MINING

AND

RECLAMATION PLAN

BRAZTAH CORPORATION OPERATIONS
CARBON COUNTY, UTAH

FRANKLIN REAL ESTATE COMPANY

LESSEE

GEOLOGICAL SURVEY
APR 6 1976
SALT LAKE CITY, UTAH
MINING BRANCH

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FOREWORD

Franklin Real Estate Company, a wholly owned subsidiary of American Electric Power Company, Inc., (AEP) a public utility holding company, has acquired lands and interests in lands, including State and Federal Mining leases as hereinafter set out, in order that coal might be mined therefrom for use of its affiliated electric utility companies. Braztah Corporation, a coal mining company, organized and existing by virtue of the laws of the State of Utah, has agreed, by Coal Mining Contract dated June 27, 1975, to mine, and produce coal from such lands and to deliver such coal as an independent contractor to AEP affiliates f.o.b. railroad car at loading facilities at Castle Gate, Utah. Under the terms of this coal mining contract, Braztah Corporation has also agreed to perform all obligations of Franklin Real Estate Company under all mining leases covering coal lands from which coal is to be mined and produced under the contract. This Mining and Reclamation Plan has therefore been prepared by Braztah Corporation, the mine operator, and submitted for review and approval of the Mining Supervisor of the United States Geological Survey, for and on behalf of Franklin Real Estate Company, lessee under Federal Mining Leases hereinafter identified, pursuant to requirements of such leases and governing regulations.

I. GENERAL

A. Description of Existing Area

1. General Description

The proposed mining unit is located approximately 10 miles north of Price, Utah, and 110 miles southeast of Salt Lake City. The unit is in the Wasatch Plateau and Book Cliff coal fields in Carbon County. Elevations vary between 6,000 and 9,500 feet above sea level. The involved lands are quite mountainous, and dissected by numerous steep canyons. See Contour Map #16A, Appendix B. There are three perennial streams - the Price River and tributaries, Willow Creek, and Spring Canyon Creek which traverse the area. Scofield Reservoir, with available storage of 30,000 acre feet, supplements the flow of Price River. A number of springs have been developed for mining use. Water quality data for Willow Creek and developed spring water is practically non-existent. In general, the Price River water is of poor quality with high total dissolved solids content (4,000 Mg/L). Spring Canyon Creek also is of poor quality with high hardness, dissolved solids, and sulfate content. Water accumulations in old underground mine workings are substantial, and have been and are currently being used for industrial purposes.

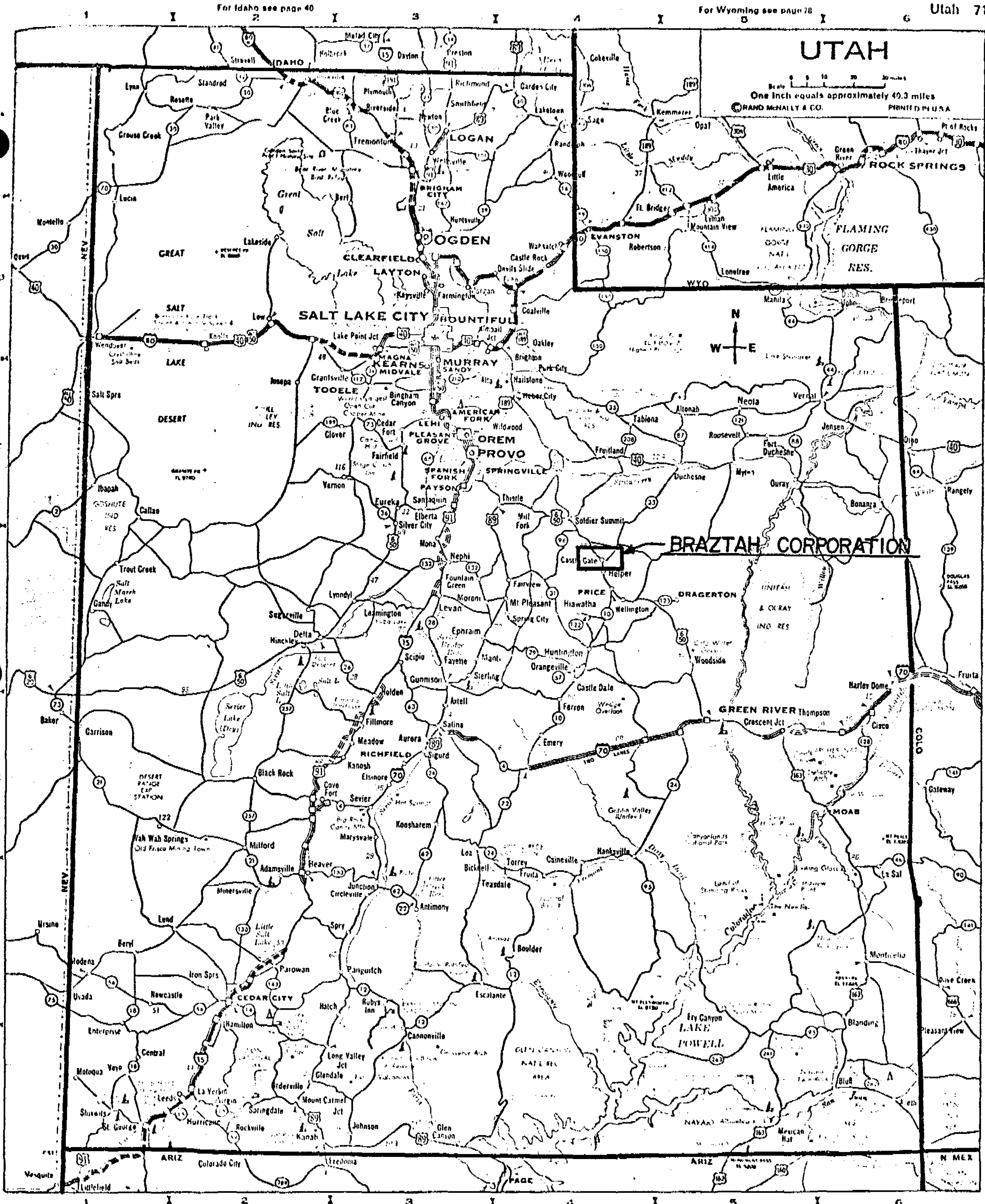


Fig. #1

UTAH

Population: 1,067,810
(1970 Census)
Area: 84,916 Sq. Miles
Capital: Salt Lake City

Cities and Towns

- American Fork.....C-3
- Beaver.....F-2
- Bicknell.....F-3
- Bingham Canyon.....C-3
- Black Rock.....E-2
- Blanding.....F-6
- Bluff.....G-6
- Bountiful.....B-3
- Brigham City.....A-3
- Callao.....C-1
- Cannonville.....G-3
- [illegible]
- Cedar City.....F-2
- Clearfield.....B-3
- Coalville.....B-4
- Delta.....D-2
- Dragerton.....D-5
- Duchesne.....C-5
- Ephraim.....D-3
- Escalante.....F-3
- Eureka.....C-3
- Fairview.....D-4
- Farmington.....B-3
- Ferron.....E-4
- Fillmore.....E-3
- Garrison.....E-1
- Glen Canyon.....G-3
- Grantsville.....C-3
- Green River.....E-5
- Grouse Creek.....A-1
- Gunnison.....D-3
- Hanksville.....F-4
- Harley Dome.....D-6
- Heber City.....D-4
- Helper.....C-4
- Hurricane.....G-2
- Junction.....F-3
- Kanab.....G-2
- Kaysville.....B-3
- Lakeside.....B-2
- La Sal.....F-6
- Layton.....B-3
- Lehi.....C-3
- Loa.....E-3
- Logan.....A-3
- Magna.....B-3
- Manila.....B-5
- Manti.....D-3
- Marysvale.....E-3
- Mexican Hat.....G-5
- Midvale.....C-3
- Milford.....E-2
- Moab.....E-6
- Monticello.....F-6
- Morgan.....B-4
- Moroni.....D-3
- Mt. Pleasant.....D-4
- Murray.....B-3
- Nephi.....D-3
- Newcastle.....F-1
- Ogden.....B-3
- Orangeville.....D-4
- Orderville.....G-2
- Orem.....C-3
- Panguitch.....F-3
- Park City.....C-3
- Parowan.....F-2
- Payson.....C-3
- Pleasant Grove.....C-3
- Price.....D-4
- Provo.....C-3
- Randolph.....B-4
- Richfield.....E-3
- Richmond.....A-3
- Roosevelt.....C-5
- St. George.....G-1
- Salina.....E-3
- Salt Lake City.....B-3
- Santaquin.....C-3
- Scipio.....D-3
- Shivwits.....G-1
- Sigurd.....E-3
- Smithfield.....A-3
- Snowville.....A-2
- Spanish Fork.....C-3
- Springville.....C-3
- Teasdale.....F-4
- Tooele.....D-3
- Tremonton.....A-3
- Trout Creek.....D-1
- Vernal.....C-6
- Vernon.....C-3
- Wellington.....D-4
- Wellsville.....A-3
- Wendover.....B-1

Access to the area from Price is via U.S. Highway 50 & 6 north to the various turnoffs, then by secondary hard surfaced roads to the different mines and facilities. The main line of the Denver and Rio Grande Railroad approximately bisects the area of operation.

The City of Helper, approximately 2 miles south of the area of operations with an estimated population of 2,000, and the City of Price, approximately 10 miles south of the area of operations, with an estimated population of 8,000, are the nearest population centers. See location maps, Fig. #1 and #2.

There are no recreational areas of national importance in the region. Recreational facilities of local importance include Scofield Reservoir, some 25 miles northwest, and numerous facilities in the cities of Helper and Price. Price Canyon Recreation Area lies within the mining unit.

The area is rich in mining history, with many abandoned mines in the area, in addition to other operating mines.

The property and leases of Franklin Real Estate Company (Franklin) is located in T. 12 and 13 S., R. 8, 9, and 10 E., and extends from the upper part of Spring Canyon on the west for a distance of 14 miles to the east, or approximately three miles east of the town of Kenilworth. The holdings represent a consolidation

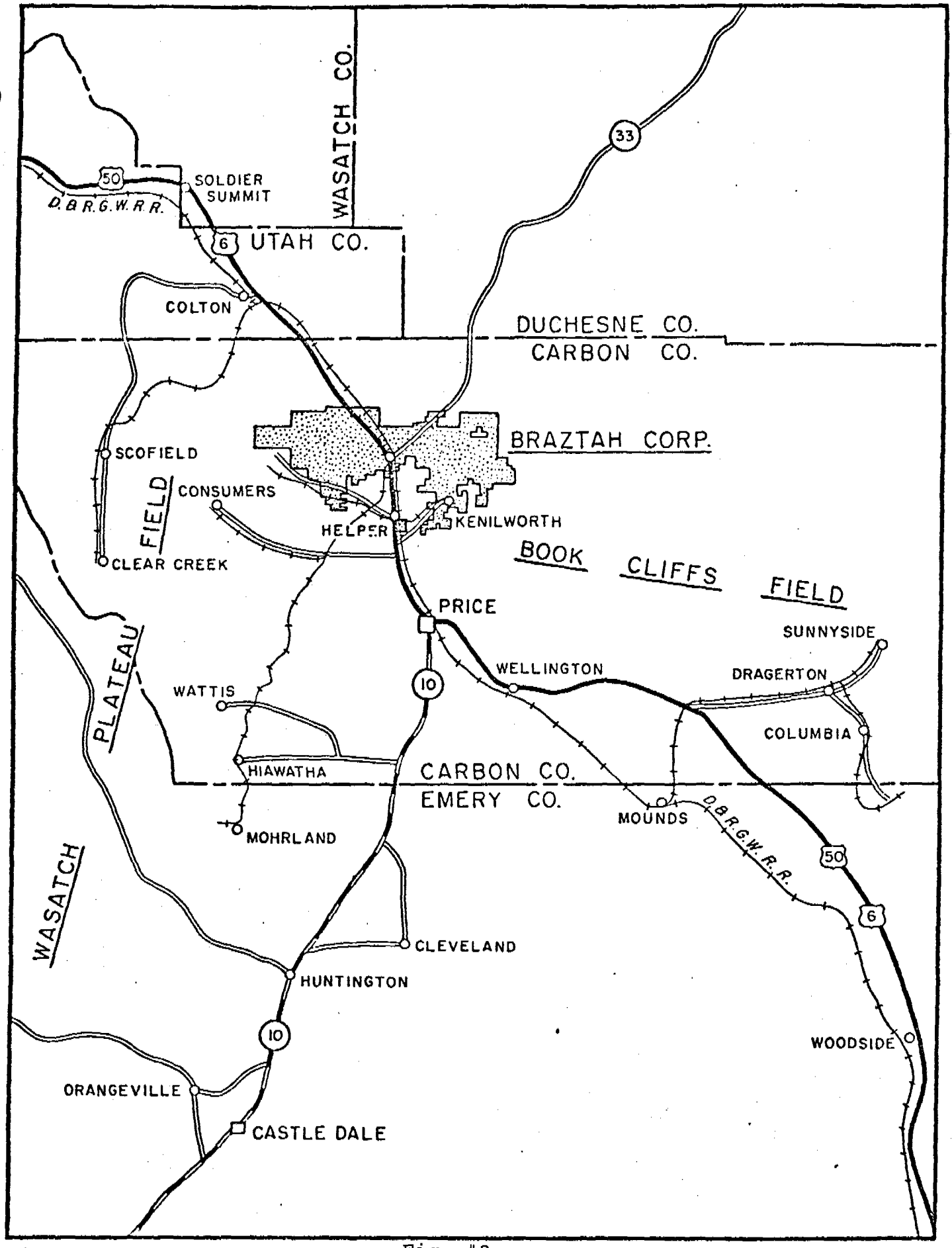


Fig. #2

WASATCH PLATEAU - BOOK CLIFFS COAL FIELD AREA
EMERY AND CARBON COUNTIES, UTAH

SCALE 0 5 10 20 MILES

of several properties, the acquisitions of which were made from Carbon Fuel Company, Spring Canyon Coal Company, and the Kanawha & Hocking Coal and Coke Company.

Included are lands held under various title classifications. A large part of the tract, particularly along the south side, is held in fee simple title, including coal rights. Surface title is also held on several areas where coal is under lease, and other surface rights are owned where coal does not underlie the area.

A large part of the undeveloped section of the property, particularly in the northern part of the tract, is held under State and Federal leases, and coal leases on several small tracts have been obtained from Carbon County.

The Franklin Real Estate Company holdings include approximately 26,220 acres and an application for lease on approximately 1,173 acres north of the Kanawha & Hocking acquisition is currently being processed.

2. Land Ownership

The Federal, State, County, and private lands involved in the operation are located in T 12 and 13 S,

R 8, 9 and 10 E. See Surface and Coal Holdings Fig. #3.

3. Surface Ownership

The owners of surface lands adjacent to the proposed operation, according to the Carbon County records, Price, Utah, are shown on adjacent Surface Lands Ownership Fig.#4, Appendix "B", Franklin surface ownership is shown on Fig.#4a.

The surface of the lands under Federal lease is administered by the Bureau of Land Management (BLM), with various sheep and cattle grazing leases in effect throughout the area.

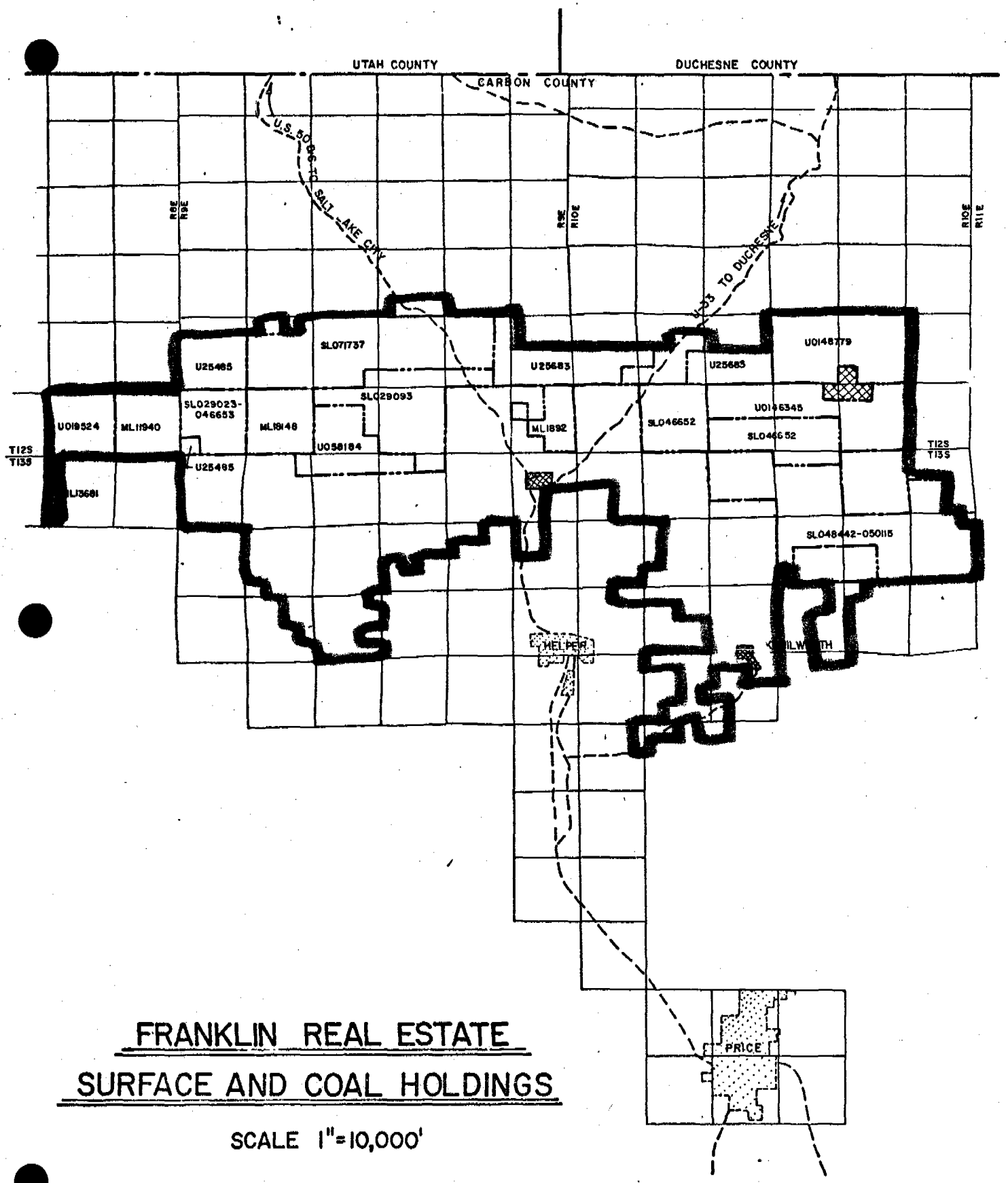
The surface of the lands have old coal waste dumps in areas adjacent to several of the abandoned mines that have not been reclaimed.

4. Mineral Ownership

The mineral rights of the proposed mine are owned or controlled by Franklin Real Estate Company. See Coal Ownership, Fig. #5.

5. Climatology

The unit lies in an annual precipitation belt of 8 to 10 inches, with an average of 8.5 inches. Annual temperature averages 57 deg. F. Recorded snow data indicates an average accumulation of 16 inches with an average water equivalent of 1.8 inches. The

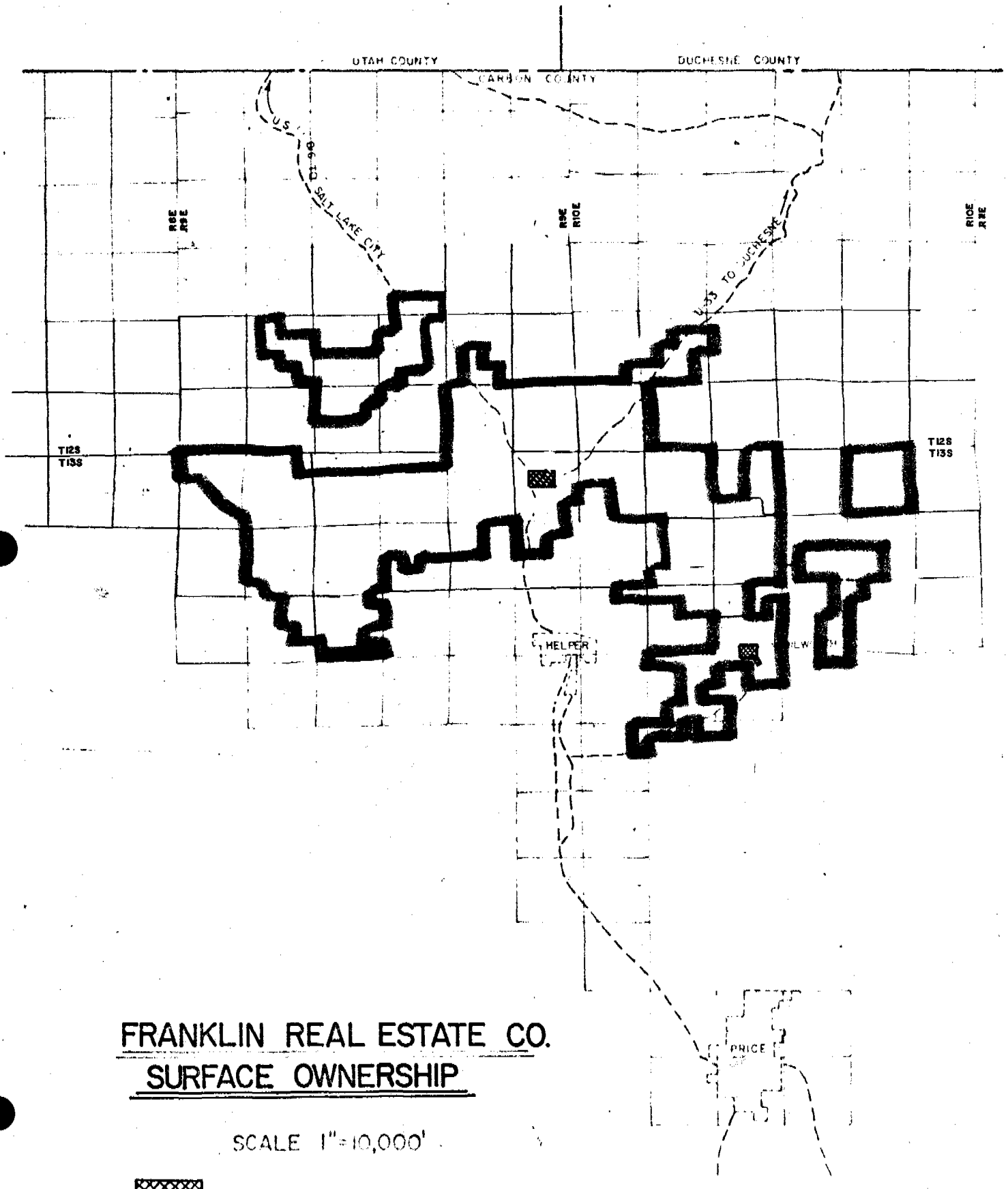


FRANKLIN REAL ESTATE SURFACE AND COAL HOLDINGS

SCALE 1"=10,000'

= EXCLUDED

FIG. 3

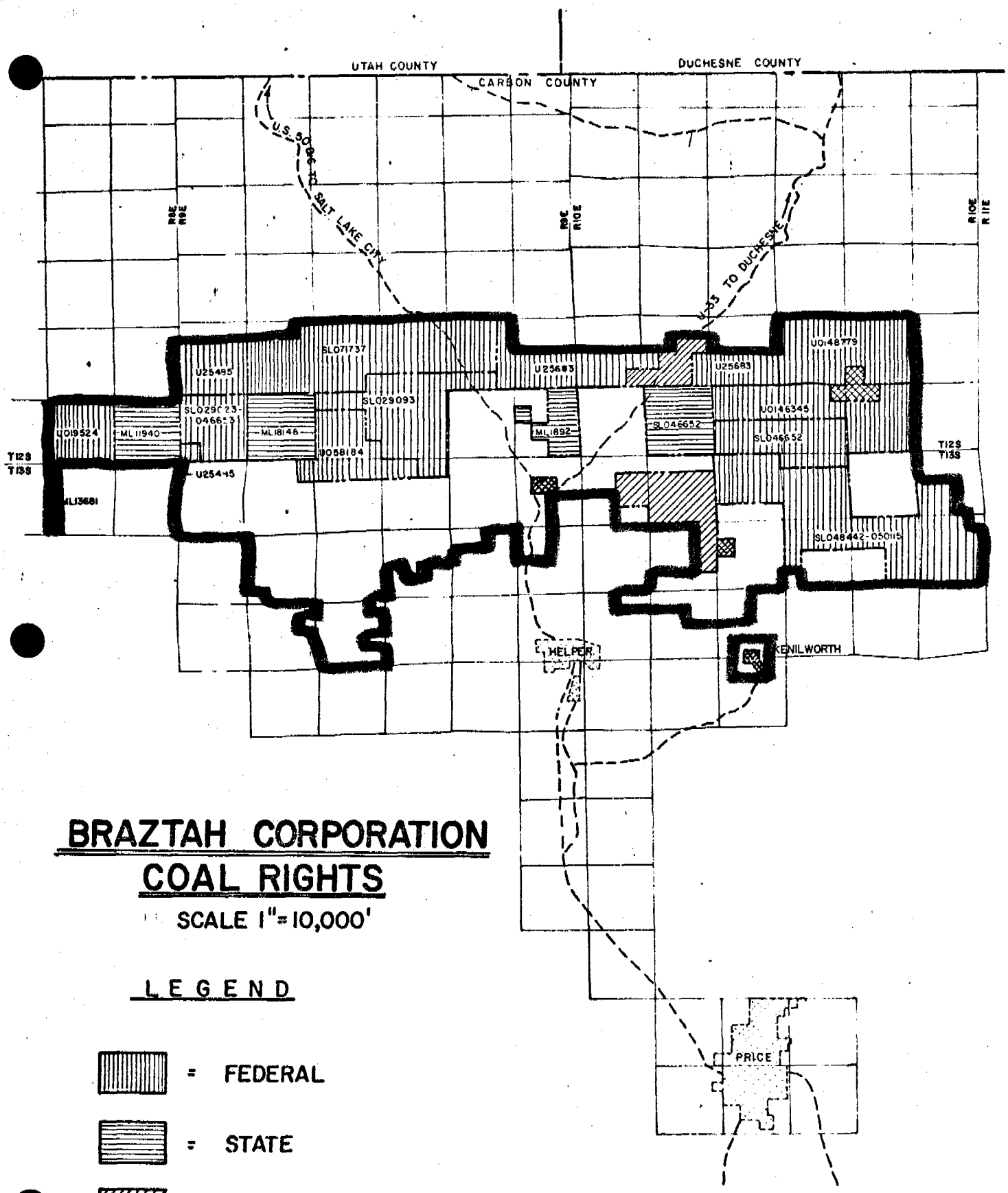


FRANKLIN REAL ESTATE CO.
SURFACE OWNERSHIP

SCALE 1"=10,000'

= EXCLUDED

FIG. 4a



BRAZTAH CORPORATION COAL RIGHTS

SCALE 1" = 10,000'

LEGEND

= FEDERAL

= STATE

= COUNTY

= FEE

= EXCLUDED

FIG. 5

average frost free season extends about 135 days from June through September. Wind data in the area is extremely sparse; the estimated wind direction and velocity is shown in Fig. 6, "Prevailing Winds." Air inversions in the area are not common. Ambient air quality in the unit area is considered to be fair. Several sources in Price Canyon contribute to local air pollution, among them being the UPL 160 mega watt power generating plant, D&RG Railroad, highway traffic on U.S. 50 & 6, and existing mine portals.

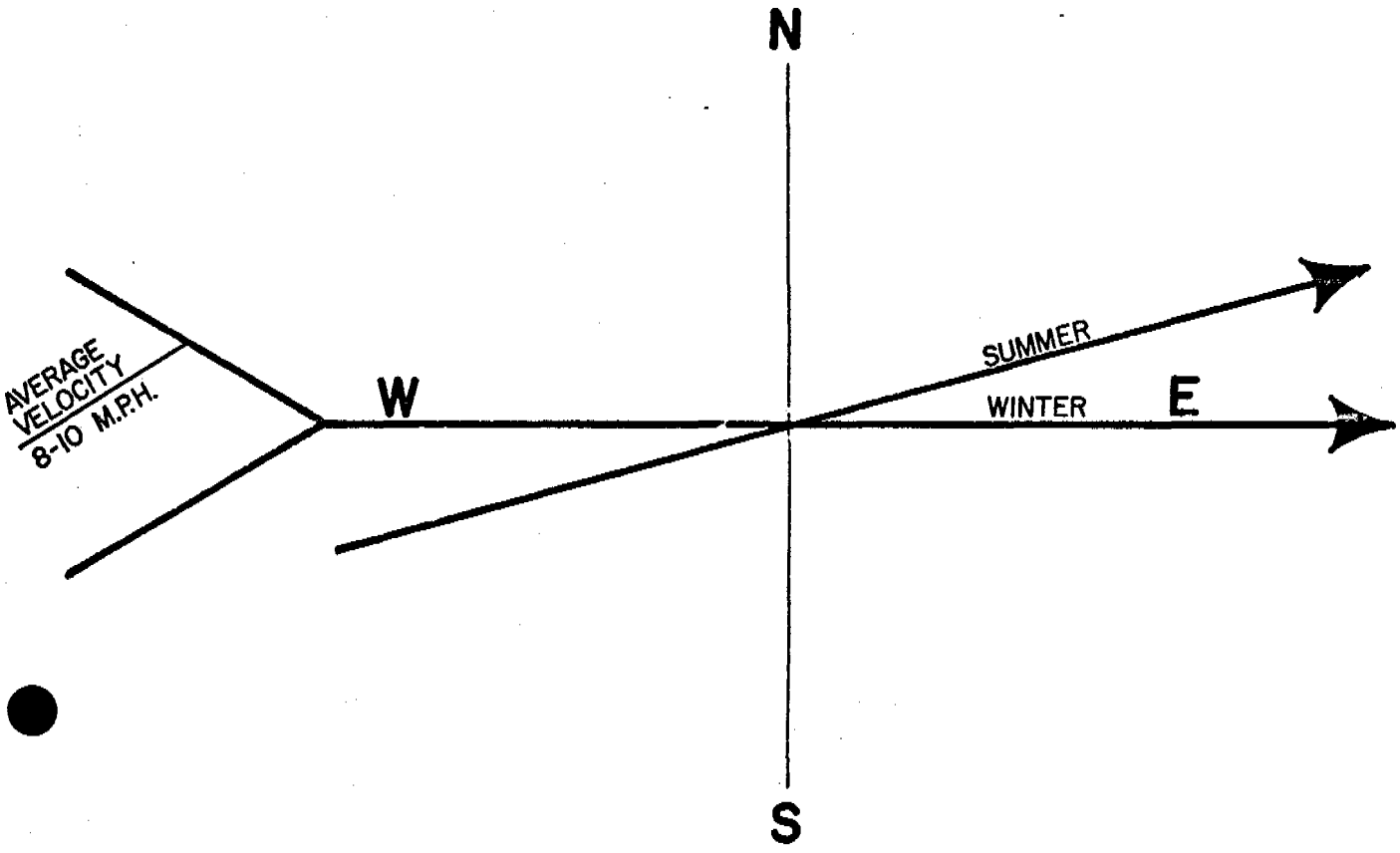
6. Flora & Fauna

a. Flora

Three major plant communites as follows are found within the area, with a wide transition zone between the communities:

(1) Mixed Conifer Community, found in the north facing slopes of the higher elevation. The major tree species in the community are Douglas fir, subalpine fir, and white fir. Minor species include ponderosa pine, quaking aspen, maple, and willow. The major shrub species present are true mountain mahogany, serviceberry, chokecherry, and snowberry.

(2) Mountain Brush Community, found on the south facing slopes of the higher elevations and on both north and south exposure at intermediate elevations. The major species in



PREVAILING WINDS

Fig. #6

this community are gamble oak, quaking aspen, mountain mahogany, cliffrose, curleaf mahogany, and rocky mountain maple. Some sagebrush, rabbit brush, bitter brush, and Mormon tea are also present.

(3) Pinyon - Juniper community, is confined primarily to the lower elevations of the area (5,500 feet). The major species are pinyon pine (pinus edulis), Utah juniper, Rocky Mountain juniper, sagebrush, mountain mahogany, serviceberry, and rabbit brush.

Several understory grass and forb species are present in the above mentioned plant communities. Some of the major species are: smooth brome, bluebunch wheatgrass, Kentucky bluegrass, squirrel tail, Indian rice grass, blue grama, yarrow, stickseed, aster, sego lily, western beeweed, and lupine.

b. Fauna

The major big game species found in the area are deer and elk. As a matter of interest, since the start of operations in Spring Canyon, an elk herd has commenced wintering on the slopes in the immediate vicinity of the operations. The presence of the operation in that area, with the associated people, noise, etc., had no apparent affect on the elk herds' decision to winter in the area.

Other wildlife species found in the area are the snowshoe hare, cottontail rabbit, blue grouse, sage grouse, chukars, bear, mountain lion, bobcats, coyotes, and small mammals such as marmots, tree squirrels, and ground squirrels. Some species of raptors can be found within the area yearlong. No rare or endangered species are known to inhabit the area.

7. Archeological and Historical Sites

Surveys have been conducted for archeological and historical sites in all of the areas to be disturbed. No finds were made in the area which would meet the National Standards for nomination to the National Register of Historic Places. Of local historic interest is a cemetery on Willow Creek, in which many of those who lost their lives in the Castle Gate #2 mine explosion of 1924, are buried.

B. Development Phases

1. Permit and Lease Acquisition, Exploration & Mining

The status of Federal and State leases required prior to operation of the mine and all related facilities, is shown in Fig. 7, Page 7A, "Chronological List of Leases."

The planned operation could best be described as an orderly development of a large area containing several seams of coal. Mining has been done at

Federal		State	
U-058184	July 1921	SL046652	Aug. 1921
SL-046652	Aug. 1921	ML1892	June 1947
SL-048412	Nov. 1930	ML13681	July 1956
SL-050115	Nov. 1930	ML18148	Feb. 1960
U-25484	June 1961	ML11940	Sept. 1967
U-25485	June 1961		
U-0146345	Nov. 1965		
U-019524	Aug. 1966		
U-0148779	Jan. 1968		

CHRONOLOGICAL LIST OF LEASES

various times by various companies, and in different seams, as shown on seam overlay maps 8A and B, 9A and B, 10A and B, 11A and B, and 12A and B, all in Appendix "B". Mining is now in progress at the Braztah #3 (formerly Carbon Fuel No. 3), 4, and 5 Mines.

2. Production Schedule

Presently anticipated production rates are as follows:

1976	1.543 million tons
1977	3.010 million tons
1978	4.535 million tons
1979	5.200 million tons
1980	5.300 million tons
1981	6.000 million tons
Annually Thereafter	6.50 million tons

Life of the mine operation is estimated to be in excess of 25 years. Recoverable coal reserves have been estimated to be at least 140 million tons. A drilling program is underway to further determine the quantity of assured recoverable coal reserves.

C. Nature and Extent of Deposit

1. Drill Hole Location Map

See Map 13A, Appendix "B".

2. Plan and Section View of Deposit

See Map 14, Appendix "B".

3. Geology, Topography, & Soils

The Franklin holdings lie at the juncture of the Book Cliffs and the Wasatch Plateau. The major rock units within the area are the Cretaceous Star Point Sandstone, Black Hawk Formation, Castle Gate Sandstone and Price River Formation, and the Tertiary North Horn Formation. Lithologies present include fluvial, deltaic and marine sandstones, mudstones, and shales. The Black Hawk is the major coal producer in the Book Cliffs and Wasatch Plateau region.

Topography

The topography of the Franklin holdings is greatly varied. A majority of the area is mountainous with steep cliffs and deeply incised canyons. Slopes range from 30 to 90 percent, and elevations from 6,000 to 9,500 feet above sea level. Minimal faulting occurs, trending in a general north-south direction, with maximum throw estimated to be about 20 feet.

Price Canyon is the major topographic feature of the area. This canyon is relatively narrow, and flanked by steep talus slopes rising to over 1600 feet above the canyon floor.

Soils

Soils of the area are typical of the arid mountain region of Utah. They are commonly loam or clay loam, well drained, and range from shallow to deep. Many of the soils contain gravel, cobbles, or stones up to 60 or 70 percent. These soils occur on high mountain slopes, ridges, plateaus, and valleys. Slopes are generally between 5 and 50 percent, with slow to medium run off and slow to moderate permeability. Productivity of the soils is generally classified as poor. Rock outcrops and mine waste dumps are prevalent throughout the area.

Geology

The coal formations of the Central Utah area are found in the Blackhawk formation of the Mesa Verde group of Cretaceous Age. Two major fields have contributed the principal part of the coal production area. Detailed studies of the two fields were made by the U. S. Geological Survey, the results of which were published in Bulletins Nos. 793 and 819.

The MesaVerde group, of which the Blackhawk formation is the middle unit, is generally described as follows:

Formation	Member	Character of Beds	Thickness Feet
		Sandstone, gray to white, gritty; gray conglomerate; very little shale.	600
Price River Formation	Castle Gate Sandstone Member	Sandstone, very massive, coarse, white to gray; weathers buff; conglomeratic.	150-500
Blackhawk Formation		Sandstone, buff to gray, medium to fine grained; shale; and coal; of continental origin.	700-950
Star Point Sandstone		Sandstone, massive, buff to gray, or marine to brackish-water origin; in places penetrated by tongues of marine Mancos shale	300-450

The Castle Gate sandstone member, which overlies the coal-bearing Blackhawk formation, commonly forms near vertical cliffs 100 feet or more high. This unit forms an excellent marker in the area under consideration.

The Blackhawk formation is a thick sequence of sandstones, siltstones, and interbedded zones of shale, sandy shale, and coal. The productive coal seams are generally found in the lower 400 to 600 feet of the formation, and substantial variations within the section are noted in rather short distances, making a definite correlation of coal seams uncertain at times.

Within the Spring Canyon-Castle Gate area, the coal seams can be divided into two major groups. The upper or Castle Gate series (Fig. 15, Generalized Columnar Section) includes six or more seams that have been mined to varying extent throughout the area. These coal units, extending from the Castle Gate 'A' Seam at the bottom to the Castle Gate 'D' Seam at the top, have been mined extensively both to the east and west of Price River Canyon in the Book Cliffs coal field. A limited amount of mining has been done in the Castle Gate 'E' Seam in the Royal Mine area.

The lower coal seams, or the Sub-seam group, have been worked along the Spring Canyon area, and have been the major producers to the south in the Wasatch Plateau coal field. The lower, or Sub-seam No. 3, has been the most continuous bed in the Wasatch Plateau field, being identified to the south of the subject area as the Hiawatha bed. This coal unit generally rests directly on the coarse-grained sandstones of the Star Point formation. The Sub-seam Nos. 1 and 2 have also been mined extensively along Spring Canyon, but the correlation with mineable beds at similar stratigraphic positions farther south is less certain.

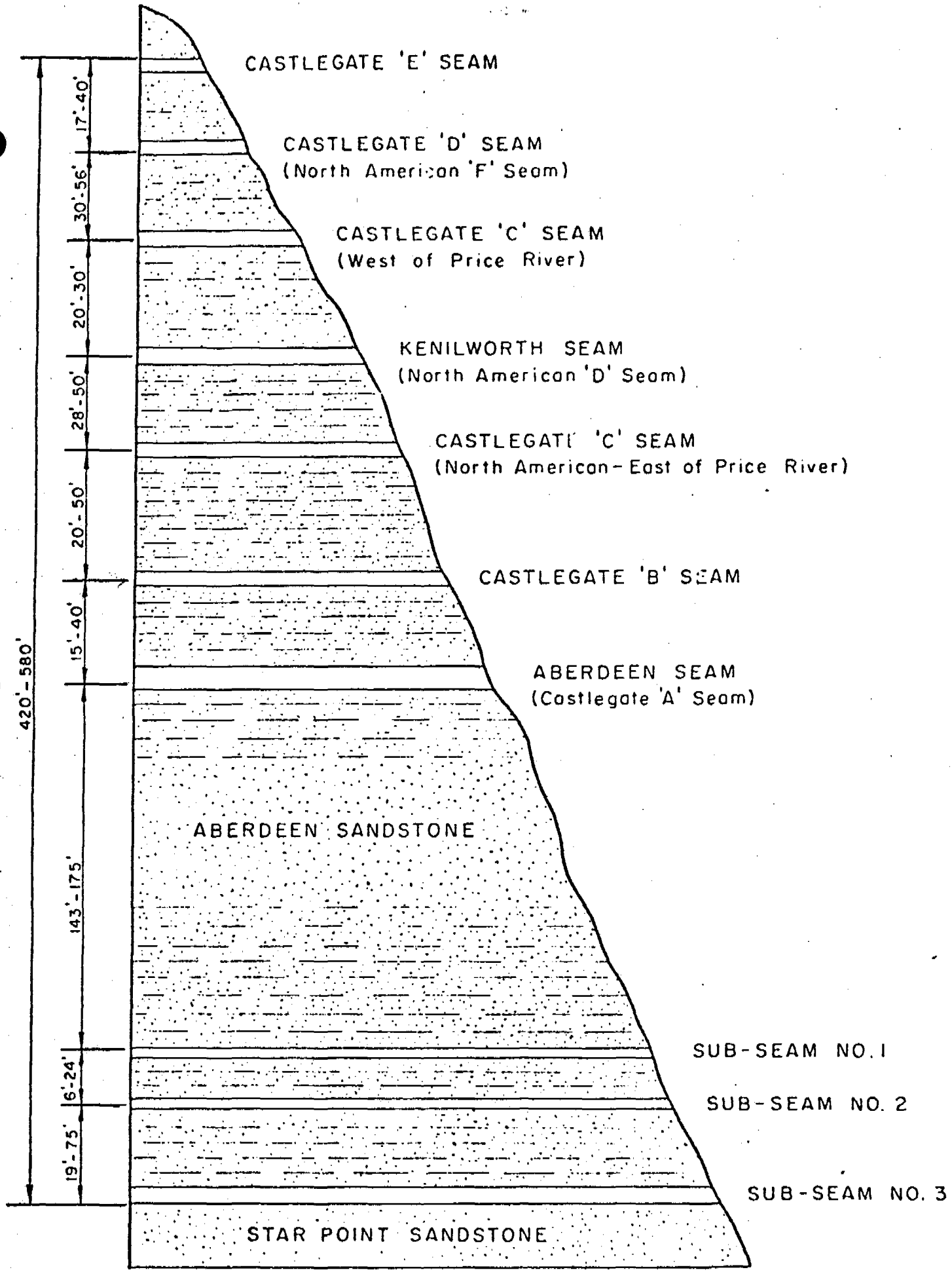


Fig. #15
Generalized Columnar Section
Spring Canyon - Castle Gate Area

Located between the Castle Gate seams and the lower Sub-seams is the Aberdeen sandstone member. In the Spring Canyon-Castle Gate area this unit forms a definite marker, often more than 100 feet thick in which coarse-grained sandstone predominates. However, considerable variation has been noted within the area under investigation where substantial amounts of siltstone and shale reduce the thickness of clean coarse sandstone.

Coal analyses have been made on all drill hole samples during the past three years, and numerous analyses have been made on raw and washed coal samples from current and past operations.

All of the coal is bituminous rank with a BTU content from 12,000 to 13,500. The sulfur content is normally below .5 percent, and the ash content ranges from 6.5 to 12.4 percent, generally averaging below 9 percent. Typical analytical results of core samples from the various seams are shown on the copies of eight analytical reports from Commercial Testing & Engineering Co., Exhibit 28, Appendix A.

4. Geologic Hazards

No potential geologically related hazards have been encountered during past mining in the area. It is planned to mine these coal reserves employing underground room and pillar and longwall extraction

methods. These same mining methods have proved successful in existing mines in the area. Where coal extraction is sufficient, subsidence will undoubtedly occur. No evidence of subsidence effects are apparent from previous mining, however. Future extraction and mine projections will be designed to minimize any potential adverse effects of subsidence.

5. Economics

The subject coal reserves are high quality, low sulfur steam coals meeting Environmental Protection Agency" new source standards" for emission of sulfur oxides when burned in steam electric generating units with no sulfur removal equipment or process. Braztah has entered into a long term contract to mine 6.5 million tons per year from the coal reserves after an initial development period building up to such annual production. Development of such mining operations will require investment of approximately 100 million dollars. The coal will be shipped to affiliates of Franklin Real Estate Company for use in steam electric generating plants located in Ohio, Indiana or other states within the service area of American Electric Power Corporation subsidiaries.

II. PROPOSED MINING PLAN

A. Development Drilling

At the present time, some 65 additional development or

exploration NX size diamond drill core holes are planned. These holes are intended to more precisely delineate, and hopefully to increase, reserves. See Map 13A, Appendix "B", "Drill Hole Locations."

Exploration will probably continue for the life of the mine and will generally precede the actual start of mining to determine the presence of economic deposits of coal, establish its nature, shape and grade. From detailed geology and drill hole data, the nature of the overlying strata, depth and thickness of the coal deposit, grade of coal, and often the quantity and quality of ground water will be determined. A number of exploratory holes are required to delineate the shape of the deposit for determining its quantity and boundaries. Exploratory drilling is generally done with truck-mounted rotary drill rigs. Samples taken with such rigs can be either cuttings or core, or both. Additional equipment used by an exploration crew may include water trucks, personnel carriers, a hole-logging equipment truck, and a dozer or blade to assist in obtaining access to the exploration area and drill site. Exploration will require construction of very rough access roads for equipment, drill pads to accomodate the drill rig and other equipment and mud pits to hold drill cuttings and mud. Activity will be limited to the time that is required to drill the holes which may vary from several days to several weeks. Exploration crews may vary from 12 to 50 people depending on the intensity of exploration.

B. Proposed Mining Methods

1. Surface Disturbance and Reclamation

All proposed mining in the unit will be underground, with a minimum of surface disturbances. Federal lands which could be involved in surface disturbance would probably be limited to drill sites and rough access roads. Private lands might have future entry locations, ventilation shafts, and/or personnel and material shafts located thereon. The coal preparation plant, with coal storage and unit train loading facilities, will be located on the old townsite of Castle Gate, which would entail only minor surface disturbance. In all cases, a minimum surface disturbance will be made. Upon initial grading of these areas, topsoil, where occuring, shall be removed and compacted into storage piles. The surface of these storage piles will be seeded with appropriate vegetative cover to prevent erosion. As these areas are abandoned, slopes and shafts will be sealed, they will be graded and the best material, topsoil when available, will be used to recover them. This will be followed by fertilization and seeding in an effort to restore a native, diverse, and self-sustaining cover. At the end of the project, all buildings and structures will be removed and the land will be returned to its approximate original contours, and reclaimed with native species. The goal of all reclamation activities will be to return the area to rangeland, and

where appropriate, to recontour the surface to better blend with existing topography.

It is not expected that subsidence will adversely effect the surface due to the amount of overburden (500 - 2500 feet). Special consideration as to extraction and entry design will be given to areas where potential subsidence might pose adverse consequences.

2. Overburden

Under the present mining plan, no overburden for coal recovery will be removed from lands.

3. Underground Mine Development Methods

To meet the production levels contemplated, development is scheduled for an expansion of operations in the Sub-seam No. 3 Mine and the opening of new mines in the Castle Gate 'A', 'B', 'D', and Kenilworth seams. Much of the production during the early years will come from an accelerated development program that has been designed to provide sufficient working areas with adequate ventilation to attain the maximum production rate by the end of 1982. Through existing workings and new development, all of the mines will be connected by conveyor belt haulage to the wash plant and load-out facilities on the Denver & Rio Grande Western Railroad at Castle Gate.

Production is currently derived from continuous miner units on room and pillar, and entry development operations in the No. 3, No. 4 and No. 5 Mines. These continuous miner units employ shuttle car face haulage, discharging through belt feeders on to belt conveyors which transport the coal from the mines. Mechanical shell and/or resin anchored roof bolts along with conventional timbering will be used in accordance with Mine Enforcement Safety Administration approved roof support plan. Longwall development is in progress in the Braztah No. 3 Mine with the first longwall unit scheduled for production during the first half of 1976. Longwall units will consist of a shearing machine, chain conveyor, and hydraulic self-advancing props. Longwall faces are planned for 500-ft. length.

(a) SUB-SEAM NO. 3 - BRAZTAH NO. 3 MINE (FORMERLY THE CARBON FUEL NO. 3 MINE) (SEE OVERLAY MAPS 8A AND 8B, Appendix "B".)

The Braztah No. 3 Mine in the Sub-Seam No. 3 was being opened at the time Braztah acquired the Carbon Fuel Company property in 1971. The main slope of eight entries has been extended northerly for approximately 8,000 feet, and work is progressing to establish the main west entry.

Five continuous miner units are currently in operation in the mine, largely on development,

in preparation for the accelerated production and development program. The main slope is being extended to the north, and development is in progress on the longwall panels and in Second East entry where a main line conveyor belt will be installed.

Movement of the coal to the Castle Gate yard will be over a 48-inch belt conveyor connecting from the main slope through Second East to a 1,350-foot rock slope that will connect to the main entry of the inactive Utah Fuel No. 1 Mine. Forty-one hundred feet of the main entry is being rehabilitated and sealed preparatory to installation of the conveyor system. The adjoining entry will also be used as a return air course for the No. 3 Mine. An existing cement-lined underpass at Highway 50 and 6 is planned to permit a conveyor connection from the portal to the Castle Gate yard.

The No. 3 Mine is currently producing at the rate of approximately 40,000 tons per month of clean coal from five miner units. Plans for expansion call for an increase to six miner units as working areas become available, and a longwall system is scheduled to go into production during the first half of 1976. By 1977, the production level of the Braztah No. 3 Mine should increase to 1,140,000 tons per year,

and by 1980, when several of the continuous miner units will be transferred from development to room and pillar production, the production rate is scheduled for 1,280,000 tons annually.

Recoverable reserves in excess of 38 million tons of coal are estimated in the Sub-seam No. 3, and additional drilling could increase that amount by several million tons.

(b) CASTLE GATE 'D' SEAM

(1) Braztah No. 4 and No. 5 Mines

A substantial tonnage of coal in the Castle Gate 'D' seam remains in the area adjoining Hardscrabble Canyon and Sowbelly Gulch. Surface drilling has shown five to six feet of coal between the old Utah Fuel No. 1 Mine and the Spring Canyon No's. 5 and 7 developments, and considerably thicker coal exists to the north to Crandall Canyon on the west side of the inactive Royal No. 2 Mine. Drilling is currently in progress to more completely define the limits of the mineable 'D' Seam between Spring Canyon and Crandall Canyon.

Surface drilling during 1974 defined a block of coal in the 'D' seam between

Sowbelly and Hardscrabble Canyons, with an outcrop in the latter canyon approximately 1,500 ft. west of the existing coal washing plant. Preparation of the portal site was completed during the last quarter of 1974, and production was started from the Braztah No. 4 Mine in April, 1975. Six entries have been advanced approximately 1,000 feet to the northwest, and work will be continued with two continuous miners to complete a connection with the Braztah No. 5 Mine in Sowbelly Gulch. See Seam Overlay Map 9A and 9B, Appendix "B".

The Spring Canyon No. 7 Mine was operated until 1970. An inspection of the main slope revealed that it was in good condition and could be put back into service with a minimum amount of effort. Rehabilitation of the slope is now in progress. The operation, designated the Braztah No. 5 Mine, will be extended to the north on the main slope, while longwall panels are being driven to the east to connect with the development from the No. 4 Mine from Hardscrabble Canyon. Three continuous miner units will be used in the Braztah No. 5 Mine, to develop the longwall panels.

Coal will be discharged from the portals of both the No. 4 and No. 5 Mines until the underground connection is made between the two operations. After the connection has been made, all of the coal will come out at the No. 4 portal, shortening the truck haul to the Castle Gate yard by approximately seven miles.

As the main west entry of No. 3 Mine (on the Sub-seam No. 3) progresses west under the Braztah No. 5 main slope, an 8 - to 10 foot diameter coal pass will connect the two mines so that all coal from the 'D' seam may be transferred to the main belt system in the No. 3 Mine where it will be conveyed to the Castle Gate wash plant.* The raise connection should be completed during the first half of 1977.

Production from the No. 4 and No. 5 Mines will be increased as additional mining machines are added, and by the first quarter of 1976, five units should be in production. Longwall production in the 'D' seam is

* See overall underground and surface coal handling facilities on a surface relief map - Map #16B and Castle Gate Coal Handling Facilities Map #17, Appendix "B".

scheduled for the second quarter of 1977, and a total production of 1.3 million tons is planned for the year. As continuous miner units advance into higher coal and go from development to room and pillar production, the 'D' seam output will be increased to approximately 1.56 million tons annually, a rate which is anticipated by the last half of 1980. A recoverable reserve of approximately 14 million tons of coal could be increased as additional drilling is completed.

(2) CASTLE GATE ROCK SLOPE AND WILLOW CREEK NO. 6 MINE

A large tonnage of coal in the Castle Gate 'D' seam is located east of the Price River, and connection to these reserves from the Castle Gate yard is planned through a rock slope development to bypass the old mine workings of the Castle Gate No. 3 Mine. To reach the undeveloped reserves in the 'D' seam and reserves in other Castle Gate seams, a pair of 12' x 22' rock slopes in the upper part of the Aberdeen sandstone is planned. These will be driven to the north from the Castle Gate yard on a minus eleven percent grade to clear the

old mine workings, and then will be driven at a plus ten percent through the entire Castle Gate coal series for a total distance of 4000 feet. See Castle Gate Rock Slopes Plan and Section Map #18, Appendix "B".

These slopes and associated mine workings are designated Braztah No. 7 Mine. Work on the No. 7 Mine is to be started early in 1976, with an expected completion date of the slopes 18 months thereafter. Development of the main slope in the 'D' seam will be started at that time.

To accelerate the development of the Castle Gate 'D' seam reserves and to give better access and improved ventilation, a main entry slope (5 entries) designated Braztah No. 6 Mine is to be started as soon as economically and otherwise possible from Willow Creek, some 5000 feet east of the planned No. 7 Mine rock slopes. Surface drilling has been completed preparatory to starting surface excavations which will permit development from the

'D' seam outcrop. See Seam Overlay Maps 9A and 9B, Appendix "B".

The main slope of the No. 6 Mine will be driven directly above the chain pillars on the No. 1 slope (Kenilworth seam) in the Castle Gate No. 2 Mine. Either room and pillar, or longwall mining will be extended both to the east and west from the slope. A conveyor belt connection will either be made to the No. 7 Mine rock slope through the 'D' seam or a 100-foot coal pass will be driven from the main belt line on the Kenilworth seam to connect with the No. 6 Mine slope. During the development period, the Willow Creek production will be trucked to the loading yard at Castle Gate.

Two continuous miner units are scheduled to start development of the main No. 6 Mine slope by the second quarter of 1976, with additional units to be put on development on the 'D' seam from the No. 7 Mine rock slopes, starting in 1977. A connection between the No. 6 Mine development and that from the No. 7 Mine rock slopes is planned by late 1977.

Production from the continuous miners on development in the No. 6 Mine should start during the second quarter of 1976, and two additional miner units are scheduled to start from the No. 7 Mine rock slope in 1977. A longwall unit is planned for production on the No. 6 Mine side by late 1977 if roof conditions are favorable. Annual production from this particular operation is expected to reach 1.6 million tons during 1980. Recoverable reserves in excess of 17 million tons are attributable to the combined development in the 'D' seam, and additional drilling, particularly to the north on public domain, could increase the figure substantially.

(C) CASTLE GATE 'A' AND 'B' SEAMS

A thick coal seam extends over parts of Sections 26, 27 and 35, T. 12 S., R. 9 E. and development on that seam in the New Peerless Mine has previously been correlated with the Castle Gate 'B' seam. Recent drilling and a re-evaluation of old records have shown that the major body of coal is in the Castle Gate 'A' seam with a less extensive area on the 'B' seam. Both seams are in part below the old Royal No. 2 Mine on the 'D' seam, and the extraction of the coal from the southern part of

Section 35 in the 'A' and 'B' seams is essential to the advance of longwall mining in the underlying Sub-seam No. 3 in the Braztah No. 3 Mine. Adequate time remains to develop both seams from the No. 7 Mine rock slopes with a main slant entry driven on the 'B' seam (Map 10A and 10B, Appendix "B").

