

**United States Department of the Interior
Bureau of Land Management
Royal Gorge Field Office
3028 E. Main Street
Cañon City, CO 81212**

Environmental Assessment

Mineral Materials Competitive Sale in Fremont County, CO

DOI-BLM-CO-200-2011-0092 EA

September, 2012



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CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

CASEFILE/PROJECT NUMBER (optional): COC 074982

PROJECT TITLE: Mineral Materials Competitive Sale in Fremont County, CO

PLANNING UNIT: Arkansas River Subregion #1

LEGAL DESCRIPTION: 6th, T18S, R70W, Sections 30 and 31

APPLICANT: Tezak Heavy Equipment Company, Inc. (dba) T.H.E. Aggregate Source

1.2 INTRODUCTION AND BACKGROUND

This Environmental Assessment (EA) has been prepared by the BLM to analyze the application for proposed development of an existing open pit aggregate mine in Fremont County, Colorado.

T.H.E. Aggregate Source (“Tezak”) quarry has been in operation on private surface and mineral estate since 1977 and lies approximately 1.5 miles west of Canon City, Colorado. Although the mine originally began operating in 1977, the mine wasn’t purchased by Tezak until 1993. The original mine was permitted on the private estate by the Colorado Division of Reclamation, Mining and Safety (CDRMS) for 30-acres. The permit boundary has since then been amended to 100-acres in 1997 and again in 2000 to 231-acres, with subsequent permitting processes being implemented by Fremont County. The primary products being produced by the existing mine are construction aggregates of a granite and/or limestone type rock. This rock is hard and tough and has widespread use as a construction stone. The processed aggregate is used in various types of construction projects including stream bank protection, landscaping, asphalt and concrete products throughout Colorado.

An application was submitted by Tezak to the BLM on June 10, 2011 that proposed development of these operations to the west, which would extend the now privately owned quarry onto a parcel of BLM managed surface and federal minerals. The original application requested this development onto 51.5-acres of BLM, but the proposed action has subsequently been determined to be 78.72-acres, as shown on Figures 1 and 2 (see “Alternatives Analyzed Considered but Not Analyzed in Detail” section for further explanation). The requested mineral material disposal contract is for approximately 450,000 tons annually for 10 years, with an option to renew. This development is necessary for the increased mineral material needs of the public to be met both locally and regionally. Per 43 CFR 3600, this proposed disposal is required to be analyzed through the appropriate level of NEPA analysis and handled under a competitive sale process. Although Tezak may not be the successful bidder in this mineral materials sale, their proposed mining and reclamation plan, as well as existing operations, are being analyzed in this EA as they provide a reasonable industry standard approach to mining the proposed BLM parcel.

1.3 PURPOSE AND NEED

One of BLM’s priorities for minerals management in Colorado is to make the mineral materials from public land available for energy development and urban growth, including timely processing of applications for purchase of mineral materials for use in exploration and development of renewable and conventional energy mineral resources and infrastructure and community developments.

Per 30 USC Sec. 1602 (01/03/2012), The Congress declares that it is the continuing policy of the United States to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production with appropriate attention to a long-term balance between resource production, energy use, a healthy environment, natural resources conservation, and social needs. The Congress further declares that implementation of this policy requires that the President shall, through the Executive Office of the President, coordinate the responsible departments and agencies to, among other measures, 1) identify materials needs and assist in the pursuit of measures that would assure the availability of materials critical to commerce, the economy, and national security and 2) encourage Federal agencies to facilitate availability and development of domestic resources to meet critical materials needs.

It is BLM policy to make mineral materials available in accordance with the Mineral Materials Act, provided adequate measures are taken to protect public land resources and the environment and that damage to public health and safety is minimized (43 CFR 3601.6). Since disposal of mineral materials is discretionary on the part of BLM, no disposals will be made if it is determined by the Authorized Officer that the aggregate damage to public lands and resources would exceed the public benefits that BLM expects from the proposed disposal.

Based on this regulatory structure, the following actions and alternatives will be analyzed:

1. Proposed Action
2. No Action Alternative

BLM will determine if the proposed project will result in no significant impacts (either because none exist or if they do exist, they can be adequately mitigated) during the EA process. Results and any mitigation developed through this environmental assessment and resulting decision document will be forwarded to CDRMS and Fremont County for inclusion into their permitting processes.

1.4 DECISION TO BE MADE

The BLM will decide whether to approve the proposed “Mineral Materials Competitive Sale in Fremont County, CO” project based on the analysis contained in this EA. This EA will analyze the proposal to expand an existing and privately owned sand and gravel operation onto approximately 78.72-acres of BLM managed land and minerals located directly west of the current mine area.

The BLM may choose to:

- a) accept the project as proposed
- b) accept the project with modifications/mitigation
- c) accept an alternative to the proposed action, or
- d) not authorize the project at this time. The finding associated with this EA may not constitute the final approval for the proposed action.

1.5 PLAN CONFORMANCE REVIEW

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Royal Gorge Resource Area, Resource Management Plan (RMP)

Date Approved: May 1996

Decision Number/Page: Decision 1-40/Page 2-1-8; Decision 1-41/Page 2-1-8

Decision Language:

1-40 – Areas will be open to mineral entry and available for mineral materials development administered under existing regulations, limited by closure if necessary and special mitigation will be developed to protect values on a case-by-case basis;

1-41 – Areas will be open to mineral entry and available for mineral materials development under standard mineral operating practices.

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

1.6 SCOPING, PUBLIC INVOLVEMENT AND ISSUES

1.5.1 Scoping: The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: Public outreach was conducted by the following methods:

- Posting this project on the Royal Gorge Field Office NEPA website
- Hosting a meeting between BLM and the Fremont County Commissioners
- Ongoing coordination between BLM and CDRMS
- Submitting the Draft EA for 30-day public comment period

Issues Identified: Yet to be determined.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The proposed action will allow an existing, privately owned mine to increase their mine life to 2067 from 2042-2047, an increase of 20-25 years. Current projections indicate that the privately owned reserves will result in a Life of Mine of approximately 30-35 years out from 2012. The addition of the BLM reserves will result in a current projected Life of Mine of 55 years. The proposed increase of the Life of Mine would consist of operations that mirror what is implemented at the privately owned mine that has been in production since 1977 (Photos 1 – 3). Information has been consolidated throughout the coordination process between BLM and the applicant, to include the Mine and Reclamation Plan received from the applicant on April 20, 2012, an onsite inspection conducted by BLM on October 20, 2011, and continued written and verbal correspondence between BLM and the applicant.

The existing mine footprint and proposed development are located in the “Agricultural, Farming & Ranching, Agricultural Forestry and Industrial Zone District” of Fremont County, with a small portion of the existing mine residing on an industrial area within the limits of Canon City. Nearby uses include another private aggregate quarry, a power plant, multiple roads and a highway, a college, a Department of Transportation storage yard, water storage tanks, a landscape materials retail yard, wastewater treatment lagoons and a State prison facility. See Photos 4 and 5.

The proposed action will assist in sustaining employment opportunities, as well as provide indirect revenues to both local and regional communities. As this proposal is considered a mineral materials sale, BLM is required to receive fair market value royalties for the material, which will then contribute to the U.S. economy. To provide an understanding of the local benefits this type of operations will contribute to the local economy, below is a summary of the applicant’s company contributions from 2009 to date:

- Wages provided to employees (averaging 52 employees/year): \$9,583,968.05
- Sales tax collected and paid to Fremont County: \$17,834.93
- Sales tax collected and paid to Canon City: \$20,594.00
- Real and personal property tax paid: \$289,262.04
- Equipment licensing paid: \$329,947.03
- Aggregate tonnage sold to Fremont County at a reduced rate: 71,580.70 tons

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

General

Mining will commence in 2012 from the southeastern corner of the proposed BLM Mineral Material contract area with surface leveling and bench development work from the top of existing highwall at boundary line 660' west and 660' north of the southeast corner of the proposed contract area. Leveling for mine benches will proceed from the highwall contact working west towards the west boundary of the proposed BLM Mineral Material contract area. The ten acre area of leveling and bench development will likely take place in two or more stages over the next 1-3 years. The southeastern corner of the proposed contract area will be accessed from a roadway developed from Tezak mine property along the central portion of the active mining zone north of largest highwall face currently exposed along the western boundary of the property with proposed BLM Mineral Material contract area. Bulldozers and excavators will be used to build access roads and level terrain for production drilling. Conventional hardrock surface mining techniques will be employed using percussion drilling equipment to drill 6" holes for bench development of 40' high and 30' wide for final highwall benches. During the active phase of highwall mining, bench heights of 40' and bench widths of 20' will be used. The larger bench widths for final highwall configuration have been suggested to improve machine access if ever necessary to clean excessive rock fall and maintain storm desired drainage patterns along the toe of the mine benches.

Tezak Heavy Equipment typically schedules a few large production blasts rather than many small production rounds. Tonnage of typical production blasts are about 150,000 tons of granitic material, per shot, meaning that production blasting occurs three to eight times per year. The current blasting schedule and specific state of the art non-electric sequentially delayed blasting initiation system will be continued. Blasting patterns of 15'x15' burden and spacing are typically used and loading factors normally run from .25-.35# explosive per ton rock blasted. There have been no complaints or concerns regarding blasting controls at this site over the past number of years. It is a priority for Tezak to maintain and continue the good operating history regarding blasting noise and vibration control during blasting operations. Each round is planned, loaded, and shot by a licensed blaster. All production rounds are recorded for noise and ground vibration levels and documented for blast lay out and loading pattern.

Once a sufficient area on top has been leveled/benched, drilling operations will commence from the existing highwall face west to a location suitable for shot size and face development. After blasting, rock will be pushed over the highwall face with a bulldozer or carried and dumped over the face utilizing a front-end loader. Rock is then picked up at the large muckpile developed along the base of the highwall and fed with a front end loader into the crushing and screening system located at the pit floor elevation 5660'. Material will be conveyed to various sized aggregate material stockpiles located at the pit floor/truck loadout area.

Mine Bench Details

Final mine bench dimensions will be 40' high and 30' wide, with a 1% grade along lateral bench reaches to nearest side drainage and 1% grade from outer edge of bench to base of next highest bench run. The 40' high rock bench face will be left at 0.25:1, H:V. No rock berms are planned for placement on the bench, although lateral drainage will be maintained along the near-horizontal (1% grade) bench tops to direct surface flow from storm events to the outer portions of the bench system

in proximity to main storm flow drainage channels. Maintenance activities along the bench may involve removal of any material that may accumulate over time along the back of the bench top or small slabs of rock that may become dislodged from the rock face. This work will likely be accomplished using a small track hoe or crane with ample reach to remove loose material while maintaining a safe distance from the bench edge.

The first 10 acres (660'x660') of highwall mining in the proposed contract area will result in an east facing highwall along the west boundary of the proposed contract area and a south facing active highwall that will continue to move northwards in time as mining continues north along the 3000' length of the proposed contract area. At final build-out, there will be at least two locations where highwall intersect at 90 degrees. These areas may be left armored with rock talus to promote control of storm-related water flow. The goal is to limit potential for highwall destabilization due to short-term but potentially high-volume surface storm water flow. Rock placement may be utilized in other locations where storm-related surface flow potentials or unstable bedrock zones may be encountered.

Process and Loadout Operations

Rock crushing, screening, sizing, and stockpiling circuits will not change to any significant degree over time from their present configuration, although the plant may be moved closer to the toe of the highwall system as well as relocated at a lower final elevation, projected to be approximately 5550' at lowest pit elevation. This plant will continue to be fed for the most part by front-end loader muck and carry from the muck pile created along the toe of the highwall by blasting and push off or, alternatively, trucks will be loaded out at the muck pile and will dump directly into a feed hopper. Mining operations including: drilling, blasting, crushing, and truck loading are normally scheduled for 5AM - 9PM five days per week. A continuance of the schedule for Saturday operations may be possible should business conditions warrant.

Stormwater Controls

As part of the 1997 amendment conditions for the privately owned mine, the site was reconfigured to direct storm-related surface run-off areas above and west of the mine site from their former south flow path towards Tunnel Drive and the Arkansas River, across the pit floor area along the base of the highwall north and east towards a series of storm detention ponds constructed along the eastern portions of the permit boundary. These storm control structures have been in place since late 1997 and have successfully operated to keep surface run-off directed away from residential areas along Tunnel Drive as well as the Cañon City Hydraulic Ditch paralleling the Union Pacific railroad tracks running along the north bank of the Arkansas River. The detention ponds will be maintained as they are to handle storm flows that may enter the pit floor area as well as surface water delivered from undisturbed terrain west and above the mining site. Drainage patterns along the base of highwall system and product stockpile area must be maintained to allow storm-derived surface flows to cross the pit floor unimpeded towards the storm flow channel excavated at the northeast corner of the mine site which feeds the detention ponds. These structures will be maintained and kept operational throughout the life of mine.

This amended acreage and increased life of the mine will not necessitate changes to the storm water control system as it currently operates at the privately owned mine site.

Timetable for Mining and Reclamation Activities

2012	Approval of amended mine acreage and initiation of development work at upper elevation of newly contracted area (currently being proposed), southern 10 acres of newly contracted land (currently being proposed).
2012 – 2017	Highwall mining focused on 10 acre (m/l) area at SE corner of the proposed contract area, 660'x660' on side. Mining will progress east to west to western border of proposed contract area.
2017 - 2037	Highwall mining progressing south to north to northern end of the proposed contract area.
2037 – 2067*	Mining of pit floor to 5,550' elevation. Mining of high wall areas to the north, and the pit floor, may be concurrent depending on business needs and costs. Process fines will be used for planting medium in concert with other soil amendments/additions for re-vegetation of the pit floor areas.

**Note that "life of mine" end of mining date may be subject to a considerable variance regarding final mining date depending upon a number of factors that cannot be accurately estimated at this time, such as production demands, rock quality, new market development potentials, etc.*

Equipment and explosives used in conjunction with the current privately owned mine operations that would also be utilized with the proposed development:

Equipment

<u>General Type</u>	<u>Number on Site</u>
Front-End Loaders .5 – 15 yard (.5= Skid Steer)	4
Bulldozers 500 – 700 HP	1
Excavators 1 – 4 yard	2
Motor Grader 150 – 200 HP	1
Haul Trucks 400 – 600 HP (25 – 35 yard)	2 proposed for future
Percussion Drill 100 – 300 HP	2: 1 on site; 1 contracted for production
Water Truck 4000 gal	1
Jaw Crusher w/feeder	1
Cone Crusher	2
Screen Decks	4
Conveyor Systems	15
Trommel Screen	1
Pick-up Trucks	6
Service Trucks	2

Explosives

Primarily ammonium nitrate/fuel oil (ANFO) initiated by ammonium nitrate (AN) activated cast boosters or gels and non-electric delay systems. Estimated annual explosive consumption will range from 50 – 150 tons depending on business demand.

Current Permits

The following is a summary of the permits that will either be modified or apply to include the proposed development:

- **Permit #M1977-193 (Appendix A)**
State of Colorado Construction Material Regular (112) Operation Reclamation permit
 - Administered by Colorado Division of Reclamation, Mining and Safety (CDRMS)
 - Permit expiration is Life of Mine

- **Permit # COR340912 and associated Stormwater Management Plan (Appendix B)**
CDPS General Permit for Stormwater Discharges Associated with Sand and Gravel Mining and Processing Authorization to Discharge under the Colorado Discharge Permit System
 - Administered by Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division
 - Certification expiration is 09/30/2012

- **State of Colorado Air Permits**
 - Permit # 95FR695F (Appendix C)*
 - State of Colorado Construction permit for a sand and gravel operation source, specific to material extraction, handling, stockpiling, hauling and associated conveyors and transfer points
 - Administered by CDPHE, Air Pollution Control Division
 - Permit expires on 10/09/2013
 - Permit # 09FR1294*
 - State of Colorado air pollution emission notice (APEN) for a Simplicity Screen stationary source
 - Administered by CDPHE, Air Pollution Control Division
 - Permit issued on 05/19/2010
 - Permit # 09FR1296*
 - State of Colorado APEN for 2 Nordberg Crusher stationary sources
 - Administered by CDPHE, Air Pollution Control Division
 - Permit issued on 05/19/2010
 - Permit # 09FR1297*
 - State of Colorado APEN for a Cedarapids Jaw Crusher stationary source
 - Administered by CDPHE, Air Pollution Control Division
 - Permit issued on 05/19/2010
 - Permit # 09FR1298*
 - State of Colorado APEN for a Pioneer Screen stationary source
 - Administered by CDPHE, Air Pollution Control Division
 - Permit issued on 05/19/2010
 - Permit # 09FR1299*
 - State of Colorado APEN for a JCI Screen stationary source
 - Administered by CDPHE, Air Pollution Control Division
 - Permit issued on 05/19/2010

- **Mine ID #05-00073**

Per the Federal Mine Safety & Health Act of 1977 each coal or other mine, the products of which enter commerce, or the operations or products of which affect commerce, and each operator of such mine, and every miner in such mine shall be subject to the provisions of this Act.

- Administered by the Mine Safety and Health Administration (MSHA)
- This Mine ID indicates that the mine is registered with MSHA and subject to their regulations regarding the health and safety of the operator’s employees
- Mine ID expiration is Life of Mine

- **Explosive Permits**

Type 1

- Permit is for an individual who possesses and or controls explosive material.
- Administered by the Colorado Division of Labor and Employment, Oil and Public Safety Division
- Permits are held by two different individuals of Tezak, expiring on 05/27/2014 and 07/26/14

Type 2

- Permit is for a corporation or business that purchases explosive material.
- Administered by the Colorado Division of Labor and Employment, Oil and Public Safety Division
- One permit is held by Tezak, expiring on 05/27/2014

Type 3

- Permit is for storage of explosive material.
- Administered by the Colorado Division of Labor and Employment, Oil and Public Safety Division
- One permit is held by Tezak, expiring on 05/27/14

Type 33

- Federal explosives permit
- Administered by the U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives
- One permit is held by Tezak, expiring on 04/01/2015

- **Permit # CUP 00-1 Tezak Heavy Equipment Company Inc./T.H.E. Aggregate Source**

Fremont County Conditional Use Permit

- Permit is for the operation of a sand and gravel mine, including dozing, drilling, blasting, crushing, screening, loading and hauling of granite rock products, concrete recycling, asphalt and ready mix batch plants and on-site housing of business offices.
- Administered by Fremont County, Colorado
- The subject property is located in the “Agricultural, Farming & Ranching, Agricultural Forestry and Industrial Zone Districts”
- Permit expiration is Life of Mine

Reclamation

Reclamation processes have previously been approved by CDRMS and Fremont county for the private mine. These same type of reclamation methods will be applied to the proposed mining disturbances on the BLM parcel. The *Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials* were used as the main guide in developing the currently approved reclamation plan. As part of the mine and reclamation plan amendment process Tezak was involved with in 1996/1997, a geotechnical stability investigation was completed in order to assess overall stability of the proposed final reclamation highwall configuration (Appendix D).

The primary goal of the final reclamation plan regarding the highwall feature left remaining at the termination of mining is to leave the site with a stable configuration of mine benches that will require minimal risk to the public, mine employees and inspection personnel that may be working near the highwall area in the future. Taking this into consideration it is also the intent to minimize impacts to visual resources, which is why the applicant and the BLM agreed to increase the size of the proposed Mineral Material disposal area, in order to reduce the final contrast between the benches and the adjacent natural landscape.

The approved reclamation plan for the private quarry consists of the following aspects, in order to attain the long range goals of reclamation:

1. A geotechnically stable highwall configuration and surface grading plan, which addresses the control of storm water flows, erosion potentials, and sediment controls which will operate in perpetuity with low maintenance.
2. A site which will blend into neighboring land use as much as possible with final grading features that will protect neighboring land areas by way of diversion and retention of storm flows away from the Tunnel Drive area and direct drainage into the Arkansas River.
3. A stable, self-sustaining, native vegetative mode, where appropriate, which will support wildlife use and open graze use with a minimum of maintenance demand.

These objectives will be achieved through the following key items included in the currently approved reclamation plan for the private mine footprint (a copy of the entire plan can be found in Appendix A):

1. Highwall
 - a. The existing plan includes a final highwall design that is based on the compositional banding and zonal planes of migmatitic and metamorphic planes, which strike generally North-South and dip in a generally Eastern attitude at high angles (75 degrees or more). This orientation has resulted in numerous naturally occurring rock faces in the immediate area that approximate a 0.25:1 slope. These natural faces are found to be in excess of 80-feet in some cases. Mining over the past twenty years in the granite area has shown that 0.25:1 slopes in this material are stable. Therefore, the currently approved reclamation plan for the private quarry utilizes final highwall benches that are 40-feet in height with a 0.25:1 (H:V) slope and 20-feet in depth.
 - b. To continue to meet the intent of mining laws that require promotion of site stability and impact control, the highwall bench design is being proposed for revision, as follows (which would then also be applicable to the proposed BLM parcel):

- Final highwall benches will be 40-feet in height with a 0.25:1 (H:V) slope and 30-feet in depth with final drainage of 1% to toe of bench base and 1% grade to lateral surface flow run-offs at intersections of benches with natural drainage channels. This overall lower final slope (1:1) vs. (0.75:1) will increase the Factor of Safety of the highwall structure as compared to the currently accepted slope, where Factor of Safety was calculated to range 3 and higher.
- This proposed highwall configuration meets standard engineering practices of maximum slope stability, minimization of risk of fall of ground or personnel and effective management of surface run-off during storm events that might otherwise compromise human, animal, or environmental impact including excessive sedimentation or other water quality concerns. Re-vegetation of the mine benches are not being considered in the final reclamation plan due to concerns regarding soil instability during storm events, accessibility and safety of personnel.

2. Floor

- a. Although the goal is to reclaim as you go, the main pit area is not planned for revegetation until near to the life of the mine, due to the fact that the mine pit will be in continuous use as product stockpile, process and loadout area.
- b. At the time of final reclamation, topsoil materials will be transported to the main pit floor from neighboring lands owned by the mine operator and will be applied at depths of 12”-18”. This soil material will be amended with organic materials to achieve a plant medium that will support native vegetation. An initial application of inorganic fertilizer of Nitrogen at 100 pounds/acre minimum and Phosphorus at 80 pounds/acre is anticipated prior to seeding. The seed mixture will be composed of the following species:

- Needle and thread grass
- Blue grama grass
- Side oats grama
- Sand dropseed grass
- Red three-awn
- Indian ricegrass
- Winterfat
- Mountain mahogany
- Four-wing saltbush
- Tall rabbitbrush
- Brickle bush
- Blackfoot daisy
- Cholla cacti
- One seed juniper
- Pinon pine
- Western wheatgrass
- Intermediate wheatgrass
- Crested wheatgrass

The relative amounts of the species in the mixture will be based on the availability and price at the time planting. The drought resistant native grasses should be the focus of the

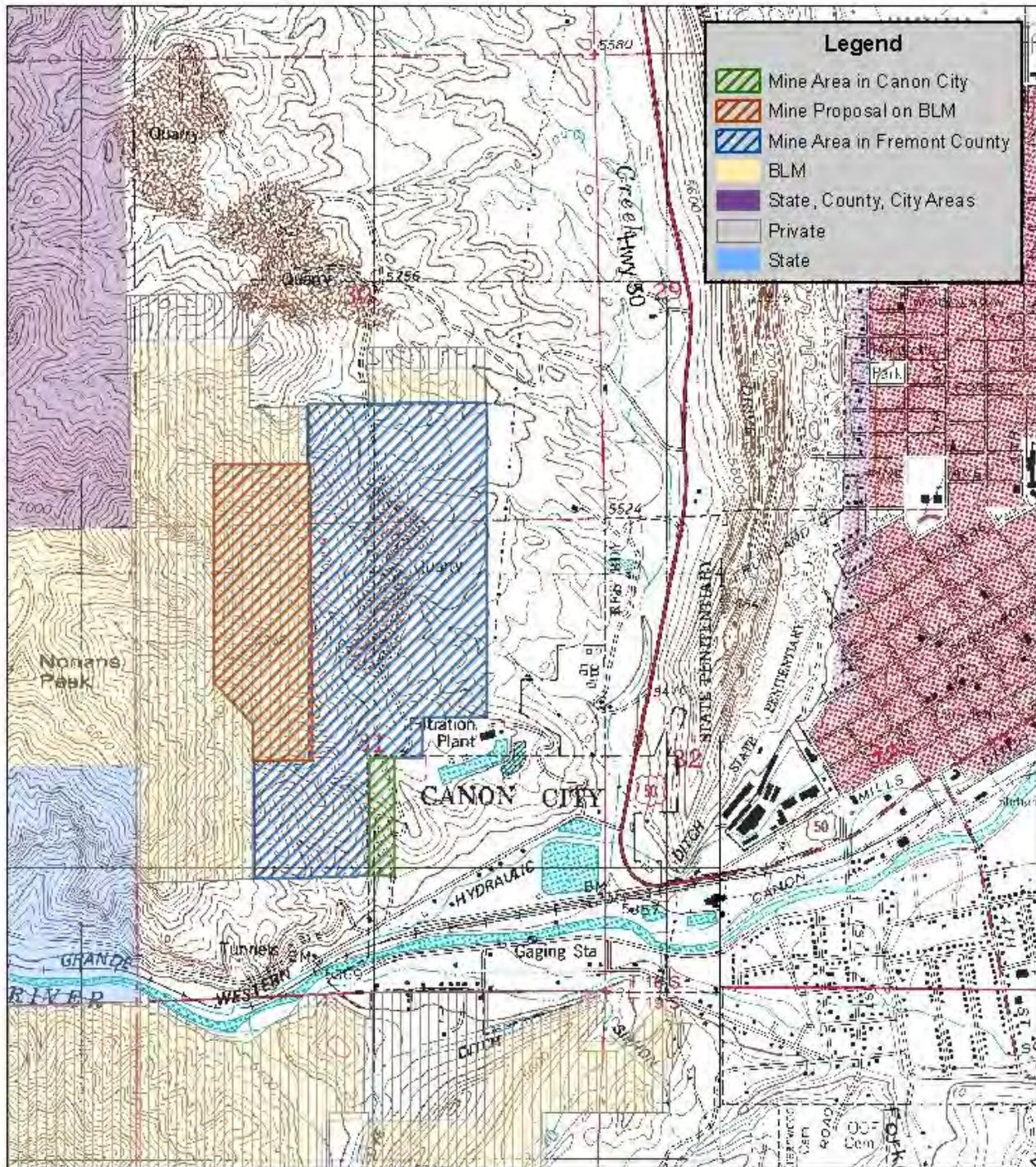
mixture in respect to the grass species. The seeding effort will be conducted by the appropriate broadcast or drill seeding methods. The seeding and mulching program should be repeated every other year, until a minimum of 25% ground cover is attained over the site.

- c. The proposed post-mining use of open rangeland/wildlife habitat is compatible with surrounding/neighborhood land use of the area.
- d. There is no topsoil incurred at the surface of this mining operation. Topsoiling of the final pit floor will be accomplished with materials from nearby areas owned by the mine operator or will be imported from other sites.

The approved Mining and Reclamation Plan does not specifically address weeds. Therefore discussions arose between BLM and the applicant, which resulted in a protocol for weeds management that will be implemented on the proposed BLM parcel, and possibly the privately owned portions of the mine site. This protocol includes the monitoring and treatment of noxious weeds every year during the life of the mine. At the end of the mine life during the mine reclamation period, revegetated areas will be monitored for the presence of plants on the Colorado State Noxious Weed list for a period of five years. A and B list species from the Colorado State Noxious Weed list will be eradicated prior to bond release.

Bond

Currently, the private quarry has a required surety of \$540,215.00 being held by CDRMS for reclamation of these operations, in accordance with the approved plan on file. If the proposed mine development moves forward BLM will require a performance bond for the federal interests, in accordance with 43 CFR 3602.14, of an amount sufficient to meet the reclamation standards provided for in the contract. This process will be conducted in coordination with CDRMS.

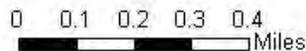
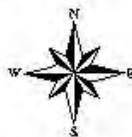


PROPOSED MINERAL MATERIALS DISPOSAL, FREMONT COUNTY

T18S, R70W, Sections 30 and 31

DOI-BLM-CO-2011-0092-EA

Overview Map



NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

Figure 1

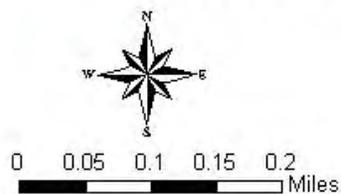


PROPOSED MINERAL MATERIALS DISPOSAL, FREMONT COUNTY

T18S, R70W, Sections 30 and 31

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Project Map



NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

Figure 2



Photo 1: Looking northwest at working face (private surface/mineral estate) of existing mine. BLM managed surface and minerals are represented directly west & noted by the arrow.



Photo 2: Looking northwest, just north of working face (private surface/mineral estate) of existing mine. BLM managed surface and minerals are directly west & noted by the arrow.



Photo 3: Looking southeast at existing mine floor (private surface/mineral estate). The picture is being taken from the eastern edge of BLM managed surface and minerals.



Photo 4 Looking Northwest (red outlined area = proposed BLM parcel, red and green filled areas = existing private mine permit)



Photo 5 Looking southwest (red outlined area = proposed BLM parcel, red and green filled areas = existing private mine permit)

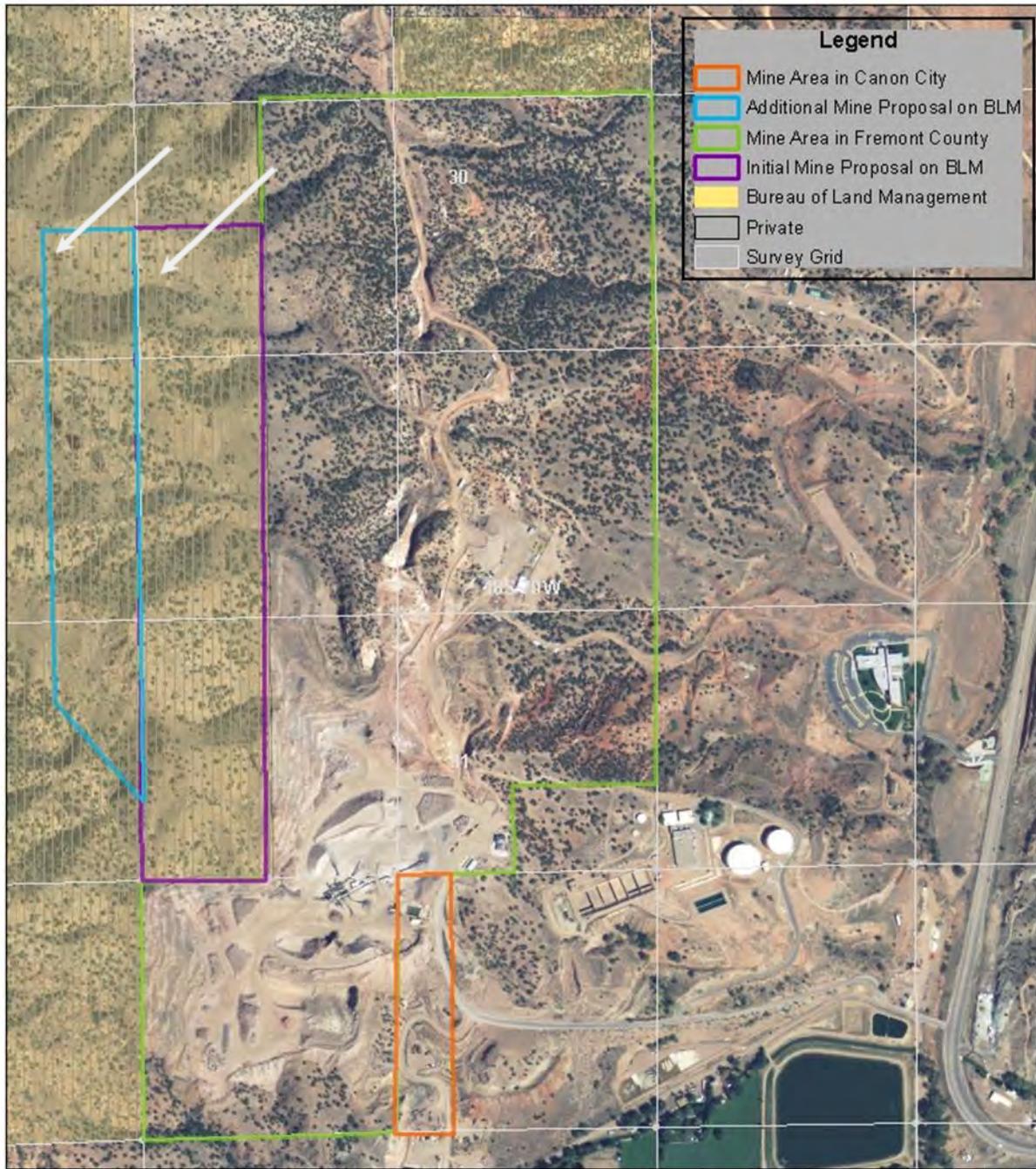
2.2.2 No Action Alternative

The applicant could continue operating the currently active quarry within the privately owned interests; however, the overall potential reserves would be more limited and therefore shorten the projected Life of Mine.

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

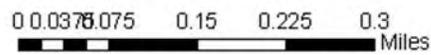
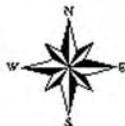
The initial proposal for this private mine development onto federal interests only involved 51.5 acres (Figure 3). However, after reviewing the projections for what the site will look like after final reclamation is complete, the applicant and the BLM agreed to increase the size of the proposed Mineral Material disposal area. In doing this, the final contrast between the benches and the adjacent natural landscape will be less visible from key observation points along Highway 50. See the “Visual Resources” section for additional discussion on this topic.

DRAFT



PROPOSED MINERAL MATERIALS DISPOSAL, FREMONT COUNTY

T18S, R70W, Sections 30 and 31



NOTE TO MAP USERS
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Figure 3

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as potentially impacted will be brought forward for analysis.

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Reason for Dismissal from Analysis</u>
<u>Air Quality</u> <i>Ty Webb</i>	9/27/2012	TSW	See affected environment.
<u>Geology/Minerals</u> <i>Stephanie Carter, Melissa Smeins</i>	9/24/2012	SSC	Although this proposal would remove a considerable amount of rock material from the BLM parcel, given the mineral occurrences in this acreage the proposed use of mineral material commodities is considered a good use of the resource.
<u>Soils</u> <i>John Smeins</i>	9/24/2012	JS	See affected environment.
<u>Water Quality</u> <u>Surface and Ground</u> <i>John Smeins</i>	9/24/2012	JS	The site is in a dry upland location. All runoff from the site is covered under a State of Colorado storm water discharge permit where all runoff up to the 10 year- 6 hour storm would be contained on site. Runoff from the 100 year-24 hour storm would be routed through appropriately sized channels.
<u>Invasive Plants</u> <i>John Lamman</i>	09/28/2012	JL	Invasive/Noxious weeds are addressed in the reclamation section of the proposed action.
<u>T&E and Sensitive Species</u> <i>Matt Rustand</i>	9/13/2012	MR	Peregrine and Golden Eagles nest within the Royal Gorge; however, the nearest nest is more than three miles away. No known threatened and endangered or sensitive species are present within the action area.
<u>Vegetation</u> <i>John Lamman</i>	09/26/2012	JL	Vegetation and topsoil will be removed from the project area. Replacement of topsoil and native vegetation at the end of the mine life is covered in the reclamation section of the proposed action (also see Appendix A).
<u>Wetlands and Riparian</u> <i>Dave Gilbert</i>	9/14/2012	DG	Resource is not present because all drainages are ephemeral.
<u>Wildlife Aquatic</u> <i>Dave Gilbert</i>	9/14/2012	DG	Resource is not present because all drainages are ephemeral.

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Reason for Dismissal from Analysis</u>
<u>Wildlife Terrestrial</u> <i>Matt Rustand</i>	9/13/2012	MR	See affected environment.
<u>Migratory Birds</u> <i>Matt Rustand</i>	9/13/2012	MR	See affected environment.
<u>Cultural Resources</u> <i>Monica Weimer, Erin Watkins</i>	9/21/2012	EW	Only a single historic site is present in the vicinity of the area of potential effect [see Report CR-RG-12-54(N); CR-RG-13-55 (P)]. Although historic site 5FN.2730 was recorded during the cultural resources inventory, it is not eligible for the National Register of Historic Places. Therefore, no historic properties will be affected by the proposed undertaking.
<u>Native American Religious Concerns</u> <i>Monica Weimer, Erin Watkins</i>	9/21/2012	EW	No aboriginal sites are present in the vicinity of the area of potential effect, and no possible traditional cultural properties were located during the cultural resources inventory (see Cultural Resources section, above). There is no other known evidence that suggests the project area holds special significance for Native Americans.
<u>Economics</u> <i>Stephanie Carter</i>	09/24/2012	SSC	Removal of rock associated with the proposed mine development on BLM has the potential to affect local social and economic conditions. However, it is anticipated that this impact would be positive due to continued employment availability and regional economic infusion.
<u>Paleontology</u> <i>Melissa Smeins</i>	9/25/2012	MJS	Paleontology not present.
<u>Visual Resources</u> <i>Kalem Lenard</i>	9/17/2012	KL	See affected environment.
<u>Environmental Justice</u> <i>Martin Weimer</i>	9/24/12	mw	The proposed action affects areas that are rural in nature. The parcel is near the town of Canon City, there are, however, no minority or low-income populations in or near the project area. As such, the proposal will not have a disproportionately high or adverse environmental effect on minority or low-income populations.
<u>Wastes Hazardous or Solid</u> <i>Stephanie Carter</i>	09/24/2012	SSC	See affected environment.
<u>Recreation</u> <i>Kalem Lenard</i>	9/17/2012	KL	Being located directly adjacent to an existing quarry operation on private land combined with the steep slopes of the project area the BLM land identified in the Proposed Action has little recreation value and use so there would be no impacts to recreation. The Visual Resources section describes impacts to visual resources associated with the Proposed Action.
<u>Farmlands Prime and Unique</u> <i>John Lamman</i>	09/24/2012	JL	Resource not present.
<u>Lands and Realty</u> <i>Vera Matthews</i>	09/28/2012	VM	Present but not affected by this action.

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Reason for Dismissal from Analysis</u>
<u>Wilderness, WSAs, ACECs, Wild & Scenic Rivers</u> <i>Kalem Lenard</i>	9/17/2012	KL	Not Present.
<u>Wilderness Characteristics</u> <i>Kalem Lenard</i>	9/17/2012	KL	Not Present.
<u>Range Management</u> <i>John Lamman</i>	09/24/2012	JL	The project area is part of the Eight Mile Park Grazing Allotment. The project area is steep with minimal value for livestock forage. Currently there is no authorized grazing on the Eight Mile Park Grazing Allotment. The proposed project will not have any impact to Range Management.
<u>Forest Management</u> <i>Ken Reed</i>	9/27/2012	KR	See affected environment.
<u>Cadastral Survey</u> <i>Tony Mule' /Jeff Covington</i>	9/7/2012	JC	The LDR and COS are located in the project folder. These corners should be located and flagged up for their protection. Any BLM monuments destroyed during the mining process will be reestablished at the mining operator's expense when mining is terminated.
<u>Noise</u> <i>Stephanie Carter</i>	09/24/2012	SSC	The proposed mine development will utilize the existing mine's operational protocol and level of effort and no change in current noise levels should result. Currently, noise generation is subject to the county requirements and is monitored through the Fremont County Conditional Use Permit.
<u>Fire</u> <i>Bob Hurley</i>	9/6/2012	BH	The proposed action will not create or elevate risk factors leading to unwanted wildland fire ignition.
<u>Law Enforcement</u> <i>Steve Cunningham</i>	9/24/12	mw for SC	There are no law enforcement issues associated with this action.

The affected resources brought forward for analysis include:

- Air Quality and Climate
- Soils
- Wildlife Terrestrial
- Migratory Birds
- Visual Resources
- Wastes, Hazardous or Solid
- Forestry Management

3.2 PHYSICAL RESOURCES

3.2.1 AIR QUALITY AND CLIMATE

Affected Environment: Quarries for sand and gravel production are potential sources of air pollution emissions. The amount of emissions depends on the size and frequency of the operations. Factors influencing the amount of emissions depends upon the size of the particulates created during blasting and processing, wind speed and direction, transport wind speed and direction and mixing heights.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Under the proposed action the air quality in the area would temporarily increase negative short term impacts because of an increase in particulates. Current operations are already being conducted at the quarry site.

