary proposal needs to be sent in to the Elderhostel Program. If approved, an official proposal is required. Both are very basic and are easy to complete. They would have to approve each possible program at Horse Canyon. There is a possibility that they would not allow some programs due to similar, competing programs already offered in the area. Official approval will not be given until a final application is accepted.

### **5.10 Petroleum Company Camps**

An attempt was made to contact all of the major petroleum companies and some smaller petroleum and natural gas companies to determine their interest in the Horse Canyon facility. Despite many attempts, no information was received from ChevronTexaco or BP Amoco.

Potentially, petroleum companies or natural gas companies could use the Horse Canyon facility as a base for their training of geologists. Key site features offered by Horse Canyon include its geological location, its potential classroom and computer facilities, and accommodations including kitchen, baths, and dormitories. Perhaps a petroleum company or a natural gas company could become a long-term partner at the Horse Canyon facility.

#### ***ConocoPhillips***

A company geologist named Matt (no last name was given) is in charge of Brazilian exploration teams. He said that the company runs a geology training camp, and the geologists spend most of their time in Utah. Twelve to fourteen geologists participate in each camp. The camps are run once or twice a year as needed. He said that he thought maybe ExxonMobil ran a similar camp.

#### ***Excel Natural Gas***

Mr. Charles Donkers is one of only two geologists at Excel Natural Gas. His company provides no formal geological training. He also indicated that he does not know of any natural gas exploration company that provides these types of training programs. He said that they all know where the natural gas is and do not need help finding it from geologists.

#### ***ExxonMobil***

Mr. Jeff Rosen was contacted regarding the possibilities of ExxonMobil holding a camp at Horse Canyon. He was enthusiastic about the location of Horse Canyon being in the Book Cliffs, as this area is an ideal place to train new geologists. He said that ExxonMobil runs field camps approximately every two or three years, but that the timing of the camps depends on the number of new hires. Currently they often go to Price to do

their training, and stay at local motels. When asked about the possibility of using Horse Canyon, he stated that he may be interested but he would need specifics about the facilities, location, and costs.

### ***Terra Tek***

Located in the University of Utah Research Park, Terra Tek is a research consulting firm that works with several gas exploration companies in the Intermountain West. Terra Tek provides no formal geology training.

### ***Tesoro***

No longer trains new geologists.

### ***Petroleum Camp Summary***

Based on the responses received, the Horse Canyon site has the potential to be used by petroleum and natural gas companies to train their geologists. ExxonMobil is interested in possibly moving its training programs to the Horse Canyon site. The Center for Mine Land Redevelopment should encourage ExxonMobil to move its camp to Horse Canyon.

## **5.11 Charitable Donations**

In addition to the different revenue-generating activities mentioned in this report, the facilitation of charitable donations has proven to be a good source of funds that has successfully financed many educational facilities.

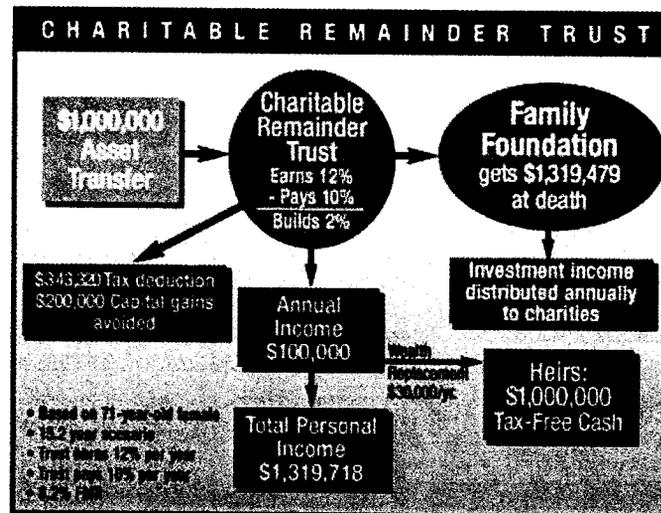
Charitable Remainder Trusts (CRT) have been used to finance educational facilities at UVSC. The school has collected many funds over the last few years through CRTs. The college employs a full-time staff to prospect for donors.

Its approach has been very successful, because it does not only look for wealthy people who have already given cash to charities – it also prospects owners of large real estate holdings who are ready to sell their land. By using CRTs, UVSC receives donations while the donors still have access to income from holding the property until their death.

The following is an excerpt from the American Foundation Web site – a nonprofit institution that facilitates charitable donations:

A Charitable Remainder Trust (CRT) is an excellent tool for couples and individuals with highly appreciated, low-income-yielding assets, who want or need additional income for life. The trust works quite simply. You transfer money, stock, or other property to your CRT. You are named as the trustee. The trust then pays you and/or your spouse (and sometimes children) annual income.

This income stream can be a fixed-dollar payout (Annuity Trust) or a fixed-percentage payout (Unitrust). After the lifetime income payments have been made, the trust transfers whatever amount is left in the fund to your family foundation. The Process is illustrated in Figure 5-5.