Development in coal on the 'B' seam should be started by mid-1977 with approximately one year required to extend the 'B' seam work to a point where a rock connection can be driven to the underlying 'A' seam. The separation between the two seams varies from 40 feet to less than 20 feet, and a rock connection is planned near the boundary between Sections 26 and 35 (Map 11A and 11B, Appendix "B"). Return ventilation is planned through the New Peerless rock slope, which will be dewatered as soon as possible.

Development and mining in the 'A' and 'B' seams will be closely correlated to obtain maximum recovery and to keep the advance ahead of the longwall operation in the Sub-seam No. 3. Five miner units are scheduled for the work on these two seams. Recoverable reserves in these two seams, extending to the north and west, exceed 20 million tons.

(d) KENILWORTH SEAM - CASTLE GATE ROCK SLOPE

Development on the Kenilworth seam will be started from the No. 7 Mine rock slopes soon after completion of the latter. The main slope will be extended north into Section 25, where it will be turned east to retain a 500-foot barrier below the workings of the Castle Gate No. 2 Mine (Map 12A and 12B, Appendix "B"). A mainline 48-inch conveyor will be extended from the No. 7 Mine rock slopes along the Kenilworth seam slope and east entry. Initial development will be extended east to the junction of Dry Canyon with Willow Creek where a ventilation shaft connection will be made. Development toward the eastern end of the property will be continued at a future date at which time rock slope connections will be made into the large block of reserves in the Castle Gate 'A' seam below the old Kenilworth mine. Coal produced from all of the seams will move to the Castle Gate area on the main conveyor belt line in the Kenilworth seam.

Three miner units are scheduled for development and production on the Kenilworth seam during the early years. Some reserves are located west and north of the Castle Gate No. 2 Mine, and production from that area will come at an early date. However, the initial

emphasis will be directed toward advancing the main east entry and 48-inch belt line to the point where a rock raise connection can be made to the main slope of the No. 6 Mine on the 'D' seam. Coal from the No. 6 Mine section will thereby be passed to the main belt where it will be conveyed to the Castle Gate yard through the No. 7 Mine rock slopes.

Long-range development plans for the reserves in the eastern part of the property indicate additional surface access to the Castle Gate 'A' and the Kenilworth seams will be needed. More detailed planning is dependent upon future drill hole results. Movement of the coal to the Castle Gate yard is planned on the main 48-inch belt in the Kenilworth seam.

4. Mining Sequence

Multiple seam mining dictates that the uppermost seam usually will be mined first - with lower seams usually mined in descending order. Continuous miners will have the capability to mine seams from 4 feet to 9 1/2 feet in thickness. If seam thicknesses are greater than 9 1/2 feet, the extra thickness will be mined upon retreat and pillar extraction operations. Longwall equipment will be used where practicable in order to achieve the

highest possible extraction. See Maps 8A, 9A, 10A, 11A and 12A, Appendix "B". "Mining Sequence, 1976 through 1980."

Mining is in progress at the Braztah Mines, Number 3, 4, and 5, and surface site grading is well along for the #6 Mine Portal and facilities. The proposed rock slopes for #7 Mine should be started early in 1976. See Map 16, 17, and 18, Appendix "B". Plant site construction is planned for early in 1976. All surface portals and plant site are located on Franklin land.

5. Disposal Methods

Rock from the Utah Fuel No. 1 slope will be deposited in accordance with M.E.S.A. Standards in a nearby canyon on Franklin land, and the rock from the #7 Mine tunnels will be used as fill at the preparation plant; any excess rock will be transported to Barn or Schoolhouse Canyon disposal site.

Rock refuse material and "Gob" from the washing facilities will be transported from the rock bin, either by truck or by belt, to the nearby Barn Canyon and Schoolhouse Canyon disposal site. This material will be compacted in layers, and then covered with soil in accordance with M.E.S.A. and State Standards. Water runoff diversion ditches will be maintained around the disposal area. This

area will be designed and operated in accordance with 30 CFR 77.214 and 77.215. About 8% of the total mining ouput is estimated to be reject material.

6. Mine Plant Facilities

(a) General

Plant facilities are shown on Fig. 17, reduced scale, next page, large map in Appendix "B". The surface plant, which will be located on the old Castle Gate townsite, will include transfer bins, crusher and screening plant, storage piles, conveyors, washing plant, settling ponds, reject bin, train loadout facilities, laboratory, shops, office, thickener tank, warehouse, bathhouse, and parking area. Portal facilities consisting of office, shop, warehouse and bathhouse facilities will be located at each of the No. 3, No. 5, No. 6 and No. 7 Mine portals.

(b) Coal Washing Plant and Unit Train Loading Facility

Coal will be brought to the surface at the Castle Gate yard, for processing, from two mine openings, each equipped with a 48-inch or 60-inch conveyor belt system. Production from west of the Price River will move largely through the Utah Fuel No. 1 Mine with the mines to the north and east discharging coal

BASIS OF COORDINATES: ALL COORDINATES INDICATED WITHIN THESE PROCEEDINGS ARE BASED ON A MODIFIED GRID AT MEAN SEA LEVEL ELEVATION 6,400 FEET.
U.S.G.S. TRIANGULATION STATION "BEAVER" WITH STATE PLANE COORDINATE VALUES OF Y=518,564.000 AND X=2,143,197.000 WAS USED AS THE ORIGIN OF COORDINATE VALUES.
SCALE FACTOR CONSTANT FOR BRAZTAH PROPERTIES IN CASTLE GATE AREA AT 0.9999013
COMBINED FACTOR TO REDUCE FROM MODIFIED GRID TO STATE PLANE GRID AT 0.99959529

BASIS OF BEARING: THE BEARING OF S 83°51'35"E, AS DERIVED BY THE INVERSE BETWEEN U.S.G.S. STATIONS BEAVER AND FORD WAS USED AS THE BASIS OF BEARING FOR THESE PROCEEDINGS.

STATION	NORTH	EAST	ELEV.
CF 5	510454.585	2179067.356	6336.13
BC 1	511175.024	2177319.265	6164.78
BC 2	512898.424	2178912.722	6392.02
BC 3	513992.411	2179234.497	
BC 4	514396.471	2179144.524	6430.08
BC 5	515749.686	2179210.476	
BC 6	512846.953	2179035.044	
BC 7	511688.634	2177203.145	
WC ¼ 35/36 T.12S. R9E.	513053.809	2177595.596	
S.C. 35/36 2/1 T.12+13S. R9E.	510417.466	2177606.382	
MC 16	515679.847	2179259.014	
MC 17	510267.776	2180046.884	
MC 18	514472.181	2179272.689	
MC 19	512723.293	2178600.911	
TRP 1	515327.868	2174917.779	6319.85
WC 1	508011.882	2180542.361	6119.85
WC 2	511687.331	2184804.432	6345.65
WC 3	511869.486	2184264.804	6368.15
CG 2	516086.069	2174541.181	6242.28
CG 4	515872.884	2173949.663	6277.71
2A	510182.259	2178178.283	6168.04
1A	510426.706	2177999.427	
P	510464.666	2178549.762	6127.28
H	510382.541	2178647.462	
WEST END WILLOW CREEK TRAM TUNNEL	509282.399	2180015.440	
¼ 34/35 T.12S. R.9E.	513024.908	2172303.769	
S.C. 27/26 34/35 T.12S. R.9E.	515608.191	2172290.045	
¼ 26/35 T.12S. R.9E.	515643.627	2174943.426	
TRP 4	513577.746	2172652.250	
[illegible]	510419.997	2182839.679	
[illegible]	510427.881	2180225.435	

STATION	NORTH	EAST	ELEVATION
PIN #1	510,079.284	2,178,555.970	6099.96
PIN #2	510,567.601	2,178,179.573	6110.76
PIN #3	511,275.828	2,177,672.968	6127.94
PIN #4	512,293.912	2,177,037.577	
PIN #5	513,254.870	2,176,847.102	
PIN #6	512,947.695	2,177,764.778	
PIN #7	512,378.109	2,177,811.917	6225.30
PIN #8	511,910.839	2,177,860.755	6200.19
PIN #9	510,908.919	2,178,551.806	

Date	Letter	REVISIONS
MAY 12 1975	H	LOCATE CASTLE GATE #2 ROCK SLOPE & CONVEYOR BELT
MAR 26 1975	G	RELOCATE CLEAN COAL PILE AND CENTRAL SHOP
FEB 18 1975	F	REVISED R.R. STA'S ON N. END LOAD TRACK
FEB 12 1975	E	RELOCATED PREP PLANT AND OVERFLOW POND
JAN 6 1975	D	REVISED AND RELOCATED CLEAN COAL PILE
DEC 15 1974	C	REVISED AND RELOCATED CLEAN COAL PILE
NOV 15 1974	B	REVISED PLANT SITE ELEVATIONS & GRADING
NOV 1 1974	A	RELOCATED RAW COAL PILE & WASH PLANT

BRAZTAH

FILE NO.

COAL HANDLING FACILITIES
CIVIL ENGINEERING
HELPER, UTAH

SHEET NO. 1

CASTLE GATE, UTAH

SHEET 1 OF

DRAWN BY

SCALE 1" = 100'

DATE

APPROVED

CHECKED

F.B. REF.

DATE | BY

TRACING NO. C88/7875-E

CONTOUR INTERVAL 5 FEET

SHEET LAYOUT

through the Castle Gate rock slopes. The raw coal will be delivered to a transfer building and then conveyed to a run-of-mine storage pile (Fig. 17).

Current plans are that from the run-of-mine storage piles, the coal will be conveyed to a primary crusher building where it will be sized and the fines removed. Coal size +1/2" will be conveyed to the wash plant for processing and the -1/2" size will be sent directly to the unit train load-out storage piles. Clean coal storage will be sufficient to assure orderly and efficient unit train scheduling and operation.

Coal going to the washer will be processed through a dense media or jig system for impurity removal, then reduced to a minus 2" size, dewatered and conveyed to the unit train load-out storage piles. There the washed coal will be mixed with unwashed fines from the crusher building. Washing of the entire raw coal product may be required by American Electric Power.

Regardless of whether only +1/2" size or entire product coal is washed, the coal washing circuit will be designed so that no liquid wastes are discharged. Design will also include means

for control and collection of dust to comply with existing applicable regulations. The unit train load-out facility will consist of "an under the pile" system, using a flood gate control capable of loading at a rate of 5000 tons per hour or greater into the railroad cars. Scales will be provided within the general area where the coal will be weighed prior to shipping.

The unit train will consist of alternate forty-five and fifty-five 100-ton railroad cars which will be moved to Eastern Colorado by the Denver and Rio Grande Western Railroad where they will be assembled into 100-car trains for final movement east.

Solid reject material from the wash plant will be trucked or conveyed into Barn or Schoolhouse Canyon where it will be deposited in compliance with 30 CFR 77.214 and 77.215.

The plan to avoid endangering human or animal life, endangering public safety, or creating a public nuisance, will include the following:

a. No surface disposal of waste water.
b. Dust suppression and collection to eliminate air contamination.
c. Noise prevention will be incorporated into the mine designs to comply with the regulation in parts 70 and 71 of the Coal

Mine Health & Safety Act of 1969.

d. There will be no liquid discharge from the washing plant, as it is based on a closed water system.

e. Water from mine dewatering activities will be treated to acceptable standards if necessary before returning it to the Price River after obtaining necessary permits.

f. After termination of the project, all buildings and structures will be removed. Reclaim tunnels will be filled, and where necessary, the surface of the land will be recontoured. Revegetation should return the land to native rangeland, and insure that no erosion, siltation, or pollution will occur.

7. Thick Seam Mining

Maximum economic recovery of coal is planned. In thicker seams, this is currently considered to constitute an initial pass at the maximum cutting height of mining machines followed by a second pass as pillars are recovered. The top seams will be mined first, then the next lower, etc. This method will eliminate adverse effects in the upper seams which could occur if lower seams were mined first, and will result in a higher extraction of the reserves.

8. Pollution Control Methods

Pollution control methods include the following:

a. Dust collecting systems designed to help control fugitive dust.

b. Natural drainages will be diverted away from the coal storage piles.

c. A closed water circuit will assure that no processing water will be discharged into the Price River.

d. Water runoff, if any, from the coal piles will be gathered into small evaporating pools.

e. Utilization of the existing Price River Water Improvement District sewer system for the Castle Gate complex.

f. Emergency overflow pond, if water should have to be pumped out of the thickener or settling ponds. This pond will be designed in accordance with recommendations of a professional soil testing firm.

g. Domestic sewage at the mine portals will be treated in a modern septic system designed to meet all existing regulations, and approved by the State of Utah.

h. Water usage during initial development will be about 100 - 150 acre-feet per year. Full production will require from 600 - 900 acre-feet per year. The only water which might be returned to local water sources would be treated water from mine dewatering operations, for which

proper provision will be made, as previously mentioned in 6 e.

i. Coal dust generated underground will be controlled through the use of water sprays and proper face ventilation. Respirable dust samples will be collected for all working environments and occupations to assure compliance with current regulations.

j. Direct water application to suppress dust generated due to surface activities.

k. Noise surveys will be taken for all working environments and occupations to assure compliance with current regulations. Excessive noise will be eliminated or controlled by engineering to the extent practicable, exposure to noise levels above 90 dB will be designated as limited access areas.

C. Abandonment

1. Structures

It is planned to dismantle and remove all surface buildings and structures upon conclusion of operations.

2. Shafts, Slopes and Entries

Shafts and other openings will be sealed. Access and haul roads will be reseeded.

III. ANCILLARY INFORMATION

A. Power Distribution System

The mining complex will receive 46,000 volt power from the Utah Power & Light Martin station. Due to Tariff considerations and P.S.C.U. regulations, two metering stations have been planned. One of these is located in Spring Canyon, near the No. 5 mine portal. This station was energized in late May of 1975. The second metering station will be at Castle Gate and is scheduled for completion in late 1976.

From the Spring Canyon metering station, Braztah has installed a 3000' line extension to the No. 5 mine substation. Plans have also been finalized for an 8000' line extension from the Spring Canyon metering station to the No. 3 mine and a new substation. Completion of the 46 KV Line extension and new substation is scheduled for July, 1976. A new power service agreement recently negotiated between Braztah & UP&L calls for a yearly graduated load increase which reaches a maximum KW commitment of 11,500 and a minimum of 8000 KW by 1980 for this Spring Canyon metering station.

The Castle Gate metering station will include similar 46 KV line extensions. One extension will go to the Castle Gate substation located approximately 1500' from the metering station. This Castle Gate substation is scheduled for completion in mid 1977 and will feed the Castle Gate preparation and coal handling

facilities as well as the No. 7 mine. The second extension will be approximately 5000' long to the Willow Creek No. 6 mine substation. This substation is scheduled for completion in late 1976. Braztah and UP&L have entered into a graduated agreement for this Castle Gate service which calls for a maximum of 14,000 KW and a minimum of 9,400 KW of monthly power consumption.

Presently, the No. 5 mine substation transformer capacity is 5000 KVA with a secondary distribution voltage of 4,160 volts. Space for four distribution circuit breakers are provided on the 4160 bus; one dedicated exclusively for the fan, one feeding all the surface load, one presently enters the mine at the pit mouth with the fourth breaker position also intended for underground.

At the No. 3 Mine, a new 10,000 KVA substation is on order and it will be equipped with the same four circuit distribution scheme. Power enters the mine via an 800 foot borehole presently energized at 4160 volts. When the new station is completed, a second borehole will be added to provide a loop feed into the mine. Present thinking is that during July 1977, this voltage will be converted over to 7200 volts for mine distribution.

The No. 6 mine substation will be identical in design to the No. 3 substation. The only difference is that the power circuits will be taken in at the pit mouth rather than through boreholes and also that the initial distribution voltage will be 7200 volts.

The Castle Gate substation will have 20,000 KVA transformer capacity with two distribution voltages. The No. 7 Mine will be powered by four 7200 volt circuits, one being intended for the operation in each seam. The surface installations and coal handling facilities will be fed from the 4160 volt system since it is anticipated that there will be several large 4160 volt motors. The voltage to the preparation plant has not yet been determined. The voltage decision is contingent on the connected horsepower and size of the motors, but either 4160 or 7200 will be available.

These substations will all be provided with 25 amp grounding resistors to limit ground fault current as required by MESA. Circuit breakers will be equipped with protective relays which will in fact exceed those requirements of Part 77 and Part 75 of the Title 30, Federal Regulations.

Future mining developments will require that new portals and substations be built over the next five years.

The distribution at these portals has not been finalized at the present time, but these stations do appear on the drawing. The power consumption will, for the most part, be redistributed with slight increases for buildings and fans, but this has been accounted for in the Braztah - UP&L service agreements for the Spring Canyon and Castle Gate metering stations.

A schematic diagram of the Braztah Corporation electrical service and distribution follows as Fig. No. 20.

BY _____ DATE _____ SUBJECT Block Diagram Braztah Power System SHEET NO. _____ OF _____
CHKD. BY _____ DATE _____ JOB NO. _____

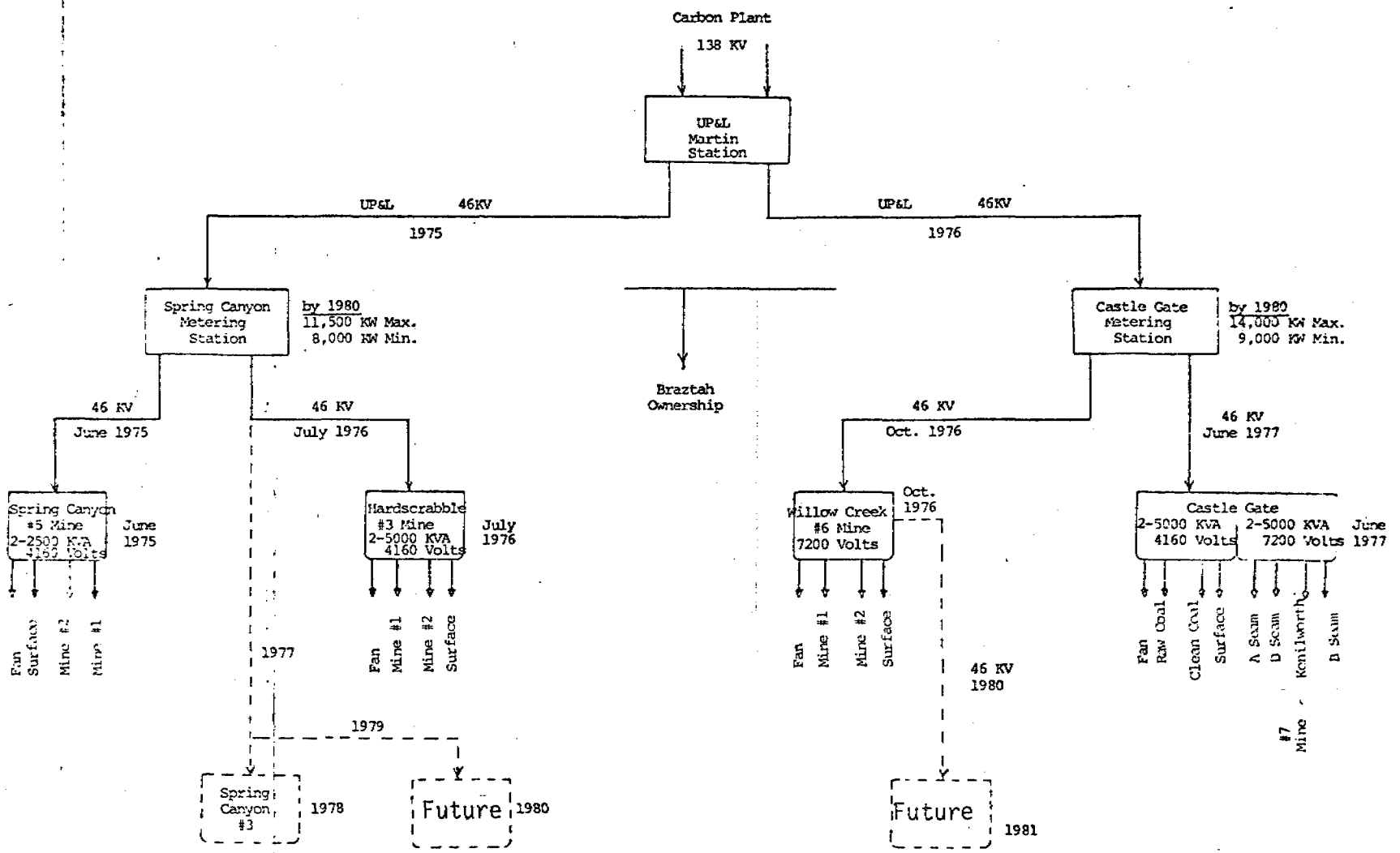


Fig. 20

B. Water Requirements

1. Available Sources of Water

There are four basic sources of water available to meet the mining requirements as projected. These sources are as follows:

1. Direct Flow Rights (Price River)
2. Reservoir Rights (Scofield Reservoir)
3. Mining, Springs and Other Sources
4. Price River Water Improvement District

A summary of the available water owned or optioned by Franklin from these sources is as follows:

	Class	Claim	Flow	Comments
Direct Flow Rights				
Source: Price River (Owned)	1st	3013	0.994 cfs	Morse Decree: 1874 priority; one of earliest rights on Price River, one of 2 rights not limited to irrigation season. Use: industrial, coal mining and domestic
	2nd	3584	0.20 cfs	Morse Decree: 1876 priority.
	7th	3585	0.228 cfs	Morse Decree: 1886 priority. (2nd and 7th Class rights can only be used if flow of water in Price River sufficient to satisfy 1st Class rights enumerated in Morse Decree.)

Reservoir Rights	Scofield Shares	Comments
Owned: Spring Glen Canal Co.	39	Acquired from Kanawha & Hocking Coal and Coke Co. on Dec. 28, '73. Represented by 336.47 shares of stock of Spring Glen Canal Co. Use is dependent on filing and receiving approval for change of nature of use and point of diversion with the Canal Company.
Optioned: 1. Price River Water Users Association (P.R.W.U.A.)	300	Acquired from Kanawha and Hocking Coal and Coke Co.
2a. PRWUA	250	MCO acquired from Marsing on Feb. 11, 1975. Purchase contingent on seller filing and receiving approved change application with State Engineer to allow industrial use for irrigation water along with change in point of diversion.
2b. PRWUA	350	

Mine, Spring and Other Sources

The availability of water from our mines and springs is at best a judgement. No definitive studies have been completed recently to measure either the sustained flow rates at our mines or springs, or the quantities of water stored within our mines. It must be noted that the flow rates in the filed claims are not absolute and must not be relied upon as a measure of the available water.

The following summary of filed water users' claims along with abstracts of letters written in prior years represent the current knowledge about additional potential sources of water for the mining operations:

A. Additional water rights evidenced by water users' claims owned by Franklin are as follows:

Source	Claims(s)	Flow	Comments
Castle Gate Project			
Kenilworth Mine Tunnel	3592	0.923 cfs	1882 priority, type of right: Underground Water (UGW). Use: Indus.
Castle Gate Mine Tunnel #2	3593	1.810 cfs	1892 priority, Right: UGW. Use: Indus.
Castle Gate Mine Tunnel #3	3594	0.545 cfs	1925 priority, Right: UGW Use: Indus.
Royal Mine Tunnel	324	0.668 cfs	1936 priority, Right: UGW Use: Indus.
Total Castle Gate Project:		3.946 cfs	
Spring Canyon Project			
Spring Canyon Creek	26,29 & 62	0.230 cfs	(See Note 1)
Burnt Tree Fork	25,27 34 & 40	0.155 cfs	(See Note 1)
Mine Tunnel	325	1.114 cfs	Right: UGW (See Note 2)

Source	Claims(s)	Flow	Comments
Gravel Spring	18	0.455 cfs	(See Note 2)
Unnamed Spring	30	0.004 cfs	
Spring Canyon Project:		1.958 cfs	All used for industrial and domestic
Carbon Fuel Project			
Carbon Fuel	3858	N.A.	Right: UGW (See Note 5)

(Notes: 1. These water user claims are subject to conditions of court decree signed by Judge Christensen Dec. 10, 1914. See abstract of decree in Appendix.

2. Braztah will have exclusive use of all water at Gravel Spring (Claim #18) and Mine Tunnel (Claim #325) for industrial and domestic purposes per Christensen decree. As a result of recent efforts (late Spring 1975) to redevelop the flow from this spring for use in the Number 5 mine, a maximum sustained flow rate of 50 gal. per minute (.111 cfs) has been realized during the month of May, 1975.

3. None of the above listed claims have been active within the last 5 years. As a result of this, legal filings were made during the Fall of 1974 with the State Water Engineer to reestablish the validity of these claims.

4. The value of any of these water rights is dependent primarily upon the ability of these sources to deliver

water at the rates claimed on a sustained basis. If the supply is firm and can be depended on, these rights become very valuable. It must be emphasized that no measurements on a sustained basis (other than Gravel Spring during May, 1975) have been performed recently; therefore, the claimed rates of flow per the water users claims are, at best, arbitrary.

B. Memo of February 4, 1936 by L. P. Pearce (Engineer, Independent Coal & Coke). Subject: Possibility of developing water supply at Kenilworth. Summary: No ground water; possibility of 20,000 gallons/day surplus mine water, no effective springs.

C. Letter of December 5, 1956 by L. L. Arnett (Coal Industrial Board of Review, State of Utah). Subject: Proposed plans for water storage and pumping in Castle Gate Mine (set forth by W. L. Potter, November 28, 1956). Summary: Granted provided barrier pillar 75 ft. thick maintained along with concrete dams being built.

D. Letter of August 7, 1968 by W. Guy (North American Coal Co.) Subject: Water contained in inactive mines.

Summary:

Castle Gate No. 2 Mine	428 million gallons (1,313 ac.ft.)
Castle Gate No. 3 Mine	128 million gallons (392 ac.ft.)
Kenilworth "A" Seam	165 million gallons (506 ac.ft.)*

* Per measurements made from Kenilworth Seam (active estimate 100 gpm (.22 cfs) steady flow.

Price River Water Improvement District

One possible future source of water for mining (Industrial) purposes, may be the Pri e River Water Improvement District (PRWID). This district, when it is operational, will operate and maintain an independent system of water collection, purification and distribution. Braztah will be able to purchase water directly from the district to supplement its needs for water.

This district was organized in 1960. It currently serves two purposes: to administer a Waste Water Collection and Treatment facility, and to build a water processing and distribution system within the district designed to handle an ultimate population of 40,000. The water system has not yet been built; however, on April 11, 1975, a general election was held within the district, at which time, the voters by an 8 to 1 majority authorized a $3,500,000 bond issue for the district. Assuming funding is available, the district should be able to provide water through its own system by 1978.

Water Treatment Plant

In 1973, North American Coal Company sold to the City of Castle Gate, its physical facilities for the treatment of water. The company, however, retained all rights to the water. These rights were subsequently sold to McCulloch/Braztah, thence Franklin. The City

operated and maintained the treatment plant until June of 1974, at which time, the facilities were abandoned.

Braztah assumed the abandoned facilities and continued to operate the plant until September of 1974, at which time, it closed down the facilities. The Company is currently in the process of refurbishing the facilities to meet State Health Department Standards. This work is expected to be completed by December 31, 1976.

The plant is expected to have a capacity of 450 gallons per minute (1.00 cfs) upon completion of the refurbishing. The old plant had an estimated rating of 300 gpm. In addition to changing the filter media, repiping the back wash system and putting in a new pumping unit, an emergency interconnection for supplemental water is being made to the cities of Helper and Price water distribution lines.

2. Potable Water Supply

The company is receiving water for culinary use at the existing #3 Mine from the Helper City water supply under a temporary agreement. A treatment plant will be installed at Spring Canyon to temporarily supply the #5 Mine from developed springs. The company owned treatment plant at Castle Gate will furnish the permanent culinary water supply to all of the mines and preparation plant.

3. Sanitary Waste Disposal

Sanitary waste disposal will be handled by using the existing Price River Water Improvement District sewage system, and by septic tanks and leach fields.

4. Water Use Requirements

For purposes of estimating the average and maximum required usage of water within the mining operations during full production, the following assumptions have been made:

1. Production

7,200,000 gross tons per year (run-of-mine)

30,000 gross tons per day (240-day year)

12,000 gross tons per shift (2.5 shifts per day)

2. Equipment

	Average	Maximum
Continuous Miners -		
Units in production	24	30
Operational hours/shift	3.0	3.0
Long Wall -		
Units in production	3	3
Operational hours/shift	4.0	5.0
Wash Plant -		
Through-put/hour	2,500	2,000
Operational hours/day	12	15

3. Water Consumption Rates

Continuous Miners - 30 gallons/operational minute for each unit (*)

Shearing Machine - 70 gallons/operational minute for each unit (*)

Wash Plant - 600 gallons/minute

(Note: (*) Rates include allowances for conveyor and haulage system as well as roof bolters and other related equipment.

On the basis of these assumptions, the estimated usage of water will be as follows:

	WATER CONSUMPTION	
	Gallons Per Operational Minute Max.	Gallons Per Day Max.
Continuous Miners	900	405,000
Long Wall	210	157,500
Wash Plant	600	540,000
Raw Water Required	1,710	1,102,000
Add: Culinary Water		
Mining (50 gal/man/day @ 1200 men)		60,000
Wash Plant (est.)		2,000
Office (est.)		500
		62,500
Total Water Usage Per Working Day - Gallons		1,165,000
Per Year (240 days)		279,600,000
Share Equivalent (No. Ac. Ft.)		857.9
Continuous Flow Requirement		1.19 cfs

C. Personnel Requirements

1. Construction Stage

Construction labor is expected to run about 105 employees in 1976, 150 in 1977 and end at 40 in 1978.

2. Mining Stage

Total mine employees should peak at 1,382 in 1982, see Fig. 21.

3. Type of Employees

Braztah Corporation will utilize the typical coal mining line and staff organization which is shown in Fig. 22, pages 1 through 7.

4. Labor Market and Minority Hiring Practices

The company has had no problems in securing skilled miners to date although the labor market is expected to tighten considerably due to increased demands for coal mining personnel throughout the area. Braztah is an Equal Employment Opportunity Employer. Our current minority mix employees far exceeds the area percentage of minorities. (See Figures 23 & 24.

5. Service Employment in Area to Support Mining Operation and Mine Employees (secondary labor market).

The primary service agent of Braztah Corporation will be the D&RGW Railroad. There are adequate motel and restaurant facilities in the Price-Helper area. One major and several smaller supermarkets service the retail trade, in addition to numerous drug stores. A secondary labor market is provided by the spouses of those now employed by the various mines and plants in the area. This market should remain adequate at least for the next several years.

Labor Force	1976	1977	1978	1979	1980	1981	1982
Construction	105	150	40	-	-	-	-
Mine Employees	505	726	851	1,034	1,184	1,371	1,382
Total Employees	610	876	891	1,034	1,184	1,371	1,382
Total Braztah Mine Population	1,394	2,004	2,349	2,855	3,267	3,784	3,815

Projection computed estimating 80% new employees were married, and families would average 3.2 members plus the employee.

Fig. 21

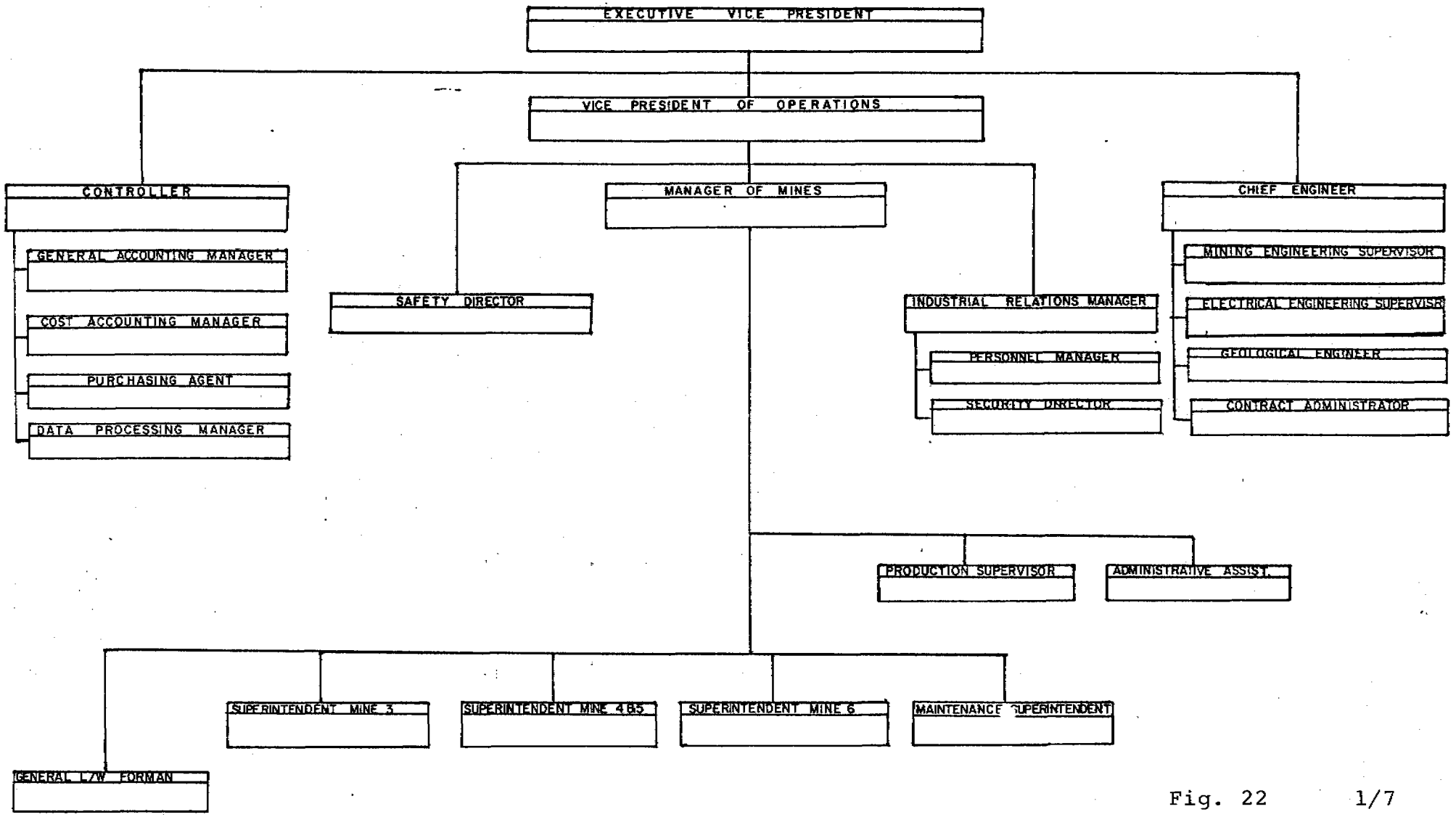

EXECUTIVE VICE PRESIDENT
VICE PRESIDENT OF OPERATIONS
CONTROLLER
GENERAL ACCOUNTING MANAGER
COST ACCOUNTING MANAGER
PURCHASING AGENT
DATA PROCESSING MANAGER
SAFETY DIRECTOR
MANAGER OF MINES
INDUSTRIAL RELATIONS MANAGER
PERSONNEL MANAGER
SECURITY DIRECTOR
CHIEF ENGINEER
MINING ENGINEERING SUPERVISOR
ELECTRICAL ENGINEERING SUPERVISR
GEOLOGICAL ENGINEER
CONTRACT ADMINISTRATOR
PRODUCTION SUPERVISOR
ADMINISTRATIVE ASSIST.
SUPERINTENDENT MINE 3
SUPERINTENDENT MINE 4&5
SUPERINTENDENT MINE 6
MAINTENANCE SUPERINTENDENT
GENERAL L/W FORMAN

Fig. 22 1/7

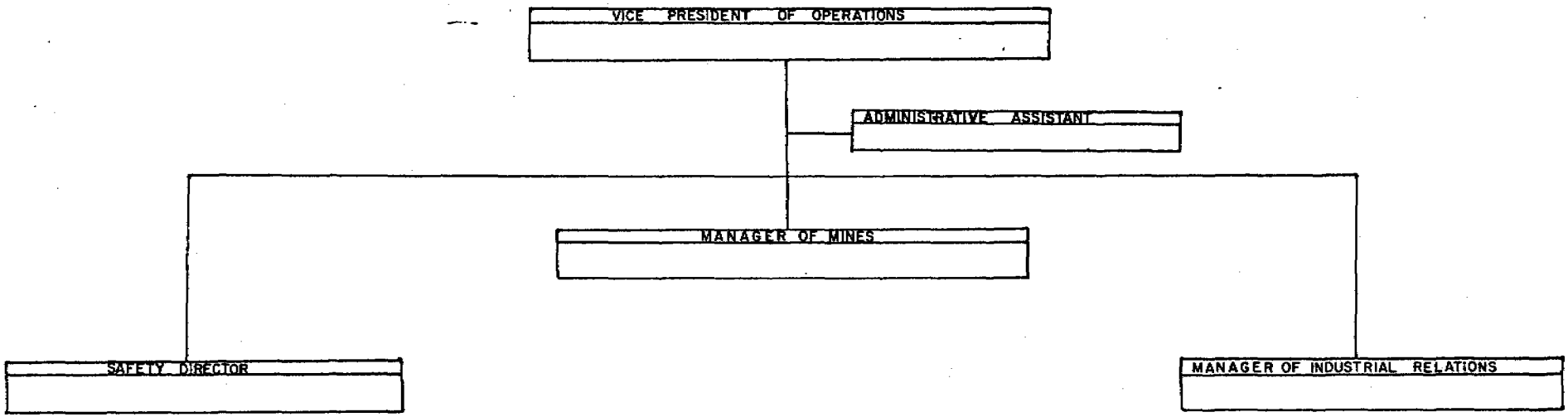

VICE PRESIDENT OF OPERATIONS
ADMINISTRATIVE ASSISTANT
MANAGER OF MINES
SAFETY DIRECTOR
MANAGER OF INDUSTRIAL RELATIONS

Fig. 22

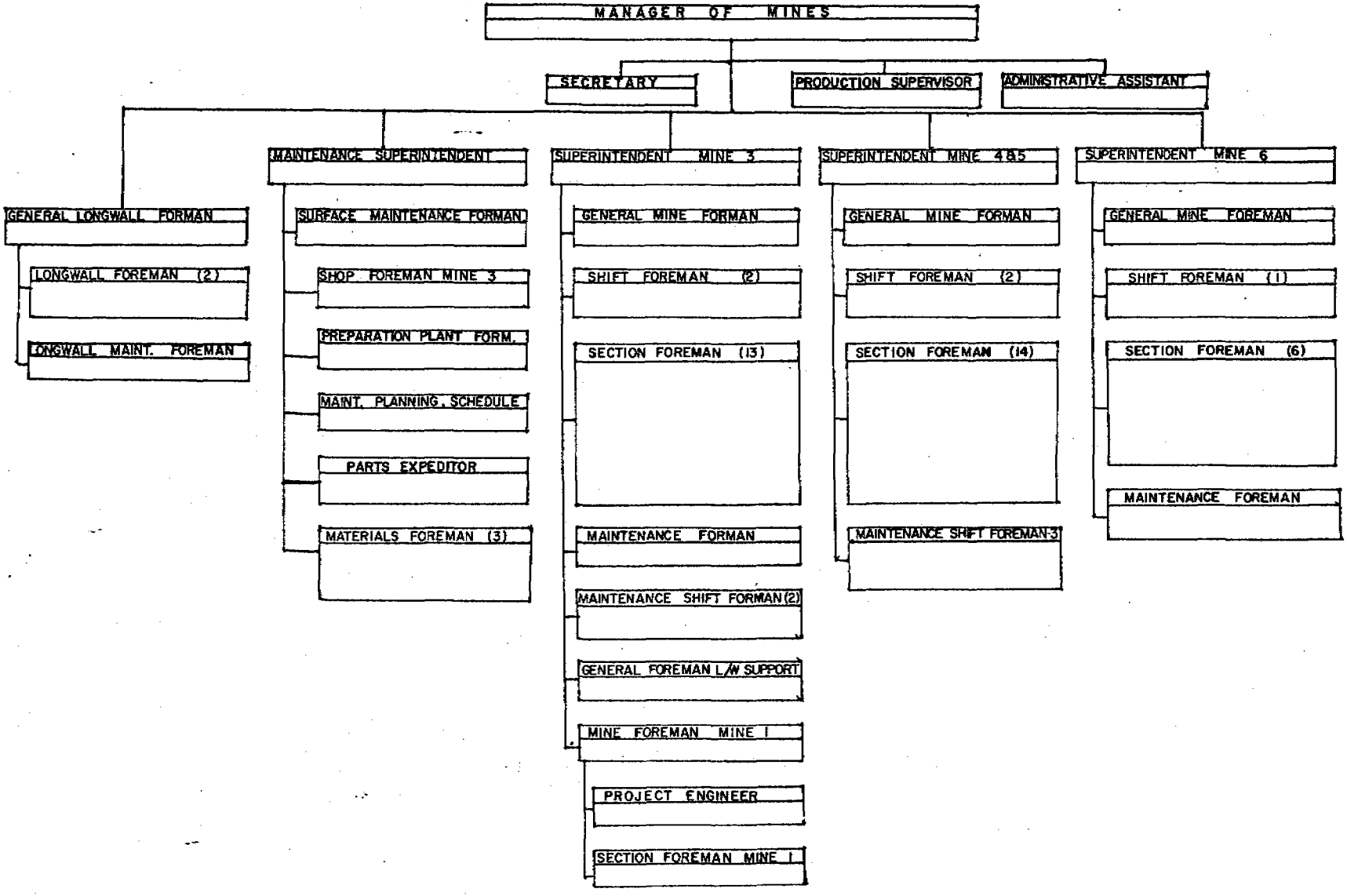

MANAGER OF MINES
SECRETARY
PRODUCTION SUPERVISOR
ADMINISTRATIVE ASSISTANT
GENERAL LONGWALL FORMAN
LONGWALL FOREMAN (2)
LONGWALL MAINT. FOREMAN
MAINTENANCE SUPERINTENDENT
SURFACE MAINTENANCE FORMAN
SHOP FOREMAN MINE 3
PREPARATION PLANT FORM.
MAINT. PLANNING, SCHEDULE
PARTS EXPEDITOR
MATERIALS FOREMAN (3)
SUPERINTENDENT MINE 3
GENERAL MINE FORMAN
SHIFT FOREMAN (2)
SECTION FOREMAN (13)
MAINTENANCE FORMAN
MAINTENANCE SHIFT FORMAN (2)
GENERAL FOREMAN L/W SUPPORT
MINE FOREMAN MINE 1
PROJECT ENGINEER
SECTION FOREMAN MINE 1
SUPERINTENDENT MINE 4&5
GENERAL MINE FORMAN
SHIFT FOREMAN (2)
SECTION FOREMAN (14)
MAINTENANCE SHIFT FOREMAN 3
SUPERINTENDENT MINE 6
GENERAL MINE FOREMAN
SHIFT FOREMAN (1)
SECTION FOREMAN (6)
MAINTENANCE FOREMAN

Fig. 22

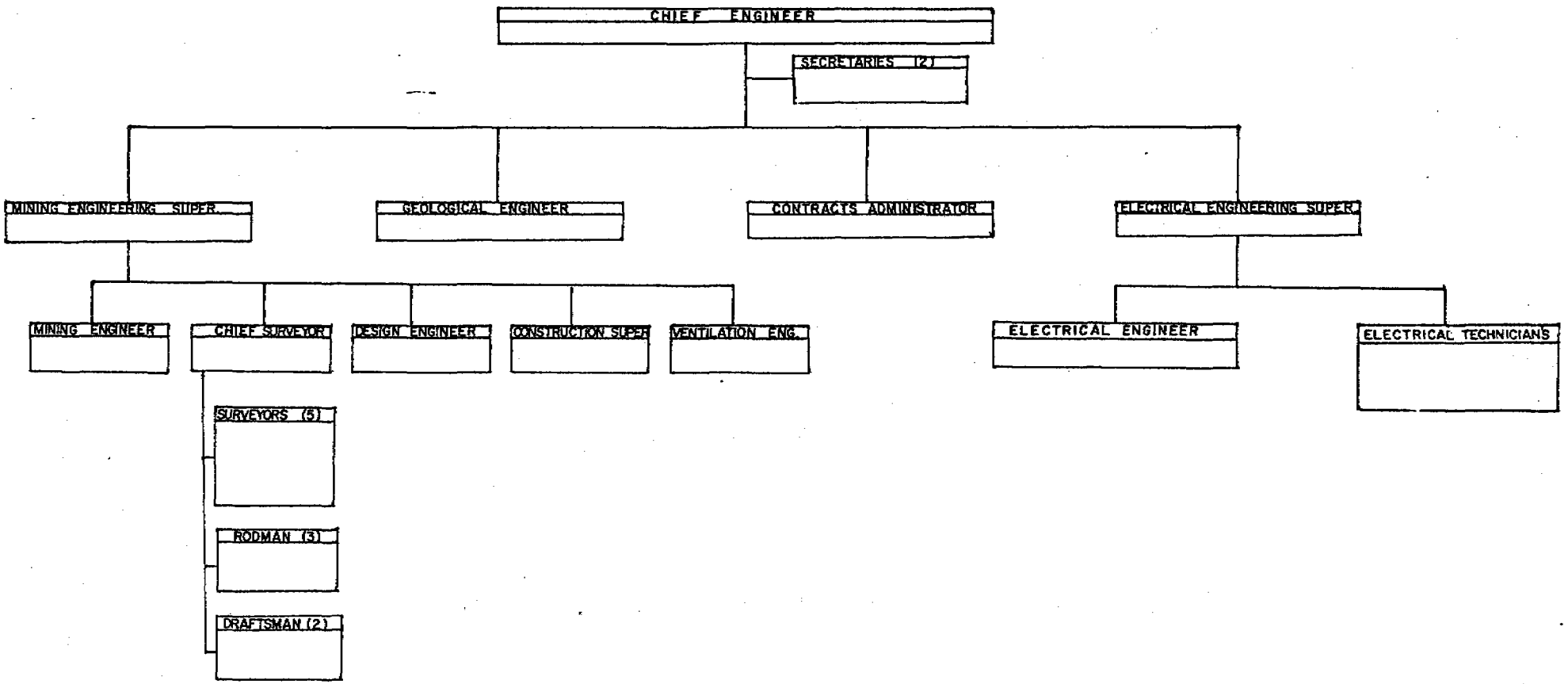

CHIEF ENGINEER
SECRETARIES (2)
MINING ENGINEERING SUPER.
GEOLOGICAL ENGINEER
CONTRACTS ADMINISTRATOR
ELECTRICAL ENGINEERING SUPER.
MINING ENGINEER
CHIEF SURVEYOR
DESIGN ENGINEER
CONSTRUCTION SUPER
VENTILATION ENG.
ELECTRICAL ENGINEER
ELECTRICAL TECHNICIANS
SURVEYORS (5)
RODMAN (3)
DRAFTSMAN (2)

Fig. 22

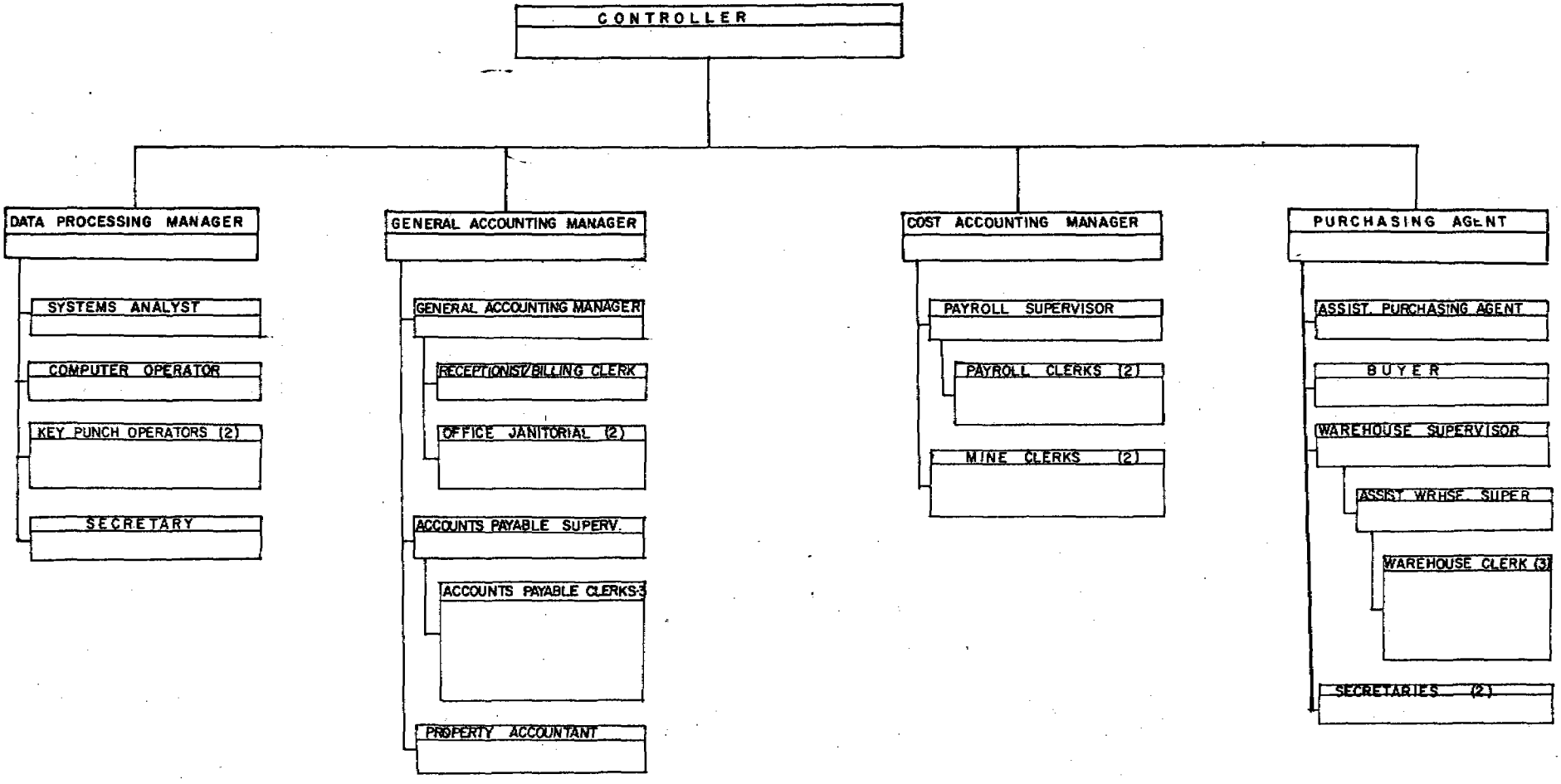

CONTROLLER
DATA PROCESSING MANAGER
SYSTEMS ANALYST
COMPUTER OPERATOR
KEY PUNCH OPERATORS (2)
SECRETARY
GENERAL ACCOUNTING MANAGER
GENERAL ACCOUNTING MANAGER
RECEPTIONIST/BILLING CLERK
OFFICE JANITORIAL (2)
ACCOUNTS PAYABLE SUPERV.
ACCOUNTS PAYABLE CLERKS-3
PROPERTY ACCOUNTANT
COST ACCOUNTING MANAGER
PAYROLL SUPERVISOR
PAYROLL CLERKS (2)
MINE CLERKS (2)
PURCHASING AGENT
ASSIST. PURCHASING AGENT
BUYER
WAREHOUSE SUPERVISOR
ASSIST. WRHSE. SUPER.
WAREHOUSE CLERK (3)
SECRETARIES (2)

Fig. 22

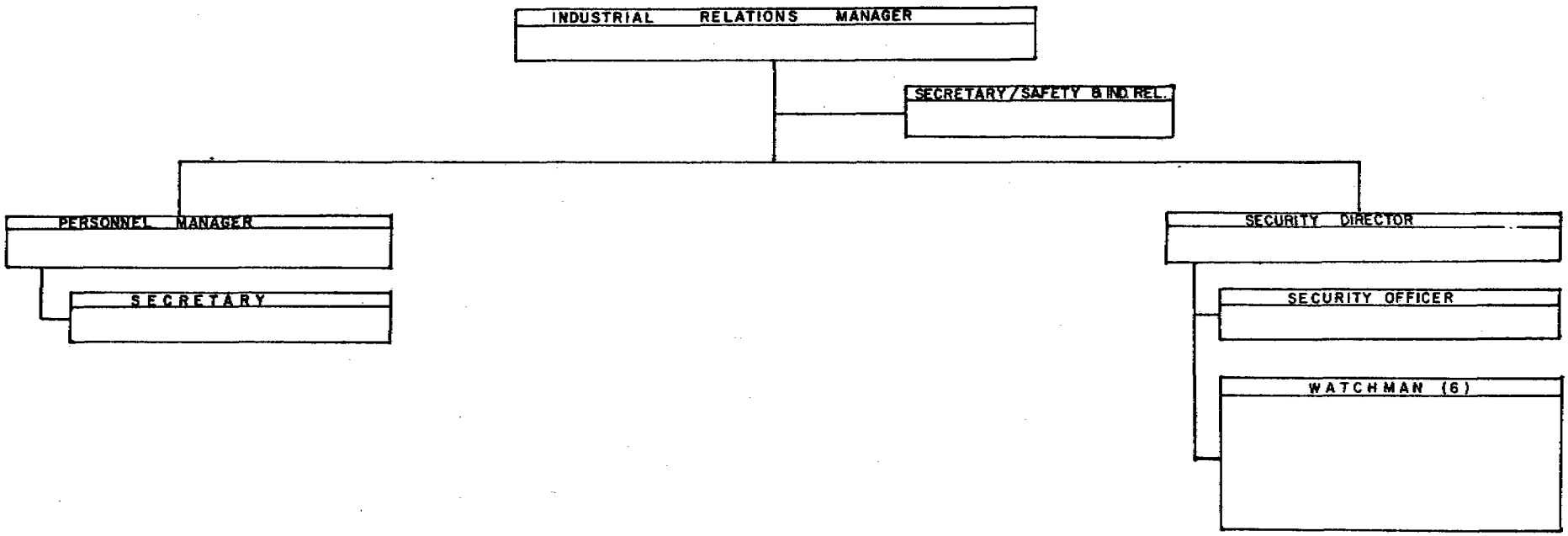

INDUSTRIAL RELATIONS MANAGER
SECRETARY/SAFETY & IND. REL.
PERSONNEL MANAGER
SECRETARY
SECURITY DIRECTOR
SECURITY OFFICER
WATCHMAN (6)

Fig. 22

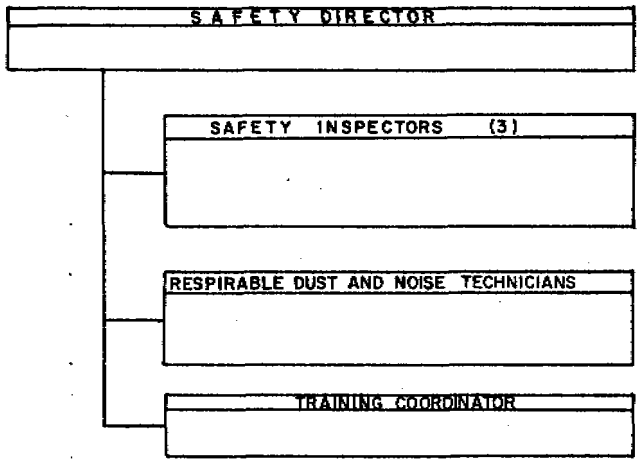

SAFETY DIRECTOR
SAFETY INSPECTORS (3)
RESPIRABLE DUST AND NOISE TECHNICIANS
TRAINING COORDINATOR

Fig. 22

CARBON COUNTY LABOR MARKET DATA 1974 YEAR AVERAGE

Total Civilian Work Force	6,440
Total Employed	5,920
Agricultural	110
Mining	1,080
Contract Construction	160
Manufacturing	290
Transportation and Public Utilities	380
Wholesale and Retail Trade	1,085
Finance, Insurance, Real Estate	175
Service & Miscellaneous	570
Government	1,415
All other nonag. Employment	655
Total Unemployed	520
Unemployed as % of work force	8.1

Fig. 23

CARBON COUNTY LABOR FORCE

AGE AND SEX DISTRIBUTION (1970 CENSUS):

Age Group	Numbers Female	Numbers Male	Percent Female	Percent Male
65 & Over	852	855	5.4	5.5
55-64	912	1,055	5.8	6.4
35-54	1,996	1,695	12.8	10.8
25-34	705	605	4.5	3.9
20-24	439	481	2.8	3.1
17-19	491	512	3.1	3.3
14-16	537	594	3.4	3.8
6-13	1,292	1,278	8.3	8.2
0-5	675	723	4.3	4.6

DISTRIBUTION BY RACE (1970 CENSUS):

White	Negro	Indian	Other
15,549	42	27	129

Fig. 24

D. Social Services and Economics

1. Annual Employment Payroll

Fig. 21 contains the company labor forecast. The projected payroll for Braztah Corporation during 1982 will be an annual average of 27 million dollars, in terms of present day dollars.