Protective/Mitigation Measures: The Colorado Department of Public Health and Environment Air Pollution Control Division issue's a permit for the operation of the Sand and Gravel operation. The permit system details the rules and regulations that the quarry must operate under to limit the effects on air pollution.

No Action Alternative

Direct and Indirect Impacts: If no action is taken then air quality would not be a factor.

Protective/Mitigation Measures: None

3.2.2 SOILS (includes a finding on standard 1)

Affected Environment: The Proposed Action would expand an existing quarry to include 78 acres of public lands. The soils contained in this proposal are the Ustic Torriorthents boulder-Rock outcrop complex 35-90% slopes (approximately 75% of the area) and the Roygorge very gravelly sandy clay loam, 25-50% slopes (approximately 25% of the area). These soils are found on mountain sides with very shallow depths to bedrock ranging from 4-30" and very low water holding capacity. These soils are currently meeting standards for public land health.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The Proposed Action would disturb and remove almost all soil from 78 acres as mining progresses along the mountain front. In addition, more soil would be impacted on adjacent private lands; however these lands would still be mined regardless of whether or not the proposed action is implemented. During reclamation top soil would be brought in from an offsite location and used to cover the pit floor to obtain vegetative goals. Overall, the steep, thin soils of the mountainside would be replaced with a large, near vertical bedrock face and a flat, vegetated bench.

Protective/Mitigation Measures: None

No Action Alternative

Direct and Indirect Impacts: If no action is taken, the soils at the proposed location would stay as they currently are.

Protective/Mitigation Measures: None

3.3 BIOLOGICAL RESOURCES

3.3.1 WILDLIFE TERRESTRIAL (includes a finding on standard 3)

Affected Environment: The habitat present consists of piñon-juniper/shrub mix. This habitat type is the most prevalent in the resource area. While the number of terrestrial species that occupy this habitat is great, the analysis focuses on mega-fauna that have the potential to be impacted the greatest by the proposed action.

Mule deer populations for this area are currently below Colorado Parks and Wildlife objectives. Being a successional species, deer rely on pre-climax habitat conditions. As the trend since the early 1900s has been towards more stability and approaching climax vegetative conditions, the ability of the habitat to support deer has declined. The primary causes of this trend in habitat conditions are thought to result from the elimination of wildfire from the forests, the encroachment of forest cover in formerly open grassland and shrubland habitats, and the improved soil and range management that has resulted in more stable grasslands. All these factors are to the detriment of the forb and shrub components, which are important parts of the deer diet.

The Merriam's turkey is a fairly common resident in foothills and mesas of southern Colorado. The Merriam's turkey is common in the assessment area in suitable habitat. Merriam's are found primarily in ponderosa pine forests with an understory of Gambel's oak. Tall pines are used during all seasons for roosting. In the assessment area it is often found in foothill shrublands (mountain mahogany) and piñon-juniper woodlands.

Black bear, mountain lion, bobcat and other meso-carnivores among others likely inhabit the project area sporadically. Home ranges of these species can be very large resulting in a small probability of occupancy at any one time.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Species mentioned above may be seen or their sign identified within the project boundary. Quarry activities have been occurring adjacent to the project area using similar excavation techniques since 1977. The project action will be the 78.72 acres of ground disturbed by quarry operation and an additional buffer area that will be impacted by noise and human presence. The proposed action will cause an eventual loss of 78.72 acres of existing habitat to excavation. However, as stated above, this area is currently compromised by current quarry operation and has little utility to mega-fauna.

Indirectly habitat will be lost during quarry operation hours due to noise, vehicle traffic and human presence near the boundary of the project area. Indirect losses may be substantially larger than the direct loss (Sawyer et al. 2006). However, the additional acreage is difficult to quantify because species react and adapt differently to anthropogenic features and activity. While the action area is currently being impacted by noise of quarry operations, it is likely wildlife present has become habituated to this impact and modified their activity patterns to nocturnal and crepuscular periods.

Protective/Mitigation Measures: None.

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None.

3.3.2 MIGRATORY BIRDS

Affected Environment: Piñon-juniper habitat supports the largest nesting bird species list of any upland vegetation type in the West, and this habitat type is the most prevalent in the resource area. The richness of the piñon-juniper vegetation type is important due to its middle elevation. Survey tallies in piñon-juniper are similar in species diversity to the best riparian. Several species are found in the piñon-juniper habitat and include: black-chinned hummingbird, gray flycatcher, Cassin's kingbird, gray vireo, piñon jay, juniper titmouse, black-throated gray warbler, Scott's oriole, ash-throated flycatcher, Bewick's wren, mountain chickadee, white-breasted nuthatch, and chipping sparrow.

The following birds are listed on the U.S. Fish and Wildlife Service Birds of Conservation Concern (BCC) – 2002 List for BCR 16-Southern Rockies/Colorado Plateau. These species have been identified as species that may be found in the project area, have declining populations and should be protected from habitat alterations.

The golden eagle is a bird of grasslands, shrublands, piñon-juniper woodlands, and ponderosa pine forests, but may occur in most other habitats occasionally, especially in winter. Nests are placed on cliffs and sometimes in trees in rugged areas, and breeding birds range widely over surrounding habitats. A known nest location occurs five miles to the northwest in the Royal Gorge.

Peregrine falcons in Colorado breed on cliffs and rock outcrops from 4,500-9000 ft in elevation. They most commonly choose cliffs located within piñon-juniper and ponderosa pine zones. These falcons feed on smaller birds almost exclusively, with White-throated swifts and rock doves being among their favored prey. The nearest known nest occurs more than three miles away within the Royal Gorge.

Prairie falcons nest in scattered locations throughout the state where they inhabit the grassland and cliff/rock habitat types. These falcons breed on cliffs and rock outcrops, and their diet during the breeding season is a mix of passerines and small mammals.

Gray Vireos are piñon-juniper woodland obligates. Gray Vireos usually inhabit stands dominated by juniper or thin stands of pure juniper. They construct nests of dry grasses, plant fibers, stems, and hair, often camouflaging them with sagebrush leaves.

Piñon jays range the semiarid lands of the West. The Colorado Breeding Bird Atlas map shows them south of a diagonal line drawn from the northwest corner to the southeast corner of the state. Piñon jays are piñon and juniper obligates in Colorado and nest commonly at the lower elevations of piñon-juniper woodlands, often where junipers dominate. A few nest in ponderosa pine. They prefer extensive stands far from high human activity.

Black-throated gray warblers are fairly common summer residents in piñon-juniper woodlands across the southwestern half of Colorado. Some surveys show these warblers to be the most frequently encountered birds in the piñon-juniper woodland. Black-throated gray warblers, in Colorado, are piñon-juniper obligates, preferring tall, dense piñon-juniper woodlands.

Virginia's warblers in Colorado nest between 5,000-9,000 feet in elevation. They breed most abundantly in the western quarter of the state, along the eastern slope foothills, and in the upper Arkansas River drainage. Virginia's warblers nest in dense shrublands and on scrub-adorned slopes of mesas, foothills, open ravines, and mountain valleys in semiarid country. They use scrubby brush, piñon-juniper woodland with a well-developed shrubby understory, ravines covered with scrub oak and dense shrublands--especially gambel oak. They also breed in open ponderosa pine savannahs that have a dense understory of tall shrubs.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Species mentioned above may be seen or their sign identified within the project boundary during any season of the year. Quarry activities have been occurring adjacent to the project area using similar excavation techniques since 1977. The project action will be the 78.72 acres of ground disturbed by quarry operation and an additional buffer area that will be impacted by noise and human presence. The proposed action will cause an eventual loss of 78.72 acres of existing habitat to excavation. Outside the physical 78.72 acres project area, some species of migratory bird will incur additional habitat loss during quarry operation hours due to noise and human presence while others will not be affected by these activities (Gilbert and Chalfoun 2011). Species richness of newly impacted habitat will decrease as bird species not tolerant to noise will avoid the area (Francis et al. 2009). The additional acreage is difficult to quantify because species react and adapt differently to anthropogenic features and activity. During quarry development, vegetation will be removed and destroyed. If conducted during the nesting season, migratory bird nests will be destroyed, resulting in a "take."

Protective/Mitigation Measures: To be in compliance with the Migratory Bird Treaty Act (MBTA) and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Generally this is a seasonal restriction that requires vegetation disturbance be avoided from May 15 thru July 15. This is the breeding and brood rearing season for most Colorado migratory birds. The clearing of vegetation during quarry operation will be completed outside these dates to prevent the "take" of migratory bird nests. However, if vegetation clearing is completed prior to the nesting season, quarry operation may occur during the restricted period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor

between sunrise and 10:00 a.m. under favorable conditions. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 15 and continue into the 60-day period

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 VISUAL RESOURCES

Affected Environment: Visual Resource Management (VRM) classes along with the corresponding VRM Objectives were established in the Royal Gorge Field Office in 1996 with the approval of the Royal Gorge Resource Area Resource Management Plan (RMP). Visual Resource Management objectives corresponding to the various management classes provide standards for analyzing and evaluating proposed projects from selected Key Observation Points (KOPs). Projects are evaluated using the Contract Rating System to determine if it meets VRM objectives established by the RMP. The VRM classes established for the project area is Class II with an objective of retaining the existing character of the landscape and manage for low levels of change that do not attract the attention of the casual observer by repeating the basic elements of form, line, color and texture found in the predominant features of the characteristic landscape.

The development of the gravel operation outlined in the Proposed Action is located approximately .75 miles (1 km) from Highway 50 on the western edge of Canon City, Colorado. This portion of Highway 50 is included in the Gold Belt Scenic Byway. A tourist drive along with recreational trails and a community college are also nearby the project area. Since the majority of the viewers of the project would be from Highway 50 this was chosen as the Key Observation Point or KOP.



View of Project Area from Highway 50 and Key Observation Point

While traveling west on Highway 50 leaving Canon City one sees a power plant on your left that has strong lines associated with the transformer stations, building, fencing, and power lines and poles. It also has very large piles of black coal. On the right one sees a prison that has sheer vertical concrete walls, strong horizontal and vertical lines associated with the walls and guard towers as well as chain link fencing. As highway 50 bends to the north the project area comes into view and is where the chosen KOP is located. The existing natural landscape as viewed from the KOP consists of steep rugged mountains with red and dark tan hues, a jagged horizon line and somewhat soft angular lines associated with the ridges and drainages. The sparse Piñon/Juniper Woodland lends to clumpy vegetation texture with dark and light greens present. Several structures and other man-made features are visible from the KOP that tend to dominate the viewers' attention. This includes two large light tan cylindrical water tanks, power lines, roads, a company that supplies landscape materials, and fences. There is also an existing headwall that is associated with the current mining operation who is the applicant for this project that has strong angular lines along its edges, has a relatively smooth surface, and is comprised of light reds and grays. The relatively smooth texture, the light colors, the sheer vertical shape of the face and the strong lines along the edges of the existing headwall currently create the most contrast from the natural landscape. Facilities associated with the mining operation such as sorters, offices and stockpiles are screened by topography and are not visible from the KOP.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The most visible aspect of the proposed action from the KOP would be the extension of the headwall further up the hillside that would expand gradually over the life of the mining operation. This extension of the headwall would result in a larger disturbance area that would further the existing impacts to visual resources including contrasts in color, line, texture and shape. Line and shape contrasts would be reduced by the change in the proposal to expand the operation and allow the edge lines to be tucked further back into the drainages and behind ridges sheltering them from view and better mimicking the ridge shapes found in the adjacent natural landscape for the final reclamation plan. Weathering of the headwall over time would reduce contrasts in color. Facilities associated with the mining operation such as sorters, offices and stockpiles would be screened by topography not visible from the KOP.

Given the context of the site and the abundance of existing modification to the landscape including an existing mine with a large headwall and plans for expansion to the north on private land, power plants, a prison, fences, roads, and utility lines the impacts from the project area would be largely drowned out. The casual observers attention while traveling west on highway 50 would already be attracted to the existing and planned headwall on private land as well as the light tan cylinders present in the foreground. The proposed action would further contribute to the existing contrasts in this area and create weak contrasts from the existing landscape and would therefore meet VRM management objectives for this area.



Simulation of Proposed Action at full project build out

The existing mining operation and the project area are highly visible from the entrance and parking lot of Pueblo Community College. Similar to the view from the KOP the project would contribute to the existing impacts to visual resources associated with contrasts in color, line, texture and shape. Since there is a current operation that has already contributed to these contrasts most likely the

casual observer that frequents the community college would not realize additional impacts to visual resources. It is unclear if the existing private mine and/or the project area would be visible from the extension of the Arkansas riverwalk trail since the alignment is currently being negotiated and the proposed alignment is unclear. If visible, impacts to visual resources would most likely be largely drowned out by the nearby highway, power plants, fences, water tanks, prison, waste water treatment facility and rail lines all present in the area and adjacent to the trail.

Protective/Mitigation Measures: None

No Action Alternative

Direct and Indirect Impacts: Currently the area has a high level of man-made features and modifications to the landscape that have impacted visual resources in the area. The No Action Alternative would not improve nor detract from the visual resources in this area and the expansion of the headwall north would still occur on private land. Impacts would be similar to that of the proposed action except for the expansion of the headwall higher up the hillside that introduced a larger area that contributes to contrasts from the natural environment would not occur.

Protective/Mitigation Measures: None

3.4.2 WASTES, HAZARDOUS OR SOLID

Affected Environment: It is assumed that conditions associated with the proposed project site, both surface and subsurface, are currently clean and that there is no known contamination. A determination will be made by the operator prior to initiating the project, if there is evidence that demonstrates otherwise (such as solid or hazardous wastes have been previously used, stored, or disposed of at the project site).

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Possible contaminant sources associated with the mining operations are:

- Storage, use and transfer of petroleum, oil and lubricants
- Explosives
- General hazardous substances, chemicals and/or wastes

Protective/Mitigation Measures:

- If drums are used, secondary containment constructed in accordance with standard industry practices or governing regulations is required. Storage and labeling of drums should be in accordance with recommendations on associated MSDS sheets, to account for chemical characteristics and compatibility.
- Appropriate level of spill kits need to be onsite and in vehicles.
- The project proponent will be responsible for adhering to all applicable local, State and Federal regulations in the event of a spill, which includes following the proper notification procedures in BLM's Spill Contingency Plan.
- No treatment or disposal of wastes on site is allowed.

Nothing in the analysis or approval of this action by BLM authorizes or in any way permits a release or threat of a release of hazardous materials (as defined under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations) into the environment that will require a response action or result in the incurrence of response costs.

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None.

3.5 LAND RESOURCES

3.5.1 FOREST MANAGEMENT

Affected Environment: The forest type found in the project area is piñon pine and one seed juniper which is typically called piñon/juniper woodlands. The woodlands in this area are not considered extremely dense and fairly open when compared to most piñon and juniper stands found in the field office. The trees found in the project area are hardy, drought-tolerant trees and well suited to the project landscape. Forest management recommendations to ensure optimum tree health include providing adequate spacing, water, and avoiding wounding of the trees. Due to the terrain and access in the project area, this forest is highly unlikely to ever receive any intensive forest management.

There is an on-going piñon IPS bark beetle outbreak in this region of the Royal Gorge Field Office. If thinning is done well in advance of the outbreak it can improve individual tree vigor and their ability to repel IPS beetle attacks. However, the cutting trees or removing trees during the flight period is likely to attract IPS beetles to the area and exacerbate the tree mortality through the release of terpenes.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: 79 acres will be deforested or void of trees for many years. Once the site is reclaimed and seeded, trees are likely to slowly become reestablished on the site.

Protective/Mitigation Measures: 1 month before any ground disturbing activities commence the RGFO forester shall be notified, provided access to the BLM lands, and complete an estimate of the volume of the trees to be removed. The mining operator shall purchase the amount of firewood estimate by the forester at the rate of \$10/cord. The cutting or removal of the trees from the site must be conducted outside of the flight period, from November through March, to avoid exacerbating the bark beetle situation.

No Action Alternative

Direct and Indirect Impacts: None, the forest condition shall remain unchanged from existing condition.

Protective/Mitigation Measures: None

3.6 CUMULATIVE IMPACTS SUMMARY

Geologic and Mineral Resources: Currently, there are approximately four other quarries within a 5-mile radius that produce sand and gravel type commodities. However these operations, along with Tezak, appear to be targeting a majority of the material for internal uses in conjunction with work they are conducting on a regional scale, rather than just selling the commodity outright on a retail market. The long term needs for construction materials involved with highway projects, buildings, etc. within southern Colorado will continue to remain, although the demands may exhibit some small-scale fluctuations based on economic conditions within a given timeframe.

Soils: The proposal lies in the Sand Creek watershed. This watershed is affected by many different ongoing and historic activities including quarries, grazing, housing, and roads. The proposed expansion of the quarry would result in an additional 78 acres of soils on public land being taken out of production. In addition, the quarry would still expand on private lands to the east. Given the proximity to the city, it can be expected that this watershed will continue to be heavily impacted by further development in the future.

Wildlife and Migratory Birds: The project area is adjacent to an existing quarry, expanding the impact of this activity. Nearby are many anthropogenic features that impact wildlife: a municipality, railway, a tourist attraction (Royal Gorge), a major highway, etc. The landscape surrounding the project area is not pristine habitat; however, it is habitat nonetheless. Grazing use by domestic livestock occurs on public and private land within the area. Livestock grazing and other activities such as mining and logging have occurred in the area for over one hundred years. Within the last fifteen to twenty years, recreation and residential development has increased markedly resulting in increased road and trail densities. All of these factors result in impacts to wildlife habitat.

Forest Management: The proposed action will result in the loss of trees or deforestation on 79 acres within the Royal Gorge Field Office. It is believed by most forest experts that the piñon and juniper woodlands have greatly expanded their historic range over the past 100 years and have become denser than historic conditions, which should offset the loss of trees from this site. Due to access, terrain and location the loss of the trees from this site will have no future impacts to forest management.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

Please see Interdisciplinary Team Review list for BLM Participants.

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Colorado Division of Reclamation, Mining and Safety
Fremont County

CHAPTER 5 - REFERENCES

Bureau of Land Management (BLM). 1995. Proposed Resource Management Plan and Final Environmental Impact Statement. Royal Gorge Resource Area. Canon City, Colorado.

Bureau of Land Management. 1996. Royal Gorge Resource Area Resource Management Plan and Record of Decision. Canon City District. Canon City, Colorado.

Bureau of Land Management. 2008. H-1790-1 National Environmental Policy Handbook. Washington, D.C.

Colorado Mined Land Reclamation Board. 1995. Mineral Rules and Regulations for the Extraction of Construction Materials. Denver, Colorado.

Colorado Division of Reclamation, Mining and Safety. Document Management System. Database on the website.

Appendix A

State of Colorado Permit #M1977-193
and Amendments,
BLM Application



Azurite, Inc.
10001 CR 12 P.O. Box 338
Cotopaxi, CO 81223
(719) 942-4178
Fax: (719) 942-4178

August 29, 1996

RECEIVED
SEP 03 1996

Mr. James Stevens, Senior Env. Specialist
Colorado Division of Minerals and Geology
1313 Sherman Street Room 215
Denver, CO 80203

Division of Minerals & Geology

Dear Mr. Stevens,

Please find included in this mailing one original copy, four additional copies, and the application fee for amendment application to permit 77-193, Tezak Heavy Equipment Co., Inc. I have been holding the document for some time, as we have discussed, waiting for completion of the new road easement agreement between THE and the City of Canon City. Unfortunately, the easement document is not completed document is not available as yet, but the operator feels very confident that a written easement agreement will be completed within the next few weeks. Due to the efforts of a Fremont County Commissioner, a professional arbitrator has been working with the mine operator and local residents to develop an optimum working relationship. This work is nearly complete and the engineering aspects of the project have already been addressed. Therefore, I would like to begin the process of amendment application from a technical standpoint. I have made the necessary filings of the document and await your coorespondence prior to publishing notice of such in the local newspaper.

Please contact me if you have any questions.

Sincerely,

Kenneth S. Klco
Consulting Geologist

*Final Highway
Design*

(All)

KENNETH S. KLCO
Consulting Geologist

10001 County Rd. 12
P.O. Box 338
Cotopaxi, CO 81223

719-942-4178

STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY

Department of Natural Resources

1313 Sherman St., Room 215

Denver, Colorado 80203

Phone: (303) 866-3567

FAX (303) 812-8106

RECEIVED

SEP 03 1996

Division of Minerals & Geology



DEPARTMENT OF
**NATURAL
RESOURCES**

Roy Romer
Governor

James S. Lochhead
Executive Director

Michael B. Long
Division Director

**CONSTRUCTION MATERIALS
REGULAR OPERATION (112)
RECLAMATION PERMIT APPLICATION FORM**

CHECK ONE: New Application (Rule 1.4.5) Amendment Application (Rule 1.10)
 Conversion Application (Rule 1.11)

Permit # M - 77 - 193 - (provide for Amendments and Conversions of existing permits)

The application for a Regular 112 Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-S, Addendum 1, any sections of Exhibit 6.5 (Geotechnical Stability Exhibit; and (3) the application fee. When you submit your application, be sure to include one (1) complete signed and notarized IVORY ORIGINAL and four (4) copies of the completed ivory application form, five (5) copies of Exhibits A-S, Addendum 1, appropriate sections of 6.5 (Geotechnical Stability Exhibit, and a check for the application fee described under Section (4) below. Exhibits should not be bound or in a 3-ring binder; maps should be folded to 8 1/2" X 11" or 8 1/2" X 14" size. To expedite processing, please provide the information in the format and order described in this form.

GENERAL OPERATION INFORMATION

Type or print clearly in the space provided the information requested below.

1. Applicant/operator or company name (name to be used on permit):
TEBAK HEAVY EQUIPMENT COMPANY, INC
- 1.1 Type of organization (corporation, partnership, etc.): CORPORATION
- 1.2 I.R.S. Tax I.D. No. or Social Security Number: [REDACTED]
2. Operation name (pit, mine or site name): T.H.E. AGGREGATE SOURCE
3. Permitted acreage (new or existing site) 30 permitted acres
 - 3.1 Change in acreage (+ or -) + 70 acres
 - 3.2 Total acreage in Permit area 100 acres
4. Fees:

4.1	New Application	<u>\$1,875.00</u>	application fee
4.2	New Quarry Application	<u>\$2,325.00</u>	quarry application
4.3	Milling Application (Non-DMO)	<u>\$3,100.00</u>	milling application
4.4	Amendment Fee	<u>\$1,550.00</u>	amendment fee
4.5	Conversion to 112 operation (set by statute)	<u>\$1,875.00</u>	conversion fee
5. Primary commodity(ies) to be mined:

	<u>GRANITE AGGREGATE</u>	<u>GRANITE RIP-RAP</u>	<u>RIVER GRAVEL</u>	<u>GAMMATERZ</u>
5.1	Incidental commodity(ies) to be mined:			
	1.	-		lbs/Tons/yr
	2.	/		lbs/Tons/yr
	3.	/		lbs/Tons/yr
	4.	/		lbs/Tons/yr
5.2	Anticipated end use of primary commodity(ies) to be mined: <u>ROAD MATERIALS</u>			
5.3	Anticipated end use of incidental commodity(ies) to be mined: <u>" "</u>			

6. Name of owner of subsurface rights of affected land: TEZAK HEAVY EQUIPMENT CO, INC
If 2 or more owners, "refer to Exhibit O".

7. Name of owner of surface of affected land: TEZAK HEAVY EQUIPMENT CO, INC

8. Type of mining operation: Surface Underground

9. Location Information: the center of the area where the majority of mining will occur:

COUNTY: FREMONT

PRINCIPAL MERIDIAN (check one): 6th (Colorado) 10th (New Mexico) Ute

SECTION (write number): S 31

TOWNSHIP (write number and check direction): T 18 North South

RANGE (write number and check direction): R 70 East West

QUARTER SECTION (check one): NE NW SE SW

QUARTER/QUARTER SECTION (check one): NE NW SE SW

GENERAL DESCRIPTION: (the number of miles and direction from the nearest town and the approximate elevation): THIS MINE IS LOCATED NORTH OF TUNNEL DRIVE APP 1/2 MI WEST OF HIGHWAY US 50 ON THE WESTERN EDGE OF CANON CITY, CO. CITY LIMITS. ELEVATION 5650'

10. Primary future (Post-mining) land use (check one):

- Cropland(CR) Pastureland(PL) General Agriculture(GA)
- Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)
- Residential(RS) Recreation(RC) Industrial/Commercial(IC)
- Developed Water Resources(WR) Solid Waste Disposal(WD)

11. Primary present land use (check one):

- Cropland(CR) Pastureland(PL) General Agriculture(GA)
- Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)
- Residential(RS) Recreation(RC) Industrial/Commercial(IC)
- Developed Water Resources(WR)

12. Method of Mining: Briefly explain mining method (e.g. truck/shovel):

DRILL + BLAST, FEL MUCK + CARRY TO CRUSHER CIRCUITS. FEL INTO HIGHWAY TRUCKS HAUL OFF SITE.

13. On Site Processing: Crushing/Screening

14.1 Briefly explain mining method (e.g. truck/shovel):

FEL FEEDS JAW PRIMARY, PRODUCT IS BELT CONVEYED TO SECONDARY CONE CRUSHER + SCREEN DECKS, THEN BELT CONVEYED TO STOCKPILES

List any designated chemicals or acid-producing materials to be used or stored within permit area: NA

14. Correspondence Information:

APPLICANT/OPERATOR (name, address, and phone of name to be used on permit)

Contact's Name: EDWARD J. TEZAK JR. Title: PRESIDENT
 Company Name: TEZAK HEAVY EQUIPMENT CO., INC.
 Street: 201 TUNNEL DRIVE
 City: CANON CITY
 State: COLORADO Zip Code: 81212
 Telephone Number: (719) - 269-1173
 Fax Number: (719) - 269-~~1184~~ 1148

PERMITTING CONTACT (if different from applicant/operator above)

Contact's Name: KENNETH S. KLCO Title: CONSULTING GEOLOGIST
 Company Name: AZURITE, INC.
 Street: 10001 CR 12 POBOX 338
 City: COTOPAXI
 State: COLORADO Zip Code: 81223
 Telephone Number: (719) - 942-4178
 Fax Number: (719) - 942-4178

INSPECTION CONTACT

Contact's Name: DON HELLMAN Title: MINE SUPT.
 Company Name: TEZAK HEAVY EQUIPMENT CO., INC.
 Street: 201 TUNNEL DRIVE
 City: CANON CITY
 State: COLORADO Zip Code: 81212
 Telephone Number: (719) - 275-6746
 Fax Number: (719) - 275-8196

CC: STATE OR FEDERAL LANDOWNER (if any) N/A

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: (_____) - _____

CC: STATE OR FEDERAL LANDOWNER (if any) N/A

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: (_____) - _____

15. Description of Amendment or Conversion:

If you are amending or converting an existing operation, provide a brief narrative describing the proposed change(s).

THIS PERMIT AMENDMENT ADDRESSES AN INCREASE OF MINING
LAND OF 37 ACRES AND AN INCREASE OF ADDITIONAL 31 ACRES
TO FACILITATE STORMWATER MANAGEMENT PLAN IMPROVEMENTS TO SITE.

Maps and Exhibits:

Five (5) complete, unbound application packages must be submitted. One complete application package consists of a signed application form and the set of maps and exhibits referenced below as Exhibits A-S and the Geotechnical Stability Exhibit. Each exhibit within the application must be presented as a separate section. Begin each exhibit on a new page. Pages should be numbered consecutively for ease of reference. If separate documents are used as appendices, please reference these by name in the exhibit.

With each of the five (5) signed application forms, you must submit a corresponding set of the maps and exhibits as described in the following references to Rule 6.4 and 6.5:

EXHIBIT A	Legal Description
EXHIBIT B	Index Map
EXHIBIT C	Pre-Mining and Mining Plan Map(s) of Affected Lands
EXHIBIT D	Mining Plan
EXHIBIT E	Reclamation Plan
EXHIBIT F	Reclamation Plan Map
EXHIBIT G	Water Information
EXHIBIT H	Wildlife Information
EXHIBIT I	Soils Information
EXHIBIT J	Vegetation Information
EXHIBIT K	Climate Information
EXHIBIT L	Reclamation Costs
EXHIBIT M	Other Permits and Licenses
EXHIBIT N	Source of Legal Right-To-Enter
EXHIBIT O	Owners of Record of Affected Land (Surface Area) and Owners of Substance to be Mined
EXHIBIT P	Municipalities Within Two Miles
EXHIBIT Q	Proof of Mailing of Notices to County Commissioners and Soil Conservation District
EXHIBIT R	Proof of Filing with County Clerk or Recorder
EXHIBIT S	Permanent Man-Made Structures
Rule 6.1.2(1)(b)	ADDENDUM 1 - Notice Requirements (sample enclosed)
Rule 6.5	Geotechnical Stability Exhibit (any required sections)

The instructions for preparing Exhibits A-S, Addendum 1, and Geotechnical Stability Exhibit are specified under Rule 6.4 and 6.5 and Rule 1.6.2(1)(b) of the Rules and Regulations. If you have any questions on preparing the Exhibits or content of the information required, or would like to schedule a pre-application meeting you may contact the Office at 303-866-3567.

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.

- EJT 1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;
- EJT 2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;
- EJT 3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;
- EJT 4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;
- EJT 5. It is your responsibility to notify the Office of any changes in your address or phone number;
- EJT 6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):
- a. the name of the operator;
 - b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,
 - c. the permit number.
- EJT 7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance.

~~ET~~ 8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Construction Material Rules and Regulations in effect at the time the permit is issued.

~~ET~~ 9. Annually, on the anniversary date of permit issuance, you must submit an annual fee as specified by Statute, and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation Plan to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as the permittee, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.

~~ET~~ 10. For joint venture/partnership operators: the signing representative is authorized to sign this document and a power of attorney (provided by the partner(s)) authorizing the signature of the representative is attached to this application.

NOTE TO COMMENTORS/OBJECTORS:

It is likely there will be additions, changes, and deletions to this document prior to final decision by the Office. Therefore, if you have any comments or concerns you must contact the applicant or the Office prior to the decision date so that you will know what changes may have been made to the application document.

The Office is not allowed to consider comments, unless they are written, and received prior to the end of the public comment period. You should contact the applicant for the final date of the public comment period.

If you have questions about the Mined Land Reclamation Board and Office's review and decision or appeals process, you may contact the Office at (303) 866-3567.

Certification:

As an authorized representative of the applicant, I hereby certify that the operation described has met the minimum requirements of the following terms and conditions:

1. To the best of my knowledge, all significant, valuable and permanent man-made structure(s) in existence at the time this application is filed, and located within 200 feet of the proposed affected area have been identified in this application (Section 34-32.5-115(4)(e), C.R.S.).
2. No mining operation will be located on lands where such operations are prohibited by law (Section 34-32.5-115(4)(f), C.R.S.;
3. As the applicant/operator, I do not have any extraction/exploration operations in the State of Colorado currently in violation of the provisions of the Colorado Land Reclamation Act for the Extraction of Construction Materials (Section 34-32.5-120, C.R.S.) as determined through a Board finding.
4. I understand that statements in the application are being made under penalty of perjury and that false statements made herein are punishable as a Class 1 misdemeanor pursuant to Section 18-8-503, C.R.S.

Signed and dated this 12 day of June, 1996.

Tezak Heavy Equipment Company, Inc.
Applicant/Operator
 Signed: *Ed Tezak*
 Title: President

If Corporation Attest (Seal)
 Signed: *Joyce Pavetti*
 Corporate Secretary or Equivalent
 Town/City/County Clerk

State of Colorado)
) ss
 County of Fremont)

The foregoing instrument was acknowledged before me this 12 day of June, 1996,
 by Ed Tezak, Jr. as President of Tezak Heavy Equipment Co, Inc.

Joyce Pavetti
 Notary Public

My Commission expires: May 15, 1999

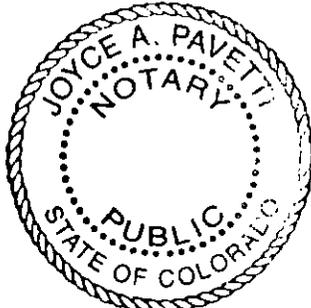


EXHIBIT A -- Legal Description

Please refer to EXHIBIT A--Legal Description Map for full legal description of Affected Land.

This map also shows all land owners adjacent to Affected Land and land owners within 200 feet of Affected Land boundaries.

Exhibit A map also shows the proposed road easement on City of Canon City property with associated affected land adding 4.5 acres to the affected land total for 100 acres total. This affected land total includes the paved roadway currently existing along a N-S route through the 2.3 acre parcel excepted from the affected land area in the extreme southern portion of the property map, located in the SE 1/4 of Section Section 31. This roadway is the existing haulage coorider from mine site to Tunnel Drive.

EXHIBIT B -- Index Map

Attached find an index map from a USGS topographic map showing the mine operator's land boundaries and relationship to Canon City. Note that those mining areas within the SE quarter of Section 31, T18S, R70S, are within the city limits of Canon City, Colorado.

INDEX MAP
TEZAK HEAVY EQUIP.
M-77-93

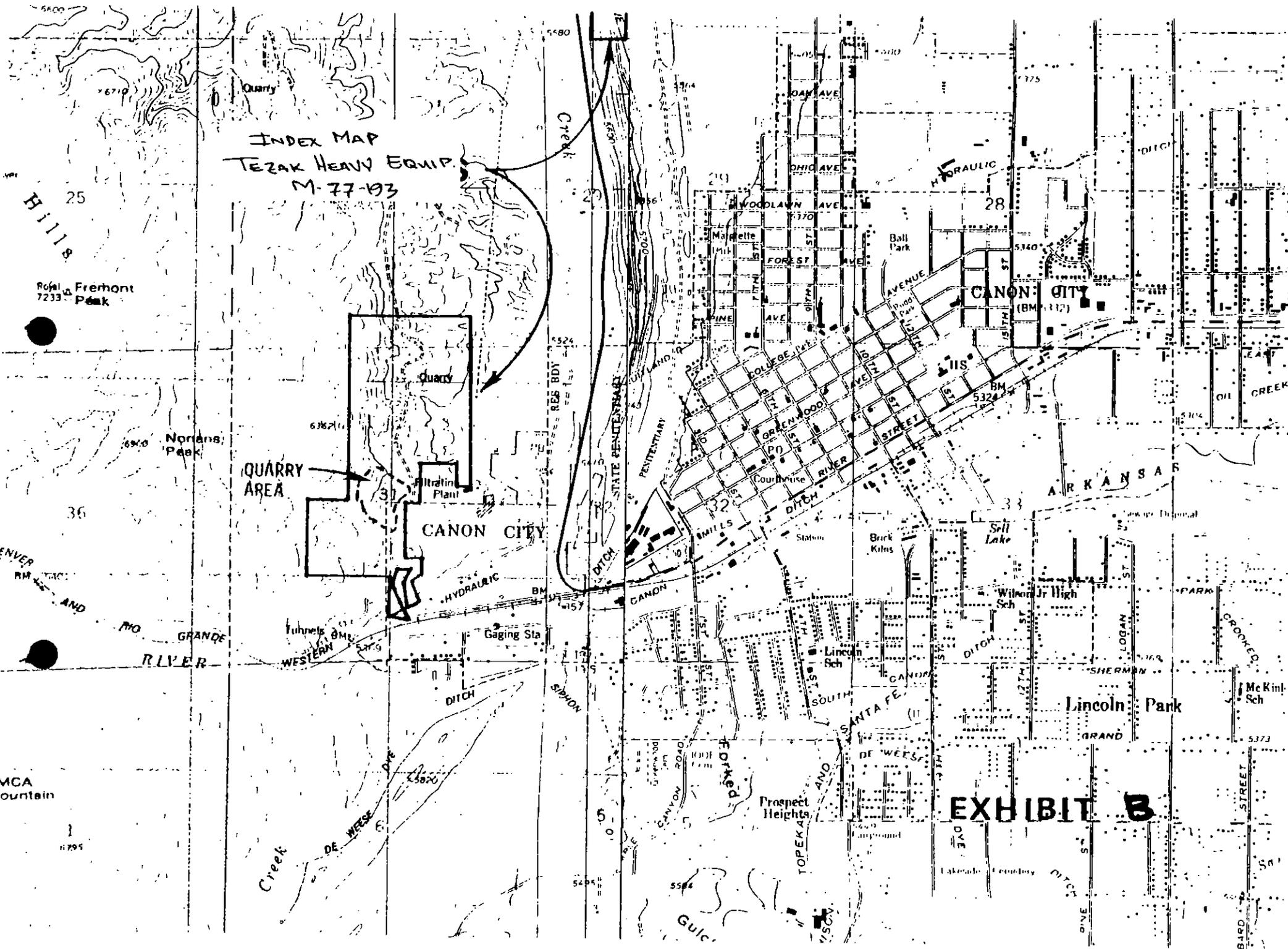


EXHIBIT B

EXHIBIT C -- PREMINING AND MINING PLAN MAP OF AFFECTED LANDS

Find included in this file a map marked EXHIBIT C--PREMINING AND MINING PLAN MAP

(a) all immediate adjacent surface owners of record are shown on the Exhibit A map.

(b) the name and location of all roads, buildings, power and communication lines are marked on the accompanying map of the affected land. There are no named creeks, oil and gas wells and/or lines within 200' of the affected land boundaries. The City of Canon City water treatment plant is located 100' east of the eastern affected land boundary (due east of the scales) as shown on the Stormwater Management Plan map. The Smith Property lies within 200' of the southern edge of the affected land boundary across Tunnel Drive from the exit of the existing main haul road onto Tunnel Drive. All other buildings and structures belong to the mine operator, including the former Rencher Concrete manufacturing site located app. 400' north of the Tunnel Drive/main haul road intersection. The Arkansas River is located directly south of the Tunnel Drive/main haul road intersection as shown on all accompanying maps.

(c) existing topography is shown on the pre-mining and mining plan map at 40' contour intervals and on the stormwater management plan map at 5' contour intervals.

(d) total affected land acreage is 100 acres. This includes the original 30 acres of affected land, 35 acres of amended mining acreage, 30 acres of amended land to be utilized in an upland diversion to address stormwater run-off from the mining site and the watershed above and to the west of the mining area, and 5 additional acres to address the proposed road easement area.