**Figure 5-4 Charitable Remainder Trust Process**

Source: American Foundation Web site,  
[www.americanfoundation.org](http://www.americanfoundation.org)

In addition to the lifetime of income, the CRT offers a number of benefits:

- The donor receives a substantial federal income tax deduction upon the creation of the trust.
- No capital gains tax liability is incurred upon the transfer of appreciated property to fund the trust.
- Placing property into a CRT reduces the estate, resulting in lower estate taxes.
- The plan provides great asset protection for the donor and his or her family.
- The trust can diversify investments.

## 5.12 Opportunities for the Future Development of Horse Canyon

Based on the information presented in this report, there are several opportunities for the future development of the Horse Canyon site:

- Paleontology Camps – The site could be used for paleontology camps. Public groups and universities would be willing to pay a premium to go to a dinosaur dig and use facilities near a dig. It is estimated that the Horse Canyon site can

generate revenues of \$15,000 for each one-week paleontology camp hosted at the site. The Horse Canyon site could become a world-class paleontology facility.

- Elderhostel – The Horse Canyon site could be used for Elderhostel programs. Elderhostel courses at Horse Canyon could generate revenues of \$16,250 to \$26,000 per program. Challenges in using the Horse Canyon site for Elderhostel programs include the need for private rooms and bathrooms, filling the camps with Elderhostel guests, its distance from Price, digging sites, and other activities, and finding skilled personnel to facilitate the camp.
- Archeology Camps – The Horse Canyon site could be used for archeology field camps. For this to be successful, federal government research grants will be needed to fund a substantial portion of the research.
- Archeological Storage Facility – The Horse Canyon site could be used for the storage of archeological artifacts if the federal government restructures how it finances archeological storage. If the federal government switches from a one-time storage fee to an annual maintenance fee, then storing artifacts at Horse Canyon might become financially viable in the future.
- Replicas – The Horse Canyon site could become a viable site for the production of dinosaur replicas if a suitable partner could be found. Existing dinosaur replica businesses or foreign museums are potential partners in this endeavor.

Charitable Remainder Trusts (CRTs) could be used to provide money for operations at Horse Canyon by encouraging potential donors to the College of Eastern Utah to commit portions of their estates as charitable donations. In addition, cost-reduction should be a priority of Horse Canyon management.

It may be necessary to develop the Horse Canyon site in stages. One building could be renovated at a time, as activities are added. It would also be possible to place a trailer on the site that could be used as a temporary classroom until the buildings are renovated.

## 6.0 COMMUNITY RELATIONS

The Community Relations/Public Services section of the Feasibility Study is included for the purpose of assuring potential users of the Horse Canyon site of the availability of basic services to support a wide range of activities. This section pays special attention to the availability of emergency police, fire and medical assistance. Insight into the provision and adequacy of services was derived from interviews with local officials in Emery and Carbon Counties and visits on-site with the actual service providers.

The Section also includes a review of the Emery County facilities for provision of road construction and maintenance services and land use regulation. Emery County will have sole proprietorship for provision of these services, and County officials have assured full cooperation.

### 6.1 Local Plans and Regulations

The current Emery County General Plan was completed in 1996. Eastern Emery County, from the Carbon County line to the city of Green River, which includes the Book Cliffs and Horse Canyon, is sparsely populated and remote from the Emery County communities. The Plan recommends the land uses for the entire area generally to be mining and grazing.

The Emery County Zoning Ordinance, as amended May 15, 2001, places the area in which Horse Canyon is located in a zoning district designated M&G-1 Mining & Grazing. The Declaration and Legislative Intent of the M&G-1 District are summarized as:

- 1) To take advantage of and to more fully implement the basic purposes for planning and zoning as set forth in Section 17-27 of the Utah State Code.
- 2) To promote the conservation of water, land, mineral, and other resources.
- 3) To prevent the degradation of the natural and social environment.
- 4) To foster agriculture, mining, and industry within the state.
- 5) To provide a location for certain types of agricultural, industrial, and other uses which, because of certain characteristics of operation such as odor, noise, etc., are not compatible with urban development.

#### Permitted Uses

Uses allowed by right in the M&G-1 Zoning District are:

- 1) Grazing of livestock and open rangeland.
- 2) Production of fruit and crops in the field.
- 3) Buildings, silos, and other structures for the storage and keeping of agricultural products and machinery
- 4) Care and feeding of domestic livestock and fowl.
- 5) Barns, stables, corrals, pens, coops, and other buildings for the care and keeping of domestic livestock provided that no such barn, stable, corral pen, coop, or

- other building shall be located closer than one hundred feet to an existing dwelling or vice versa.
- 6) Raising mink, beaver, nutria, and similar fur-bearing animals and the pens and other structures necessary in the raising of such animals.
  - 7) Forest and plant nurseries and greenhouses.
  - 8) Minor utility transmissions.
  - 9) Fences and walls.
  - 10) Hunting preserves and accessory storage buildings.
  - 11) Accessory signs pertaining to the sale of real property subject to the provisions of Section 6-21.
  - 12) Man-made lakes, reservoirs, ponds, and dams when under ten acre-feet in capacity.
  - 13) Rifle, shotgun, archery shooting ranges.
  - 14) Minor mine developments.

