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PAUL M. HOPKINS
CONSULTING MINING GEOLOGIST AND ENGINEER
REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

2222 ARAPAHOE STREET
CRESTVIEW 9-2313

P. O. BOX 403
GOLDEN, COLO.

August 9, 1966

Mr. Walter V. Berry, President
Anglo-Saxon Mines, Inc.
Georgetown, Colorado

Dear Mr. Berry:

The evaluation and recommended exploration program proposals for the Anglo-Saxon group of properties in Clear Creek County, Colorado are found on the subsequent pages of this report.

Preliminary estimates and total costs for the several proposed programs for exploration of the properties are given. These costs are for the complete proposal as described. These costs are given as a guide and are not to be accepted as final. It is the understanding of the writers that you will choose such parts of the several programs as desired, make your budget estimates accordingly, and detail these cost estimates in sufficient detail for action by the Office of Mineral Exploration, United States Geological Survey, as required by that office.

The writers definitely recommend that the primary objective be given first priority in all considerations, i. e., the area where the Anglo-Saxon vein intersects and crosses the Saxon Saddle Fault, particularly the continuation of that vein to the east of the fault.

Respectfully yours,

Harald W. C. Prommel

Paul M. Hopkins

Consulting Mining Geologists and Engineers

PMH:ri

Encls: Report with Maps

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PRELIMINARY EVALUATION AND RECOMMENDED EXPLORATION OF THE ANGLO-SAXON MINE AND ADJOINING PROPERTIES

Sections 2, 3, 4, 5, 8, and 9
Township 4 South, Range 74 West
Clear Creek County, Colorado

---

by

Harald W. C. Prommel
and
Paul M. Hopkins

Consulting Mining Geologists and Engineers

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INTRODUCTION The purpose of the investigation was to evaluate the potential and the location of that potential for mineral production on the several claims, both patented and possessory which are the property of Anglo-Saxon Mines Inc. of Georgetown, Colorado. The company is now in the process of formation and registration with the Secretary of State, State of Colorado, Denver, Colorado. The company will be a wholly-owned subsidiary of Berry Metal Company of Harmony, Pennsylvania.

PROPERTY The property consists of the several mining claims, both patented and possessory as listed below. The claims are to be found in parts of Sections 2, 3, 4, 5, 8 and 9; all in Township 4 South, Range 74 West of the 6th Principal Meridian, Clear Creek County, Colorado. The claims generally are in the Griffith Mining District. Their location together with adjoining claims of other ownership are shown on the several maps drawn to the scale of 1 inch equals 200 feet.

The patented claims are as follows:

Name	Mineral Survey No.
Anglo-Saxon	82
Pixley	2020
Aunt Jack	15713
Zulu	1742
Surprise	19736
Oscar Wilde	1743
Dunbarton	1664
Federal	120
Florida	1697
Magnet	80
Summit	456
Port Jervis	457
Silver Star	1214
Master Key	1467
Anglo Saxon Extension	4765
Water Lily	1780
Eight to Seven	4765
Bull Doze	4765
Rich Hill	18709
Algonquin	977
Dig	18678
Produce	18678
Abundantly	18678
In	18678
Gold	18678
Silver	18678
Copper	18678
Lead	18678
All	18678
Flora	18678
K.P.	18678
O.K.	18678
Rocky	18678

The possessory claims are listed below together with the book and pages as recorded in the County Clerk's office, Clear Creek County, Colorado:

Name	Book	Pages
Seattle	294	343-344
Prof. G.	294	345-346
Paul W.	294	347-348
Eureka	294	349-350
Washington	294	351-352
Anglo-Saxon Straddler	294	353-354
Johnny G.	294	355-356
Walter V.	294	357-358
Idun Marie	294	359-360
Billy B.	294	361-362
Jopen	294	363-364
Sally Roy	294	365-366
Erny L.	294	367-368
Dr. Jim	294	369-370

LOCATION, ACCESSIBILITY AND POWER

The mining property is located generally from the west base of Saxon Mountain in the valley of Clear Creek northeast of Georgetown, Colorado about 1 mile,thence generally in an easterly direction across Sections 9, 8, 5, 4, 3, and 2, Township 4 South, Range 74 West, to the ridge upon which U. S. G. S. Triangulation Station Silver 2 is located and about 1-1/2 miles southwesterly from Lawson, Colorado.