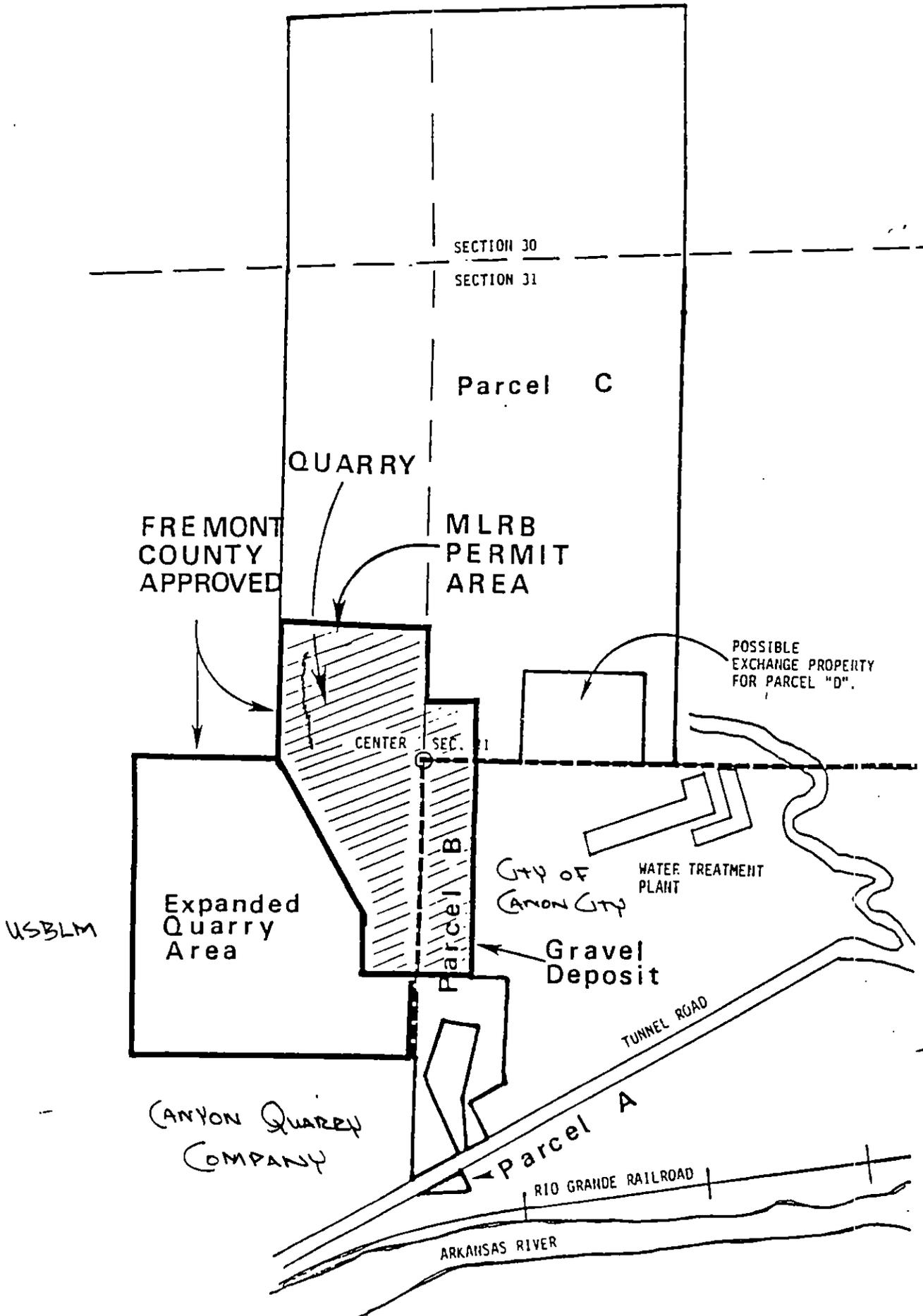
(e) type of vegetation covering the affected lands--the mining areas in question have less than 10% vegetative cover, since these areas are comprised of granite gneiss outcrop areas of steep to very steep slopes. The nominal vegetative type is juniper/pinon growing out of rock outcrop with minor amounts of shrub species such as *Cercocarpus montanus*, Mtn mahogany, Rabbit-brush, Winterfat, and localized pockets of Blue grama grass, Indian ricegrass, and New Mexico Feathergrass. The affected land to the North of the mining zone where the SWMP sediment ponds will be located is the same vegetative mix with up to 25% cover. Again, vegetation is dominated by Juniper/pinon with secondary shrub and grass species interspersed with abundant cholla and other cactus species. Please refer to the Soils and vegetation information pages in the 1977 Exhibits I and J for reference to this area by SCS personnel site visits.

(f) Water information--no surface or subsurface water regimes are present at this site nor is there any anticipated impact to water resources due to mining or reclamation activities. There is, however, an extensive Stormwater Management Plan proposed as part of this permit amendment

2 water lines under new haul road

EXHIBIT C

ADJACENT SURFACE OWNERS



which allows the mine operator to address stormwater run-off from the site and from the watershed above and to the west of the mining area.

(g) The maps show the location and ownership of the following structures:

(1) City of Canon City water treatment plant. These are concrete settling pond structures and the buildings used to process water.

(2) Smith residence located on South side of Tunnel Drive and within 200' of the intersection of Tunnel Drive and existing main haul road.

(3) Permanent ditches, retention and sediment ponds located in five different areas within the affected land boundaries. These structures, located on the Stormwater Management Plan map, will be ~~permanent structures~~ that will be retained through the life of the mining operation and ~~through perpetuity for stormwater drainage control from the site and neighboring areas.~~ **The Stormwater management plan is designed to improve the protection of Tunnel Drive and property owners from uncontrolled storm related water flows by slowing stormwater velocities, retaining sediment and controlled erosion, and diverting most anticipated stormwater away from Tunnel Drive and direct drainage into the Arkansas River.**

(4) A scale and mobile scale house within the affected land boundaries belonging to the mine operator.

(5) A maintenance shop and office building located app. 400' north of Tunnel Drive along the existing main haul road but not within affected land boundaries. This building is to house the maintenance operations of Tezak Heavy Equipment Company, Inc., a highway and rock contracting company not associated with mining operations. It is located on property recently purchased from Rencher Concrete and is not included in the mining affected lands nor should it be bonded or associated with the mining operation. This site can be located on the maps as the building currently shown just west of the main haul road app. 400' north of the intersection of the existing main haul and Tunnel Drive.

(h) soils information will be presented in Exhibit I

(I) no Aerial photos will be presented in this amendment permit package.

EXHIBIT D -- MINING PLAN

(a) Description of methods of mining.

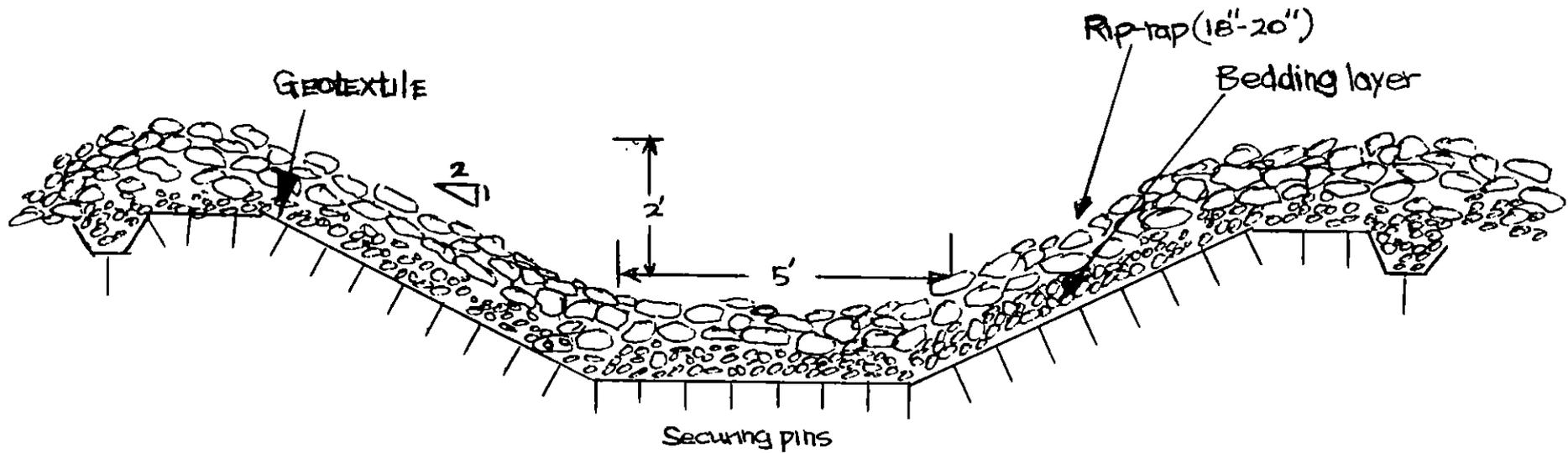
Mining will progress as it has on site for the past twenty years, a typical surface mine highwall technique of drilling, blasting, and front-end loader muck and carry to on site mobile crushing circuits. Drilling benches range from 30-40 feet in height and blasthole configurations are 14' x 14' burden and spacing, 4" holes for powder factors between .25 and .35 pounds per ton of rock shot. ~~All blasting operations are performed within the guidelines of the Technical Revision #3,~~ Blasting Monitoring Program which was approved by DMG in 1996. Please refer to the mine file for the details of this blasting control program. Shot rock is bulldozed off the highwall contact to a muckpile directly below the working face, then picked up with a front end loader and carried to the nearby crushing and screening systems. The crushing and screening system includes a rip-rap separation grizzly, primary jaw crusher, triple deck screen and secondary cone with supporting conveyors for material stockpiles. All mining and process operations are performed in accordance with a site fugitive dust program approved by the Colorado Dept. Of Health Air Quality Control Division for site and process equipment dust control. Stockpiles of crushed aggregate are kept wet to minimize fugitive dust during loading and haulage operations. Highway trucks will be used to transport product from the site.

In accordance with Technical Revision #005, approved by DMG in 1996, the operator may have an asphalt batch plant on site for the manufacturing of asphalt road materials. Such a plant will meet all requirement of air pollution control regulations and may be on site periodically or as a permanent component of the production facility. Also in accordance with TR #005, the operator may have a stockpile of up to 200 tons of waste concrete and/or asphalt road material which will be used in a recycling operation resulting in reprocessing of these materials into additional road base or asphaltic products. In accordance with Technical Revision #002, a gravel washing/screening procedure may be employed on the site.

~~(b) earthmoving - No soils exist on the surface for removal prior to mining, and no waste is encountered during mining operations.~~

(c) water diversions and impoundments -- ~~Stormwater Management Plan~~--please refer to the Stormwater Management Plan Map and the attached narrative describing the diversion of the upland watershed to the north of the mining ground onto 30 acres of affected land owned by the mine operator, specifically for the purpose of handling stormwater flows. The stormwater map shows the locations of four other retention ponds and storm ditches which will convey and retain storm flows to achieve a **zero discharge at the Tunnel Drive location**. The stormwater plan has been reviewed and approved by a licensed structural engineer. Included with this application package is engineered and stamped drawings showing the construction techniques for the sediment ponds, ditches, and spillways utilized therein.

(d) size of the mining area--the highwall mining operation keeps the total acreage exposed to a



TEZAK HEAVY EQUIPMENT
 AGGREGATE SOURCE
 PROPOSED SEDIMENT POND SPILLWAY
 DESIGN FOR 200 CFS EVENT
 NOT TO SCALE MAR 95 TEK/CO

minimum. ~~At maximum development, no more than fifty-five acres of the ninety five acres of affected land should be disturbed.~~

RE: AMENDMENT TO MINING PERMIT NO. M-77-193, SWMP REQUIREMENTS
STORMWATER MANAGEMENT PLAN

In November, 1995, the Colorado Mined Land Reclamation Board approved an application for permit acreage increase by Tezak Heavy Equipment Co, Inc., Penrose, Colorado, for the Aggregate Source Tunnel Drive Quarry with two conditions. 1) An acceptable Blasting Monitoring Program be initiated, and 2) Stormwaters flowing through the mining area including those stormwaters from above the mining zone that outfall along Tunnel Drive area be conveyed to the Arkansas River in accordance with landowners and right-of-way owners approval. A Blasting Monitoring Program has been initiated at the site after review and approval by Division of Minerals and Geology. After discussion and negotiation with the Canon City Hydraulic Ditch Company directors and engineering personnel from Southern Pacific, the only option left available for Tezak Heavy Equipment Co, Inc., was to bore a storm outfall culvert of large proportion (app. 50 sq ft opening) under both the hydraulic ditch and the main line of the Southern Pacific Railroad and direct storm outflows directly into the Arkansas River. This storm outfall option was deemed undesirable for a number of reasons including:

- 1) Negative environmental impact of directing storm water outfall into the Arkansas River such as increased sediment loading and increased potential for other pollutants to enter the River system during a major storm event.
- 2) High cost (at least \$150K) and long time frame necessary to acquire right-of-way agreements for all parties involved.
- 3) The end result will not protect property and right-of-way owners from storm related impact potentials that exist just upstream from the mine's historical stormwater outfall path.

Tezak Heavy Equipment Co, Inc., proposes to divert storm flows from the mining area and from the large watershed directly west of the mining area to the north of the existing affected land onto Tezak Heavy Equipment Co. property. This amendment request includes a 35 acre increase for reserve expansion as in the November request and an additional 30 acres of ground to the north of the currently permitted area for purposes of stormwater diversion and containment. Total acres of affected land will increase to 95 acres. The diversion of stormwater will take place within the confines of the mining area as stormwater enters the mining zone from the west. **Approximately 90% of stormwater volumes anticipated will be diverted to the north, away from Tunnel Drive residents, the hydraulic ditch, and the railroad. The remaining ten per cent of storm flows anticipated will be contained in sediment ponds #2, #3, and #4, as shown on the attached map of mine area. Sediment pond #4, located at the bottom of the current main haul**

road at the former location of weigh scales just north of Tunnel Drive. The sediment pond will be constructed to contain a minimum of one acre foot of storm water and will include a contingency design for handling storm flows in excess of the 100 year event, which may overflow the retention pond. An approved spillway device will be included that will allow for low velocity release of stormwater from sediment pond #4 to the Tunnel Drive area should this situation ever occur. **The goal of this Stormwater Management Plan is to result in a zero discharge of stormwaters to the Tunnel Drive area up to a maximum 100 year event.**

Sediment pond #1, located at the western edge of the mining zone, will intercept all storm flows entering the mining zone from the undisturbed watershed west of the mining area. #1 sediment pond will be configured in an elongate shape minimally twice as long as it is wide, 100' long by 50' wide, and will include a **bentonite or other water impermeable liner** to minimize loss of stormwater to percolation through the sediment ponds walls and/or floor. A **spillway** will be located at the opposite end of the sediment pond's inlet which will be designed for up to 200 cfs of flow. The spillway device will deliver storm flows into a **storm ditch** excavated into granite bedrock which will flow in a northerly direction at 1-2% grade and will intercept all storm flows from the mining zone as well as storm flows from the undisturbed watershed above and west entering the mining zone. The storm ditch profile may vary, as shown in the attached drawings, to facilitate mobile mining equipment movement across the site. The storm ditch will convey all stormwaters to the north to the SWMP area noted on the attached maps. Sediment pond(s) #5 area is actually a series of elongate sediment and stormwater containment structures connected by inlets and spillways designed to handle maximum stormwater velocities and volumes as projected by the **Sed-Cad and STORM** program results utilized in the surface hydrological study. The thirty acre addition to the affected land acreage is specifically for the containment and management of storm flows formally flowing to the Tunnel Drive area and does not contain minable reserves nor will be mined for construction materials in the future. The sediment pond/retention pond structures in the north SWMP area will be constructed from coarse alluvium materials currently in place on site and will be built to minimize disturbance to the area. That is, the construction will take place in narrow bands of disturbed alluvium necessary to construct the berms, out slopes, and basins of the elongate sediment ponds oriented in a north-south direction. The juniper-pinon cover will be retained as much as possible over the SWMP area. **By increasing the flow path distance and decreasing storm flow velocities, it is intended to promote percolation of storm flows into the coarse alluvium materials underlying the area and result in no overland flow to neighboring areas to the east of the SWMP area. No negative impacts are anticipated to lands bordering the SWMP area to the east.** The land currently bordering the SWMP acreage to the east is Tezak Heavy Equipment Co, Inc. Property. Colorado State land administered by the Pueblo Community College is located east of this area between Tezak Heavy Equipment Co. Property and **Sand Gulch**, the main N-S drainage paralleling US Highway 50. PCC has been notified in detail as to the SWMP plan and has not responded to date. All disturbed areas within the SWMP acreage will be reclaimed via establishment of native grasses, Forbes, and shrubs, as noted in the species list included in the original amendment application package. Tree species such as pinon and juniper and shrubs such as Mtn mahogany and four-wing saltbush may be included in the direct seeding of the

*no of stormwater
discharge from
pond to near
cut*

*order 2 when
3 are approved*

sediment pond berm outlopes and disturbed ground within the sediment containment basin. Inorganic fertilizer will be applied at the time of seeding at rates equivalent to 100# Nitrogen and 80# Phosphorus. Seeding rates will be in the range of 40 # pls/acre. All seeded areas will be mulched with 4000#/acre clean straw mulch to promote moisture retention and vegetative establishment. Most of the construction will result in permanent stormwater control structures that will remain intact after completion of mining. As soon as the mine operator can establish self-sustaining vegetation on the disturbed areas (3-5 yrs), T.H. E. will apply for bond release on the appropriate acreage under permanent reclamation.

RESPONSE TO TECHNICAL INFORMATION AS REQUESTED

1) Stormwater Run-off Calculations--disturbed area watershed including SWMP acreage

	10yr SCSII 24hr	100yr SCSII 24hr
Peak Discharge	27.56 cfs	77.56 cfs
Discharge Volume	4.52 acre ft	12.26 acre ft

Stormwater Run-off Calculation--Undisturbed upland watershed area 145 acres

	10yr SCSII 24hr	100yr SCSII 24hr
Peak Discharge	66.64 cfs	187.46 cfs
Discharge Volume	10.95 acre ft	29.65 acre ft

2. Average annual sediment loss from the disturbed area.

At the completion of sediment pond construction, seven collection basins will be in operation. **The annual estimated sediment loss from the disturbed (mining zone) is 250 tons, most of which will be collected in the first #5 sediment pond in the SWMP area. Less than 5% of the annual loss from the disturbed area is estimated to be collected in #2, #3, and #4 sediment ponds.** A zero release of sediments from the affected land boundaries is anticipated with this SWMP.

3. Engineering Designs--Please find attached design drawings and construction details of all structures proposed in this SWMP. Plan views showing location and routing of all SWMP structures can be found on the "Stormwater Drainage Map" 1": 200' topographic included with this package.

5. Property owners that may be affected by the proposed stormwater management plan. T.H.E. anticipates no affect on neighboring land owners. Pueblo Community College and the City of Canon City have been notified and their response is forthcoming.

6. Tezak Heavy Equipment will design and build all proposed stormwater controls such as channels, ponds, and spillways in such a way as to minimize impacts to the hydrologic balance within the quarry as well as the surrounding area. Within the SWMP acreage, particular efforts will be made to preserve existing vegetation and minimize the disturbance.

7. **Tezak Heavy Equipment Company, Inc., will construct and have all structures operating effectively by October 31, 1996.**

8. **The #4 sediment pond located at Tunnel Drive will include an appropriate spillway and apron to direct storm flows away from residential and road impact areas in the event that a +100 year event occurs.**

9. **Tezak Heavy Equipment Company, Inc., will have the construction off all proposed structures certified by a registered professional engineer.**

10. Schematic--Please refer to the 1":200' topographic map titled "Stormwater Drainage and Affected Land Boundaries". This map shows complete routing of storm flows sitewide.

11. The structures proposed in this SWMP are long term permanent structures which will protect down slope properties from storm related erosion and deposition into the long term future. The entire extent of sediment ponds, spillways, and inlets with the SWMP 30 acres will operation at little to no maintenance, although some sediment removal may be necessary on occasion. **Construction costs of the SWMP structures including revegetation of disturbed areas. is estimated at \$50,000.00: The operator intends to maintain the SWMP diversion of the undisturbed upper watershed for as long as the mine operates and will propose to continue said diversion in the final reclamation plan of the pit.** Life of mine of this deposit is minimally 50 years. The estimate for removal of all scrap mining equipment found on part of the SWMP property is \$3000.00. At final reclamation of the pit, a long term diversion ditch will probably be left in a shortest distance straight line direction from #1 Sediment Pond to the north which at present is the stockpile and crushing circuit area. #1 Sediment Pond will be enlarged to insure proper operation with no/low maintenance.

12. Tezak Heavy Equipment Company, Inc., will desist from any disturbance in the amendment area until the operator has received Division approval of an acceptable plan for minimizing impacts to the hydrologic balance in the quarry and surrounding area during management of stormwater runoff. Tezak Heavy Equipment Company, Inc., will provide certification from a registered professional engineer that all designed structures have been constructed and are functioning properly.

?
*write a
disclaimer
Last Board
Decision was
to declare amendment
null & void*

(e) approximate timetable of mining operations--the life of mine of this deposit is approximately fifty years. Due to the highwall mining technique employed, the mining zone including stockpile areas will stay basically in the same area through the life of the mine. While this will keep the mining area in a defined zone with some movement of the working face to the South and Western portions of the mining affected lands, reclamation of the lower reaches of the mining site will not occur until near to the end of the life of mine. Reclamation of the highwall areas as described in the 1995 submittal and resubmitted with this application will reflect the stormwater drainage and highwall configurations as planned and will be performed as the granite rock highwall producing face is worked back to the affected land boundaries to the west. The stormwater management plan area, however, will be disturbed due to construction and reclaimed via revegetation within the next several months, with subsequent revegetation of the sediment pond out slopes and ground disturbed by construction to be performed within that same time frame. It is anticipated that the mine operator will press for final revegetation of the SWMP construction area (30 acres) over the next couple of years and will seek bond removal/reduction over this area within the next five years, since all of the structures to be constructed in this area will be permanent in nature.

TIMETABLE ESTIMATES FOR DISTURBANCE OF AFFECTED LAND ACREAGE

Area with in affected land bound	acreage	Time estimate (mining-reclamation)	Sequence
SWMP(north end)	30	1-5 years	1996-2001
Highwall Areas (west border areas)	20	5-15 years	2005-2020
Main pit and stockpile Areas	45	35-50 years	1996-2045

NARRATIVE FOR EXHIBIT C--PREMINING AND MINING PLAN MAP

(I) nature, depth, and thickness of the deposit--this granite gneiss area is a massive bedrock outcrop of the basement rock complex of igneous and metamorphic rocks which underlie the entire Royal Gorge region. USGS Map 1-869 interpretation of this formation is as follows: "Migmatitic gneiss (Precambrian), layered, chiefly feldspathic-biotite-quartz-plagioclase gneiss with minor amounts of hornblende gneiss, calc-silicate gneiss, and garnetiferous and sillimantic varieties. Characteristically gray, brownish-gray, or pinkish-tan medium-to-fine grained well foliated and well-layered rock. Compositional banding generally is parallel to foliation and ranges in thickness from a fraction of an inch to several tens of feet. Variably migmatitic; salmon-pink to white stringers, veinlets, or small tabular masses of quartz-plagioclase-microcline-biotite pegmatite characteristically cut the gneiss or occur as subconformable layers." The depth of the deposit is undetermined. A conservative estimate of minable rock has been made of 50 million tons.

There is no measurable soil on the surface prior to mining. All fines encountered during mining and produced during processing operations are sold as sub-base road material or fill. There is no waste material encountered during mining or produced during crushing operations.

(ii) granite bedrock similar to that mined continues below the mining area to unknown depth.

(g) The primary commodity being mined is the granite bedrock, processed to various grades/sizes of aggregate rock products. The secondary product is granite rip-rap, sized from 4" cobble up to 3-4' boulders. These various products are used for a variety of end uses, including but not limited to erosion control and bank stabilization, road materials, concrete and construction aggregate, asphalt aggregate, road base, drainage and leach field rock, landscaping rock and boulders, and general grading and backfilling material.

(h) Incidental materials that may be produced at this site include river derived gravels from localized pediment derived extraction areas within the affected land boundaries and gannister, a silica rich metasediment which outcrops approx. 1/4 mile north of the main working area as shown on the mining plan map. This historic mining area dates back more than 80 years. Gannister is extracted now only in infrequent intervals for use in ceramic manufacturing. A small working area (less than 1/2 acre) is retained in this mining permit area to allow for future extraction should a demand for this product occur. No gannister production has been necessary for the past several years.

EXHIBIT E -- RECLAMATION PLAN

The reclamation plan will be presented in three basic sections, each which address certain site aspects in order to attain the long range goals of reclamation including:

- 1) A geotechnically stable highwall configuration and surface grading plan which addresses the control of stormwater flows, erosion potentials, and sediment controls which will operate in perpetuity with low maintenance.
- 2) A site which will blend into neighboring land use as much as possible with final grading features which will protect neighboring land areas by way of diversion and retention of storm flows away from the Tunnel Drive area and direct drainage into the Arkansas River.
- 3) A stable, self-sustaining, native vegetative mode, where appropriate, which will support wildlife use and open graze use with a minimum of maintenance demand.

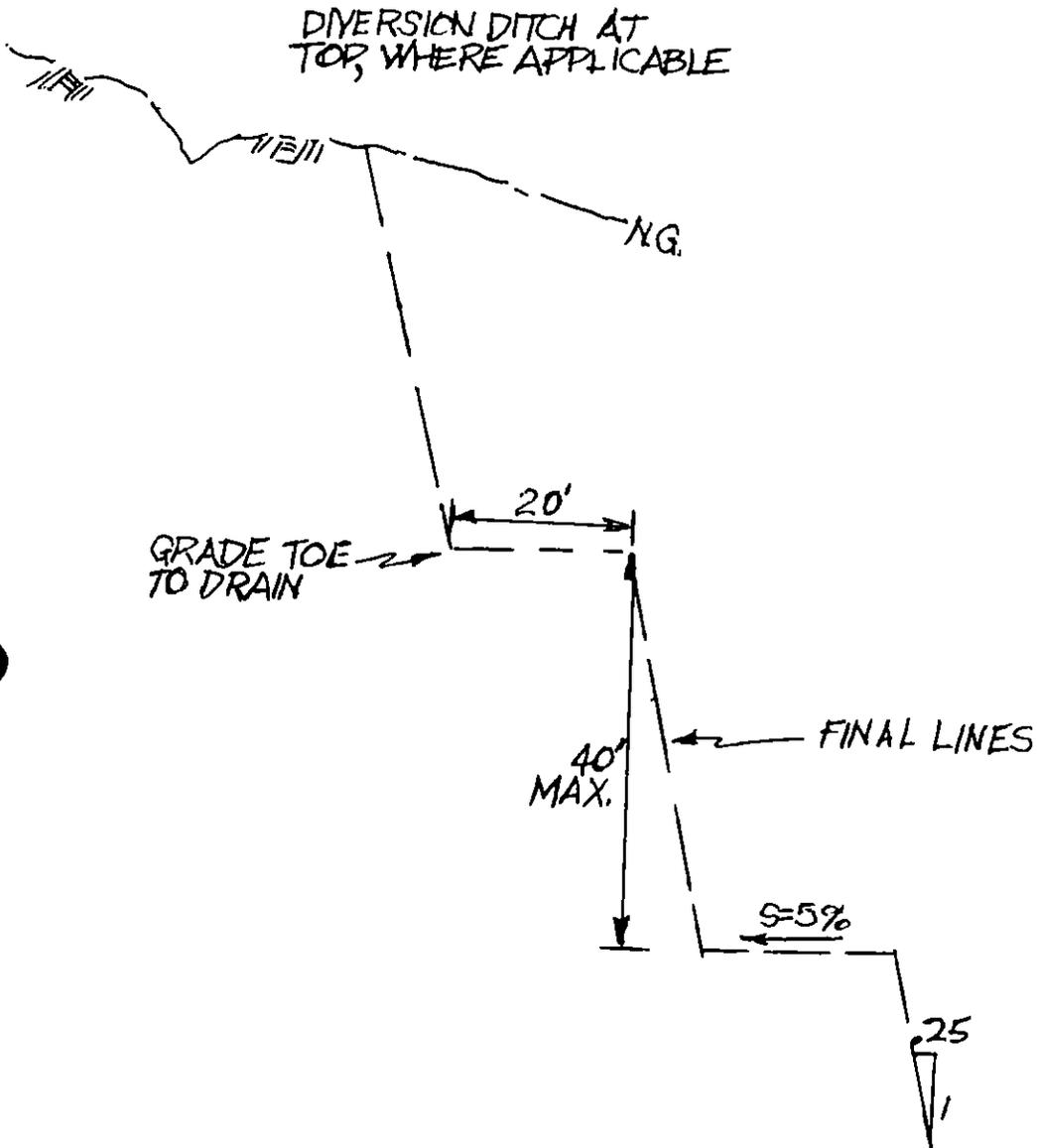
1) FINAL HIGHWALL DESIGN (typical cross section drawing included)

Compositional banding and zonal planes of migmatitic and metamorphic planes strike generally North-South, dipping in a generally Eastern attitude at high angles (75 degrees or more). This orientation has resulted numerous naturally occurring rock faces in the immediate area that approximate a 0.25 : 1 slope. These natural faces are found to be in excess of 80 feet in some cases. Mining over the past twenty years in the granite area has shown that 0.25 : 1 slopes in this material are stable. The 1985 amendment was approved with such a highwall design parameters, but called for top soiling of the highwall benches and revegetation of the benches with trees, shrubs, and grasses. The current amendment proposal is to retain the approved bench configuration design as originally proposed, but to forego the top soiling and revegetation attempts for a number of reasons related to environmental impact.

a) The total area of highwall benches is a relatively small acreage vs the rest of the site. Low moisture conditions, lack of irrigation potential for seedling installation, and low plant densities over the site in general will result in a net environmental liability due to topsoil loss from the mining benches prior to vegetative stabilization of the top soiled benches. The topsoil and vegetative work will be much better utilized in the lower reaches of the mining area where vegetative establishment is a more reasonable goal.

TEZAK HEAVY EQUIPMENT, INC

FINAL HIGHWALL
CONFIGURATION



FROM 3-26-85 PERMIT AMENDMENT

SCALE 1" = 20'

b) Stormwater run-off from the highwall area can be more efficiently collected and directed from the highwall benches to the lower storm ditch network and eventually to the large sediment pond system in the north end of the affected land if topsoil/fines is not placed on the mining benches. Sedimentation of the collection ditches will result in high maintenance demands of the storm ditch system and tendency to plug during times of high intensity events.

c) The intent of the mining law is to promote site stability and impact control. This goal is more readily achievable if the highwall benches are not a source of sediment loads during storm events. The rock faces, if left in the configuration as shown in the attached drawing, will best meet these requirements without attempting to revegetate the benches. The general drainage direction of the toe-to-drain ditches located at the toe of each vertical face run will be to the North to facilitate the overall site drainage to the north end of the affected land into the SWMP containment area.

2) PROTECTING NEIGHBORING LAND AREAS FROM STORM FLOWS STORMWATER MANAGEMENT PLAN

At the present time, the drainage from the mining area and from the large (>100 ac) watershed area to the west of the mining area flows basically to the South along drainage of topographic control which have been operating as such for hundreds of years. The construction of sediment ponds along the main haul road have helped somewhat in retaining stormwater flows, although the paving of the main haul road for dust control has tended to promote somewhat higher stormflow velocities and has directed storm waters down the paved roadway onto Tunnel Drive. Historically, stormwater has crossed Tunnel Drive and flowed into the Hydraulic Ditch which flows in an easterly direction app. 50' South of Tunnel Drive. This storm path is considered unacceptable to the Canon City Hydraulic Ditch Company and to land owners along Tunnel Drive. This amendment proposes to eliminate all stormwater flows from crossing Tunnel Drive in the future up to and including a 100 year storm event by way of construction of retention ponds within the mine site, along and at the bottom of the existing haul road, and diverting app. 90% of stormwater flows away from Tunnel Drive and North to a network of sediment control and retention ponds located on Tezak Heavy Equipment Company property. A minimum of seven retention ponds with total capacity of app. 20 acre feet of storage will be constructed to attain this goal of diversion and retention of stormwater flows.

The construction of sediment ponds, inlets and spillways will take place during 1996 and revegetation of the out slopes and disturbed areas within the SWMP area will be performed as soon as possible after construction. All construction will be in accordance with the engineered design plans submitted with this application. All construction methods will be reviewed and approved by a registered engineer and certified for proper installation. Revegetation of the course alluvium derived soils will entail grading to 3:1 slopes on the sediment pond out slopes, contour furrowing, and broadcast seeding of all disturbed areas with a mixture of native grasses, shrubs, and tree species found growing in the area at the present time. A species list will be

included in the following paragraph on longer term revegetation work. Soil tests will be taken to ascertain fertilization requirements, although a minimum fertilizer application of inorganic Nitrogen at 100#/acre and Phosphorus at 80#/acre is anticipated. Seeding rates will be in the range of 30#/acre live seed. Clean straw mulch will be applied and crimped into the seeded areas at a rate of 4000#/acre. This seeding and mulching process will be repeated each year until a minimum 25% ground cover of native non-weedy species is growing on site. Of the 30 acres within the SWMP area, it is estimated that up to 20 acres may be disturbed by construction of the sediment control structures. No top soiling of the area is anticipated. Storm ditches, inlets, and spillways will be armored with rip-rap boulders 8"-12" in size.

3) FINAL RECLAMATION OF MAIN PIT AREA

The main pit area will not be revegetated until near to the life of the mine, approximately 50 years from present. This is due to the fact that the mine pit will be in continuous use as product stockpile, process, and load out area. The stormwater diversion ditch will also cross this area. **At the time of final reclamation, topsoil materials will be transported to the main pit floor from neighboring lands owned by the mine operator and will be applied at depths of 12"-18".** This soil material will be amended with organic materials (sewage sludge, manure, or other materials that may be available) to achieve a plant medium that will support native vegetation. An initial application of inorganic fertilizer of Nitrogen at 100#/acre minimum and Phosphorus at 80#/acre is anticipated prior to seeding. The seed mixture will be composed of the following species:

Needle and Thread Grass	10
Blue grama grass	
Side oats grama	20
Sand dropseed grass	15
Red three-awn	
Indian ricegrass	15
Winterfat	10
Buckwheat-erigeronum	
Mountain mahogany	5
Four-wing salthush	10
Tall rabbitbrush	
Brickle bush	
Blackfoot daisy	
Cholla cactii	
One seed juniper	5
Pinon pine	
Yellow-sweetclover	
Western wheatgrass	5
Intermediate wheatgrass	
Crested wheatgrass	5

The relative amounts of the species in the mixture will be based on the availability and price at the time of planting. The drought resistant native grasses should be the focus of the mixture in respect to the grass species. If the seed mixture is drilled, seeding rates should be 20#/acre. If the seed mixture is broadcast, the rate should be 40#/acre. Broadcast seeding should be followed by a raking or dragging of the surface and an application of straw mulch at 4000#/acre. Mulch should be crimped into the upper 2"-3" of the soil surface. The final slope configuration in the pit area will be no more than 2.5:1. Woody plants such as tree and shrub species should be included in the seed mixture to promote long term plant succession and vegetative stability site-wide. The seeding and mulching program should be repeated every other year, preferably seeded in the fall or early spring, until a minimum 25% ground cover is attained over the site. Final reclamation of the pit and neighboring highwall will involve the integration of storm ditching from the highwall benches to the final storm ditch network on the pit floor which will route all storm flows to the north sediment pond area. The final configuration of the in pit sediment pond (#1) and the pit area will include enlargement of pond #1 for long term low maintenance and lining of all ditches with rip-rap. It is estimated that between 45-50 acres of land will be reclaimed via revegetation of final pit floor area, at the end of mining at this site.

(b) The proposed post-mining use of open rangeland/wildlife habitat is compatible with surrounding /neighboring land use of the area. The area is currently zoned industrial/mining which reflects actual usage of the area for the past 100 years. The proposed post mining land use is in accordance with the Fremont County master plan and all county rules and regulation regarding mining lands in Fremont County.

(c) Implementation of Reclamation Plan

The reclamation plan shall be implemented as soon as feasible after mining operations, with three distinct phases as described on pages 12, 13, and 14. Grading of the sediment control areas will be no more than 3:1 on the out slopes of the sediment ponds; grading within the final pit configuration areas will be no more than 2.5 : 1. Slopes in the highwall areas will be 0.25 : 1.

(d) **There is no topsoil incurred at the surface of this mining operation. Topsoiling of the final pit floor will be accomplished with materials from nearby areas owned by the mine operator or will be imported from other sites. If topsoil is "mined" from neighboring land owned by the mine operator, a plan for removal and revegetation of the borrow area will be submitted to the Division for approval prior to disturbance. Revegetation details such as species, fertilizer rates, times, etc., can be found on page 14.**

(e) RECLAMATION SCHEDULE AS INTEGRATED WITH THE MINING PLAN

time frame	area & location	sequence
1996	30 acres SWMP area North of mining area	third, fourth quarter 1996 or asap after DMG approval
1998	30 acres SWMP area	fall 1998
2000	30 acres SWMP area	fall 2000
2001	30 acres SWMP area	Bond release
2005-2020	highwall area west bound	begin final highwall configuration
2030-2046	main pit area	topsoil/plant medium hauled to main pit area, revegetation of main pit area begins

(f) reclamation process details:

(i) final grading-- final grades in the highwall area will be 0.25 : 1 with 40' vertical runs and 20' benches. Rock faces will be left as rock outcrop with benches graded to toe of vertical face at 5% slope. Final grades within topsoiled main pit area will be kept at 2.5 : 1 where possible. Final grades of Stormwater sediment pond area north of mining area will be 3:1 on outslope of sediment ponds. Rip-rapped inlets and spillways from one sediment pond to another in the system may have slopes up to 2:1.

(ii) Seeding mixtures-- mixtures will be a minimum of ten species from the list of grasses, shrubs, and tree species on page 14 of this application, based on price and availability at the time of purchase. The operator will attempt to include at least four species of woody stem plants in each seed mixture.

(iii) Fertilization--it is assumed that a one time initial application of app. 100#/ acre Nitrogen and 80#/acre Phosphorus will be necessary at the time of first seeding, although these amounts may be adjusted after soil analysis is performed prior to seeding of the site. It is not assumed that subsequent inorganic fertilizer applications will be necessary unless called for by future soil analysis or lack of vegetative success.

(iv) Revegetation--no plantings of tree or shrub seedlings is planned for at this site. Seeding of woody plant species including tree species will be included with overall seed mixture. Emerging woody plant species may need maintenance such as removal of competing grasses in the area directly adjacent to the woody plant and mulch application around young woody plants to promote moisture retention and plant growth.

(v) Topsoiling-- plans for topsoiling will include the final pit floor configuration at a depth of between 12"-18". Topsoiling will be performed beginning no earlier than 2030 or when final pit elevation is reached in area not being utilized for stockpiling or loading of finish product.

EXHIBIT F -- RECLAMATION PLAN MAP

(a) Exhibit F map of final topographic appearance of the area is included with this application. The stabilized highwall areas on the west side of the mining zone will drain stormwater runoff to the North to the main storm ditch which flows to the North to the Sediment Pond area. Note that a dashed line of final contours on the Reclamation Plan Map notes that a final pit design may include a lower elevation than the 5600' contour. Should this pit elevation be the final pit elevation, the pit floor may be utilized as a stormwater retention area prior to release to the North and the sediment control ponds. This situation would occur very late in the life of mine, if at all. A final lower pit area may have better long term benefits as far as stormwater control and protection of neighboring land areas from stormwater flows.

(b) Final land use for affected land will be open rangeland and wildlife habitat.

EXHIBIT G-- WATER INFORMATION

(1) This operation is not expected to directly affect groundwater systems in the area of the mining site. A surface water drainage course directly west of the mining area will be diverted to the north of the mining area into sediment pond area. Please refer to the Stormwater Management Plan, pages 7, 8, and 9 of this application.

(2) Reference Stormwater Management Plan Map 1:200 scale and Storm watershed Map and Property boundary map 1:330 scale maps for the following information:

(a) tributary water course which is to be diverted north is shown on both maps as that drainage entering Sediment Pond #1. There are no other wells, springs, stock water ponds, reservoirs, or ditches on the affected and or on adjacent lands where such structures may be affected by the proposed mining permit amendment.

(b) There are no known aquifers in the site or neighboring the site which will be affected.

(c) The operator does not anticipate deterring or process water operations from the affected land. Stormwater flows will be handled according to the SWMP plan presented on pages 7,8,9.

(3) The mine operator purchases water from Canon City for purposes of dust control at the site. Approximately 60,000 gallons per day is used for watering haul roads, stockpiles and wetting transfer points within the crushing and screening circuits. The reclamation plan calls for seedings of all plant species in a dry land mode with no watering of reclamation areas.

(4) The mine operator anticipates that a small amount of water for dust control will be available from Sediment Pond #1 for short durations of time directly after a storm event, since Sediment Pond #1 will be lined for holding and releasing water into the site's main storm ditch. However, it is assumed that 95% or more of water used at the site will be purchased from Canon City.

(5) The mine operator is under the assumption that it is not necessary to apply for a National Pollutant Discharge Elimination System (NPDES) permit from the Water Quality Control Division at the Colorado Department of Health.

EXHIBIT H -- WILDLIFE INFORMATION

Please refer to the original wildlife statement/evaluation for limited impact and select regular mining applications which was performed by Mr. Dwayne Finch, District Wildlife Manager, and Mr. Bob Davies, Wildlife Biologist, DOW, July 6 & 7, 1982.

Division of Wildlife noted that the following wildlife species may be found in or near the affected lands: mule deer, mountain lion, coyote, fox, cottontail rabbit, jackrabbit, ground squirrel, rock squirrel, crow, magpie, morning dove, pinon jay, sparrow, kestrel, scaled quail, and striped skunk. No endangered/critical species impact was anticipated. No critical habitat/vegetative communities are anticipated to be impacted. No significant negative impacts on the above listed wildlife communities were anticipated. All of the above statements are considered to be still valid and appropriate for this site.