### **Conditional Uses**

The Emery County Zoning Ordinance provides a tiered approval system for Conditional Use Permits. The Tier Level that is used will depend upon the scale and potential impact of the proposed development. The planning staff may approve the first level, the second level requires planning commission approval, and the county commission must approve a third-level project with a recommendation from the planning commission. Conditional uses allowed in M&G-1 that would possibly be considered for a Horse Canyon development include caretaker dwellings (non-farm), campgrounds and picnic facilities, seismograph sites, on-premise occupations, major underground and surface mine developments, and any significant expansion of an existing mine development.

Emery County officials feel that most developments and uses described as a potential for the Horse Canyon site would be welcomed, and amendments to the zoning ordinance necessary to accommodate such uses would be favorably considered.

## **6.2 Public Services**

The Community Relations/Public Services Section of the Feasibility Study is included for the purpose of assuring potential users of the Horse Canyon site of the availability of basic services to support a wide range of activities. This section provides special attention to the availability of emergency police, fire and medical assistance. Insight into the provision and adequacy of services were derived from interviews with local officials in Emery and Carbon Counties and visits on site with the actual service providers.

The Section also includes a review of the Emery County facilities for provision of road construction and maintenance services and land-use regulation. Emery County will have sole proprietorship for provision of these services, and County officials have assured full cooperation.

### **6.2.1 Police**

#### **Emery County**

The following interview took place on March 5, 2003, at Emery County Courthouse, Castle Dale, with Emery County Commissioners Drew Sitterud and Gary Kofford and County Sheriff Lamar Guymon:

The County Sheriff's Department provides all police functions in Emery County. There are no municipal police departments. The Sheriff's Department employs 35 deputies who are deployed throughout the county. Sheriff stations are located in Castle Dale, Huntington, Cleveland, Elmo, and Green River. Patrol cars are on the main highways daily, including Highway 6 that serves Horse Canyon. Emery County has a partnership with the Bureau of Land Management (BLM) to cover BLM land with one patrol car.

The Sheriff responds to 911 calls. The calls are networked through the recently constructed Emery County 24-hour Dispatch Center in Castle Dale. The Sheriff acknowledges the likelihood that police and fire calls from Horse Canyon would receive a first response from East Carbon City (police) and Sunnyside (fire and ambulance), both in Carbon County. Vehicles from either of these locations can provide a response time of ten to fifteen minutes. Depending upon their location when a call is received, Emery County emergency vehicles could provide backup within 30 to 45 minutes. The closest car would respond. Jail facilities for Emery County are located in Castle Dale.

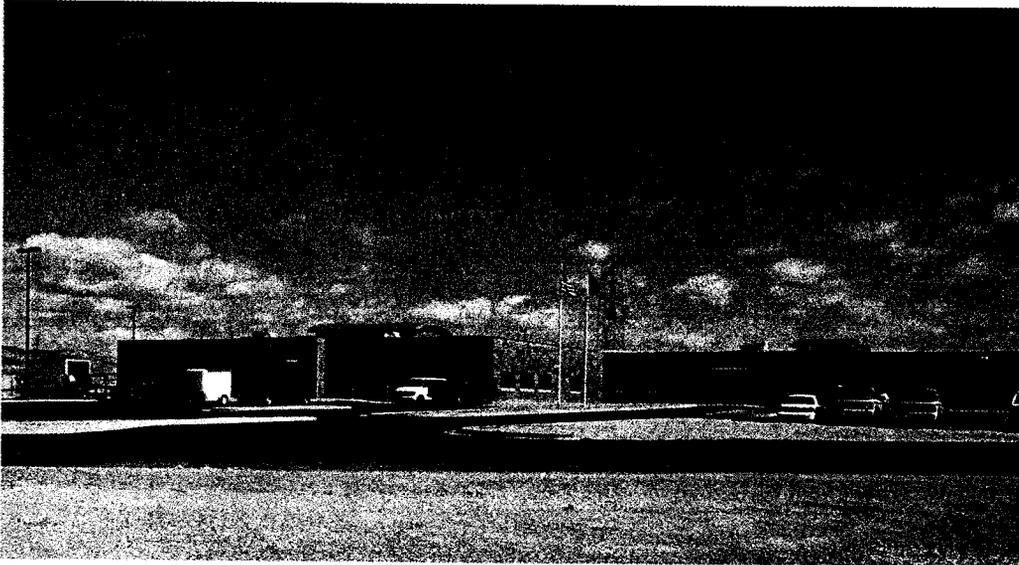
The Utah Highway Patrol also can reply to 911 calls. A Highway Patrol Station is located in Green River, which is about 35 miles from the Highway 6 junction with the Horse Canyon road.