The nearest major city is Denver, Colorado, about 45 miles from the property by paved, all-weather road over U. S. Highways 6 & 40. Local towns, the nearest supply points for the property, are Georgetown, about 1 mile south, and Idaho Springs, about 12 miles northeasterly.

The western portion of the property is accessible by a well-constructed road built and maintained by the previous operator to the area of the Upper Aunt Jack Tunnel (Anglo-Saxon Mine on the U. S. G. S. 7-1/2 minute Georgetown Quadrangle map). This road is shown on sheets for the property enclosed in the pocket. This road is three (3) miles in length with a maximum grade of approximately 10 per cent. The road will be reasonable to maintain access to the property and the areas of interest during all months of the year.

The east portion of the property is accessible from a road beginning at the western limits of Idaho Springs, also on U. S. Highways 6 and 40, thence by county-maintained road up Trail Creek past the abandoned

townsite of Freeland, thence to the abandoned townsite of Lamartine and the inactive "Lamartine Shaft." At this point maintenance by the county usually stops. One then proceeds westerly to the southeast side of an un-named mountain upon which the U.S.G.S. Triangulation Station "UTE" is located to a fork in the road. The lower or left fork leads southwesterly to Highland Park and the area south of Saxon Mountain. The right-hand fork leads northerly up and over the east end of this un-named mountain, thence southwesterly to the east slope of Saxon Mountain. These roads are poorly maintained and usually are accessible only after the snow melts in the early summer. At the east end of Saxon Mountain one may find dim trails which lead northerly and westerly to the middle and easterly part of the property of the Company.

The property of the Company near or immediately west of the summit of Saxon Mountain can be reached from either Highland Park or from the last described road. It may also be reached from the old workings at the Upper Aunt Jack Tunnel by walking southeasterly.

Power is available in Georgetown. The company is investigating the cost of building the power line to the location of the proposed exploration tunnel and the costs will be included in the budget.

PREVIOUS REPORTS The district has been the subject of reports by the United States Geological Survey with the two major dissertations being Professional Paper 63, "Geology of the Georgetown Quadrangle, Colorado" by Spurr, Garrey and Ball in 1908 and Professional Paper 223, "Geology of the Front Range" by Lovering in 1950.

Private reports to the previous operator have been prepared by Mr. G. E. Goodspeed, Consulting Geologist, 5504 Twenty-First Avenue Northeast, Seattle, Washington, at different times during the period 1937 to 1951. These previous reports are summarized in his recent discussion report which is attached.

Mr. Harald W. C. Prommel, Consulting Geologist, 730 South Downing Street, Denver, Colorado, and co-author of this present report, made two short-letter reports during July 1948 and August 1950. These short-letter reports are not included but are the basis for his judgment and recommendations included in this report.

Mr. John Gabelman, a geologist, was employed by the Company to do field work during the Summer of 1946. He mapped the Upper Aunt Jack Tunnel as then existing and contributed some other notes which are found in the Company files. The Colorado School of Mines, Geology Summer Camp, mapped portions of the surface generally on the west slope of Saxon Mountain during that same year. These notes are also available and were studied.

Unfortunately, the work is incomplete and covers only limited portions of the Company properties.

During the present investigation in 1966, horizontal and vertical control was established for the major points from the west base of Saxon Mountain to the discovery location of the Anglo-Saxon vein recovering monuments, previous survey points as found, and other pertinent information as observed. The survey confirmed the elevations given on previous maps and located the major workings of past years on the maps. (See Pocket.)

REGIONAL GEOLOGY

The regional geology is discussed together with the local area geology in both the Professional Papers of the U. S. G. S. previously cited. A very preliminary reconnaissance over the entire property has confirmed in a general way this published information. The area is in the middle portion of the "Front Range Mineral Belt" lying between the Georgetown and Silver Plume districts on the southwest and the Lamartine, Lawson, Dumont and Idaho Springs districts on the northeast. At this time the property has characteristics apparently found in all these districts, hence as a guide the regional geology is reasonable.