Division of Wildlife personnel noted that the SCS revegetation species list was adequate for proper wildlife habitat reconstruction. The establishment of shrub and woody species was noted and is addressed in the operator's reclamation. **A shrub community establishment of 40-50 shrubs/acre is a reasonable goal for the operator to work toward in assessing the reclamation plan's progress. Replanting and mulching is planned on until this type of plant density is achieved.**

EXHIBIT I -- SOILS INFORMATION

(1) Soil Conservation Service site analysis in 1977 and 1985 with site reclamation plan comments are valid and appropriate, and the final reclamation plan as presented has been developed from this input. Original soils information references "type" areas which do not necessarily occur on this site, as no soil is available for stockpiling and later use. The reclamation of the final pit will entail a soils investigation program prior to the execution of the topsoil haul to the site at the end of life of mine.

EXHIBIT J -- VEGETATION INFORMATION

(1) Vegetative narrative-- the site is primarily a granite gneiss rock outcrop area of high relief and sparse vegetation, **dominated by juniper/pinon trees at densities of 30 trees/acre**, low growing shrubs such as bristle brush, three leaf sumac, and squaw current. Several cactii species such as cholla, prickly pear, and drum type cactii dominate the near surface vegetation. In the limited lower slope areas where a soil horizon of sorts has developed, native grasses such as needle and three, blue grama, side oats grama, red three-awn, and indian rice-grass can be found. Other shrubs found on site include winterfat, four-wing saltbush, mountain mahogany(upper areas of affected land) , and tall rabbitbrush. Overall plant densities are generally less than 15% ground cover, with the exception of the SWMP area to the north of the mining are. Here, the vegetation is more predominately tree cover due to the "soil" being coarse alluvium material derived from the steep sloped granite outcrops areas to the west. Ground cover may approach 25% in this area, with a relatively heavier occurrence of the pinon and one seed juniper and grass/cactii/shrub understory. Yellow sweetclover occurs as an aggressive invader on disturbed areas, along with rabbitbrush and other forb/weed species.

(c) the estimates for rangeland carrying capacity is very low, in the range of one cow/calf unit per forty acres of revegetated land. This is due to the low moisture conditions and lack of surface water at this site. The retention ponds may actually induce an improvement in grazing species vegetation by virtue of improving soil moisture conditions locally in the SWMP area and supporting grasses more suitable for open graze usage.

(2) Please refer to the Reclamation and mining maps for the relations of types of vegetation to topography. (a) The highwall areas on the western border of the mining zone will have no vegetation. (b) The SWMP sediment pond area to the north of the mining area will have a native mix of trees, shrubs, and grasses of at least 25% ground cover reflecting the species presently found at the site, and (c) the main pit area not included in the highwall area will be topsoiled and revegetated to a mixture of trees, shrubs, and grasses per the reclamation plan, with a final ground cover goal of app. 25%.

EXHIBIT K -- CLIMATE

The climate information is included in the original permit document. Canon City, Colorado climate data reflects a mountain foothills climate in a relatively arid region. The site is located at the eastern entrance to the Royal Gorge of the Arkansas River, a site of moderate winter temperatures, averaging in the 20's F. lows and moderate to high (into the 90's) in the summer months, with a mean average temperature of 55 degrees F. **Total annual precipitation is about 12"**, with a bi-modal precipitation cycle of late winter/early spring moisture (March, April) and late summer thunderstorm season (July, August). It is unusual to see more than 2" of precipitation in any one month and relatively common to receive less than .50" over a span of two or three months. The Canon City area experiences about 164 frost free days each year.

Agriculture is irrigation based for crop purposes and native vegetative establishment is sparse and slow growing, geared to the low moisture conditions that are prevalent in the region.

EXHIBIT L -- RECLAMATION COSTS

The reclamation costs for the site include cost estimates separate for the highwall areas, the final pit floors, roadways, and ditches, and the SWMP area to the north of the mining area. Also, costs of materials, structures, and mining equipment removal will be listed below.

Area	Activity & Acreage	Cost per acre	Total cost
sitewide	Reclamation equipment Mobilization		\$1000.00
sitewide	Demolition, burial of concrete waste, removal of scrap and mining equipment		\$3000.00
highwalls	Highwall bench final config. and ditch construction approximately 20 acres	1500/acre	\$30,000.00
Main pit areas	Haul topsoil, grading, seeding, Fertilization, mulching, main. Roadway removal App. 44 acres	3600/A set. 2200/acre	158,400 \$96,800.00
SWMP area	Sediment pond construction, Grading, seeding, fert, mulch Main, app. 20 acres affected	1800/acre	\$36,000.00
	Removal of pavement from road easement, City of Canon City property, scarifying roadway and reveg of road easement area (4.5 acres)		\$10,000.00
	Total reclamation cost		\$176,800.00
	20% overhead & contractor margin		\$35,360.00
	Total closure estimate, 100 acres		\$212,160.00

reclamation of existing haul road & ponds 2+3

*~ 240,400
x .235

56,494
240,400

296,894 ~ \$300,000*

EXHIBIT M -- OTHER PERMITS AND LICENSES

Colorado Department of Health and Environment, Air Pollution Control Division

Site Air Pollution Emission Notice	95-FR-695F
Jaw crusher APEN	95-FR-775P
Screen Deck	95-FR-776P
Cone crusher	95-FR-777P

Colorado Department of Health and Environment, Water Quality Control Division

Colorado Discharge Permit System--Stormwater	COG-500912
--	------------

Fremont County Conditional Use Permit Amendment will be presented to Fremont County Commission with this completed application package. The current CUP includes the 34 acres in the 5-95 permit amendment but not the SWMP acreage	CUP-88-4
--	----------

The mine operator holds a valid license to store
use explosives by the State office of Labor
and Employment, RE: Ed Tezak, Jr.

25.00

CONDITIONAL USE PERMIT

PERMIT # CUP 88-4 TEZAK HEAVY EQUIPMENT CO., INC.

FREMONT COUNTY, CO 604851 07/13/93 03:09P
BK 1132 PG 116 NORMA HATFIELD, RECORDER 1 OF 5

Upon application. incorporated herein as if set forth in full, and subject to the terms and conditions set forth in Resolution Number 25, Series of 1988 (attached), the Board of County Commissioners have reviewed and approved a name change for the existing Conditional Use Permit which will expire on April 12, 1998 for a Sand & Gravel Mine for Tezak Heavy Equipment Co., Inc. (formally issued to Snider's Aggregate). The location for which said permit issued is as follows:

LEGAL DESCRIPTION

The NE 1/4, SW 1/4 of Section 31, Township 18 South, Range 70 West of the 6th P.M., Fremont County, Colorado. Contains 40+- acres.

The activity is classified as a Sand & Gravel Mine and the property is zoned Agricultural & Other Uses. Said activity is pursuant to the Fremont County Zoning Resolution Section 600.

DATE APPROVED:	<u>APRIL 12, 1988</u> Original	<u>JULY 13, 1993</u> Name change
DATE OF EXPIRATION:	<u>APRIL 12, 1998</u>	
DATE OF ISSUANCE:	<u>APRIL 14, 1988</u> Original	<u>JULY 13, 1993</u> Name change

SIGNED: Bill Giordano
Bill Giordano, Planning Coordinator

12/5

10-01
10-00
500

FREMONT COUNTY, CO
BK 863 PG 260 NORMA HATFIELD, RECORDER 1 OF 4
048880 U4/14/88 10:27A

CONDITIONAL USE PERMIT

PERMIT # CUP 88-4

SNIDER'S AGGREGATE

Upon application, incorporated herein as if set forth in full, and subject to the terms and conditions set forth in Resolution Number 25, Series of 1988 (attached) the Board of County Commissioners have reviewed and approved a Ten (10) year Conditional Use Permit which will expire on MARCH 22, 1998 for a SAND & GRAVEL MINE for SNIDER'S AGGREGATE.

The location for which said permit issued is as follows:

LEGAL DESCRIPTION

The NE 1/4, SW 1/4 of Section 31, Township 18 South, Range 70 West of the 6th P.M., Fremont County, Colorado, Contains 40 + acres.

m-B

The activity is classified as a Sand & Gravel Mine and the property is zoned Agricultural and Other Uses. Said activity is pursuant to the Fremont County Zoning Resolution Section 600.

DATE APPROVED: APRIL 12, 1988

DATE OF EXPIRATION: APRIL 12, 1998

DATE OF ISSUANCE: 4/14/88

SIGNED: Bill Giordano
Bill Giordano, Planning Director

Mr. Commissioner M. Paul moved the adoption of the following Resolution:

RESOLUTION NO. 25

Series of 1988

Issuance of Conditional Use Permit (Applicant CUP 88-4)

BE IT RESOLVED by the Board of County Commissioners of Fremont County:

THAT WHEREAS, SNIDER'S AGGREGATE, (hereafter "Applicant") has made application for issuance of a Conditional Use Permit pursuant to Section 600 B of the current zoning resolution of Fremont County to operate a SAND & GRAVEL MINE which application has been designated as CUP 88-4; and

WHEREAS, the Board of County Commissioners held a public hearing concerning said application on MARCH 22, 1988, at which time comments and evidence were considered, including all materials contained as part of the application and which were in the county's file concerning the application; and

WHEREAS, it appears that issuance of a Conditional Use Permit is appropriate;

NOW THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Fremont County that:

1. The Board of County Commissioners of Fremont County make the following findings with respect to the application for issuance of a Conditional Use Permit to Applicant as follows:

- a. The procedure requirements Section 600 B of the current Fremont County zoning resolution have been met.
- b. The location of, the proposed use is compatible with other land uses in the area and does not place an undue burden on existing transportation, utilities, and service facilities in the vicinity, except as otherwise noted in these findings:
- c. The site is of sufficient size.
- d. The site will be served by streets and roads of sufficient capacity to carry the traffic generated by the proposed use, and the proposed use will not result in undue traffic congestion or traffic hazards.

FREMONT COUNTY, CO
BK 863 PG 261 NORMA HATFIELD, RECORDER 2 OF 4
548886 04/14/88 10:27A

- e. The proposed use, if it complies with all conditions on which this approval is made contingent, will not adversely affect other property in the vicinity of the general health, safety and welfare of the inhabitants of the county, and will not cause significant air, water, noise or other pollution.

2. A Conditional Use Permit shall be issued to SNIDER'S AGGREGATE contingent on the acceptance and observance by the Applicant of the following specified conditions:

- a. Conditional Use Permit be issued for a ten (10) year term.
- b. Review of the permit yearly to determine compliance with the conditions.
- c. Applicants shall conform to all plans, drawings and representations submitted with or contained within the application except as may be inconsistent with the other provisions of the permit.
- d. Applicants shall comply with all laws and regulations of the State of Colorado, its agencies or departments, the Board of County Commissioners of Fremont County, and the United States of America, its agencies or departments, as now in force and effect or as the same may be hereafter amended.
- e. Applicants shall obtain and keep in effect all other permits required by any other governmental agency and as otherwise may be required by Fremont County. Revocation, suspension or expiration of any such other permits shall revoke, suspend or terminate the permit authorized hereunder, as the case may be.
- f. The applicant shall provide the Fremont County Department of Planning & Zoning with copies of any technical revisions to its Mined Land Reclamation permit, and with any copies of any and all annual or other mining reports required by any governmental agency.

FREMONT COUNTY, CO 548886 04/14/88 10:27A
BK 863 PG 262 NORMA HATFIELD, RECORDER 3 OF 4

FREMONT COUNTY, CO 548886 04/14/88 10:27A
BK 863 PG 263 NORMA HATFIELD, RECORDER 4 OF 4

- g. All loads of material transported from the site shall be secured to prevent any of the material from escaping in accordance with CRS 42-4-1208 as amended.
- h. Hours and days of operation will be temporarily granted for 6:00 A.M. to 6:00 P.M., six days a week, with yearly review by the County Commissioners.
- i. Continue dust control by wetting down road or other means of dust suppressant from Tunnel Drive to the Conditional Use Permit site.
- j. Continue to use the latest in blasting techniques and equipment.

3. The term of the Conditional Use Permit shall be until MARCH 22, 1998.

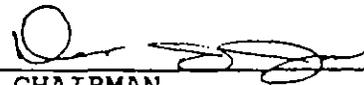
4. The Conditional Use Permit issued pursuant hereto shall not be transferrable or assignable, except as provided for in the Fremont County zoning regulations.

Mr. Commissioner Carhartt seconded the adoption of the foregoing Resolution and upon a vote of the Commissioners as follows:

Mr. Commissioner Jones: Aye/Nay/Absent
 Mr. Commissioner Carhartt: Aye/Nay/Absent
 Mr. Commissioner McCall: Aye/Nay/Absent

The Resolution was declared to be duly adopted.

Date: April ~~MARCH~~ 22, 1988



 CHAIRMAN

FREMONT COUNTY
DEPARTMENT OF PLANNING AND ZONING

BUILDING SECTION
ROOM B-2
(719) 275-7021

615 MACON AVENUE
CAÑON CITY, COLORADO 81212

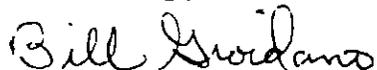
PLANNING DEPARTMENT
ROOM B-5
(719) 275-7510

TO: LARRY SCHWARZ
FROM: DEPARTMENT OF PLANNING & ZONING
DATE: JULY 13, 1993
REFERENCE: COUNTY COMMISSIONER'S COMMENTS

This is to inform you that at the regular meeting on July 13, 1993, the Board of County Commissioners approved the transfer of Snider's Aggregate Conditional Use Permit 88-4 to Tezak Heavy Equipment Co. Inc.

A copy of the recorded resolution and Conditional Use permit will be mailed to you upon receipt from the County Clerk and Recorder's Office.

Sincerely,



Bill Giordano
Planning Coordinator

BG/ses

EXHIBIT N --SOURCE OF LEGAL RIGHT TO ENTER

Please find attached a copy of the deed of surface and mineral rights from Sniders' Aggregate, Inc., to Tezak Heavy Equipment Co., Inc.

EXHIBIT O -- OWNER(S) OF RECORD OF AFFECTED LAND (SURFACE) AND OWNERS
OF SUBSTANCE TO BE MINED

Please refer to attached deed of surface and mineral rights included under Exhibit N.

EXHIBIT P -- MUNICIPALITIES WITHIN TWO MILES RADIUS

Part of the current affected land boundaries lies within the city limits of Canon City, Colorado. None of the amended acreage lies within city limits boundaries, but within a two mile radius

A complete copy of the permit amendment has been sent to the City of Canon City for review and comment.

City of Canon City
City Hall
612 Royal Gorge Blvd
POBox 1460
Canon City, CO 81215-1460

EXHIBIT Q -- PROOF OF MAILING OF NOTICES TO COUNTY COMMISSIONERS AND
SOIL CONSERVATION DISTRICT

Please find signed copies of receipt of this application from The Fremont County
Commissioners Office and the local Soil Conservation District office.

NOTICE OF FILING APPLICATION
FOR COLORADO MINED LAND RECLAMATION PERMIT
FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF SUPERVISORS
OF THE LOCAL SOIL CONSERVATION DISTRICT
CANON CITY DISTRICT

TEZAK HEAVY EQUIPMENT CO., INC. (the "Applicant/Operator") has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in FREMONT County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Minerals and Geology (the "Division") and the local county clerk or recorder.

The applicant/operator proposes to reclaim the affected land to WLDHFE/OPEN GRAZING use. Pursuant to Section 34-32.5-116(4)(m), C.R.S., the Board may confer with the local Soil Conservation Districts before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32-112(10), C.R.S.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Minerals and Geology, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application you must either attach a copy of the changes, or attach a complete and accurate description of the change.

01/02/96 1307F-112

Fremont Soil Conservation District
Phone (719) 275-4465
248 Dozier Ave.
Cañon City, Colorado 81212



Betty M. Chew

NOTICE OF FILING APPLICATION
FOR COLORADO MINED LAND RECLAMATION PERMIT
FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF COUNTY COMMISSIONERS

FREMONT COUNTY

TERAK HEAVY EQUIPMENT CO. INC. (the "Applicant/Operator") has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in FREMONT County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Minerals and Geology (the "Division") and the local county clerk or recorder.

The applicant/operator proposes to reclaim the affected land to WILDLIFE/OPEN GRAZING use. Pursuant to Section 34-32.5-116(4)(m), C.R.S., the Board may confer with the local Board of County Commissioners before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32-112(10), C.R.S.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Minerals and Geology, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application, you must either attach a copy of the changes, or attach a complete and accurate description of the change.

RECEIVED

AUG 27 1996

Finance Office

EXHIBIT R --PROOF OF FILING WITH COUNTY CLERK AND RECORDER

Please find attached a copy receipt of filing with Fremont Clerk and Recorder



Norma Hatfield
County Clerk & Recorder

Clerk and Recorder
FREMONT COUNTY

P. O. Box 349 Cañon City, Colorado 81212 Phone 303 275-1522

RE: MINING RECLAMATION PERMIT APPLICATION
Colo Stat. 34-32-112.10.8

DATE RECEIVED: 8/27/96
NAME OF APPLICANT: TEZAK HEAVY EQUIPMENT CO, INC.
DATE OF HEARING: 60-90 DAYS

PLEASE CHECK WHICH BOX APPLIES TO YOUR PERMIT

I WISH TO BE CONTACTED FIVE DAYS AFTER THE HEARING TO
PICK UP THE APPLICATION.
THE NUMBER AND PERSON TO CONTACT IS:

KS Kuo, POB 338 (GTOPAXI, CO 81223

719-942-4178

I DO NOT WISH TO PICK UP THE APPLICATION FIVE DAYS AFTER
THE HEARING AND HEREBY GIVE MY PERMISSION TO THE CLERK'S
OFFICE TO DESTROY.

SIGNED: _____

AUG 27 1996

NORMA HATFIELD
Fremont County Clerk & Recorder
615 Macon Ave., Room 100
Canon City, Colorado 81212

EXHIBIT S -- PERMANENT MAN-MADE STRUCTURES

The one man-made structure within 200 feet of affected lands, the City of Canon City's water treatment plant settling pond facility located due east of the mining area, already has a notarized signed agreement that Tezak Heavy Equipment Co, Inc., will provide compensation for any damages to the water treatment facility done by mining operations. This agreement was also in place for the Rencher Concrete Products building located along the main haul road. However, the building and the 2.3 acres has recently been purchased by Tezak Heavy Equipment Co., Inc.

GEOTECHNICAL STABILITY EXHIBIT

STATEMENT #1 -- ALL FINAL HIGHWALL CONFIGURATION PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH SITE SPECIFIC ROCK STABILITY CHARACTERISTICS AS PORTRAYED BY EXISTING MINING FACES, CURRENT MINING PRACTICES AND EXPERIENCE. THE FINAL HIGHWALL CONFIGURATION PLAN HAS BEEN REVIEWED BY A PROFESSIONAL GEOLOGIST AND FOUND TO BE COMPATIBLE AND APPROPRIATE FOR THE ROCK CONDITIONS FOUND AT THIS LOCATION.

STATEMENT #2 -- THE DESIGN AND CONSTRUCTION OF ALL SEDIMENT PONDS, WATER CONTAINMENT STRUCTURES, BERMS, DITCHES, INLETS, AND SPILLWAYS HAVE BEEN REVIEWED AND APPROVED BY A LICENSED PROFESSIONAL ENGINEER. AT THE COMPLETION OF CONSTRUCTION, ALL STRUCTURES WILL BE INSPECTED AND CERTIFIED OPERATIONAL BY AN ENGINEER LICENSED IN THE STATE IN THE STATE OF COLORADO.

STATEMENT #3 -- THE DESIGN OF THE STORMWATER MANAGEMENT PLAN IS SUCH THAT SEDIMENT PONDS ARE LOCATED IN A REDUNDANT AND CHAIN-LIKE ARRANGEMENT AND LOCATION SO AS TO MINIMIZE OFF-SITE IMPACTS TO PROPERTY IN THE EVENT OF A FAILURE OF ANY STRUCTURE WITHIN THE STORMWATER MANAGEMENT SCENARIO. THE MINE OPERATOR HAS PROPOSED THIS PLAN AS THE BEST MANAGEMENT PRACTICE AVAILABLE TO ADDRESS CONTROL OF OFF-SITE IMPACTS DUE TO STORM RELATED EVENTS.

STATEMENT #4--THE MINE OPERATOR HAS DEMONSTRATED THAT OFF-SITE IMPACTS DUE TO BLASTING ARE CONTROLLED WITHIN ACCEPTABLE LIMITS AND HAVE MET ALL TECHNICAL REQUIREMENTS OF THE DIVISION OF MINERALS AND GEOLOGY BY WAY OF TECHNICAL REVISION NUMBER 003 AS APPROVED IN 1996.

OTHER ISSUES

AT THE PRESENT TIME, TEZAK HEAVY EQUIPMENT CO., INC., IS IN NEGOTIATION WITH THE CITY OF CANON CITY TO DEVELOP A PRIVATE ACCESS INTO AND OUT OF MINE PROPERTY ACROSS CITY PROPERTY DIRECTLY NORTH OF TUNNEL DRIVE, THE EXISTING ACCESS ROUTE TO THE MINE SITE. THIS ROADWAY EASEMENT WILL BE LOCATED WHOLLY ON CITY PROPERTY WITH THE EXPRESS GOAL OF ALLOWING ACCESS TO THE MINE PROPERTY WHILE MINIMIZING TRAFFIC RELATED IMPACTS TO THE RESIDENTIAL AREA ALONG TUNNEL DRIVE. A RIGHT-OF-WAY LOCATION AND ENGINEERED ROAD CONSTRUCTION DESIGN HAS BEEN PRESENTED TO THE CITY OF CANON CITY FOR REVIEW AND APPROVAL. DETAILED ENGINEERED DRAWINGS OF THE PROPOSED EASEMENT AS SUBMITTED TO THE CITY OF CANON CITY ARE INCLUDED IN THIS APPLICATION AS NOTED AND FIVE ACRES OF AFFECTED LAND HAVE BEEN ADDED TO THE TOTAL TO REFLECT THAT ACREAGE NECESSARY TO INCLUDE THE ROAD EASEMENT WITH THIS PERMIT AMENDMENT APPLICATION. A FINALIZED AND SIGNED EASEMENT AGREEMENT WILL BE INCLUDED WITH THIS AMENDMENT PACKAGE AS SOON AS IT IS AVAILABLE.



999

STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106



DEPARTMENT OF
NATURAL
RESOURCES

Roy Romer
Governor

James S. Lochhead
Executive Director

Michael B. Long
Division Director

May 26, 1997

Edward J. Tezak, Jr.
Tezak Heavy Equipment Co. Inc.
804 South First Street
Canon City, CO 81212

**RE: T.H.E. Aggregate Source, Amendment Approval, Permit No. M-77-193,
Revision No. AM-3**

Dear Mr. Tezak:

On May 21, 1997 the Division of Minerals and Geology approved the Amendment application submitted to the Division on September 4, 1996, addressing the following:

Expand permit area from 30 to 100 acres.

The terms of the Amendment No. 3 approved by the Division are hereby incorporated into Permit No. M-77-193.

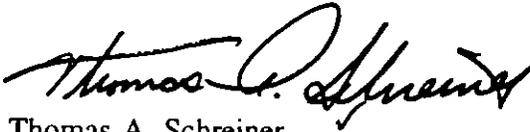
The conditions of the Division approval are noted below. Please note that all other provisions of Permit No. M-77-193 remain in full force and effect.

Stipulation No.	Description
1.	T.H.E. Aggregate Source, Inc. will supply a financial warranty in the amount of \$603,721.00 within 60 days of Board Approval.
2.	T.H.E. Aggregate Source, Inc. will cease and desist from any disturbance outside the existing 30 permitted acres until all stormwater management structures as specified in the amendment application have been constructed and are deemed by a registered professional engineer qualified in surface water hydrology and stormwater management to be functioning properly.

The estimated liability amount of \$603,721.00 for the T.H.E. Aggregate Source exceeds the performance bond held. If you have not already done so, please submit a replacement bond in the amount of \$603,721.00. The revision will not be final until the bond is approved by the Division.

If you have any questions, please contact me.

Sincerely,



Thomas A. Schreiner
Environmental Protection Specialist

cc: Ken Klco - Azurite, Inc.
Jim Stevens - DMG
John A. McDermott
Cara D. Fisher
Rita Everett
Phillip and Colita Smith



AZURITE, Inc.
10001 County Road 12
POBox 338
Cotopaxi, CO 81223
719-942-4178
Fax 719-942-4178

RECEIVED

JAN 24 2000

Division of Minerals & Geology

January 20, 2000

Mr. James Stevens, Supervisor
State of Colorado
Division of Minerals and Geology
1313 Sherman Street, Rm 215
Denver, Colorado 80203

Dear Mr. Stevens,

Please find one original signed copy with application fee and four additional copies of an application for permit amendment for Tezak Heavy Equipment Company, Inc.'s Aggregate Source granite aggregate operation. The Canon City based mine operator wishes to permit an additional 131 of mining ground at their Canon City mine site.

Please let me know when your staff has evaluated the document for technical completion. I look forward to hearing from you.

Very Truly Yours,

Kenneth S. Klco
Consulting Geologist
Azurite, Inc.

STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106

RECEIVED

JAN 24 2000



DEPARTMENT OF
NATURAL
RESOURCES

Division of Minerals & Geology

CONSTRUCTION MATERIALS REGULAR (112) OPERATION RECLAMATION PERMIT APPLICATION FORM

Roy Romer
Governor

James S. Lochhead
Executive Director

Michael B. Long
Division Director

CHECK ONE: _____ New Application (Rule 1.4.5) Amendment Application (Rule 1.10)
_____ Conversion Application (Rule 1.11)

Permit # M - 77 - 193 - _____ (provide for Amendments and Conversions of existing permits)

The application for a Construction Materials Regular 112 Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-S, Addendum 1, any sections of Exhibit 6.5 (Geotechnical Stability Exhibit; and (3) the application fee. When you submit your application, be sure to include one (1) complete signed and notarized IVORY ORIGINAL, and four (4) copies of the completed Ivory application form, five (5) copies of Exhibits A-S, Addendum 1, appropriate sections of 6.5 (Geotechnical Stability Exhibit, and a check for the application fee described under Section (4) below. Exhibits should **NOT** be bound or in a 3-ring binder; maps should be folded to 8 1/2" X 11" or 8 1/2" X 14" size. To expedite processing, please provide the information in the format and order described in this form.

GENERAL OPERATION INFORMATION

Type or print clearly, in the space provided, ALL information requested below.

1. Applicant/operator or company name (name to be used on permit):

TEZAK HEAVY EQUIPMENT COMPANY, INC.

1.1 Type of organization (corporation, partnership, etc.): CORPORATION

1.2 I.R.S. Tax I.D. No. or Social Security Number: _____

2. Operation name (pit, mine or site name): T.H.E. AGGREGATE SOURCE

3. Permitted acreage (new or existing site): 100 permitted acres

3.1 Change in acreage (+) 131 acres

3.2 Total acreage in Permit area 231 acres

4. Fees:

4.1 New Application \$1,875.00 application fee

4.2 New Quarry Application \$2,325.00 quarry application

4.3 Milling Application (Non-DMO) \$3,100.00 milling application

4.4 Amendment Fee \$1,550.00 amendment fee

4.5 Conversion to 112 operation (set by statute) \$1,875.00 conversion fee

5. Primary commodity(ies) to be mined: GRANITE AGGREGATE RIP-RAP

5.1 Incidental commodity(ies) to be mined: 1. - lbs/Tons/yr

2. _____ / _____ lbs/Tons/yr 3. _____ / _____ lbs/Tons/yr

4. _____ / _____ lbs/Tons/yr 5. _____ / _____ lbs/Tons/yr

5.2 Anticipated end use of primary commodity(ies) to be mined: ROAD MATERIALS &

5.3 Anticipated end use of incidental commodity(ies) to be mined: EROSION CONTROL

6. Name of owner of subsurface rights of affected land: TEZAK HEAVY EQUIPMENT CO., INC.
If 2 or more owners, "refer to Exhibit O".

7. Name of owner of surface of affected land: TEZAK HEAVY EQUIPMENT CO., INC.

7.1 Names of the holders of any recorded easements on the affected land: _____
NONE

8. Type of mining operation: Surface _____ Underground

9. Location Information: The center of the area where the majority of mining will occur:
COUNTY: FREMONT

PRINCIPAL MERIDIAN (check one): 6th (Colorado) _____ 10th (New Mexico) _____ Ute

SECTION (write number): _____ S 31

TOWNSHIP (write number and check direction): T 18 _____ North South

RANGE (write number and check direction): R 70 _____ East West

QUARTER SECTION (check one): _____ NE _____ NW _____ SE _____ SW

QUARTER/QUARTER SECTION (check one): _____ NE _____ NW _____ SE _____ SW

GENERAL DESCRIPTION: (the number of miles and direction from the nearest town and the approximate elevation): LOCATED NORTH OF TUNNEL DRIVE, APP. 1/2 MILE WEST OF INT. TUNNEL DRIVE & US HIGHWAY 50 ON WESTERN EDGE OF CITY LIMITS, CANYON CITY, CO.

10. Primary future (Post-mining) land use (check one):

- Cropland(CR) Pastureland(PL) General Agriculture(GA)
- Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)
- Residential(RS) Recreation(RC) Industrial/Commercial(IC)
- Developed Water Resources(WR) Solid Waste Disposal(WD)

11. Primary present land use (check one):

- Cropland(CR) Pastureland(PL) General Agriculture(GA)
- Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)
- Residential(RS) Recreation(RC) Industrial/Commercial(IC)
- Developed Water Resources(WR)

12. Method of Mining: Briefly explain mining method (e.g. truck/shovel):

DRILL + BLAST, FEL MUCK & CARRY TO CRUSHING/SCREENING CIRCUITS. FEL INTO HIGHWAY TRUCKS.

13. On Site Processing: Crushing/Screening

13.1 Briefly explain mining method (e.g. truck/shovel):

FEL FEEDS JAW PRIMARY PORTABLE CRUSHER, BELT CONVEYED TO SCREENS, SECONDARY CONE CRUSHERS, STOCK PILES

List any designated chemicals or acid-producing materials to be used or stored within permit area: NA

14. Correspondence Information:

APPLICANT/OPERATOR (name, address, and phone of name to be used on permit)

Contact's Name: DANIEL TEZAK, JR. Title: PRESIDENT
 Company Name: TEZAK HEAVY EQUIPMENT COMPANY, INC.
 Street: 201 TUNNEL DRIVE
 City: CANON CITY
 State: CO Zip Code: 81212
 Telephone Number: (719) - 269-1173
 Fax Number: (719) - 269-1148

PERMITTING CONTACT (if different from applicant/operator above)

Contact's Name: KENNETH S. KILCO Title: CONSULTING GEOL.
 Company Name: AZURITE INC
 Street: PO BOX 338
 City: COTOPAXI
 State: CO Zip Code: 81223
 Telephone Number: (719) - 942-4178
 Fax Number: (719) - 942-4178

INSPECTION CONTACT

Contact's Name: DANIEL I. TEZAK Title: PRESIDENT
 Company Name: TEZAK HEAVY EQUIPMENT COMPANY INC
 Street: 201 TUNNEL DRIVE
 City: CANON CITY
 State: CO Zip Code: 81212
 Telephone Number: (719) - 269-1173
 Fax Number: (719) - 269-1148

CC: STATE OR FEDERAL LANDOWNER (if any) NA

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: (_____) - _____

CC: STATE OR FEDERAL LANDOWNER (if any) NA

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: (_____) - _____

15. Description of Amendment or Conversion:

If you are amending or converting an existing operation, provide a brief narrative describing the proposed change(s).

THIS AMENDMENT ADDRESSES THE ADDITION OF 131 ACRES TO
CURRENTLY PERMITTED 100 ACRES

Maps and Exhibits:

Five (5) complete, unbound application packages must be submitted. One complete application package consists of a signed application form and the set of maps and exhibits referenced below as Exhibits A-S, Addendum 1, and the Geotechnical Stability Exhibit. Each exhibit within the application must be presented as a separate section. Begin each exhibit on a new page. Pages should be numbered consecutively for ease of reference. If separate documents are used as appendices, please reference these by name in the exhibit.

With each of the five (5) signed application forms, you must submit a corresponding set of the maps and exhibits as described in the following references to Rule 6.4, 6.5, and 1.6.2(1)(b):

- EXHIBIT A Legal Description
- EXHIBIT B Index Map
- EXHIBIT C Pre-Mining and Mining Plan Map(s) of Affected Lands to include the location of any recorded easements
- EXHIBIT D Mining Plan
- EXHIBIT E Reclamation Plan
- EXHIBIT F Reclamation Plan Map
- EXHIBIT G Water Information
- EXHIBIT H Wildlife Information
- EXHIBIT I Soils Information
- EXHIBIT J Vegetation Information
- EXHIBIT K Climate Information
- EXHIBIT L Reclamation Costs
- EXHIBIT M Other Permits and Licenses
- EXHIBIT N Source of Legal Right-To-Enter, to include holders of any recorded easements
- EXHIBIT O Owners of Record of Affected Land (Surface Area) and Owners of Substance to be Mined, to include holders of any recorded easements
- EXHIBIT P Municipalities Within Two Miles
- EXHIBIT Q Proof of Mailing of Notices to County Commissioners and Soil Conservation District
- EXHIBIT R Proof of Filing with County Clerk or Recorder
- EXHIBIT S Permanent Man-Made Structures
- Rule 1.6.2(1)(b) ADDENDUM 1 - Notice Requirements (sample enclosed)
- Rule 6.5 Geotechnical Stability Exhibit (any required sections)

The instructions for preparing Exhibits A-S, Addendum 1, and Geotechnical Stability Exhibit are specified under Rule 6.4 and 6.5 and Rule 1.6.2(1)(b) of the Rules and Regulations. If you have any questions on preparing the Exhibits or content of the information required, or would like to schedule a pre-application meeting you may contact the Office at 303-866-3567.

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.

- DT. 1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;
- D.T. 2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;
- DT 3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;
- DT 4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;
- DT 5. It is your responsibility to notify the Office of any changes in your address or phone number;
- DT 6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):
- a. the name of the operator;
 - b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,
 - c. the permit number.

DT 7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance.

DT 8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Construction Material Rules and Regulations in effect at the time the permit is issued.

DT 9. Annually, on the anniversary date of permit issuance, you must submit an annual fee as specified by Statute, and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation Plan to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as the permittee, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.

DT 10. For joint venture/partnership operators: the signing representative is authorized to sign this document and a power of attorney (provided by the partner(s)) authorizing the signature of the representative is attached to this application.

NOTE TO COMMENTORS/OBJECTORS:

It is likely there will be additions, changes, and deletions to this document prior to final decision by the Office. Therefore, if you have any comments or concerns you must contact the applicant or the Office prior to the decision date so that you will know what changes may have been made to the application document.

The Office is not allowed to consider comments, unless they are written, and received prior to the end of the public comment period. You should contact the applicant for the final date of the public comment period.

If you have questions about the Mined Land Reclamation Board and Office's review and decision or appeals process, you may contact the Office at (303) 866-3567.

You must post sufficient Notices at the location of the proposed mine site to clearly identify the site as the location of a proposed mining operation. The following is a sample of the Notice required for Rule 1.6.2(1)(b) that you may wish to use.

NOTICE

This site is the location of a proposed construction materials operation. (Name of the Applicant/Operator) TEZAK HEAVY EQUIPMENT CO. INC whose address and phone number is (Address and Phone Number of the Applicant/Operator) 201 TUNNEL DRIVE, CANON CITY, CO 81212 719-269-1173, has applied for a Reclamation Permit with the Colorado Mined Land Reclamation Board. Anyone wishing to comment on the application may view the application at the (County Name) FREMONT County Clerk or Recorder's Office, (Clerk or Recorder's Office Address) 615 MACON CANON CITY, CO 81212, and should send comments prior to the end of the public comment period to the Division of Minerals and Geology, 1313 Sherman St, Room 215, Denver, Colorado 80203.

Certification:

I, KENNETH S. KUCO, hereby certify that I posted a sign containing the above notice for the proposed permit area known as the (Name of Operation) AGGREGATE SOURCE, on (Date Posted) 1/20/00.

Kenneth S. KucO
SIGNATURE

1/20/00
DATE

JAN 24 2000

Division of Minerals & Geology

EXHIBIT A-- LEGAL DESCRIPTION

From the point of beginning at the common corner of the NE1/4 1/4 sections of Section 31 marked station #1 for the existing permitted area

South at a bearing S 00 10' 28" E 884.34 feet to station marker #2, thence
West at a bearing S 88 29' 40" W 705.04 feet to station marker #3, thence
South at a bearing S 00 10' 55" E 444.9 feet to station marker #4, thence
West at a bearing S 88 27' 13" W 354.24 feet to station marker #5, thence
South at a bearing S 01 30' 32" E 1030 feet to station marker #6, thence
East at a bearing N 88 29' 28" E 187 feet to station marker #7, thence
South at a bearing S 00 30' 32" E 300 feet to station marker #8, thence
West at a bearing S 90 W 243.75 feet to station marker #9, thence
South at a bearing S 00 468.75 feet to station marker #10, thence
South at a bearing S 59 06' W 281.25 feet to station marker #11, thence
North at a bearing N 00 10' 59" 600 feet to station marker #12, thence
West at a bearing N 90 W 1320 feet to station marker #13, thence
North at a bearing N 00 1331.25 feet to station marker #14, thence
East at a bearing N 88 29' 28" E 660 feet to station marker #15, thence
North at a bearing N 00 10' 32" W 660.87 feet to station marker #16, thence
East at a bearing N 88 29' 15" E 651.9 feet to station marker #17, thence
North at a bearing N 00 11' 29" W 674.19 feet to station marker #18, thence
East at a bearing S 89 42' 59" E 1336.62 feet to station marker #1 (point of beginning).
Circumscribing an area of 97.3 acres.

Excepting a 2.3 acre area (Tezak Heavy Equipment Company Shop.)

That area described in the lease agreement between Tezak Heavy Equipment Co., Inc., and the City of Canon City for the road ROW from mine site to the intersection of Tunnel Drive and Highway US 50, an area of 5 acres, (document in 1997 application),

In addition to the 100 acres of affected land described above, this amendment addresses the addition of the following lands:

From station marked #1 for the proposed permitted area

North at a bearing N 00 10' 28" W 2660.84 feet to station marker #19, thence
West at a bearing S 88 55' 06" W 1988.22 feet to station marker #20, thence
South at a bearing S 00 10' 32" E 3331.63 feet to station marker #21, thence
East at a bearing N 88 29' 15" E 651.9 feet to station marker #22, thence
North at a bearing N 00 11' 29" W 674.19 feet to station marker #23, thence
East at a bearing S 89 42' 59" E 1336.62 feet to station marker #1 (point of beginning).
Circumscribing an area of 131 acres.

Total Amended Affected Land Acreage: 231

EXHIBIT B – Index Map

Attach an index map from a U.S.G.S. topographic map showing the location of M-77-193 in relation to City of Canon City, Colorado.

AMENDMENT NARRATIVE

This permit amendment application is written to address the addition of 131 acres of affected land to the existing 100 acres of affected land currently permitted under Mining Permit Number M-77-193. The additional acreage is necessary to allow the mine operator, Tezak Heavy Equipment Company, Inc., to continue mining operations to the north on Tezak Heavy Equipment Company property. The approval of this amendment application will enable the mine operator to increase the distance between mining operations and Tunnel Drive residential area, effectively reducing the impact of mining operations on Tunnel Drive residents. In addition, the highwall configuration left by mining the granite gneiss has shown to be much more stable when left in a north-south trending direction than the present east-west trending highwall configuration. Mining the granite gneiss located north of the present highwall will remove the less desirable highwall benches and result in overall safer, more aesthetically acceptable final appearance of the highwall configuration. The final highwall configuration will meet or exceed all safety criteria and risk of failure values as projected in the 1997 amendment application risk analysis of the final bench configuration.