### **6.2.2 Fire and Medical Emergency – Emery County**

As it does for police calls, Emery County offers backup support for fire and medical emergencies. The fire service is an all-volunteer force and personnel have received emergency training. Emery County now has in service a new 1000-gallon pumper truck that is located at the County Center in Castle Dale. There is also a 600-gallon mini-pumper truck in Elmo, thirty miles from Horse Canyon, which would offer the closest backup fire equipment. Response time for pumper trucks to Horse Canyon is estimated to be between 30 to 45 minutes. Emery County operates a total of 25 fire trucks throughout the county. Ambulances are available in Castle Dale, Huntington, Ferron, and Green River, with available emergency-trained volunteers. It is most likely, however, that the ambulance service in Sunnyside, Carbon County, would offer the most rapid response to Horse Canyon.

There is an urgent-care clinic in Castle Dale (Emery Medical Center) that is owned and operated by Castlevue Hospital in Price. Medical emergencies occurring in Horse Canyon would be transported directly to Castlevue Hospital by any of the available emergency services.

There is no inter-local agreement at this time between Carbon and Emery County for emergency services across the county line. Emery County officials foresee no difficulties with creating such an agreement with Carbon County.



**New Emery County Service Center in Castle Dale**

#### **Summary of ambulance service available in Emery County:**

- Huntington - one ambulance, volunteer response and a rescue unit
- Castle Dale - two ambulances, volunteer response and a rescue unit
- Ferron - one ambulance, volunteer response and a rescue unit
- Green River - three ambulances, volunteer response and a rescue unit

#### **Carbon County**

Interviews were conducted on March 5, 2003, in their respective offices, with:

James Cordova, Sheriff, Carbon County, Price  
Sam Leonard, Chief of Police, East Carbon City,  
Dale Andrews, Mayor, East Carbon City,  
Bennie Jackson, Fire Chief, Town of Sunnyside

Interview on March 6, 2003 with:

Bonnie Dee Cook, R.N., MSN, Chief/Nursing/Clinical Officer, Castleview Hospital,  
Price

### 6.2.3 Emergency Response, Police and Fire – Carbon County

Sheriff Cordova emphasized the lack of inter-local agreements with Emery County to provide emergency services to calls from Emery County. He is agreeable to participating in such an agreement with Emery County for services. The Sheriff pointed out that Carbon County has provided emergency services as far into Emery County as the Horse Canyon road, but has done so without a written agreement.

The Carbon County Sheriff's Department operates an ambulance in Price with full-time, trained personnel that would be available for emergencies at Horse Canyon. Sheriff Cordova confirms that the East Carbon City Police Department and the ambulance operated by the Sunnyside Fire Department should be called in case of emergency, but they are volunteer crews and there may be occasions when the Carbon County vehicles, though starting from a greater distance, may be able to respond almost as quickly (estimated twenty minutes). A 911 dispatcher may be capable of making that determination.

Sam Leonard, Chief of Police of the East Carbon City Police Department, pointed out that his facilities are just eleven miles from the Horse Canyon site. His personnel could respond to an emergency at the site in approximately 15 minutes. The City normally has four officers, although there are only three currently in service. The officers are EMT-qualified and could assist until arrival of an ambulance. The Utah State Highway Patrol is also available for emergencies. In the event of a non-emergency (i.e., investigative) police need, the Emery County Sheriff should be called.

In the absence of the East Carbon City fire chief, the mayor, Dale Andrews, offered to provide information regarding the fire equipment. The city's fire fleet includes a 1982 American LaFrance full-service 750-gallon pumper truck, an older 500-gallon mini-pumper, and a 200-gallon brush truck. There are 12 volunteers, five of whom are trained as first responders (pre-EMT). There is an urgent-care clinic in East Carbon City owned and operated by Castleview Hospital.

East Carbon City provides police coverage to Sunnyside by an inter-local agreement. The Sunnyside Fire Department operates the ambulances and one fire engine. The Sunnyside fire chief, Billie Jackson, was interviewed at the garage at which are stored the newest fire engine and two ambulances. The Fire Department is staffed by fifteen volunteers, of whom five are Intermediate EMT and six are Basic EMT trained staff the Fire Department. The personnel are on call on 12-hour shifts and live and work near the station house.

The pride of the Sunnyside Fire Department is a recently acquired 1988 Pierce Arrow 1000-gallon pumper truck with water cannon. The cannon can deliver 1250 gallons of water per minute. There is also a 1978 LaFrance 1000-gallon pumper. In the event of an emergency call, the driver will put the appropriate fire engine on the road immediately and the personnel will drive their personal vehicles to the site. This procedure can reduce

the response time by several minutes. A call to Horse Canyon would take about 15 to 20 minutes before the biggest pumper would arrive.

The ambulances are full size and well-equipped. EMT-trained fire department personnel staff them. An emergency victim would be rushed to Castleview Hospital in Price—a fifteen-minute trip at “full code” speed.



