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AMENDED NO. 1, RP 123
DATE: 7-3-90
WITH PLATES

JUNE 29, 1990

RIVERSIDE COUNTY PLANNING DEPARTMENT
4080 LEMON STREET 9TH FLOOR
RIVERSIDE, CA. 92501

ATTENTION; PLANNING DIRECTOR;
ENGINEERING GEOLOGIST

SUBJECT : RECLAMATION PLAN, PYRITE QUARRY
(FORMERLY STRINGFELLOW)

GENTLEMEN;

ENCLOSED ARE THE REVISED UPDATED RECLAMATION PLAN EXHIBITS FOR THE PYRITE QUARRY.

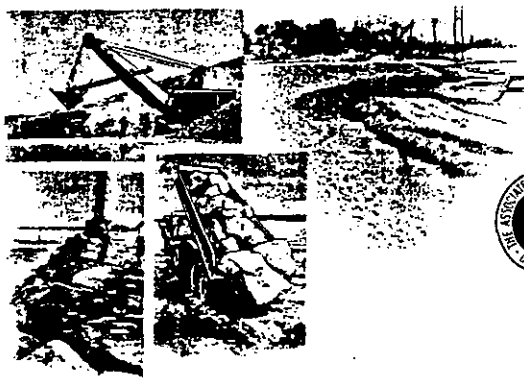
IF THERE ARE ANY QUESTIONS PLEASE DO NOT HESITATE TO CALL ME.

SINCERELY,

PAUL HUBBS CONSTRUCTION CO.

Jay P. Hubbs

JAY P. HUBBS, GENERAL MANAGER



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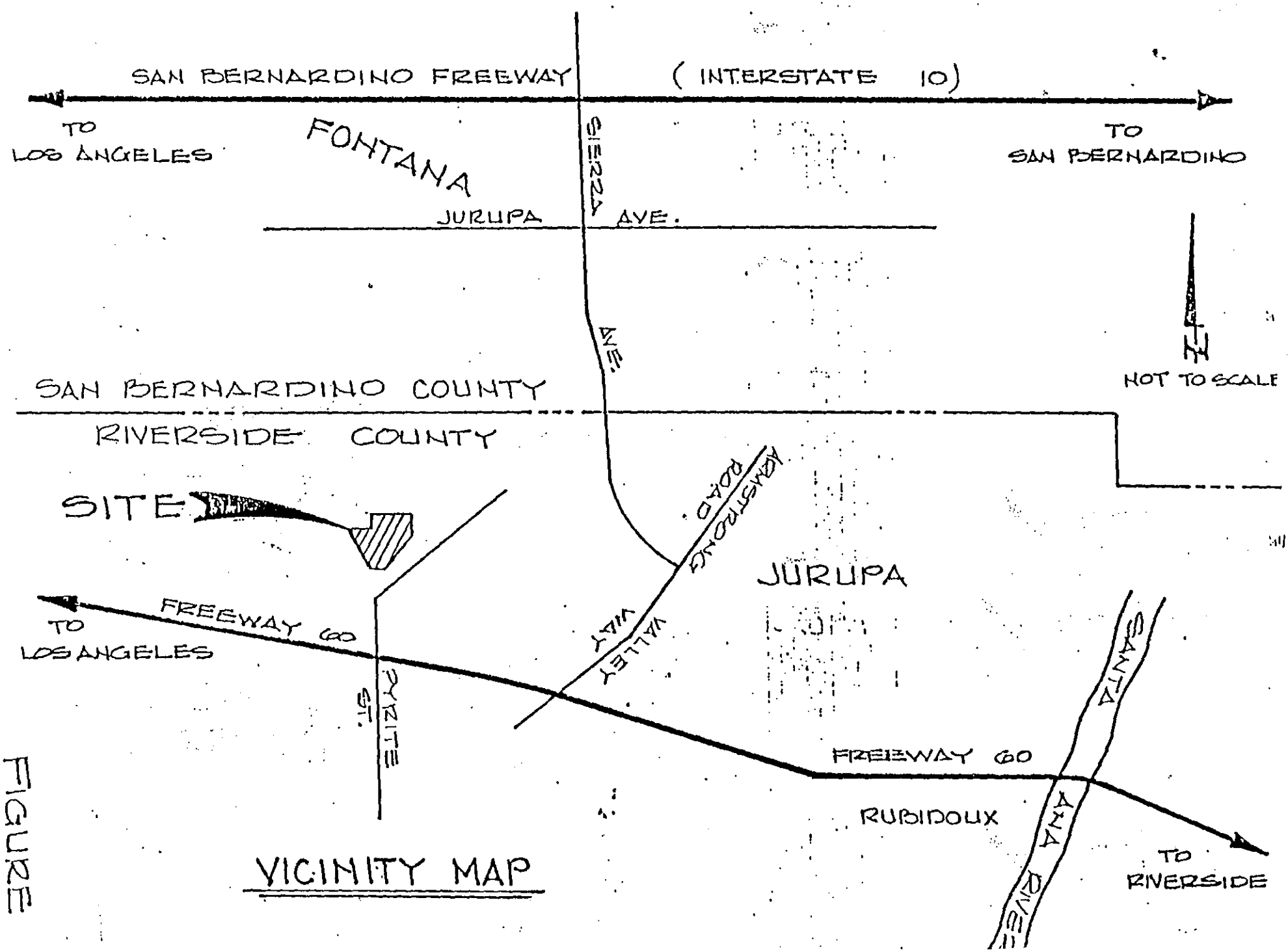
INDEX FOR PYRITE QUARRY RECLAMATION PLAN