The last permit amendment for this operation was approved in 1997. At that time, Tezak Heavy Equipment Company, Inc., committed to and executed a number of projects in response to community concerns. These projects include:

- 1) The development and operation of a Blasting and Vibration Control Program, including a site area baseline inventory and seismic monitoring program to insure that blasting operations are not incurring ground vibration or air blast at levels detrimental to nearby property owners. Continued monitoring of ground vibration and air blast has shown no values of concern along Tunnel Drive or any other areas.
- 2) Tezak Heavy Equipment Company, Inc., has acquired a 99 year lease on City of Canon City property for purpose of a ROW haul road which was completed in 1998. This roadway, installed at the expense of Tezak Heavy Equipment Company, has completely eliminated the use of Tunnel Drive for mine haulage and dramatically improved the residential aspects of Tunnel Drive traffic volume and vehicle size limitations.
- 3) Tezak Heavy Equipment Company, Inc., executed major rock excavation in 1997-8 to re-direct upper watershed drainage above and west of mining operations to constructed sediment ponds located north and east of existing mining operations. This work effectively re-directed stormwater flows away from Tunnel Drive and the Hydraulic Ditch, improving protection from stormwater impacts to Tunnel Drive residents and all property owners downstream of the hydraulic ditch. These new stormwater control structures operated successfully during a three day, 200 year storm event which occurred in the Canon City area during April, 1999. The storm control ditches and ponds allowed for diversion of large upland sourced storm flows

to sediment ponds which effectively dissipated large volumes of surface water flow. The additional mining acreage will include land area for similar sediment pond construction and stormwater control structures.

EXHIBIT C -- PREMINING AND MINING PLAN MAP OF AFFECTED LANDS

Find included in this file a map marked EXHIBIT C-- PREMINING AND MINING PLAN MAP

(a) all immediate adjacent surface owners of record are shown on the Exhibit C map.

(b) the name and location of all roads, buildings, power and communication lines are marked on the accompanying map of the affected land. There are no named creeks, oil and gas wells and/or lines within 200' of the affected land boundaries. The City of Canon City water treatment plant is located 100' east of the affected land boundary (due east of the scales) as shown on the Mining Plan Map and Stormwater Management Plan Map. The Smith property lies within 200' of the southern edge of the affected land boundary across Tunnel Drive from the exit of the main haul road. The new proposed permit property has no buildings within 200' of the affected land boundaries. All other buildings and structures belong to the mine operator. The Arkansas River is located directly south of the Tunnel Drive/main haul road intersection as shown on accompanying maps.

(c) existing topography is shown on the premining and mining plan map at 80' contour intervals and the stormwater management plan map at 80' contour intervals.

(d) total affected land acreage 231 acres. This includes the proposed 131 acres and the previously permitted 100 acres.

(e) type of vegetation covering the affected lands-- the mining areas in question have less than 25% ground cover, since these areas are comprised mostly of granite gneiss outcrop with steep to very steep slopes. The nominal vegetative type is pinon/juniper with minor amounts of shrub and grass species such as Mountain Mahogany, Rabbit brush, Winterfat, Blue grama grass, Indian ricegrass, and New Mexico feathergrass. Cholla and Prickly Pear cactus also exist in this proposed area. Please refer to the Soils and Vegetation information pages in the 1977 Exhibits I and J for reference to this area by SCS personnel site visits.

(f) Water information--no surface or subsurface water regimes are present at this site nor is there any anticipated impact to water resources due to mining or reclamation activities. However, there is a stormwater management plan for the proposed permit area, which will include a drainage ditch and settling ponds.

(g) The maps show the location and ownership of the following structures:

(1) City of Canon City water treatment plant. These are concrete settling pond structures and the buildings used to process water.

(2) Smith residence located on the South side of Tunnel Drive and within 200' of the intersection of Tunnel Drive and the existing main haul road.

(3) Permanent ditches, retention, and sediment ponds located in five different areas within the affected land boundaries. These structures, located on the Stormwater Management Plan map, will be permanent structures that will be retained through the life

of the mining operation and through perpetuity for stormwater drainage control from the site and neighboring areas. The Stormwater Management Plan is designed to control stormwater flowing from the west slowing the velocity by using several additional settling ponds.

(4) A scale and mobile scale house within the affected land boundaries belonging to the mine operator. Tezak Heavy Equipment Company office building is located northeast of the scale and scale house.

(5) A maintenance shop and office building located app. 400' north of Tunnel Drive but not within affected land boundaries. This building is to house the maintenance operations of Tezak Heavy Equipment Company, Inc. This site can be located on the maps as the building currently located just west of the main haul road app. 400' north of the intersection of the existing haul road and Tunnel Drive.

(6) soils information will be presented in Exhibit I

(7) no aerial photos will be presented in this amendment permit package.

(8) please find a complete list of all neighboring land owners within 200' of affected land boundaries.

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EXHIBIT D--LIST OF NAMES, ADDRESSES, AND ASSESSOR'S PARCEL
NUMBERS FOR ALL PROPERTY OWNERS WITHIN 200 FEET OF THE PERMIT
AREA BOUNDARY

Canyon Quarry Company
1227 Lake Plaza Drive
Suite A
Colorado Springs, CO 80906
3821-0000-00-047

Pueblo Community College
Attn: Dr. Jim Arnold
Canon City Campus
2951 E. HWY 50
Canon City, CO 81212

City of Canon City
Robert Saulman, City Engineer
Box 1460
Canon City, CO 81212
3821-3100-00-004

CDOT
P.O. Box 536
Pueblo, CO 81002

Phillip B. & Colita N. Smith
154 Tunnel Drive
Canon City, CO 81212
012-110-80-111

Dan & Rita Everett
150 Tunnel Drive
Canon City, CO 81212
3821-3140-00-011

Colorado Dept. of Wildlife
Mr. Duane Finch
3160 East Ridge Lane
Canon City, CO 81212
3821-3100-00-001

James Santilli & Peter Lee
Susan E. Santilli & Linda Dolven
626 Main Street
Canon City, CO 81212
3821-3230-00-002

Mr. Charles Fair
USBLM
3170 East Main Street
Canon City, CO 81212
3821-0000-00-001

EXHIBIT D -- MINING PLAN

(a) Description of methods of mining.

Mining will progress as it has on the site for over twenty years, a typical surface mine highwall technique of drilling, blasting, and front-end loaders that muck and carry material to on site mobile crushing units. Drilling benches range from 30-40 feet in height and blasthole configurations are 14'x 14' burden and spacing, 4" holes for powder factors between .25 and .35 pounds per ton of rock shot. All blasting operations are performed within the guidelines of the Technical Revision #3, Blasting Monitoring Program that was approved by DMG in 1996. Please refer to the mine file for the details of this blasting control program. Shot rock is bulldozed off the highwall contact to a muckpile directly below the working face, then picked up with a front end loader and carried to the nearby crushing and screening systems. The crushing and screening systems includes a rip-rap separation grizzly, primary jaw crusher, triple deck screen, and secondary cone with supporting conveyors for material stockpiles. All mining and process operations are performed in accordance with a site fugitive dust program approved by the Colorado Department of Health Air Quality Control Division for site and process equipment dust control. Stockpiles of crushed aggregate are kept wet to minimize fugitive dust during loading and haulage operations. Highway trucks will be used to transport product from the site.

Mining will continue north, into the proposed permitted area, away from existing residential areas. The granite gneiss foliation lies in a plane much more stable in the north, south direction. This amendment will allow the highwall to stay in this north, south direction, which has proven to be much more stable in recent mining.

(b) earthmoving--No soils exist on the surface for removal prior to mining, and no waste is encountered during mining operations.

(c) water diversions and impoundments--Stormwater Management Plan--please refer to the Stormwater Management Plan Map and the attached narrative describing the construction of settling ponds.

(d) size of the mining area--the highwall mining operation keeps the total acreage exposed to a minimum.

STORMWATER MANAGEMENT PLAN ADDITIONS TO EXISTING PERMIT

Please refer to the 1997 permit amendment as approved to review basic stormwater management criteria for the site. Basically, all overland surface water induced by meteoric water flow is directed into sediment ponds designed to contain and dissipate the volume of a minimum 25 year event. Experience (200 year event, April, 1999, 9 inches rain over four days), has shown that existing sediment ponds built on site since 1997 have proven to be of sufficient capacity to contain and dissipate even an unusually large storm event.

Watershed data for the amended acreage is as follows: Total Watershed Acreage: 175

Highest Elevation in added watershed area (Fremont Peak).....	7233'
Lowest elevation in added watershed area (Sediment Pond).....	5600'
Longitudinal distance between highest and lowest point.....	6200'
Average slope of watershed.....	26%
Time of Concentration.....	.3 hr.
Cn Number used for stormwater calculations.....	89

	10 year SCS II 24hr	100 year SCS II 24 hr
Peak Discharge Rate	80 cfs	224 cfs
Discharge Volume Projection	13 acre feet	35.6 acre feet

Referring to the Stormwater Management Plan Map, it is apparent that part of the watershed described above is already within the containment of sediment control structures built in 1997 (app. 20%). The remaining area will be routed to one large or two smaller sediment ponds constructed east of the main roadway in the central area of the amended affected land. All watershed acreage impacted by mining or crossing mining lands will be routed to this new sediment pond construction. Details of sediment ponds construction including spillways, valved standpipe for emergency release, anti-seep collars, use of geotextile membranes under appropriately sized rip-rap systems, and rip-rap sizing will follow 1997 construction details, which have proven to function successfully. An appropriately rip-rapped spillway will be installed in the final sediment pond to effectively handle a 250 cfs discharge. This includes a minimum 10 wide spillway constructed with geotextile membrane overlain with graded rip-rap systems to

top size 18 inches. Final sediment pond(s) will hold a minimum of 10 acre feet prior to spillway operation with a minimum 1 foot freeboard.

Average Annual Sediment loss from the disturbed area.

The highwall and final pit floors will generate relatively small amounts of sediment loss due to lack of soils in the upper elevations and the large sediment basin design of the final pit floor configuration. The sediment pond structures lying east of the final pit configuration may receive as much as 300 tons of sediment per year, which will be removed from the sediment ponds by the mine operator as necessary.

Impact on Property Owners to the East of Proposed Acreage Addition

The mine operator anticipates that no impact on neighboring property owners to the east of the proposed amended acreage area. The USBLM and Colorado DOW have lands lying directly east of this area. Both parties will be notified of this amendment and will the opportunity to respond if there are concerns.

Tezak Heavy Equipment Company anticipates that construction of all sediment control features will occur within 120 days of permit approval or prior to any mining activity in any area within the watershed zone or proposed mining area.

The installation of sediment ponds to control stormwater run-off from the amended acreage area will be permanent structures built to provide long term sediment and erosion control of mining lands from stormwater runoff. T.H.E. proposes to leave the sediment ponds in place after final reclamation of the pit floor area located west of the sediment ponds. Construction cost estimates for sediment pond installation are in the range of \$15,000.00. T.H.E. considers the bonded amounts for surplus equipment that are presently in place (\$3000) to be sufficient without further increase.

Tezak Heavy Equipment Company will desist from any disturbance of the amended acreage until it has received DMG approval of an acceptable plan for minimizing impacts to the hydrologic balance in the quarry and surrounding area during storm event. The operator believes that current stormwater control systems and their successful operation during recent large storm events is the best proof of effective environmental control currently in place at the site.

TIMETABLE FOR AMENDED ACREAGE

Highwall Area West 30 acres	5-15 years	2000-2015
Final Pit Area Central 40 acres	15-35 years	2015-2035
Sediment Pond/Borrow Area 71 acres	1-35 years	2001-2035

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EXHIBIT E ---- RECLAMATION PLAN

Please refer to the 1997 document addressing the three areas as follows:

- OK 1) Final Highwall Configuration and final grading
- OK 2) Final Pit Floor topsoiling and revegetation.
- OK 3) Sediment Pond and Borrow area revegetation work.

Final highwall configuration and final grading planned is as described in the 1997 permit amendment application. Please refer to the typical cross section of the final highwall configuration. It is assumed that the rock type incurred in the proposed amendment acreage is like that of existing mining areas. Highwall stability criteria and long term risk factor calculations generated during the 1997 studies are assumed to be valid for any proposed amendment acreage. OK

Final Pit Floor topsoiling and revegetation are planned as described in the 1997 application document. The main difference between this amendment and the 1997 plan is that this amended land includes sufficient "borrow land" acreage to supply topsoil/planting medium to cover all possible reclamation acreage of the Final Pit Floor (40 acres) and likely all topsoiling needs for the entire site. The 71 acres lying east of the main access road has more than enough planting media to cover all final pit floor areas with a minimum of six inches of soil prior to final grading and seeding of the final floor areas with enough subsoil/planting medium remaining for revegetation of the borrow acreage. Please refer to page 14 of the 1997 permit amendment for the list of species in the final seed mix and proposed fertilizer applications. OK

EXHIBIT F --- RECLAMATION PLAN MAP

Please find attached the Reclamation Plan Map for current permitted area and proposed permit area

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EXHIBIT G-- WATER INFORMATION

Division of Minerals & Geology

(1) This operation is not expected to directly affect groundwater systems in the area of the mining site. Along with the Stormwater Management Plan already incorporated into the existing permitted area, additional sediment ponds will be constructed as mining enters the proposed permitted area. Please refer to the Stormwater Management Plan of this application.

(2) Reference Stormwater Management Plan Map 1:1200 scale and Mining Plan Map 1:1000 scale maps for the following information:

(a) There are no known aquifers in the site or neighboring the site which will be affected.

(b) The operator does not anticipate process water nor stormwater outfall from the affected land boundaries. Stormwater flows will be handled according to the SWMP presented in this application.

(3) The mine operator purchases water from Canon City for purposes of dust control at the site. Approximately 60,000 gallons per day is used for watering haul roads, stockpiles and wetting transfer points within the crushing and screening circuits. The reclamation plan calls for seeding of all plant species in a dry land mode with no watering of reclamation areas.

(4) The mine operator is under the assumption that it is not necessary to apply for a National Pollutant Discharge Elimination System (NPDES) permit from the Water Quality Control Division at the Colorado Department of Health.

EXHIBIT H -- WILDLIFE INFORMATION

Please refer to the original wildlife statement/evaluation for limited impact on select regular mining applications which was performed by Mr. Dwayne Finch, District Wildlife Manager, and Mr. Bob Davies, Wildlife Biologist, DOW, July 6 & 7, 1982.

Division of Wildlife noted that the following wildlife species may be found in or near the affected lands: mule deer, mountain lion, coyote, fox, cottontail rabbit, jackrabbit, ground squirrel, rock squirrel, crow, magpie, morning dove, pinon jay, sparrow, kestrel, scaled quail, and striped skunk. No endangered/ critical species impact was anticipated. No critical habitat/ vegetative communities are anticipated to be impacted. No significant native impacts on the above listed wildlife communities were anticipated. All the above statements are considered to be still valid and appropriate for this site.

Division of Wildlife personnel noted that the SCS renegotiation species list was adequate for proper wildlife habitat reconstruction. The establishment of shrub and woody species was noted and addressed in the operator's reclamation. A shrub community establishment of 40-50 shrubs/acre is a reasonable goal for the operator to work toward in assessing the reclamation plan's progress. Replanting and mulching is planned until this type of plant density is achieved.

EXHIBIT I -- SOILS INFORMATION

Please refer to the original permit document for soils information. The following information pertains specifically to the amended acreage area:

Soil Conservation Service site analysis in 1977 and 1985 with site reclamation plan comments are valid and appropriate, and the final reclamation plan as presented has been developed from this input. Original soils information references "type" areas, which do not necessarily occur on this site, as no soil is available for stockpiling and later use. The reclamation of the final pit will entail a soils investigation program prior to the execution of the topsoil haul to the site at the end of life of mine.

The 131 acre addition of affected land includes app. 30 acres of mineable granite rock, a projected 40 acres of final pit area, and 71 acres of alluvium outwash and moderately developed soils along the eastern one half of the proposed amendment acreage. The outwash alluvium materials will be utilized for the siting of sediment pond(s) to contain and dissipate storm related surface flows which may intersect the mining area. The alluvium and developed soils areas will also afford the mine operator suitable planting media to be used for final reclamation of the pit areas. These areas will be assessed for depth and volume of soils available for use prior to final reclamation of the pit area shown on the Reclamation Plan Map Exhibit F.

The Soil Survey map of Fremont County, Colorado, lists the soils mapped in this area as Ustic Torriorthents-Sedillo complex, a soils complex which forms on fan terrace edges and hills. The steep terrace edges are formed by deep dissection of the fan terraces by streams. The Sedillo soil is deep and well drained. It formed in gravelly and cobbly alluvium derived dominantly from granite. The surface layer is typically dark brown extremely cobbly loam about 4 inches thick. The soil thickness is variable, from six inches to more than 60 inches of loamy to bouldery loam. Permeability is moderate in the Sedillo soil. Available water capacity is low. Effective rooting depth is 60 inches or more. Typically, the soil is neutral to a depth of about 10 inches. It is moderately alkaline to a depth of 42 inches and mildly alkaline below that depth. Runoff is rapid or very rapid, and hazard of water erosion is high, albeit moderated by a thick layer of cobbles and boulders which typically covers 25-50% of the surface.

The Sedillo unit is commonly used for livestock grazing and non-commercial woodland.

EXHIBIT J -- VEGETATION INFORMATION

(1) Vegetative narrative-- the site is primarily a granite gneiss rock outcrop area relief and sparse vegetation, dominated by juniper/ pinon trees at densities of 30 trees/ acre, low growing shrubs such as brickle brush, three leaf sumac, and squaw current. Several cacti species such as cholla, prickly pear, and drum type cacti dominate the near surface vegetation. In the limited lower slope areas where a soil horizon of sorts has developed, native grasses such as needle and three^{AD}, blue grama, side oats grama, red three-awn, and Indian rice-grass can be found. Other shrubs found on the site include winterfat, four-wing saltbrush, mountain mahogany (upper areas of affected land), and tall rabbitbrush. Overall plant densities are generally less than 15% ground cover, with the exception of the area directly North of the existing permitted mining area. Here, the vegetation is more predominantly tree cover due to the "soil" being coarse alluvium material derived from the steep slope granite outcrops to the west. Ground cover may approach 25% in this area, with a relatively heavier occurrence of the pinon and one seed juniper and grass/cacti/shrub understory. Yellow Sweetclover occurs as an aggressive invader on disturbed areas, along with rabbitbrush and other forb/weed species.

The estimates for rangeland carrying capacity are very low, in the range of one cow/calf unit per forty acres of revegetated land. This is due to low moisture conditions and lack of surface water at this site. The retention ponds may actually induce an improvement in soil moisture conditions locally in the SWMP area and supporting grasses more suitable for open graze usage.

(2) Please refer to the Reclamation and mining maps for the relations of types of vegetation to topography. (a) The highwall areas on the western border of the mining zone will have no vegetation. (b) The area directly north of the existing permitted mining area will have a native mix of trees, shrubs, and grasses of at least 25% ground cover reflecting species presently found at the site, and the main pit area not included in the highwall area, will be topsoiled and revegetated to a mixture of trees, shrubs and grasses per the reclamation plan, with a final ground cover goal of 25%.

EXHIBIT K -- CLIMATE

The climate information is included in the original permit document. Canon City, Colorado climate data reflects a mountain foothills climate in a relatively arid region. The site is located at the eastern entrance to the Royal Gorge of the Arkansas River, a site of moderate winter temperatures averaging in the 20's F. lows, and moderate to high (into the 90's) in the summer months, with a mean average temperature of 55 degrees F. Total annual precipitation is about 12", with a bi-modal precipitation cycle of late winter/early spring moisture (March/April) and late summer thunderstorm season (July/August). It is unusual to see more than 2" of precipitation in any one month and relatively common to receive less than .50" over a span two or three months. The Canon City area experiences about 164 frost-free days each year.

Agriculture is irrigation based for crop purposes and native vegetative establishment is sparse and slow growing, geared to the low moisture conditions that are prevalent in the region.

EXHIBIT L – Reclamation Costs

Reclamation cost estimates per acre will be similar to those projected in the 1997 permit amendment. Cost projections for final grading for surface water management of storm flows along the highwall benches, final highwall configuration, and topsoiling and seeding of pit areas at the base of highwall benches will follow those projections agreed upon by Tezak Heavy Equipment Company and DMG for the 1997 permit amendment. Please refer to the 1997 amendment document for all per acre cost projections.

For purposes of projection of acreage vs final land configuration, it is assumed that approximately 30 acres will remain rock outcrop/highwall face, approximately 40 acres will be revegetated pit floor and permanent sediment basin area, and 71 acres will remain undisturbed or will be “mined” for planting media prior to final revegetation.

Reclamation cost projections for amended acreage areas

Area	Activity and Acreage	Cost per acre	Total Cost
Highwall Benches	Highwall bench final config. ditch construction, grading		
	Excavator, \$80/hr, 12.5 hrs/ac.	\$1000	\$30,000.00
	Bulldozer, \$90/hr, 5.5 hrs/ac.	\$500	\$15,000.00
	App. 30 acres		
Pit Floor	Excavate planting medium, Dozer, Loader, Truck(s), Transport to pit area, spread And grade app. 40 acres	2178 tons x \$.60= \$1307.00	40 x 1307= \$52280.00
	Dozer, 1.2 hr/acre	\$108.00	\$4320.00
	Plant seed mixture	\$250.00	\$10,000.00
	Fertilizer Applied	\$85.00	\$3400.00
	Mulch, 2000#/acre	\$100.00	\$4000.00
Borrow Area, Sed Ponds	Final grading after Exp Grader or dozer, 1acre/ hr	\$90.00	\$4500.00
	App. 50 acres borrow area		
	App. 5 acres, sediment ponds		
	Sediment Pond installation		\$15,000.00
	Includes dozer, excavator costs		
	Rip-rap and spill construction		
	Seed mix cost including install	\$250.00	\$250 x 50= \$12500.00
	Fertilizer and mulch applied	\$185.00	\$9250.00

Total Reclamation Cost Projection, Amended Acreage Only	\$160,250.00
23.5% contractor margin and Admin cost.....	\$37,659.00
Total Reclamation Cost Projection Addition.....	\$197,909.00
Cost per acre, (131).....	\$1511.00

EXHIBIT M -- OTHER PERMITS AND LICENCES

Colorado Department of Health and Environment, Air Pollution Control Division

Site Air Pollution Emission Notice	95-FR-695F
Jaw Crusher APEN	95-FR-775P
Screen Deck	95-FR-776P
Cone crusher	95-FR-777P

Colorado Department of Health and Environment, Water Quality Control Division

Colorado Discharge Permit System — Stormwater	COG-500912
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Fremont County Conditional Use Permit Amendment will be presented to Fremont County Commission with this completed application package. The current CUP includes the 83.08 acres in the 6-97 amendment	#CUP-97-4
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The mine operator holds a valid license to store
And use explosives by the State Office of Labor
and Employment, RE: Ed Tezak, Jr.

EXHIBIT N-- SOURCE OF LEGAL RIGHT TO ENTER

Please find attached copy of the deed of surface and mineral rights from Snider's Aggregate Inc., to Tezak Heavy Equipment Co., Inc.
This document is in the 1997 amendment application document.

EXHIBIT O -- OWNER (S) OF RECORD OF AFFECTED LAND (SURFACE) AND OWNERS OF SUBSTANCE TO BE MINED

Please refer to attached deed of surface and mineral rights included under Exhibit N. This document is in the 1997 amendment application package.

EXHIBIT P -- MUNICIPALITIES WITHIN TWO-MILE RADIUS

Part of the current affected land boundaries lies within the city limits of Canon City, Colorado. None of the amended acreage lies within the city limit boundaries, but within a two-mile radius.

A complete copy of the permit amendment has been sent to the City of Canon City for review and comment.

City of Canon City
City Hall
612 Royal Gorge Blvd.
PO Box 1460
Canon City, CO 81215-1460

EXHIBIT Q -- PROOF OF MAILING OF NOTICES TO COUNTY COMMISSIONERS
AND SOIL CONSERVATION DISTRICT

Please find signed copies of receipt of this application from the Fremont County
Commissioners Office and the local Soil Conservation District Office.

NOTICE OF FILING APPLICATION
FOR COLORADO MINED LAND RECLAMATION PERMIT
FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF COUNTY COMMISSIONERS
FREMONT COUNTY

TEZAK HEAVY EQUIPMENT CO. (the "Applicant/Operator") has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in FREMONT County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Minerals and Geology (the "Division") and the local county clerk or recorder.

The applicant/operator proposes to reclaim the affected land to PARKLAND use. Pursuant to Section 34-32.5-116(4)(m), C.R.S., the Board may confer with the local Board of County Commissioners before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32.5-112(10), C.R.S.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Minerals and Geology, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application you must either attach a copy of the changes, or attach a complete and accurate description of the change.

RECEIVED

JAN 20 2000

FRANCE OFFICE

Denise Miller

NOTICE OF FILING APPLICATION
FOR COLORADO MINED LAND RECLAMATION PERMIT
FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF SUPERVISORS
OF THE LOCAL SOIL CONSERVATION DISTRICT
CANON CITY DISTRICT

TEZAK HEAVY EQUIPMENT CO. INC. (the "Applicant/Operator") has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in FREMONT County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Minerals and Geology (the "Division") and the local county clerk or recorder.

The applicant/operator proposes to reclaim the affected land to CANON CITY use. Pursuant to Section 34-32.5-116(4)(m), C.R.S., the Board may confer with the local Soil Conservation Districts before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32.5-112(10), C.R.S.

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NOTE TO APPLICANT/OPERATOR: You must attach a copy of the application form to this notice. If this is a notice of a change to a previously filed application you must either attach a copy of the changes, or attach a complete and accurate description of the change.

Fremont Soil Conservation District
Phone (719) 275-4465
248 Dozier Ave
Canon City, Colorado 81212



1/20/00 P.V.

EXHIBIT R -- PROOF OF FILING WITH COUNTY CLERK AND RECORDER

Please find attached a copy receipt of filling with Fremont County Clerk and Recorder.



Norma Hatfield
County Clerk & Recorder

Clerk and Recorder

FREMONT COUNTY

P. O. Box 349 Cañon City, Colorado 81212 Phone 303 275-1522

RE: MINING RECLAMATION PERMIT APPLICATION
Colo Stat. 34-32-112.10.8

DATE RECEIVED: 1/20/2000 *AD - Dep.*

NAME OF APPLICANT: *Rock Heavy Equipment Co. Inc.*

DATE OF HEARING: ?

90 to 120 days possibly

PLEASE CHECK WHICH BOX APPLIES TO YOUR PERMIT

I WISH TO BE CONTACTED FIVE DAYS AFTER THE HEARING TO
PICK UP THE APPLICATION.

THE NUMBER AND PERSON TO CONTACT IS:

942-4178 for pickup - *X*

I DO NOT WISH TO PICK UP THE APPLICATION FIVE DAYS AFTER
THE HEARING AND HEREBY GIVE MY PERMISSION TO THE CLERK'S
OFFICE TO DESTROY.

SIGNED: _____

EXHIBIT S -- PERMANENT MAN-MADE STRUCTURES

The one man-made structure within 200 feet of affected lands, the City of Canon City's water treatment plant settling pond facility which is located due east of the mining area, already has a notarized signed agreement that Tezak Heavy Equipment Co. Inc., will provide compensation for any damages to the water treatment facility done by mining operations. The proposed area has no structures within 200 feet of the affected lands boundary.

Copies of signed statements referencing above commitments by T.H.E. are included in the 1997 amendment application document.

Geotechnical Stability Exhibit

Please refer to Risk Analysis work performed for 1997 permit amendment addressing final highwall configuration. The additional highwall areas will portray similar rock qualities to those reflected in the 1997 study. No change in risk factor as compared to existing highwall conditions and final configuration is anticipated.



STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106



April 28, 2000

Bill Owens
Governor

Greg E. Walcher
Executive Director

Michael B. Long
Division Director

Mr. Daniel Tezak, Jr.
Tezak Heavy Equipment Co., Inc.
201 Tunnel Dr.
Canon City, CO 81212-3660

RE: T.H.E. Aggregate Source, Amendment Approval, Permit No. M-1977-193, Revision No. AM-4

Dear Mr. Tezak:

On April 26, 2000 the Division of Minerals and Geology approved the Amendment application submitted to the Division on January 27, 2000, addressing the following:

Increasing the size of the permit to 231 acres.

The terms of the Amendment No. 4 approved by the Division are hereby incorporated into Permit No. M-1977-193. All other conditions and requirements of Permit No. M-1977-193 remain in full force and effect.

The estimated liability amount of \$240,122.00 for the T.H.E. Aggregate Source, when added to the existing liability amount of \$292,263.00, exceeds the performance bond held. If you have not already done so, please submit additional bond in the amount of \$240,122.00. The revision will not be final until the bond is approved by the Division.

If you have any questions, please contact me.

Sincerely,

James Dillie
Environmental Protection Specialist

cc: Suzi Ericksen, DMG

Azurite, Inc.
10001 CR 12 P.O. Box 338
Cotopaxi, Colorado 81223
719-942-4178

September 6, 2012

Randy DiLuzio, General Manager
Tezak Heavy Equipment Co., Inc.
205 Tunnel Drive
Canon City, CO 81212

RE: MINE PLAN REVISIONS FOR USBLM LEASED LANDS, PERMIT #M77-193

Mining will commence in 2012 from the southeastern corner of the USBLM lease area with surface leveling and bench development work from the top of existing highwall at boundary line 660' west and 660' north of the southeast corner of the lease area. Leveling for mine benches will proceed from the highwall contact working west towards the west boundary of the lease area. The ten acre area of leveling and bench development will likely take place in two or more stages over the next 1-3 years. The southeastern corner of the lease area will be accessed from a roadway developed from Tezak mine property along the central portion of the active mining zone north of largest highwall face currently exposed along the western boundary of THE property with USBLM lands(lease land in question.) Bulldozers and excavators will be used to build access roads and level terrain for production drilling. Conventional hardrock surface mining techniques will be employed using percussion drilling equipment to drill 6" holes for bench development of 40' high and 30' wide for final highwall benches. During the active phase of highwall mining, bench heights of 40' and bench width of 20' will be used. The larger bench widths for final highwall configuration have been suggested to improve machine access if ever necessary to clean excessive rock fall and maintain storm desired drainage patterns along the toe of the mine benches.

Tezak Heavy Equipment typically schedules a few large production blasts rather than many small production rounds. Tonnage of typical production blasts are about 150,000 tons of granitic material, per shot, meaning that production blasting occurs three to eight times per year. The current blasting schedule and specific state of the art non-electric sequentially delayed blasting initiation system will be continued. Blasting patterns of 15'x15' burden and spacing are typically used and loading factors normally run from .25-.35#explosive per ton rock blasted. There have been no complaints or concerns regarding blasting controls at this site over the past number of years. It is a priority for THE Aggregate Source to maintain and continue the good operating history regarding blasting noise and vibration control during blasting operations. Each round is planned, loaded, and shot by a licensed blaster. All production rounds are recorded for noise and ground vibration levels and documented for blast lay out and loading pattern. Once a sufficient area on top has been leveled/benched, drilling operations will commence from the existing highwall face west to a location suitable for shot size and

face development. After blasting, rock will be pushed over the highwall face with a bulldozer or carried and dumped over the face utilizing a front-end loader. Rock is then picked up at the large muckpile developed along the base of the highwall and fed via front end loader into the crushing and screening system located at the pit floor elevation 5660'. Material will be conveyed to various sized aggregate material stockpiles located at the pit floor/truck loadout area.

Mine Bench Details

As mentioned earlier, final mine bench dimensions will be 40' high and 30' wide, with a 1% grade along lateral bench reaches to nearest side drainage and 1% grade from outer edge of bench to base of next highest bench run. The 40' high rock bench face will be left at 0.25:1, H:V. No rock berms are planned for placement on the bench, although lateral drainage will be maintained along the near horizontal (1%) bench tops to direct surface flow from storm events to the outer portions of the bench system in proximity to main storm flow drainage channels. Maintenance activities along the bench may involve removal of any material that may accumulate over time along the back of the bench top or small slabs of rock that may become dislodged from the rock face. This work will likely be accomplished using a small track hoe or crane with ample reach to remove loose material while maintaining a safe distance from the bench edge.

The first ten acres (660'x660') of highwall mining in the lease area will result in an east facing highwall along the west boundary of the lease area and a south facing active highwall that will continue to move northwards in time as mining continues north along the 3000' length of the lease area. At final build out, there will be at least two locations where highwall intersect at 90 degrees. These areas may be left armored with rock talus to promote controlled storm related water flow with the least potential for highwall destabilization due to short term but potentially high volume surface water flow. Rock placement may be utilized in other locations where storm related surface flow potentials or unstable bedrock zones may be encountered.

Process and Loadout Operations

Rock crushing, screening, sizing, and stockpiling circuits will not change to any significant degree over time from its present configuration, although the plant may be moved to closer proximity to the toe of the highwall system as well as re-located at a lower final elevation, projected to be app. 5550' to lowest pit elevation. This plant will continue to be fed for the most part by Front End Loader muck and carry from the muckpile created along the toe of the highwall by blasting and push off, or, alternatively, trucks may be loaded at the muckpile for direct dumping into the crusher feeder. Mining operations including drilling, blasting, crushing, and truck loading is normally scheduled for 5AM to 9PM five days per week. A continuance of this schedule for Saturday operation may be possible should business conditions warrant.

Stormwater Controls

As part of the 1997 amendment conditions, the site was re-configured to direct storm related surface run-off areas above and west of the mine site from its former south flow path towards Tunnel Drive and Arkansas River. The re-configured flow path conveys the surface flows across the pit floor area along the base of the highwall north and east towards a series of storm detention ponds constructed along the eastern portions of the permit boundary. These storm control structures have been in place since late 1997 and have successfully operated to keep surface run-off directed away from residential areas along Tunnel Drive as well as the Canon City Hydraulic Ditch paralleling the UP railroad tracks running along the north bank of the Arkansas River. The detention ponds will be maintained as is to handle storm flows that may enter the pit floor area as well as surface water delivered from undisturbed terrain west and above the mining site. Drainage patterns along the base of highwall system and product stockpile area must be maintained to allow storm derived surface flows to cross the pit floor unimpeded towards the storm flow channel excavated at the northeast corner of the mine site which feeds the detention ponds. These structures will be maintained and kept operational through the life of mine. This amended acreage and increased life of mine will not necessitate change to the stormwater control system as it currently operates at this site.

Timetable for Mining and Reclamation Activities

2012—Approval of Amended acreage and initiation of development work at upper elevation of newly permitted area, southern 10 acres of newly leased land.

2012-2017---Highwall mining focused on 10 acre (m/l) area at SE corner of the lease area, 660'x660' on side. Mining will progress east to west to western border of lease area.

2017-2037---Highwall mining to progress south to north to northern end of the lease area.

2037-2067---Mining of pit floor to 5550' elevation. Mining of highwall areas to north and pit floor may be concurrent depending on business needs and costs. Process fines will be used for planting medium in concert with other soil amendments/additions for re-vegetation of the pit floor areas.

*Note that “life of mine” end of mining date may be subject to a considerable variance regarding final mining date depending upon a number of factors that cannot be accurately estimated at this time, such as production demands, rock quality, new market development potentials, etc.

Equipment Used on Tunnel Drive Mine Site (general type and number)

Front End Loaders	10 yard to 3 yard	4
Bulldozers	500-700 HP	3
Excavators	1-4 yard	2
Percussion Drill	500 HP	1
Water Truck	4000 gal	1
Jaw Crusher w/ feeder		1
Cone Crusher		1
Screen Decks		2
Conveyor Systems		10
Pick-up trucks		6
Service Trucks		2

Explosives Used on site:

Primarily ANFO initiated by AN activated cast boosters or gels and non-electric delay systems. Estimated annual explosive consumption will range from 50 to 150 tons depending on business demand.

Appendix B

State of Colorado Permit #COR340912 and
Associated Stormwater Management Plan

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
TELEPHONE: (303) 692-3500



**CERTIFICATION TO DISCHARGE
UNDER
CDPS GENERAL PERMIT COR34-0000
STORMWATER DISCHARGES ASSOCIATED
WITH SAND & GRAVEL MINING & PROCESSING**

Certification Number **COR34-0912**

This Certification to Discharge specifically authorizes:

Tezak Heavy Equipment Co , Inc

LEGAL CONTACT:

***Daniel E Tezak, Pres.
Tezak Heavy Equipment Co , Inc
205 Tunnel Dr
Canon City, CO 81212
Phone # 719/269-1173
dtezak@tezakheavyequipment.com***

LOCAL CONTACT:

***Daniel E. Tezak, President,
Phone # 719/269-1173
dtezak@tezakheavyequipment.com***

Industrial Activity : **Rock quarry, washing of aggregate,
road bases, and riprap.**

Primary SIC Code: **1420**

to discharge stormwater from the facility identified as

The Aggregate Source, Inc.

which is located at:

**201 Tunnel Drive
Canon City, CO 81212-**

Latitude **38/27/**, Longitude **105/15/**
In **Fremont County**

to: unnamed drainage -- Arkansas

Certification is effective: **10/01/2007**

Certification Expires: **09/30/2012**

First Annual Report Due: 02/15/2008

Annual Fee: \$75.00 (**DO NOT PAY NOW** – A prorated bill will be sent shortly.)



999

RECEIVED
APR 01 1996

March 27, 1996

RE: AMENDMENT TO MINING PERMIT NO. M-77-193, SWMP REQUIREMENTS
Division of Minerals & Geology

In November, 1995, the Colorado Mined Land Reclamation Board approved an application for permit acreage increase by Tezak Heavy Equipment Co, Inc., Penrose, Colorado, for the Aggregate Source Tunnel Drive Quarry with two conditions. 1) An acceptable Blasting Monitoring Program be initiated, and 2) Stormwaters flowing through the mining area including those stormwaters from above the mining zone that outfall along Tunnel Drive area be conveyed to the Arkansas River in accordance with landowners and right-of-way owners approval.

A Blasting Monitoring Program has been initiated at the site after review and approval by Division of Minerals and Geology. After discussion and negotiation with the Canon City Hydraulic Ditch Company directors and engineering personnel from Southern Pacific, the only option left available for Tezak Heavy Equipment Co, Inc., was to bore a storm outfall culvert of large proportion (app. 50 sq ft opening) under both the hydraulic ditch and the main line of the Southern Pacific Railroad and direct storm outflows directly into the Arkansas River. This storm outfall option was deemed undesirable for a number of reasons including:

- 1) Negative environmental impact of directing storm water outfalls into the Arkansas River such as increased sediment loading and increased potential for other pollutants to enter the River system during a major storm event.
- 2) High cost (atleast \$150K) and long time frame necessary to acquire right-of-way agreements for all parties involved.
- 3) The end result will not protect property and right-of-way owners from storm related impact potentials that exist just upstream from the mine's historical stormwater outfall path.

Tezak Heavy Equipment Co, Inc., proposes to divert stormflows from the mining area and from the large watershed directly west of the mining area to the north of the existing affected land onto Tezak Heavy Equipment Co. property. This amendment request includes a 35 acre increase for reserve expansion as in the November request and an additional 30 acres of ground to the north of the currently permitted area for purposes of stormwater diversion and containment. Total acres of affected land will increase to 95 acres. The diversion of stormwater will take place within the confines of the mining area as stormwater enters the mining zone from the west. Approximately 90% of stormwater volumes anticipated will be diverted to the north, away from Tunnel Drive residents, the hydraulic ditch, and the railroad. The remaining ten per cent of storm flows anticipated will be contained in sediment ponds #2, #3, and #4, as shown on the attached map of mine area. Sediment pond #4, located at the bottom of the current main haul road at the former location of weigh scales just north of Tunnel Drive. The sediment pond will be constructed to contain a minimum of one acre foot of storm water and will include a contingency design for handling storm flows in excess of the 100 year event, which may overflow the retention pond. An approved spillway device will be included that will allow for low velocity release of stormwater from sediment pond #4 to the Tunnel Drive area should this situation ever occur. The goal of this Stormwater Management Plan is to result in a zero

discharge of stormwaters to the Tunnel Drive area up to a minimum 100 year event.