2. Capital Expenditures

Through 1975, in excess of $15 million had been spent on the Braztah project. During 1976, capital expenditures are projected to be $23.7 million. Total capital expenditure on the project on completion is estimated at $98.8 million.

3. Service and Support Industries

Various contractors and subcontractors will be utilized during the construction period and should peak at about 150 persons.

Coal will be transported from the mine by the D&RGW Railroad. When full production is reached, an average of 4 loaded unit trains per day will leave the area assuming an average of 5,000 tons per unit train.

4. Annual Taxes

Based on current tax rates, annual property taxes are estimated to be in excess of $250,000.

5. Employee Housing Availability

Current housing needs are critical, due in large measure to a shortage of culinary water taps

availability. These taps are currently limited to areas within the city limits in Price and Helper. This situation is expected to change within the year, which should make many more building sites available. Trailers are expected to "take up the slack" while permanent homes are being built. Housing is not expected to be plentiful over the next several years, but should be adequate. The cost of building a home in the Rocky Mountain Region averages $30 a square foot for prefabricated units, plus land costs. Land costs in the area are at least five times greater than they were approximately five years ago. A typical two-bedroom apartment rents for $250 per month, when available.

6. Availability of Services:

   1. Hospital & Medical

      The Carbon Hospital in Price serves the entire area. The facility has 72 beds and maintains ambulance service. Some nine physicians and surgeons now practice in the Price-Helper area. Salt Lake City, with excellent hospital facilities, is 2 1/2 hours away by automobile, or about 1 hour by air.

   2. Water & Sewer

      Water treatment and distribution facilities are currently operated by the Cities of Price and Helper. These facilities will be augmented

by refurbishing and upgrading the company owned facility at Castle Gate. The Castle Gate facility has a capability of 450 gpm or 648,000 gpd which will satisfy all Braztah mines and plant requirements for culinary water. A Price River Water Improvement District (PRWID) has been formed to construct and operate sewage and culinary water distribution systems in the area. A bond issue has been approved for construction of a water distribution system, and plans for such system are in progress. PRWID operates an area sewage system considered adequate for forseeable needs.

3. Schools

Public and private schools available in the general area are tabulated below:

A. Public

1. Elementary

	Name	1975 Enrollment	Est. Max. Capacity
*	Durrant	419	400
	Price	495	600
	Reeves	239	300
	Peterson (East Carbon)	282	400
	Sally Mauro - Helper	413	400
	Wellington	211	250
	Totals	2059	2350

Name	1975 Enrollment	Est. Max. Capacity
2. Junior High		
Mont Harmon	600	650
Helper	249	325
Totals	849	975
3. Senior High		
East Carbon	267	350
Price	779	1000
Totals	1046	1350

* Currently adding 6 classrooms which will increase the capacity by 150-200 students.

B. Private

Notre Dame	233	285

The Board of Education currently has a study being conducted by architects to forecast growth patterns, recommend school buildings, location, etc.

4. Libraries

Public libraries are available both in Price and Helper.

5. Police

The City of Price has nine full-time officers, six auxiliaries and three police cars. The Sheriff's Department has five officers and three cars. The City of Helper has five full-time officers and one car.

6. Fire

Fire protection in each of the cities is provided by a volunteer fire department. Price

has 21 volunteer firemen, and four vehicles; Helper has 16 volunteer firemen and three vehicles.

7. Utilities

Electricity, furnished by UP&L, and natural gas, furnished by Mountain Fuel Supply Company, should pose no problems to growth in the area. Telephone hook-up service, provided by Mountain Bell, is currently inadequate with attendant long waiting periods for new installations.

8. Social Services

In terms of housing and utilities, all of the communities in the area are suffering from a severe shortage of both. Completion of the PRWID water distribution system should help the situation. Availability of other goods and services is considered fair to good in the Price-Helper area. Recreational opportunities include hunting and fishing, hiking, camping, picnicking, horseback riding, and photography. Scofield Reservoir affords both excellent fishing and water skiing. Price Canyon Recreation Area access is being upgraded to provide trailer spaces, so use of these facilities should appreciably increase. Public swimming pools are located both in Price and Helper and a nine hole public golf course is located between Price and Helper.

9. Community Attitudes

Since environmental quality has received so much publicity in recent years, there are bound to be some who feel that pollution, caused by an operation of this magnitude, could affect the environment to an unacceptable degree. Most people, however, realizing that under existing technology, zero discharge is impossible, are in favor of the project, with its built-in environmental safeguards. Coal mining has historically been the largest single base of income for the area, and this is not a new or foreign experience to local residents.

Other factors which affect public opinion are:

a. Employment

1. Over 2,000 new jobs will be directly or indirectly created by Braztah between 1976 and 1982.

2. Local communities cannot supply the additional manpower, therefore, there will be an influx of people from other areas of the country.

b. Population

The population of the Price-Helper area may exceed 16,000 by 1982, which is a 50% increase over current population levels.

c. Housing

1. The demand for new housing units in the Price-Helper area will approach 500 units between January 1976 and January 1982.

2. Based on present indications, the supply of new housing will fall far short of the demand.

d. Other Communities

1. Several other towns were surveyed for growth potential.

2. All of these towns are limited by their facilities or are too far removed from the job sites to make them attractive to workers searching for a place to live.

10. Effect on Local Economy

The addition of an industry generating some 2,000 plus new jobs, with an annual payroll estimated at $27,000,000, poses residual problems. Personal income will increase, which could aggravate inflation, however, governments will pick up over $7,000,000 in increased taxes paid by individuals. Since local officials are aware of the proposed expansion in the area (by Braztah and others), it is felt that continued close cooperation between the companies and local officials will provide an atmosphere

conducive to change. Land use (mining and agricultural) will not be changed.

11. Effect on National Supply/Demand for Commodity

The net effect of Braztah's operation will be to increase the supply of coal which is in increased demand, particularly of the quality to be mined by Braztah. Braztah's production will have a secondary positive effect on the supply of coal nationally, because low sulfur coal and eastern high sulfur coals for power plant consumption can be blended for burning within the limitations of air quality standards.

E. Health and Safety

1. The Braztah mines will be provided with suitable firefighting equipment adapted to the size and condition of the mine. The operation will be in full compliance with the requirements set forth in the Coal Mine Health and Safety Act of 1969, and regulations adopted pursuant thereto. Firefighting equipment will be provided at the following locations in the quantities stated below:

   a. Working Sections: Two portable extinguishers and 240 pounds of rock dust will be provided in each working section. Water lines will extend to each section loading point and will be equipped with enough fire hose to reach each work party.

b. Belt Conveyors: Water lines will be installed parallel to the entire length of all belt conveyors and will be equipped with firehose outlets with valves at 300-foot intervals. At least 500 feet of fire hose will be stored at strategic locations along each belt conveyor.

c. Transportation: Each track or off-track locomotive, self-propelled mantrip car, or personnel carrier will be equipped with a portable fire extinguisher.

d. Electrical Installations: Two portable extinguishers will be provided at all permanent electrical installations. One portable extinguisher and 240 pounds of rock dust will be provided at each temporary electrical installation.

e. Oil Storage Stations: Two portable extinguishers and 240 pounds of rock dust will be provided at all underground permanent oil storage stations.

f. Welding, Cutting, Soldering: One portable extinguisher will be provided at all locations where welding, cutting, or soldering with arc or flame is being performed.

g. Powerlines: At each wooden door through which powerlines pass there will be 240 pounds of rock dust.

h. Emergency materials: The following materials will be readily available at locations not exceeding 2 miles from each working section:

1. 1,000 board feet of brattice boards
2. 2 rolls of brattice cloth
3. 2 hand saws
4. 25 pounds of 8 penny nails
5. 25 pounds of 10 penny nails
6. 25 pounds of 16 penny nails
7. 3 claw hammers
8. 25 bags of wood fiber plaster
9. 5 tons of rock dust

All firefighting equipment will be maintained in a usable condition and will be examined every six months.

i. Main and Secondary Belt Drives: All main and secondary belt conveyor drives will be provided with one of the following types of fire protection:

1. Deluge type water sprays
2. Foam generator systems
3. Water sprinkler systems
4. Dry power chemical systems

The final determination regarding which system will be used, will be made by the engineering department based on studies of the effectiveness and availability of each system.

j. Automatic Fire Warning Devices: A fire sensor system will be installed on each underground belt conveyor which will give automatic warning when a fire occurs on or near the belt. The system will also provide audible and visual signals that permit rapid location of the fire.

k. Program of Instruction: A program of instruction will be developed to train all miners in the location and use of all fire-fighting equipment, location of escapeways, exits, and proper evacuation procedures to be followed in the event of an emergency.

2. Coal dust, including float coal dust deposited on rock-dusted surfaces, loose coal, and other combustible materials, will be cleaned up and not permitted to accumulate in active workings. A program for regular cleanup and removal of accumulations of coal and coal dust will be established and maintained.

Where mining operations in active workings create or raise excessive amounts of dust, water or water with a wetting agent added to it will be used to minimize these conditions.

All underground areas will be rock-dusted to within 40 feet of each working face. Where rock

dust is applied, it will be distributed upon the roof, floor and ribs. The incombustible content will be maintained at 65% in all areas except the return air courses and in such cases, will be maintained at 80% incombustible.

3. Waste and refuse disposal: There will be no waste and refuse disposal other than that previously discussed. All coal removed from the mine will be loaded in unit trains.

4. General Mine Safety: Each new employee will undergo several days of training before being assigned to duties underground. This training will include company safety policies, state and federal laws, first aid, self rescue, methane detection, roof and rib control, ventilation and other courses required by state or federal laws. Retraining will be conducted on a yearly basis.

Braztah Corporation will carry out a continuous program to improve the roof control system. The roof and ribs of all active underground roadways, travelways, and working places will be supported or otherwise controlled adequately to protect miners from roof and rib falls. A roof control plan suitable to local conditions and system of mining has been adopted for working mines, and will be instigated for future mines. The plans show the type of support and spacing approved by the Mining Enforcement and Safety Administration

(MESA). These plans will be reviewed every six months by M.E.S.A. All criteria set forth in Section 75.200-6 through 75.200-14 of the Coal Mine Health and Safety Act of 1969 have been incorporated into the plans. Existing roof control and ventilation plans for #3, #4, and #5 Mines are included in Appendix A as Exhibit No.'s 25, 26, and 27.

The mines will be ventilated by mechanical ventilation equipment installed and operated in a manner approved by M.E.S.A.

Main fans will be installed on the surface in fireproof housings and connected to the mine openings through fireproof air ducts.

Auxiliary exhaust fans or line brattice will be utilized for face ventilation, as needed.

The fans, if used, will be of a permissible type, maintained in proper condition, and located and operated in a manner which will avoid any recirculation of air at any time.

All active workings will be ventilated by a current of air containing not less than 19.5% oxygen and not more than 0.5% carbon dioxide. The minimum quantity of air reaching the last open crosscut will be 9,000 cubic feet per minute. The minimum

quantity of air reaching each working face will be 6,000 cubic feet per minute.

A ventilation system and methane and dust control plan will be submitted and followed. The plan will show the type and location of mechanical ventilation equipment installed and operated in the mine, the quantity and velocity of air reaching each working face, and other information as set forth in Section 75.316 of the Federal Coal Mine Health and Safety Act of 1969.

All requirements of the Federal Coal Mine Health and Safety Act of 1969 will be met. One of the most important objectives of Braztah Corporation is to operate a safe mine. To achieve this objective, Braztah pledges a safe and healthful place to work for all employees and to fully comply with all Federal and State mining laws.

5. Accidental Pollution and Planned Contingency Measures

Underground mining should not create any dust emissions to the atmosphere. An accepted hazard of any underground mining would be an explosion which could emit dust and gas to the atmosphere for a short period. Water pollution is minimized by use of a closed system in the washing plant and by creating emergency overflow ponds in the near

vicinity of the thickener. These ponds, of course, will be properly constructed, as previously mentioned (See Map 17, Appendix B).

IV. PROPOSED RECLAMATION PLAN

A. General Description and Statement of Purpose:

1. Soils in the area of surface facilities have been largely disturbed by previous mining activities and the old townsite of Castle Gate or Spring Canyon. They consist mainly of loam or clay loam, and contain a fair amount of stones, and gravel. Typically, the soils are brown-prairie mountain, with minimal vegetal cover. Rock outcroppings and mine waste dumps are a frequent occurrence. Portions of the Federal land are under grazing leases and are generally used as summer range for sheep and cattle.

2. The proposed use for the area will be coal production. The mining activity will take place between 500 and 2,500 feet below the surface. Surface conditions of the application area will not be disturbed by the mining operations. In fact, mining operations will have a beneficial effect since some existing waste dumps will be covered, graded to contour and later reseeded.

   The only soil removal necessary will occur on private property in the area of the proposed surface installations. Any soil which will be

stored prior to use will be marked and graded to prevent erosion. It is not believed any toxic or acid material will be formed. The low sulfur content of the coal to be mined indicates that no acidity problems will be encountered.

3. The proposed reclaimed land use will be rangeland and limited wildlife habitat, its present use.

4. The general reclamation objective will be to restore the land to rangeland productivity, blending the terrain with the topography where appropriate. The initial objective during the first two years of reclamation will be to establish a ground cover of grasses to control erosion and to improve the moisture retention capacity of the soil. Once the grass cover is established, the objective will be to introduce selected native shrub species to insure natural plant succession and the continuation of the established plant community. This will require protection of the area from grazing practices after reclamation is complete.

5. It is not expected that problems will be encountered in successfully meeting these reclamation objectives. The surface of federal lease land will have a minimal disturbance due to mining operations.

B. Reclamation Schedule

1. There will be a minimum of land disturbance on the Federal lease land. Topsoil removal and storage, overburden removal and disposal, and

surface and road construction will take place on private lands as described in Paragraph A-2 of this section.

2. Some existing waste dumps on private land will be covered with excess soil obtained from various construction operations on Braztah land. They will be graded to contour, cultivated and seeded in cycle as the construction phases end.

C. Reclaimed Land Forms

1. There will be no land form changes on the application area except for the covering of existing waste dumps. There will be no water impoundment on Federal or Braztah land except as previously discussed in 6f. The ultimate land forms, upon completion of the project, will be similar to existing contours.

2. No alternative land uses are projected for the application area. The area is currently used for sheep and cattle grazing and will be suitable for such use during mining operations and after the project is completed.

D. Reclamation Techniques

1. Bulldozers and scrapers will be used for topsoil removal and replacement where possible in the construction area on Braztah land. The land will be stabilized by grading to contour and then reseeding.

2. The initial seeding program will include a selection of native species which have proven successful in revegetation of overburden piles. Examples of the type of species which would be considered suitable includes: Western Wheatgrass (Agropyron Smithii), and Indian ricegrass (Oryzopsis hymenoides). Other species could be adopted after consultation with agricultural specialists.

   Irrigation and fertilization are planned to insure rapid establishment of ground cover for erosion control; however, these practices will be discontinued once the plant community is established.

3. Once grass cover has been established (approximately 2 years), selected native shrub species will be introduced by direct planting of seedlings. Species will be selected on the basis of improving range productivity and ensuring the survival of the plant community established (approximately 5 years after initiation of the reclamation program). Nitrogen-fixing legumes such as clover should be introduced to improve the nitrogen content of the soil, which is typically deficient in reclaimed areas.

V. OTHER

A. Discussion of Alternate Mining Methods And Any Adverse Environmental Effects Which Cannot Be Avoided

Due to the depth of cover, underground mining is the only feasible method of recovering the coal. Alternate portal locations could, of course, be used. However, the only environmental effect would be to shift the impacts from one locale to another. Present plans keep most haulage underground and are deemed to be most environmentally compatible.

Some top soils will be permanently lost on construction sites and areas occupied during exploration by both temporary and permanent facilities. Increased surface erosion can be expected during the construction phase, and to a lesser degree during the operational phase of the mines. Erosion will be minimized by proper drainage.

Over 900 acre-feet of agricultural water has been purchased for use in the mine operations. This has reduced the irrigated agricultural land base, and thus could eliminate some of the land from agricultural production.

Some air pollution will occur due to construction activities, but will be kept to a minimum by direct application of water. Some noise pollution will

inevitably result due to use of heavy construction equipment, truck haulage, increased train movement, and ventilation fans. The amount and effects of the increased noise cannot be determined at this time.

APPENDIX A

Exhibits 25, 26 & 27 Roof Control & Ventilation Plans
28 Copies of Coal Analyses

United States Department of the Interior

MINING ENFORCEMENT AND SAFETY ADMINISTRATION
POST OFFICE BOX 15037
DENVER, COLORADO 80215

Coal Mine Health and Safety

DISTRICT 9

In Reply Refer To:
EMS - H&S 3-1-6

November 11, 1975

Boyd Harvey, Manager of Mines
Braztah Corporation
Box 599
Helper, Utah 84526

Re: Carbon Fuel No. 3 Mine
I. D. No. 42-00165
Roof Control Plan

Dear Mr. Harvey:

The Roof Control Plan for the subject mine is hereby approved. The plan is subject to revision at any time and shall be reviewed by the operator and MESA at least once every six months.

This plan supersedes any previously approved plans and a copy of this plan shall be made available to the miners.

Sincerely yours,

John W. Barton
District Manager

Enclosure

Appendix A
Exhibit 25

BRAZTAH CORPORATION

P.O. BOX 599 - 801-472-5572 OFFICE
HELPER, UTAH 84526

3411

September 19, 1975

Mr. John W. Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

Carbon Fuel #3 Mine
I.D. 42-00165

SUBJECT: Roof Control Plan (Carbon Fuel #3 Mine)

Dear Mr. Barton:

Please find enclosed for your approval a Roof Control Plan for Carbon Fuel #3 Mine. We have incorporated all of the recent supplements and deletions into one improved plan.

We have received a letter from Denver Technical Support Center (Ground Support Group) by Mr. Ed Hollop, with comments and recommendations offered. Since only a short term study was confined to the Main Dips Area, we believe that a more "in-depth study" of the over-all mine should be made before legitimate conclusions can be drawn. We have tentatively scheduled a meeting with Mr. Ed Hollop on October 6, to discuss further evaluation of our #3 Mine conditions.

Although our Roof Control Plan as submitted, is an updated version of previous plans on 5 ft. centers, we consider this to be a minimum plan devised for optimum roof conditions; but in actual practice presently we are on 3' and 4' centers, if conditions warrant. I hope that from our October 6 meeting and any further studies that are necessary to come to satisfactory conclusions involving the entire mine, we can initiate positive action to improve our roof conditions at the #3 Mine.

Respectively submitted,

Boyd Harvey
Manager Of Mines

cc: B. Haynes
B. Harvey
R. Christensen
T. Skriner
P. Butler
Joe Freeman (MESA Price)
D. Wise

ROOF-CONTROL PLAN

General Information

Date: _____ Mine ID No.: 42-00165

A. Company: BRAZTAH CORPORATION

Address: Helper (City) Utah (State) 84526 (Zip Code)

B. Mine: Carbon Fuel #3

Helper (City) Carbon (County) Utah (State) 84526 (Zip Code)

C. Locations (Reference to nearest highway route, direction, and distance)

2¼ Miles Northwest Of U.S. 50 & 6 From Helper, UT

D. Type(s) of Plan: Combination And Full Roof Bolting

E. Area(s) of Mine Covered By The Plan: All locations, entries, rooms, cross-cuts and intersections.

F. Maximum Cover (feet): 2000 Feet

Main Roof	Sandstone
Immediate Roof.	Sandy Siltstone
Coal Bed.	Coal Sub-3 Seam 6-9 ft.
Bottom.	Sandstone

G. [signature] General Manager
Company Or Mine Official Validating Plan

Roof-Control Investigator(s): [signature]

Approved By: [signature] 11/11/75
Date

Title: District Manager

H. Roof-Support Materials-Roof Bolts

Manufacturer: CF&I Steel Corporation, Designa: R-1
Mikco Industries Of Utah, N.A.
Armco Steel Corporation, CP-2103-8 Det CP-519-8 Det 6
Bethlehem Steel or equiv. (mech. or resin) N.A.

Minimum Length: 36" Steel, 48" Resin

Diameter: 3/4" Rebar (Resin) or 5/8" (Threaded)

Type Steel: 3/4" Rebar (Resin) Type Thread: Cut or Rolled
5/8" High Strength
Length Of Thread: 4" Cut Or Roll R20 Min.

Type Head: Hex Or Square (Standard)

Dimensions Of Bolt Head: Nut: 1-1/8" Flange: 1-3/4"

I. Bearing Plates

Manufacturer: Mikco Industries Of Utah Manuf's Designa: N.A.
CF&I Steel Corporation R-22
Or any equivalent Approved Plate

Dimensions: 6" x 6" x 1/4" - Embossed - Double Embossed or Flat
18" x 6" x 1/4" - Embossed - Header Plates

Shape: Square Center Hole Size: 7/8" Nominal For Conventional Bolts, 1" Nominal For Resin Bolts

J. Washers

Manufacturer: Kaiser Steel Corporation Manuf's Designa: N.A.

Type Steel: Hardened Size: 2" O.D.

Shape: Round Hole Size: 13/16"
(Donut embossed, Bell embossed, Flat)

K. Anchorage Unit

Manufacturer: Ohio Brass Manuf's Designa: 22378
Pattin "D" D-1
Bethlehem; any equiv. approved shell C-1 or K-1
DuPont Faslock (9" x 2')
Resin Cartridge (9" x 3')
The Celtite Cartridge

Type: Expansion - Resin Size of Finished Hole: 1-3/8" (Mech.), 1" (Resin)
Method Of Drilling: Pneumatic or Rotary Dust Control: Water or Vacuum
Installed Torque: 3/4" = 150 to 250 ft. lbs. 5/8" = 150 to 240 ft. lbs.
W.H.W. 3/4" - 125 to 170 ft. lbs. W.H.W. 5/8" =125 to 165 ft.

L. Materials Used In Conjunction With Roof Bolts
Airplane landing mats or wide steel sheets 16 gauge minimum.

L. Materials Used In Conjunction With Roof Bolts (Continued)

10" x 18" x 2" Cotton Wood Blocks -- Only where required.

M. Face Equipment And Section Haulage Equipment Associated With Each:

1. Lee-Norse Continuous Miners

2. Joy 10 S.C. Shuttle Cars

3. Air - Stoper - Percussion - Fletcher Rotary - Percussion

Lee-Norse Roof Bolter Rotary - Percussion

N. Sequence Of Mining And Installation Of Supports Including Temporary Supports:

Plan drawing showing sequence of mining including pillar mining where applicable, sequence of installation and spacing of supports including temporary supports and maximum width of entries, rooms, intersections, crosscuts, and pillar lifts are attached.

Entry Width:	19' - 22'	20'
Entry Centers:	105' max.	105' max.
Crosscut Width:	19' - 22'	20'
Crosscut Centers:	105' max. COMBINATION	105' FULLBOLTING
Room Width:	19' - 22' PLAN	20' PLAN
Room Centers:	80' max.	80' max.
Room Crosscut Width:	19' - 22'	20'
Room Crosscut Centers:	105' max.	105' max.

O. Roof-Support Materials - Conventional Or Temporary And Supplemental

Length Of Post: As required

Diameter Of Post: 1 inch for each 15 inches in length but not less than 4 inches - Split posts shall have a cross-section area equal to that required for round posts of equivalent length.

O. Roof-Support Materials - Conventional Or Temporary And Supplemental (Continued)

Type Of Post: Round or split of solid straight grain wood with the ends sawed square and free from defects which would affect their strength.

Cap Blocks, Size and Shape: 2 x 4 x 12 inches Min.

Wedges, Size and Shape: 1 x 5 x 6 inches - tapered Min.

Crossbars, Type: Straight grain solid wood and steel (canoes)

Crossbars, Size: A minimum of 3 inches by 8 inches of varying length. Steel or aluminum 4" min.

Planks, Size: A minimum of 1 inch by 8 inches of varying length.

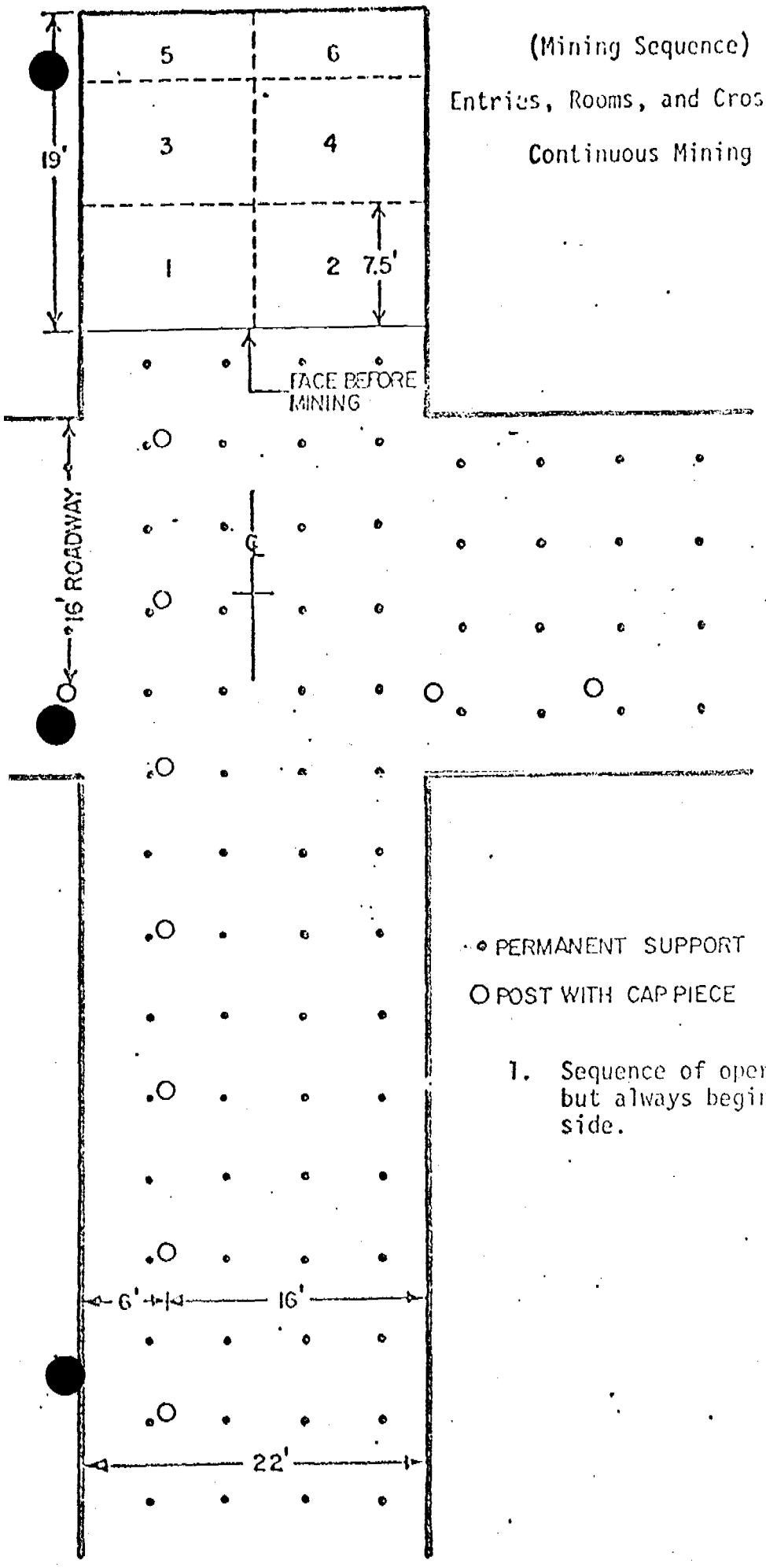
Cribbing Blocks, Size: A minimum of 30 inches in length of varying cross section. Having flat parallel sides.

DRAWING #1

(Mining Sequence)

Entries, Rooms, and Crosscuts

Continuous Mining

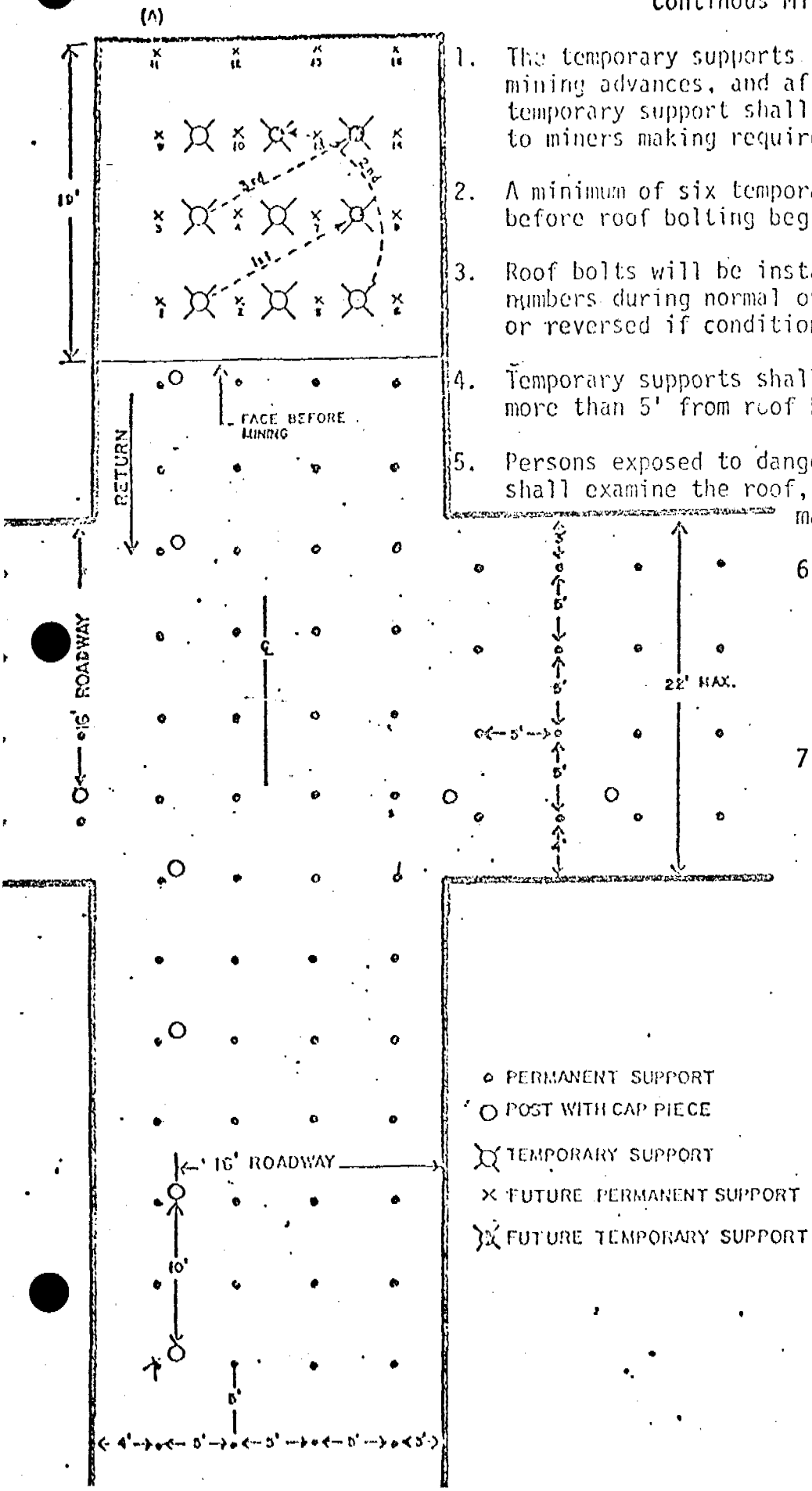


1. Sequence of operations may be altered or reversed, but always beginning the first lift on the brattice side.

Scale: 1" = 10'

COMBINATION PLAN DRAWING #2
22-Foot Wide

Entries, Rooms, and Crosscuts
Continous Mining



1. The temporary supports in row (A) shall be installed as mining advances, and after completion of the cut the temporary support shall be installed to provide protection to miners making required tests.

2. A minimum of six temporary supports shall be set as shown, before roof bolting begins.

3. Roof bolts will be installed in the sequence shown by the numbers during normal operations, however, it may be alter or reversed if conditions warrant.

4. Temporary supports shall be installed on 5' centers and no more than 5' from roof bolts.

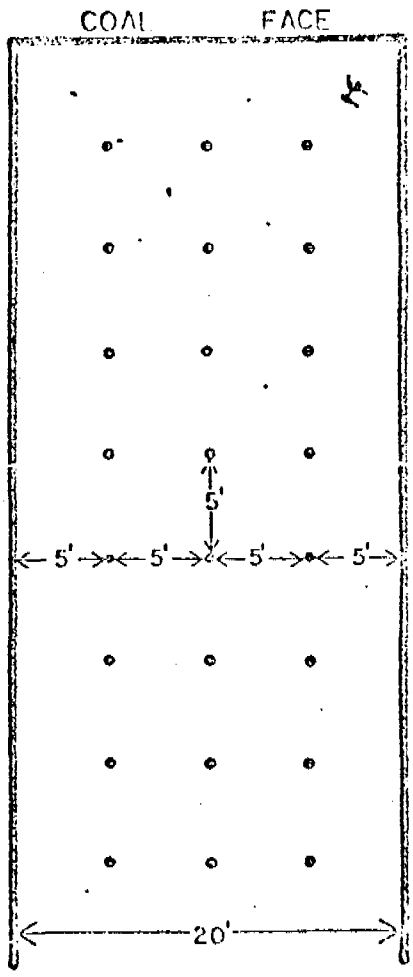
5. Persons exposed to danger from falls of roof, face and rib shall examine the roof, face, and rib before starting a machine and frequently thereafter.

6. When necessary during the instal tion of roof bolts, a temporary support may be moved not more th 2' from the hole to be drilled, facilitate installation of the f support.

7. All dimensions shown are maximum Whenever sloughage occurs to the extent that the dimensions are exceeded, additional support sha be installed to maintain all dimensions within the indicated maximum. Except for entry widtr

Scale: 1" = 10'

FULL BOLTING



BOLT SPACE

5' maximum from uncut face
5' maximum from rib
5' maximum either lengthwise or crosswise

The six temporary supports shown on Drawing #2, Page 6, will apply where full roof bolting is conducted. Additional supports will be installed along the ribs if sluffage occurs.

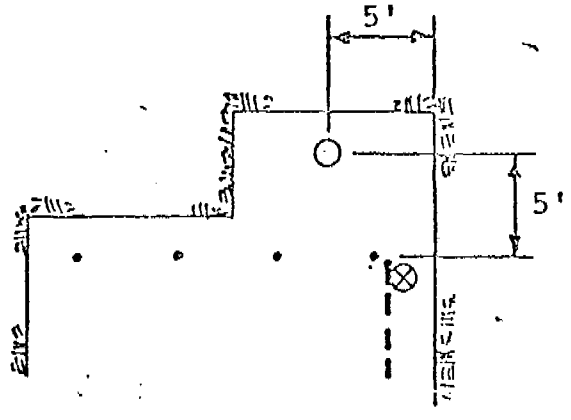
• ROOF BOLT

Scale: 1" - 10'

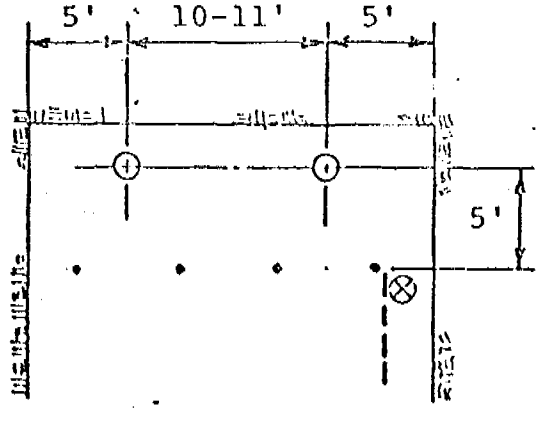
INSTALLATION PROCEDURE FOR
TEMPORARY ROOF SUPPORT BEAMS (CANOES)
-TO BE USED UNDER SEVERE ROOF CONDITIONS-

Advance the brattice side of the face 10' - 11' wide and 5' - 6' deep from the last inby row of roof bolts. In this cut, a temporary support, hydraulic jack (duke) or post, will be installed on a 5' center from the last row of bolts and the rib line.

- roof bolt
- temporary support
- line brattice
- timber



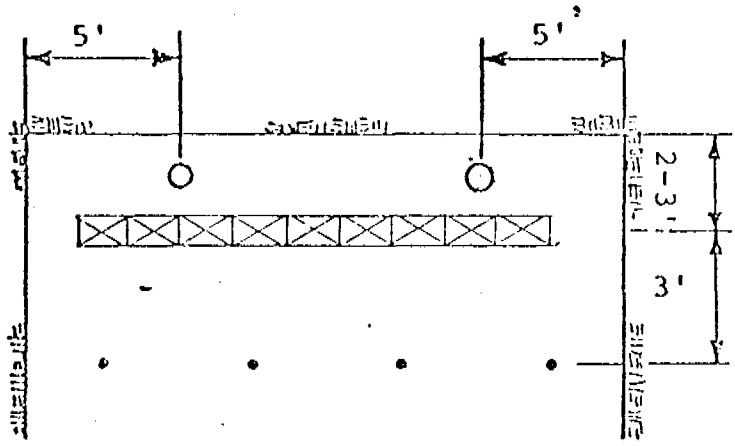
Advance the off-brattice side of the face in the same manner as the brattice side and install a temporary support on a 5' center from the last row of bolts and the rib line.



The first temporary roof support beam (canoe) can be raised to the roof by the cutting head of the miner to yield additional roof support while temporary supports.

are installed under the ends of the temporary beam.

The first beam shall be installed no greater than 3' from the last row of roof bolts.

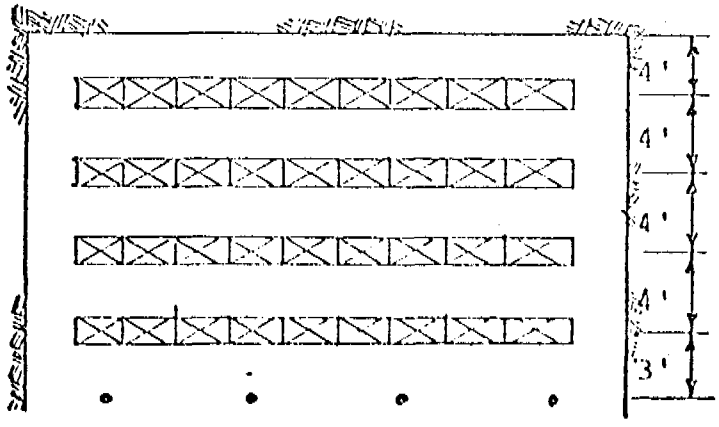


on first beam in each cut, 4 ø on the inby beams

The installation, after completed, is represented by the above sketch.

Once the first beam is installed, then the temporary support inby the beam can be removed and the cycle can be repeated until a maximum of 4 beams are installed in a 19' cut (if roof conditions permit).

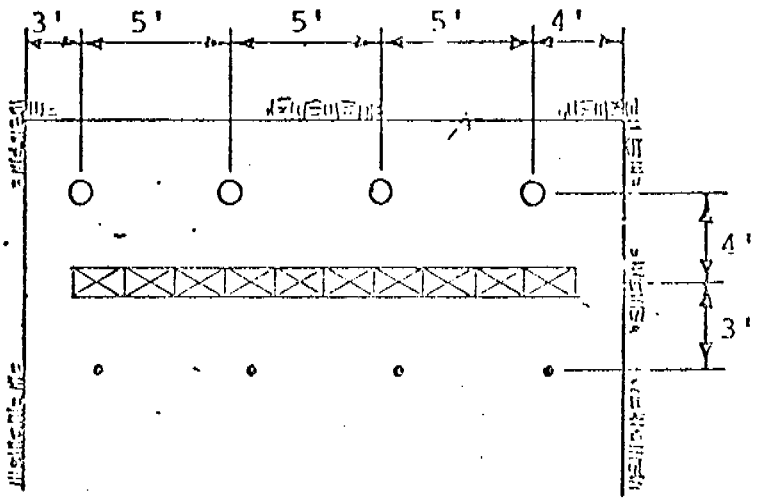
A completed mining cycle showing the installation of a maximum of 4 beams is represented below.



If roof conditions limit less than 4 beams used in each cycle, then

4 temporary supports will be used to replace a beam when a beam cannot be set due to unusual circumstances.

The diagram below illustrates this condition.

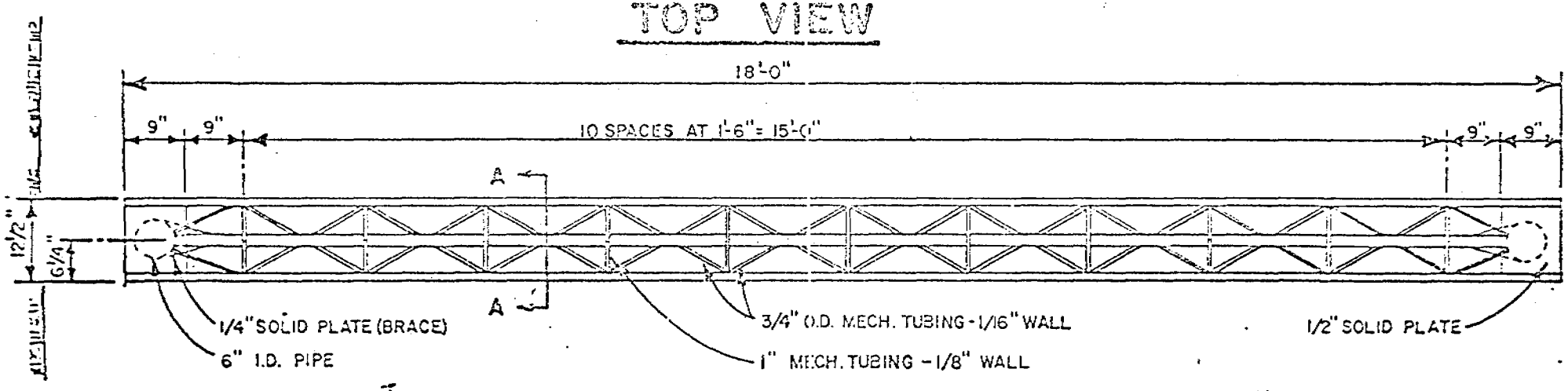


Once the beam installation is completed, roof bolts will be placed between the beams as required per roof conditions.

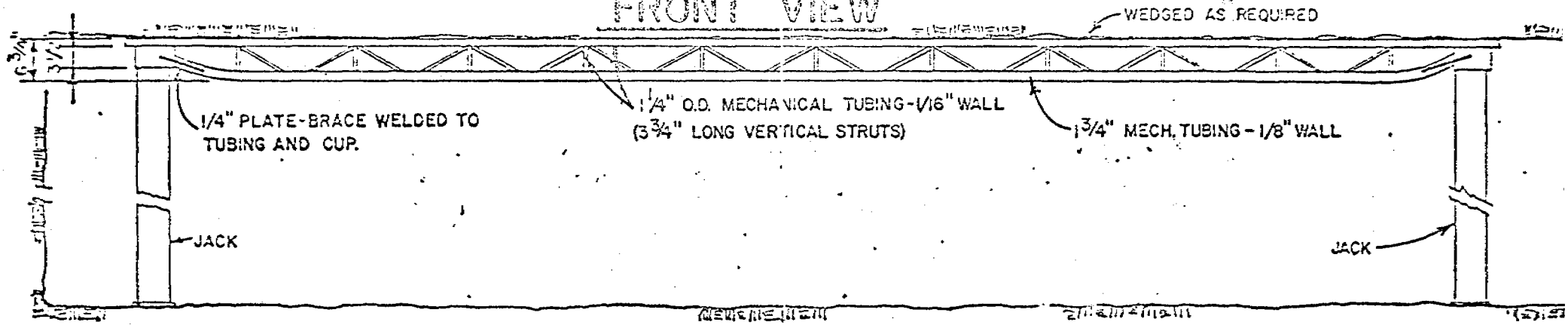
When the entire area is bolted, the beams will be removed and used in the next cycle.

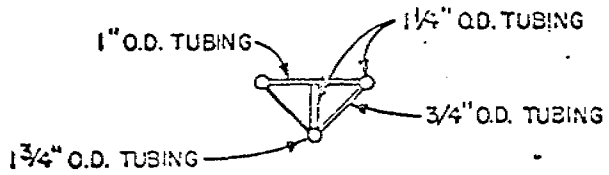
TEMPORARY ROOF SUPPORT BEAM

TOP VIEW



FRONT VIEW





SECTION A-A

NOTE:

(1) MAIN BEAM -
MECHANICAL TUBING 836 STEEL
1 3/4" O.D. 1/8" WALL

TENSILE - 22,000 lbs/in^2
COMPRESSIVE - 36,000 lbs/in^2
SHEAR - 14,500 lbs/in^2

(2) Design of above beam may be altered to suit condit

Safety Precautions for Full Bolting and Combination Plans

1. This is the minimum roof-control plan and was formulated for normal roof conditions and the mining system(s) described. In active working areas where subnormal roof conditions are encountered, indicated or anticipated, the plan shall be supplemented with either longer and/or additional roof bolts, posts, or crossbars. If changes are to be made in the mining system, the plan shall be revised accordingly.

2. All personnel required to install roof supports shall be trained by a qualified supervisor designated by mine management before being made solely responsible for such work. This training shall insure that such persons are familiar with the functions of the support being used, proper installation procedures, and the approved roof-control plan.

3. All components of the roof bolt assembly shall comply with the American National Standards Institute "Specifications for Roof Bolting Material in Coal Mines."

4. Finishing bits shall be easily identifiable by sight or feel and the diameter shall be within a tolerance of plus 0.030-inch minus zero of the manufacturer's recommended hole diameter for the anchor used.

5. Bearing plates used in conjunction with wooden materials shall be not less than 4 inches square or of equivalent area.

6. When testing roof or installing supports in the face area, the workman shall be within 5 feet (less if indicated on sketch) of a temporary or permanent support.

7. Where it is necessary to perform any work beyond supported roof, such as to extend line curtains, temporary supports shall be installed. This minimum is applicable only if they are within 5 feet of the face or rib and the work is done between such supports and the nearest face or rib. Other methods of providing temporary supports for this work will be accepted if equivalent protection is provided.

8. Where rebolting work is being done or crossbars are being installed, temporary supports on not more than 5-foot centers shall be installed across the place so that the work in progress is done between the installed temporary supports and permanent supports installed in sound roof. The distance between the permanent supports and the nearest temporary supports shall not exceed 5 feet.

9. Where substantial loose material is being taken down, a minimum of two temporary supports on not more than 5-foot centers shall be installed between the workmen and the material being taken down unless such work can be done from an area supported adequately by permanent roof supports.

10. All metal jacks shall be installed with a cap block between the jack and the roof unless an oversize bearing plate is provided (Not less than 36 square inches)

11. Roof bolts shall be installed in the sequence shown in Plan Drawing #2, page #6.

12. During each production day at least one roof-bolt hole in each active working place shall be drilled to a depth of at least 12 inches above the anchorage horizon of the bolts being used to determine the nature of the strata.

13. The roof in the face of a working place shall be supported according to the approved plan before any sidecuts are started.

14. An approved calibrated torque wrench that will indicate the actual torque on the roof bolts by a direct reading shall be provided on each roof bolting machine.

15. The torque on the first and one out of every four roof bolts installed thereafter at any location shall be checked by a qualified person. Such tests shall be made after each bolt to be tested is installed, and if the torque on any bolt tested is not within the approved torque range, the reason shall be determined and necessary corrections made immediately. If the required torque cannot be obtained, supplementary supports such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars shall be installed.

16. On a daily basis, spot-check on torques shall be made on at least one roof bolt out of every ten from the outby corner of the last open crosscut to the face. The results of these tests shall be recorded in the onshift examination book. The record shall show the number of bolts tested

and the number above and below the required range. If the results show that the majority of the bolts are not maintaining at least 105 foot-pounds of torque or have loaded up to where they exceed 375 foot-pounds of torque, 305 W.H.W. supplementary support such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars shall be installed. When wood is used between bearing plate and roof, a 50 percent bleed off from minimum torque will be permitted.

17. Posts installed under roof that is disturbed or susceptible to sloughing shall have a wooden cap block, plank, or crossbar between them and the roof. Where crossbars or planks are installed they shall be blocked to equally distribute the load across their length.

18. Posts shall be installed tight on solid footing and at least one but not more than two wooden wedges shall be used to install a post.

19. Posts shall be of solid, straight grain wood with the ends sawed square and free from defects which would affect their strength.

20. The diameter of round posts shall be at least one inch for each 15 inches of length, but in no case less than 4 inches. Split posts shall have a cross-sectional area equal to that required for round posts of equivalent length.

21. Wooden cap blocks and footers shall have flat parallel sides and be not less than two inches thick, four inches wide and 12 inches long.

22. A supply of suitable roof support material including temporary supports sufficient to support the roof during one complete cycle of mining shall be provided as close as practicable to each working face.

23. An additional supply of supplementary roof support material consisting of 20 roof bolts, at least 12 inches longer than the bolt length being used, and a minimum of 20 posts of proper length with sufficient cap pieces and wedges, shall be provided near the dumping point or within a reasonable distance of the faces. Tools and equipment necessary to install such support shall also be available within this distance.

24. A bar of a length suitable for prying down loose material shall be provided on all mobile face equipment, except haulage equipment.

25. A suitable roof sounding device shall be provided with all mobile face equipment, except haulage equipment.

If face workmen who are not operators or helpers on such equipment do not carry a roof sounding device, such device shall be available within 50 feet of their working area.

26. The roof where falls have occurred shall be considered unsupported, and if persons are required to enter such areas, either to travel over the fall or clean it up, the roof shall be supported. Where falls or blasted roof materials are cleaned up, management shall have a plan incorporating the following procedures:

a. Such work shall be under the direct, and unless the workmen are specially trained to do such work, constant supervision of a company official.

b. Adequate temporary support on not more than 5-foot centers shall be set at the edge of the fall where work is to be started. A minimum of four posts or jacks shall be used.

c. Temporary support mentioned above shall be replaced by permanent supports (roof bolts and/or posts) and advanced as cleanup work progresses.

d. Bolting or timbering shall proceed from permanently supported roof to the temporary supports before other work is performed and roof supports shall be advanced as the cleanup work progresses.

e. Where necessary to load material before support can be set, such loading shall be done from areas of permanent support with the operator and other persons in the area under supported roof at all times.

f. Where feasible, permanent supports shall be placed in the entire fall area before loading starts.

SAFETY PRECAUTIONS FOR RESIN GROUTED RODS

1. The use of resin grouted rods as a sole means of roof support is subject to review at any time, but not more than 6 months from the effective date of this plan or upon the failure of the roof in an area using such rods, whichever date is first.

2. Persons responsible for installation of resins shall be instructed in safe handling precautions for such materials.

3. The relationship between the hole dimensions, rod size, and the size and number of resin cartridges is critical; therefore, adequate training and supervision shall be provided to assure proper installation.

4. All safety precautions required in the regular roof control plan shall apply except #14, and #15 . (The torque checks specified for conventional roof bolts do not apply).

5. Resin grouted rods shall be installed as soon as possible (to be determined on a mine-to-mine basis--normally not more than 8 hours) after the working place is exposed. Where required, temporary supports shall be installed immediately after the loading cycle is completed unless roof bolting machines are equipped with acceptable automated supports.

6. Resin grouted rods and conventional roof bolts shall not be intermixed unless they are either used as supplementary support or a systematic plan has been approved by the District Manager for combining the two roof support systems.

7. Drill steel shall be equivalent in length to the rods used or adequately marked to assure the proper hole depth. Each drill hole shall be filled the entire length with resin.

8. (a) All resin grouted rods shall be used with bearing plates approved for use at the mine.

   (b) Bearing plates shall be installed tight against the mine roof.

9. (a) The resin shall not be used if manufacturer's recommended shelf life is exceeded, unless approval to use the resin is obtained from the manufacture

   (b) Resin packages shall be protected from excessive heat and cold during storage, and shall not be used in areas where the ambient temperature falls outside the range recommended by the manufacturer.

   (c) Broken cartridges of resin or cartridges that show signs of deterioration shall be removed from the underground portion of the mine at the end of each calendar year.

   (d) Resin grouted rods shall be installed in accordance with the manufacturer's recommendations.

10. For test purposes the first resin grouted rod installed in each cycle in each working place, after a minimum curing time of 10 minutes, shall be checked with a torque wrench after installing the first line of permanent support and prior to removing any temporary supports. The torque applied shall be 150 foot-pounds. Should the rod rotate one full turn, 360 degrees in the hole, a

second rod shall be tested in the same manner. If this rod also turns, resin installation shall be disconnected until reasons for failure of the resin is determined. (A click type torque wrench is recommended for this test).

BRAZTAH CORPORATION

P.O. BOX 599 - 801-472-5572 OFFICE
HELPER, UTAH 84526

November 18, 1975

Mr. John W. Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

Roof Control & Vent

CARBON FUEL #3 MINE
I.D. NO. 42-00165
VENTILATION PLAN

Dear Mr. Barton:

Enclosed for your approval is a "Ventilation System, Methane and Dust Control Plan" for the six (6) month review period ending October 1, 1975, as required under Section 75.316 of the Code Of Federal Regulations - 30 Mineral Resources.

Respectfully submitted,

BRAZTAH CORPORATION

Duane Wise

Duane Wise
Mine Engineer

DW:vm

Enclosure

cc: B. Harvey
B. Haynes
R. Christensen
T. Skriner
R. Olsen
P. Butler

Appendix A
Exhibit 25

General

The following information shall be submitted to the District Manager:

1. Company name: BRAZTAH CORPORATION

   Mine name: Carbon Fuel #3

   Post Office address: P.O. Box 506

   (Town, County, State): Helper, Carbon, Utah

   Telephone number: (801) 472-3411

   Indentification No.: 42-00165

   Operator's name: William Haynes

   Operator's title: Executive Vice-President

   Operator's address: Box 506 Helper, UT

   Operator's telephone number: (801) 472-3411

2. Indicate if life of mine is
   - [ ] less than one year
   - [X] greater than one year

3. Number of employees:

Surface	25
Underground	132
Total	157

Main Fan Installations (Existing and Future)

Main Fans will be:

1. Installed on the surface in fireproof housings and connected to the mine opening with fire proof air ducts.

2. Equipped with a pressure recording gage and an automatic signal device designed to give alarm should the fan slow or stop.

3. Offset not less than 15' from nearest side of mine opening. Fans will be equipped with weak wall stoppings or explosion doors.

4. Powered with electric motors on an independent power source.

5. Equipped with automatic closing doors.

6. Flammable materials will not be stored within 100' of the fans.

Operation Of Main Fans

A. Main fans will operate continuously except:

(1) During scheduled maintenance or adjustments when all men other than those performing evaluation or adjustments are withdrawn from the mine and the mine power is cut off.

(2) During uncontrolled stoppage or fan failure.

(3) During other stoppages, when written permission is obtained from an authorized representative of the secretary.