1. APPENDIX C; LEGAL DESCRIPTION OF PROPERTY.
2. FIGURES 1,,& 2; GENERAL MAPS OF PROPERTY LOCATION.
3. PAGES 1 THROUGH 4; PROJECT DESCRIPTION.
4. EXISTING TOPOGRAPHIC SURVEY WITH TYPICAL DATA; SHEET#1
5. PROPOSED BENCHES AND GRADING.
6. CROSS SECTIONS OF EXISTING GROUND
7. REVISED PLAN FOR PLANTING AND FENCING.
8. PLAN FOR SAFE GUARDS (SEE ATTACHMENTS). COPY OF LETTER FROM RIVERSIDE COUNTY, OFFICE OF THE COUNTY COUNSEL.

APPENDEX C

That certain real property in the County of Riverside, State of Califor
described as,
That portion of Section 1, Township 2 South, Range 6 West, San Bernardi
Meridian, described as follows;
Commencing at the South one-quarter corner of said Section 1; Thence North 0°12'53" East, along the Westerly line of the East one-half of said Section, a distance of 1142.04 feet to its intersection with the Northeasterly line of the land described in deed to the Metropolitan Water District of Southern California, recorded March 27, 1936 in Book 2 of Official Records, page 104, said point being the TRUE POINT OF BEGINN thence North 18°55'49" West, along said Northeasterly line, a distance of 1533.59 to an angle point therein; thence continuing along the Easterl line of said Water District land, North 4°31'40" West, a distance of 73.78 feet to Northerly line of the South one-half of said Section; thence North 89° 52' 41" East along said Northerly line a distance of 509.06 feet to the center one-quarter corner of said section; thence North o°12'53" East, along said Westerly line of the East one-half of said Section, a distance of 568.10 feet to the Northerly line of the Southerly 568.09 feet of the Northwest one-quarter of said Section; thence North 89°52'41" East along the last described Northerly line, a distance of 1300.00 feet; thence South 0°12'53" West, parallel with said Westerly line of the East one-half of Section 1, a distance of 900.00 feet; thence Southwesterly, 1500 feet, more or less, to a point that bears South 89°47'07" East 500.00 feet from the TRUE POINT OF BEGINNING; thence North 89°47'07" West 500.00 feet to the TRUE POINT OF BEGINNING.

Containing approximately 60 acres.



VICINITY MAP

FIGURE 1

Project Description

A. Description of Mineral Commodity

The mining operations in the local area have apparently been conducted since the turn of the century. The existing Pyrite (formally Stringfellow) quarry has been in operation for approximately 40 years. Figures 1 & 2 show the location of the property. The mineral commodity being mined at this quarry is granite rock.

The main facility on the property is a large open pit rock quarry now called Pyrite Quarry. (See figure 2) Granite rock is quarried at this location and used for a variety of purposes, primarily riprap for flood control projects. The operating area of the quarry consists of one major working bench and face (quarry wall) that encompasses approximately 10 acres. The attached maps show location and topography of the site and the drawings clearly define the quarry's present configuration.

B. General Geology and Deposits Being Mined

The Pyrite (originally Shannahan) quarry is located in the Jurupa Mountains which are considered the northern most extension of the Perris fault block. Most geologists consider the Jurupa Mountains as part of the cryntalline granitic rocks that comprise the Southern California batholith. (The primary reference used incompiling geologic information for the site is "Geology of the Jurupa Mountains San Bernardino and Riverside Counties, California, Edward M. Mackevett. Special Report 5, Department of Natural Resources, Division of Mines, February, 1951.)