Sediment pond #1, located at the western edge of the mining zone, will intercept all storm flows entering the mining zone from the undisturbed watershed west of the mining area. #1 sediment pond will be configured in an elongate shape minimally twice as long as it is wide, 100' long by 50' wide, and will include a bentonite or other water impermeable liner to minimize loss of stormwater to percolation through the sediment ponds walls and/or floor. A spillway will be located at the opposite end of the sediment pond's inlet which will be designed for up to 200 cfs of flow. The spillway device will deliver storm flows into a storm ditch excavated into granite bedrock which will flow in a northerly direction at 1-2% grade and will intercept all storm flows from the mining zone as well as storm flows from the undisturbed watershed above and west entering the mining zone. The storm ditch profile may vary, as shown in the attached drawings, to facilitate mobile mining equipment movement across the site. The storm ditch will convey all stormwaters to the north to the SWMP area noted on the attached maps. Sediment pond(s) #5 area is actually a series of elongate sediment and stormwater containment structures connected by inlets and spillways designed to handle maximum stormwater velocities and volumes as projected by the Sed-Cad and STORM program results utilized in the surface hydrological study. The thirty acre addition to the affected land acreage is specifically for the containment and management of storm flows formally flowing to the Tunnel Drive area and does not contain mineable reserves nor will be mined for construction materials in the future. The sediment pond/retention pond structures in the north SWMP area will be constructed from course alluvium materials currently in place on site and will be built to minimize disturbance to the area. That is, the construction will take place in narrow bands of disturbed alluvium necessary to construct the berms, out slopes, and basins of the elongate sediment ponds oriented in a north-south direction. The juniper-pinon cover will be retained as much as possible over the SWMP area. By increasing the flow path distance and decreasing storm flow velocities, it is intended to promote percolation of storm flows into the course alluvium materials underlying the area and result in no overland flow to neighboring areas to the east of the SWMP area. No negative impacts are anticipated to lands bordering the SWMP area to the east. The land currently bordering the SWMP acreage to the east is Tezak Heavy Equipment Co, Inc. Property. Colorado State land administered by the Pueblo Community College is located east of this area between Tezak Heavy Equipment Co. Property and Sand Gulch, the main N-S drainage paralleling US Highway 50. PCC has been notified in detail as to the SWMP plan and has not responded to date. All disturbed areas within the SWMP acreage will be reclaimed via establishment of native grasses, forbes, and shrubs, as noted in the species list included in the original amendment application package. Tree species such as pinon and juniper and shrubs such mtn mahogeny and four-wing saltbush may be included in the direct seeding of the sediment pond berm out slopes and disturbed ground within the sediment containment basin. Inorganic fertilizer will be applied at the time of seeding at rates equivalent to 100# Nitrogen and 80# Phosphorus. Seeding rates will be in the range of 40 # pls/acre. All seeded areas will be mulched with 4000#/acre clean straw mulch to promote moisture retention and vegetative establishment. Most of the construction will result in permanent stormwater control structures that will remain intact after completion of mining. As soon as the mine operator can establish self-sustaining vegetation on the disturbed areas (3-5 yrs), T.H. E. will apply for bond release on the appropriate acreage under permanent reclamation.

8. The #4 sediment pond located at Tunnel Drive will include an appropriate spillway and apron to direct stormflows away from residential and road impact areas in the event that a --100 year event occurs.

9. Tezak Heavy Equipment Company, Inc., will have the construction of all proposed structures certified by a registered professional engineer.

10. Schematic--Please refer to the 1":200' topographic map titled "Stormwater Drainage and Affected Land Boundaries". This map shows complete routing of storm flows sitewide.

11. The structures proposed in this SWMP are long term permanent structures which will protect downslope properties from storm related erosion and deposition into the long term future. The entire extent of sediment ponds, spillways, and inlets with the SWMP 30 acres will operation at little to no maintenance, although some sediment removal may be necessary on occasion. Construction costs of the SWMP structures including revegetation of disturbed areas is estimated at \$40,000.00. The operator intends to maintain the SWMP diversion of the undisturbed upper watershed for as long as the mine operates and will propose to continue said diversion in the final reclamation plan of the pit. Life of mine of this deposit is minimally 50 years. The estimate for removal of all ancient mining equipment found on part of the SWMP property is \$3000.00. At final reclamation of the pit, a long term diversion ditch will probably be left in a shortest distance straight line direction from #1 Sediment Pond to the north which at present is the stockpile and crushing circuit area. #1 Sediment Pond will be enlarged to insure proper operation with no/low maintenance.

12. Tezak Heavy Equipment Company, Inc. will cease and desist from any disturbance in the amendment area until the operator has received Division approval of an acceptable plan for minimizing impacts to the hydrologic balance in the quarry and surrounding area during management of stormwater runoff. Tezak Heavy Equipment Company, Inc. will provide certification from a registered professional engineer that all designed structures have been constructed and are functioning properly.

RESPONSE TO TECHNICAL INFORMATION AS REQUESTED

1) Stormwater Run-off Calculations--disturbed area watershed including SWMP acreage

	10yr SCSII 24hr	100yr SCSII 24hr
Peak Discharge	27.56 cfs	77.56 cfs
Discharge Volume	4.52 acre ft	12.26 acre ft

Stormwater Run-off Calculation--Undisturbed upland watershed area 145 acres

	10yr SCSII 24hr	100yr SCSII 24hr
Peak Discharge	66.64 cfs	187.46 cfs
Discharge Volume	10.95 acre ft	29.65 acre ft

2. Average annual sediment loss from the disturbed area.

At the completion of sediment pond construction, seven collection basins will be in operation. The annual estimated sediment loss from the disturbed (mining zone) is 250 tons, most of which will be collected in the first #5 sediment pond in the SWMP area. Less than 5% of the annual loss from the disturbed area is estimated to be collected in #2, #3, and #4 sediment ponds. A zero release of sediments from the affected land boundaries is anticipated with this SWMP.

3. Engineering Designs--Please find attached design drawings and construction details of all structures proposed in this SWMP. Plan views showing location and routing of all SWMP structures can be found on the "Stormwater Drainage Map" 1": 200' topographic included with this package.

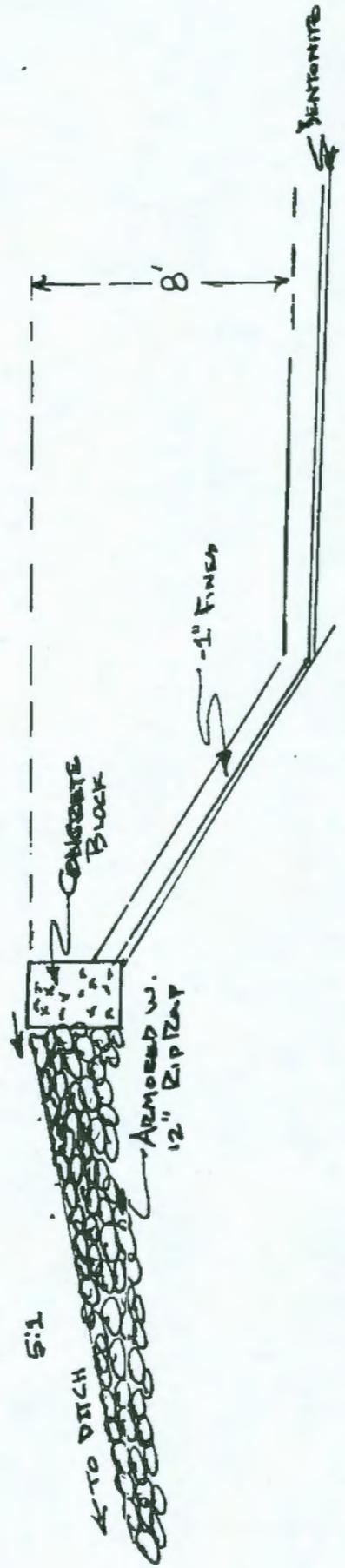
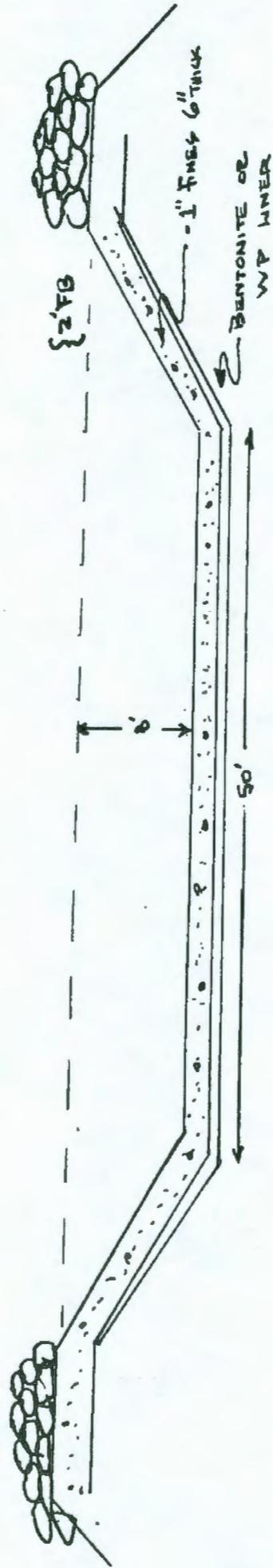
5. Property owners that may be affected by the proposed stormwater management plan. T.H.E. anticipates no affect on neighboring land owners. Pueblo Community College and the City of Canon City have been notified and their response is forthcoming.

6. Tezak Heavy Equipment will design and build all proposed stormwater controls such as channels, ponds, and spillways in such a way as to minimize impacts to the hydrologic balance within the quarry as well as the surrounding area. Within the SWMP acreage, particular efforts will be made to preserve existing vegetation and minimize the disturbance.

7. Tezak Heavy Equipment Company, Inc., will contract and have all structures operating effectively by October 31, 1996.

PROFILE AND SPILLWAY DETAIL - POND #1

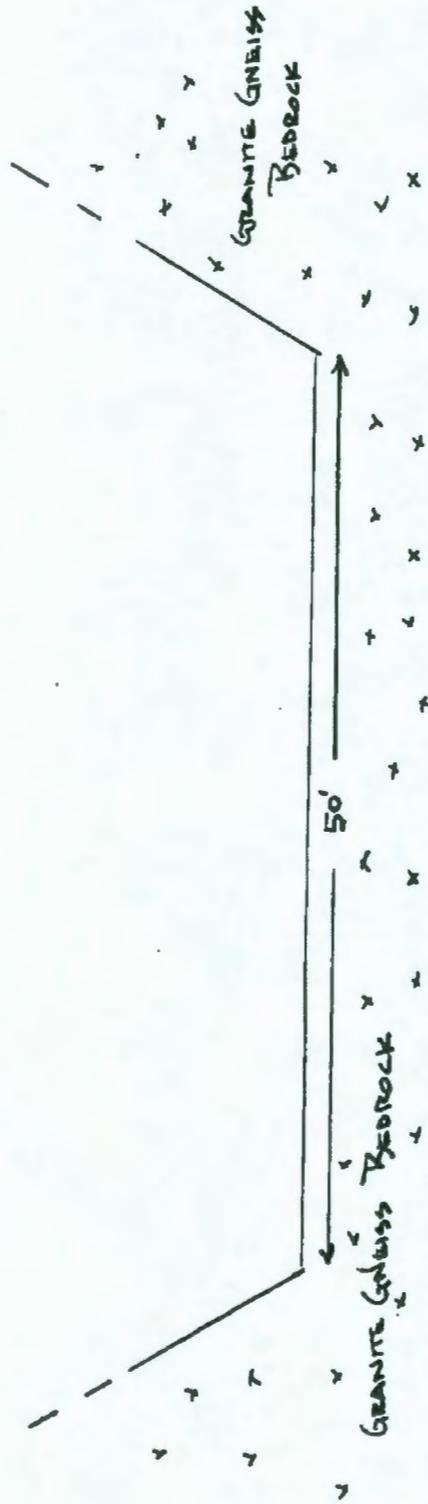
CROSS SECTION



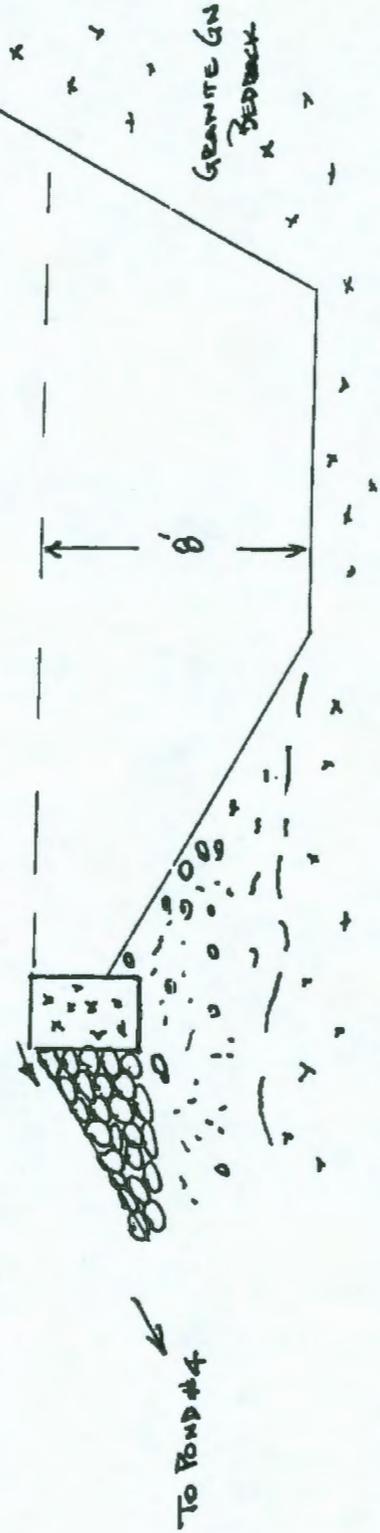
THE ALTERNATE SOURCE PERMIT # M-7-193

PROFILE - SEDIMENT PONDS # 2 AND # 3

CROSS SECTION



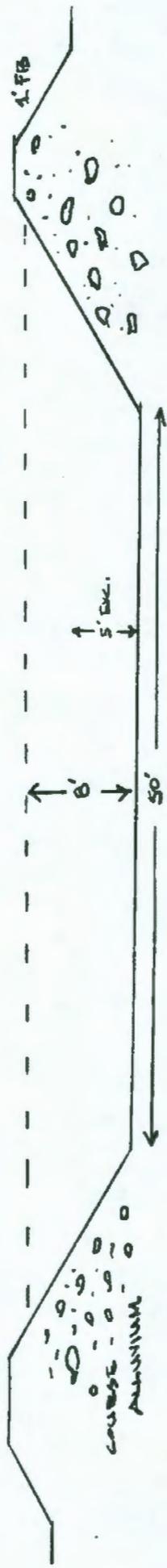
3 SPILLWAY DETAIL



T.H.E. AGGREGATE SOURCE PERMIT # M-77-193

PROFILES - SEDIMENT POND #4

CROSS SECTION



LONGITUDINAL PROFILE



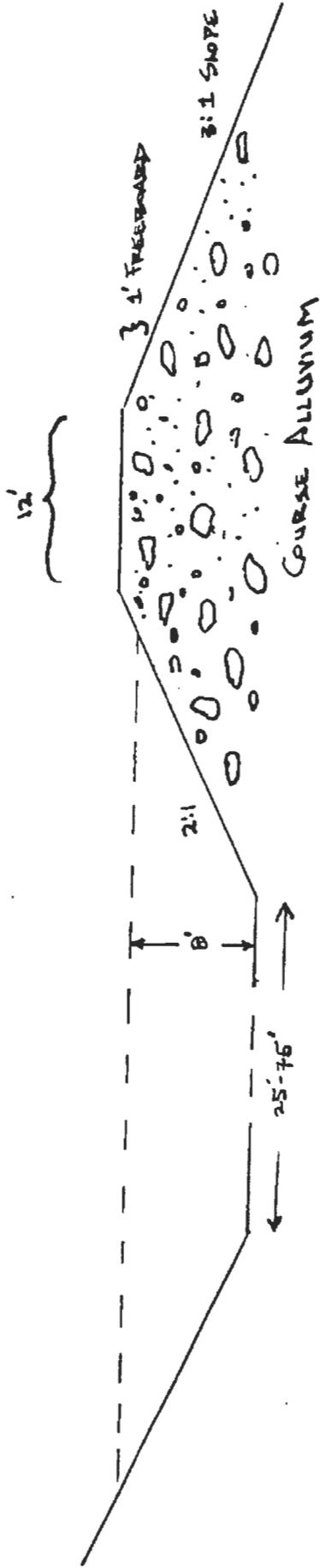
SPILLWAY DETAIL



T.H.E. AGGREGATE SOURCE PERMIT #M-77-193
NO SCALE VME

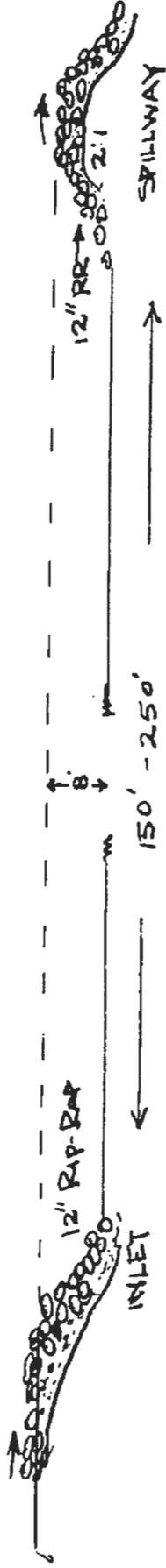
CROSS SECTION SEDIMENT POND(S) #5

LOOKING NORTH



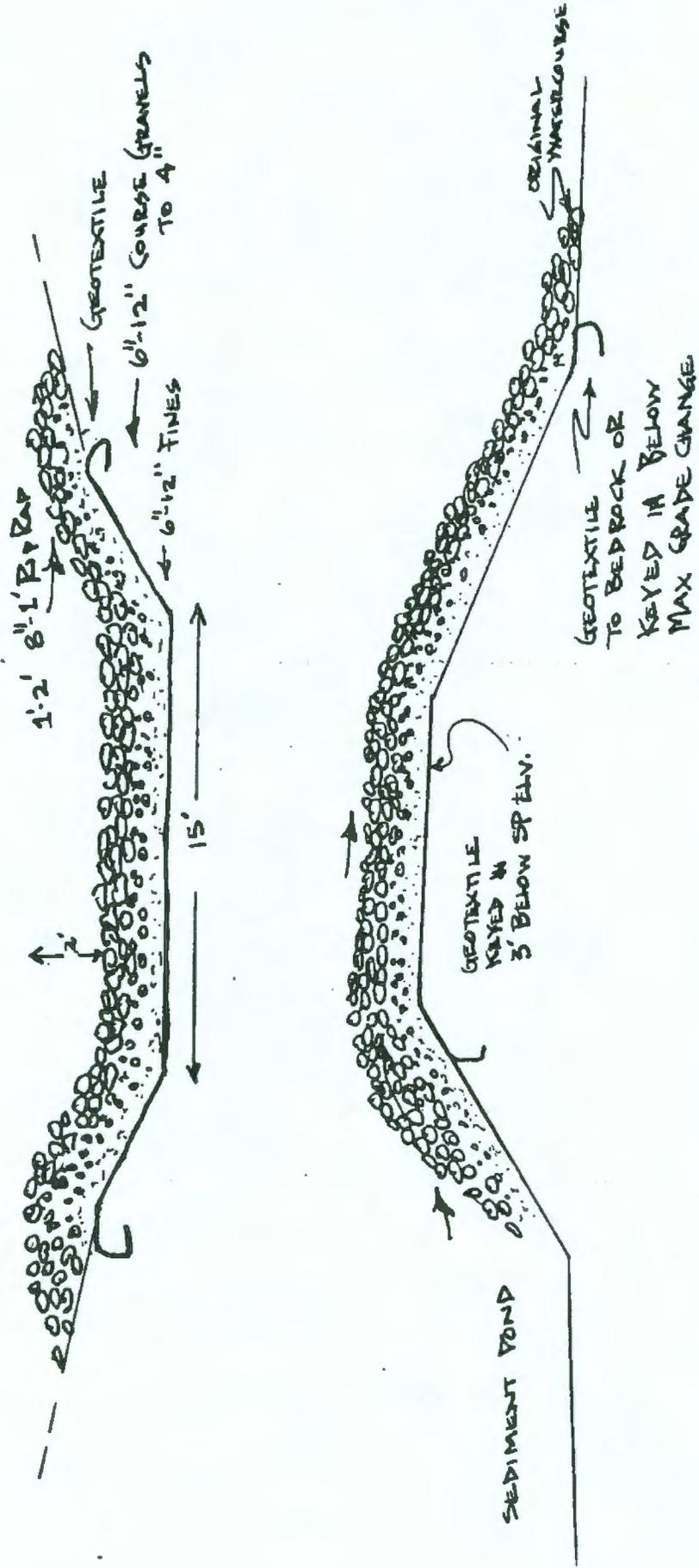
T.H.E. AGGREGATE SOURCE PERMIT #M-77-193
SWMP DETAIL SCALE 1"=1'

LONGITUDINAL PROFILE - POND(S) #5



T.H.E. AGGREGATE SOURCE PERMIT #M-77-193
SNMP DETAIL SCALE 1" = 25'

TYPICAL SPILLWAY DETAILS POND(S) #15

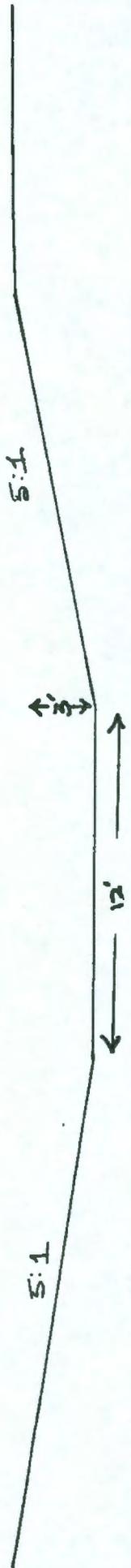


T.H.E. AGGREGATE SOURCE PERMIT #M-77-193

SWAMP DETAIL

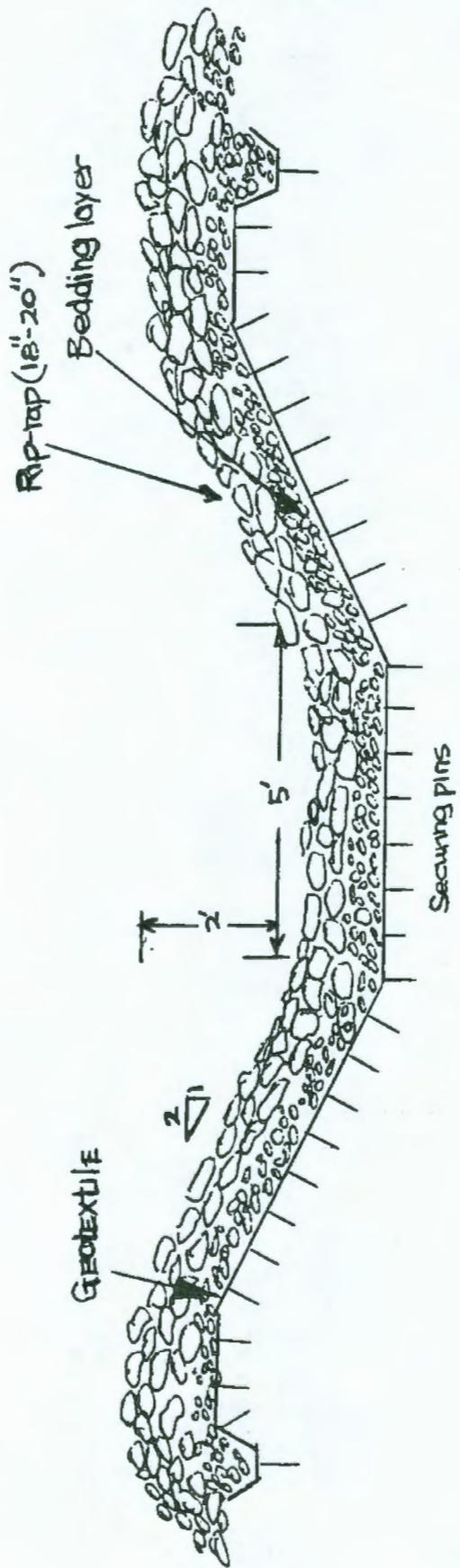
SCALE AS NOTED
X/4X

STORM DIVERSION DITCH PROFILES



TYPICAL CULVERT INSTALLATION AS NECESSARY





TEZAK HEAVY EQUIPMENT
 AGGREGATE SOURCE
 PROPOSED SEDIMENT POND SPILLWAY
 DESIGN FOR 200 CFS EVENT
 NOT TO SCALE
 MAR 98
 HSK/LOP

STORMWATER MANAGEMENT PLAN ADDITIONS TO EXISTING PERMIT

Please refer to the 1997 permit amendment as approved to review basic stormwater management criteria for the site. Basically, all overland surface water induced by meteoric water flow is directed into sediment ponds designed to contain and dissipate the volume of a minimum 25 year event. Experience (200 year event, April, 1999, 9 inches rain over four days), has shown that existing sediment ponds built on site since 1997 have proven to be of sufficient capacity to contain and dissipate even an unusually large storm event.

Watershed data for the amended acreage is as follows: Total Watershed Acreage: 175

Highest Elevation in added watershed area (Fremont Peak).....	7233'
Lowest elevation in added watershed area (Sediment Pond).....	5600'
Longitudinal distance between highest and lowest point.....	6200'
Average slope of watershed.....	26%
Time of Concentration.....	.3 hr.
Cn Number used for stormwater calculations.....	89

	10 year SCS II 24hr	100 year SCS II 24 hr
Peak Discharge Rate	80 cfs	224 cfs
Discharge Volume Projection	13 acre feet	35.6 acre feet

Referring to the Stormwater Management Plan Map, it is apparent that part of the watershed described above is already within the containment of sediment control structures built in 1997 (app. 20%). The remaining area will be routed to one large or two smaller sediment ponds constructed east of the main roadway in the central area of the amended affected land. All watershed acreage impacted by mining or crossing mining lands will be routed to this new sediment pond construction. Details of sediment ponds construction including spillways, valved standpipe for emergency release, anti-seep collars, use of geotextile membranes under appropriately sized rip-rap systems, and rip-rap sizing will follow 1997 construction details, which have proven to function successfully. An appropriately rip-rapped spillway will be installed in the final sediment pond to effectively handle a 250 cfs discharge. This includes a minimum 10 wide spillway constructed with geotextile membrane overlain with graded rip-rap systems to

top size 18 inches. Final sediment pond(s) will hold a minimum of 10 acre feet prior to spillway operation with a minimum 1 foot freeboard.

Average Annual Sediment loss from the disturbed area.

The highwall and final pit floors will generate relatively small amounts of sediment loss due to lack of soils in the upper elevations and the large sediment basin design of the final pit floor configuration. The sediment pond structures lying east of the final pit configuration may receive as much as 300 tons of sediment per year, which will be removed from the sediment ponds by the mine operator as necessary.

Impact on Property Owners to the East of Proposed Acreage Addition

The mine operator anticipates that no impact on neighboring property owners to the east of the proposed amended acreage area. The USBLM and Colorado DOW have lands lying directly east of this area. Both parties will be notified of this amendment and will the opportunity to respond if there are concerns.

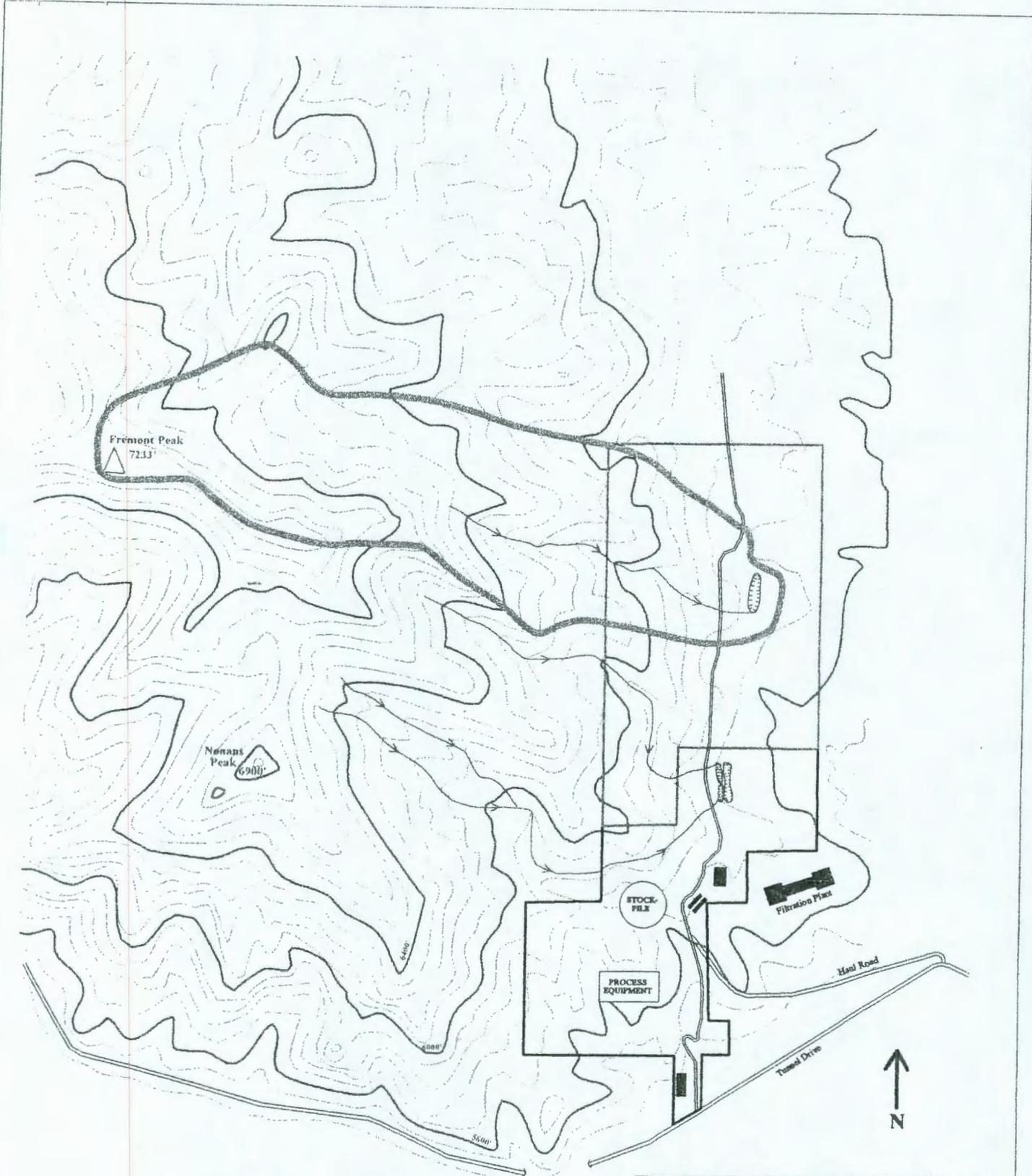
Tezak Heavy Equipment Company anticipates that construction of all sediment control features will occur within 120 days of permit approval or prior to any mining activity in any area within the watershed zone or proposed mining area.

The installation of sediment ponds to control stormwater run-off from the amended acreage area will be permanent structures built to provide long term sediment and erosion control of mining lands from stormwater runoff. T.H.E. proposes to leave the sediment ponds in place after final reclamation of the pit floor area located west of the sediment ponds. Construction cost estimates for sediment pond installation are in the range of \$15,000.00. T.H.E. considers the bonded amounts for surplus equipment that are presently in place (\$3000) to be sufficient without further increase.

Tezak Heavy Equipment Company will desist from any disturbance of the amended acreage until it has received DMG approval of an acceptable plan for minimizing impacts to the hydrologic balance in the quarry and surrounding area during storm event. The operator believes that current stormwater control systems and their successful operation during recent large storm events is the best proof of effective environmental control currently in place at the site.

TIMETABLE FOR AMENDED ACREAGE

Highwall Area West 30 acres	5-15 years	2000-2015
Final Pit Area Central 40 acres	15-35 years	2015-2035
Sediment Pond/Borrow Area 71 acres	1-35 years	2001-2035



TEZAK HEAVY EQUIPMENT - AGGREGATE SOURCE, INC.
STORMWATER MANAGEMENT PLAN MAP
 PERMIT AMENDMENT APPLICATION JANUARY 2000
 AZURITE INC. CONTOUR INTERVAL 80 FT. SCALE: 1" = 1200'

-  WATERSHED BASIN
175 ACRES
-  PERMITTED MINING AREA
100 ACRES
-  AMENDED PERMIT AREA
131 ACRES



POND 1-PRISMOIDAL METHOD
 ORIGINAL SURFACE
 FINAL SURFACE
 RAW FILL VOLUME

DETENTION PONDS
 Flat TIN Elev. 100.00
 5.77 ACFT.

POND 2-PRISMOIDAL METHOD
 ORIGINAL SURFACE
 FINAL SURFACE
 RAW FILL VOLUME

DETENTION PONDS
 Flat TIN Elev. 98.00
 1.91 ACFT.

POND 3-PRISMOIDAL METHOD
 ORIGINAL SURFACE
 FINAL SURFACE
 RAW FILL VOLUME

DETENTION PONDS
 Flat TIN Elev. 78.00
 7.93 ACFT.

TOTAL VOLUME: 15.61 ACFT.

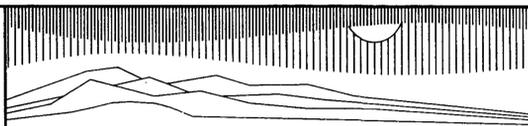
17-1977-198

Permit Number 111991-193
 Class: Permit
 Section: Detention Pond Contours
 Class: Revision
 Type:
 Class: Report Hydro General
 Doc. Type:
 Application: (Coal only) Bond Enforcement Inspection

RECEIVED
 MAY 13 1998
 DIVISION OF MINERALS & GEOLOGY

G. VERKAIK & ASSOCIATES, INC.
 ENGINEERS & ARCHITECTS

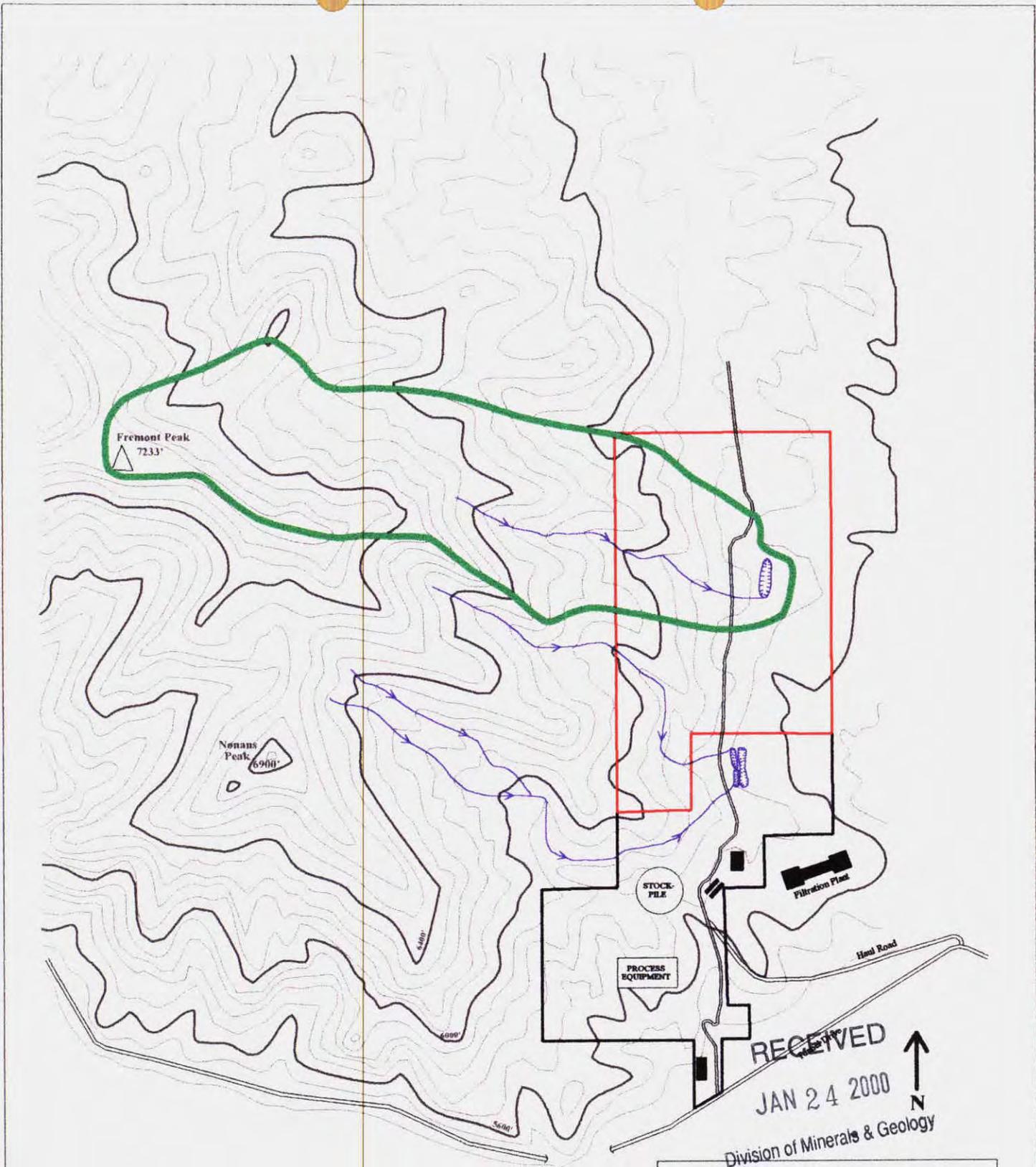
831 ROYAL GORGE BOULEVARD - SUITE 418
 CAÑON CITY, COLORADO 81212
 TELEPHONE: 719-275-2394 FAX: 719-275-5321



DETENTION POND CONTOURS AND VOLUMES

TEZAK HEAVY EQUIPMENT
 CANON CITY, COLORADO

DATE	5/1/98	PROJECT	980410
REVISION		SHEET	DP-1
NO.		TOTAL	1 OF 1



RECEIVED
 JAN 24 2000
 Division of Minerals & Geology



TEZAK HEAVY EQUIPMENT - AGGREGATE SOURCE, INC.
STORMWATER MANAGEMENT PLAN MAP
 PERMIT AMENDMENT APPLICATION JANUARY 2000
 AZURITE INC. CONTOUR INTERVAL 80 FT. SCALE: 1" = 1200'

-  WATERSHED BASIN
175 ACRES
-  PERMITTED MINING AREA
100 ACRES
-  AMENDED PERMIT AREA
131 ACRES

0018994

Appendix C

State of Colorado Air Permit #95FR695F

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION
TELEPHONE: (303) 692-3150



CONSTRUCTION PERMIT

PERMIT NO: 95FR695F

FINAL APPROVAL

DATE ISSUED: DECEMBER 11, 2009

Modification 2

ISSUED TO: Tezak Heavy Equipment Co., Inc.

THE SOURCE TO WHICH THIS PERMIT APPLIES IS DESCRIBED AND LOCATED AS FOLLOWS:

Sand and Gravel Operation located at 201 Tunnel Drive, Canon City, Fremont County, Colorado.

THE SPECIFIC EQUIPMENT OR ACTIVITY SUBJECT TO THIS PERMIT INCLUDES THE FOLLOWING:

Material Extraction, Handling, Stockpiling, Hauling, and Associated Conveyors and Transfer Points.

THIS PERMIT IS GRANTED SUBJECT TO ALL RULES AND REGULATIONS OF THE COLORADO AIR QUALITY CONTROL COMMISSION AND THE COLORADO AIR POLLUTION PREVENTION AND CONTROL ACT C.R.S. (25-7-101 et seq), TO THOSE GENERAL TERMS AND CONDITIONS INCLUDED IN THIS DOCUMENT AND THE FOLLOWING SPECIFIC TERMS AND CONDITIONS:

1. Visible emissions from processing equipment and transfer points shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. Opacity shall be measured by EPA Method 9. (Reference: Regulation 1, Section II.A.1 & 4.)
1. The particulate emission control measures listed on the attached page (as approved by the Division) shall be applied to the particulate emission producing sources as required by Regulation No. 1, Section III.D.1.b.
2. This source shall be limited to a maximum production rate as listed below and all other activities, operational rates and numbers of equipment as stated in the application. Daily records of the actual production rate shall be maintained by the applicant and made available to the Division for inspection upon request. (Reference: Regulation 3, Part B, III.A.4)

Production of sand and gravel shall not exceed 6392 tons per day or 1,200,000 tons per year.
Blasting with Ammonium Nitrate and Fuel Oil (ANFO) Shall not exceed 105.85 tons per year.