B. Management personnel will be contacted and appropriate action taken in event of mechanical or electrical failures to the fans.

C. Neutral areas will not be permitted by improper air flow.

Methane And Dust Control Plan

1. The following is a description of dust control practices at:

   (A) Transfer Points: Clean and rock dust as needed.

   (B) Loading Points: Clean and rock dust.

   (C) Underground Crushers: Does not apply.

   (D) Underground Dumps: Does not apply.

   (E) Along Belt Haulage Systems: Areas are cleaned and rock dusted as needed.

   (F) Face Areas: Rock dust is applied and maintained to within 40 ft. of the faces.

   Number And Type Of Water Sprays:

   Miner: 28 full cone type water sprays.
   Water Pressure: A static water pressure of 50 P.S.I.
   Quantity During Operation: 22 G.P.M. 200 P.S.I. on miner.
   Roof Bolter: Dust suppression by water through the drill steel or through vacuum.
   Face Drills: (Stopers) dust suppression by water through the drill steel.

   (G) Along Shuttle Car Runways: Cleaned, and rock dusted as needed.

   (H) Longwall Face: By ventilation and water sprays.

2. The water sprays indicated for dust suppression as discussed above, will be maintained and operated at the indicated volume and water pressure during mining operations.

3. Bleeder entries, bleeder systems, or equivalent means will be used in all active pillaring areas to ventilate the mined areas from which the pillars have been wholly or partially extracted.

   Bleeder entries will be connected to areas from which pillars will be wholly or partially extracted at strategic locations to control airflow through gob areas, to induce drainage of gob gas and to minimize the hazard from expansion of gob gases due to atmospheric pressure change.

   Bleeder systems will include any combination of bleeder entries, bleeder entry connections to any area from which pillars are wholly or partially extracted and all associated ventilation control devices.

   When the mine operator deems that safe examination can be made, such examination will be made at least once each week by a certified person and the results of such examination shall be recorded in a book.

   When bleeder entry travel is considered unsafe, representative locations will be established and examinations at these locations will be made at least once each week by a certified person or persons and the results shall be recorded.

Ventilation pressure differential between the active pillar line and the junction of any bleeder connection to the bleeder entries of such system will be adequate to insure gob gas drainage to the bleeder entries. The pressure differential shall be considered adequate when perceptible air-flow exists in all open or regulated bleeder connections, as determined with chemical smoke or other approved means.

4. The methane content in any return aircourse other than an aircourse returning the split of air from a working section (as provided in 75.309 and 75.310) shall not exceed 2.0 volume per centum.

5. Methane examinaion will be considered adequate without exposing the examiner beyond permanent or temporary support.

6. Seals - A detailed drawing of a Proposed Seal has been submitted and approved. See attached sketch.

7. Ventilation of pillared or abandoned areas. No new abandoned areas under consideration at this time.

Section And Face Ventilation System

1. The complete Section and Face Ventilation System is shown on the attached sketches.

   The mining cycle at the face is shown on Drawing #1 (mining sequence).

   Line brattice or tubing will be installed at a distance no greater than 15 ft. from the area of deepest pentration to which any portion of the face has been advanced in working faces from which coal is being cut, mined or loaded. Necessary line brattice will be maintained in idle places of active sections to insure adequate ventilation of face area.

2. The minimum quantity of air reaching the last open crosscut in any pair or set of developing entries and the last open crosscut in any pair of set of rooms will be 9,000 C.F.M., and the minimum quantity of air reaching the intake end of a pillar line will be 9,000 C.F.M. A minimum mean entry face velocity of 60 ft./min. will be maintained at all working faces where coal is being cut, mined or loaded.

3. Where Belt Haulage Systems are used, the ventilating controls are shown on the face prints and the Mine Ventilation Map.

4. Ventilating controls are shown on the maps and prints to insure no air reversal on pillaring or developing sections.

5. Coal will not be permitted to accumulate at the outby end of the face equipment to the extent that ventilation of the working face is restricted.

Permanent Stoppings

1. All ventilating devices such as stoppings, overcasts, undercasts and shaft partitions shall be of substantial and incombustible construction installed in a workmanlike manner and maintained in a condition to serve the purpose for which they were intended, and any stopping leaking air excessively shall be repaired immediately. If required, an approved sealant will be applied.

2. Permanent stoppings will be erected between the intake and return aircourses and will be erected to the third connecting crosscut outby the faces of the entries. Permanent stoppings shall be used to separate belt entries from intake and return entries and also to separate the intake escapeway from belt and trolley haulage and return entries.

   * Immediately following belt moves, temporary belt separation stoppings will be used while permanent stoppings are being constructed.

3. Metal stoppings supported with approved fire retardant treated wood may be used in short lived entries such as panels, rooms, or butts as belt or intake escapeway separation stoppings. Kennedy Stoppings and the Kaiser Alum Pre-Fab Overcast was approved by Mr. John W. Barton on August 5, 1975 for use in Carbon Fuel #3 Mine.

   Timbers laid longitudinally "skin to skin", and packed with rock dust may be used in heavy or squeezing areas if the timbers are treated with an approved fire retardant.

4. A complete list of all materials used in the construction of all stoppings:
   (A) Permanent Stoppings:
      1. Block Stopping (6" x 8" x 16") Cinder Blocks Mortar Mix
      2. The stoppings are laid up on clean substantial bottom, tied into the ribs with staggered courses, with mortared joints. The periphery of the stopping is plastered with a mortar mix to make it air tight.
   (B) Belt Separation Stoppings: Are Kennedy Stoppings (or Cinder Blocks Min. Size 4" x 6" x 16").
      1. Temporary Block Stoppings are laid up similar to permanent stoppings.
      2. See attached sketch for construction details of the Kennedy Stopping.
   (C) Other Stoppings: Plastic coated nylon is used as a temporary check in break throughs, road checks and face ventilation.
   (D) Permanent Stoppings: will be used.
      1. Northwest Mains - Estimated Life - 25 yrs.
         Intended Use - Belt isolation, return airways, intake airways.
      2. Second East - Estimated Life - 25 yrs.
         Intended Use - Belt isolation, return airways, and bleeder return.
      3. Longwall Panels - Estimated Life - 2 yrs.
         Intended Use - Belt isolation, return airways, and escapeways.
      4. West Mains - Estimated Life - 25 yrs.
         Intended Use - Belt isolation, return airways, intake airways, escapeways.
      5. Room and Pillar Sections - Estimated Life - 1 yr.
         Intended Use - Belt isolation, return and intake airways, and escapeways.

Diesel Equipment

1. We presently use a No. 642 Brute Scoop, manufactured by the Sien Equipment Company, Inc. We comply with the Manufacturer's Operating Instructions And Maintenance Manual. The 642 Scoop meets the permissibility tests of Part 31 and has MESA approval No. 31-D16 for said unit.

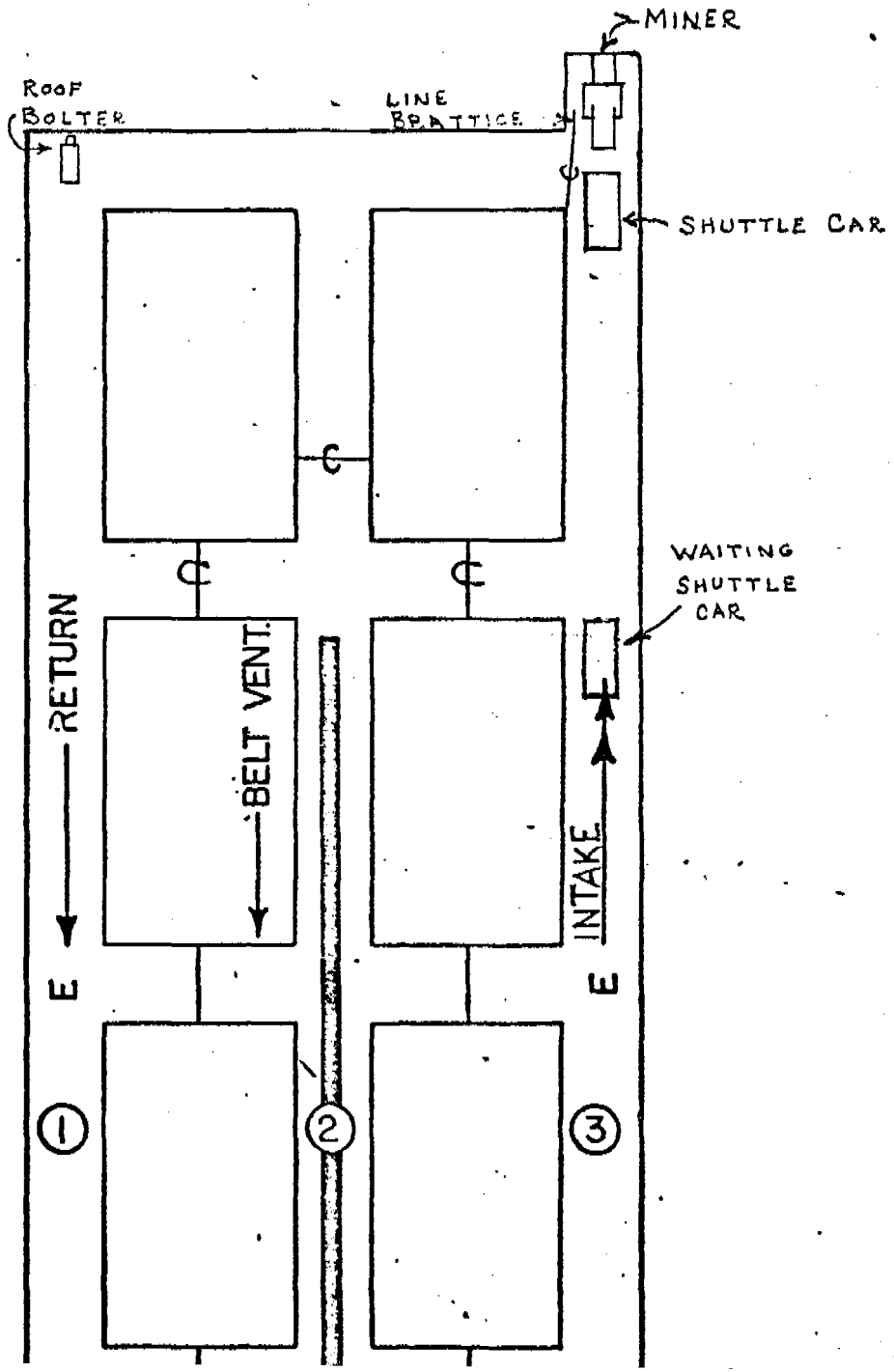
2. The atmosphere in the operator's compartment will be sampled daily with the engine running; and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million of carbon monoxide, or both, corrective measures must be taken immediately.

3. The atmosphere returning from any working place where diesel-powered equipment is being used shall be tested at least once each hour while the equipment is in operation, and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million CO, or both, corrective measures shall be taken immediately.

4. The date, time of sampling, machine identification, and the analyses obtained should be recorded in a book maintained for this purpose.

Use Of Auxiliary Fans - Does not apply.

STEP NO. 1
TYPICAL 3 ENTRY DEVELOPMENT
SECTION & FACE VENTILATION SYSTEM
LONGWALL DEVELOPEMENT
SCALE 1"=50'



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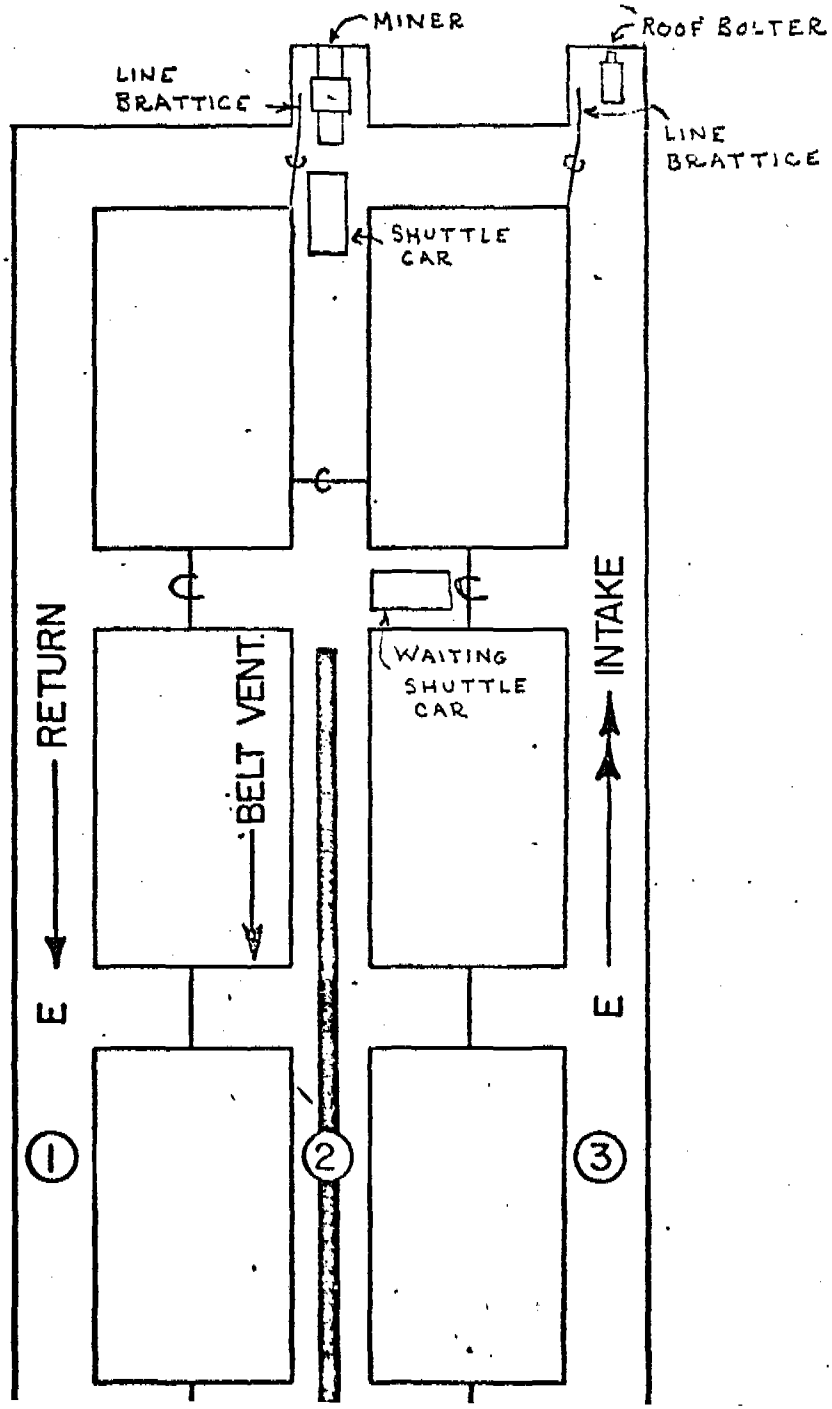
SECTION & FACE VENTILATION SYSTEM
LONGWALL DEVELOPEMENT
SCALE 1"=50'



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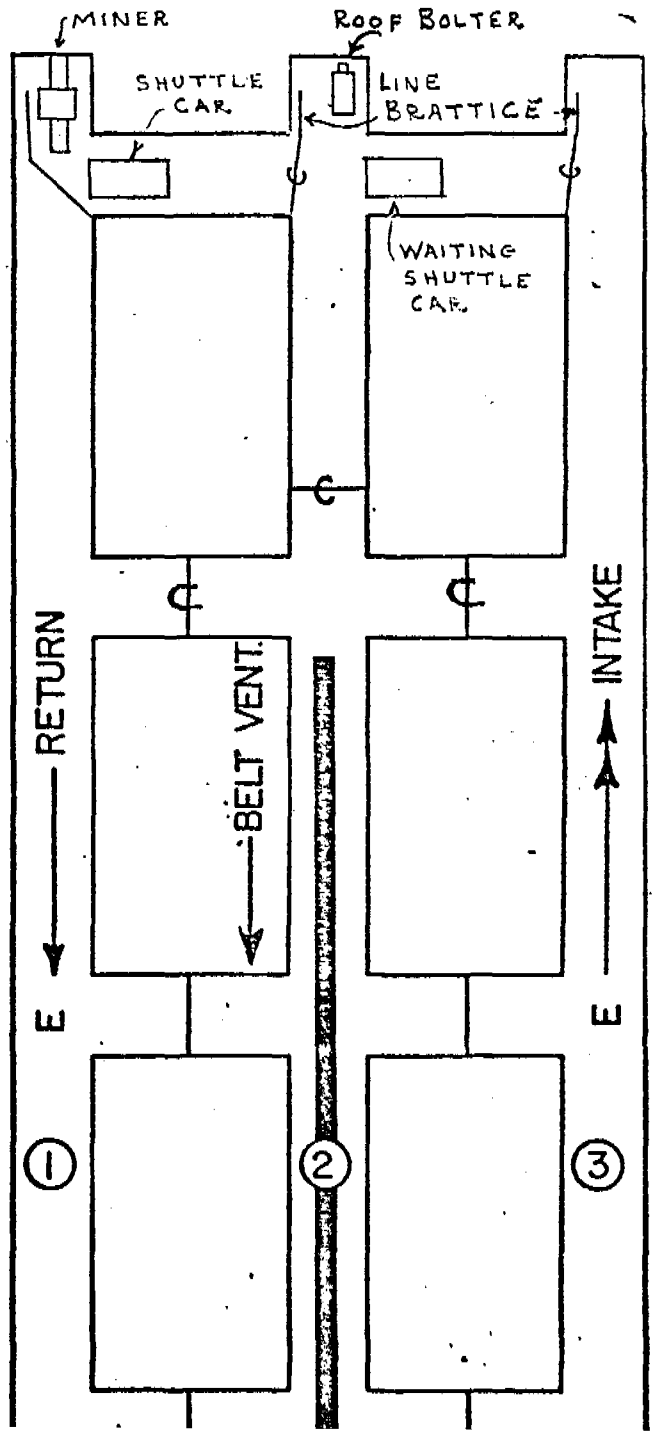
SECTION & FACE VENTILATION SYSTEM
LONGWALL DEVELOPEMENT
SCALE 1"=50'



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SECTION & FACE VENTILATION SYSTEM
LONGWALL DEVELOPEMENT
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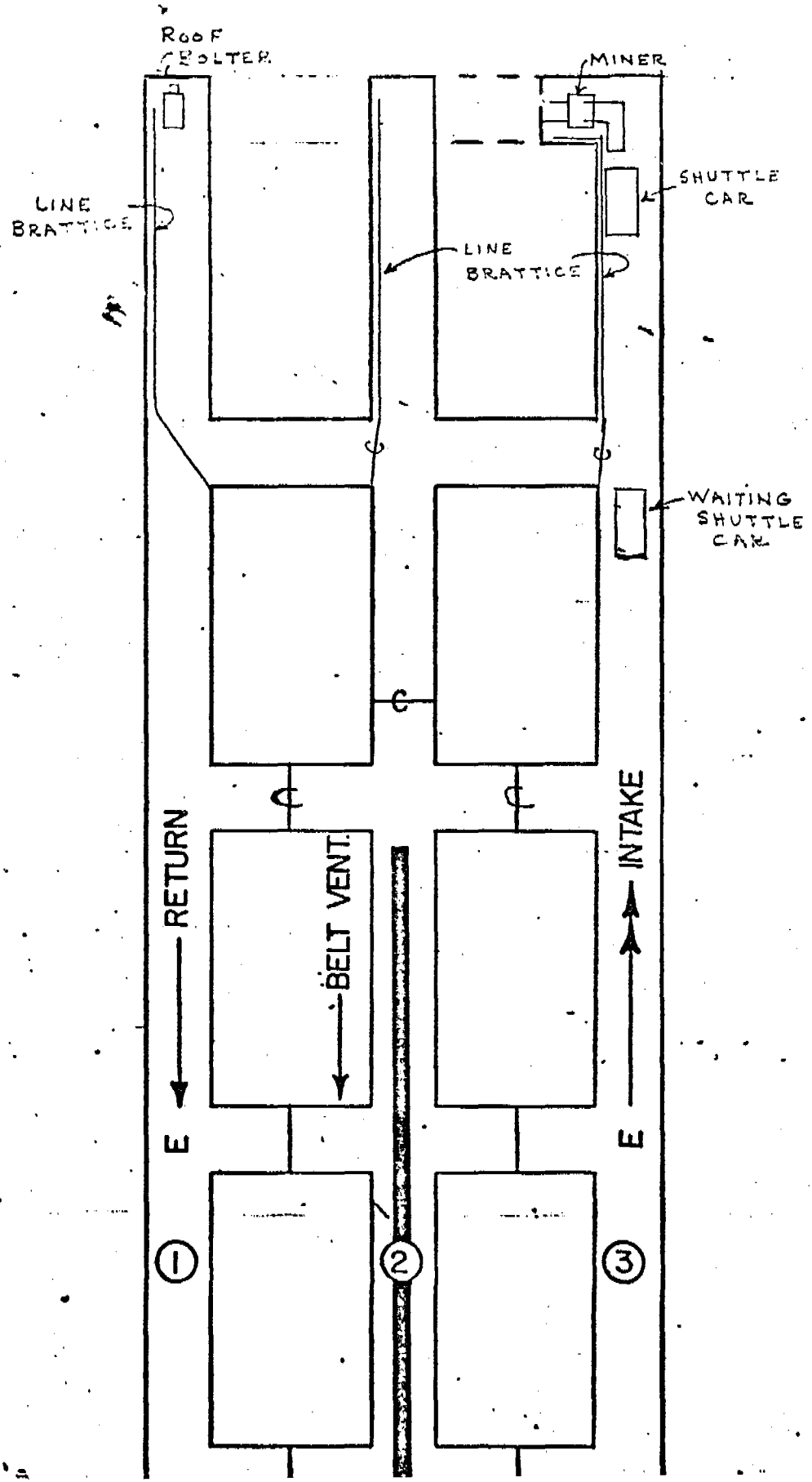

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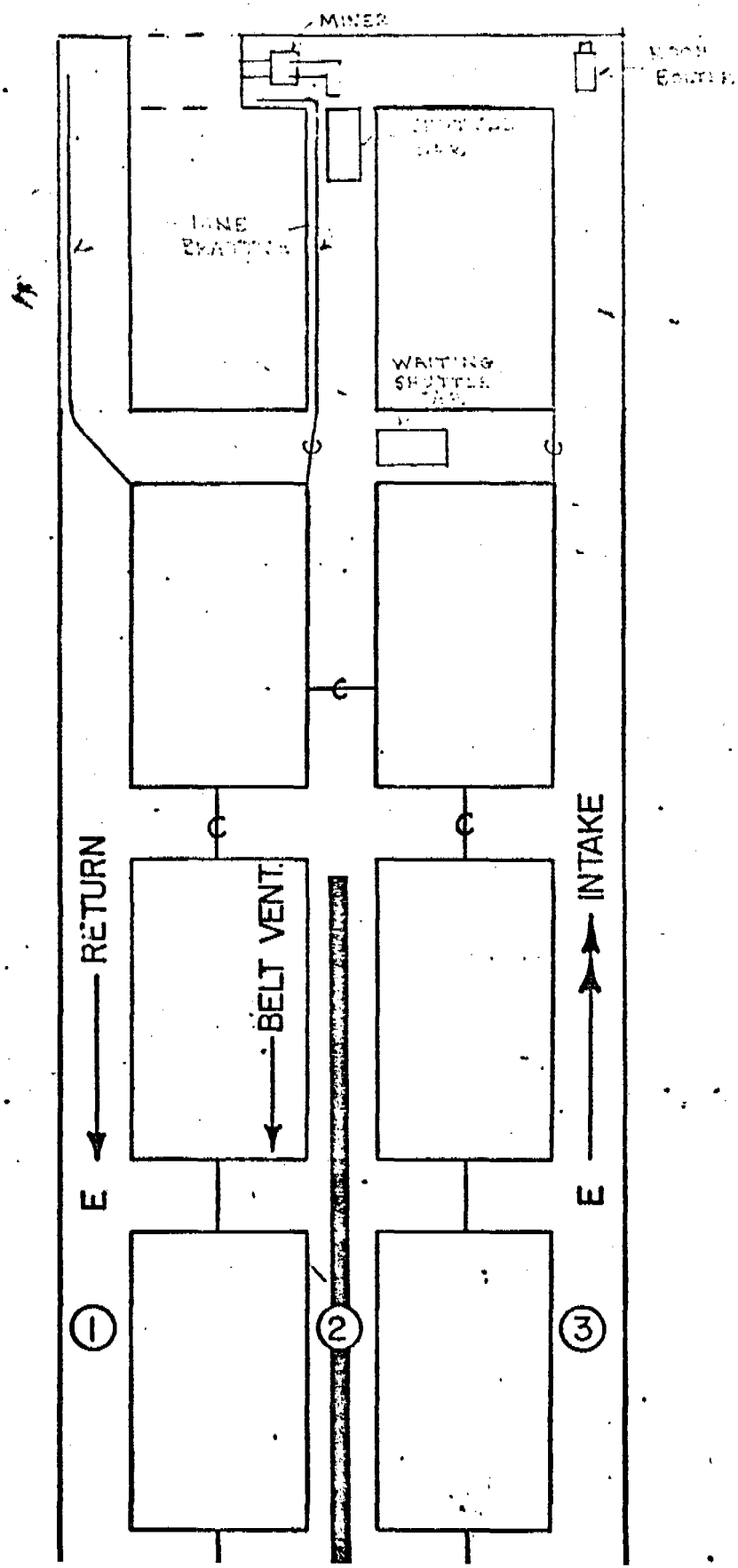
SECTION & FACE VENTILATION SYSTEM
LONGWALL DEVELOPEMENT
SCALE 1"=50'



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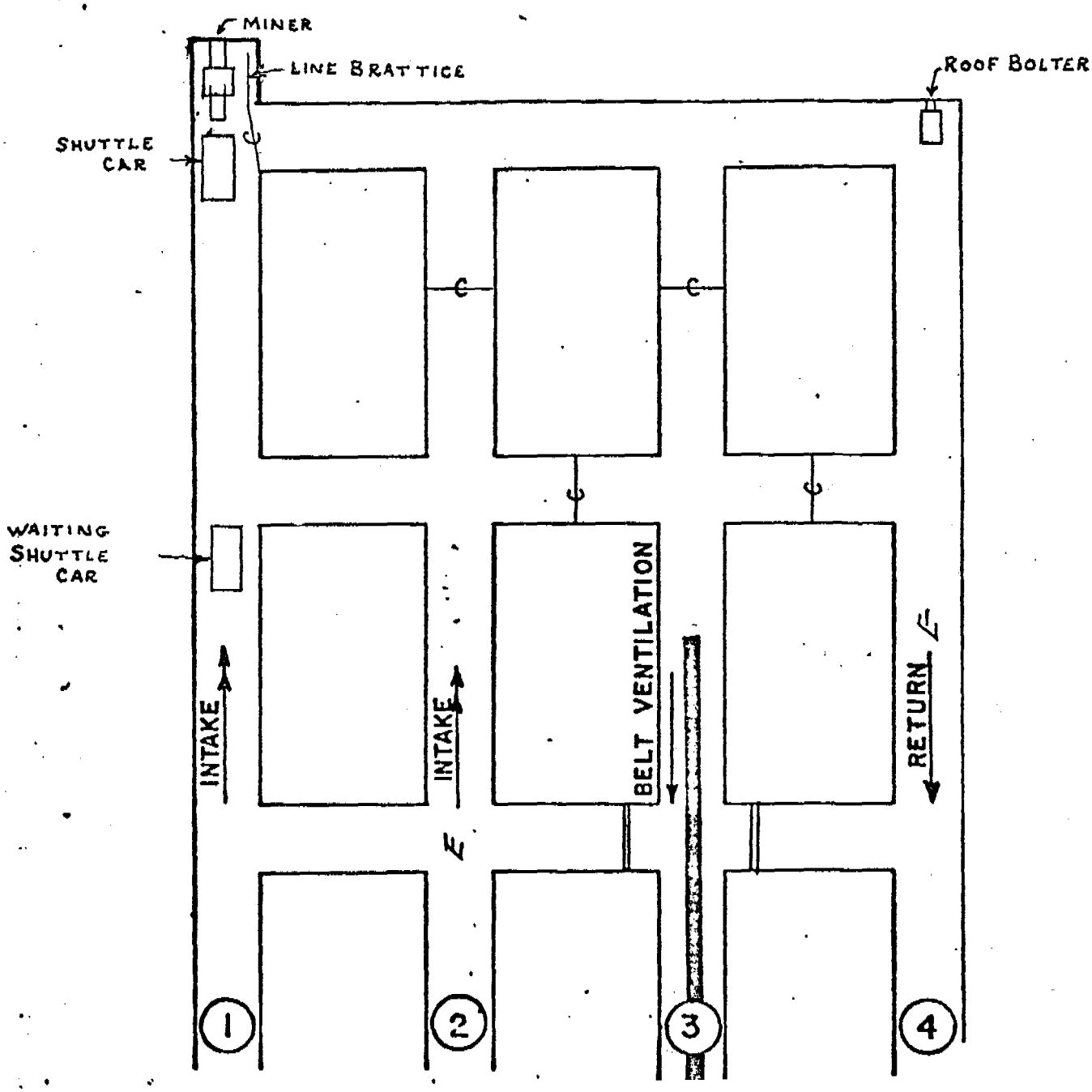

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SECTION AND FACE VENTILATION SYSTEM

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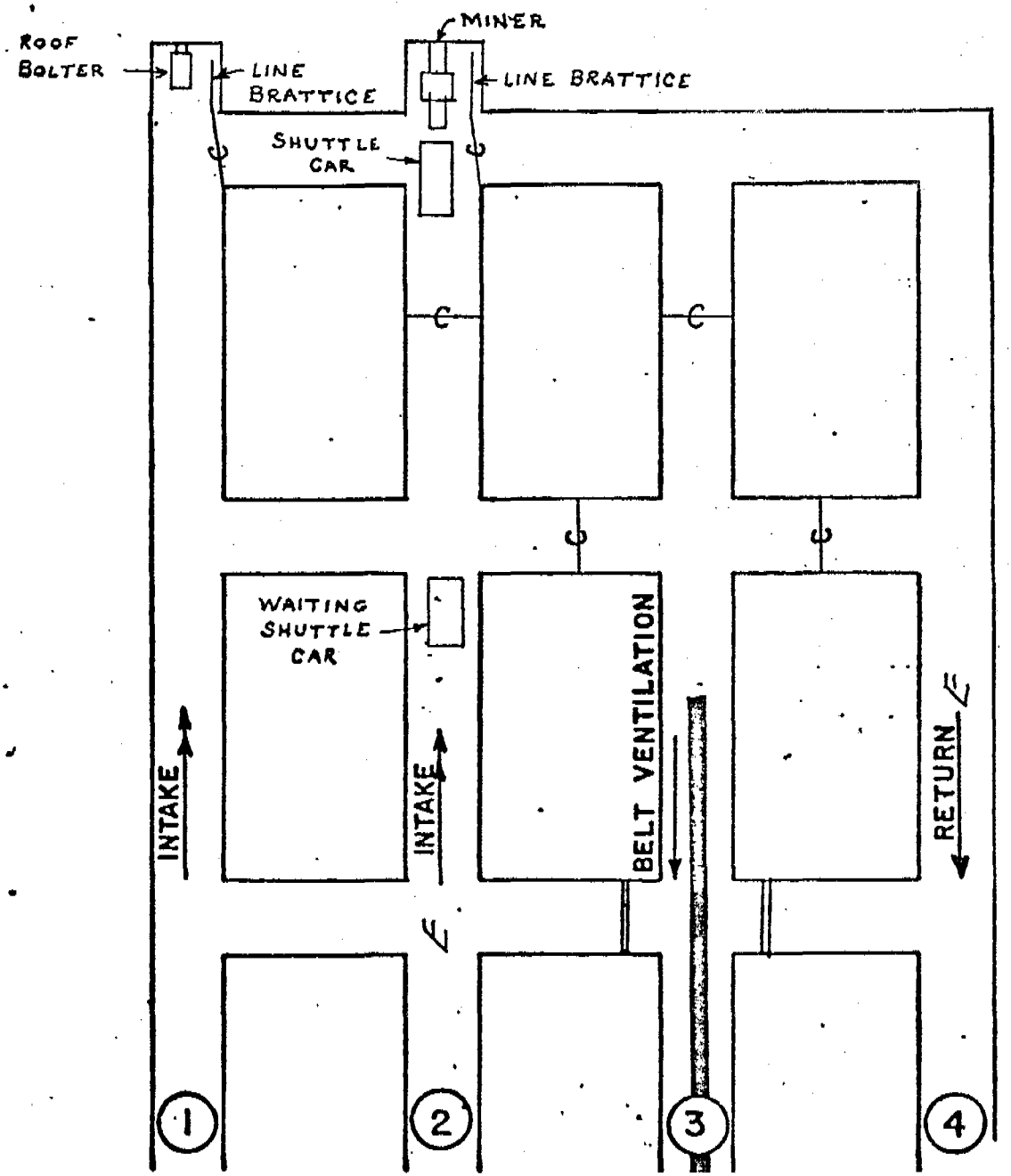

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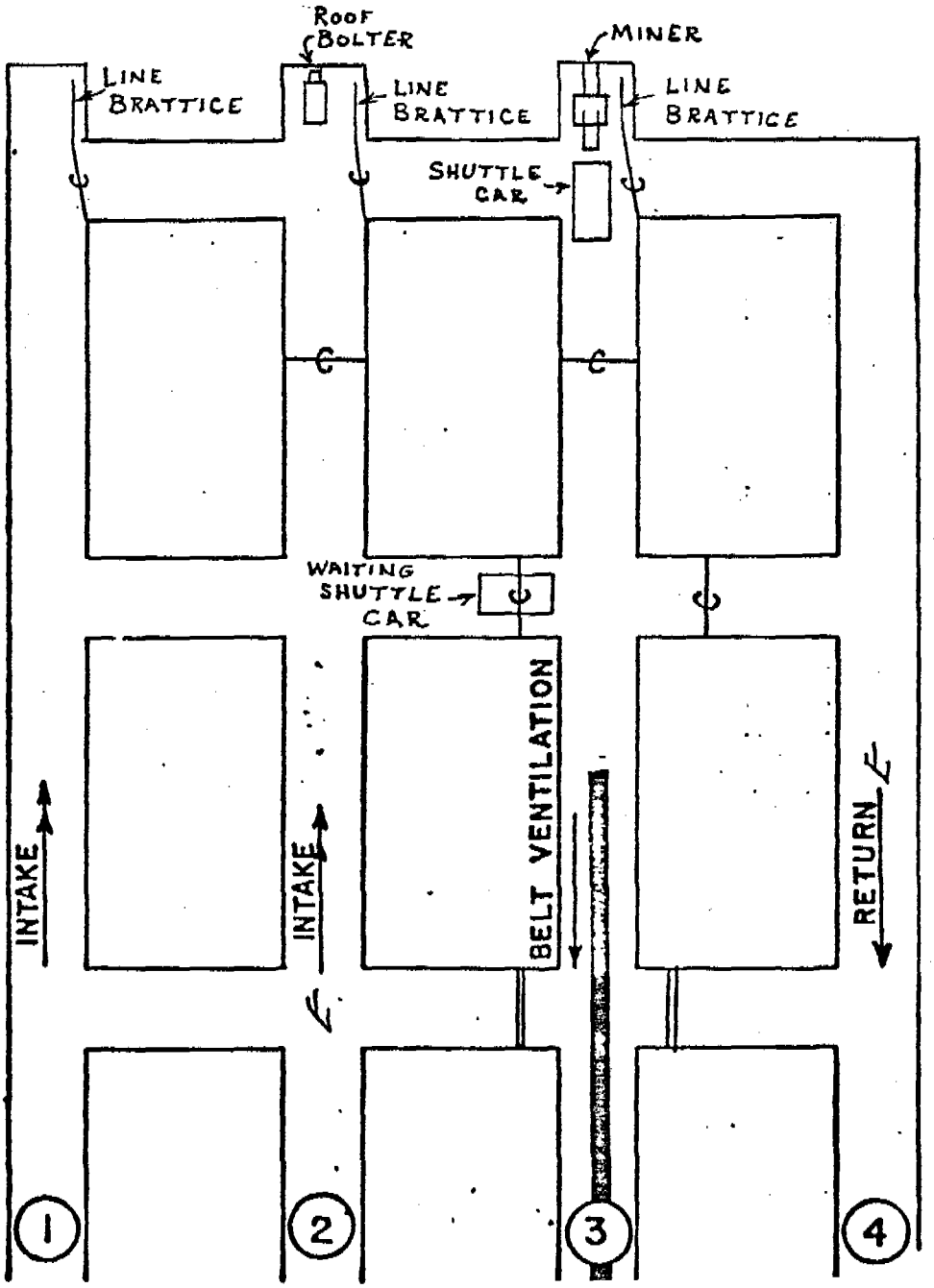

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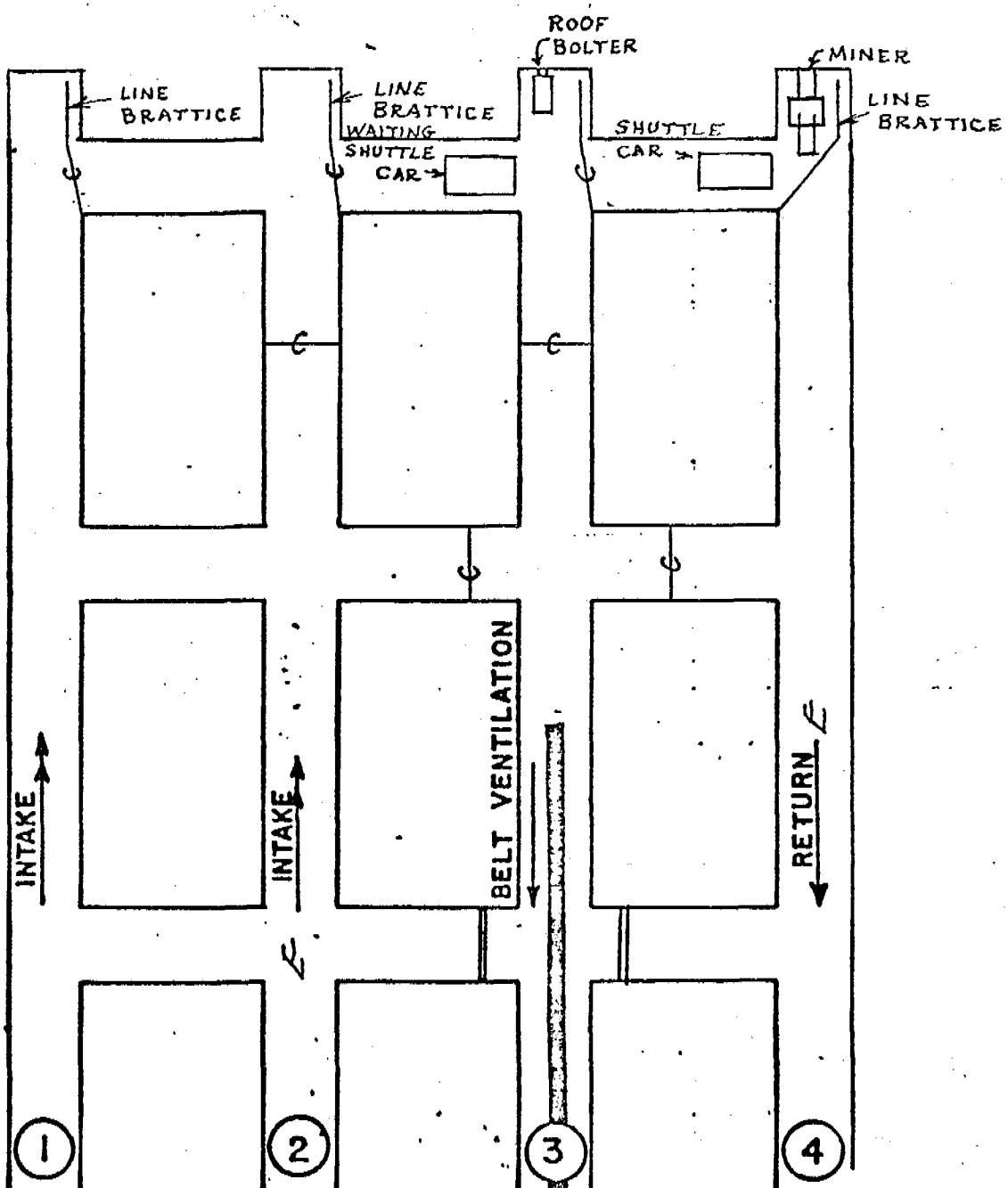

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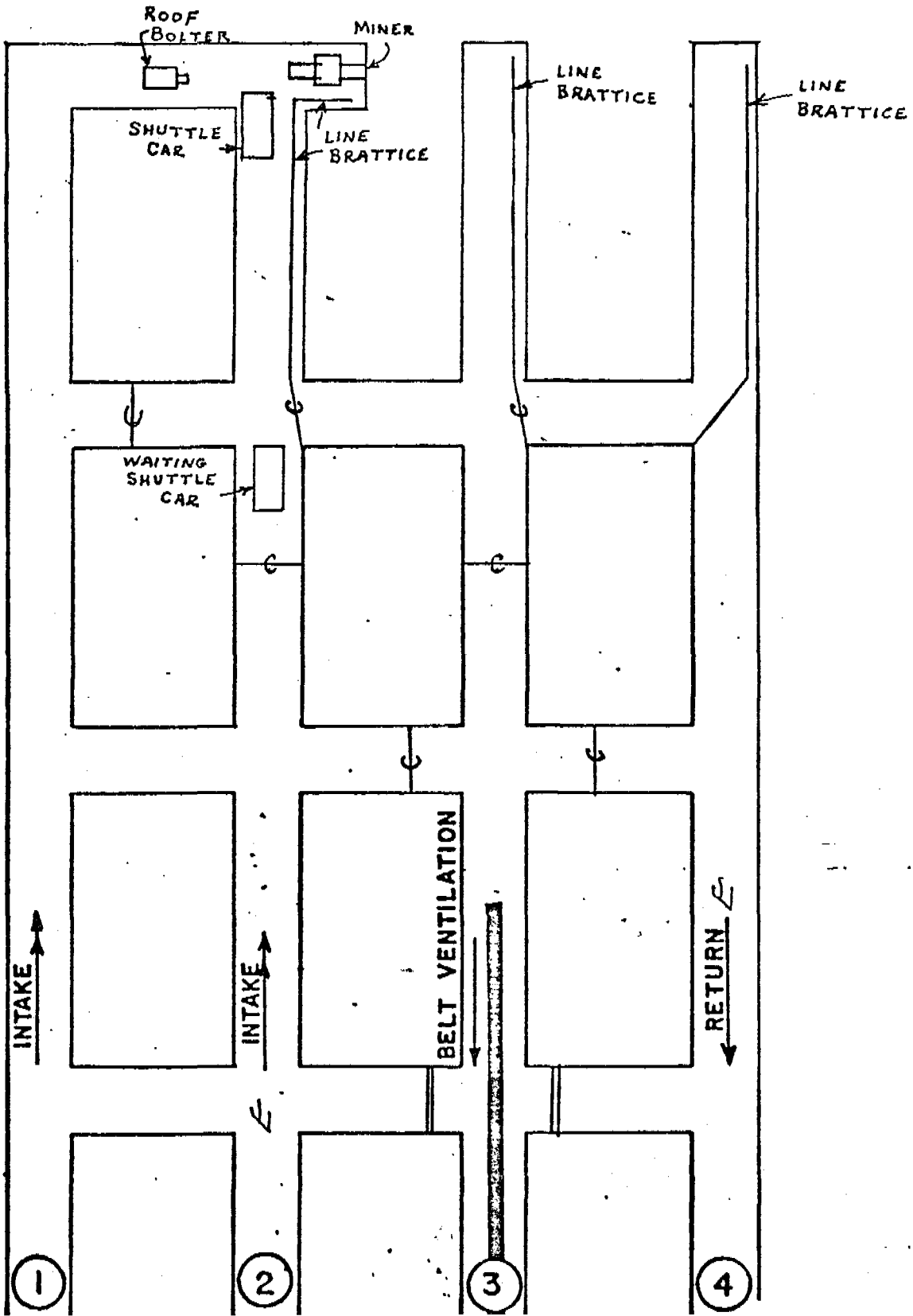

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SECTION AND FACE VENTILATION SYSTEM

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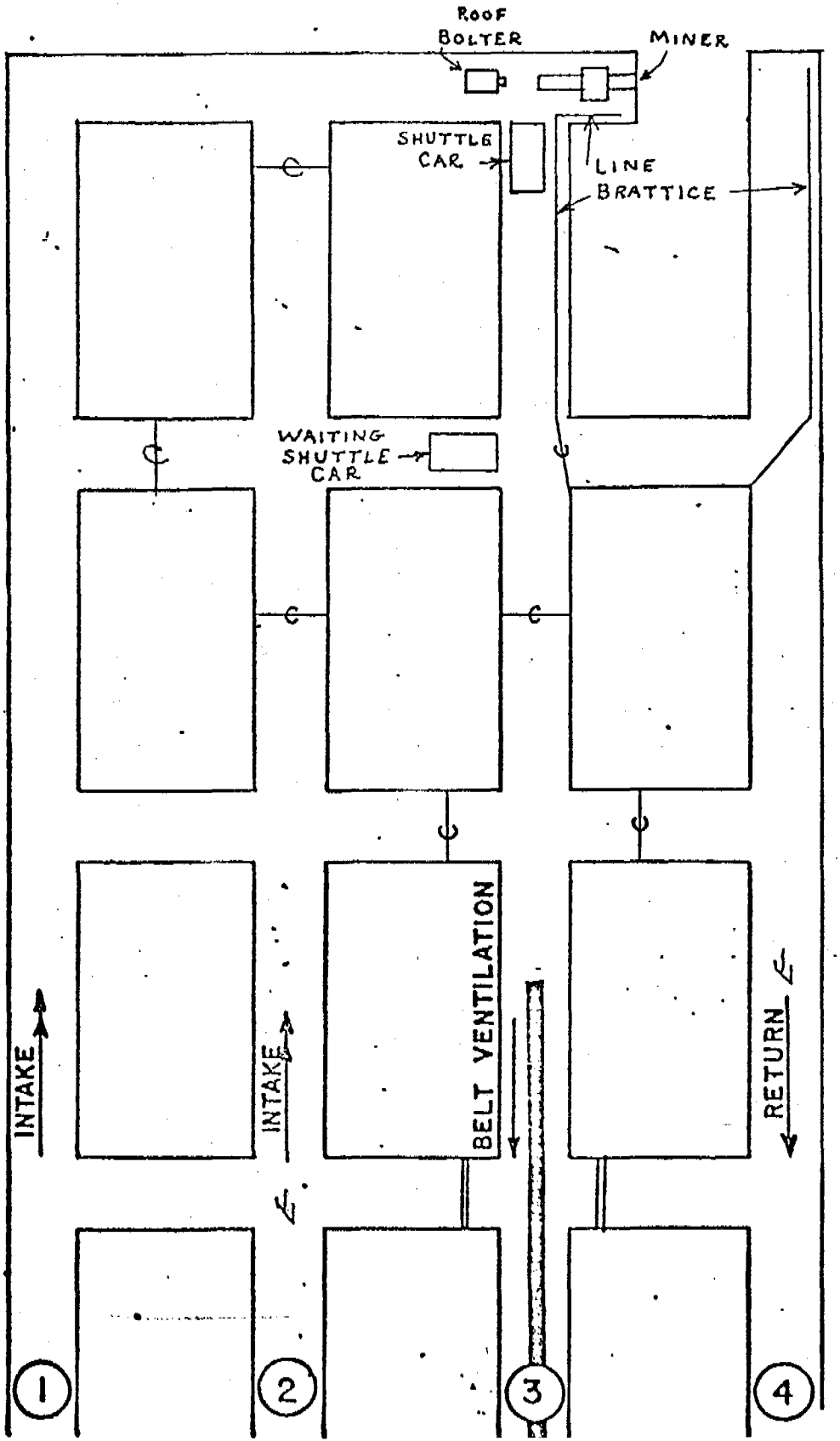

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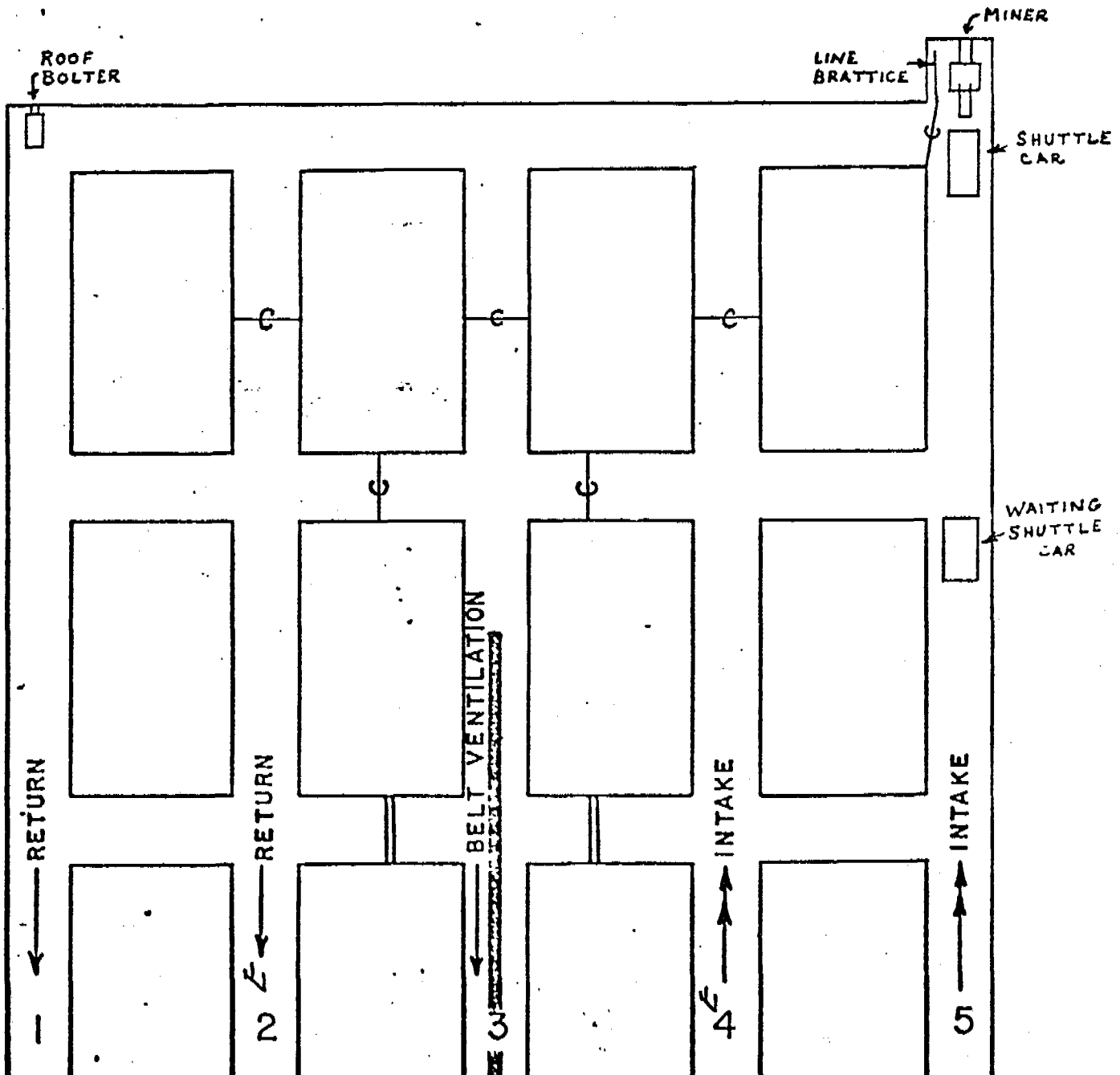

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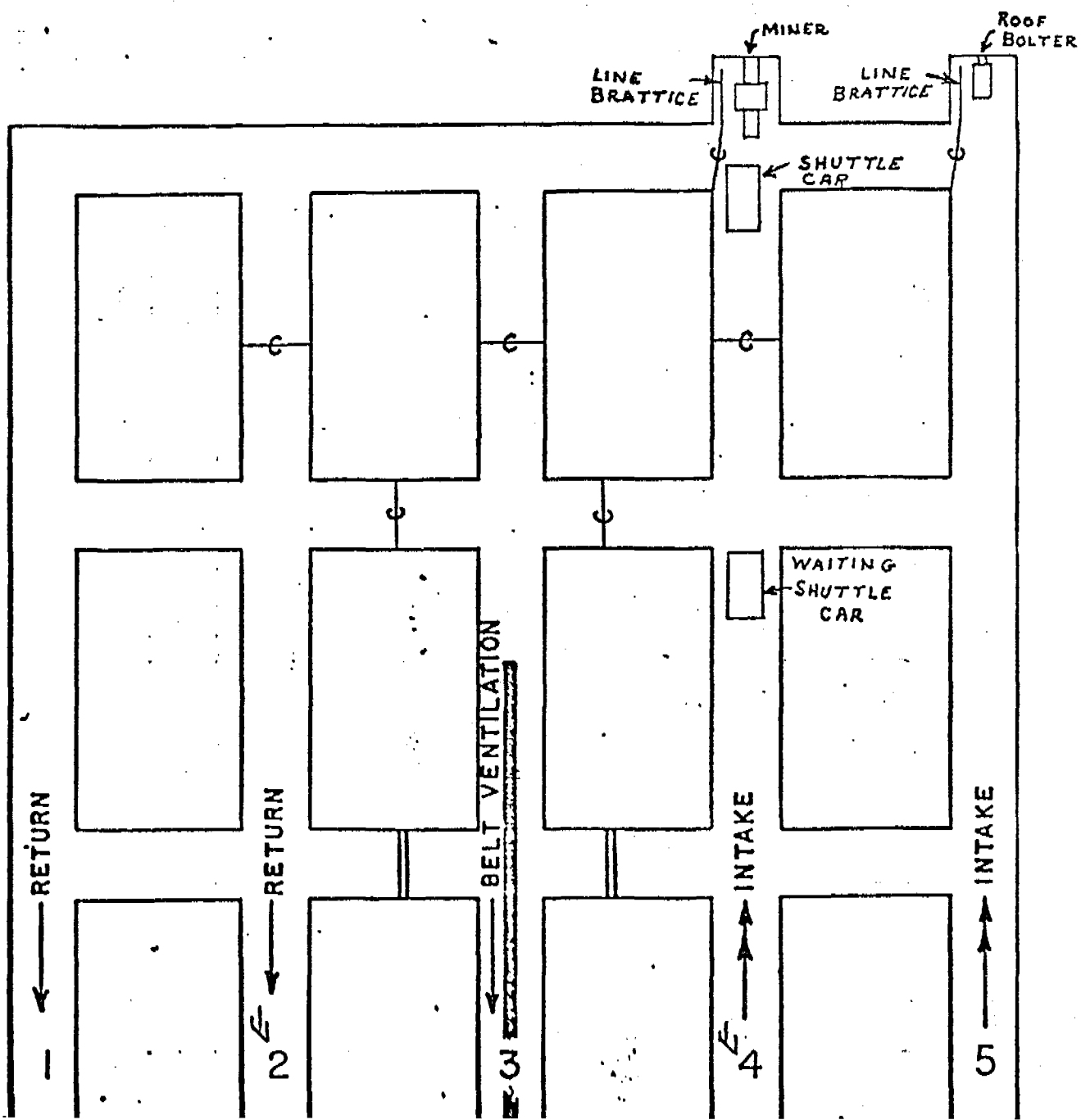