Sunnyside's 1988 Pierce Arrow 1000-gallon Pumper

#### Summary of ambulance service available in Carbon County:

- Rescue 3, located in Helper
- Rescue 5, located in Wellington
- Price Rescue, operated by Price Fire Department in Price
- Price - 5 ambulances with full-time onsite coverage by EMTs in Price
- Two ambulances in Sunnyside. Volunteers on call.

#### 6.2.4 Hospital Care

Castleview Hospital offers services 24 hours daily, including 24-hour RN and MD coverage in the emergency room. A patient with a massive head trauma or potential cardiac surgery would be transferred by air to a health-care facility in Salt Lake, Provo, or Payson. The hospital recommends that those patients be brought first to Castleview unless it would cause a serious delay. When stabilized, the patient will be transferred to a specialty facility as needed. Castleview has all medical specialties available, with the exception of neurosurgery and cardiac surgery. The hospital has an active staff of 32 physicians and 57 active beds, and it is licensed for 84.

Twenty-Four-hour helicopter services are available in Salt Lake City through Life Flight at LDS Hospital or AirMed at the University of Utah. There is a Life Flight helicopter stationed at Utah Valley Hospital, Provo, available Monday through Friday, 9-5. These services are available by toll-free numbers.



Castleview Hospital, Price, Utah

### 6.2.5 Road Access and Maintenance

The Horse Canyon property is mostly within Emery County, with a small portion in Carbon County. Road 124, shown on the map in Figure 6-1, from East Carbon City to Horse Canyon, is maintained by the State Department of transportation. State maintenance ends at the entrance to the canyon. Highway 124 is currently in good condition.

County Road 125, from Highway 6 to the Horse Canyon site, is the responsibility of Emery County's Road Department. Because of the lack of usage and demand, the road is currently in poor condition. Emery County officials have assured that if a substantial development occurs in Horse Canyon, the road will be restored and properly maintained.

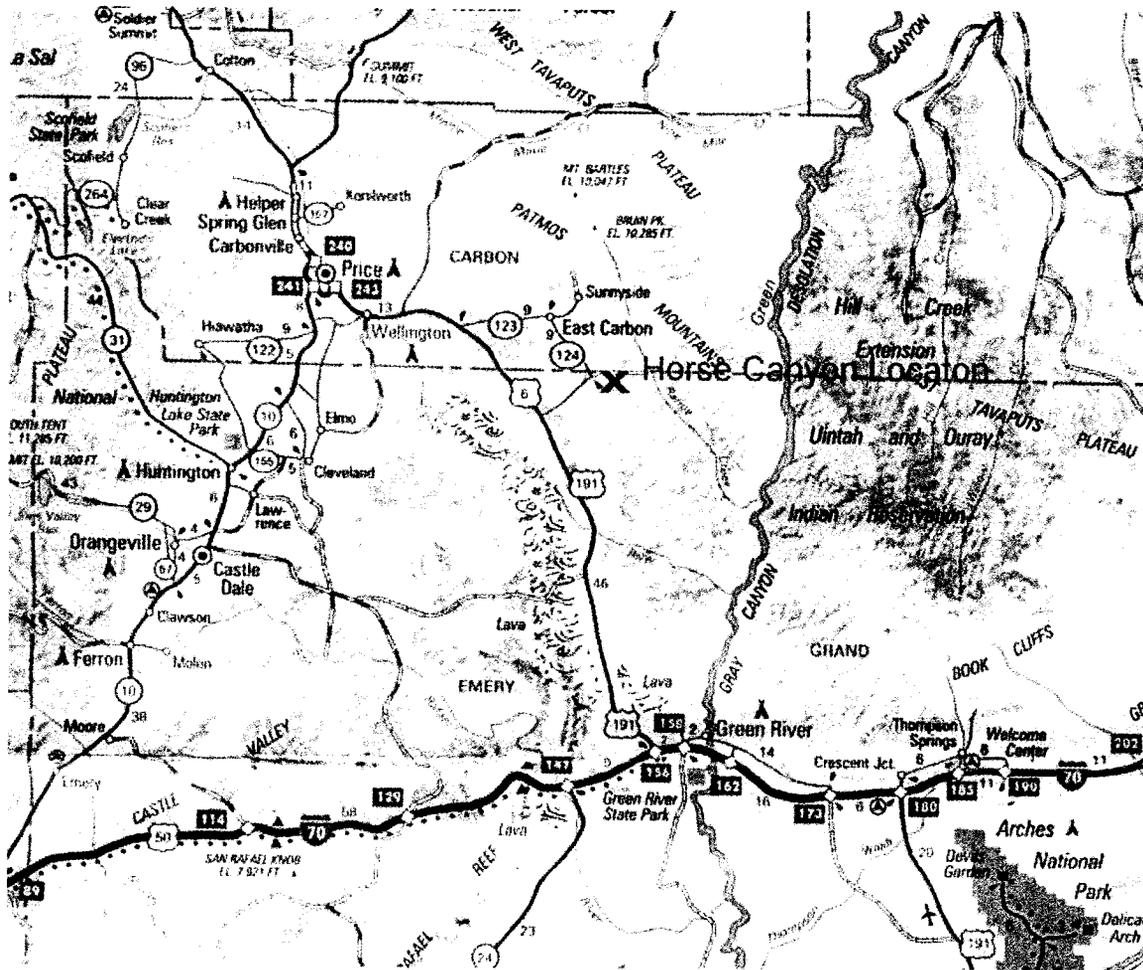


Figure 6-1 Highway Map of Horse Canyon Area of Utah

### 6.3 Public outreach and information

Public information and participation were considered by the investigators to be highly important to the success of the project. The subject of a proper forum for public information was introduced early in the discussions with local government officials and the director and staff of the Southeastern Association of Governments.