Tezak Heavy Equipment Co., Inc.
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Final Approval

3. Fugitive emissions shall not exceed the following limitations (as calculated in the Division's preliminary analysis): (Reference: Regulation 3, Part B, III.A.4)

Particulate Matter: 327.2 tons per year
PM10 (Particulate Matter < 10 µm): 69.1 tons per year.
Carbon Monoxide (blasting): 3.6 tons per year

Note: Compliance with these fugitive emission limits shall be demonstrated by not exceeding the production and blasting limits in condition number 3 and by following the attached particulate emissions control plan.

4. Emissions of air pollutants from transfer points shall not exceed the following limitations (as calculated in the Division's preliminary analysis): (Reference: Reg. 3, Part B, III.A.4)

Particulate Matter: 1.9 tons per year
PM₁₀ (Particulate Matter < 10 µm): 0.9 tons per year.

5. This permit is for the activities specified above, any additional process equipment (i.e. crushers, screens, etc.) to be located at this site must have a separate permit from the Division. (Reference: Reg. 3, Part B, IV.E.)

6. A revised Air Pollutant Emission Notice (APEN) shall be filed: (Reference: Reg. 3, Part A, II.C)

- a. Annually whenever a significant increase in emissions occurs as follows:

For any criteria pollutant:

For sources emitting less than 100 tons per year, a change in actual emissions of five tons per year or more, above the level reported on the last APEN; or

For VOC sources in ozone non-attainment areas emitting less than 100 tons of VOC per year, a change in actual emissions of one ton per year or more or five percent, whichever is greater, above the level reported on the last APEN submitted; or

For sources emitting 100 tons per year or more, a change in actual emissions of five percent or 50 tons per year or more, whichever is less, above the level reported on the last APEN submitted; or

A change in actual emissions, above the level reported on the last APEN submitted, of 50 pounds of lead.

For any non-criteria reportable pollutant:

If the emissions increase by 50% or five (5) tons per year, whichever is less, above the level reported on the last APEN submitted to the Division.

- b. Whenever there is a change in the owner or operator of any facility, process, or activity; or

- c. Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment; or

- d. Whenever a permit limitation must be modified; or

- e. No later than 30 days before the existing APEN expires.

Tezak Heavy Equipment Co., Inc.
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NOTE: A one ton per year emission increase will occur when the production rate increases by approximately 3646.8 tons per year. (Based on emission factors noted at the end of this permit which assume all operations change in the same proportion and there is no change in haul trucks or length of haul roads).

7. All conveyors and transfer points will be subject to the New Source Performance Standards requirements of Regulation number 6, Subpart 000 *whenever* there is primary crushing capacity greater than 150 tons per hour (portable equipment) or 25 tons per hour (fixed equipment) at this location as follows:

- a. Visible emissions from conveyors and transfer points shall not exceed 10% opacity.

In addition, the following requirements of Regulation No. 6, Part A, Subpart A, General Provisions, apply.

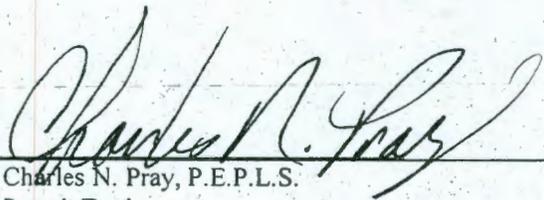
- a. No article, machine, equipment or process shall be used to conceal an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. (§ 60.12)
- b. Written notification of construction and initial startup dates shall be submitted to the Division as required under § 60.7.
- c. Records of startups, shutdowns, and malfunctions shall be maintained, as required under § 60.7.
- d. Compliance with opacity standards shall be demonstrated according to § 60.11.
- e. At all times, including periods of start-up, shutdown, and malfunction, the facility and control equipment shall, to the extent practicable, be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether or not acceptable operating and maintenance procedures are being used will be based on information available to the Division, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. (Reference: Regulation 6, Part A. General Provisions from 40CFR60.11)

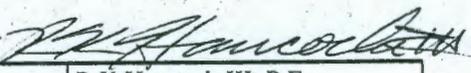
7. Spray bars, enclosures, or side skirts shall be used if material moisture content is insufficient to control particulate emissions from conveyors and transfer points.

page 4

Tezak Heavy Equipment Co., Inc.
Permit No. 95FR695F
Final Approval

8. All previous versions of this permit are canceled upon issuance of this permit.

By: 
Charles N. Pray, P.E.P.L.S.
Permit Engineer

By: 
R.K. Hancock III P.E.
Construction Permits Unit
Stationary Sources Program
Air Pollution Control Division

Initial Approval: Issued May 7, 1996
Final Approval: Issued February 11, 1999.
FA Mod. 1: July 20, 2000: Increase throughput from 600,000 tons per year to 1.2 million tons per year.
FA Mod. 2: This Issuance: Limit on explosive use and emissions from blasting included in this permit.

APEN Submittal Log (to be maintained further by the permittee):

APEN Submittal Date	APEN Expiration Date	Renewal APEN to be submitted by	Remarks
October 9, 2008	October 9, 2013	September 9, 2013	

Tezak Heavy Equipment Co., Inc.

Permit No. 95FR695F

Final Approval

Notes to permit holder:

1. The production or raw material processing limits and emission limits contained in this permit are based on the production/processing rates requested in the permit application. These limits may be revised upon request of the permittee providing there is no exceedance of any specific emission control regulation or any ambient air quality standard. A revised air pollution emission notice (APEN) and application form must be submitted with a request for a permit revision.
2. In accordance with C.R.S. 25-7-114.1, the Air Pollutant Emission Notice (APEN) associated with this permit is valid for a term of five years. A revised APEN shall be submitted no later than 30 days before the five year term expires.
3. This source is subject to the Common Provisions Regulation Part II, Subpart E, Affirmative Defense Provision for Excess Emissions During Malfunctions. The permittee shall notify the Division of any malfunction condition which causes a violation of any emission limit or limits stated in this permit as soon as possible, but no later than noon of the next working day, followed by written notice to the Division addressing all of the criteria set forth in Part II.E.1. of the Common Provisions Regulation. See: <http://www.cdphe.state.co.us/regulations/airregs/100102aqcccommonprovisionsreg.pdf>.
4. The emission levels contained in this permit are based on the following overall emission factors (any change in operations may change these factors):

Particulate Matter:	0.0911 pounds per ton of sand and gravel
PM ₁₀ (particles less than 10 microns):	0.0434 pounds per ton of sand and gravel
Fugitive Particulate Matter:	1.6796 pounds per ton of sand and gravel
Fugitive PM ₁₀ (particles less than 10 microns):	0.3570 pounds per ton of sand and gravel
4. This source is classified as a: Minor source

Tezak Heavy Equipment Co., Inc.
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Final Approval

PARTICULATE EMISSIONS CONTROL PLAN FOR MINING AND PROCESSING ACTIVITIES

THE FOLLOWING PARTICULATE EMISSIONS CONTROL MEASURES SHALL BE USED FOR COMPLIANCE PURPOSES ON THE ACTIVITIES COVERED BY THIS PERMIT, AS REQUIRED BY THE AIR QUALITY CONTROL COMMISSION REGULATION NO.1, SECTION III.D.1.b. THIS SOURCE IS SUBJECT TO THE FOLLOWING EMISSION GUIDELINES:

- a. **Mining and Processing Activities** - Visible emissions not to exceed 20%, no off-property transport of visible emissions.
- b. **Haul Roads** - No off-property transport of visible emissions shall apply to on-site haul roads, the nuisance guidelines shall apply to off-site haul roads.
- c. **Haul Trucks** - No off-property transport of visible emissions except that when operating off the property of the owner or operator, the applicable guidelines shall be no off-vehicle transport of visible emissions.

Control Measures

1. Adequate soil moisture must be maintained in topsoil and overburden to control emissions during removal. Watering shall be implemented if necessary.
2. Drilling of blast holes shall be controlled by water injection and bag collectors on the drills.
3. Emissions from material handling (i.e. removal, loading, and hauling) shall be controlled by watering at all times unless natural moisture is sufficient to control emissions.
4. Vehicle speed on unpaved roads and disturbed areas shall not exceed a maximum of 20 m.p.h. Speed limit signs shall be posted.
5. Vehicle speed on haul roads and service roads shall be restricted to 20 miles per hour. Speed limit signs shall be posted.
6. Unpaved haul roads shall be watered as often as needed to control fugitive particulate emissions such that the above guidelines are met.
7. Reclamation works and sequential extraction of material shall be initiated to keep the total disturbed areas at any one time to a minimum.
8. Material stockpiles shall be watered as necessary to control fugitive particulate emissions. Aggregate materials shall be sprayed with water during material loading into the storage bins or stockpiles.
9. Plant entryway, truck service roads, haul roads, and concrete batching areas shall be graveled. Watering shall be implemented if emission guidelines above are not met.

Tezak Heavy Equipment Co., Inc.
Permit No. 95FR695F
Final Approval

GENERAL TERMS AND CONDITIONS: (IMPORTANT! READ ITEMS 5,6,7 AND 8)

1. This permit is issued in reliance upon the accuracy and completeness of information supplied by the applicant and is conditioned upon conduct of the activity, or construction, installation and operation of the source, in accordance with this information and with representations made by the applicant or applicant's agents. It is valid only for the equipment and operations or activity specifically identified on the permit.
2. Unless specifically stated otherwise, the general and specific conditions contained in this permit have been determined by the APCD to be necessary to assure compliance with the provisions of Section 25-7-114.5(7)(a), C.R.S.
3. Each and every condition of this permit is a material part hereof and is not severable. Any challenge to or appeal of, a condition hereof shall constitute a rejection of the entire permit and upon such occurrence, this permit shall be deemed denied *ab initio*. This permit may be revoked at any time prior to final approval by the Air Pollution Control Division (APCD) on grounds set forth in the Colorado Air Quality Control Act and regulations of the Air Quality Control Commission (AQCC), including failure to meet any express term or condition of the permit. If the Division denies a permit, conditions imposed upon a permit are contested by the applicant, or the Division revokes a permit, the applicant or owner or operator of a source may request a hearing before the AQCC for review of the Division's action.
4. This permit and any required attachments must be retained and made available for inspection upon request at the location set forth herein. With respect to a portable source that is moved to a new location, a copy of the Relocation Notice (required by law to be submitted to the APCD whenever a portable source is relocated) should be attached to this permit. The permit may be reissued to a new owner by the APCD as provided in AQCC Regulation No. 3, Part B, Section II.B. upon a request for transfer of ownership and the submittal of a revised APEN and the required fee.
5. Issuance (initial approval) of an emission permit does not provide "final" authority for this activity or operation of this source. Final approval of the permit must be secured from the APCD in writing in accordance with the provisions of 25-7-114.5(12)(a) C.R.S. and AQCC Regulation No. 3, Part B, Section III.G. Final approval cannot be granted until the operation or activity commences and has been verified by the APCD as conforming in all respects with the conditions of the permit. If the APCD so determines, it will provide written documentation of such final approval, which does constitute "final" authority to operate. **Compliance with the permit conditions must be demonstrated within 180 days after commencement of operation.**
6. **THIS PERMIT AUTOMATICALLY EXPIRES IF** you (1) do not commence construction or operation within 18 months after either the date of issuance of this permit or the date on which such construction or activity was scheduled to commence as set forth in the permit, whichever is later; (2) discontinue construction for a period of 18 months or more; or (3) do not complete construction within a reasonable time of the estimated completion date. Extensions of the expiration date may be granted by the APCD upon a showing of good cause by the permittee prior to the expiration date.
7. **YOU MUST notify the APCD no later than thirty days after commencement of the permitted operation or activity by submitting a Notice of Startup (NOS) form to the APCD.** The Notice of Startup (NOS) form may be downloaded online at www.cdphe.state.co.us/ap/downloadforms.html. Failure to do so is a violation of Section 25-7-114.5(12)(a), C.R.S. and AQCC Regulation No. 3, Part B, Section III.G.1., and can result in the revocation of the permit. *You must demonstrate compliance with the permit conditions within 180 days after commencement of operation as stated in condition 5.*
8. Section 25-7-114.7(2)(a), C.R.S. requires that all sources required to file an Air Pollution Emission Notice (APEN) must **pay an annual fee** to cover the costs of inspections and administration. If a source or activity is to be discontinued, the owner must notify the Division in writing requesting a cancellation of the permit. Upon notification, annual fee billing will terminate.
9. Violation of the terms of a permit or of the provisions of the Colorado Air Pollution Prevention and control Act or the regulations of the AQCC may result in administrative, civil or criminal enforcement actions under Sections 25-7-115 (enforcement), -121 (injunctions), -122 (civil penalties), -122.1 (criminal penalties), C.R.S.

Appendix D

Geotechnical Stability Exhibit M-193



Azurite Inc.
10001 CR 12 P.O. Box 338
Cotopaxi, CO 81223
(719) 942-4178
Fax: (719) 942-4178

March 30, 1997

COLORADO DIVISION OF MINERALS AND GEOLOGY
1313 SHERMAN STREET RM 215
DENVER, COLORADO 80203

RE: TEZAK HEAVY EQUIPMENT COMPANY, INC, CANON CITY, COLORADO
AGGREGATE SOURCE GEOTECHNICAL STABILITY EXHIBIT M-193

SUMMARY AND CONCLUSIONS

During the winter of 1996-1997, AZURITE, INC., performed a geotechnical investigation of the highwall feature at T.H.E. AGGREGATE SOURCE Canon City mine to determine the overall stability of the proposed final reclamation highwall configuration. The program was intended to gather geologic information to be used to show that 1) the proposed highwall configuration is inherently stable, and 2) the identification of any "limits" or conditions that might be properly addressed to maximize long term highwall stability. The results of field investigations, geotechnical measurements, sampling, testing, and mathematical modeling of the proposed highwall configuration supports the conclusion that the proposed highwall configuration reflects an adequate factor of safety for the post-mining land use of rangeland, wildlife habitat, industrial and residential. Furthermore, geologic information gathered during this investigation can be employed to guide the mine operator to maximize the factor of safety during and after mining of granite gneiss rock source.

ROCK TYPE DESCRIPTION AND SITE PARAMETERS

The resource in question is a massive outcrop of "migmatitic precambrian gneiss, chiefly feldspathic-biotite-quartz-plagioclase gneiss with minor amounts of hornblende gneiss, calc-silicate gneiss, and garnetiferous and sillimantic varieties." The granite gneiss is highly competent, pinkish-tan to red in color, coarse to fine-grained in texture, foliated and moderate to well layered rock. Compositional banding generally is parallel to foliation and ranges in thickness from a fraction of an inch to several tens of feet. Variably migmatitic; salmon-pink to white stringers (quartz), veinlets, or small tabular masses of quartz-plagioclase-microcline-biotite pegmatite characteristically cut the gneiss or occur as subconformable layers. Vertical foliation -- 3 degrees is consistent throughout the exposed highwall, although compositional banding shows substantial change in vertical span more than a few tens of feet.

A dark red fine grained gneissic dyke app. 10-12" thick, portraying some evidence of fault displacement intersects the entire length of the currently exposed face Striking N4E and Dip 60W into the highwall. This structural feature can be seen near the bottom of the exposed face left of center (South of the centerline of the exposed highwall) and steeply arcing upwards in the face as it is followed in a Northerly direction. The elevation change across the face is due to difference in strike of the dyke vs the direction of the existing highwall face. Due to the relatively high angle of dip and direction of dip, this structural feature is not considered a limit or concern to highwall configuration as proposed.

Field investigations included sampling of the granite gneiss at twelve locations along the existing highwall face. All efforts were made to sample rock from undisturbed outcrop, i.e., no samples were taken of disturbed muckpile material, only intact rock at the mining face was sampled, trimmed for transport, and marked for foliation axis. Each sample was logged for relative color, texture, and mineral type. Three samples were taken portraying banding contacts with highly differing textures and/or mineralogy for purposes of tensile strength testing. No less than four dozen measurements of strike and dip of foliation of the granite gneiss were taken at varying locations and elevations along the existing highwall contact. Rock samples were transported to Golden, Colorado for preparation and process for Unconfined Compressive Strength Testing, Triaxial Compression Testing, and Tensile Strength Testing at the Colorado School of Mines Earth Mechanics Institute. The final report of the material testing is included in this exhibit.

Geotechnical Test results were then applied to a geotechnical slope stability system software program titled GALENA, Version 2.0, developed and licensed by BHP Engineering Pty Ltd, Geotechnical Services, 26 Atchison Street, POBox 1794, Wollongong, NSW 2500 Australia. The Galena system allows for analysis of slope stabilities utilizing Bishop, Spencer, and Sarma methodologies. Moreover, the programs can be configured to perform multiple analysis to result in projections of potential failures along certain boundary slices.

SLOPE MODELING AND PROGRAM ANALYSIS RESULTS

Included in this exhibit are copies of text and graphic results of fourteen failure models, including simple curved failures (Bishop) models, more complex non-circular failure models including Spencer single analysis and Spencer Multiple Surface Analysis, and slice boundary enhanced Sarma Analysis results with calculated Factors of Safety for each analysis run. Final Slope configuration as proposed in the permit amendment document and rock performance factors are kept constant. There is also included three work sheet printouts of Rock Strength Parameters from Rock Mass Rating criteria for review of rock parameter calculations as supported by the "Tools" menu for calculating Cohesion and internal angle of shearing resistance.

All of the analytical results show relatively high degrees of F.O.S., ranging from over 7 to as low as 2.7. These results are in agreement with the high degree of competency shown by the rock outcropping at the working face and the fact that the present working face is at more than 250' of vertical run at a 0.25 : 1, H:V slope with no evidence of stability limitations. The final highwall design of 0.25 : 1 H:V slopes of 40' bench heights with 20' horizontal runs on the benches will tend to increase the safety factor for personnel working along the highwall contact and in the general area below the highwall contact. Final bench configurations will be initiated in 1997, as the highwall face direction is modified from the present direction of N40E to N-S direction. The Southern end of the existing highwall will be mined to the West only to serve the installation of the final highwall configuration benches, while the Northern end of the existing highwall will be mined to the West an additional 350' from its present top of slope location. The highwall slopes shown on the graph results of each analysis portray the highest possible highwall contact that might result at any location along the highwall contact. This representation of maximum height of slope should reflect the largest possible loading of forces along the toe of the slope.

Although a large number of failures and trial analysis were attempted, many of the failure surfaces were rejected by the program and not runnable for FOS due to geometry limitations. The failure surfaces projected and different analytical methodologies employed by this program reflect a fair spectrum of potential failures and definitely demonstrate an adequate factor of safety given the rock type encountered and final highwall configuration proposed.

FACTORS TO CONSIDER DURING MINING AND BENCH DEVELOPMENT

Foliation measurements and tensile strength testing results should be carefully considered during the final highwall benching construction. As measured in the field at several dozen locations, the strike of foliation of the granite gneiss is N30W +/- 15 degrees. The change in direction of the final highwall face will be optimal for the orientation of the gneissic dyke mentioned earlier, alligned along strike and 90 degrees to the dip of the structure, into the highwall face. However, the highwall direction will approach 30 degrees of the general strike direction of foliation. As areas of compositional banding are encountered during bench construction, presplitting/blasting operations should be designed to maximize the zones of tensile strength/weakness for cleaner, maintenance free outcrops. This may result in wider benches by a few feet in some areas or steeper runs than 0.25 : 1, if foliation/compositional banding controls final rock slopes. The point here is that internal structure of the granite gneiss should be considered to maximize safety and long term stability rather than to attempt to impose a strict slope arrangement which may not always be optimum nor appropriate for the rock conditions in that particular localized area of the highwall. That is not to say that the general configuration of bench height and width should be ignored, rather that localized structural conditions such as compositional banding zones and variance in foliation dip attitudes (generally vertical but showing some variation) may result in some reasonable deviation from the general design. Obviously, bench heights need not ever be more than 40' nor less than 20' in width, although some vertical runs may be more stable slightly steeper than 0.25 : 1 given the nature of the changing textures, compositions, and attitudes portrayed within the granite gneiss.



Kenneth S. Kico, Consulting Geologist

Test Report of
PHYSICAL PROPERTY MEASUREMENTS ON
CANYON CITY GNEISS

Submitted to

Ken Klco
Azurite Inc.
Cotopaxi, CO

**Earth
Mechanics
Institute**



*Department
of Mining
Engineering*

*Colorado
School
of Mines*

Golden, Colorado

Submitted by

Earth Mechanics Institute
Department of Mining Engineering
Colorado School of Mines
Golden, Colorado

March, 1997

1.0 INTRODUCTION

Physical property measurements have been made on Gneiss samples from the Canyon City, CO area. The test performed were Uniaxial Compressive Strength (UCS), Tri-axial Compressive Strength (Triax), and Brazilian Splitting Tensile Strength (BRA).

The samples were cored and tested in two different directions relative to the schistosity planes. These directions were identified and labeled as Y and X, by Azurite Inc. The axis of the Y cores were parallel with the schistose planes. And the axis of the X cores were perpendicular to the schistose planes. UCS, Triax and Brazilian test were performed on the Y cores. While only Triax tests were performed on the X cores.

2.0 SAMPLE PREPARATION

Sample preparations adhere to the specifications listed in ASTM D 4543. The samples received at EMI for physical property testing were prepared in the following sequence.

1. Coring
2. Cutting
2. Grinding
3. Measurements

2.1 Coring

All samples were cored with a diamond tipped core barrel, using water for cutting removal and cooling of the sample. The use of water prevents thermal damage from affecting the core sample, but should not create hydraulic changes in the relatively impermeable Gneiss samples.

The UCS and Brazilian samples were cored with a 2.25" core barrel. In order to accommodate the confinement cell, the Triax samples were cored with a 2" diameter core barrel.

2.2 Cutting

UCS and Triax specimens were cut with required length to diameter ratio of approximately 2:1. Then the Brazilian specimens were cut with a ratio of approximately 0.5:1 (length to diameter). A diamond tipped saw, using water for cooling and cutting removal, was used for the cutting.

2.3 Grinding

The flat ends of the UCS specimens were ground to a tolerance of 0.001" flat and paralel. Wet grinding was performed on the samples. The samples were then air dried after grinding.

2.4 Measurements

After air drying, all of the specimens were weighed and measured before testing. The measurements of the dimensions include length and three diameters for each sample to the nearest 0.025 mm (0.001 in). The weight measurements were performed to an accuracy of 0.1 gram.

3.0 TEST PROCEDURES

A brief description the test procedures are given in this section. The appropriate ASTM standards are listed in the procedural descriptions.

3.1 Brazilian Splitting Tensile Strength

The Brazilian splitting tensile strength test indirectly measures the tensile strength of rock and are performed in accordance with ASTM D 3967. After preparing the test specimen to have a length to diameter ratio of approximately 0.5, with sawn flat ends and smooth sides. A 220 klbs servo controlled MTS compression machine was used for testing. The specimens were put on the platens and loaded diametrically. A piece of paper was put between the sample and platens to provide better seating and more uniform loading. Continuous load at a constant rate was applied to create failure within 2 to 5 minutes of loading. The maximum

load on the specimen, at the time of failure, was then recorded on the data sheet. A minimum of three samples should be tested for each rock type to examine variability of rock strength. Each specimen was logged before and inspected after the testing. The logging was used for identification of the structural failures, such failures were then reported and noted in the test summary. The indirect tensile strength then is calculated by:

$$\sigma_t = \frac{2P}{\pi LD}$$

Where: D = diameter of the sample before testing
 P = maximum load on the sample before failure
 L = length of the sample before testing

The Brazilian samples were loaded in the weakest plane expected. This was done to provide the tensile strength of the bonding between the schistose layers. The direction of loading can be seen in Figure 1.

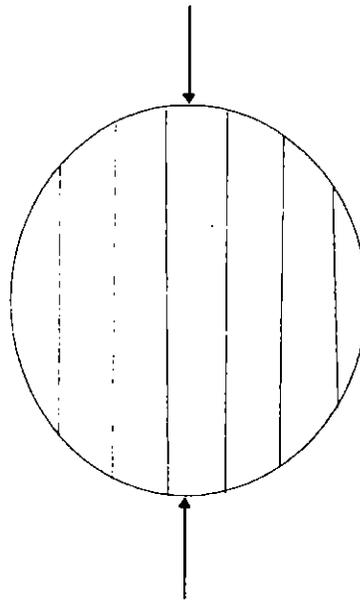


Figure 1. Front view of Brazilian sample. Arrows show loading direction.

3.2 Uniaxial Compressive Strength

This test measures the uniaxial compressive strength of a rock sample in the form of specimens of regular geometry and follows the guidelines of ASTM D 2938. The test is mainly intended for strength classification and characterization of intact rock. A minimum of three samples should be tested for each rock type to examine variability of rock strength.

Once the test specimens have been properly prepared, the same MTS machine is used for the testing. The steel platens in the form of flat discs, having a Rockwell hardness of not less than HRC58 are placed at the specimen ends. One of the platens has a spherical seat which is placed on the upper end of the specimen.

The specimens were loaded by applying load at a linearly increasing rate such that failure occurred within 5 to 10 minutes of loading. Load and displacement were recorded by a computer through a MTS Data acquisition system. The maximum load on the specimen was then recorded on the data sheet. A minimum of three samples should be tested for each rock type to examine variability of rock strength. Each specimen was logged before and inspected after the testing. The logging and inspection are used for identification of the structural failures, such failures were then reported and noted in the test summary.

When the L/D is exactly 2:1 the compressive strength is calculated by:

$$UCS = \frac{F_{max}}{A_{x-sect}}$$

Where: F_{max} = maximum load on the sample before failure

A_{x-sect} = cross-sectional area of the sample before testing

If core samples cannot be made to have a length to diameter ratio of exactly 2:1, but are not significantly different, then the strength results are corrected with:

$$UCS^* = \frac{C_a}{0.88 + 0.24 \left(\frac{D}{L} \right)}$$

Where: UCS^* = corrected uniaxial compressive strength
 D = diameter of the sample before testing
 C_a = measured uniaxial compressive strength
 L = length of the sample before testing

Figure 2 shows, one of the UCS sample after testing with normal (non-structural) failure.

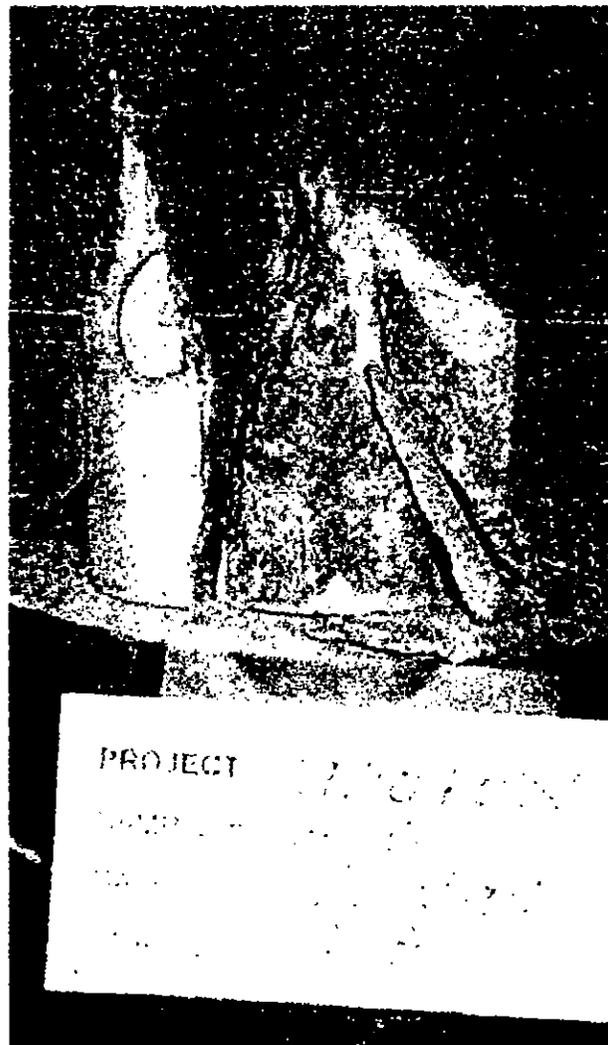


Figure 2. Typical UCS sample after Testing.

3.3 Triaxial Compressive Strength

Triax testing follows the same guidelines as UCS testing with one major addition of confining the core walls during testing as noted in ASTM D 2654. The main purpose of this test is to provide useful data for determining shear strengths at various lateral pressures, angle of internal friction and cohesion intercept.

Confining pressures are provided by a hoek confining cell. This cell holds the rock sample in an elastic membrane which wall is surrounded by hydraulic fluid. The hydraulic fluid is then contained by hoek cells steel body. Before axial loading (as in UCS testing) begins, the hydraulic fluid pressure is raised to the desired level and held constant throughout the duration of the test.

Compressive strengths are calculated using the same equations as used for the UCS test. Data analysis typically utilizes the compressive strengths with the associated confining pressures to construct a graph of Mohr stress circles. Such a graph will provide results such as cohesion and internal angle of friction. For each rock type or major bedding direction, a minimum of three confining pressures should be tested in order to provide a suitable failure envelope. The highest confining pressure should be approaching half of the UCS value.

4.0 TEST RESULTS

All of the test results are shown in table 1. None of the samples failed in a structural manner. But the Triax test performed on the Y core at a confining pressure of 4,000 psi yielded a compressive strength lower than the trend of the other two confinements and UCS would suggest. The rest of the test results exhibited typical results.

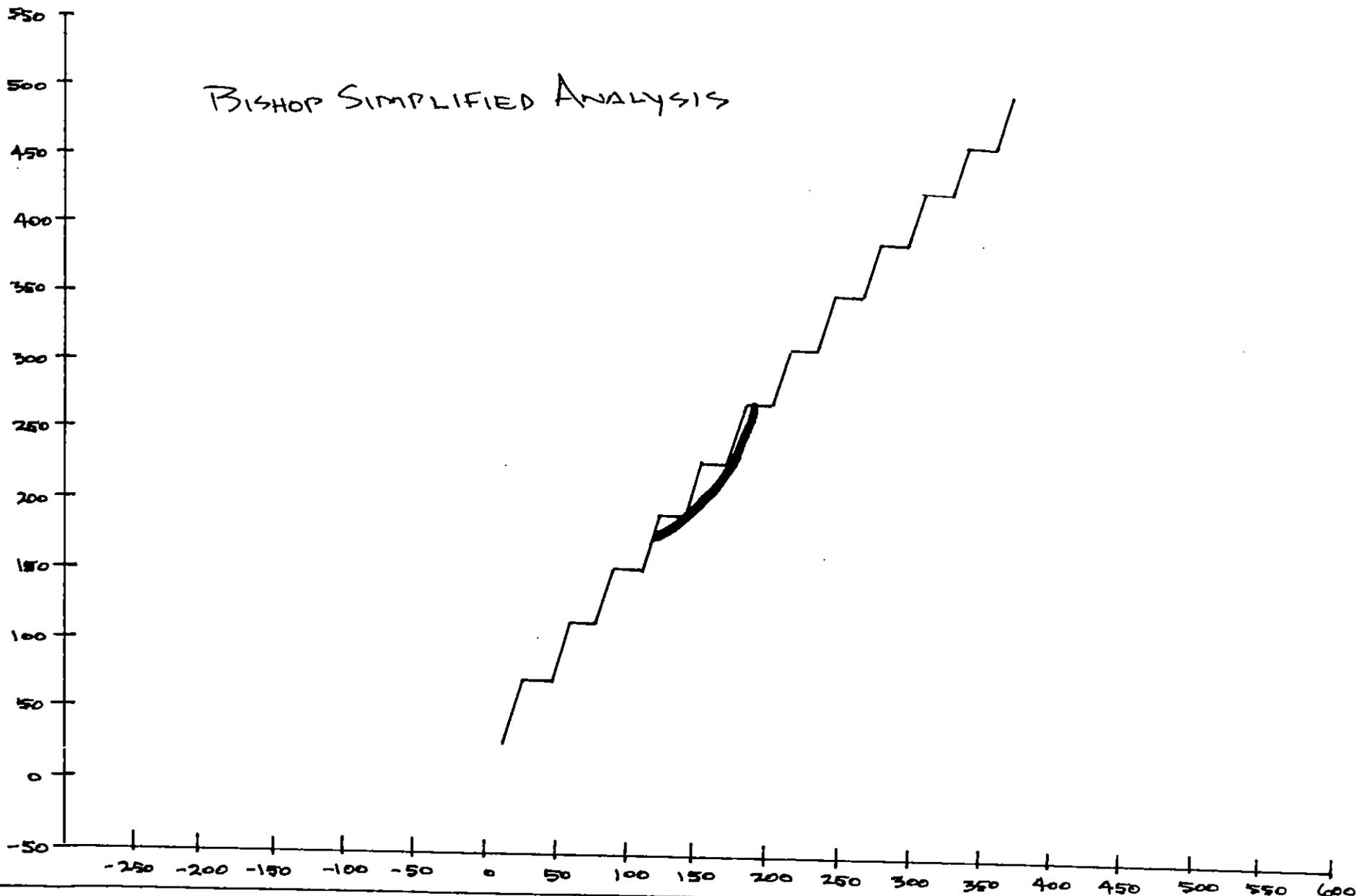
Direction Cored	Test Type	Length (in.)	Diameter (in.)	Weight (gr)	Density (gr/cm ³)	Confinement Pressure (psi)	Failure Load (lbs)	Compressive Strength (2:1) (psi)	Tensile Strength (psi)
Y	Tensile	1.112	2.236	185.1	2.59	N/A	4,080	N/A	1,040
Y	Tensile	1.055	2.236	176.7	2.60	N/A	4,190	N/A	1,120
Y	Tensile	1.013	2.237	169.2	2.59	N/A	4,140	N/A	1,150
Y	UCS	4.508	2.237	756.8	2.61	0	66,000	16,700	N/A
Y	UCS	4.408	2.236	743.7	2.62	0	52,010	13,130	N/A
Y	UCS	4.494	2.239	763.8	2.64	0	61,970	15,640	N/A
Y	Tri-Axial	4.318	1.980	578.4	2.65	2,000	123,000	40,350	N/A
Y	Tri-Axial	3.544	1.979	467.7	2.62	4,000	103,750	33,260	N/A
Y	Tri-Axial	4.358	1.976	577.1	2.66	6,000	168,000	55,400	N/A
X	Tri-Axial	4.505	1.980	600.4	2.64	2,000	88,500	29,160	N/A
X	Tri-Axial	4.054	1.979	523.3	2.56	4,000	100,000	32,600	N/A
X	Tri-Axial	4.525	1.980	601.4	2.63	6,000	129,000	42,540	N/A

Table 1 - Test Results

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS TRIAL 1

MARCH 1997

F.O.S. 7.445



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC.

3/30/97

TITLE
 AGGREGATE SOURCE HIGHWALL

SLOPE

24						
20.000	20.000	30.000	60.000	50.000	59.000	
60.000	99.000	80.000	98.000	90.000	138.000	
110.000	137.000	120.000	177.000	140.000	176.000	
150.000	216.000	170.000	215.000	180.000	255.000	
200.000	254.000	210.000	294.000	230.000	293.000	
240.000	333.000	260.000	332.000	270.000	372.000	
290.000	371.000	300.000	411.000	320.000	410.000	
330.000	450.000	350.000	449.000	360.000	489.000	

PROFILES

1				
2	1			
20.000	500.000	400.000	500.000	

MATERIALS

1	0					
1	9920.375	52.500	180.000	0.000	0.000	GRANITE GNEISS

EARTHQUAKE

0.150

FAILURE

ircular	xc	yc	r	
75.000	260.000	115.000		

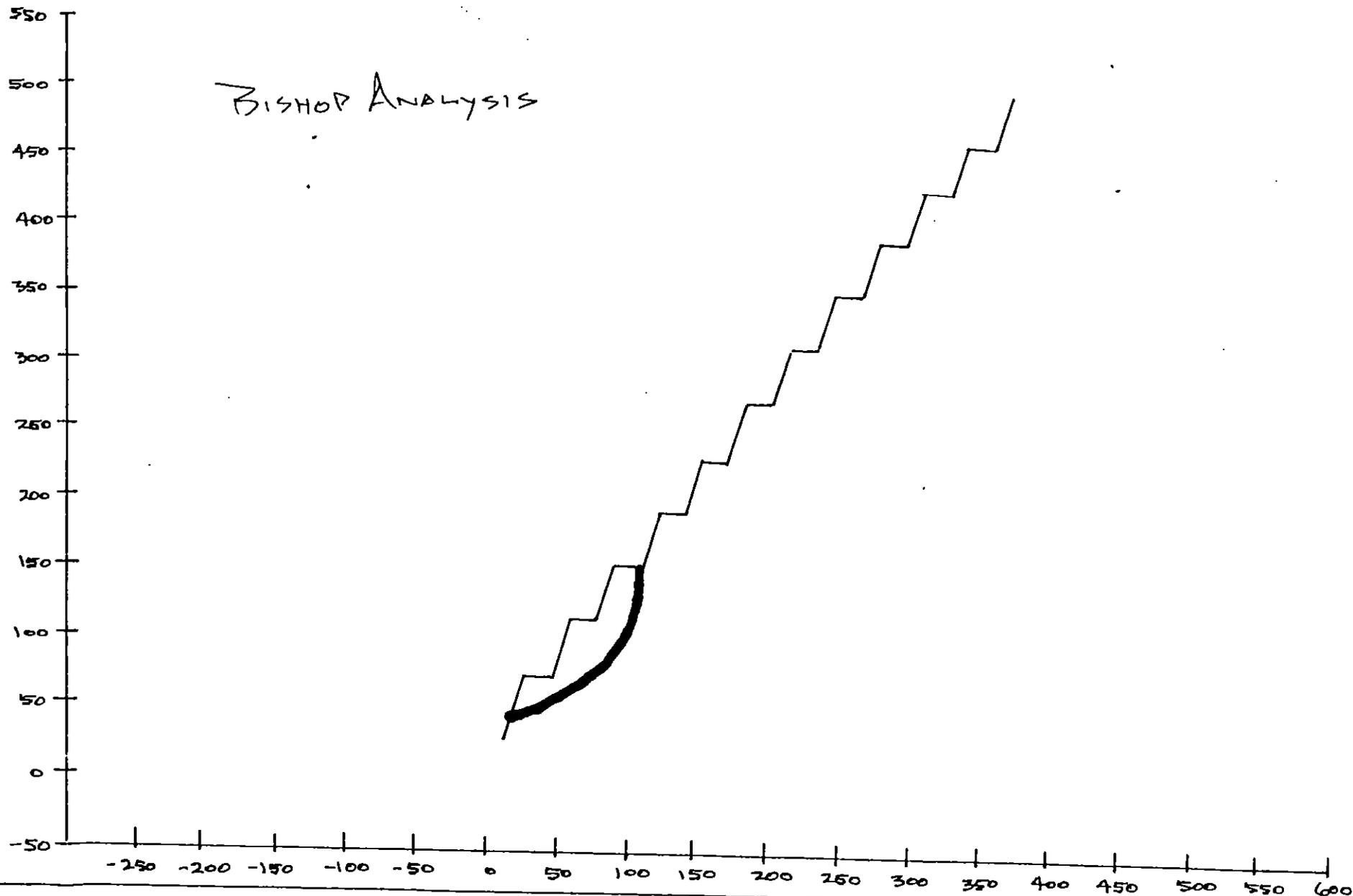
RUN BISHOP ANALYSIS

END

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS #01 BISHOP

MARCH 1997

F.A.S. 5.049



BHP ENGINEERING

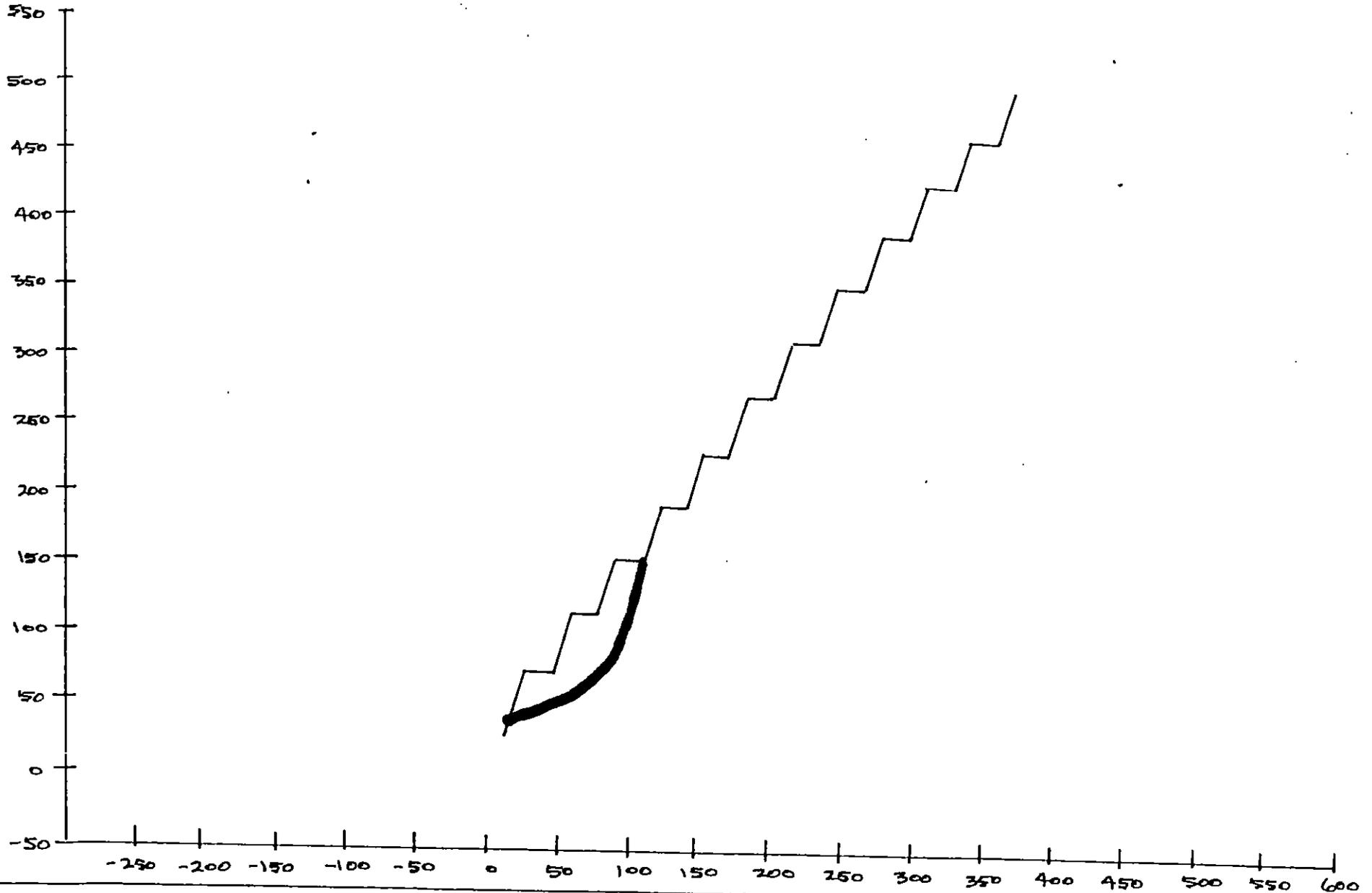
GALENA 2.0

LIC. TO AZURITE, INC. 3/30/97

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS

MARCH 1997

F.A.S. 5.049



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC.