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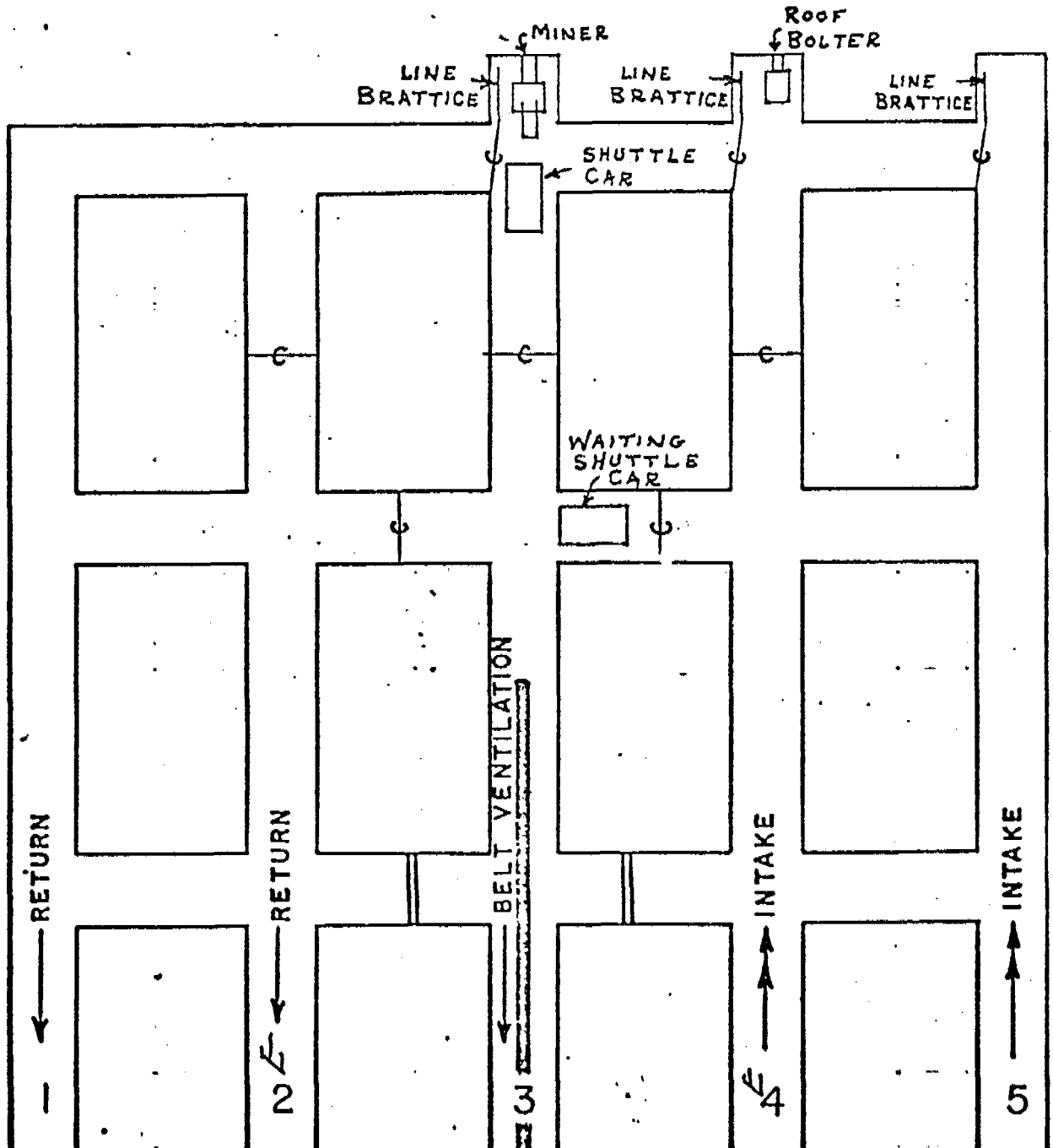

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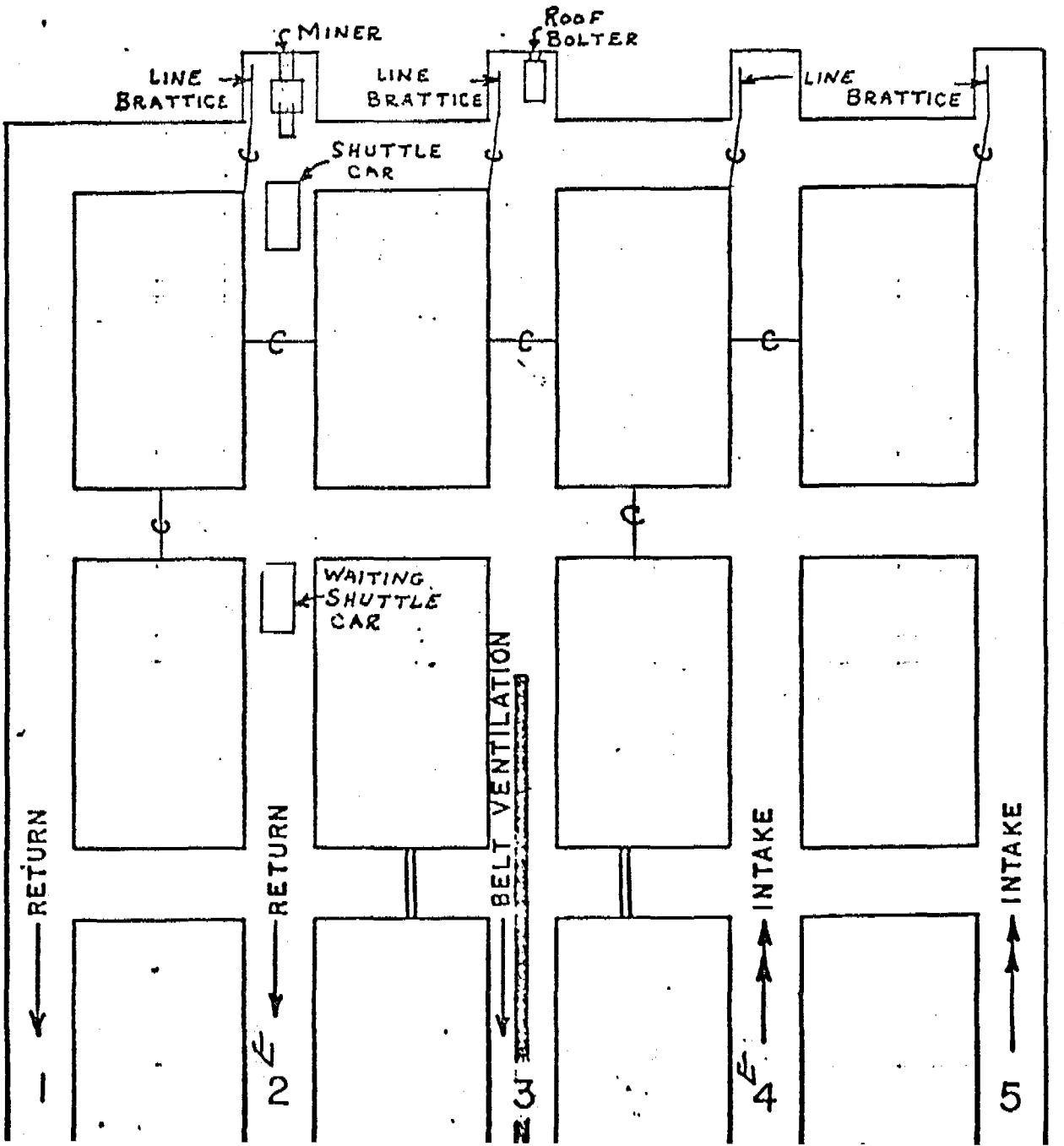

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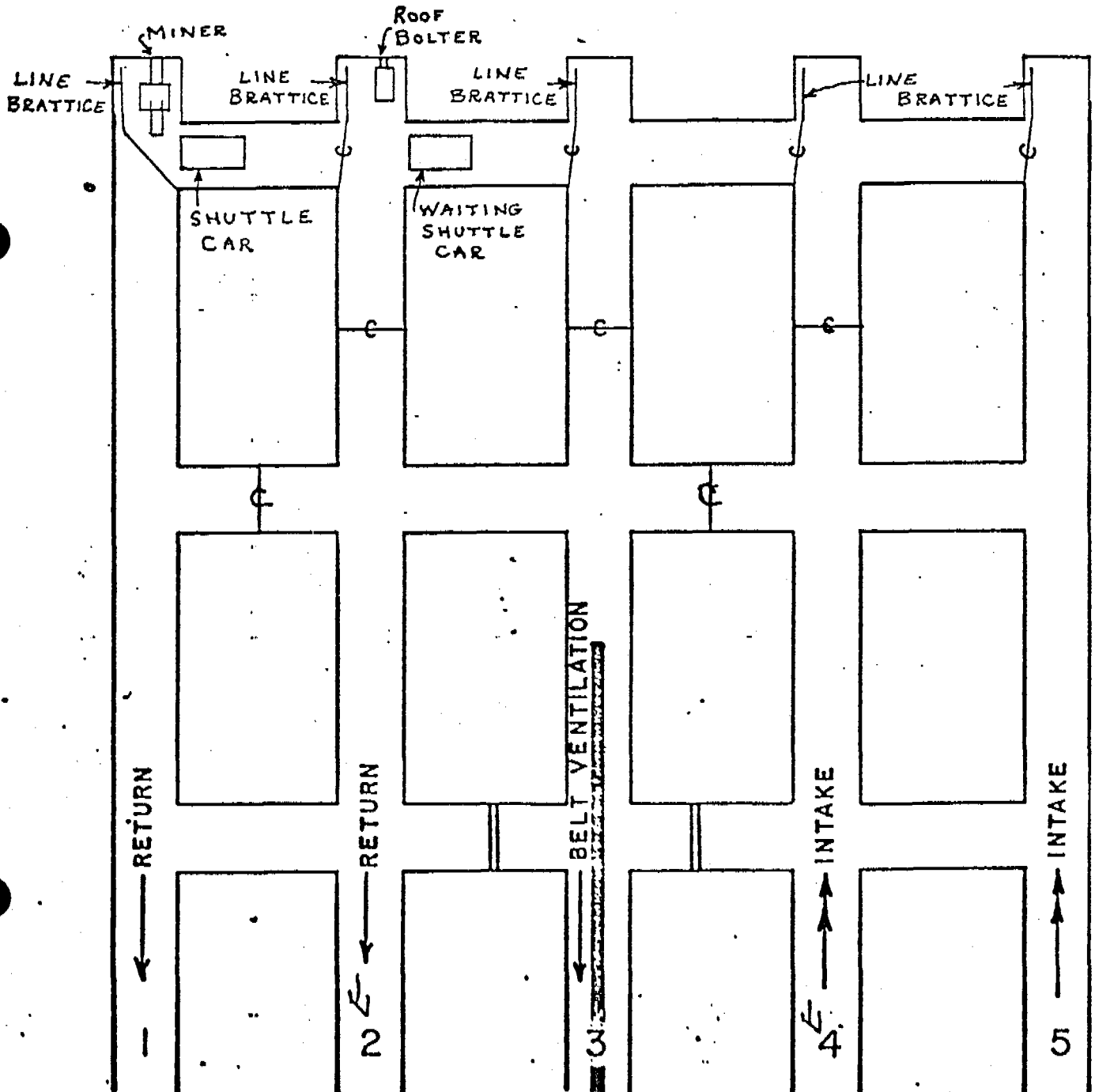

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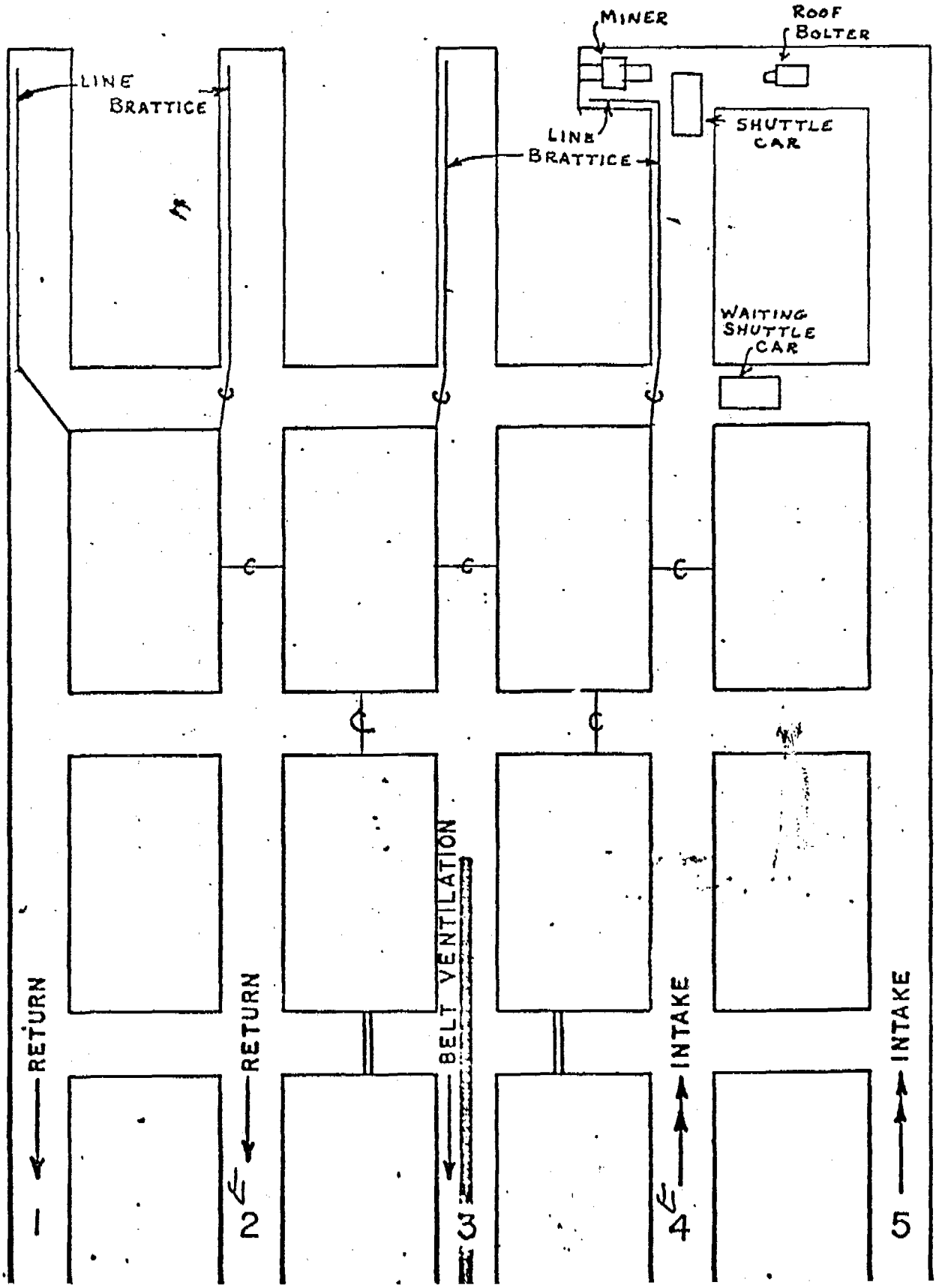

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SECTION AND FACE VENTILATION SYSTEM

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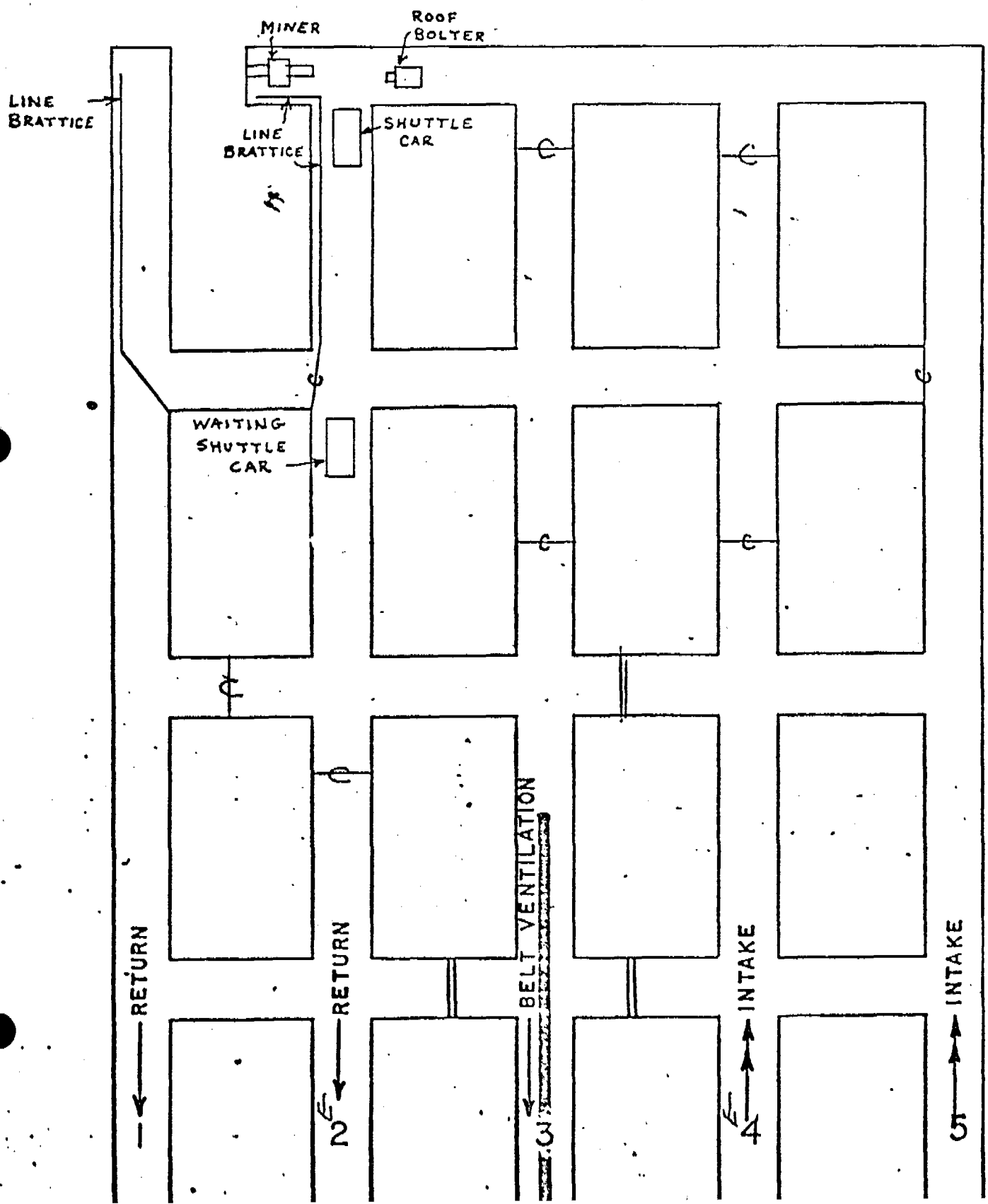

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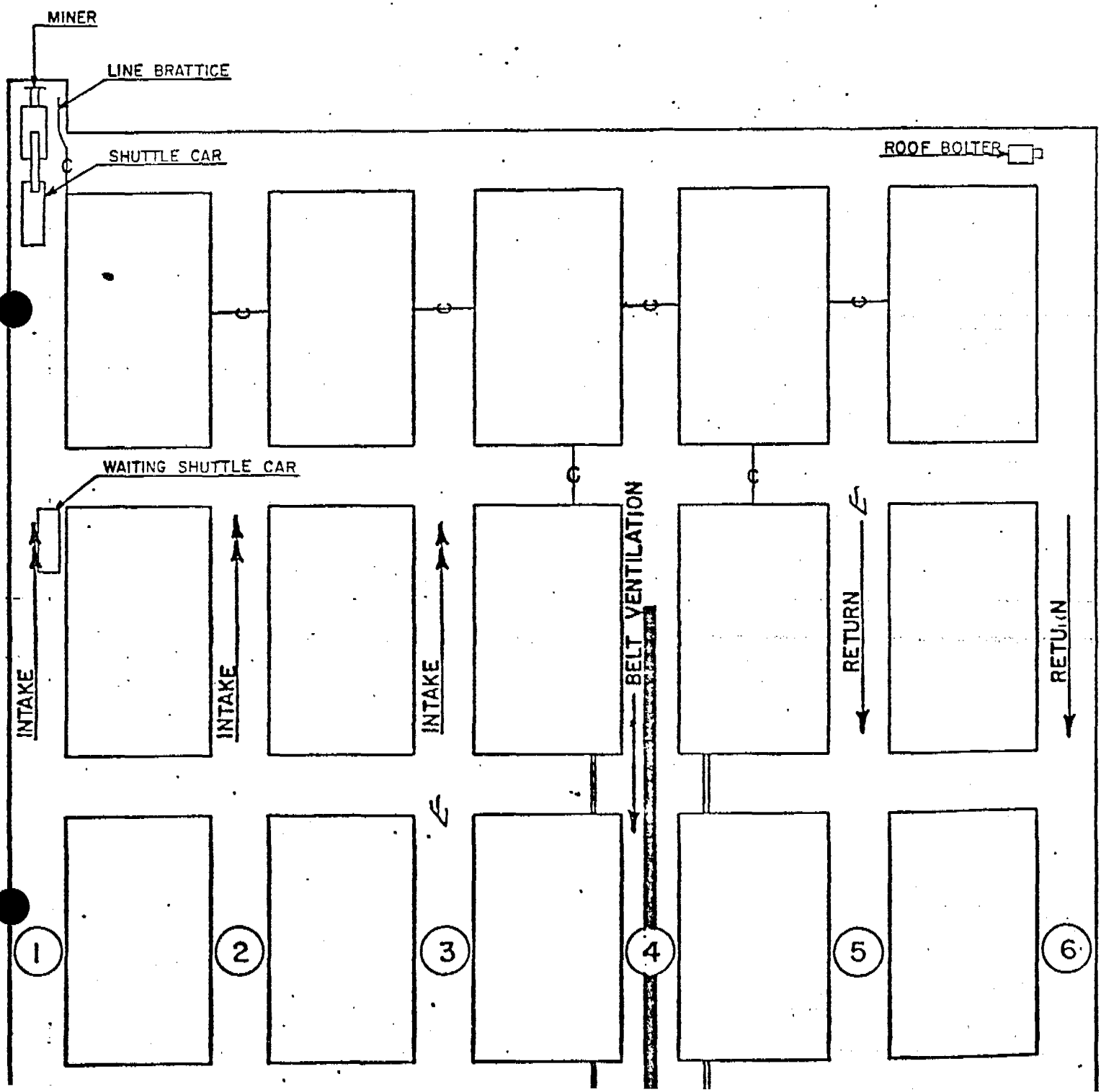

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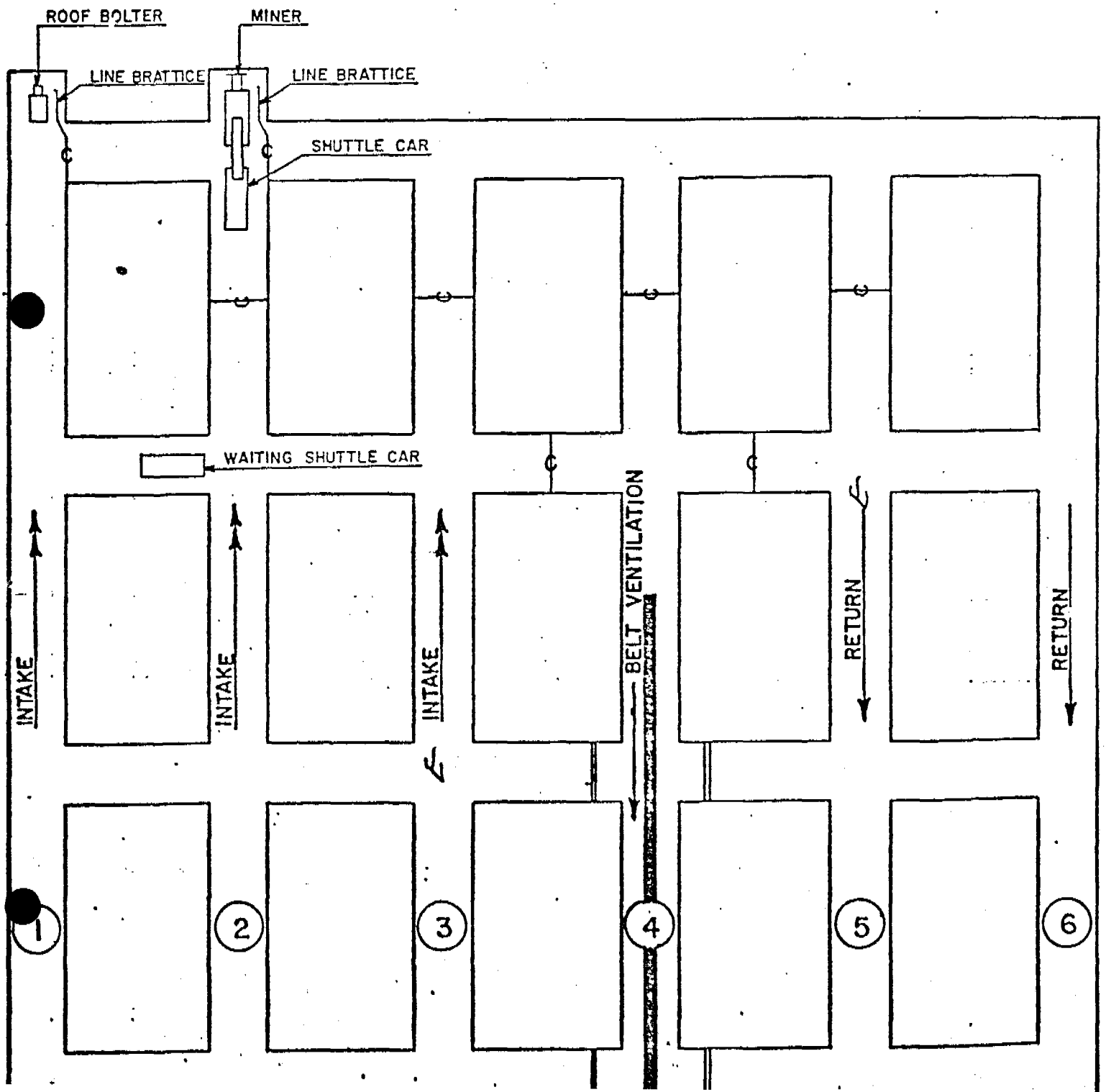

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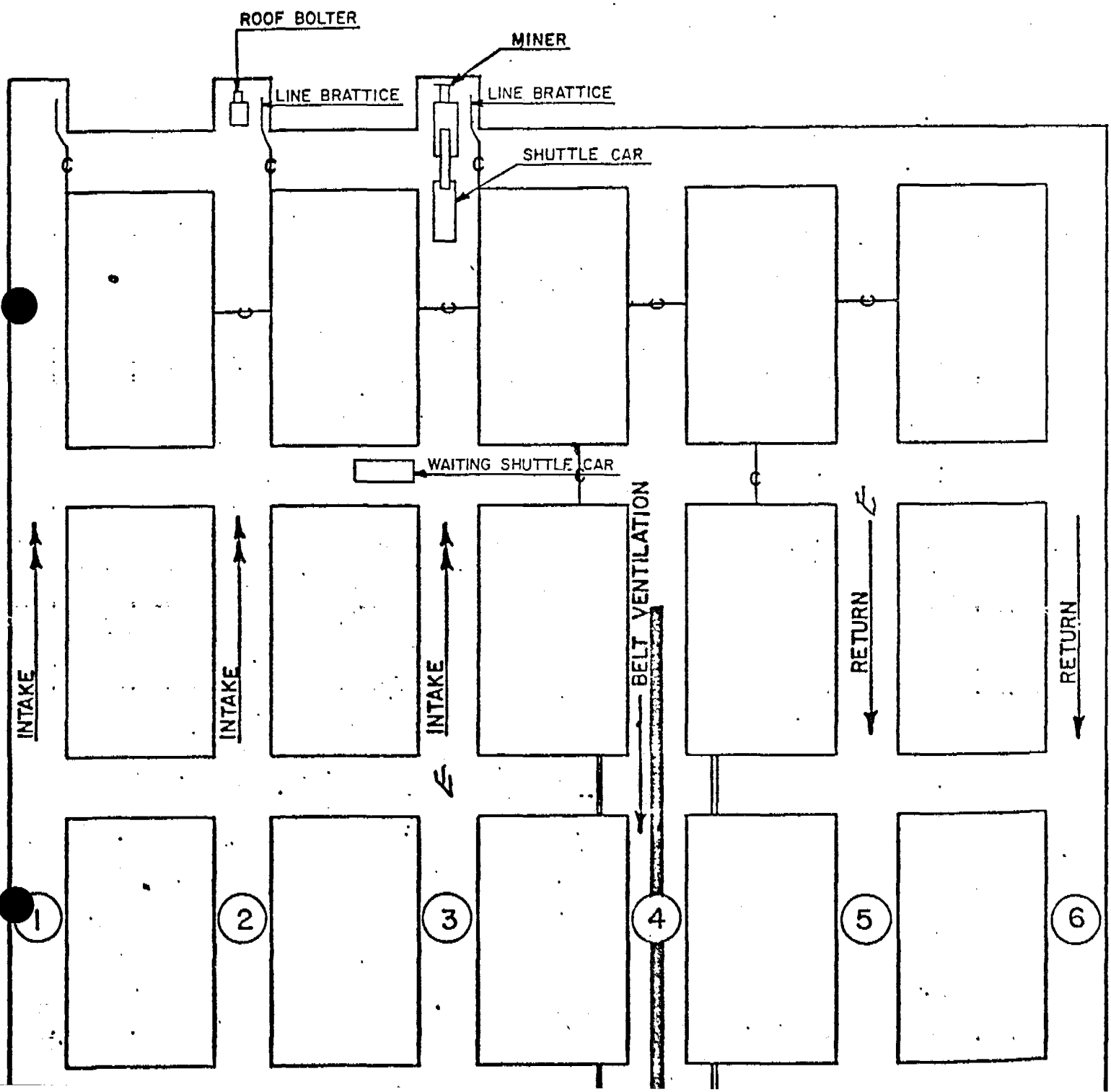

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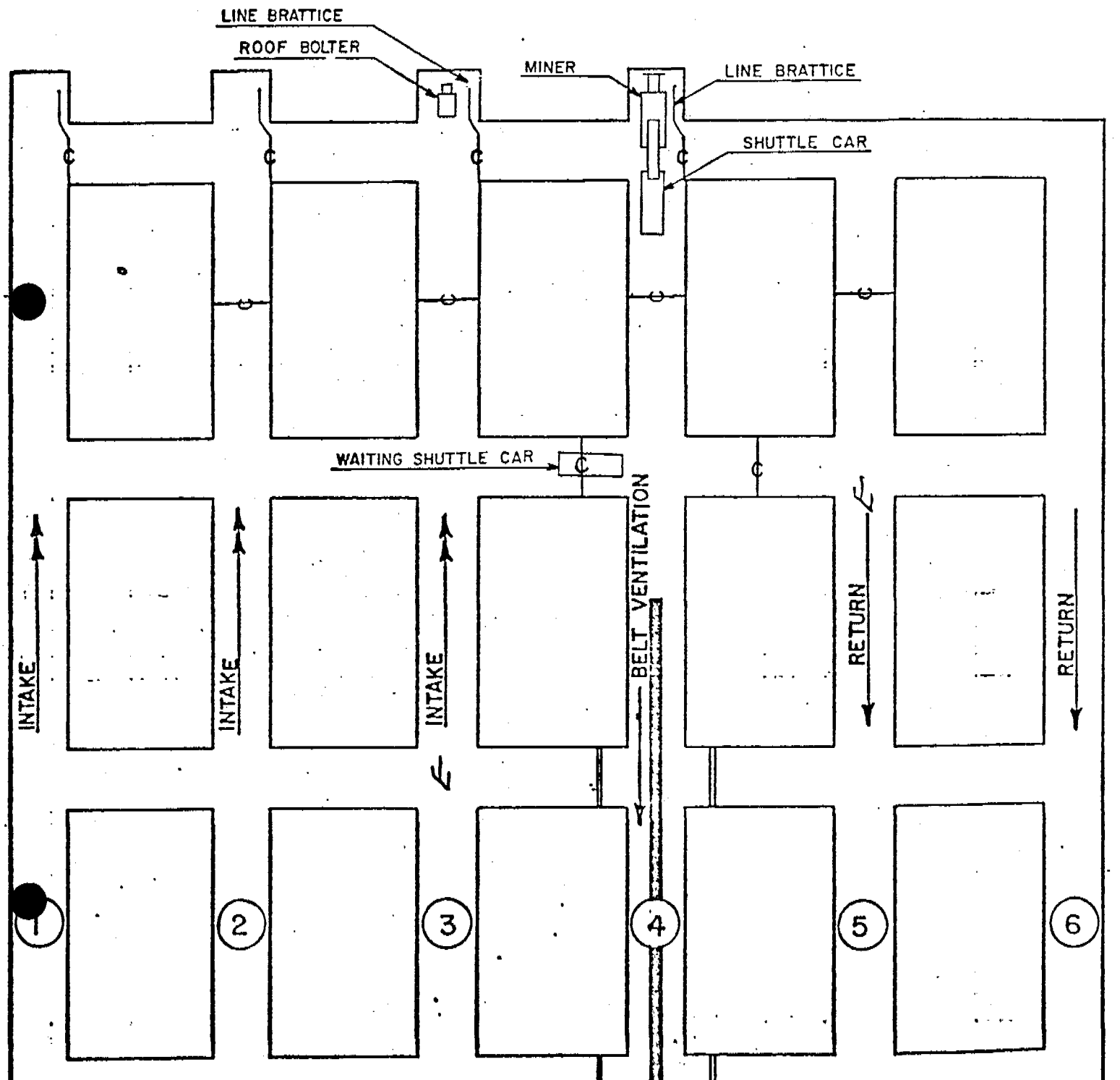

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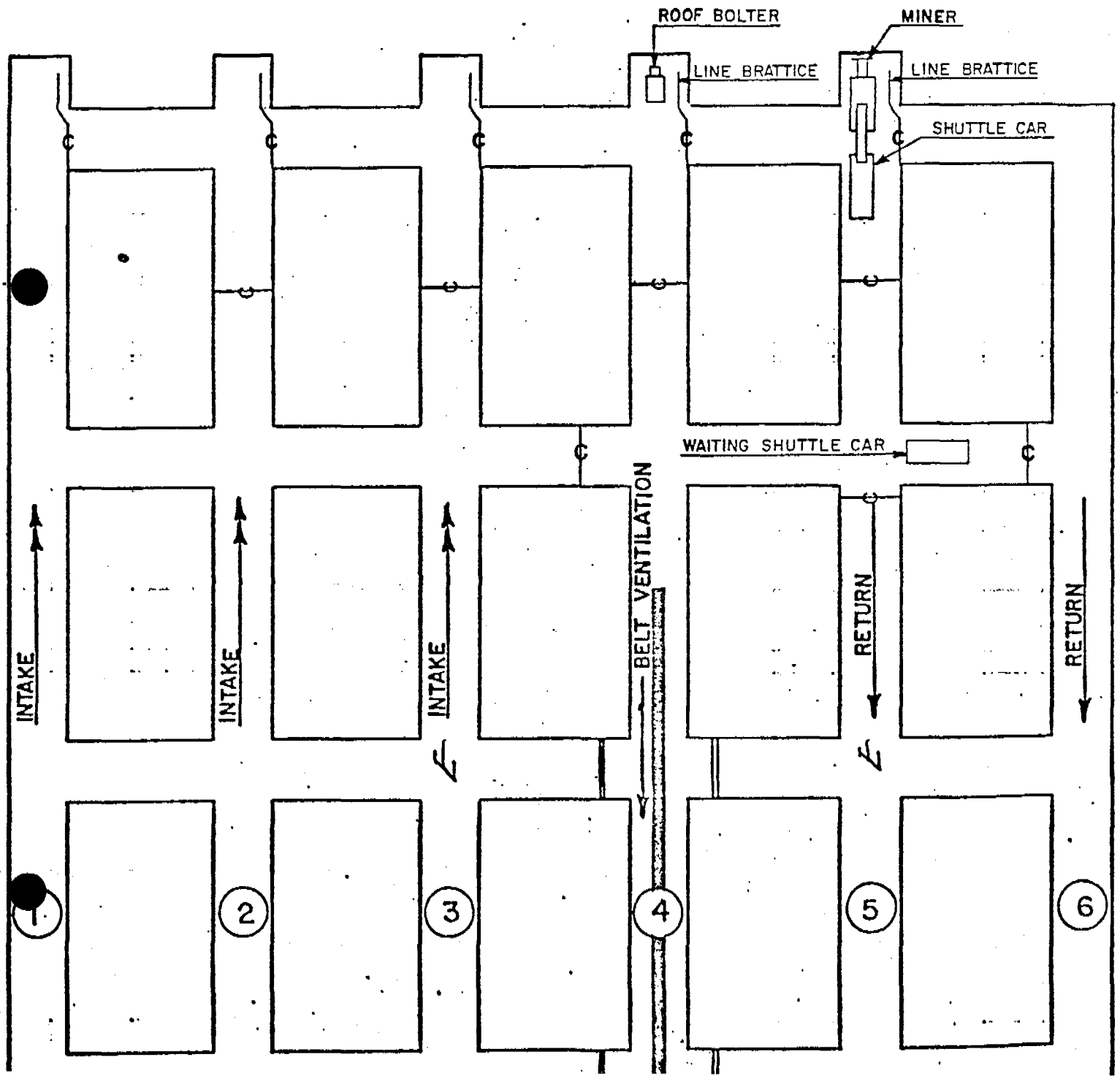

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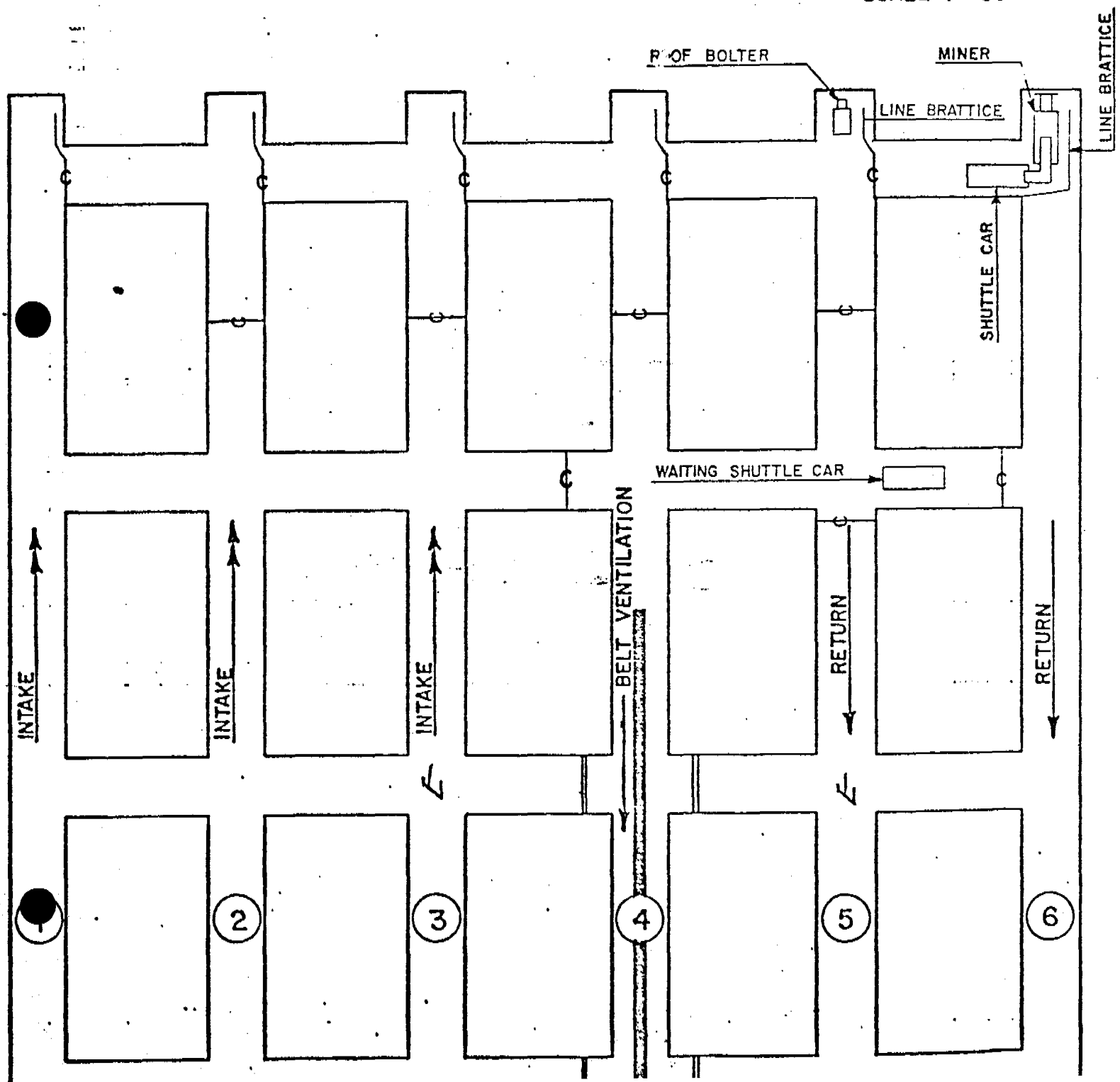

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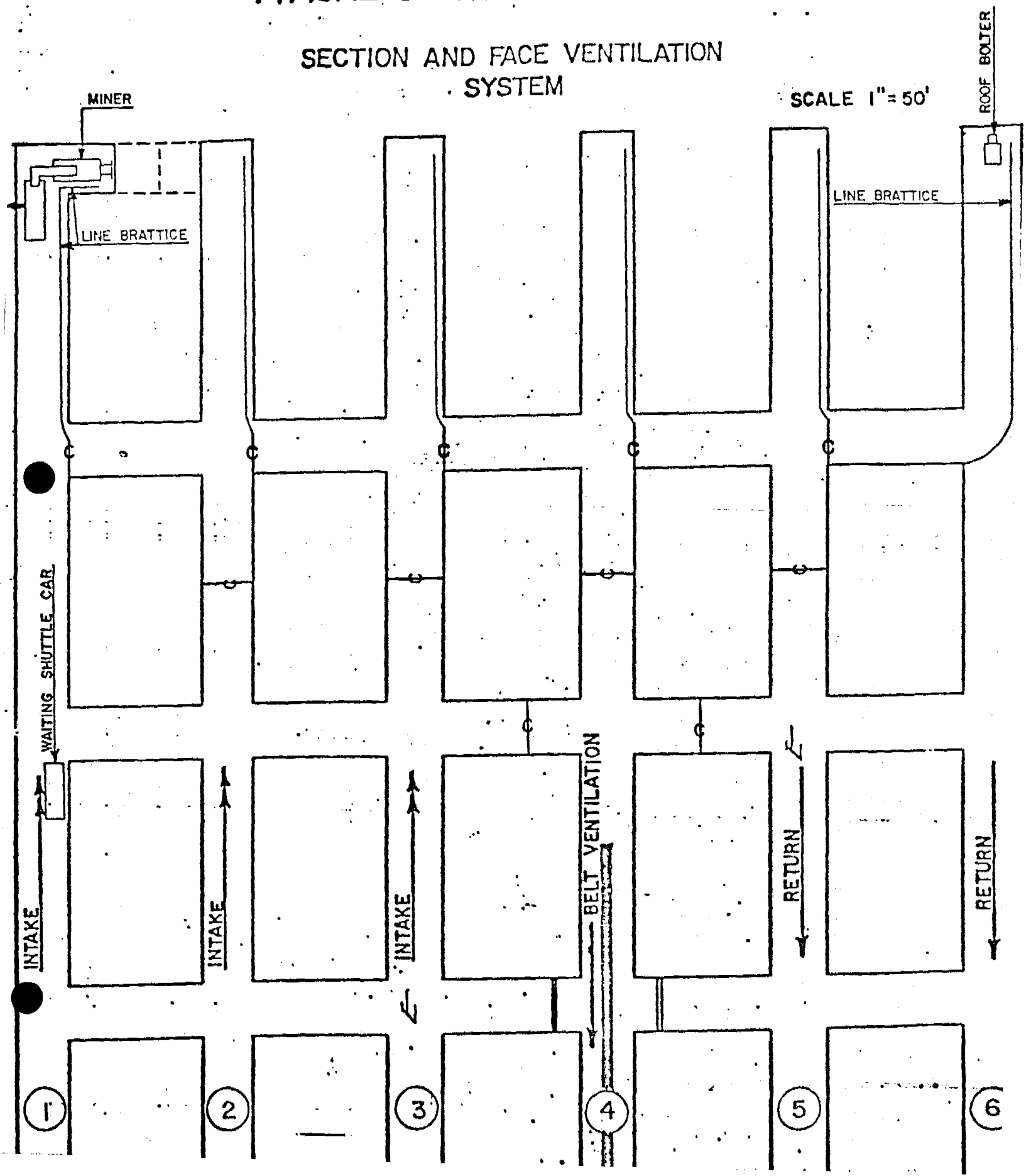

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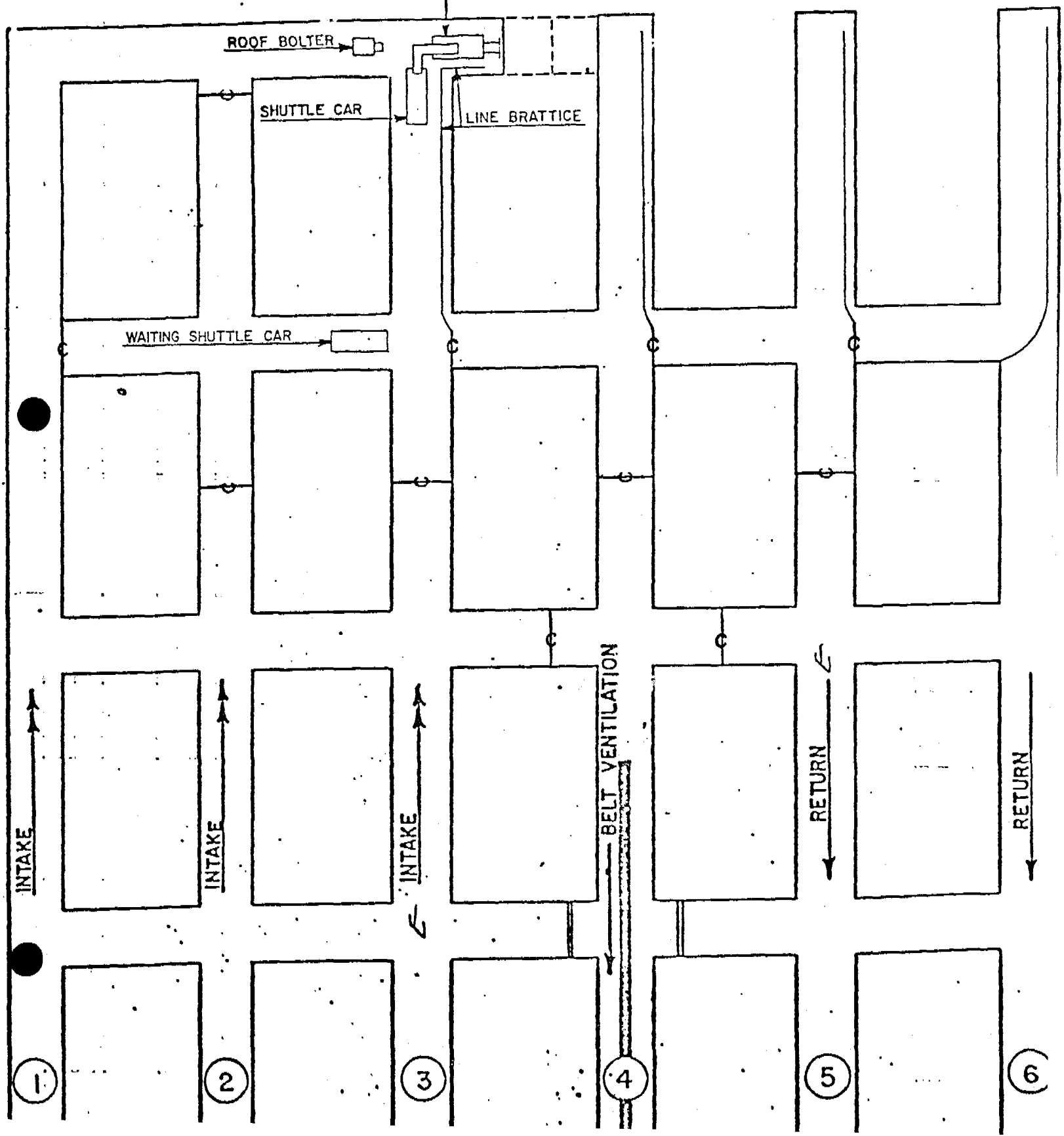
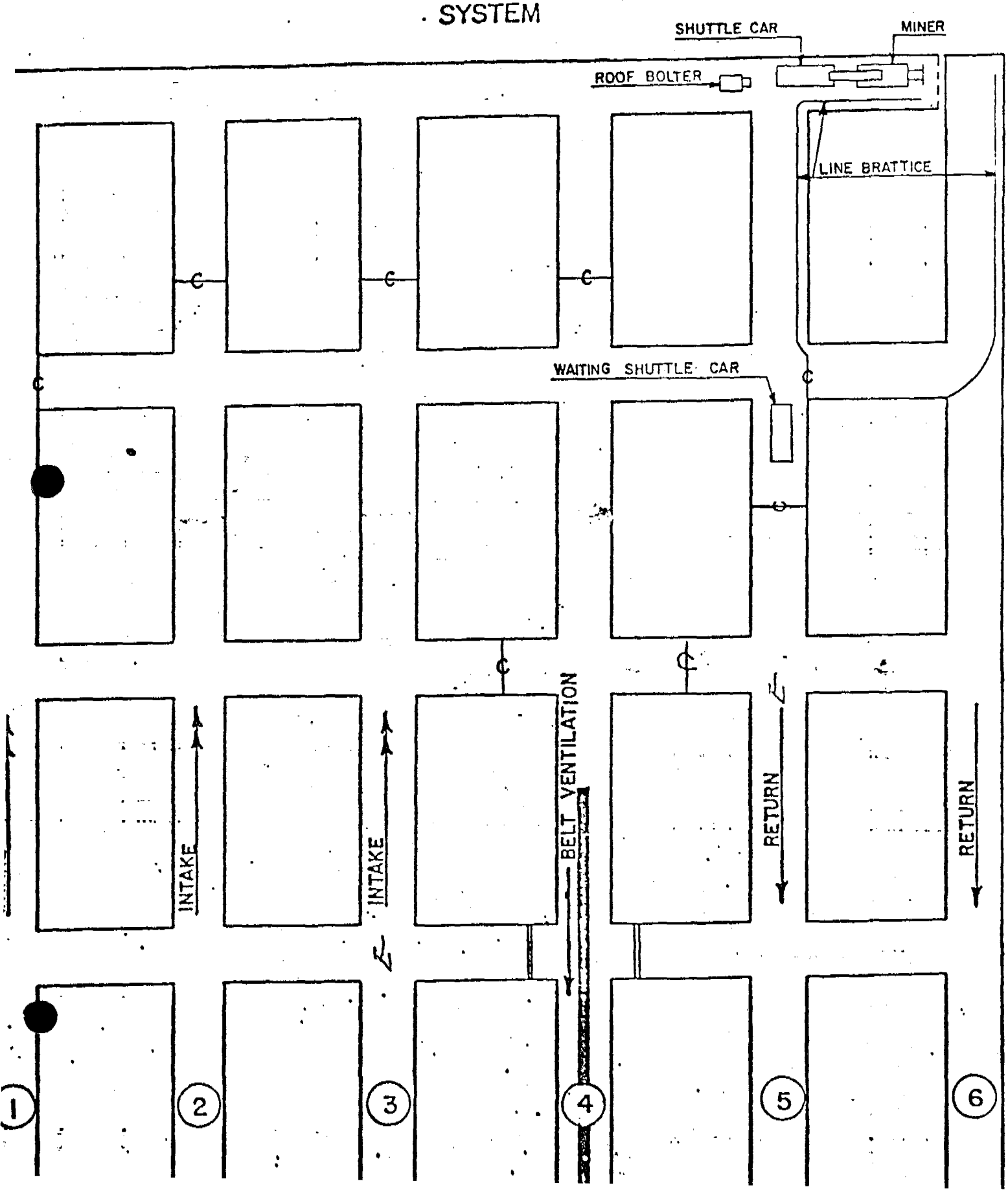


STEP NO. 9

TYPICAL 6 ENTRY DEVELOPMENT

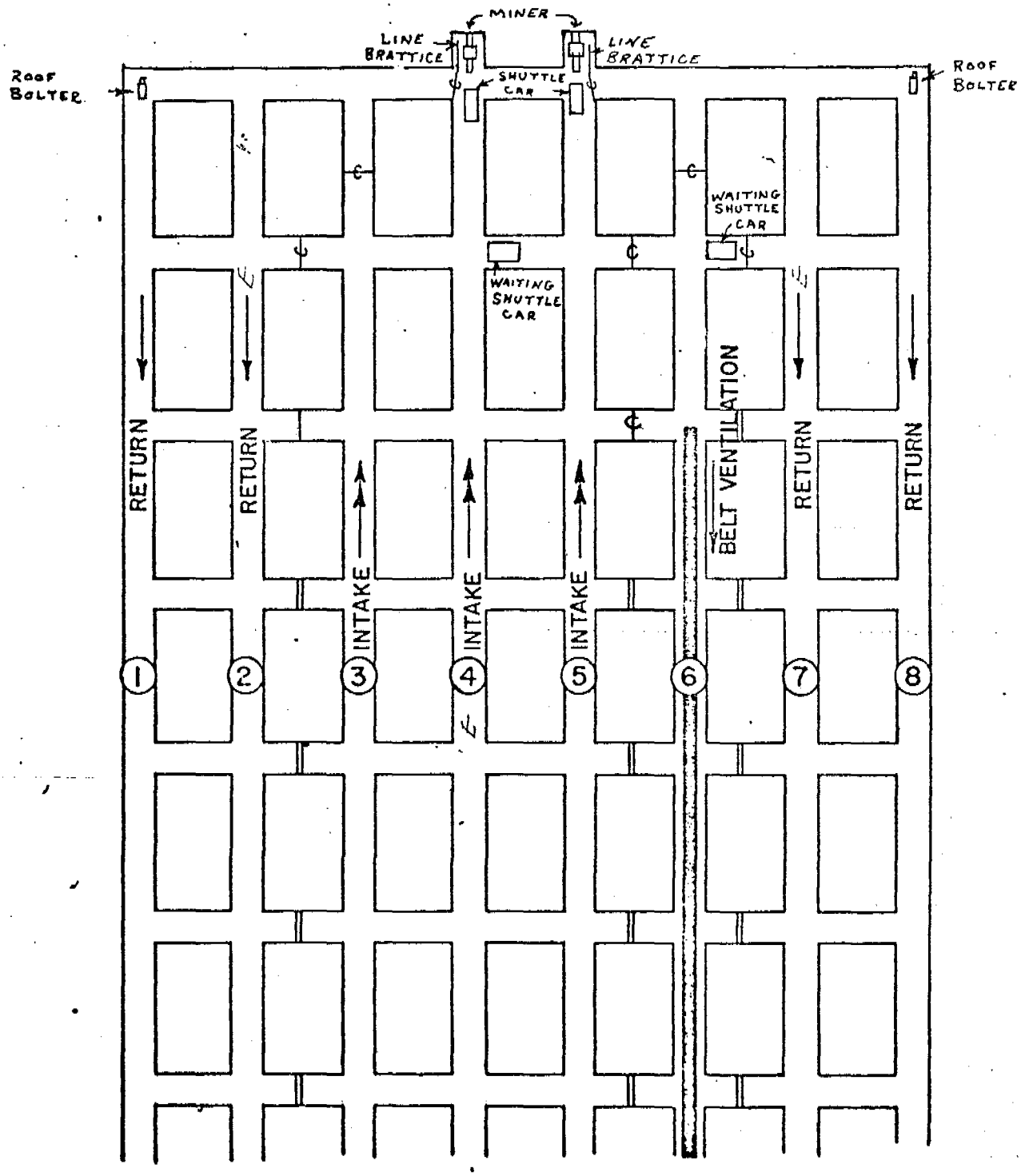
SECTION AND FACE VENTILATION SYSTEM



STEP NO. 1
TYPICAL 8 ENTRY DEVELOPMENT

SECTION & FACE VENTILATION SYSTEM

SCALE 1" = 100'