A consensus of opinion of the community leaders was that coverage in the local press would reach the largest number and likely satisfy most of the curiosity or questions about the project. The recommended press medium was the *Emery County Progress*, a weekly newspaper published in Castle Dale. Ms. Patsy Stoddard, editor of the *Progress*, with a staff photographer, along with the Emery County Economic Development Director, met with the Center for Mine Land Redevelopment staff at the Horse Canyon site. An article describing the project, with photos of the buildings and the staff, appeared on the front page of the *Progress* on September 24, 2002.

The project has been announced and described in two issues of *Connection*, a newsletter of the Center for Public Policy and Administration. The newsletter is sent to a mailing list of approximately 3,000 federal, state, local government and university officials throughout Utah.

#### **6.4 Integration with Southeastern Association of Governments**

The State of Utah was divided into seven regional associations of governments (AOGs) in 1965, based upon county lines. The purpose of the AOGs is to encourage regional planning and attention to issues of local interest and concern. The Southeastern Association encompasses the counties of Carbon, Emery, Grand, and San Juan. The headquarters of the AOG is in Price, Carbon County. The current director is Mr. Bill Howell.

With the approval of the Center for Public Policy and Administration by the University of Utah, the staff of the newly created Center immediately began to pursue the Center's mission. The area of the state that is within the boundaries of the Southeastern AOG includes the largest proportion of the industrial mining activity in the state. Mr. Bill Howell was contacted and informed of the new Center and asked if there were abandoned mine facilities in his area that met the criteria for investigation by the Center. Mr. Howell described the former mine buildings in Horse Canyon and invited the Center staff to visit them. Mr. Howell directed the staff to Mr. Mel A. Coonrod, a local representative of the owner of the Horse Canyon mine and buildings. The visit to Horse Canyon by the Center staff in January 2001 is described earlier in this report.

Thus, the staff of the Association of Governments has been completely cooperative with Horse Canyon project planning. Because Mr. Howell and most of his staff are natives of the area, and the AOG is dedicated to local economic stability and quality of life, the Center for Mine Land Redevelopment staff has maintained close contact with and reliance upon the AOG.

#### **6.5 Other Community Support Potential**

The possibilities for creation of a vital community educational facility in Horse Canyon are considerable. Many factors contribute to the attractiveness and importance of the site. The Horse Canyon site is easily accessible to a population/cultural community in which the City of Price is the focus and the College of Eastern Utah a major contributor, as a college campus typically becomes. As the ultimate owner and manager of the Horse Canyon properties, the College will continue to draw attention and strengthen the connection between Horse Canyon and the campus in Price.

It is important, however, to contemplate also the potential contribution of a Horse Canyon facility to Emery County. Discussion with Emery County officials and residents reveals that the portion of the county along Highway 6, the Book Cliffs, and beyond to the east county line (Green River), is referred to as "East Emery." Generally, this area is regarded as contributing very little to the Emery County culture or economy. An

important fact is that the majority of the natural resources that enhance the significance of Horse Canyon as a training center are located in Emery County. Emery County officials are hopeful that a vibrant facility in Horse Canyon will enhance the visibility of the beauty and resources of a less productive part of the county, as well as contribute to the county's economy.

It is highly recommended that the administrators of the College of Eastern Utah be sensitive to the importance of a Horse Canyon development to the people of Emery County. There is great potential for the communities to share in whatever activity is attracted to the site. There are many civic and regional groups now active in the communities of Emery County, as is true of Carbon County. The citizens appear to be anxious for involvement and opportunity to demonstrate their local pride. A Horse Canyon facility that is supported by citizen groups of the two counties would offer a unique shared focus for the two-county area.

## **6.6 Community Relations Plan**

A comprehensive Community Relations Plan (CRP) should be developed for the Horse Canyon facility. The purpose of the CRP is to establish an effective community-interactive program that inform the community about Horse Canyon activities and facilitates the creation of new activities that involve the community on an ongoing and growing basis. Moreover, the community stands to benefit by providing support services such as hotels, restaurants, business services, transportation, and recreation to Horse Canyon activity participants. A CRP should contain, at a minimum, the following:

- Prepare an information sheet outlining the available resources and potential activities at Horse Canyon.
- Hold town meetings in both Price (Carbon County) and Castledale (Emery County) to inform community and business leaders, and residents about the Horse Canyon facility and, perhaps more importantly, to gather feedback and information about how the Horse Canyon facility could better serve local communities.
- Develop a list of key contacts that will be kept informed about developments and activities at the facility. That list could include such people as community leaders, mayors, city councilmen, county commissioners, leaders of organizations such as Chambers of Commerce, Rotary Clubs, etc., educational leaders, heads of community organizations such as the Boy Scouts, and church leaders.
- Because Horse Canyon is in Emery County, but the largest local population center is in Price, in Carbon County, the directors of the Horse Canyon Facility should make a special effort to develop programs for, and lines of communication with, Emery County residents.