The existing quarry is located in a granodiorite ridge that is typical both of the local area and of the Southern California batholith. Mackevett termed the quarry material the Woodson Mountain granodiorite. Immediately adjacent to the quarry on the east is an outcrop of typical quartzbiotite gneiss. The rock of primary interest is the Woodson Mountain granodirite.

As indicated above the Jurupa Mountains are considered the northern most outcrop of the Southern California batholith and way represent a "structural transition between the Peninsular Ranges to the south and these of the Transverse Ranges to the north." The general conclusion is that local faults occur in the Jurupa Mountains but no large, continuous faults are known to exist, as to origin the granitic material appears to be cretaceous or younger in origin whereas the adjacent metasedimentary gneiss is considered to be between Trinssic or Palegoic in age.

The southeastern portion of the quarry site is covered with stream deposited allevium derived from the drainage basin extending to the northeast. This material is typical coarse to medium sand deposited in the upper portion of a drainage basin.

C. The following is a limited description of the natural environmental and land use characteristics for the project site and adjacent area:

1. Geology and Topography. See Section B above for a discussion of the historical, structural and lithologic characteristics of the site. The quarry is located at the end of a granitic ridge. The eastern portion of the site is flat and includes both alluival area and a portion of the old working bench. The quarry wall is over 100 feet high at its center with one real working bench. Elevation ranges from approximately 1000 feet to a little above 1100 feet. The rest of the area within the reclamation boundary consists of steep sloped ridge area.

2. Hydrology. The project site does not contain any permanent surface water. During the winter precipitation period, sheet flow occurs off of the undisturbed ridge area and the quarry face. The alluival area is primarily an area of percolation, ie. groundwater recharge. The eastern most portion of the site contains an intermittently flowing stream with a drainage area of approximately one square mile. Data on surface under quality indicates that some contamination from the Stringfellow acid waste pits has affected the winter stream flow in the channel. (Refer to "Engineering Study of Stringfellow Class I Disposal Site", Montgomery, James M. Consulting Engineers, Inc., October, 1976.) The future quality of surface water in the stream will depend upon how effective current cleanup measures turn out to be.

Groundwater is not known to occur in the granitic portion of the quarry site. The quarry site obtains its water for operations from Jurupa Community Services Hydrant.

3. Soils. The soils on the property are identified as being in the Cieneba Rock Land Association (Data from Western Riverside Area Soil Survey, Soil Conservation Service). These soils are generally found on upland rocky areas with steep slopes. They are generally shallow, low fertility soils. The alluvial soil on the east portion of the site is a combination of Madera fine sandy loam and young alluival soil. This is a capability III and IV type soil which will serve well for future reclamation. The cineba soil is subject to erosion and on steep slopes severe erosion potential exists. These soils are too shallow to warrant stockpiling. The areas that have been quarried and / or disturbed have had all soil removed and the remaining material consists of rocks and weathered parent material.

4. Biotic Community. The quarry area is a blend of natural and nonnative biotic communities. Undisturbed hill areas generally belong to the coastal sage scrub plant community. The quarry itself is devoid of vegetation and the alluival area consits of native trees and exotics, especially red box (Eucalyptus Polyanthemas). In some lluival areas "weedy" species have invaded and are the dominant plants. Common plants are identified in the Plant List Appendix A. A species of annual mint, Pringle Monardella (Monardella Pringlei) is considered rare and may be located at springs in nearby areas. The absence of springs within the reclamation boundary precludes its presence on site.

The faunal community at this site is very complex. Field observations indicate a large population of small mammals (mice and rabbits) and a commensurate population of rapters and carnivores. Owls are known to hunt in the area. The trees in the area provide good potential nesting sites as well as hunting perches. Coyotes appeared to be the dominent carnivores based on filed observations. No rare threatened or endangered species are known to inhabit the area.

5. Land Use. Of the 60 acre site reserved for quarry operations in this reclamation plan approximately one half has been disturbed by historic quarry operations. Access is provided by a paved extension of Pyrite Avenue. The site has an extensive equipment storage area, working benches and quarry face. This area comprises approximately 30 acres. The rest of the site is relatively undisturbed. Adjacent uses are: West, open space and automobile dismantling yard; North, open space an abandoned ordnance manufacturing area and the Stringfellow Class I disposal site which has failed and is being reclaimed by the State; East, open space and an exisiting ordnance manufacturing facility; South, open space, operations building and weighing scales and ultimately Highway 60 and the Community of Glen Avon. In general this quarry is located in an area of uses that are compatible with its operations.