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TYPICAL 8 ENTRY DEVELOPMENT

SECTION & FACE VENTILATION SYSTEM

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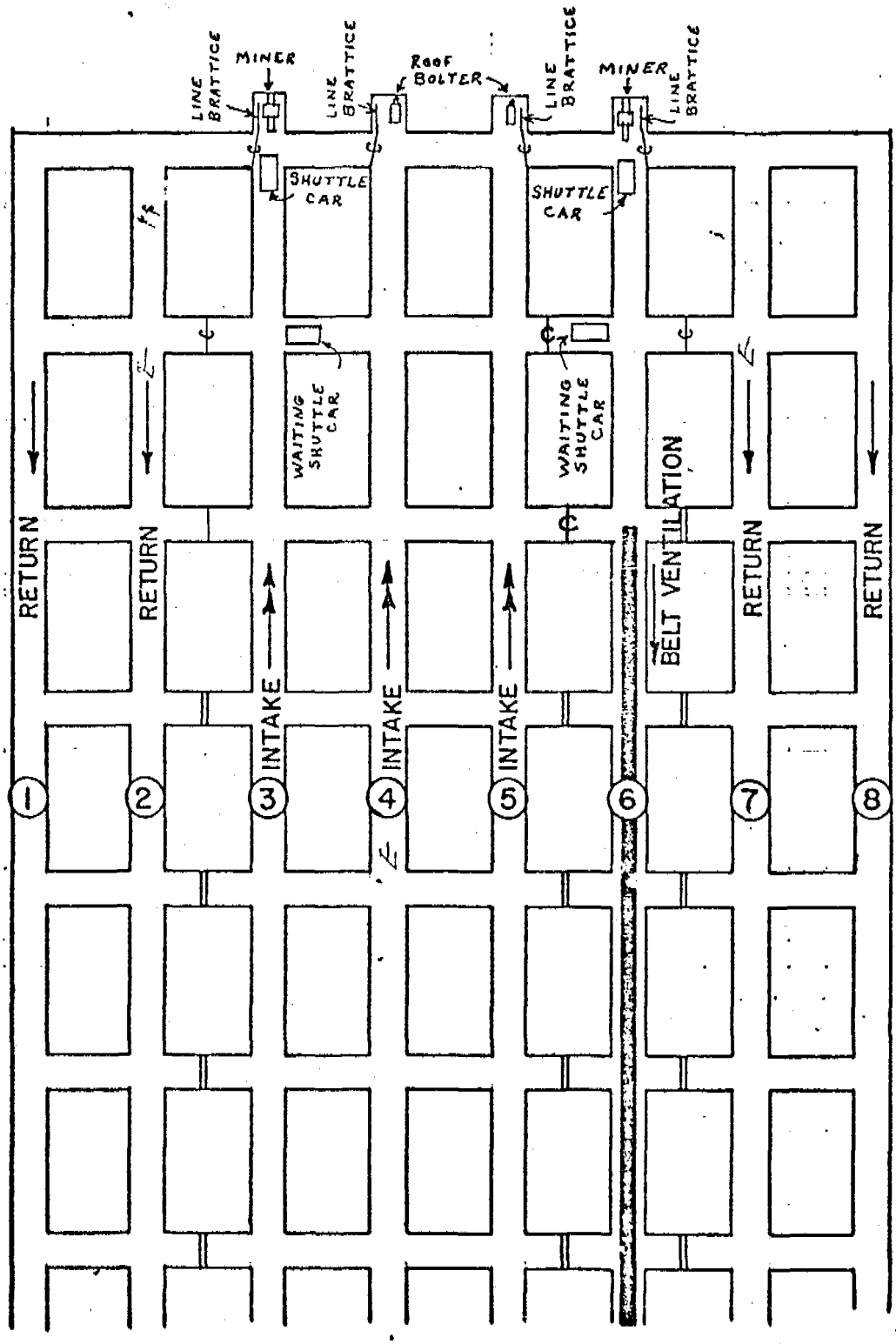

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SECTION & FACE VENTILATION SYSTEM

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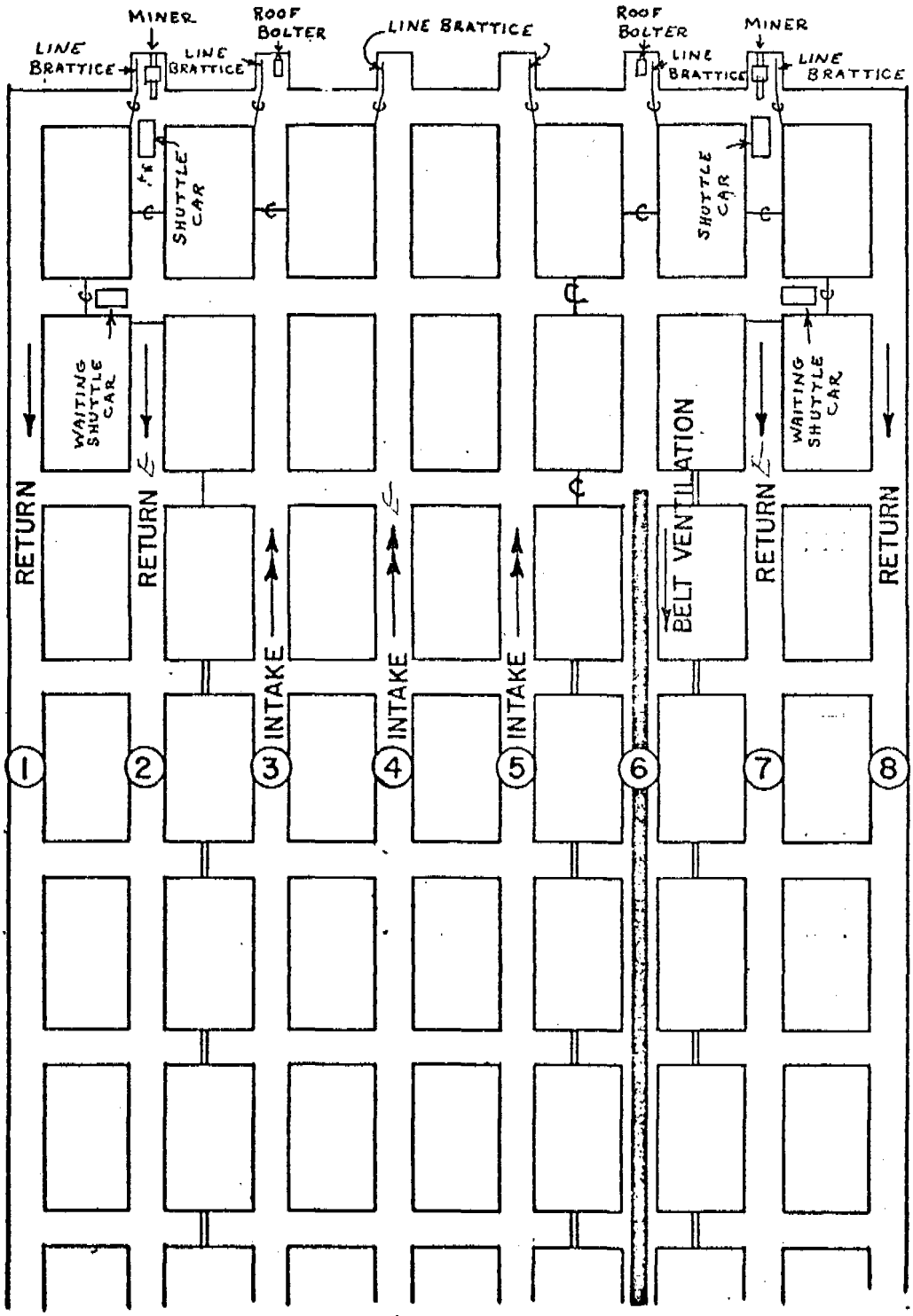

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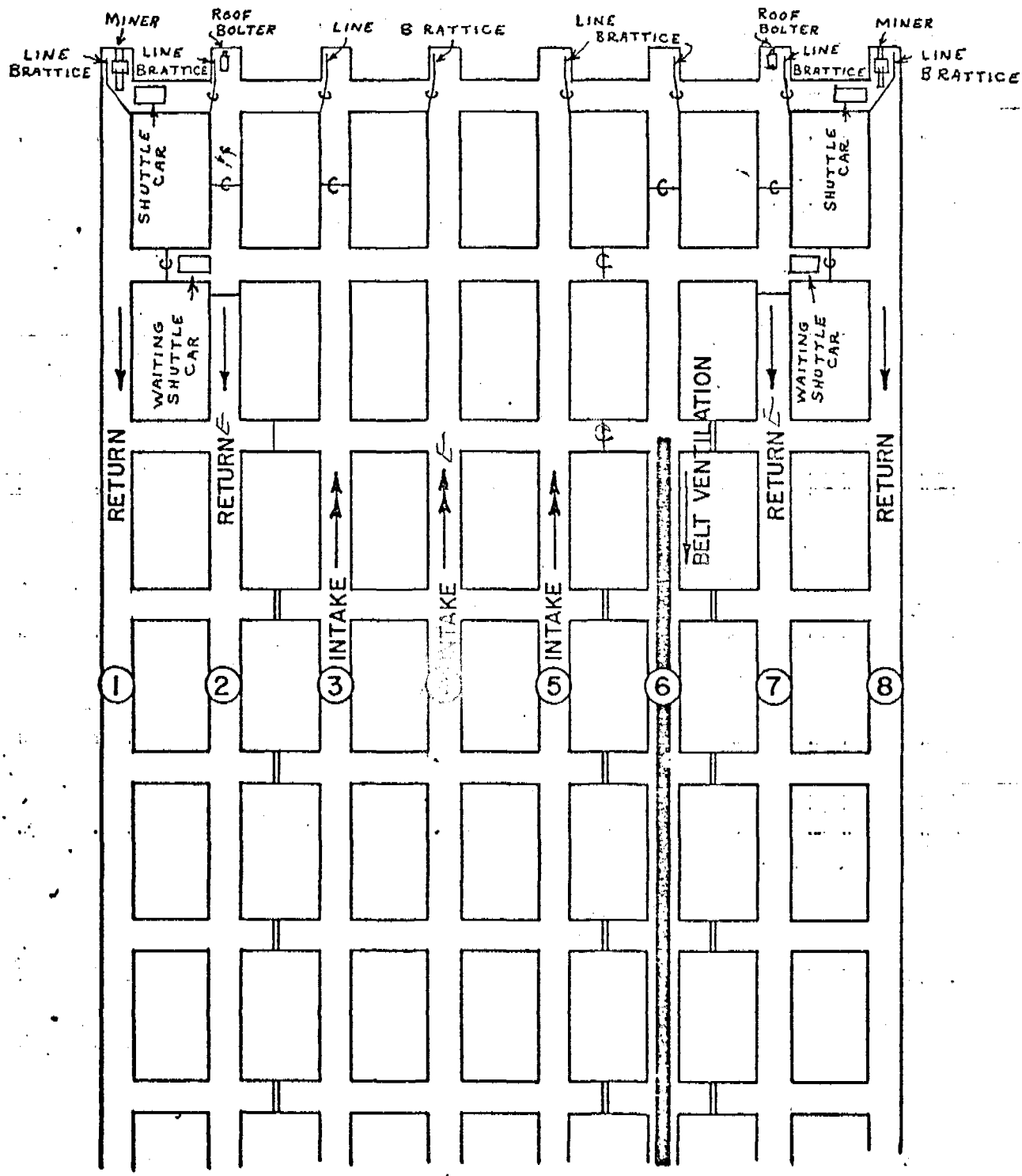
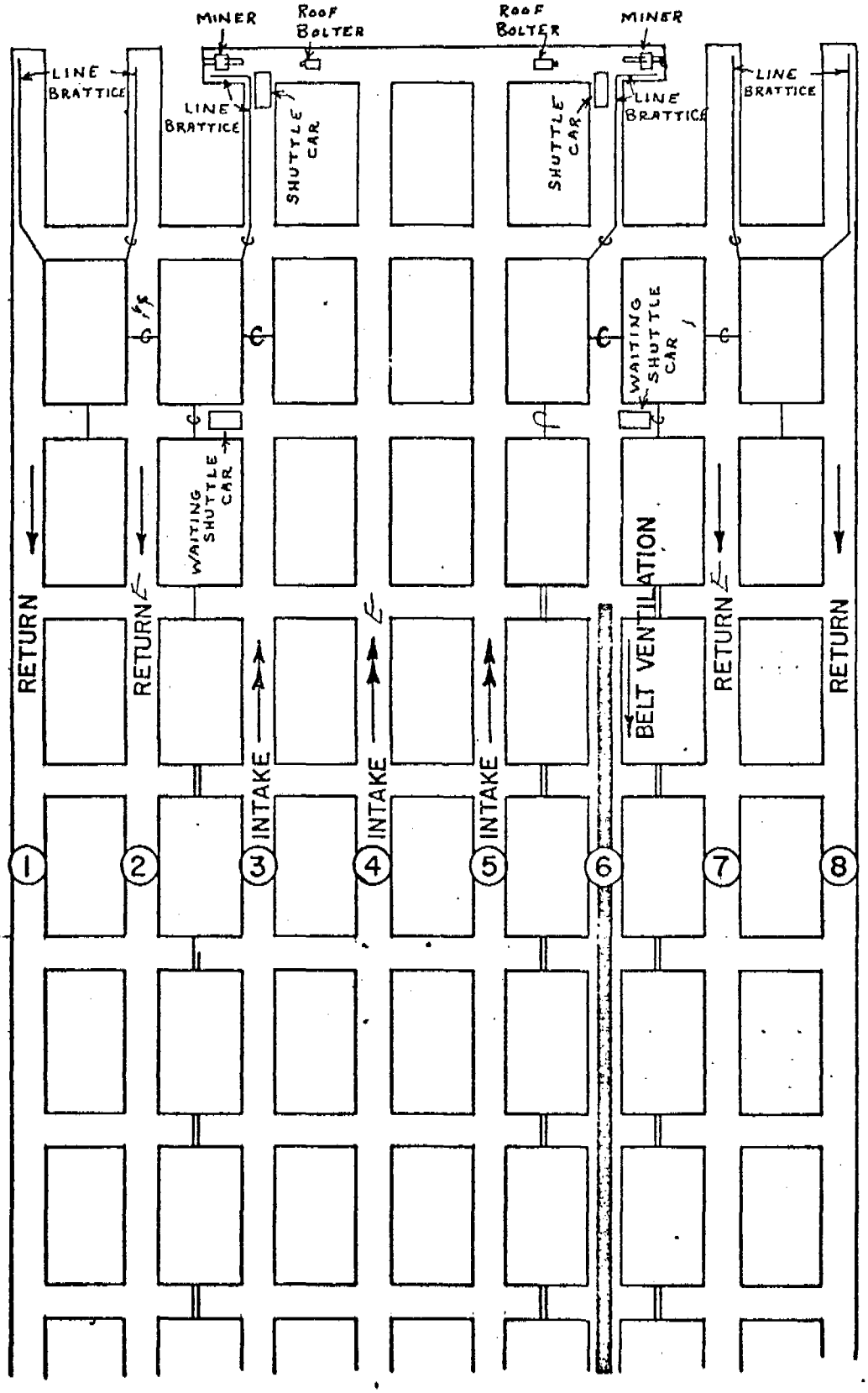


STEP NO. 5
TYPICAL 8 ENTRY DEVELOPMENT

SECTION & FACE VENTILATION SYSTEM

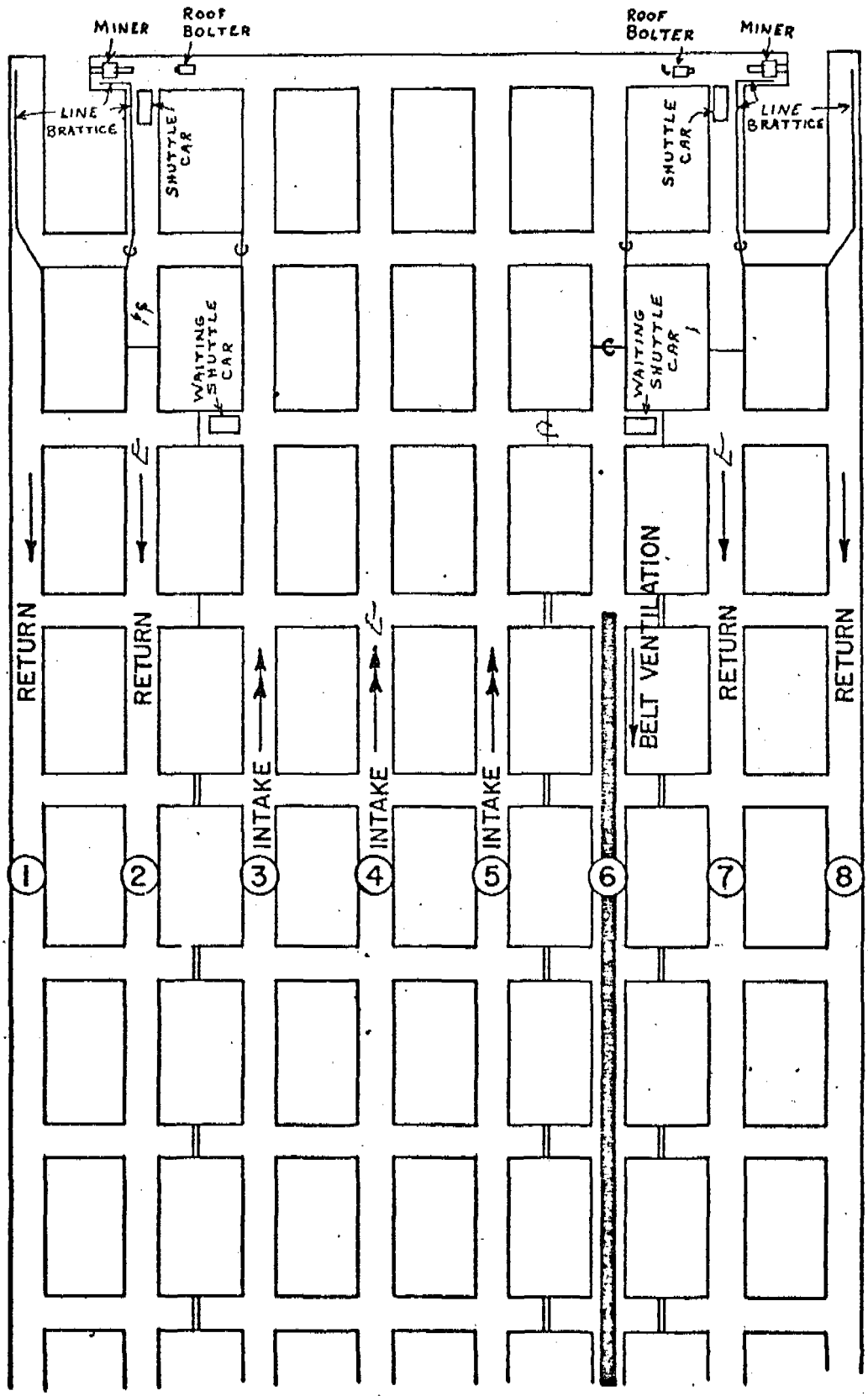
SCALE 1" = 100'



STEP NO. 6
TYPICAL 8 ENTRY DEVELOPMENT

SECTION & FACE VENTILATION SYSTEM

SCALE 1" = 100'

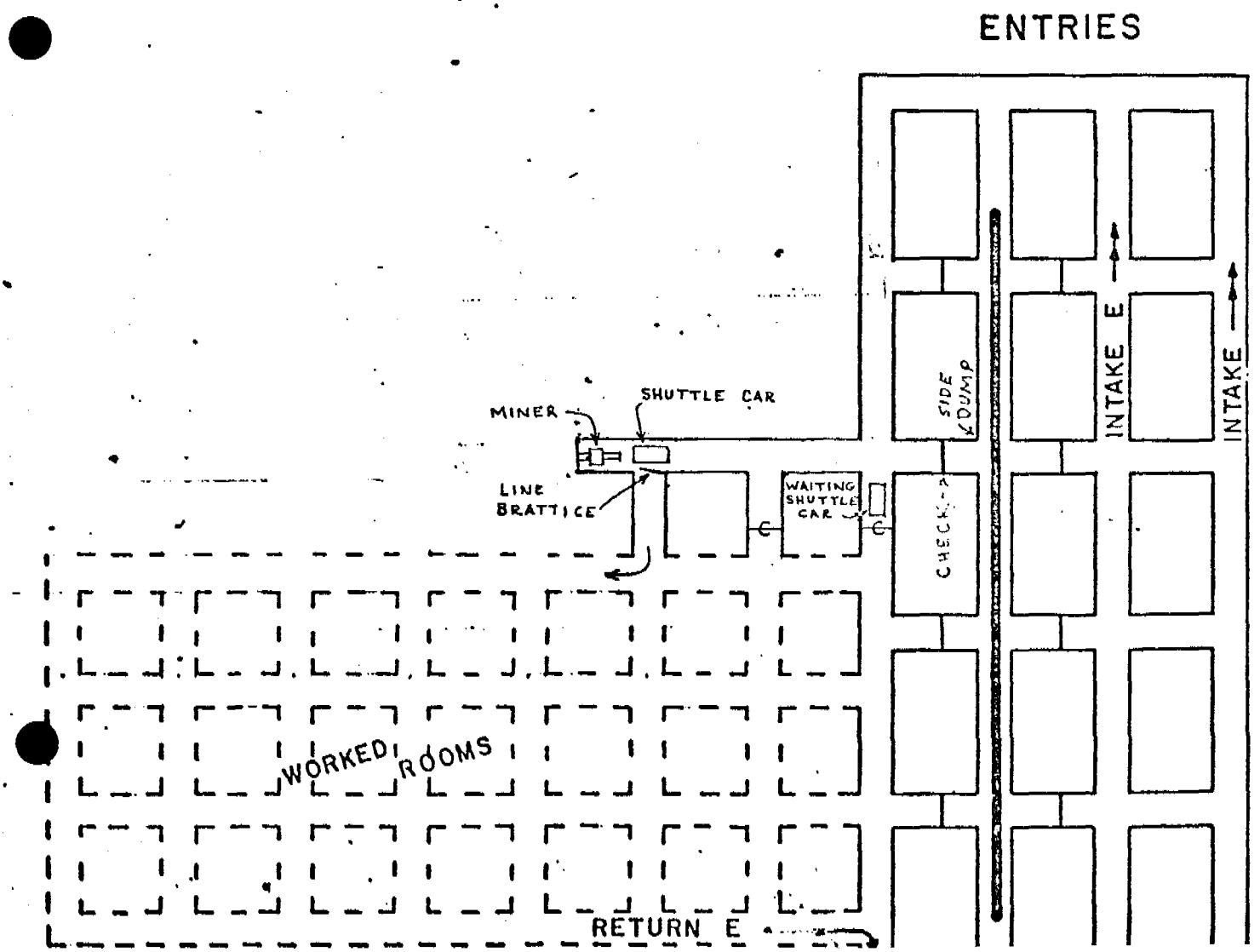


STEP NO.1

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

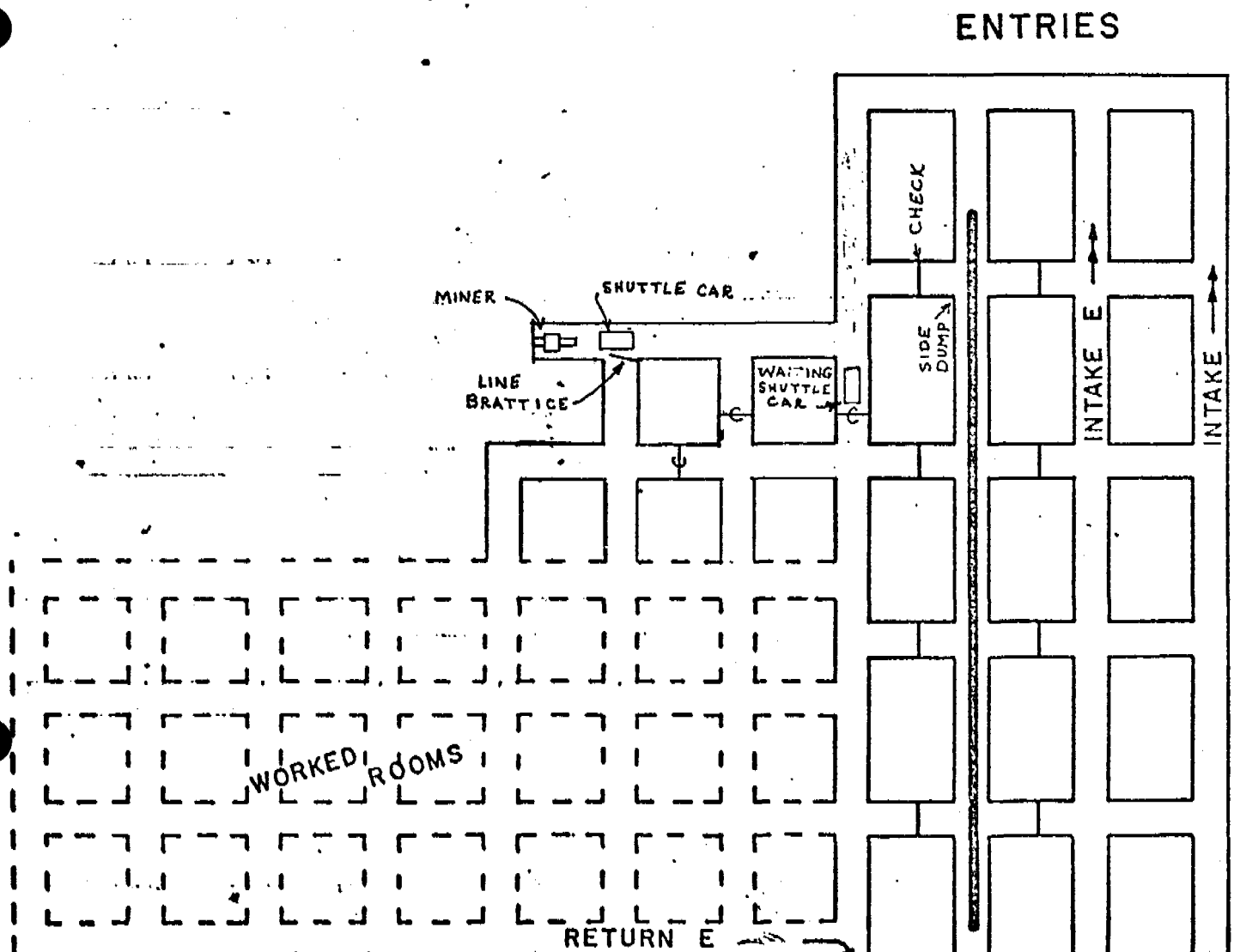


STEP NO. 2

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

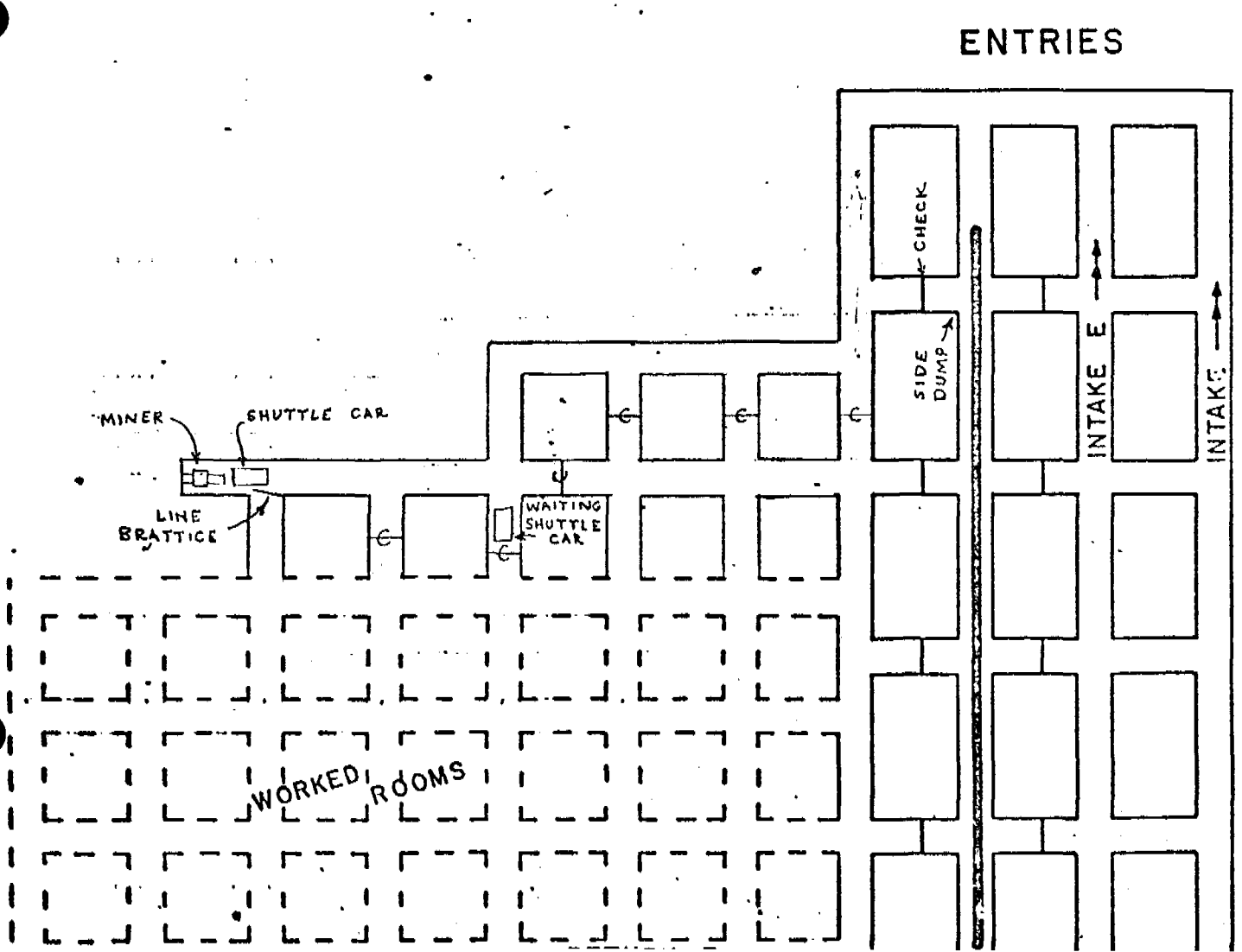


STEP NO. 3

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

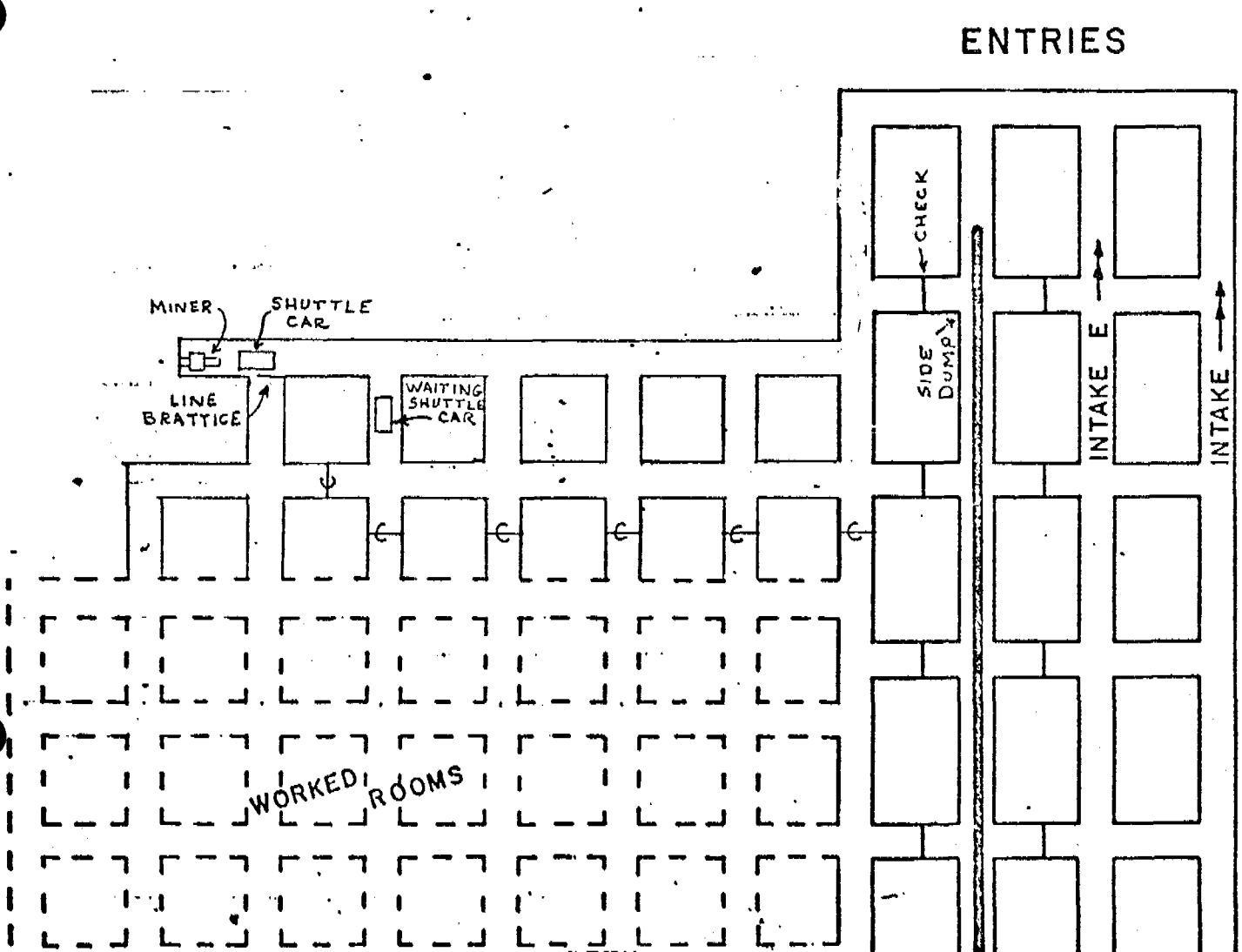


STEP NO.4

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

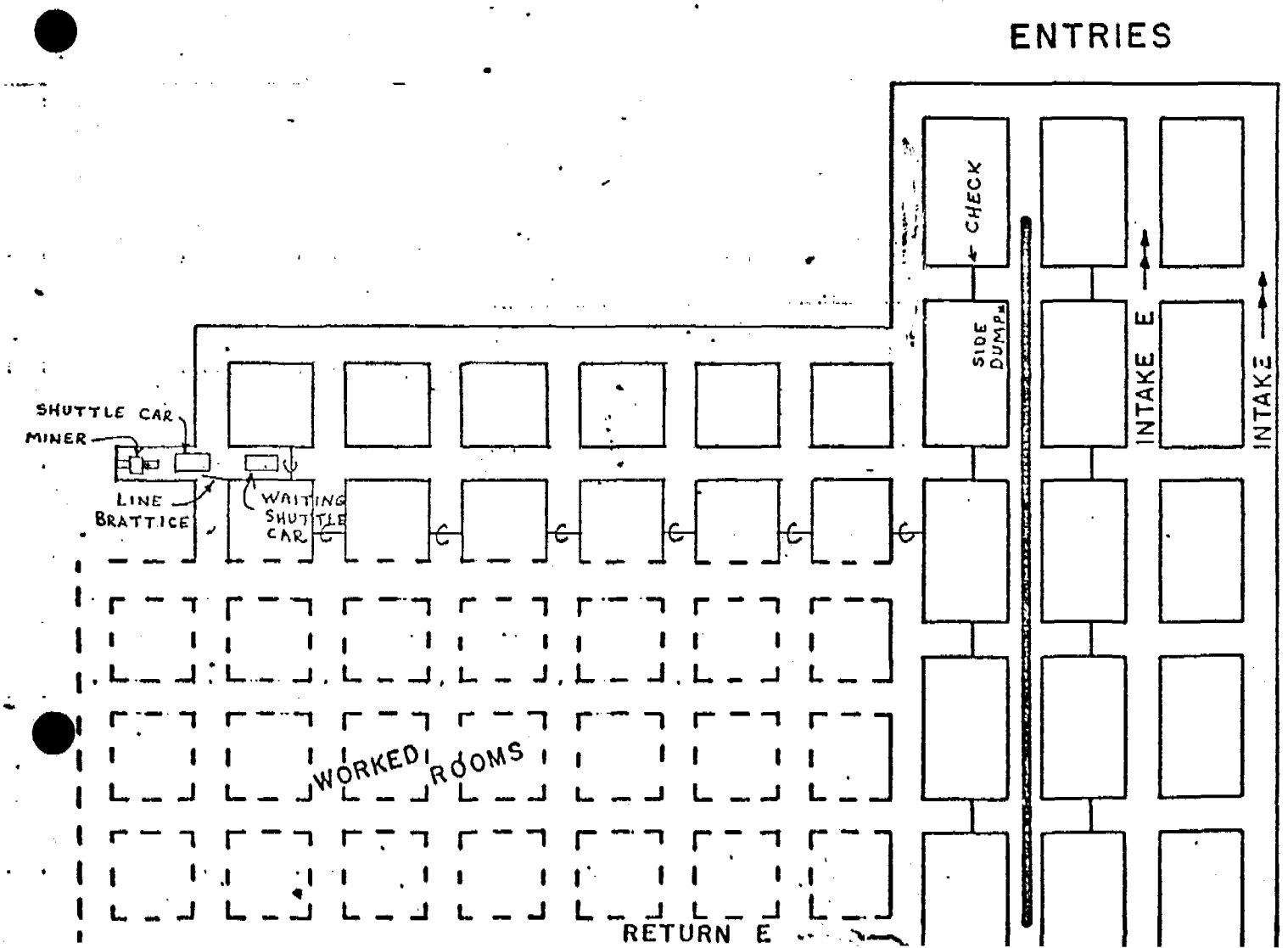


STEP NO. 5

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

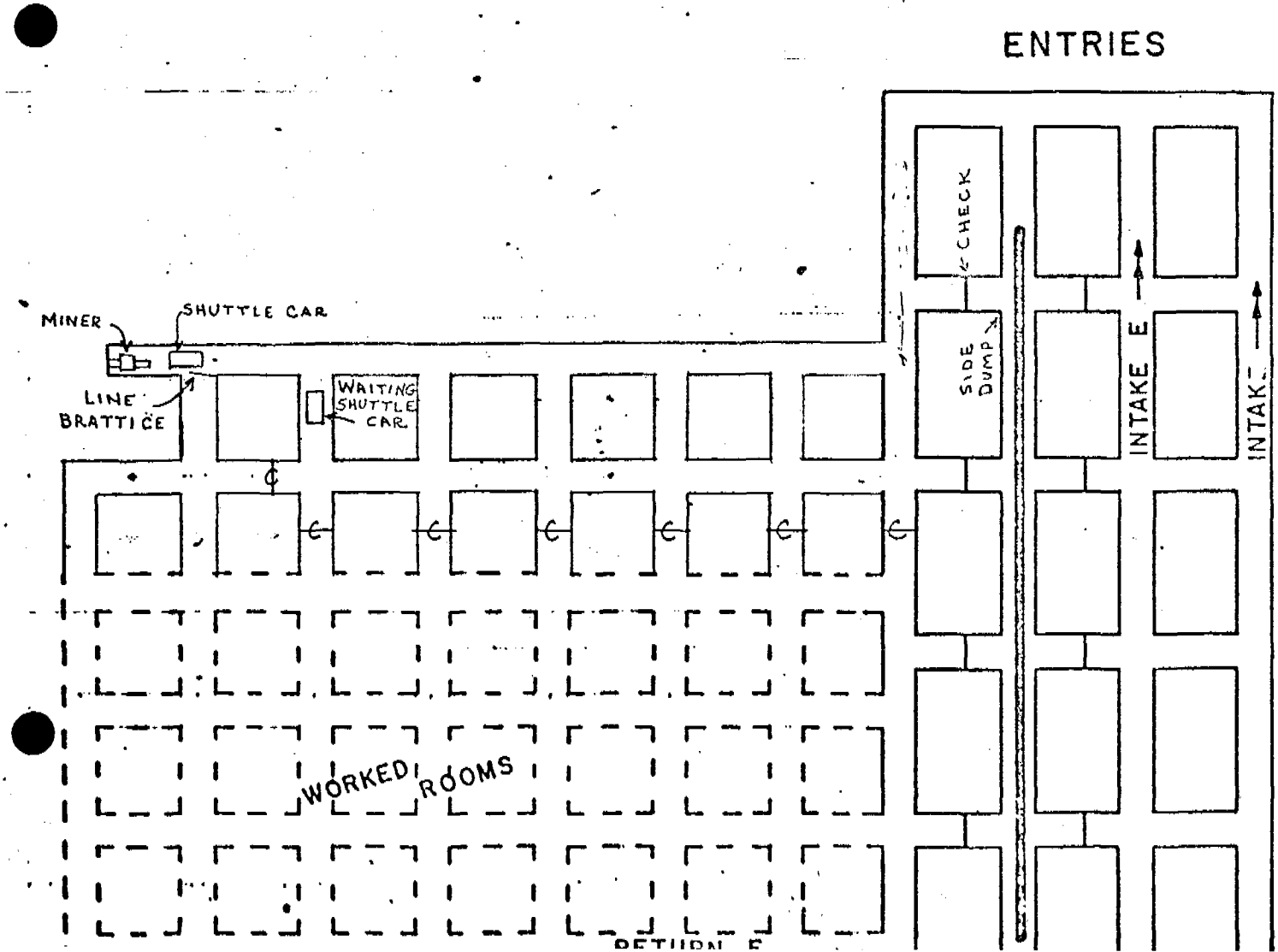


STEP NO. 6

TYPICAL BUTT SECTION

ROOMS ADVANCING

SCALE 1" = 100'

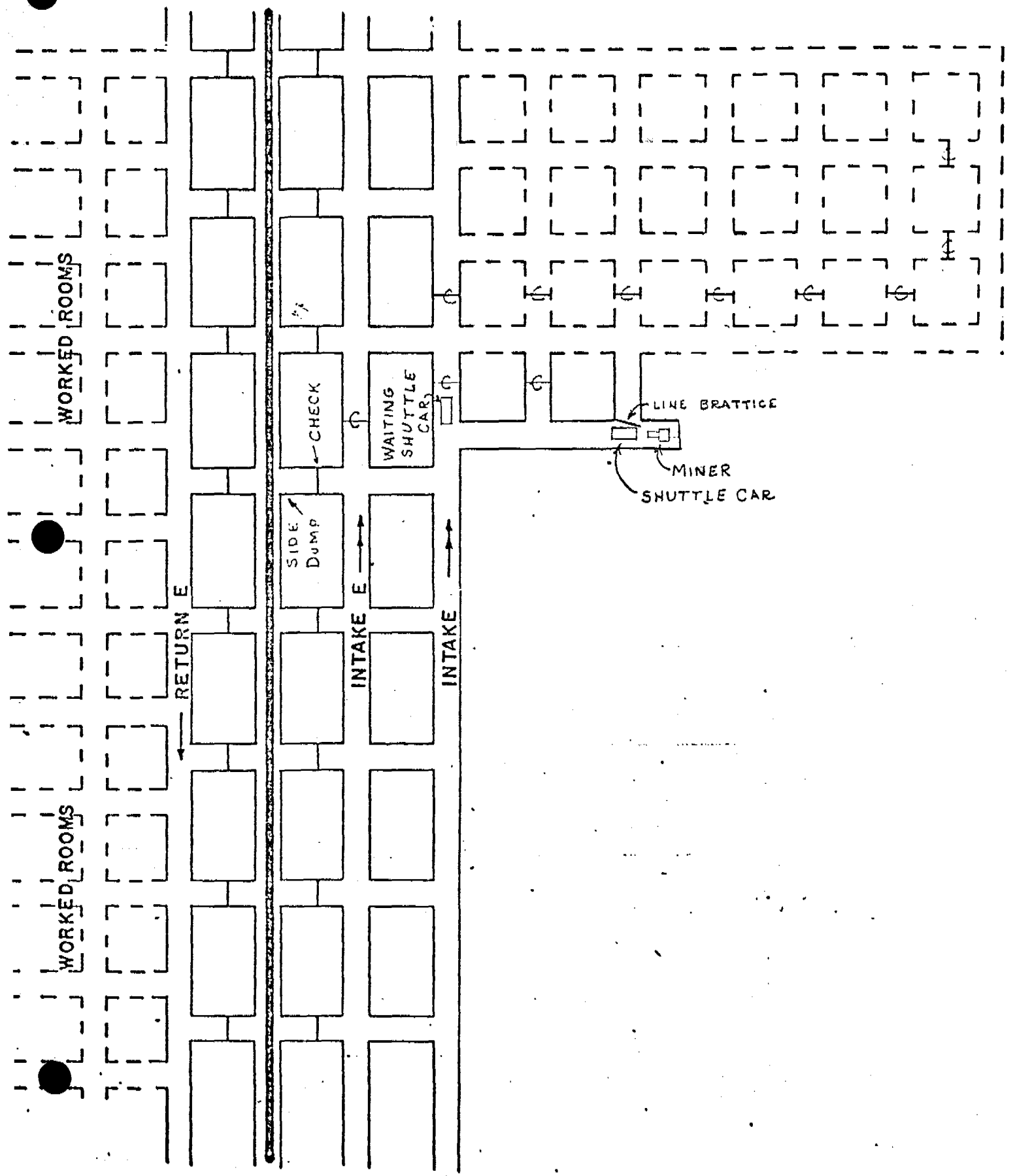


STEP NO. 1

TYPICAL BUTT SECTION

ROOMS RETREATING

SCALE 1" = 100'



STEP NO. 2

TYPICAL BUTT SECTION

ROOMS RETREATING

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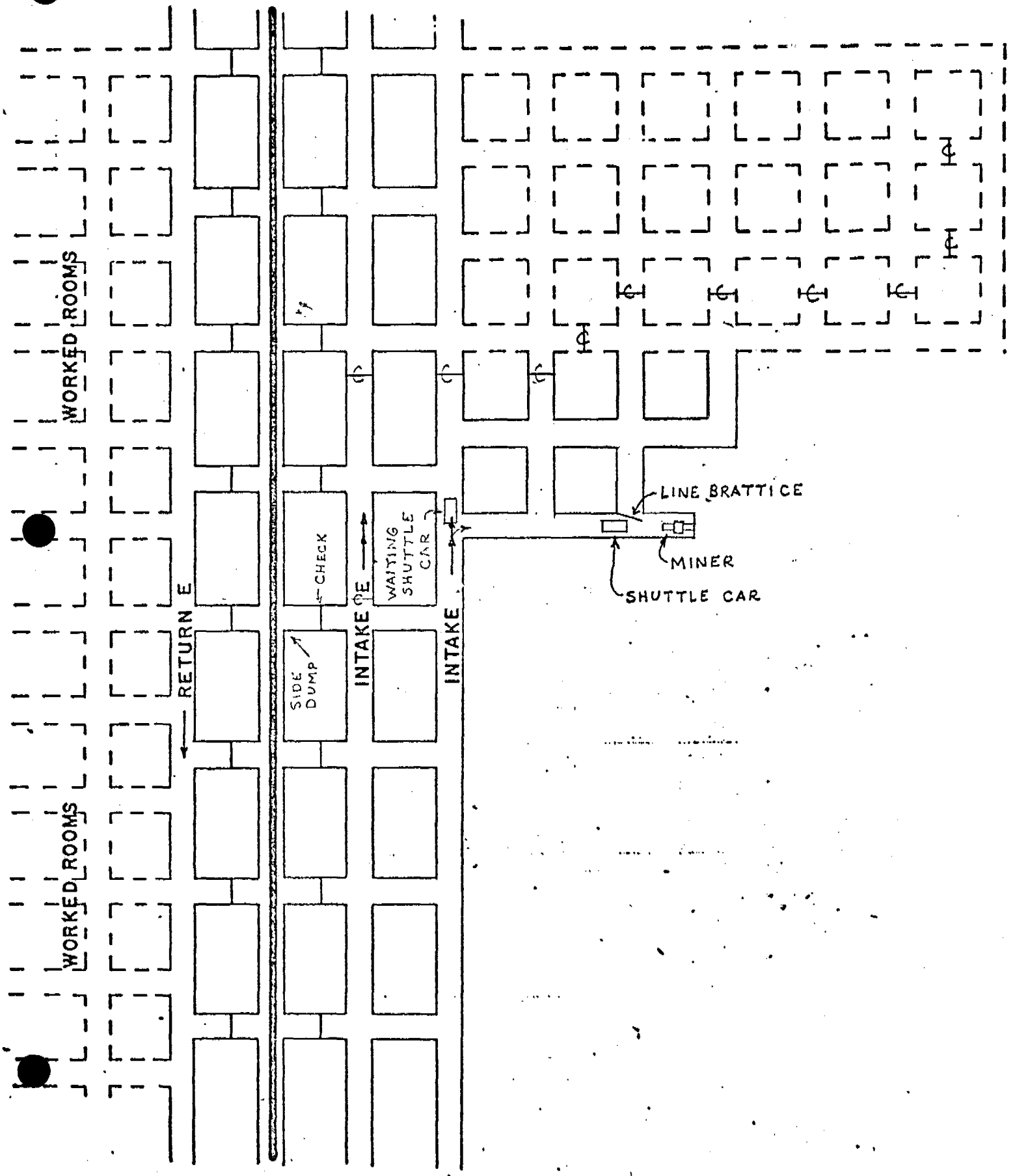

STEP NO. 3

TYPICAL BUTT SECTION

ROOMS RETREATING

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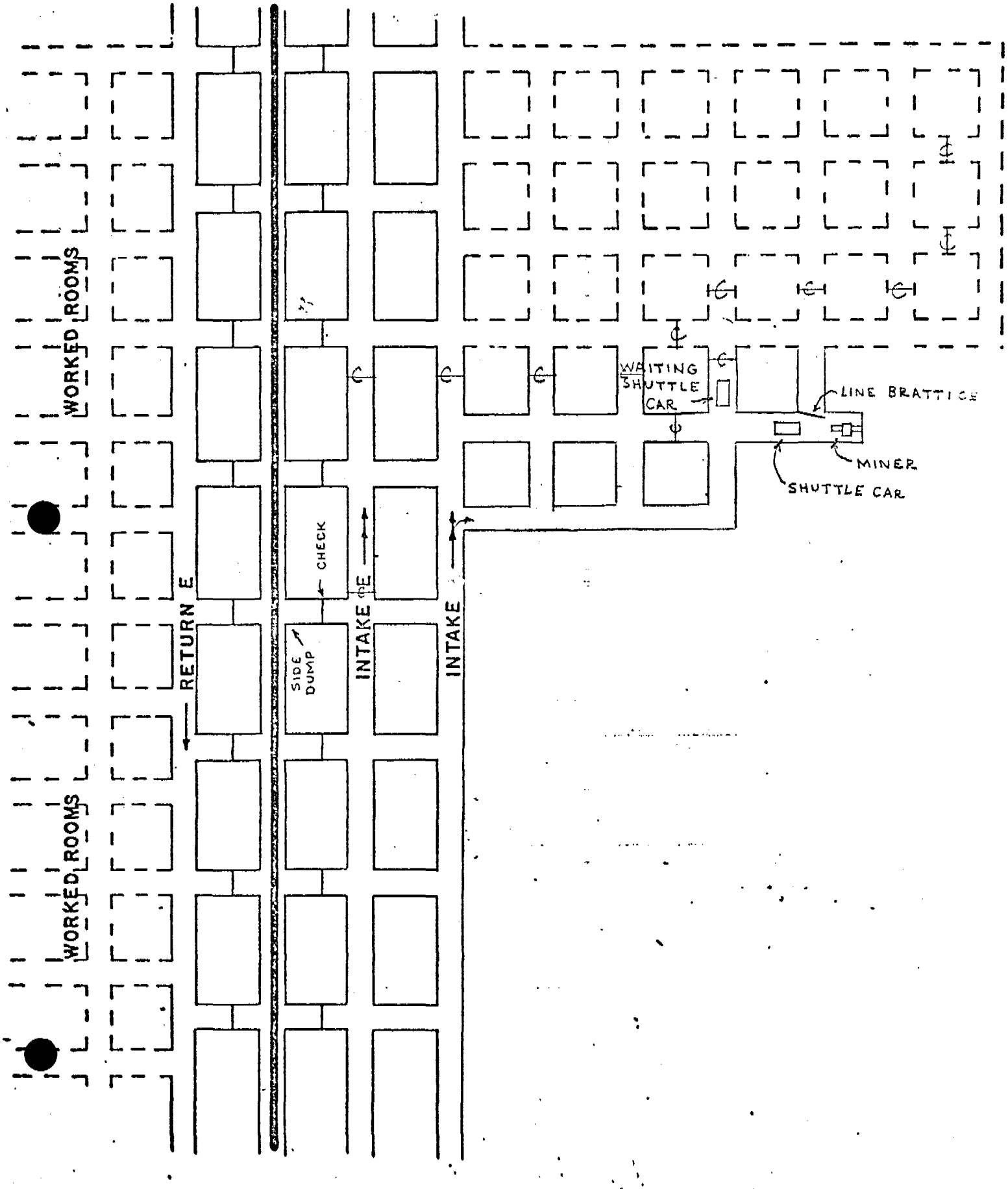
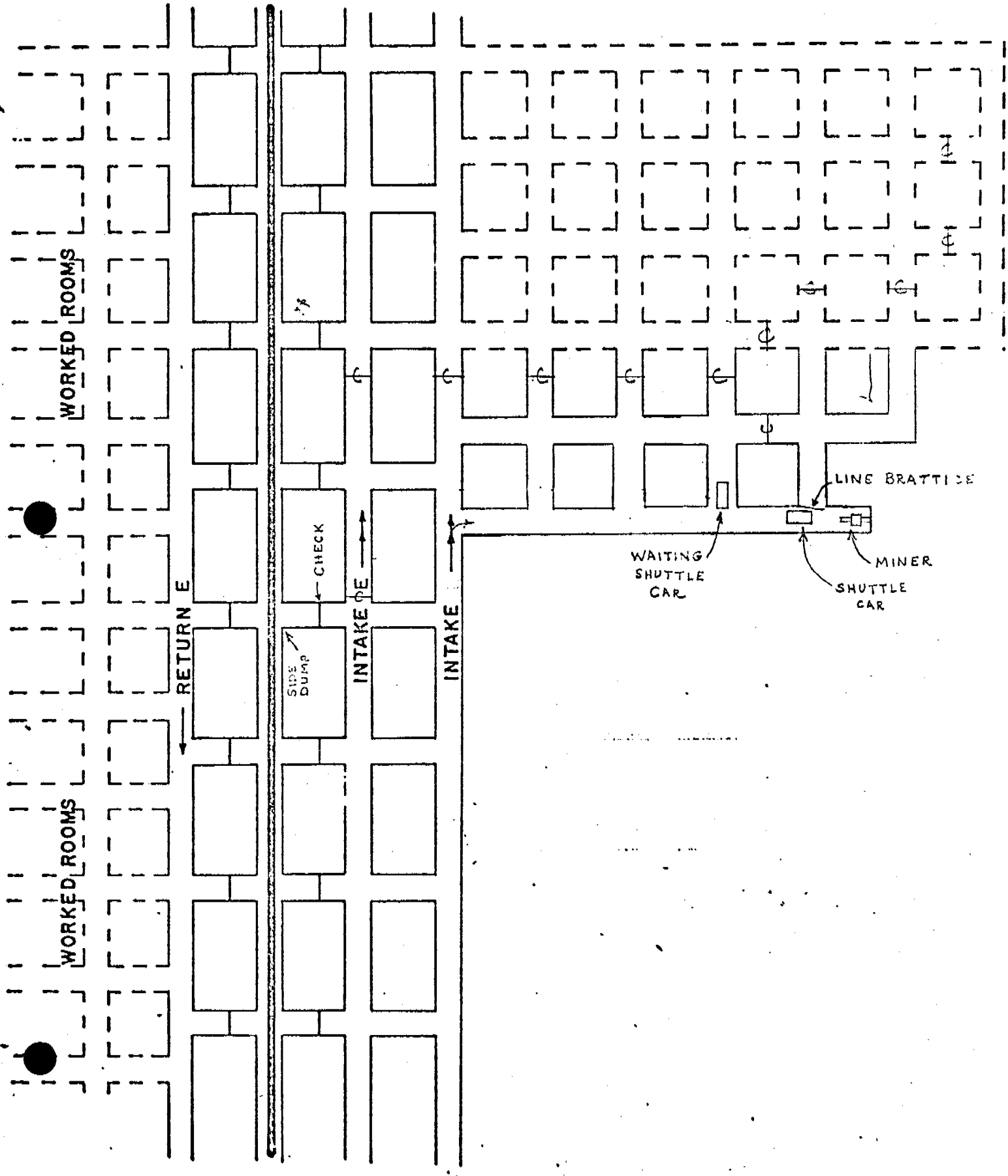