- Create a Web site dedicated to Horse Canyon where everyone, not only the local community, can keep current about activities and developments at the facility.
- Periodic meetings should be held with local business leaders to develop ways that they can work with Horse Canyon managers to support activities at the facility.

## 7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Horse Canyon is a stunningly beautiful canyon rising into the spectacular Book Cliffs of central Utah. In the process of looking for potential sites for mine land redevelopment, the Center for Mine Land Redevelopment at the University of Utah (the Center) became aware that UtahAmerican Energy, Inc., the owner of the Horse Canyon coal mine land, would consider donating some of the land to a non-profit entity for a constructive, alternative, post-mining land use. In partnership with Emery County, where the majority of the land is located, the Center undertook a preliminary study to determine if there was an opportunity for redevelopment that would benefit Emery and Carbon Counties and the communities within those counties.

Because of the incredible natural beauty of the area and the proximity of extensive Wilderness Study Areas, the Center concluded that any redevelopment must be harmonious with, and not impair, the environment. A field camp or facility for the study of the natural environment, including geology, paleontology, biology, and other natural sciences, would be an asset to the College of Eastern Utah (CEU), located in Price, and would attract economic activity to Carbon and Emery Counties. Such a facility would take advantage of the many nearby natural wonders and could also be utilized for non-scientific purposes, such as for retreats. The Center applied to the Economic Development Administration for a grant to perform a feasibility study to create such a facility. The grant was approved, and work began on the project on August 1, 2002.

A business study was performed by a group of seven graduate students from the University of Utah under the supervision of Dr. Don Wardell of the Management Department of the David Eccles School of Business at the University of Utah. The students looked at the following activities as potential generators of revenue for the facility:

- Geology Field Camps
- Archeological Repository
- Production of Dinosaur Replicas
- Archeological Field Camps
- Paleontology Campos
- Elderhostel Programs
- Petroleum Company Camps

The Center concluded that a facility in Horse Canyon would probably be fully utilized by a variety of programs and could be profitable; however, none of the contemplated activities would generate a large amount of revenue. Therefore, on an operating-cost basis, the facility could be self-sustaining but would not justify a large capital outlay to create.

The buildings presently located on the site present a problem. They are large, in some respects, very large, for a facility that expects to have only 30 to 35 people utilizing it at

any given time. Moreover, the activities now contemplated for the site will not generate sufficient revenue to justify renovating the buildings for use as the primary structures on the premises. For a quick and relatively inexpensive start-up, modular buildings could be utilized effectively. Modular buildings can be moved in quickly and set up with a minimum of disturbance to the environment and can be sized to precisely meet the needs of the facility at the given time. They can be completely self-sufficient, with water tanks, pumps, sanitary tanks, and generators incorporated, and they are flexible so that sizes and configurations of buildings can be changed as requirements change. Perhaps most importantly, the cost for modular buildings is much lower than the cost for renovating the existing buildings, and phasing in the facility could further mitigate the costs; perhaps sleeping accommodations first, then bath, classroom, and office units.

Nevertheless, a prudent development plan will maximize the use of the existing buildings to the extent possible, either now or phased into the future. Ultimately, the existing buildings will be fully utilized by the facility. A suggested phased plan for the respective buildings is as follows:

- Post the property with signage saying, perhaps, "Site of the Future Horse Canyon Institute (or whatever the facility will be named) – Please Respect this Property," in order to discourage vandalism.
- Clean up all buildings, remove broken glass and debris. Repair any broken beams, doors, etc. For the buildings that will not be used in the immediate future, board up windows (replacement windows probably would quickly be shot out, at this early stage of redevelopment). Fill in any holes in floors, such as the grease pits in the shop building. Interior fixtures, such as showers, parts storage bins, shop hood vents, or other features that will not be used by the facility, should be removed.
- Building No. 1 is the office building, which will be the most likely to be first utilized. It has rooms and offices that are properly sized for offices and classrooms. The roof is in need of serious repair. Renovation will include replacing or repairing the roof, ripping out and replacing sheetrock, replacing some flooring, rewiring to code, and painting the interior. While not trivial, these tasks are less expensive and less drastic than those required to renovate the other buildings, and they can be accomplished, as time permits, over an extended period. This work could begin at the time of the opening of the facility (in modular buildings) and continue until completed. Volunteers could do much of it. When completed, office and classroom activities, and perhaps a lab, could be located in the building.
- Building No. 2 is the bathhouse. The primary asset of this building is a huge central room (which was the dressing room for the miners). The room has a high ceiling and is of a dimension that could easily house a full-sized basketball court. The floor is concrete, and indoor tennis courts or a running track could also be accommodated. Because of the size of the room, it would make an ideal auditorium, as well. Folding chairs and a speaking platform or dais could quickly and temporarily convert the room for this purpose. Space around the central room could be used for storage or for additional office space.