Proposed Operations:

A. Quarry operations at the existing site have been on-going since at least the 1930's. The present owner has operated the quarry since 1967. Pyrite quarry has been operated intermittently since the present owner began operations. Based on existing rules and and regulations under the Surface Mining and Reclamation Act the present operator has had a vested right of operations since 1976. Even though the only area requiring reclamation is the area quarried since 1976, the owner proposes to reclaim the whole quarry site at the end of operations. This is necessary since areas mined prior to 1976 are integrally tied to current operations.

B. The projected lifetime for this reclamation plan is 30 years. This is based on the intermittent operations of the quarry and a reasonable length of operation in which to initiate reclamation operations. Sufficient mineable rock lies adjacent to the quarry that its operational lifetime could be extended if desired; however no plans presently exist to do this.

C. The present mining method is a multibench rock quarry operation.

D. Rock quarry operations are carried out at the Pyrite site.

E.

1. Tonnage of mined material: Estimated as 100,000 TPY (tons per year)

2. Tonnage of waste overburden: A minimal amount of overburden is generated since almost all material will be used for construction operations. Estimated as 10,000 TPY.

3. Total tonnage to be handled: Estimated 110,000 TPY.

F. All quarry operations will be at or above the local surface level. Although not extending below the surface, the quarry will have walls or working faces that will result in vertical relief of 300' + - with 40' high by 20' wide benches from quarry top to floor at the end of the 30 year period. 1990 through 2020.

G. Processing operations are conducted at the Pyrite quarry. A rock crusher is used to reduce the size of rocks and to segregate them by size.

H. Current water consumption varies depending on the extent of operations. When rock is being quarried the operations consumes an estimated 5000 gallons per day. This water is used for dust control either during quarrying or during crushing operations.

Mining Plan:

A. The proposed progression of mining for the Pyrite Quarry is estimated at 100,000 TPY. Typical and stations 4,6,7,8 shows the final contours after 30 years of operation and the removal of 3,000,000 tons of rock.

B. As discussed above, quarry operations have been conducted at Pyrite for decades. Aside from heavy equipment and trucks for handling, loading and delivery of rock material, a part of the flat area adjacent to the quarry working area is used for storage of old equipment and equipment not currently being used. As necessary, additional equipment is brought to the quarry to meet operational requirements. As equipment is determined to be excess to needs it will be sold for scrap value.

C. Items C-1 through C-5 are maps that are provided in this report as Figures 1 through 8.

Reclamation Plan:

A. Refer to figures A-A, B-B, C-C, D-D, E-E, F-F for the cross-sections illustrating existing quarry topography. Refer to stations 4,6,7,8 and north typical illustrating final form in year 2020.

B. The area that will be reclaimed at the rock quarry is shown in Figure 3. Approximately 60 acres will be reclaimed based on 30 years of operation.

C. The rock quarry will remain essentially as it is now. A flat worked over area at the base of the high quarry working face. Some benches will be out into the working face as shown on the map typical and stations 4,6,7,8. In new working areas benches at 40 feet intervals will be worked. If a decision is made to utilize the quarry area for alternative uses, several possible uses exist. Depending on future zoning the flat quarry floor would make an ideal industrial area, particularly for ordinance industry uses which are already located in the adjacent area. The quarry face will be unusable in the future. The whole face area could be designated as open space without adversely effecting use of adjacent flat areas for industrial purposes. The face, of course, can serve only as non-functinal open space.

D. The amount of soil that will be disturbed during quarry activity over the 30 year perid will be minimal. This is a result of the amount of exposed face available for quarry operations The soil that will be disturbed on the top of the ridge is extremely poor, thin soil with no stock pile value. At the end of quarry operations the fine material, although not actually soil, will be available for emplacement on flat areas. With proper fertilization and management this material should serve as an adequate growing medium which will eventually evolve into soil.

E. Reclamation Methods, Sequence and Timing.

1. The inital reclamation effort will consist of implementing safety measures. Fences will be placed so as to prevent access to the quarry face within six months after approval of this plan. Fenced areas will be properly signed in English and Spanish. Areas designated for storage of equipment and for access to the working face will be fenced and access will be controlled.