STEP NO. 4

TYPICAL BUTT SECTION

ROOMS RETREATING

SCALE 1" = 100'

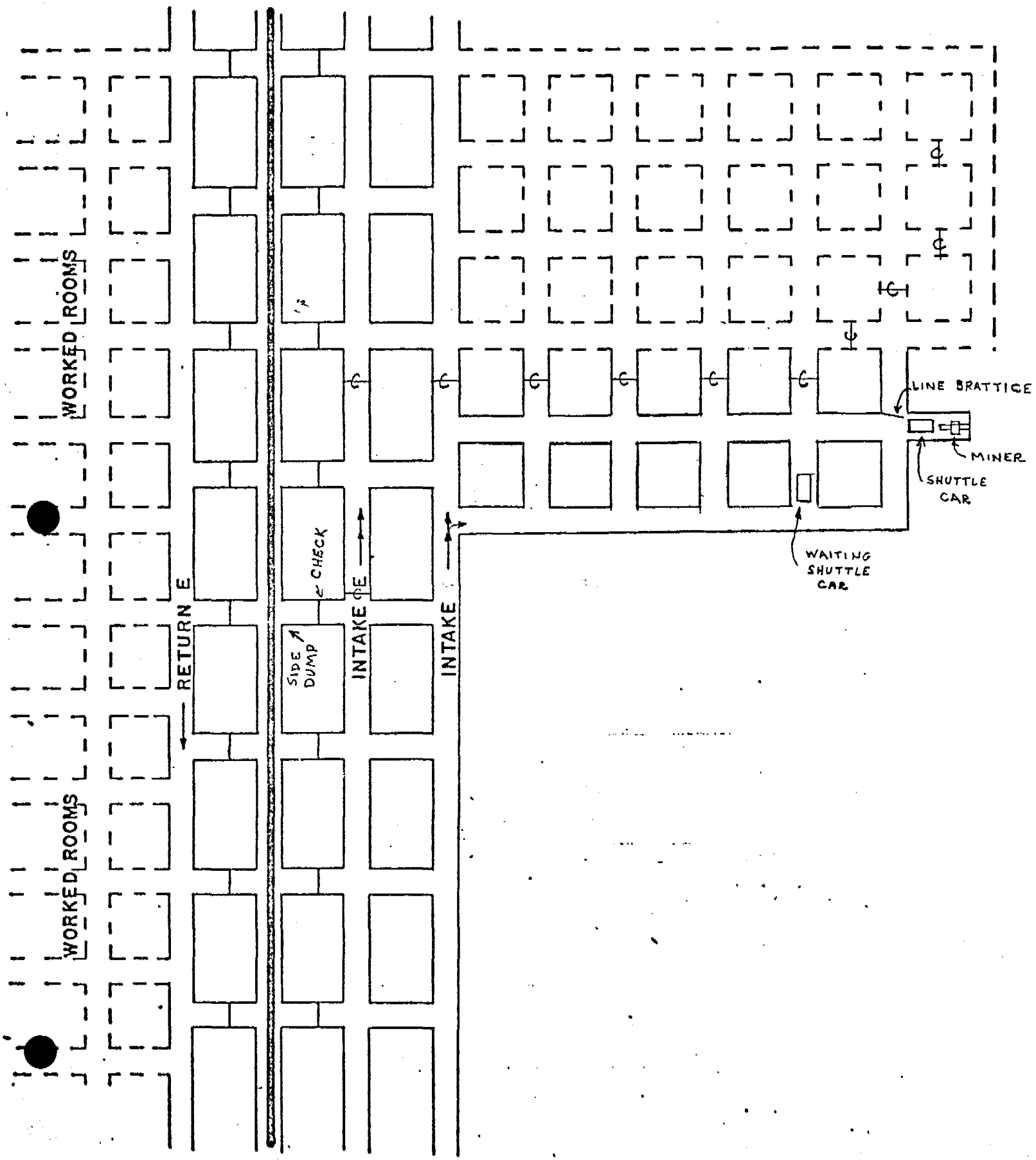


STEP NO. 5

TYPICAL BUTT SECTION

ROOMS RETREATING

SCALE 1" = 100'

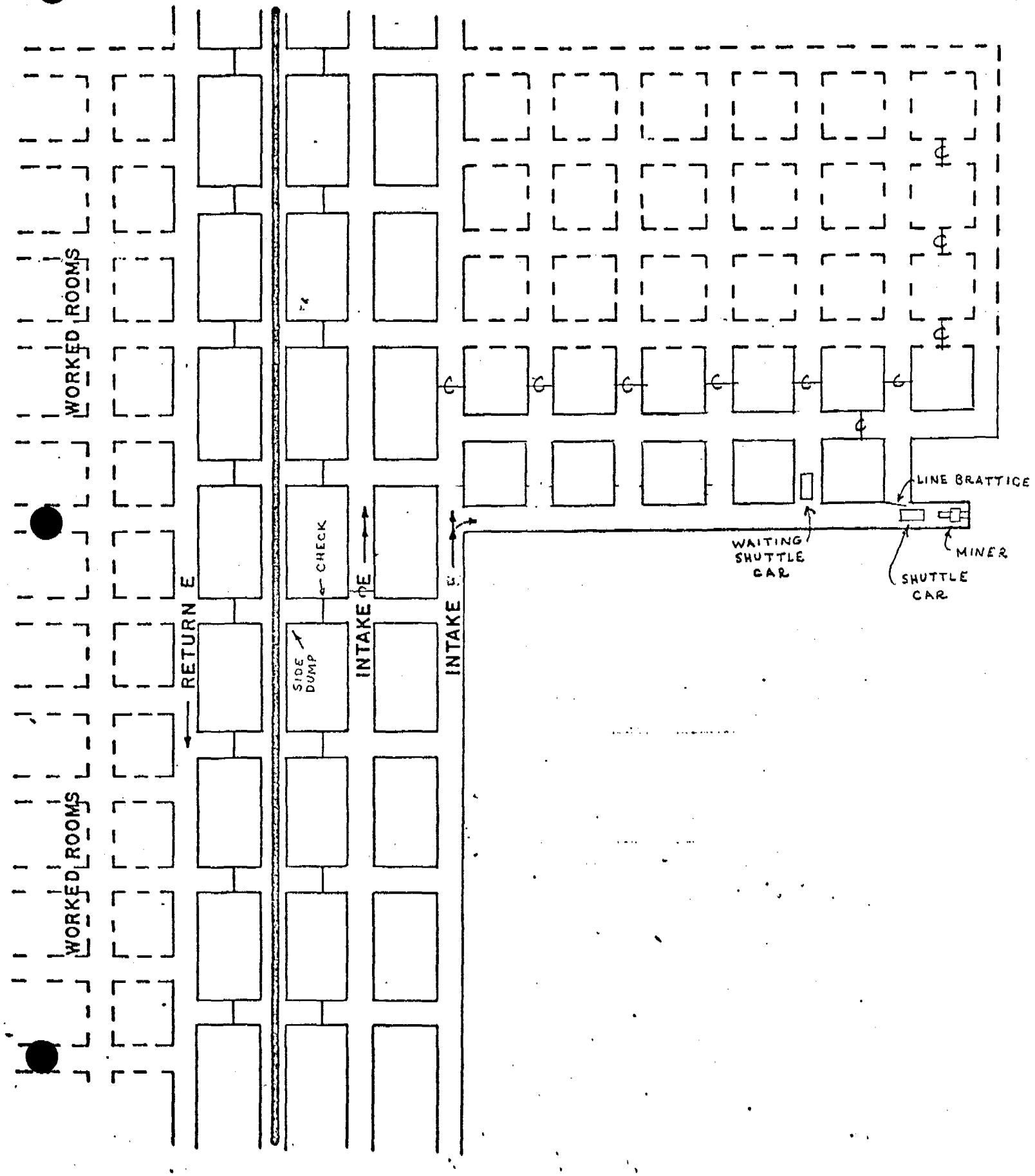


STEP NO. 6

TYPICAL BUTT SECTION

ROOMS RETREATING

SCALE 1" = 100'

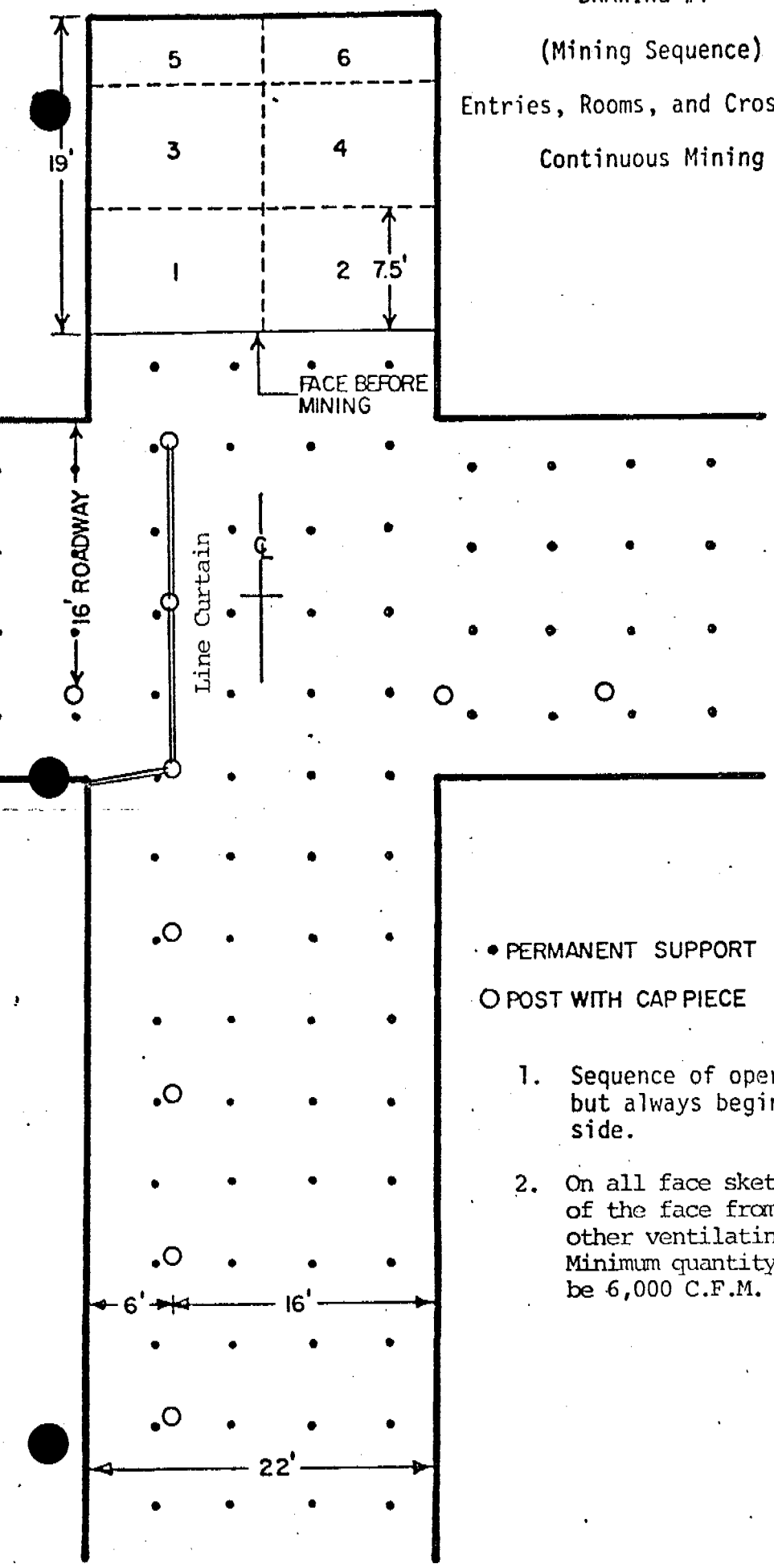


DRAWING #1

(Mining Sequence)

Entries, Rooms, and Crosscuts

Continuous Mining



• PERMANENT SUPPORT

O POST WITH CAP PIECE

1. Sequence of operations may be altered or reversed, but always beginning the first lift on the brattice side.

2. On all face sketches shown, maximum penetration of the face from the end of the line curtain or other ventilating device shall not exceed 15 feet. Minimum quantity of air at the working face shall be 6,000 C.F.M.

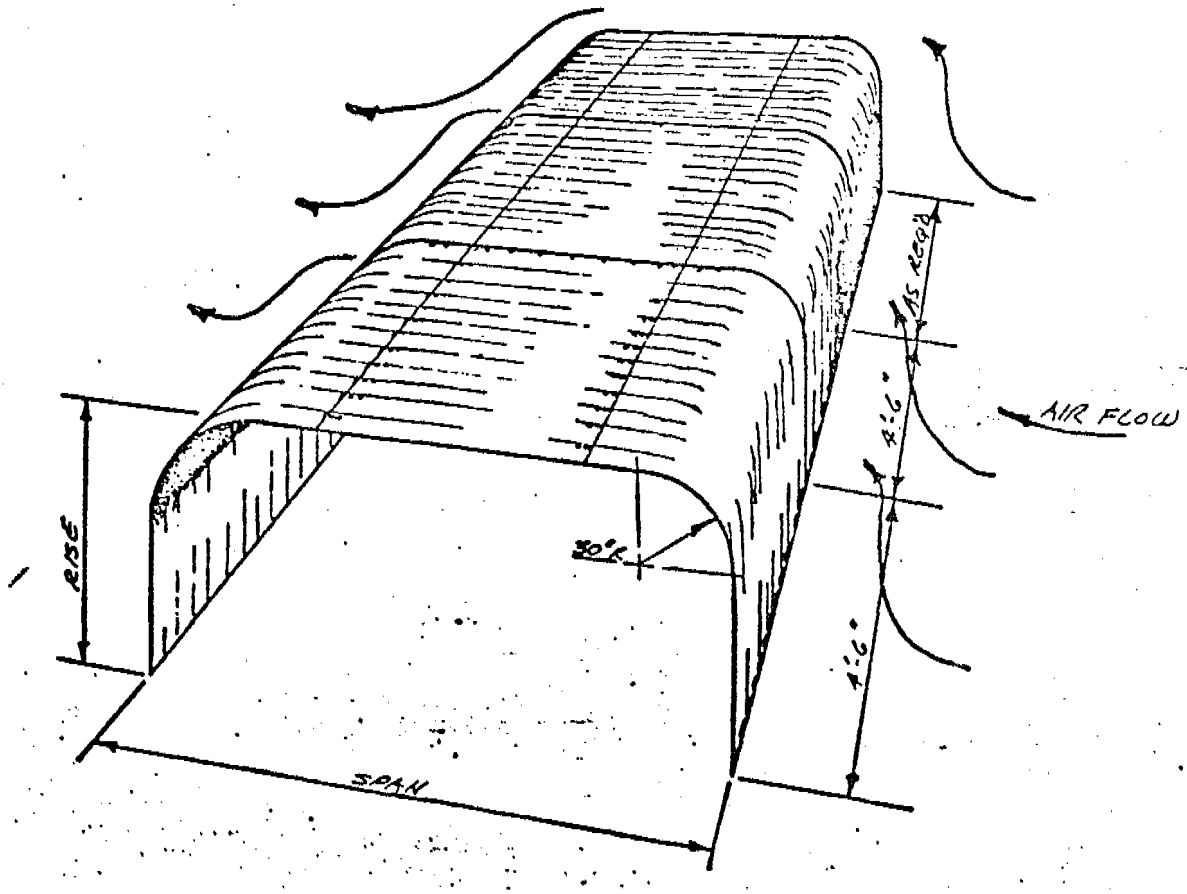
Scale: 1" = 10'

NEW

KAISER ALUMINUM

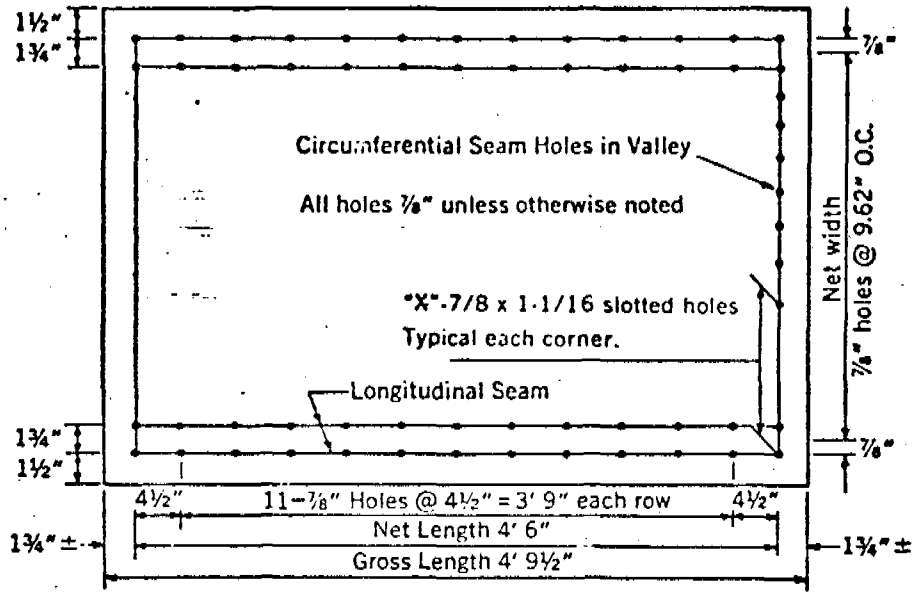
ALUMINUM STRUCTURAL PLATE

Mine Overcast Structures



- Lightweight - easy to handle and assembly by hand
- Strong - Supports a working crew of 3 men
- Recoverable - Structure can be disassembled and moved to another location as needed.
- Economical - Speedy erection of a complete structure saves time and dollars.

STANDARD PLATE SIZES



UNCURVED PLATE DETAIL

STANDARD PLATE SIZES

Net Width		Gross Width	
N*	Inches	Inches	X
8	76.96	81.71	4
9	86.58	91.33	4
10	96.20	100.95	4
11	105.82	110.57	5
12	115.44	120.19	5
13	125.06	129.81	5
14	134.68	139.43	5

*N=9.62"

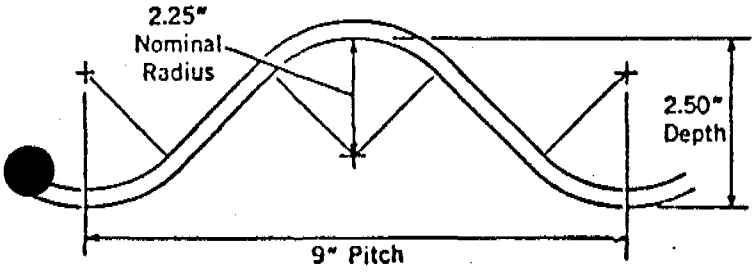
PLATE WEIGHTS (POUNDS)

Thickness Inches	.125
Width	
8 N	65.8
9 N	73.5
10 N	81.3
11 N	89.0
12 N	96.8
13 N	104.5
14 N	112.3

Notes:

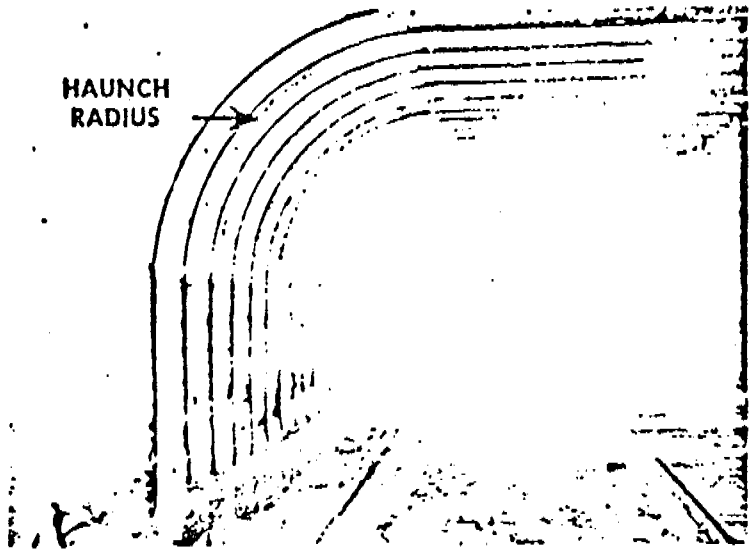
(1) Weights are based on nominal thicknesses only.
(2) Bolt holes have not been deducted.

PHYSICAL PROPERTIES OF CORRUGATION



FASTENER WEIGHTS (POUNDS PER HUNDRED)

Bolt Size	1¼ in.	Nuts
Steel	31.0	20.0



SIZE & PRICING

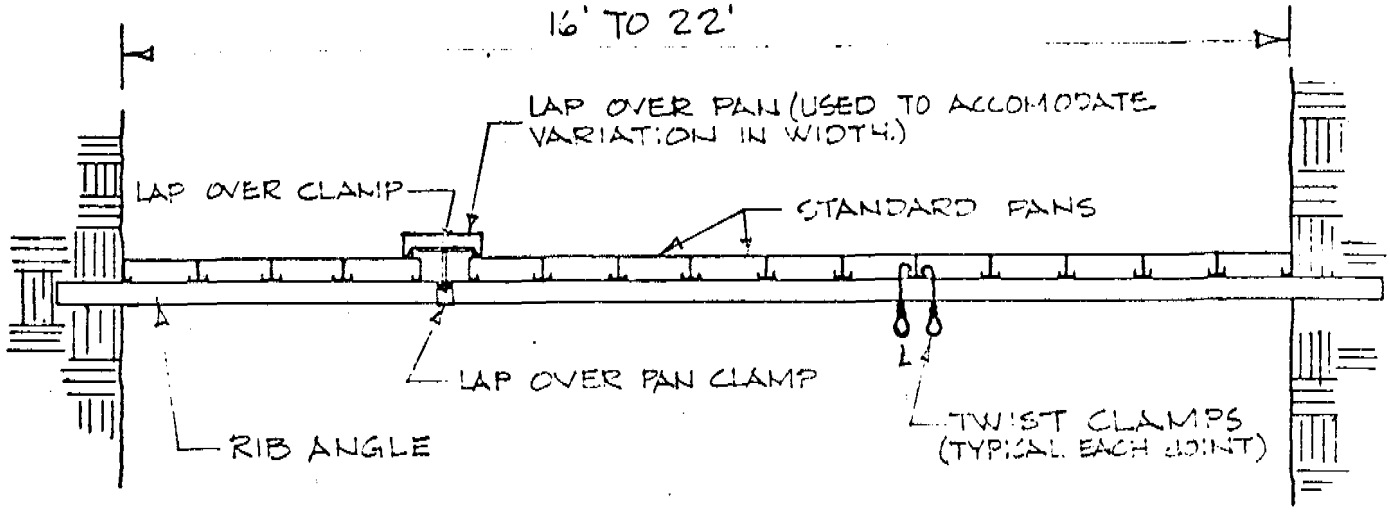
No. "N"	24" Haunch Radius * Size	30" Haunch Radius Size
24	13' - 0" x 4' - 0"	13' - 5 3/4" x 4' - 0"
26	13' - 0" x 4' - 9 5/8"	13' - 5 3/4" x 4' - 9 5/8"
27	13' - 0" x 5' - 2 3/8"	13' - 5 3/4" x 5' - 2 3/8"
28	13' - 0" x 5' - 7 1/4"	13' - 5 3/4" x 5' - 7 1/4"
25	14' - 0" x 3' - 10 13/16"	14' - 3 3/8' x 4' - 0"
26	14' - 0" x 4' - 3 5/8"	14' - 5 3/4" x 4' - 3 5/8"
28	14' - 0" x 5' - 1 1/4"	14' - 5 3/4" x 5' - 1 1/4"
30	14' - 0" x 5' - 10 7/8"	14' - 5 3/4" x 5' - 10 7/8"
28	15' - 0" x 4' - 7 1/4"	15' - 5 3/4" x 4' - 7 1/4"
30	15' - 0" x 5' - 4 7/8	15' - 5 3/4" x 5' - 4 7/8"
32	15' - 0" x 6' - 2"	15' - 5 3/4" x 6' - 2"
29	16' - 0" x 4' - 6 1/4"	16' - 5 3/4" x 4' - 6 1/4"
30	16' - 0" x 4' - 10 7/8"	16' - 5 3/4" x 4' - 10 7/8"
32	16' - 0" x 5' - 8 1/2"	16' - 5 3/4" x 5' - 8 1/2"
33	16' - 0" x 6' - 6 1/4"	16' - 5 3/4" x 6' - 1 1/4"
34	16' - 0" x 6' - 6 1/8"	16' - 5 3/4" x 6' - 6 1/8"
32	17' - 0" x 5' - 2 1/2"	17' - 5 3/4" x 5' - 2 1/2"
34	17' - 0" x 6' - 0 1/8"	17' - 5 3/4" x 6' - 0 1/8"
36	17' - 0" x 6' - 9 3/4"	17' - 5 3/4" x 6' - 9 3/4"
32	18' - 0" x 4' - 8 1/2"	18' - 5 3/4" x 4' - 8 1/2"
34	18' - 0" x 5' - 6 1/8"	18' - 5 3/4" x 5' - 6 1/8"
36	18' - 0" x 6' - 3 3/4"	18' - 5 3/4" x 6' - 3 3/4"
38	18' - 0" x 7' - 2 3/8"	18' - 5 3/4" x 7' - 2 3/8"

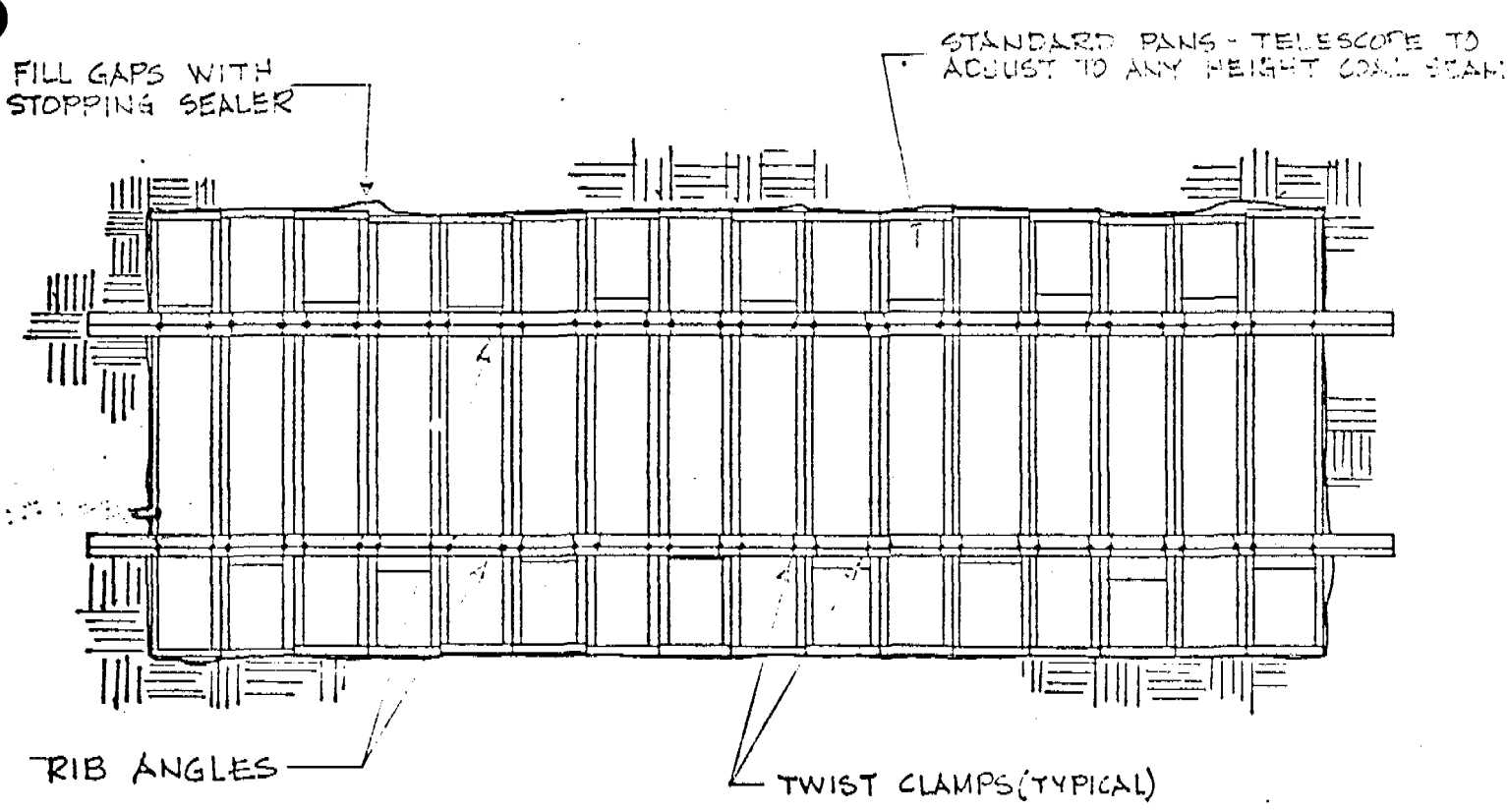
NOTE: All Material .125 Gauge

Other Sizes Available Upon Special Request.

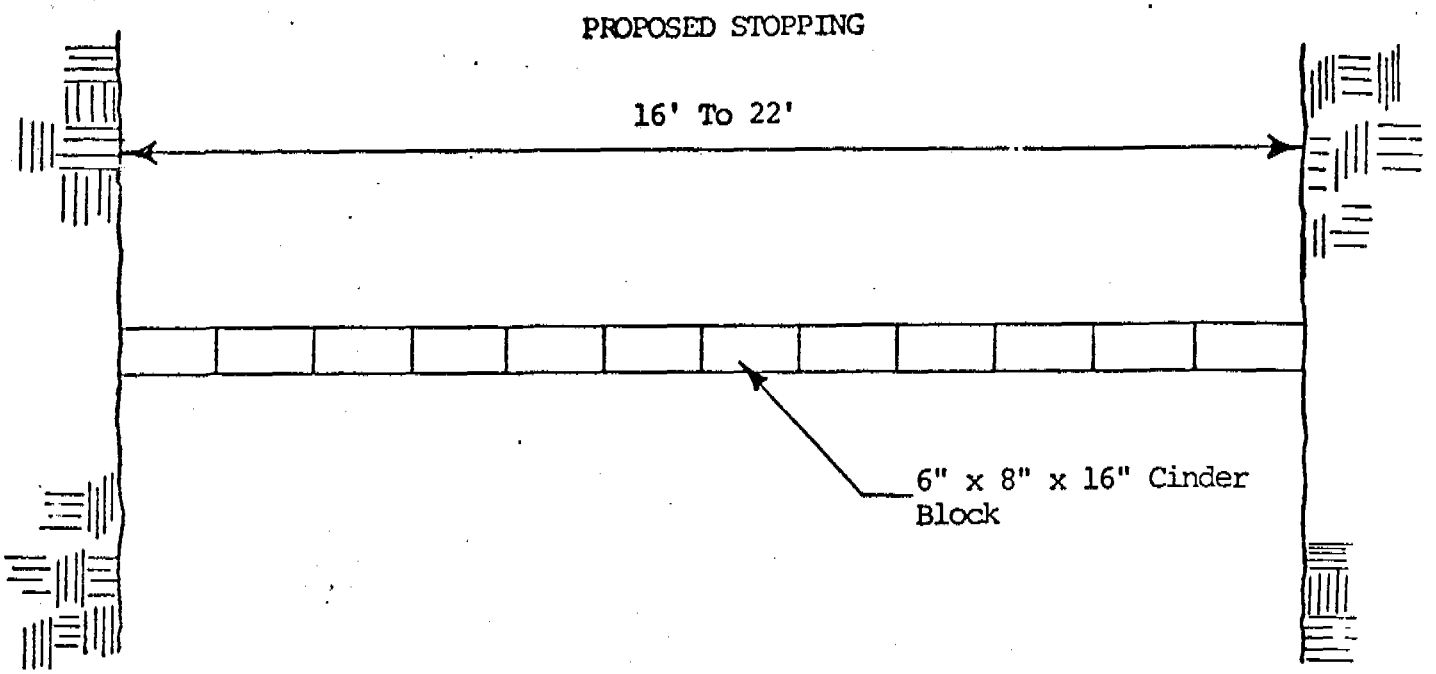
* 24" Haunch Radius Availability only to mines that have purchased this Radius in the past. All new mines will be

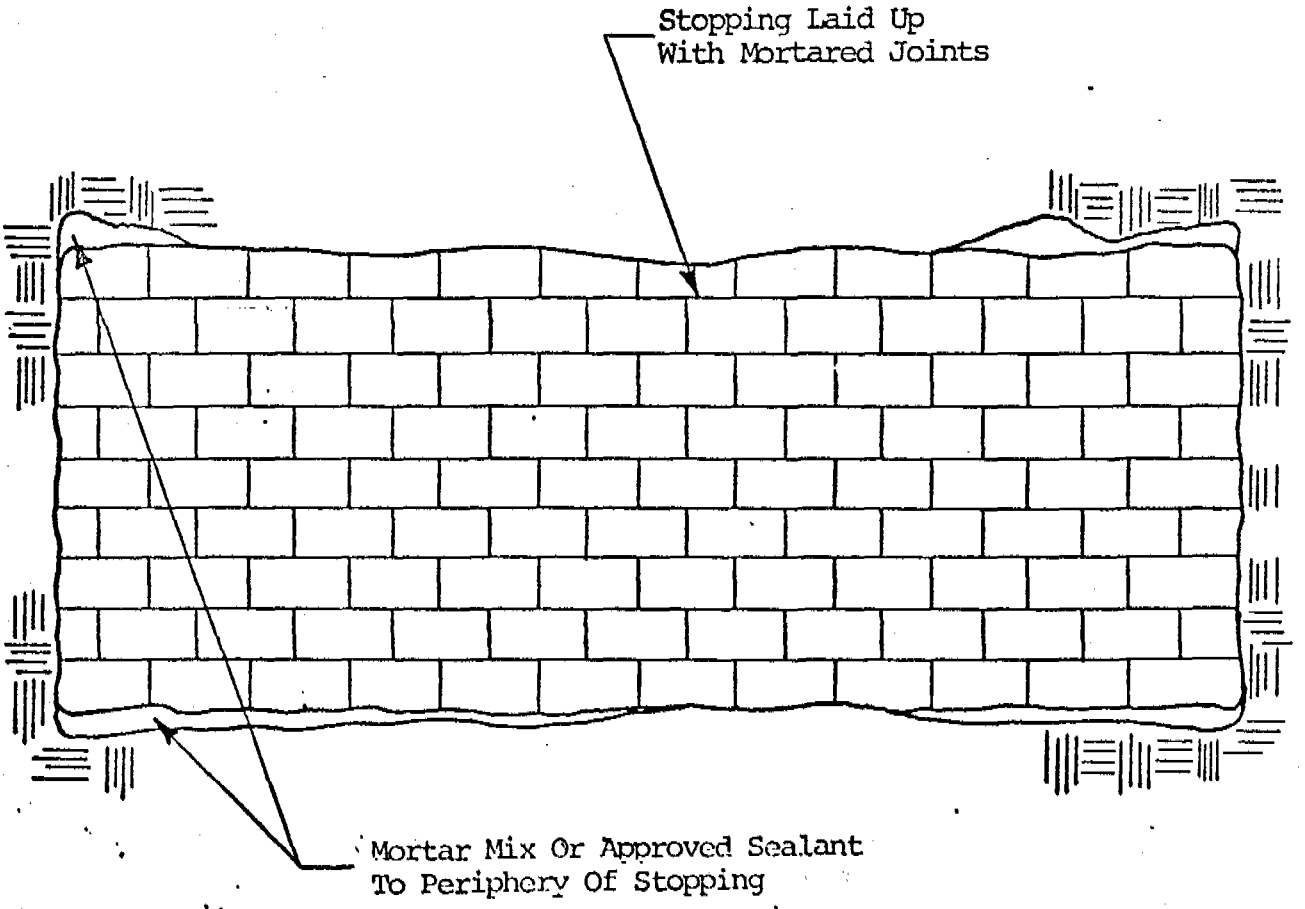
PROPOSED METAL STOPPING



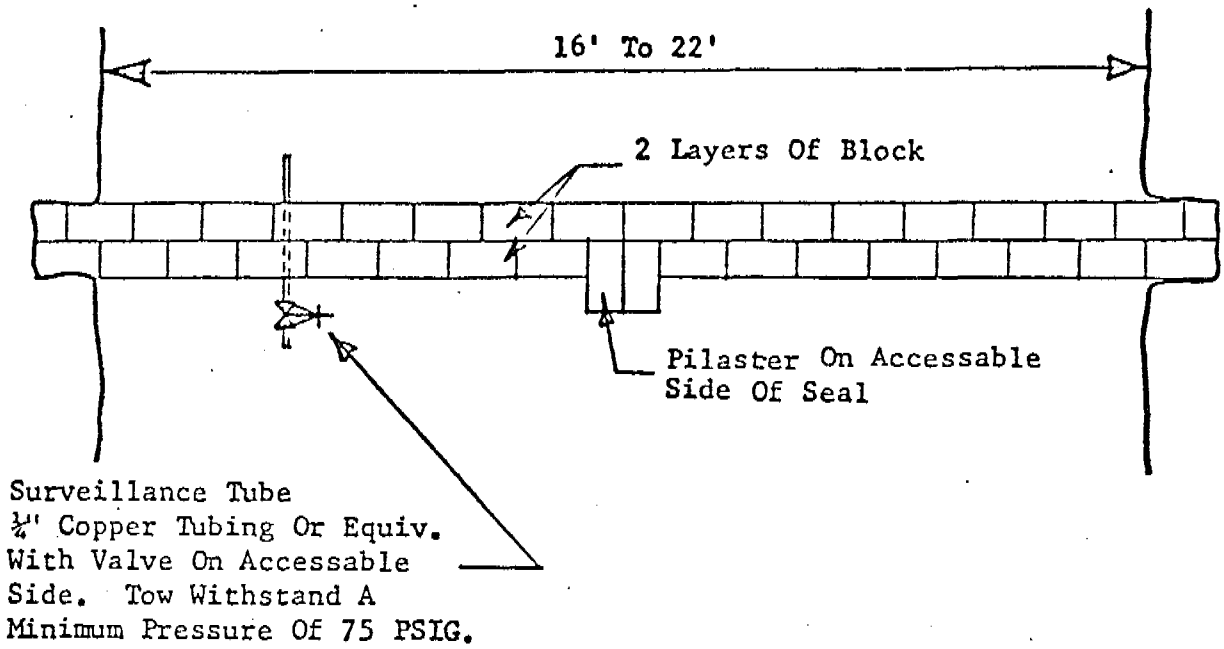


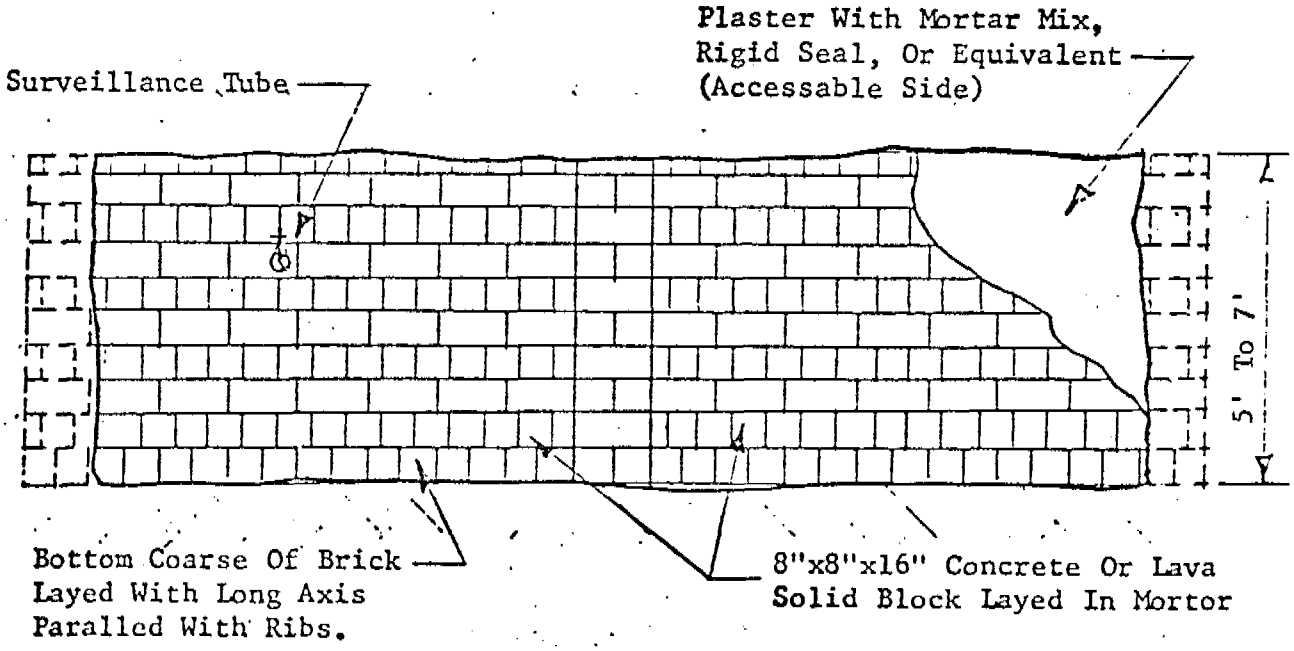
PROPOSED STOPPING





BRAZTAH PROPOSED SEAL
Scale ¼" = 1' - 0"





NOTE: (A) Provide Drain Pipe For Water When Necessary.
(B) Seal Tied Into Solid Rib.
(C) Surveillance Tube To Be Installed In Highest Seal Only Of Particular Section Being Sealed.
(D) Alternating Courses To Be Laid Staggered And Transverse To The Preceding Course.

BRAZTAH CORPORATION

P.O. BOX 599 - 801-472-5872 OFFICE
HELPER, UTAH 84526

December 22, 1975

Mr. John Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

RE: #4 MINE I.D. - 42-01198
#5 MINE I.D. - 42-01202

Dear Mr. Barton:

Please find enclosed for the six (6) months review, a Combined Roof Control Plan for BRAZTAH #4 and #5 Mines. Within the next six (6) months, the two mines will be joined together.

Both mines have identical Roof Control Plans. Combining the two plans would simplify the plan as submitted.

Respectfully submitted,

BRAZTAH CORPORATION

Duane Wise

Duane Wise
Mine Engineer

DW:vm

Enclosure

cc: B. Haynes
B. Harvey
R. Christensen
R. Olsen
C. Wheeler
P. Butler
J. Freeman (MESA, Price)

Appendix A
Exhibit 26

	Manuf's Designa:
Manufacturer: CF&I Steel Corporation	R-1
Mikco Industries Of Utah,	N.A.
Armco Steel Corporation,	CP-2103-8 Det CP-519-8 Det 6
Bethlehem Steel or equiv. (mech. or resin)	N.A.

Minimum Length: 36" Steel, 48" Resin

Diameter: 3/4" Rebar (Resin) or 5/8" (Threaded)

Type Steel: 3/4" Rebar (Resin) 5/8" High Strength Type Tread: Cut or Rolled

Length Of Thread: 4" Cut or Roll R20 Min.

Type Head: Hex Or Square (Standard)

Dimensions Of Bolt Head: Nut: 1-1/8" Flange: 1-3/4"

I. Bearing Plates

	Manuf's Designa:
Manufacturer: Mikco Industries Of Utah	N.A.
CF&I Steel Corporation	R-22
Or any equivalent Approved Plate	

Dimensions: 6" x 6" x 1/4" - Embossed - Double Embossed or Flat
18" x 6" x 1/4" - Embossed Header Plates

Shape: Square Center Hole Size: 7/8" Nominal For Conventional Bolts
1" Nominal For Resin Bolts

J. Washers

	Manuf's Designa:
Manufacturer: Kaiser Steel Corporation	N.A.

Type Steel: Hardened Size: 2" O.D.

Shape: Round Hole Size: 13/16"
(Donut embossed, Bell embossed, Flat)

K. Anchorage Unit

	Manuf's Designa:
Manufactuer: Ohio Brass	22378
Pattin "D"	D-1
Bethlehem; any equiv. approved shell	C-1 or K-1
DuPont Faslock (9" x 2')	
Resin Cartridge (9" x 3')	
The Celtite Cartridge	

Type: Expansion - Resin Size Of Finished Hole: 1-3/8" (Mech.), 1" (Resin)

Method Of Drilling: Pneumatic or Rotary Dust Control: Water or Vacuum

Installed Torque: 3/4" = 150 to 250 ft. lbs. 5/8" = 150 to 240 ft. lbs.
W.H. W. 3/4" = 125 to 170 ft. lbs. W.H.W. 5/8" = 125 to 165 ft/

L. Materials Used In Conjunction With Roof Bolts

Airplane landing mats or wide steel sheets 16 gauge minimum. 1' x 1'x 3/8"-

Flat Steel Bearing Plate - Mfg. Mikco Industries, 10"x18"x2" Cotton Wood

Blocks -- Only where required.

ROOF-CONTROL PLAN

General Information

Date: December 22, 1975 Mine ID No.: #4 Mine - #42-001198 #5 Mine - #42-01202

A. Company: BRAZTAH CORPORATION

Address: Helper (City) Utah (State) 84526 (Zip Code)

B. Mine: BRAZTAH #4 & #5 Mines

Mine Location:

Helper (City) Carbon (County) Utah (State) 84526 (Zip Code)

C. Locations (Reference to nearest highway route, direction, and distance)

#4 Mine (Four Miles Northwest of US 50&6 from Helper, Utah)

#5 Mine (Seven Miles Northwest of US 50&6 from Helper, Utah)

D. Type(s) of Plan: Conventional Roof Control with spot bolting or full roof bolting and full resin bolting.

E. Area(s) of Mine Covered By the Plan: Entry, rooms, crosscuts and intersections.

F. Maximum Cover (feet): 1,400 feet

Main Roof.	Siltstone with Sandstone Streaks	100 ft.
Immediate Roof . . .	Sandstone	3 ft.
Coalbed.	Coal (D Seam)	5 - 6 ft.
Bottom	Siltstone and Sandstone	12 ft.

G. [signature] General Manager of Mines

Company Or Mine Official Validating Plan Title

Roof-Control Investigator(s):

Approved By: Date:

Title:

M. Face Equipment And Section Haulage Equipment Associated With Each:

1. Lee-Norse Continuous Miners
2. Joy 10 S.C. Shuttle Cars
3. Air - Stoper - Percussion - Fletcher Rotary - Percussion
4. Lee-Norse Roof Bolter Rotary - Percussion
5.
6.

N. Sequence Of Mining And Installation Of Supports Including Temporary Supports:

Plan drawing showing sequence of mining including pillar mining where applicable, sequence of installation and spacing of supports including temporary supports and maximum width of entries, rooms, intersections, crosscuts, and pillar lifts are attached.

Entry Width: 19' - 22'

Entry Centers: 105' max.

Crosscut Width: 19' - 22'

Crosscut Centers: 105' max.

Room Width: 19' - 22'

Room Centers: 150' max.

Room Crosscut Width: 19' - 22'

Room Crosscut Centers: 150' max.

Slope Width (Anthracite):

Gangway Width (Anthracite):

O. Roof-Support Materials - Conventional Or Temporary And Supplemental

Length Of Post: As required

Diameter Of Post: 1 inch for each 15 inches in length but not less than 4 inches - Split posts shall have a cross-section area equal to that required for round posts of equivalent length.

Type Of Post: Round or split of solid straight grain wood with the ends sawed square and free from defects which would affect their strength.

Cap Blocks, Size and Shape: 2 x 4 x 12 inches (Min.)

Wedges, Size and Shape: 1 x 5 x 6 inches - tapered

Crossbars, Type: Straight grain solid wood

Crossbars, Size: A minimum of 3 inches by 8 inches of varying length.

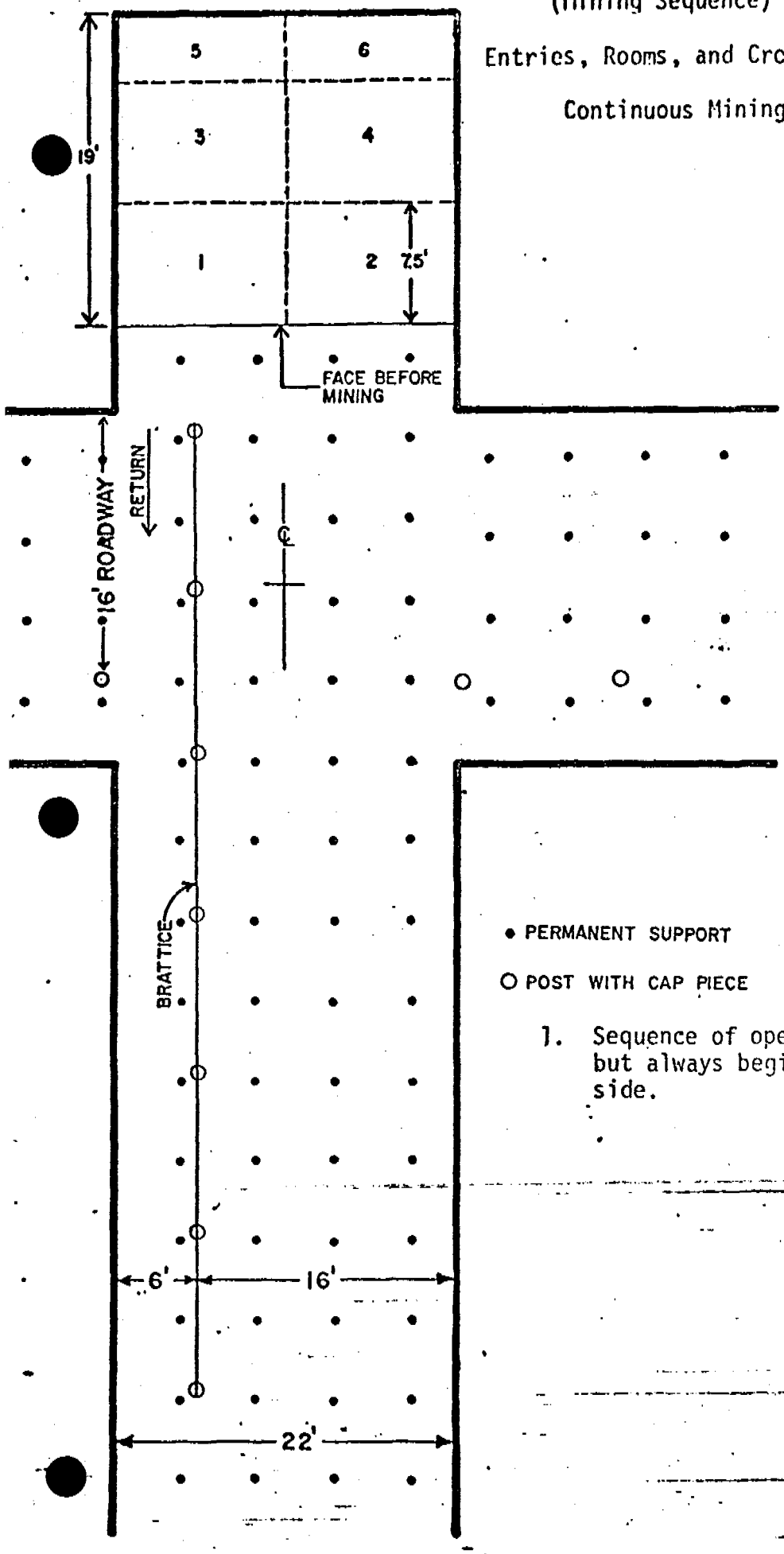
Planks, Size: A minimum of 1 inch by 8 inches of varying length.

Cribbing Blocks, Size: A minimum of 30 inches in length of verying cross section.

(Mining Sequence)

Entries, Rooms, and Crosscuts

Continuous Mining

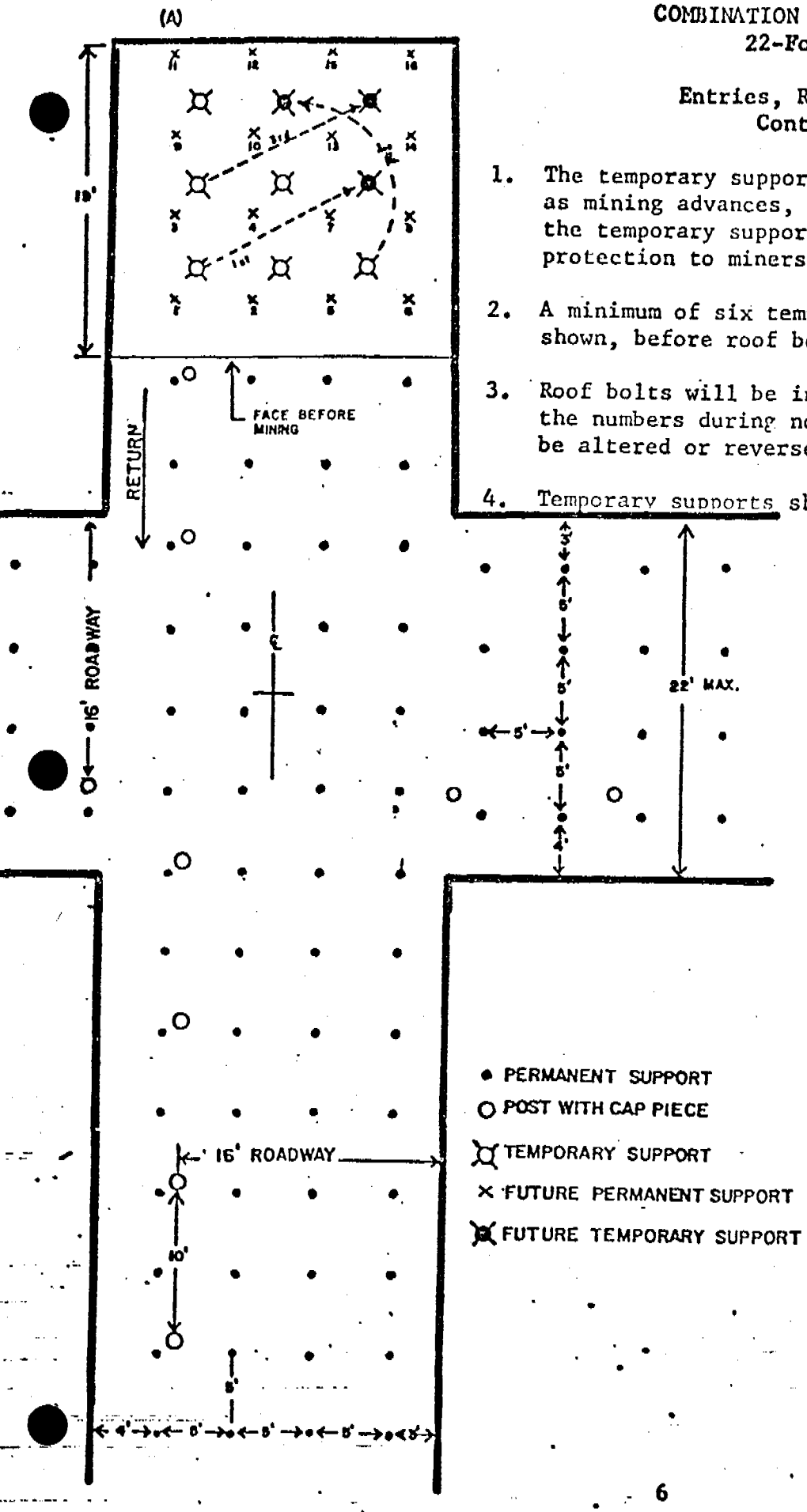


• PERMANENT SUPPORT

O POST WITH CAP PIECE

1. Sequence of operations may be altered or reversed, but always beginning the first lift on the brattice side.

Scale: 1" - 10'



COMBINATION PLAN DRAWING #2
22-Foot Wide

Entries, Rooms, and Crosscuts
Continuous Mining

1. The temporary supports in row (A) shall be installed as mining advances, and after completion of the cut the temporary support shall be installed to provide protection to miners making required tests.