- Building No. 3 is the warehouse. It has a lot of space available but it would require a major rebuild to convert it for habitation. It could be used for storage or for indoor workspace for projects that require a large area, such as laying out core samples.
- Building No. 4 is the shop building. It is constructed half of brick and half of corrugated metal. It is the least aesthetically pleasing of all the buildings on site. It has an enormous interior space that can be accessed through large doorways. It is likely to be the least useful for the facility; however, it is well suited for large-scale storage for hay bales, tractors, backhoes, or other equipment. Therefore, it may be the most feasible for leasing to a third party, such as local ranchers, the Utah Department of Transportation, or Emery County.
- Since the removal of Buildings 3 and/or 4 would be very expensive, and they are not likely to be used by the facility in the short term, alternative third parties should be sought out who would make use of the buildings. An agreement might be styled such that the third party would agree to clean up and restore the buildings in exchange for free use for a fixed period of time.

Several different groups estimated costs for this project. Because capital costs for full restoration are not consistent with the limited use that the facility will have, especially at first, a phased approach is recommended to enable programs to be developed and the facility utilized as soon as possible. The site could be cleaned up and a basic infrastructure put in place for a little over \$100,000. Modular classrooms, a lunchroom, sleeping quarters, and bath buildings could be added for \$248,000. Furnishings are estimated to cost approximately \$58,000. Thus, for a cost of between \$400,000 and \$500,000, the facility can be fully functional. Final restoration of the site would include restoration of the existing buildings, addition of permanent infrastructure and such amenities as an amphitheater, horse corrals, and biking trails. The estimated cost for the full restoration is estimated to be approximately \$1.8 million. Using volunteer efforts do some of the restoration work over a period of time could lower this cost.

For the facility to be successful it must have something unique to offer. Horse Canyon must be more than just a place to sleep in between trips to Moab, the dinosaur quarries, the San Rafael Swell, or other nearby attractions. If that is all it will be, then visitors might just as well stay in a motel in Price or Wellington. There has to be a reason to be *in Horse Canyon!* What Horse Canyon offers is spectacular natural beauty coupled with the opportunity for learning, travel to the nearby attractions, and recreation within Horse Canyon.

Recreation must be developed as an integral component of the facility. Opportunities abound, including hiking, mountain biking, horseback riding, river rafting, bird and wildlife watching, photography and travel to nearby attractions. By integrating these activities with the study and travel, there will be a unique reason for students and researchers to locate at the Horse Canyon facility and take full advantage of the natural assets of the site.

A second and unique aspect of Horse Canyon that can be taken advantage of is the presence of coal and an abandoned coal mine. The facility could make use of this attribute to develop programs that teach the geology, occurrence and mining of coal, and aspects of coal mining, such as mine ventilation and mine safety. Moreover, coal bed methane has become a tremendous resource in Carbon and Emery Counties and the site could be used to research technology to improve the drilling of the wells and enhance the recovery of methane. Dr. George Uhlig, a professor at CEU, has developed a technology for putting out coal bed fires that could be further developed and tested at the site. In conjunction with that, research on locating coal beds using seismic, electromagnetic, or other remote techniques is well suited to this location.

The transfer of the property is well underway. The Utah Attorney General's office has reviewed the situation and recommended a path forward for transfer. The Utah Division of Oil, Gas and Mining (DOG M) has determined what criteria will have to be met for approval of an alternative post-mining land use and release of UtahAmerican's reclamation bond. Arrangements for site services such as water, fire protection, emergency medical services and other necessary services have been made within the local communities. An Environmental Site Assessment (Phase I ESA) in accordance with ASTM 1527 was performed, and it was determined that no "recognized environmental conditions" exist on the site that would delay or prohibit development. An environmental assessment (EA) examined the natural environment at Horse Canyon and evaluated potential negative impacts that might result from the proposed educational/recreational development plans. It concluded that, while wilderness study areas are located in proximity to Horse Canyon, planned activities would have relatively little impact. Indeed, activities at Horse Canyon will likely help promote appreciation of wilderness areas and will create a better understanding of their value.

The Horse Canyon project has been a tremendous success. The local communities are strongly behind the project and the College of Eastern Utah is moving aggressively toward taking ownership of the land and developing programs to maximize its use. The investigators at the Center for Mine Land Redevelopment appreciate the financial support and commitment of the Economic Development Administration and the project co-sponsors: Kennecott Utah Copper, Andalex Resources, Inc., Canyon Fuel Company, Utah Power, the College of Eastern Utah, the Center for Public Policy and Administration at the University of Utah, the College of Mines and Earth Sciences at the University of Utah, and all the others who helped contribute to this effort.