2. Backfilling and grading: Vertical quarry faces or walls will not be reclaimed by this method. The quarry floor will be covered with fine materials remaining form quarry operations and imported topsoil as necessary. A depth of 1 to 2 feet will be spread by loaders and graded. Quarry face benches will be left with no surface cover and a gentle slope away from the quarry face where runoff will be allowed to flow down the face. This reclamation operation will be done at the end of the mining operation. Unless otherwise noted, all reclamation measures will be implemented within one year after mine closure. The existing vertical quarry face is very stable, as is typical in most granitic rock quarries. The walls will be scaled (loose material knocked off) and left in their final mined state. The existing face does not exhibit any joint patterns that would indicate future instability. If such condition develops the slope will be modified to a safe non-hazardous angle and it will be properly stabilized by artifical means, if necessary. At the base of the main face a sufficient buffer area will be set aside to provide a rock fall space free of incompatible uses. Scaling and slope control will be undertaken at the end of operations.

3. The quarry operation will not generate any accumulative tailing pile. All materials will be consumed as generated except small quantities of fine material which will ultimately be used in reclamation. Material will be used as needed during the life of the quarry.

4. At present the only runoff from the quarry is on the face and then from the base of the cliff a small amount of runoff flows overland as sheet flow to the main runoff channel in Pyrite Canyon. Due to this unusual surface runoff setting at Pyrite Quarry, it is deemed wiser to allow runoff to continue to flow down the face to the existing quarry floor. This option provides the best opportunity to control or minimize erosion by collecting flow at the base of the impermeable face and allowing it to flow as sheet flow from this location. If in the future the runoff increases, a channel can be constructed to the Pyrite Canyon main channel, approximately 1/3 mile distant.

5. As previously noted part of the quarry area is used to store old equipment. All usable equipment will be removed at the end of operations, if the quarry is closed. All other equipment and debris will be disposed of by the operator at a proper disposal or recycling facility

or it will be sold to a salvage operator. There are no structures to be concerned about. Clean up operations will continue throughout the operational life of the project. Final clean up will be completed within one year after quarry operations are terminated.

6. As far as is known no contaminants are generated at the Pyrite quarry operation. The only other contaminant would be petroleum spilled accidentally during operations. Such spills would be minor and will be handled on a case by case basis.

7. Erosion potential at this quarry is minimal. Based on field observations the only erosion control measures required will be slope control on the face and management of flow from the quarry floor at the base of the face. As previously indicated a channel can be constructed if needed.

8. The only hazards directly caused by the quarry operations at Stringfellow will be the remaining vertical walls. (note that the Stringfellow acid pits are located adjacent to the quarry and there may be residual hazards in the area caused by their presence). As described previously a fence set back five feet from the top of the vertical wall, will be installed. A barbed wire or chain length fence will be constructed around the whole top of the wall. The fence will be properly signed as a warning to any persons. At the base of the vertical face the area will be fenced and signed, noting the danger of falling rock.

9. Revegetation at the Stringfellow site will be restricted to the flat quarred area below the vertical face. This decision is made because the small benches will be graded to direct runoff to the front of the face to minimize overall erosion and this type of slope would cause any topsoil to be eroded. The flat area will be revegetated with a species mix as defined in Appendix B. Initial revegetation will be with native species but, if the area is utilized for alternative uses in the future, the use of exotic landscape species can be expected. Fertilizers and / or hydromulch will be used where necessary. The area will be surveyed after initial revegetation attempts and, if necessary, a follow up effort will be conducted.

10. Since all quarried material will be consumed as generated, this operation will not leave any waste piles on-site. The all final slopes will be field reviewed and checked by an engineer to confirm their stability prior to the completion of the reclamation effort.

F. During operation of the quarry the following reclamation activites will be implemented.

1. Fences will be installed and properly signed. Two strand barbed wire will be used except in cases where chain length fencing is necessary.

2. All operating piles of quarry material will be maintained at a stable slope and to the degree necessary quarry walls will be periodically scaled to minimize the hazard from falling rock.

G. Because the whole quarry will be in operation and use during the period the reclamation plan is in effect, the major site reclamation will be undertaken at the end of the 30 year operation period. Should the quarry continue to operate after this period, the mining plan will be amended as necessary.

H. Reclamation will not permanently affect future quarry operations assuming Pyrite is still economically viable at the end of the 30 year nominal operational period. Should the quarry be reopened after reclamation, it could disturb parts of the reclaimed area. Adverse alterations to the reclaimed area would be noted on a plan amendment and a new final reclamation plan would be established.