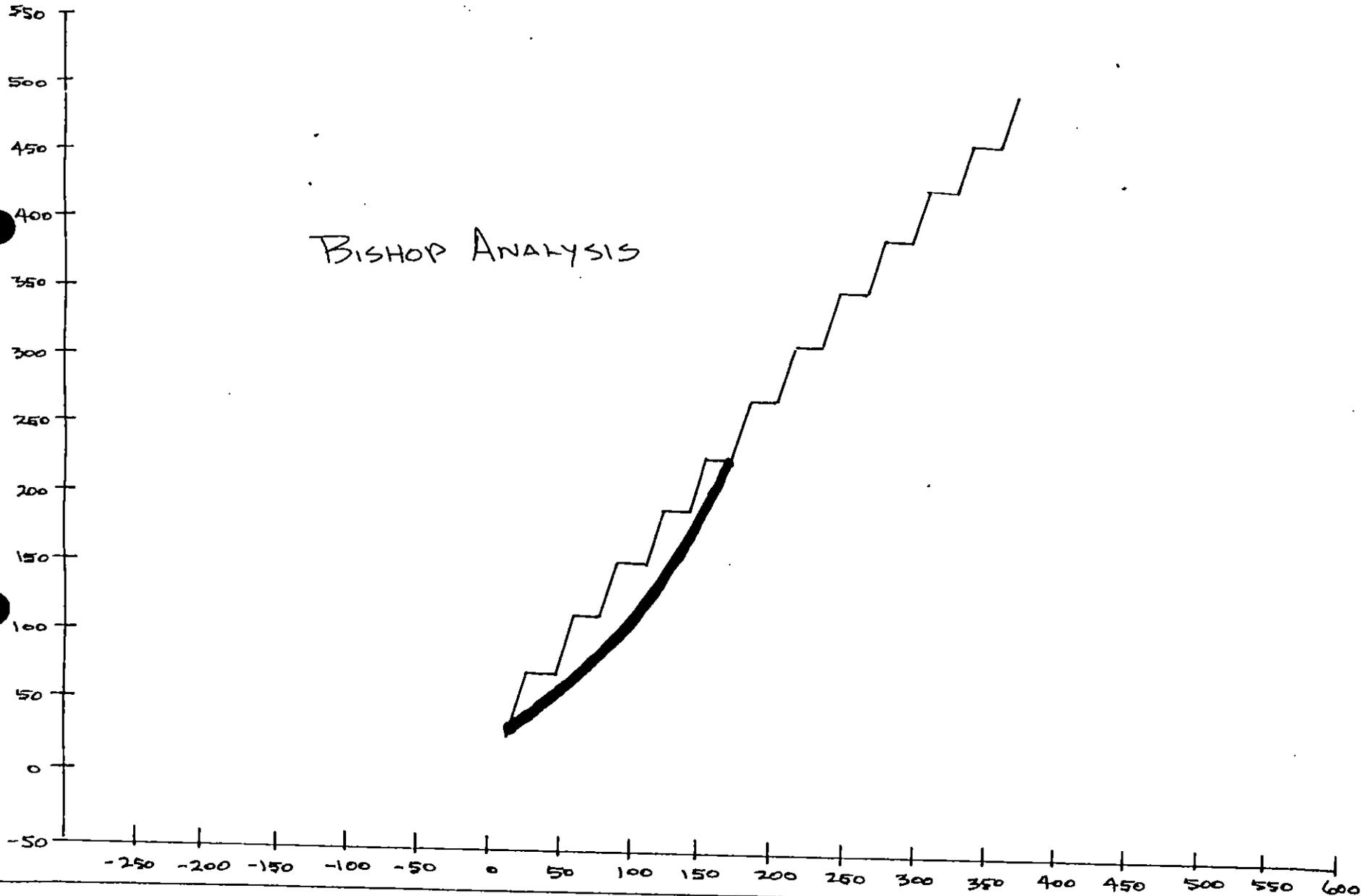
3/30/97

TEZAK HEAVY EQUIPMENT CO, INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS BISHOP #1

MARCH 1997

F.A.S. 4.516

BISHOP ANALYSIS



BHP ENGINEERING

GALENA 2.0

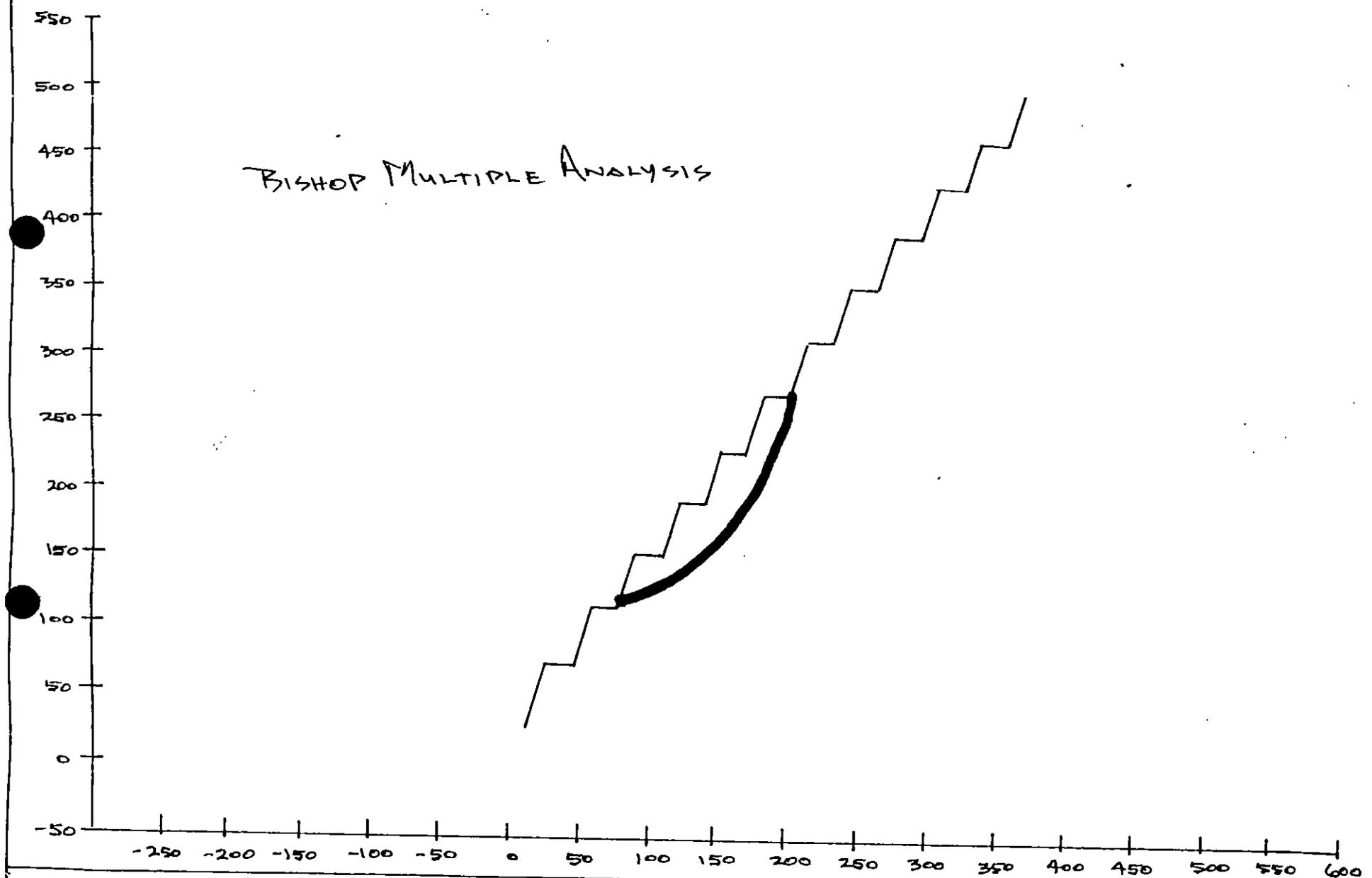
LIC. TO AZURITE, INC. 3/30/97

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS # 2

MARCH 1997

F.A.S. 3.558

BISHOP MULTIPLE ANALYSIS



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC.

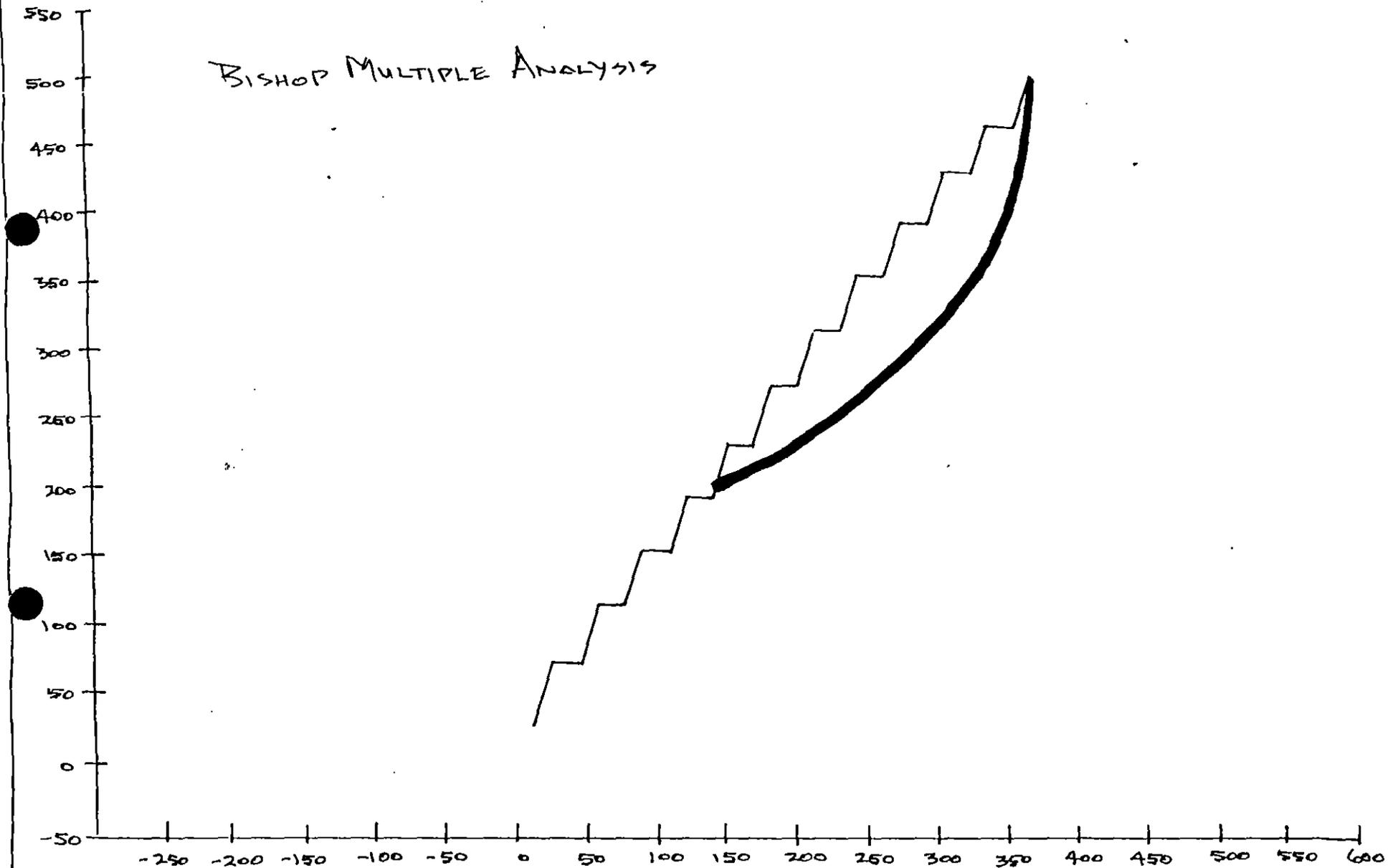
3/30/97

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TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS TRIAL #3

MARCH 1997

FAS. 2.687



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC. 3/30/97

TITLE
GGSRCHWL

SLOPE

4

20.000	20.000	30.000	60.000	50.000	59.000
60.000	99.000	80.000	98.000	90.000	135.000
110.000	137.000	120.000	177.000	140.000	176.000
150.000	216.000	170.000	215.000	180.000	255.000
200.000	254.000	210.000	294.000	230.000	293.000
240.000	333.000	260.000	332.000	270.000	372.000
290.000	371.000	300.000	411.000	320.000	410.000
330.000	450.000	350.000	449.000	360.000	489.000

PROFILES

1					
2	1				
20.000	500.000	400.000	500.000		

MATERIALS

1	0					
1	10108.34	53.400	180.000	0.000	0.000	GRANITE GNEISS

EARTHQUAKE

0.150

FAILURE

non-circular

2						
20.000	20.000	70.000	60.000	90.000	95.000	
150.000	175.000	190.000	205.000	210.000	250.000	
240.000	285.000	270.000	330.000	305.000	360.000	
330.000	405.000	355.000	445.000	360.000	489.000	

RUN SPENCER ANALYSIS

END

\$TITLE

Azurite Inc. - Aggregate Source Highwall

\$SLOPE

24

20.000	20.000	30.000	60.000	50.000	59.000
60.000	99.000	80.000	98.000	120.000	138.000
140.000	137.000	150.000	177.000	170.000	176.000
180.000	216.000	200.000	215.000	210.000	255.000
230.000	254.000	240.000	294.000	260.000	293.000
270.000	333.000	290.000	332.000	300.000	372.000
320.000	371.000	330.000	411.000	350.000	410.000
360.000	450.000	380.000	449.000	390.000	489.000

\$PROFILES

1

2 1

20.000	500.000	400.000	500.000
--------	---------	---------	---------

\$MATERIALS

1 0

1	9920.375	52.500	180.000	0.000	0.000	Granite Gneiss
---	----------	--------	---------	-------	-------	----------------

\$EARTHQUAKE

0.150

\$FAILURE

circular xl xr r

50.000	380.000	500.000
--------	---------	---------

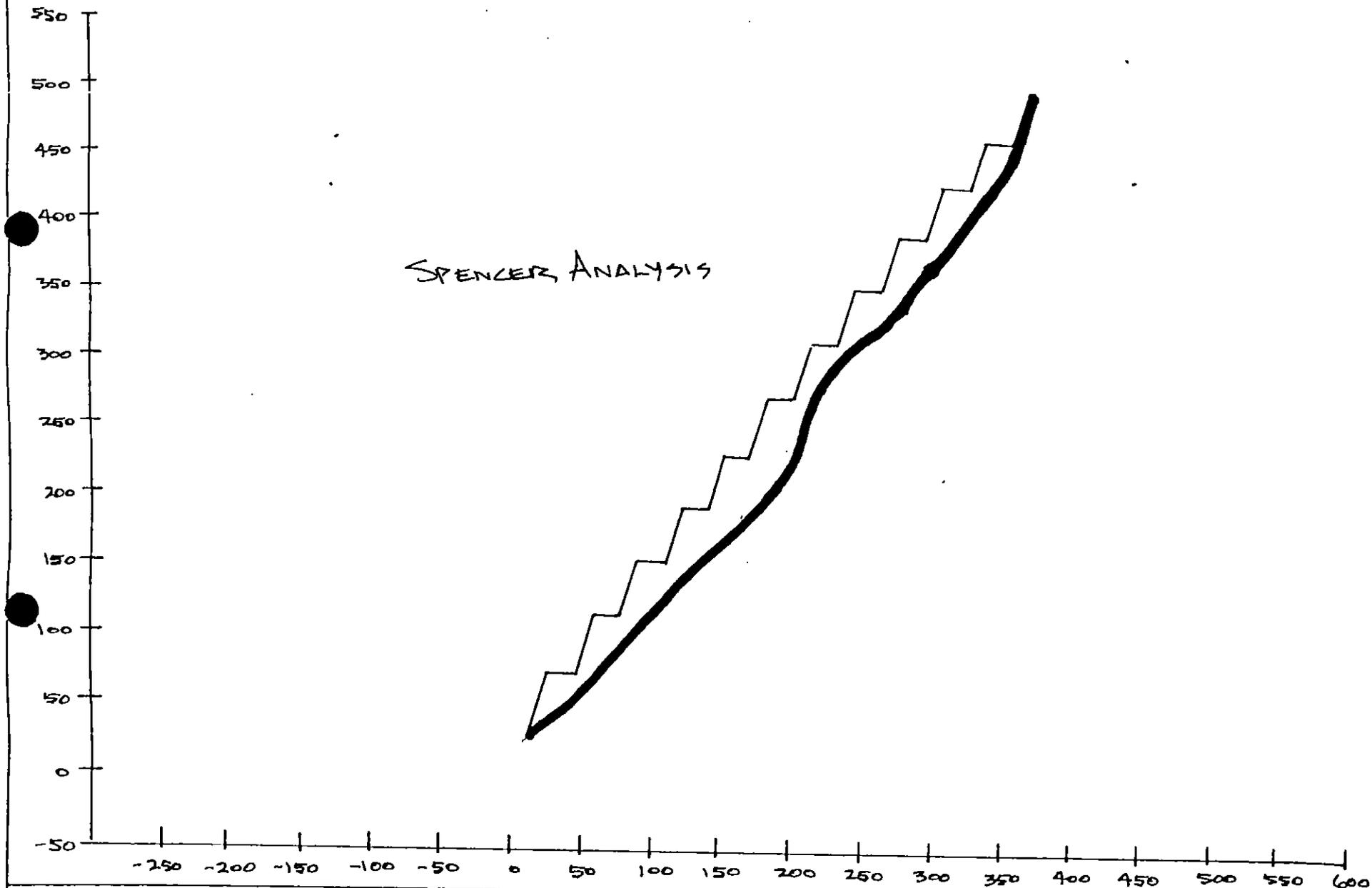
\$RUN BISHOP ANALYSIS

SEND

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS TRIAL 2 (SPENCER)

MARCH 1997

F.O.S. 3.842



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC.

3/31/97

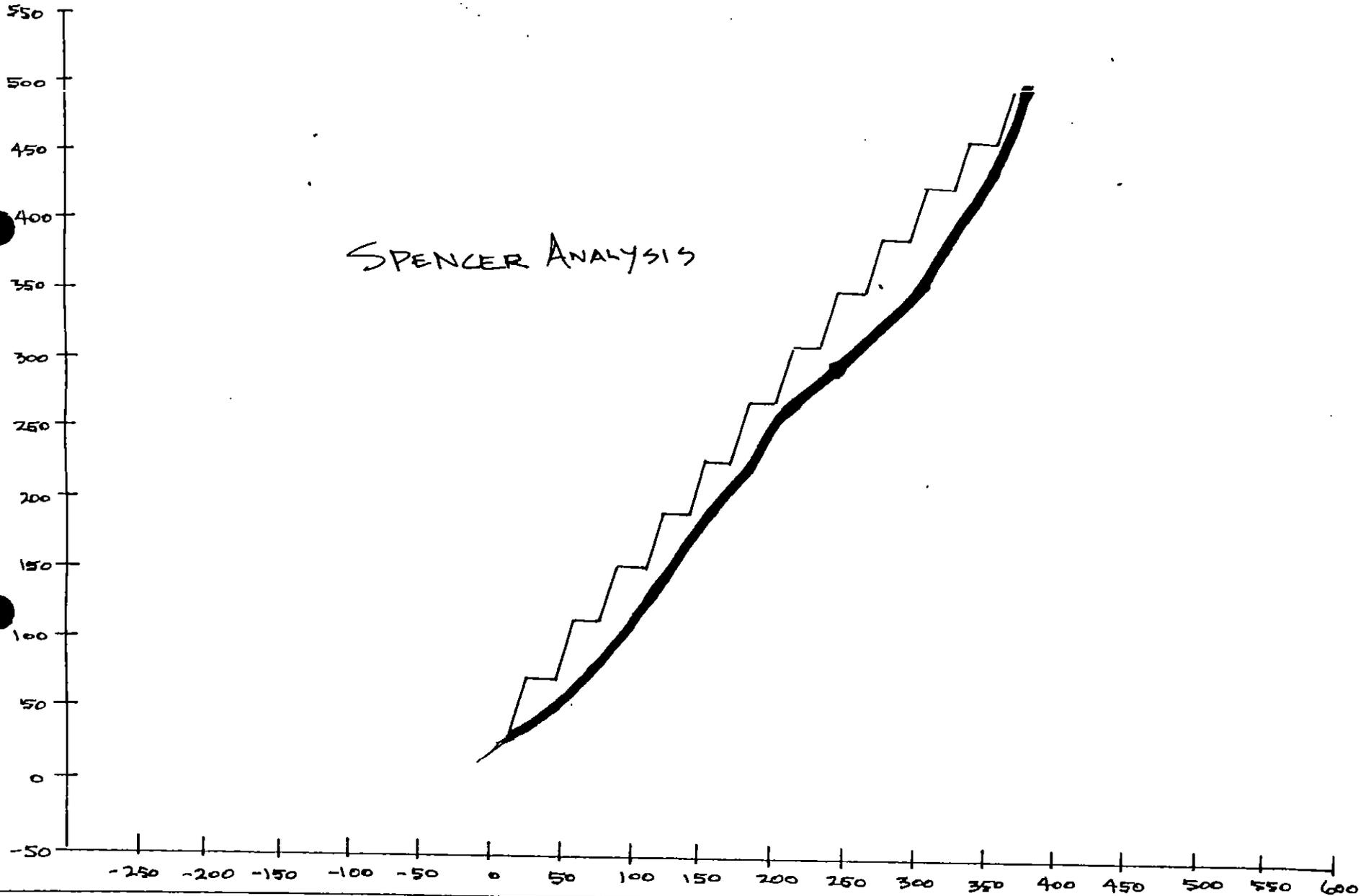
31

TEZAK HEAVY EQUIPMENT CO, INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS

MARCH 1997

F.O.S. 4.514

SPENCER ANALYSIS



BHP ENGINEERING

GALENA 2.0

LIC. TO AZURITE, INC. 3/30/97

TITLE
3GSRCHWL

SLOPE
5

-50.000	20.000	20.000	20.000	30.000	60.000
50.000	59.000	60.000	99.000	80.000	95.000
90.000	138.000	110.000	137.000	120.000	177.000
140.000	176.000	150.000	216.000	170.000	215.000
180.000	255.000	200.000	254.000	210.000	294.000
230.000	293.000	240.000	333.000	260.000	332.000
270.000	372.000	290.000	371.000	300.000	411.000
320.000	410.000	330.000	450.000	350.000	449.000
360.000	489.000	400.000	489.000		

PROFILES

1
2 1
20.000 500.000 400.000 500.000

MATERIALS

1 0
1 10108.34 53.400 180.000 0.000 0.000 GRANITE GNEISS

EARTHQUAKE
0.150

FAILURE

ircular xl xr r
21.000 165.000 400.000

RUN BISHOP ANALYSIS

FAILURE

on-circular
2

20.000	20.000	70.000	60.000	100.000	95.000
70.000	175.000	198.000	205.000	210.000	250.000
240.000	285.000	270.000	330.000	305.000	360.000
330.000	405.000	355.000	445.000	360.000	489.000

RUN SPENCER ANALYSIS

RESTRAINTS

) 10 20 5 5 5

RUN SARMA MULTIPLE ANALYSIS

RESTRAINTS

5 10 5 5 5

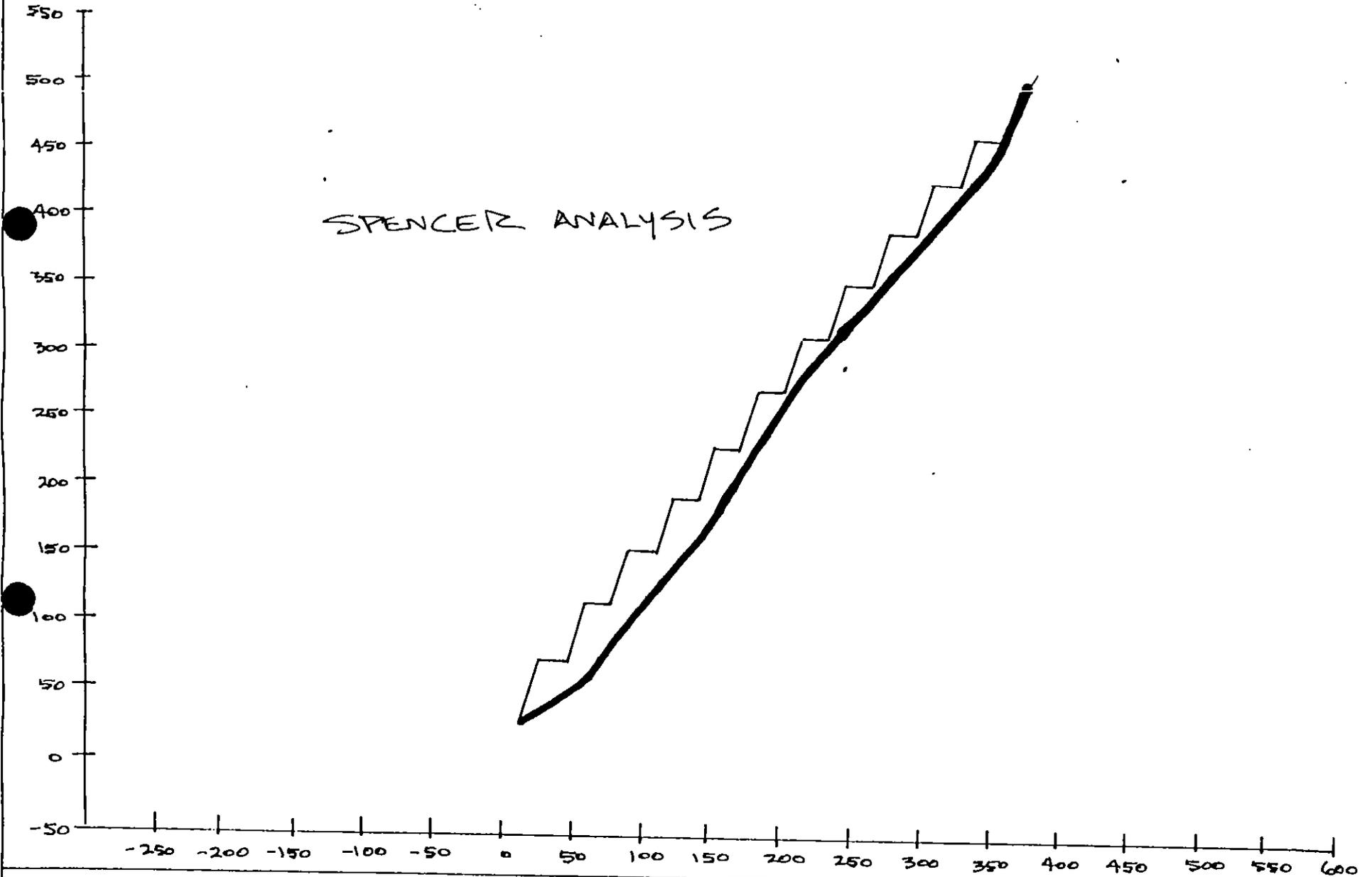
RUN SARMA MULTIPLE ANALYSIS

SLOPE

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS SPENCER

MARCH 1997

F.O.S. 4.984



BHP ENGINEERING

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3/30/97

TLE
WASH CER Report 8/1989 Example 1(a)

LOPE
0.000 25.000 30.000 25.000 50.000 35.000
0.000 35.000

FILES
1
0.000 35.000 70.000 35.000

MATERIALS
0
3.000 19.600 20.000 0.000 0.000

FAILURE
circular xl xr r
0.000 50.000 30.000

CONSTRAINTS
0.000 20.000 40.000 5 7 7
line 1 C:\GALRUN\DATA\ACADS1.DAT Insert F1 for help

IN BISHOP MULTIPLE CIRCLE ANALYSIS

FAILURE
tical
CONSTRAINTS
5.000 10.000 10.000 3 5 5

IN BISHOP MULTIPLE CIRCLE ANALYSIS

TLE
WASH CER Report 8/1989 Example 1(b)

MATERIALS
0
32.000 10.000 20.000 0.000 0.000

TRACK
1.00
FAILURE
line 46 C:\GALRUN\DATA\ACADS1.DAT Insert F1 for help

circular xl xr r
0.000 50.000 30.000
CONSTRAINTS
0.000 20.000 40.000 5 7 7

IN BISHOP MULTIPLE CIRCLE ANALYSIS

FAILURE
ritical

RESTRAINTS

5.000 10.000 10.000 3 5 5

RUN BISHOP MULTIPLE CIRCLE ANALYSIS

TITLE

DNASH CER Report 8/1989 Example 1(c)

PROFILES

Line	File/	Data/	Edit/	Search/	Process/	Results/	Tools/	Config/	Help/
1									
69	C:\GALRUN\DATA\ACADS1.DAT								
	20.000	35.000			70.000	35.000			
2									
	40.000	27.000			50.000	29.000		54.000	31.000
	70.000	31.000							
3									
	20.000	25.000			30.000	25.000		40.000	27.000
	52.000	24.000			70.000	24.000			

MATERIALS

Line	0					
	0.000	38.000	19.500	0.000	0.000	
	5.300	23.000	19.500	0.000	0.000	
	7.200	20.000	19.500	0.000	0.000	

CRACK

0.00

FAILURE

ircular xl xr r
30.000 50.000 30.000

RESTRAINTS

10.000 20.000 40.000 5 7 7

Line 92 C:\GALRUN\DATA\ACADS1.DAT Insert F1 for help

File/ Data/ Edit/ Search/ Process/ Results/ Tools/ Config/ Help/

RUN BISHOP MULTIPLE CIRCLE ANALYSIS

FAILURE

ritical

RESTRAINTS

5.000 10.000 10.000 3 5 5

RUN BISHOP MULTIPLE CIRCLE ANALYSIS

TITLE

DNASH CER Report 8/1989 Example 1(d)

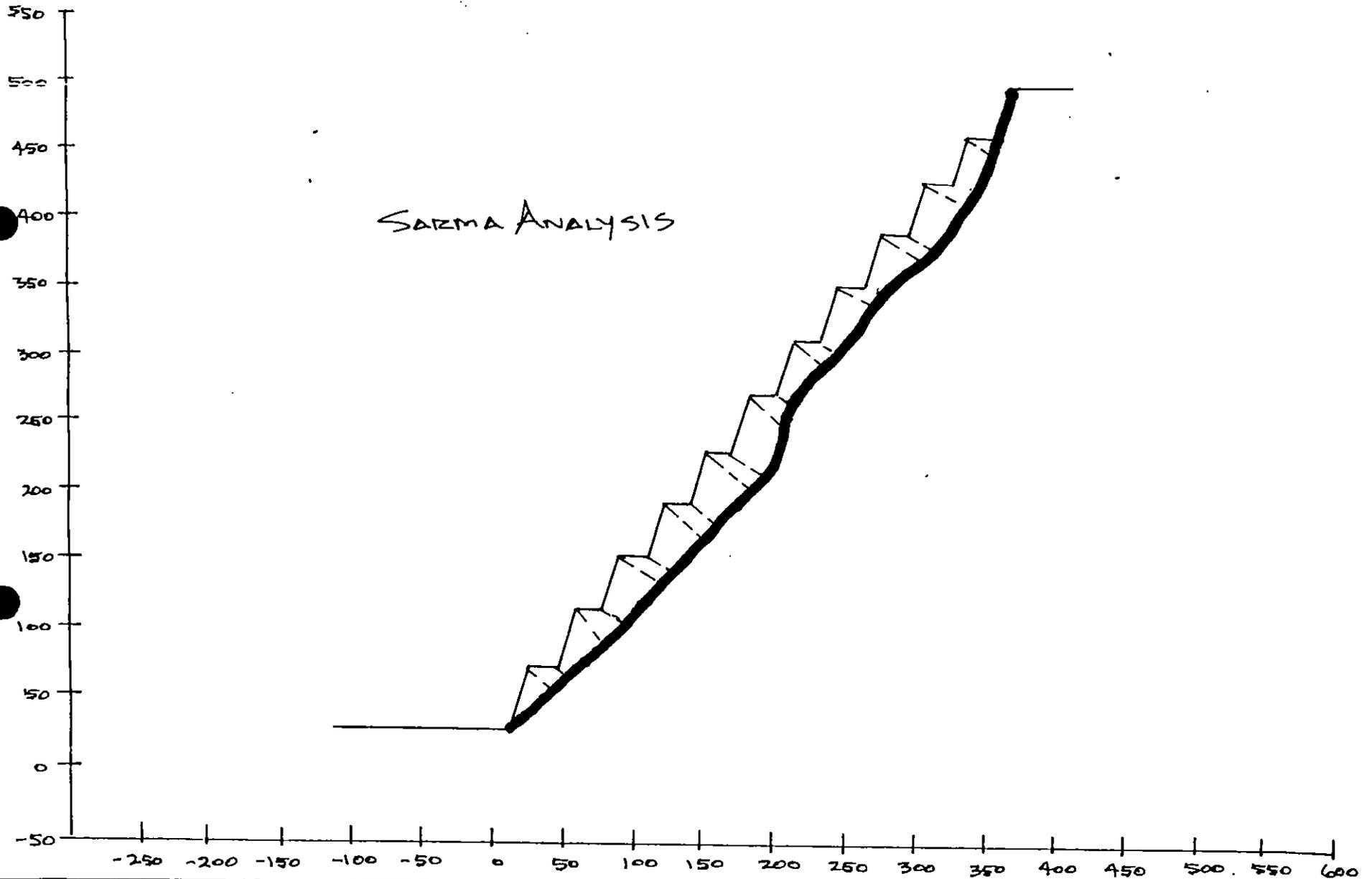
EARTHQUAKE

TEZAK HEAVY EQUIPMENT CO., INC.
AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS 3 SARMA

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SARMA ANALYSIS



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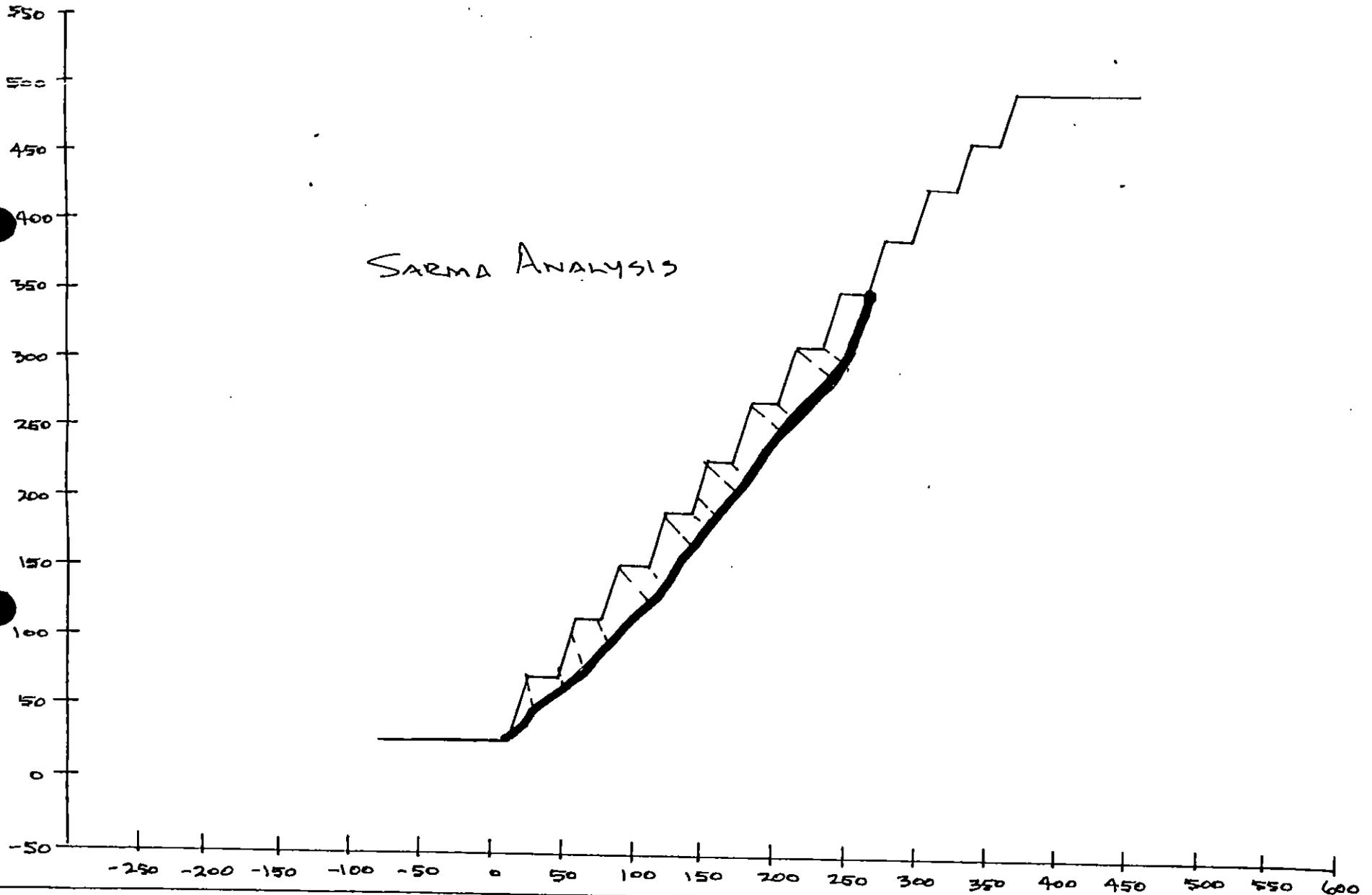
GALENA 2.0

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AGGREGATE SOURCE, INC.
HIGHWALL ANALYSIS SARMA #4

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