2. A minimum of six temporary supports shall be set as shown, before roof bolting begins.

3. Roof bolts will be installed in the sequence shown by the numbers during normal operations, however, it may be altered or reversed if conditons warrant.

4. Temporary supports shall be installed on 5' centers.

5. Persons exposed to danger from falls of roof, face and rib shall examine the roof, face, and rib before starting a machine and frequently thereaft

6. When necessary during the instal ation of roof bolts, a temporary support may be moved no more tha 2' from the hole to be drilled, to facilitate installation of th final support.

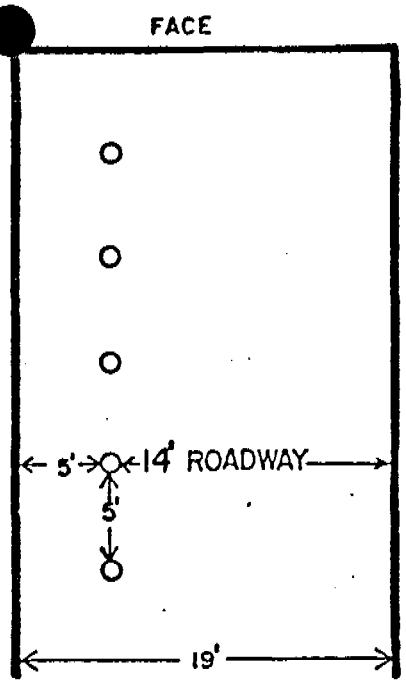
7. All dimensions shown are maximum Whenever sloughage occurs to the extent that these dimensions are exceeded, additional support sha be installed to maintain all dimensions within the indicated maximum. Except for entry width

Scale: 1" = 10'

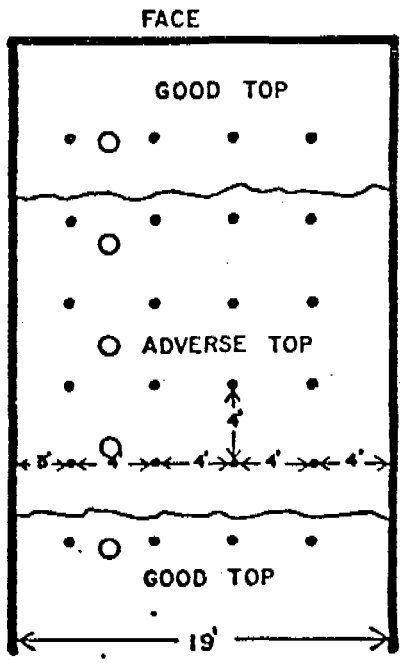
DRAWING #5

Conventional Roof Control Plan

REHABILITATION OF OLD WORKINGS ONLY



O POST WITH CAP PIECE



Spot Roof Bolt Plan (19 foot wide entry)

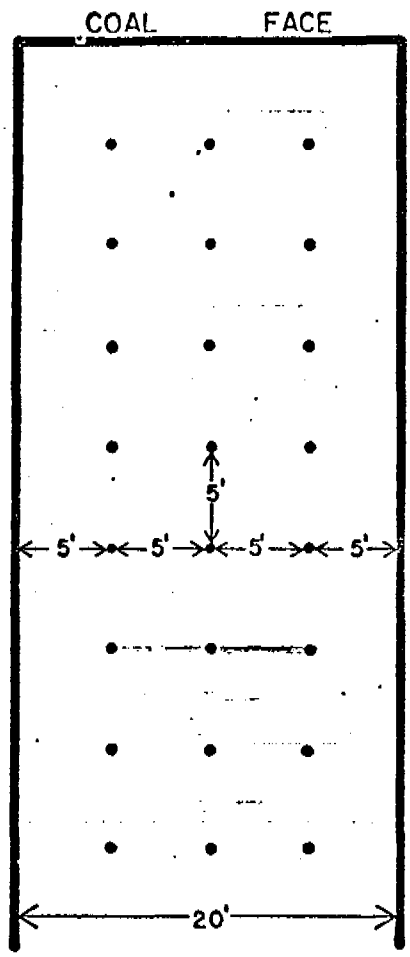
At least two temporary supports on 5' centers shall be installed before roof-bolts are installed at spot location.

The six temporary supports shown on drawing #2 will apply where spot roof bolting is conducted.

• ROOF BOLT

O POST WITH CAP PIECE

Scale: 1" = 10'



BOLT SPACE

5' maximum from uncut face
5' maximum from rib
5' maximum either lengthwise or crosswise

The six temporary supports shown on Drawing #2, Page 6, will apply where full roof bolting is conducted. Additional supports will be installed along the ribs if sluffage occurs.

• ROOF BOLT

Scale: 1" - 10'

Spot Bolting Safety Precautions To Be Taken

1. Spot roof bolting shall be used only as a supplement to the approved roof control plan.

2. Roof bolts (spot bolting) shall be installed in accordance with roof conditions, but in no case shall spacing exceed 5 feet lengthwise and crosswise.

3. Where spot bolts are installed, roof bolting shall begin under safe roof and continue for the length of the adverse roof condition until safe roof is again encountered.

4. All components of the roof bolt assembly shall comply with The American National Standards Institute "Specifications for Roof Bolting Material in Coal Mines."

5. When wooden material such as planks, header blocks, or crossbars are used between the bearing plate and the roof for additional bearing, the use shall be limited to short-life openings (not to exceed 3 years) unless treated. Bearing plates used in conjunction with wooden materials shall be not less than 4 inches square or of equivalent area.

6. Finishing bits shall be easily identifiable by sight or feel and the diameter shall be within a tolerance of plus 0 030 inch minus zero of the manufacturer's recommended hole diameter for the anchor used.

7. An approved calibrated torque wrench that will indicate the actual torque on the roof bolts by a direct reading shall be provided on each roof bolting machine or in the place where bolts are being installed.

8. Immediately after each area has been spot bolted at least one roof bolt out of every four shall be tested by a qualified person. If at least one-half of the bolts tested do not fall within the indicated torque range, the remaining bolts shall be tested. If the majority of the bolts tested still fall outside the indicated range, necessary adjustments in the equipment used for tightening the bolts shall be made immediately. If, after these adjustments are made, the indicated torques are still not obtained, supplementary support such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars shall be installed.

9. When roof bolts (spot bolting) are installed inby the outby corner of the last open crosscut, spot-check on torques shall be made on a daily basis on at least one roof bolt out of every 10 from the outby corner of the last open crosscut to the face. The results of these tests shall be recorded in the onshift examination book. The record shall show the number of bolts tested and the number above and below the indicated range. If the results show that the majority of the bolts are not maintaining at least 105 foot-pounds of torque or have loaded up to where they exceed 375 foot-pounds of torque, supplementary support such as additional roof bolts with adequate enchorage, posts, cribs, or crossbars shall be installed.

10. At least two temporary supports on not more than 5-foot centers shall be installed before roof bolts are installed at spot locations.

11. The following items are to be incorporated into the plan, either on a sketch or in the sheet listing the materials to be used:

a. Bearing plates used directly against the mine roof shall be not less than 6 inches square or of equivalent area. In exceptional cases where the mine roof is firm and not susceptible to sloughing, bearing plates 5 inches square or of equivalent area may be used.

b. Roof bolts shall be installed as close as possible to, but not more, than 5 feet from the rib before a sidecut is started.

c. Roof bolts shall be installed as close as possible to, but not more, than 5 feet from the face before starting conventional cutting or a continuous miner run, except where the bolter is an integral part of the mining machine.

d. Devices shall be used to compensate for the angle when roof bolts are installed at angles greater than 5° from the perpendicular to the roof line.

All unintentional roof falls defined in Title 30, CFR Part 80 shall be investigated and the results of the investigation recorded in a book provided for that purpose. Such falls shall also be shown on a map of the mine.

CONVENTIONAL SAFETY PRECAUTIONS

1. This is the minimum roof-control plan and was formulated for the roof conditions and mining system(s) described. In areas where doubtful roof conditions are encountered, indicated, or anticipated, the plan shall be supplemented with either longer and/or additional roof bolts, posts, or crossbars. If changes are made in the mining system, the plan shall be revised accordingly.

2. All personnel required to install roof supports shall be trained by a qualified supervisor designated by mine management before being made solely responsible for such work. This training shall insure that such persons are familiar with the functions of the support being used, proper installation procedures, and the approved roof-control plan.

3. Only those persons engaged in installing temporary supports shall be allowed to proceed beyond permanent supports until such temporary supports are installed, and such persons shall examine the roof visually and by the sound and vibration method before proceeding to install temporary supports.

4. Where it is necessary to extend line curtains and other ventilating devices inby the permanent supports, a minimum of two temporary supports on not more than five-foot centers shall be installed. This minimum is applicable only if they are within five feet of the face or rib and the work is done between such supports and the nearest face or rib. Other methods of providing temporary supports for this work will be accepted if they provide equivalent protection.

5. Where loose material is being taken down, a minimum of two temporary supports on not more than five-foot centers should be installed between the workmen and the material being taken down, unless such work can be done from an area supported by permanent roof supports installed in sound roof.

6. All metal jacks shall be installed with a cap block between the jack and the roof, unless an oversize bearing plate is provided.

7. The roof in the face of an entry or room shall be supported according to the approved plan before any sidecuts are started.

8. All posts installed under roof that is disturbed or susceptible to sloughing shall have a wooden cap block, plank, or crossbar between them and the roof. Where crossbars or planks are installed they shall be blocked to equally distribute the load across their length.

9. All posts shall be installed on tight footing and not more than two wooden wedges shall be used to install a post.

10. Posts shall be of solid, straight grain wood with the ends sawed square and free from defects which would affect their strength.

11. The diameter of round posts shall be at least one inch for each 15 inches of length, but in no case less than 4 inches. Split posts should have a cross-sectional area equal to that required for round posts of equivalent length

12. Wooden cap blocks and footers shall have flat parallel sides and be not less than 2 inches thick, 4 inches wide, and 12 inches long.

13. An additional supply of supplementary roof support material shall be provided at the dumping point or within 500 feet of the faces, whichever is closer. Such supplementary support shall consist of at least 20 posts with sufficient cap pieces and wedges and a minimum of two crossbars for each active place or at least six per section.

14. A bar of a length suitable for prying down loose material shall be provided on all mobile face equipment, except haulage equipment.

15. A suitable roof sounding device shall be provided with all mobile face equipment, except haulage equipment. If face workmen who are not operators or helpers on such equipment do not carry a roof sounding device, such device shall be available within 50 feet of their working area.

16. When an opening is no longer needed for storing of supplies or for travel of equipment, the roof at the entrance of all such openings along travelways shall be supported by extending the post line across the opening.

17. The roof where falls have occurred shall be considered unsupported, and if persons are required to enter such areas, either to travel over the fall or clean it up, the roof shall be supported. Where falls or blasted roof materials are cleaned up, management shall devise and have in writing at the scene of the fall a plan incorporating the following procedures:

a. Such work shall be under the direct and, unless the workmen are specially trained to do such work, constant supervision of a company official.

b. Adequate temporary support on not more than 5-foot centers shall be set at the edge of the fall where work is to be started. A minimum of four posts or jacks shall be used.

c. Temporary support mentioned above shall be replaced by permanent supports (roof bolts and/or posts) and advanced as cleanup work progresses.

d. Bolting or timbering shall proceed from permanently supported roof to the temporary supports before other work is performed and roof supports shall be advanced as the cleanup work progresses.

e. Where necessary to load material before support can be set, such loading shall be done from areas of permanent support, with the operator and other persons in the area under supported roof at all times.

f. Where feasible, permanent supports shall be placed in the entire fall area before loading starts.

All unintentional roof falls defined in Title 30, CFR Part 80 shall be investigated and the results of the investigation recorded in a book provided for that purpose. Such falls shall also be shown on a map of the mine.

SAFETY PRECAUTIONS FOR RESIN GROUTED RODS

1. The use of resin grouted rods as a sole means of roof support is subject to review at any time, but not more than 6 months from the effective date of this plan or upon the failure of the roof in an area using such rods, whichever date is first.

2. Persons responsible for installation of resins shall be instructed in safe handling precautions for such materials.

3. The relationship between the hole dimensions, rod size, and the size and number of resin cartridges is critical; therefore, adequate training and supervision shall be provided to assure proper installation.

4. All safety precautions required in the regular roof control plan shall apply except #14, and #15 . (The torque checks specified for conventional roof bolts do not apply).

5. Resin grouted rods shall be installed as soon as possible (to be determined on a mine-to-mine basis--normally not more than 8 hours) after the working place is exposed. Where required, temporary supports shall be installed immediately after the loading cycle is completed unless roof bolting machines are equipped with acceptable automated supports.

6. Resin grouted rods and conventional roof bolts shall not be intermixed unless they are either used as supplementary support or a systematic plan has been approved by the District Manager for combining the two roof support systems.

7. Drill steel shall be equivalent in length to the rods used or adequately marked to assure the proper hole depth. Each drill hole shall be filled the entire length with resin.

8. (a) All resin grouted rods shall be used with bearing plates approved for use at the mine.

   (b) Bearing plates shall be installed tight against the mine roof.

9. (a) The resin shall not be used if manufacturer's recommended shelf life is exceeded, unless approval to use the resin is obtained from the manufacturer.

   (b) Resin packages shall be protected from excessive heat and cold during storage, and shall not be used in areas where the ambient temperature falls outside the range recommended by the manufacturer.

   (c) Broken cartridges of resin or cartridges that show signs of deterioration shall be removed from the underground portion of the mine at the end of each calendar year.

   (d) Resin grouted rods shall be installed in accordance with the manufacturer's recommendations.

10. For test purposes the first resin grouted rod installed in each cycle in each working place, after a minimum curing time of 10 minutes, shall be

checked with a torque wrench after installing the first line of permanent support and prior to removing any temporary supports. The torque applied shall be 150 foot-pounds. Should the rod rotate one full turn, 360 degrees in the hole, a second rod shall be tested in the same manner. If this rod also turns, resin installation shall be disconnected until reasons for failure of the resin is determined. (A click type torque wrench is recommended for this test).

Safety Precautions for Full Bolting and Combination Plans

1. This is the minimum roof-control plan and was formulated for normal roof conditions and the mining system(s) described. In active working areas where subnormal roof conditions are encountered, indicated or anticipated, the plan shall be supplemented with either longer and/or additional roof bolts, posts, or crossbars. If changes are to be made in the mining system, the plan shall be revised accordingly.

2. All personnel required to install roof supports shall be trained by a qualified supervisor designated by mine management before being made solely responsible for such work. This training shall insure that such persons are familiar with the functions of the support being used, proper installation procedures, and the approved roof-control plan.

3. All components of the roof bolt assembly shall comply with the American National Standards Institute "Specifications for Roof Bolting Material in Coal Mines."

4. Finishing bits shall be easily identifiable by sight or feel and the diameter shall be within a tolerance of plus 0.030-inch minus zero of the manufacturer's recommended hole diameter for the anchor used.

5. Bearing plates used in conjunction with wooden materials shall be not less than 4 inches square or of equivalent area.

6. When testing roof or installing supports in the face area, the workman shall be within 5 feet (less if indicated on sketch) of a temporary or permanent support.

7. Where it is necessary to perform any work beyond supported roof, such as to extend line curtains, temporary supports shall be installed. This minimum is applicable only if they are within 5 feet of the face or rib and the work is done between such supports and the nearest face or rib. Other methods of providing temporary supports for this work will be accepted if equivalent protection is provided.

8. Where rebolting work is being done or crossbars are being installed, temporary supports on not more than 5-foot centers shall be installed across the place so that the work in progress is done between the installed temporary supports and permanent supports installed in sound roof. The distance between the permanent supports and the nearest temporary supports shall not exceed 5 feet.

9. Where substantial loose material is being taken down, a minimum of two temporary supports on not more than 5-foot centers shall be installed between the workmen and the material being taken down unless such work can be done from an area supported adequately by permanent roof supports.

10. All metal jacks shall be installed with a cap block between the jack and the roof unless an oversize bearing plate is provided (Not less than 36 square inches).

11. Roof bolts shall be installed in the sequence shown in Plan Drawing #2, page #6.

12. During each production day at least one roof-bolt hole in each active working place shall be drilled to a depth of at least 12 inches above the anchorage horizon of the bolts being used to determine the nature of the strata.

13. The roof in the face of a working place shall be supported according to the approved plan before any sidecuts are started.

14. An approved calibrated torque wrench that will indicate the actual torque on the roof bolts by a direct reading shall be provided on each roof bolting machine.

15. The torque on the first and one out of every four roof bolts installed thereafter at any location shall be checked by a qualified person. Such tests shall be made after each bolt to be tested is installed, and if the torque on any bolt tested is not within the approved torque range, the reason shall be determined and necessary corrections made immediately. If the required torque cannot be obtained, supplementary supports such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars shall be installed.

16. On a daily basis, spot-check on torques shall be made on at least one roof-bolt out of every ten from the outby corner of the last open crosscut to the face. The results of these tests shall be recorded in the onshift examination book. The record shall show the number of bolts tested and the number above and below the required range. If the results show that the majority of the bolts are not maintaining at least 105 foot-pounds of torque or have loaded up to where they exceed 375 foot-pounds of torque, 305 W.H.W. supplementary support such as additional roof bolts, longer roof bolts with adequate anchorage, posts, cribs, or crossbars shall be installed. When

wood is used between bearing plate and roof, a 50 percent bleed off from minimum torque will be permitted.

17. Posts installed under roof that is disturbed or susceptible to sloughing shall have a wooden cap block, plank, or crossbar between them and the roof. Where crossbars or planks are installed they shall be blocked to equally distribute the load across their length.

18. Posts shall be installed tight on solid footing and at least one but not more than two wooden wedges shall be used to install a post.

19. Posts shall be of solid, straight grain wood with the ends sawed square and free from defects which would affect their strength.

20. The diameter of round posts shall be at least one inch for each 15 inches of length, but in no case less than 4 inches. Split posts shall have a cross-sectional area equal to that required for round posts of equivalent length.

21. Wooden cap blocks and footers shall have flat parallel sides and be not less than two inches thick, four inches wide and 12 inches long.

22. A supply of suitable roof support material including temporary supports sufficient to support the roof during one complete cycle of mining shall be provided as close as practicable to each working face.

23. An additional supply of supplementary roof support material consisting of 20 roof bolts, at least 12 inches longer than the bolt length being used, and a minimum of 20 posts of proper length with sufficient cap pieces and wedges, shall be provided near the dumping point or within a reasonable distance of the faces. Tools and equipment necessary to install such support shall also be available within this distance.

24. A bar of a length suitable for prying down loose material shall be provided on all mobile face equipment, except haulage equipment.

25. A suitable roof sounding device shall be provided with all mobile face equipment, except haulage equipment. If face workmen who are not operators or helpers on such equipment do not carry a roof sounding device, such device shall be available within 50 feet of their working area.

26. The roof where falls have occurred shall be considered unsupported, and if persons are required to enter such areas, either to travel over the fall or clean it up, the roof shall be supported. Where falls or blasted roof materials are cleaned up, management shall have a plan incorporating the following procedures:

a. Such work shall be under the direct, and unless the workmen

are specially trained to do such work, constant supervision of a company official.

b. Adequate temporary support on not more than 5-foot centers shall be set at the edge of the fall where work is to be started. A minimum of four posts or jacks shall be used.

c. Temporary support mentioned above shall be replaced by permanent supports (roof bolts and/or posts) and advanced as cleanup work progresses.

d. Bolting or timbering shall proceed from permanently supported roof to the temporary supports before other work is performed and roof supports shall be advanced as the cleanup work progresses.

e. Where necessary to load material before support can be set, such loading shall be done from areas of permanent support with the operator and other persons in the area under supported roof at all times.

f. Where feasible, permanent supports shall be placed in the entire fall area before loading starts.

BRAZTAH CORPORATION

P.O. BOX 599 - 801 - 472-~~5672~~ 3411 OFFICE

HELPER, UTAH 84526

December 2, 1975

Mr. John W. Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

BRAZTAH #4 MINE
I.D. NO. 42-01198
VENTILATION PLAN

Dear Mr. Barton:

Enclosed for your approval is a "Ventilation System, Methane and Dust Control Plan" for the six (6) month review period ending October 1, 1975, as required under Section 75.316 of the Code Of Federal Regulations - 30 Mineral Resources.

Respectfully submitted,

BRAZTAH CORPORATION

Duane Wise

Duane Wise
Mine Engineer

DW:vm

Enclosure

cc: B. Harvey
B. Haynes
R. Christensen
T. Skriner
R. Olsen
P. Butler

Appendix A
Exhibit 26

General

The following information shall be submitted to the District Manager:

1. Company name: BRAZTAH CORPORATION

   Mine name: BRAZTAH #4 MINE

   Post Office address: P.O. Box 506

   (Town, County, State): Helper, Carbon Utah

   Telephone number: (801) 472-5572

   Identification No.: 42-01198

   Operator's name: William Haynes

   Operator's title: Executive Vice-President

   Operator's address: P.O. Box 506 Helper, UT

   Operator's telephone number: (801) 472-3411

2. Indicate if life of mine is

   [ ] less than one year

   [X] greater than one year

3. Number of employees:

Surface	3
Underground	51
Total	54

Main Fan Installations (Existing and Future)

Main Fans will be:

1. Installed on the surface in fireproof housings and connected to the mine opening with fire proof air ducts.

2. Equipped with a pressure recording gage and an automatic signal device designed to give alarm should the fan slow or stop.

3. Offset not less than 15' from nearest side of mine opening. Fans will be equipped with weak wall stoppings or explosion doors.

4. Powered with electric motors on an independent power source.

5. Flammable materials will not be stored within 100' of the fans.

Operation Of Main Fans

A. Main fans will operate continuously except:

(1) During scheduled maintenance or adjustments when all men other than those performing evaluation of adjustments are withdrawn from the mine and the mine power is cut off.

(2) During uncontrolled stoppage or fan failure.

(3) During other stoppages, when written permission is obtained from an authorized representative of the secretary.

B. Management personnel will be contacted and appropriate action taken in event of mechanical or electrical failures to the fans.

C. Neutral areas will not be permitted by improper air flow.

Methane And Dust Control Plan

1. The following is a description of dust control practices at:

   (A) Transfer Points: Clean and rock dust as needed.

   (B) Loading Points: Clean and rock dust.

   (C) Underground Crushers: Does not apply.

   (D) Underground Dumps: Does not apply.

   (E) Along Belt Haulage Systems: Areas are cleaned and rock dusted as needed.

   (F) Face Areas: Rock dust is applied and maintained to within 40 ft. of the faces.

   Number And Type Of Water Sprays:

   Miner : 28 full cone type water sprays.
   Water Pressure: A static water pressure of 50 P.S.I.
   Quantity During Operation: 22 G.P.M. 200 P.S.I. on miner.
   Roof Bolter: Dust suppression by water through the drill steel or through vacuum.
   Face Drills: (Stopers) dust suppression by water through the drill steel.

   (G) Along Shuttle Car Runways: Cleaned, and rock dusted as needed.

   (H) Longwall Face: By ventilation and water sprays.

2. The water sprays indicated for dust suppression as discussed above, will be maintained and operated at the indicated volume and water pressure during mining operations.

3. Bleeder entries, bleeder systems, or equivalent means will be used in all active pillaring areas to ventilate the mined areas from which the pillars have been wholly or partially extracted.

   Bleeder entries will be connected to areas from which pillars will be wholly or partially extracted at strategic locations to control airflow through gob areas, to induce drainage of gob gas and to minimize the hazard from expansion of gob gases due to atmospheric pressure change.

   Bleeder systems will include any combination of bleeder entries, bleeder entry connections to any area from which pillars are wholly or partially extracted and all associated ventilation control devices.

   When the mine operator deems that safe examination can be made, such examination will be made at least once each week by a certified person and the results of such examination shall be recorded in a book.

   When bleeder entry travel is considered unsafe, representative locations will be established and examinations at these locations will be made at least once each week by a certified person or persons and the results shall be recorded.

Ventilation pressure differential between the active pillar line and the junction of any bleeder connection to the bleeder entries of such system will be adequate to insure gob gas drainage to the bleeder entries. The pressure differential shall be considered adequate when perceptible air-flow exists in all open or regulated bleeder connections, as determined with chemical smoke or other approved means.

4. The methane content in any return aircourse other than an aircourse returning the split of air from a working section (as provided in 75.309 and 75.310) shall not exceed 2.0 volume per centum.

5. Methane examination will be considered adequate without exposing the examiner beyond permanent or temporary support.

6. Seals - A detailed drawing of a Proposed Seal has been submitted and approved. See attached sketch.

7. Ventilation of pillared or abandoned areas. No new abandoned areas under consideration at this time.

Section And Face Ventilation System

1. The complete Section and Face Ventilation System is shown on the attached sketches.

   The mining cycle at the face is shown on Drawing #1 (mining sequence).

   Line brattice or tubing will be installed at a distance no greater than 15 ft. from the area of deepest pentration to which any portion of the face has been advanced in working faces from which coal is being cut, mined or loaded. Necessary line brattice will be maintained in idle places of active sections to insure adequate ventilation of face area.

2. The minimum quantity of air reaching the last open crosscut in any pair or set of developing entries and the last open crosscut in any pair of set of rooms will be 9,000 C.F.M., and the minimum quantity of air reaching the intake end of a pillar line will be 9,000 C.F.M. A minimum mean entry face velocity of 60 ft./min. will be maintained at all working faces where coal is being cut, mined or loaded.

3. Where Belt Haulage Systems are used, the ventilating controls are shown on the face prints and the Mine Ventilation Map.

4. Ventilating controls are shown on the maps and prints to insure no air reversal on pillaring or developing sections.

5. Coal will not be permitted to accumulate at the outby end of the face equipment to the extend that ventilation of the working face is restricted.

Permanent Stoppings

1. All ventilating devices such as stoppings, overcasts, undercasts, and shaft partitions shall be of substantial and incombustible construction installed in a workmanlike manner and maintained in a condition to serve the purpose for which they were intended, and any stopping leaking air excessively shall be repaired immediately. If required, an approved sealant will be applied.

2. Permanent stoppings will be erected between the intake and return aircourses and will be erected to the third connecting crosscut outby the faces of the entries. Permanent stoppings shall be used to separate belt entries from intake and return entries and also to separate the intake escapeway from belt and trolley haulage and return entries.

   Immediately following belt moves, temporary belt separation stoppings will be used while permanent stoppings are being constructed.

3. Metal stoppings supported with approved fire retardent treated wood may be used in short lived entries such as panels, rooms, or butts as belt or intake escapeway separation stoppings. Kennedy Stoppings and the Kaiser Alum Pre-Fab Overcast was approved by Mr. John W. Barton on August 5, 1975 for use in Carbon Fuel #3 Mine.

   Timbers laid longitudinally "skin to skin", and packed with rock dust may be used in heavy or squeezing areas if the timbers are treated with an approved fire retardant.

4. A complete list of all materials used in the construction of all stoppings:
   (A) Permanent Stoppings:
      1. Block Stopping (6" x 8" x 16") Cinder Blocks Mortal Mix.
      2. The stoppings are laid up on clean substantial bottom, tied into the ribs with staggered courses, with mortared joints. The periphery of the stopping is plastered with a mortar mix to make it air tight.
   (B) Belt Separation Stoppings: Are Kennedy Stoppings (or Cinder Blocks Min. Size 4" x 6" x 16").
      1. See attached sketch for construction details of the Kennedy Stopping.

   (C) Permanent Stoppings: will be used.
      1. Main North Mains - Estimated Life - 25 yrs.
         Intended Use - Belt separation, return airways, intake airways.
      2. First West - Estimated Life - 5 yrs.
         Intended Use - Belt separation, return airways, and bleeder return.
      3. Longwall Panels - Estimated Life - 2 yrs.
         Intended Use - Belt separation, return airways, and escapeways.
      4. Room and Pillar Sections - Estimated Life - 1 yr.
         Intended Use - Belt separation, return and intake airways, and escapeways.

Diesel Equipment

1. Although, presently we are not using diesel equipment, we intend to use diesel equipment that has MESA approval and meets the Permissibility Tests of Part 36 of The Federal Regulations.

2. The atmosphere in the operator's compartment will be sampled daily with the engine running; and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million of carbon monoxide, or both, corrective measures must be taken immediately.

3. The atmosphere returning from any working place where diesel-powered equipment is being used shall be tested at least once each hour while the equipment is in operation, and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million CO, or both, corrective measures shall be taken immediately.

4. The date, time of sampling, machine identification, and the analyses obtained should be recorded in a book maintained for this purpose.

Use Of Auxiliary Fans - Does not apply.

BRAZTAH CORPORATION

P.O. BOX 599 - 801-472-~~5572~~ 5411 OFFICE

HELPER, UTAH 84526

December 2, 1975

Mr. John W. Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

BRAZTAH #5 MINE
I.D. NO. 42-01202
VENTILATION PLAN

Dear Mr. Barton:

Enclosed for your approval is a "Ventilation System, Methane and Dust Control Plan" for the six (6) month review period ending October 1, 1975, as required under Section 75.316 of the Code Of Federal Regulations - 30 Mineral Resources.

Respectfully submitted,

BRAZTAH CORPORATION

Duane Wise

Duane Wise
Mine Engineer

DW:vm

Enclosure

cc: B. Harvey
B. Haynes
R. Christensen
T. Skriner
R. Olsen
P. Butler

Appendix A
Exhibit 27

General

The following information shall be submitted to the District Manager:

1. Company name: BRAZTAH CORPORATION

   Mine name: BRAZTAH #5 MINE

   Post Office address: P.O. Box 506

   (Town, County, State): Helper, Carbon Utah

   Telephone number: (801) 472-3411

   Identification No.: 42-01202

   Operator's name: William Haynes

   Operator's title: Executive Vice-President

   Operator's address: P.O. Box 506 Helper, UT

   Operator's telephone number: (801) 472-3411

2. Indicate if life of mine is

   [ ] less than one year

   [X] greater than one year

3. Number of employees:

Surface	1
Underground	41
Total	42

Main Fan Installations (Existing and Future)

Main Fans will be:

1. Installed on the surface in fireproof housings and connected to the mine opening with fire proof air ducts.

2. Equipped with a pressure recording gage and an automatic signal device designed to give alarm should the fan slow or stop.

3. Offset not less than 15' from nearest side of mine opening. Fans will be equipped with weak wall stoppings or explosion doors.

4. Powered with electric motors on an independent power source.

5. Flammable materials will not be stored within 100' of the fan.

Operation Of Main Fans

A. Main fans will operate continuously except:

(1) Durin; scheduled maintenance or adjustments when all men other than those performing evaluation of adjustments are withdrawn from the mine and the mine power is cut off.

(2) During uncontrolled stoppage or fan failure.

(3) During other stoppages, when written permission is obtained from an authorized representative of the secretary.

B. Management personnel will be contacted and appropriate action taken in event of mechanical or electrical failures to the fans.

C. Neutral areas will not be permitted by improper air flow.

Methane And Dust Control Plan

1. The following is a description of dust control practices at:

   (A) Transfer Points: Clean and rock dust as needed.

   (B) Loading Points: Clean and rock dust.

   (C) Underground Crushers: Does not apply.

   (D) Underground Dumps: Does not apply.

   (E) Along Belt Haulage Systems: Areas are cleaned and rock dusted as needed.

   (F) Face Areas: Rock dust is applied and maintained to within 40 ft. of the faces.

   Number And Type Of Water Sprays:

   Miner : 28 full cone type water sprays.
   Water Pressure: A static water pressure of 50 P.S.I.
   Quantity During Operation: 22 G.P.M. 200 P.S.I. on miner.
   Roof Bolter: Dust suppression by water through the drill steel or through vacuum.
   Face Drills: (Stopers) dust suppression by water through the drill steel.

   (G) Along Shuttle Car Runways: Cleaned, and rock dusted as needed.

   (H) Longwall Face: By ventilation and water sprays.

2. The water sprays indicated for dust suppression as discussed above, will be maintained and operated at the indicated volume and water pressure during mining operations.

3. Bleeder entries, bleeder systems, or equivalent means will be used in all active pillaring areas to ventilate the mined areas from which the pillars have been wholly or partially extracted.

   Bleeder entries will be connected to areas from which pillars will be wholly or partially extracted at strategic locations to control airflow through gob areas, to induce drainage of gob gas and to minimize the hazard from expansion of gob gases due to atmospheric pressure change.

   Bleeder systems will include any combination of bleeder entries, bleeder entry connections to any area from which pillars are wholly or partially extracted and all associated ventilation control devices.

   When the mine operator deems that safe examination can be made, such examination will be made at least once each week by a certified person and the results of such examination shall be recorded in a book.

   When bleeder entry travel is considered unsafe, representative locations will be established and examinations at these locations will be made at least once each week by a certified person or persons and the results shall be recorded.

Ventilation pressure differential between the active pillar line and the junction of any bleeder connection to the bleeder entries of such system will be adequate to insure gob gas drainage to the bleeder entries. The pressure differential shall be considered adequate when perceptible air-flow exists in all open or regulated bleeder connections, as determined with chemical smoke or other approved means.

4. The methane content in any return aircourse other than an aircourse returning the split of air from a working section (as provided in 75.309 and 75.310) shall not exceed 2.0 volume per centum.

5. Methane examination will be considered adequate without exposing the examiner beyond permanent or temporary support.

6. Seals - A detailed drawing of a Proposed Seal has been submitted and approved. See attached sketch.

7. Ventilation of pillared or abandoned areas. See mine map for areas being sealed.

Section And Face Ventilation System

1. The complete Section and Face Ventilation System is shown on the attached sketches.

   The mining cycle at the face is shown on Drawing #1 (mining sequence).

   Line brattice or tubing will be installed at a distance no greater than 15 ft. from the area of deepest pentration to which any portion of the face has been advanced in working faces from which coal is being cut, mined or loaded. Necessary line brattice will be maintained in idle places of active sections to insure adequate ventilation of face area.

2. The minimum quantity of air reaching the last open crosscut in any pair or set of developing entries and the last open crosscut in any pair of set of rooms will be 9,000 C.F.M., and the minimum quantity of air reaching the intake end of a pillar line will be 9,000 C.F.M. A minimum mean entry face velocity of 60 ft./min. will be maintained at all working faces where coal is being cut, mined or loaded.

3. Where Belt Haulage Systems are used, the ventilating controls are shown on the face prints and the Mine Ventilation Map.

4. Ventilating controls are shown on the maps and prints to insure no air reversal on pillaring or developing sections.

5. Coal will not be permitted to accumulate at the outby end of the face equipment to the extent that ventilation of the working face is restricted.

Permanent Stoppings

1. All ventilating devices such as stoppings, overcasts, undercasts, and shaft partitions shall be of substantial and incombustible construction installed in a workmanlike manner and maintained in a condition to serve the purpose for which they were intended, and any stopping leaking air excessively shall be repaired immediately. If required, an approved sealant will be applied.

2. Permanent stoppings will be erected between the intake and return aircourses and will be erected to the third connecting crosscut outby the faces of the entries. Permanent stoppings shall be used to separate belt entries from intake and return entries and also to separate the intake escapeway from belt and trolley haulage and return entries.

   Immediately following belt moves, temporary belt separation stoppings will be used while permanent stoppings are being constructed.

3. Metal stoppings supported with approved fire retardant treated wood may be used in short lived entries such as panels, rooms, or butts as belt or intake escapeway separation stoppings.

   Timbers laid longitudinally "skin to skin", and packed with rock dust may be used in heavy or squeezing areas if the timbers are treated with an approved fire retardant.

4. A complete list of all materials used in the construction of all stoppings:
   (A) Permanent Stoppings:
      1. Block Stopping (6" x 8" x 16") Cinder Blocks Mortar Mix.
      2. The stoppings are laid up on clean substantial bottom, tied into the ribs with staggered courses, with mortared joints. The periphery of the stopping is plastered with a mortar mix to make it air tight.
   (B) Belt Separation Stoppings: Are Kennedy Stoppings (or Cinder Blocks Min. Size 4" x 6" x 16").
      1. See attached sketch for construction details of the Kennedy Stopping.
   (C) Permanent Stoppings: will be used.
      1. North Mains - Estimated Life - 25 yrs.
         Intended Use - Belt separation, return airways, intake airways.
      2. First East - Estimated Life - 5 yrs.
         Intended Use - Belt separation, return airways, and bleeder return.
      3. Longwall Panels - Estimated Life - 2 yrs.
         Intended Use - Belt separation, return airways, and escapeways.
      4. Room and Pillar Sections - Estimated Life - 1 yr.
         Intended Use - Belt separation, return and intake airways, and escapeways.

Diesel Equipment

1. Although, presently we are not using diesel equipment, we intend to use diesel equipment that has MESA approval and meets the Permissibility Tests of Part 36 of The Federal Regulations.

2. The atmosphere in the operator's compartment will be sampled daily with the engine running; and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million of carbon monoxide, or both, corrective measures must be taken immediately.

3. The atmosphere returning from any working place where diesel-powered equipment is being used shall be tested at least once each hour while the equipment is in operation, and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million CO, or both, corrective measures shall be taken immediately.

4. The date, time of sampling, machine identification, and the analyses obtained should be recorded in a book maintained for this purpose.

Use Of Auxiliary Fans - Does not apply.

BRAZTAH CORPORATION

P.O. BOX 599 - 801-472-~~5572~~ 5411 OFFICE

HELPER, UTAH 84526

December 2, 1975

Mr. John W. Barton
District Manager
MESA
P.O. Box 15037
Denver, CO 80215

BRAZTAH #5 MINE
I.D. NO. 42-01202
VENTILATION PLAN

Dear Mr. Barton:

Enclosed for your approval is a "Ventilation System, Methane and Dust Control Plan" for the six (6) month review period ending October 1, 1975, as required under Section 75.316 of the Code Of Federal Regulations - 30 Mineral Resources.

Respectfully submitted,

BRAZTAH CORPORATION

Duane Wise

Duane Wise
Mine Engineer

DW:vm

Enclosure

cc: B. Harvey
B. Haynes
R. Christensen
T. Skriner
R. Olsen
P. Butler

Appendix A
Exhibit 27

General

The following information shall be submitted to the District Manager:

1. Company name: BRAZTAH CORPORATION

   Mine name: BRAZTAH #5 MINE

   Post Office address: P.O. Box 506

   (Town, County, State): Helper, Carbon Utah

   Telephone number: (801) 472-3411

   Identification No.: 42-01202

   Operator's name: William Haynes

   Operator's title: Executive Vice-President

   Operator's address: P.O. Box 506 Helper, UT

   Operator's telephone number: (801) 472-3411

2. Indicate if life of mine is

   [ ] less than one year

   [X] greater than one year

3. Number of employees:

Surface	1
Underground	41
Total	42

Main Fan Installations (Existing and Future)

Main Fans will be:

1. Installed on the surface in fireproof housings and connected to the mine opening with fire proof air ducts.

2. Equipped with a pressure recording gage and an automatic signal device designed to give alarm should the fan slow or stop.

3. Offset not less than 15' from nearest side of mine opening. Fans will be equipped with weak wall stoppings or explosion doors.

4. Powered with electric motors on an independent power source.

5. Flammable materials will not be stored within 100' of the fan.

Operation Of Main Fans

A. Main fans will operate continuously except:

(1) Durin; scheduled maintenance or adjustments when all men other than those performing evaluation of adjustments are withdrawn from the mine and the mine power is cut off.

(2) During uncontrolled stoppage or fan failure.

(3) During other stoppages, when written permission is obtained from an authorized representative of the secretary.

B. Management personnel will be contacted and appropriate action taken in event of mechanical or electrical failures to the fans.

C. Neutral areas will not be permitted by improper air flow.

Methane And Dust Control Plan

1. The following is a description of dust control practices at:

   (A) Transfer Points: Clean and rock dust as needed.

   (B) Loading Points: Clean and rock dust.

   (C) Underground Crushers: Does not apply.

   (D) Underground Dumps: Does not apply.

   (E) Along Belt Haulage Systems: Areas are cleaned and rock dusted as needed.

   (F) Face Areas: Rock dust is applied and maintained to within 40 ft. of the faces.

   Number And Type Of Water Sprays:

   Miner : 28 full cone type water sprays.
   Water Pressure: A static water pressure of 50 P.S.I.
   Quantity During Operation: 22 G.P.M. 200 P.S.I. on miner.
   Roof Bolter: Dust suppression by water through the drill steel or through vacuum.
   Face Drills: (Stopers) dust suppression by water through the drill steel.

   (G) Along Shuttle Car Runways: Cleaned, and rock dusted as needed.

   (H) Longwall Face: By ventilation and water sprays.

2. The water sprays indicated for dust suppression as discussed above, will be maintained and operated at the indicated volume and water pressure during mining operations.

3. Bleeder entries, bleeder systems, or equivalent means will be used in all active pillaring areas to ventilate the mined areas from which the pillars have been wholly or partially extracted.

   Bleeder entries will be connected to areas from which pillars will be wholly or partially extracted at strategic locations to control airflow through gob areas, to induce drainage of gob gas and to minimize the hazard from expansion of gob gases due to atmospheric pressure change.

   Bleeder systems will include any combination of bleeder entries, bleeder entry connections to any area from which pillars are wholly or partially extracted and all associated ventilation control devices.

   When the mine operator deems that safe examination can be made, such examination will be made at least once each week by a certified person and the results of such examination shall be recorded in a book.

   When bleeder entry travel is considered unsafe, representative locations will be established and examinations at these locations will be made at least once each week by a certified person or persons and the results shall

Ventilation pressure differential between the active pillar line and the junction of any bleeder connection to the bleeder entries of such system will be adequate to insure gob gas drainage to the bleeder entries. The pressure differential shall be considered adequate when perceptible air-flow exists in all open or regulated bleeder connections, as determined with chemical smoke or other approved means.

4. The methane content in any return aircourse other than an aircourse returning the split of air from a working section (as provided in 75.309 and 75.310) shall not exceed 2.0 volume per centum.

5. Methane examination will be considered adequate without exposing the examiner beyond permanent or temporary support.

6. Seals - A detailed drawing of a Proposed Seal has been submitted and approved. See attached sketch.

7. Ventilation of pillared or abandoned areas. See mine map for areas being sealed.

Section And Face Ventilation System

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4. Ventilating controls are shown on the maps and prints to insure no air reversal on pillaring or developing sections.

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   Immediately following belt moves, temporary belt separation stoppings will be used while permanent stoppings are being constructed.

3. Metal stoppings supported with approved fire retardant treated wood may be used in short lived entries such as panels, rooms, or butts as belt or intake escapeway separation stoppings.

   Timbers laid longitudinally "skin to skin", and packed with rock dust may be used in heavy or squeezing areas if the timbers are treated with an approved fire retardant.

4. A complete list of all materials used in the construction of all stoppings:
   (A) Permanent Stoppings:
      1. Block Stopping (6" x 8" x 16") Cinder Blocks Mortar Mix.
      2. The stoppings are laid up on clean substantial bottom, tied into the ribs with staggered courses, with mortared joints. The periphery of the stopping is plastered with a mortar mix to make it air tight.
   (B) Belt Separation Stoppings: Are Kennedy Stoppings (or Cinder Blocks Min. Size 4" x 6" x 16").
      1. See attached sketch for construction details of the Kennedy Stopping.
   (C) Permanent Stoppings: will be used.
      1. North Mains - Estimated Life - 25 yrs.
         Intended Use - Belt separation, return airways, intake airways.
      2. First East - Estimated Life - 5 yrs.
         Intended Use - Belt separation, return airways, and bleeder return.
      3. Longwall Panels - Estimated Life - 2 yrs.
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      4. Room and Pillar Sections - Estimated Life - 1 yr.
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Diesel Equipment

1. Although, presently we are not using diesel equipment, we intend to use diesel equipment that has MESA approval and meets the Permissibility Tests of Part 36 of The Federal Regulations.

2. The atmosphere in the operator's compartment will be sampled daily with the engine running; and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million of carbon monoxide, or both, corrective measures must be taken immediately.

3. The atmosphere returning from any working place where diesel-powered equipment is being used shall be tested at least once each hour while the equipment is in operation, and if the analyses of these samples exceed 5 parts per million NO_2 or 50 parts per million CO, or both, corrective measures shall be taken immediately.

4. The date, time of sampling, machine identification, and the analyses obtained should be recorded in a book maintained for this purpose.

Use Of Auxiliary Fans - Does not apply.

APPENDIX A

EXHIBIT 28

Coal Analyses of Drill Core Samples
(Copies)

CT&E CO.

A Division of Commercial Testing & Engineering Co.

October 17, 1973

CARBON FUEL COMPANY
P. O. Box 506
Helper, Utah 84526

Sample Identification by Carbon Fuel Co.

Kind of sample reported to us	Coal	Hole No. MC-6 411.1' - 419.0'
Sample taken at	XXXXX	Castle Gate 'D' Seam Bench 1
Sample taken by	Carbon Fuel Co.	7.9 Feet McCulloch Oil Corp.
Date Sampled	Received 9-10-73	

Analysis report no. 72-17239

PROXIMATE ANALYSIS

	As received	Dry Basis
% Moisture	2.10	xxxxx
% Ash	7.22	7.37
% Volatile	44.11	45.06
% Fixed Carbon	46.57	47.57
	100.00	100.00
Btu	13205	13488
% Sulfur	0.40	0.41

ULTIMATE ANALYSIS

	As received	Dry Basis
% Moisture	2.10	xxxxx
% Carbon	73.83	75.41
% Hydrogen	5.51	5.63
% Nitrogen	1.16	1.18
% Chlorine	0.00	0.00
% Sulfur	0.40	0.41
% Ash	7.22	7.37
% Oxygen (diff)	9.78	10.00
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2210°F
Softening (H=W)	2240°F
Softening (H=1/2W)	2260°F
Fluid	2280°F

HARDGROVE GRINDABILITY INDEX = 41.7 @ 1.44% MOISTURE

LWT/mc

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

CT&E CO.

A Division of Commerical Testing & Engineering Co.

October 8, 1973

CARBON FUEL COMPANY
P. O. BOX 506
Helper, Utah 84526

		Sample Identification By Carbon Fuel Co.
Kind of sample reported to us	Coal	
Sample taken at	xxxxx	Hole No. MC - 6 564.5' - 577.2' Castle Gate 'B' Seam Bench 3 12.7 feet Coal
Sample taken by	Carbon Fuel Co.	McCulloch Oil Corp.
Date Sampled	Received 9-10-73	

Analysis report no. 72-17242

PROXIMATE ANALYSIS

	As received	Dry Basis
% Moisture	1.89	xxxxx
% Ash	6.11	6.23
% Volatile	45.39	46.26
% Fixed Carbon	46.61	47.51
	100.00	100.00
Btu	13472	13732
% Sulfur	0.26	0.26

ULTIMATE ANALYSIS

	As received	Dry Basis
% Moisture	1.89	xxxxx
% Carbon	75.09	76.54
% Hydrogen	5.61	5.72
% Nitrogen	1.28	1.30
% Chlorine	0.00	0.00
% Sulfur	0.26	0.26
% Ash	6.11	6.23
% Oxygen (diff)	9.76	9.95
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2230°F
Softening (H=W)	2240°F
Softening (H=1/2W)	2260°F
Fluid	2300°F

HARDGROVE GRINDABILITY INDEX = 46.4 @ 1.53 % MOISTURE

LWT/mc

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

CT&E CO.

A Division of Commerical Testing & Engineering Co.

October 1, 1973

CARBON FUEL COMPANY
P. O. Box 506
Helper, Utah 84526

Sample Identification
By Carbon Fuel Co.

Kind of sample reported to us: Coal

Sample taken at: xxxxx

Sample taken by: Carbon Fuel Co.

Date sampled: Received 9-10-73

Hole No. MC-6
619.6' - 625.5'
McCulloch Oil Corp.
Castle Gate 'A' Seam
Bench 1
5.9 Feet Coal, Minor Bone in lower 0.2 Foot.

Analysis report no. 72-17243

PROXIMATE ANALYSIS

	As received	Dry Basis
% Moisture	1.90	xxxxx
% Ash	7.36	7.50
% Volatile	43.74	44.59
% Fixed Carbon	47.00	47.91
	100.00	100.00
Btu	13409	13669
% Sulfur	0.34	0.35

ULTIMATE ANALYSIS

	As received	Dry Basis
% Moisture	1.90	xxxxx
% Carbon	74.27	75.71
% Hydrogen	5.54	5.65
% Nitrogen	0.85	0.87
% Chlorine	0.01	0.01
% Sulfur	0.34	0.35
% Ash	7.36	7.50
% Oxygen (diff)	9.73	9.91
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2180°F
Softening (H=W)	2200°F
Softening (H=1/2W)	2260°F
Fluid	2290°F

HARDGROVE GRINDABILITY INDEX = 41.9 @ 1.51 % MOISTURE

LWT/mc

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

CT&E CO.

A Division of Commercial Testing & Engineering Co.

October 8, 1973

CARBON FUEL COMPANY
P. O. Box 506
Helper, Utah 84526

Sample Identification By Carbon Fuel Co.

Kind of sample reported to us: Coal

Sample taken at: xxxxx

Hole No. MC - 6
846.3' - 852.3'
Sub-Seam #3
Bench 1
6.0 Feet Coal
McCulloch Oil Corp.

Sample taken by: Carbon Fuel Co.

Date sampled: Received 9-10-73

Analysis report no. 72-17244

PROXIMATE ANALYSIS	As received	Dry Basis
% Moisture	1.78	xxxxx
% Ash	7.83	7.97
% Volatile	44.28	45.08
% Fixed Carbon	46.11	46.95
	100.00	100.00
Btu	13373	13615
% Sulfur	0.42	0.43

ULTIMATE ANALYSIS	As received	Dry Basis
% Moisture	1.78	xxxxx
% Carbon	74.06	75.40
% Hydrogen	5.61	5.71
% Nitrogen	0.85	0.87
% Chlorine	0.00	0.00
% Sulfur	0.42	0.43
% Ash	7.83	7.97
% Oxygen (diff)	9.45	9.62
	100.00	100.00

FUSION TEMPERATURE OF ASH	Reducing
Initial Deformation	2200°F
Softening (H=W)	2240°F
Softening (H=1/2W)	2260°F
Fluid	2340°F

HARDGROVE GRINDABILITY INDEX = 42.2 @ 1.69 % MOISTURE

LWT/mc

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

CT&E CO.

A Division of Commercial Testing & Engineering Co.

December 26, 1973

CARBON FUEL COMPANY
P.O. Box 506
Helper, Utah 84526

Sample Identification by McCulloch Oil

Kind of sample reported to us	Coal	
Sample taken at	XXXXX	Sample No. 6 Hole No. Mc9 1595.2' - 1601.5'
Sample taken by	McCulloch Oil	Sub-Seam No. 2 6.3 Feet
Date Sampled	Received 11-29-73	

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.79	XXXXX
% Ash	7.76	7.98
% Volatile	44.53	45.81
% Fixed Carbon	46.92	46.21
	100.00	100.00
Btu	13099	13475
% Sulfur	0.56	0.58

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.79	XXXXX
% Carbon	72.30	74.38
% Hydrogen	5.53	5.69
% Nitrogen	1.49	1.53
% Chlorine	0.00	0.00
% Sulfur	0.56	0.58
% Ash	7.76	7.98
% Oxygen (diff)	9.57	9.84
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2240°F	xxxxx
Softening (H=W)	2330°F	xxxxx
Softening (H=1/2W)	2350°F	xxxxx
Fluid	2380°F	xxxxx

HARDGROVE GRINDABILITY INDEX = 44.0@
1.91% Moisture

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

LWT/rb

CT&E CO.

A Division of Commercial Testing & Engineering Co.

January 17, 1974

CARBON FUEL COMPANY
P. O. Box 506
Helper, Utah 84526

		Sample Identification by Carbon Fuel Co.
Kind of sample reported to us	Coal	Hole No. MC - 10 737.1' - 743.1'
Sample taken at	xxxxx	Sub-Seam No. 3 6.0 Feet
Sample taken by	Carbon Fuel Co.	
Date sampled	Received 12-29-73	

Analysis report no. 72-19278

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	3.01	xxxxx
% Ash	7.18	7.40
% Volatile	46.35	47.79
% Fixed Carbon	43.46	44.81
	100.00	100.00
Btu	13292	13704
% Sulfur	0.37	0.38

ULTIMATE ANALYSIS	As received	Dry basis
% Moisture	3.01	xxxxx
% Carbon	74.01	76.31
% Hyrdrogen	5.40	5.57
% Nitrogen	1.37	1.41
% Chlorine	0.03	0.03
% Sulfur	0.37	0.38
% Ash	7.18	7.40
% Oxygen (diff)	8.63	8.90
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2250°F
Softening (H=W)	2260°F
Softening (H=1/2W)	2270°F
Fluid	2280°F

HARDGROVE GRINDABILITY INDEX = 48.3 at 2.53% Moisture

Respectfully submitted

CT&E Co.

L.W. Taylor, District Manager

LWT/rb

CT&E CO.

A Division of Commercial Testing & Engineering Co.

December 29, 1973

CARBON FUEL COMPANY
P.O. Box 506
Helper, Utah 84526

Sample Identification by McCulloch Oil Corp.

Kind of sample reported to us: Coal

Sample taken at: xxxxx

Mc-11
Sample No. 3
1152.7' - 1158.7'
Castle Gate 'A' Seam
6.0 Feet

Sample taken by: McCulloch Oil Corp.

Date sampled: Received 11-29-73

Analysis report no. 72-18821

PROXIMATE ANALYSIS	As received	Dry basis
% Moisture	2.81	xxxxx
% Ash	7.94	8.17
% Volatile	45.14	46.45
% Fixed Carbon	44.11	45.38
	100.00	100.00
Btu	13007	13383
% Sulfur	0.34	0.35

ULTIMATE ANALYSIS	As received	Dry basis
% Moisture	2.81	xxxxx
% Carbon	72.17	74.26
% Hydrogen	5.45	5.61
% Nitrogen	1.37	1.41
% Chlorine	0.01	0.01
% Sulfur	0.34	0.35
% Ash	7.94	8.17
% Oxygen (diff)	9.91	10.19
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2240°F	xxxxx
Softening (H=W)	2280°F	xxxxx
Softening (H=1/2W)	2290°F	xxxxx
Fluid	2320°F	xxxxx

HARDGROVE GRINDABILITY INDEX = 45.5 at 1.86 Moisture

LWT/ra

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

CT&E CO.

A Division of Commercial Testing & Engineering Co.

January 18, 1974

CARBON FUEL COMPANY
P. O. Box 506
Helper, Utah 84526

Sample Identification by Carbon Fuel Co.

Kind of sample reported to us: Coal

Hole No. MC - 16
808.2' - 818.5'

Kenilworth Seam

Sample taken at: xxxxx

10.3 Feet

Sample taken by: Carbon Fuel Co.

Date sampled: Received 12-29-73

Analysis report no. 72-19282

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.24	xxxxx
% Ash	5.70	5.95
% Volatile	40.79	42.00
% Fixed Carbon	49.27	51.45
	100.00	100.00
Btu	13172	13755
% Sulfur	0.26	0.27

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.24	xxxxx
% Carbon	73.93	77.20
% Hydrogen	5.12	5.35
% Nitrogen	1.05	1.10
% Chlorine	0.02	0.02
% Sulfur	0.26	0.27
% Ash	5.70	5.95
% Oxygen (diff)	9.68	10.11
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2190°F
Softening (H=W)	2200°F
Softening (H=1/2W)	2210°F
Fluid	2230°F

HARDGROVE GRINDABILITY INDEX = 50.3 @ 2.66 % Moisture

Respectfully submitted,

CT&E Co.

L.W. Taylor, District Manager

LWT/rb