The geology is summarized briefly as consisting of the pre-Cambrian Idaho Springs formation consisting of schists and associated types, into which subsequent pre-Cambrian intrusives generally granitic and/or monzonitic were intruded. Local pegamatites of the same period were the last major intrusive rock units injected. Metamorphism occurred prior to the close of this period.

Orogenic activity forming geoanticlines, geosynclines, and deposition occurred during the Paleozoic and Mesozoic times.

The Laramide orogeny closed this interval of no local sedementary formations or other aids for this study, with the formation of the present Rocky Mountains marked by repeated uplift, injection of magmas, periods of erosion and including the multiple phases of mineralization particularly well discussed in Professional Paper 223. The mineralization

found on the property is all related to this time of mineralization, but the specifics of type, dating of inplacement and subsequent supergene enrichment are left for further development of information as to the details.

LOCAL GEOLOGY

The property is located in an area with a complex of granite-monzonite gneisses injected into the pre-Cambrian Idaho Springs schists. Some pegmatite dikes are noted, generally along faults and/or forming side walls of some of the veins in the area. Tertiary magmatic material is difficult to determine due to the extremely limited area of exposures as most of the property is covered with talus, deep residual soil, or rock slide material; all of which thoroughly mask the local rock units making talus and/or soil material components as a guide to the solid rock in place difficult to interpret and probably unreliable. Gossan is found but has not been mapped by any previous effort, particularly from the Saxon Saddle eastward. This talus cover and gossan mapping must be completed to correlate the various veins and prove the continuity to the Trail Creek and/or Silver Creek areas to the northeast.

A preliminary reconnaissance generally following the center line of the Mineral Survey group No. 18678--the so-called "Motto Group," has disclosed gossan outcrops and some apparent continuity of structures to the northeast of Saxon Saddle--the location of the original discovery of the Anglo-Saxon vein and the early production. Detailed location of these several areas were not made as there has been no survey control run into that part of the property.

A corallary of the above observations is that as part of the proposed exploration program, the geology of the property should be mapped both in the underground workings as opened and above and to both sides of the line of the proposed development, as well as to the east and west of the project areas on surface.

The writers have confirmed the general geology as mapped and shown in Professional Paper 63 by a preliminary reconnaissance over the area of interest.

Continuity of the several veins is not to be accepted as factual without proof over a measurable distance and then only for that proven distance. Instead, the writers suggest that the veins will be found to have an en echelon arrangement across the property; i. e., with parallel veins found on either side of the vein as being followed at an offset of a few tens of feet either to the right or left as one comes to the apparent end of the vein of specific knowledge as found either on surface or in the underground workings. Another possible and entirely plausible explanation of this discontinuity of veins is that the schists will be found to be areas of "pinch-outs" or "horsetailing" of the vein with the vein reappearing after going through these schist areas and again entering the more competent igneous rock and the metamorphosed forms thereof, such as the gneisses, granite-monzonites, the pegmatite dikes, and the tertiary igneous rocks if any.

The three Plan Maps (Nos. 1, 2, and 3, enclosed in the pocket) with geology correlated at the Lower Aunt Jack Tunnel level (9360 elevation) and at the Upper Aunt Jack Tunnel level (9754 elevation) to the surface are annotated as to the location of known information about the several veins.

The Saxon Saddle fault is shown by the brecciation and very loose slide rock and/or cliffs just to the north of the Saxon Saddle. It is from this surface exposure that the authors propose the name for this fault zone. In the underground, as exposed in the Upper Aunt Jack Tunnel, it was found to consist of a number of essentially parallel fault planes with intra-fault plane breccia. The post mineral character of the fault is shown by the sharp "cut-off" of the ore and/or mineralization in the footwall when encountered in that tunnel.

A tentative correlation of the veins found on the two sides of the Saxon Saddle fault zone, i. e., hanging and footwalls, in the Upper Aunt Jack Tunnel indicates an apparent horizontal displacement of approximately 70 feet. Drag structures in the veins indicate that there is a possible additional 20 to 30 feet of horizontal displacement. The vertical component is strictly an unknown factor. This structural feature has a most positive influence on continuity of the ore and the location of the disconnected parts of the several veins.

The veins are discussed using the name of the claim where they were "discovered" and are without absolute correlation of continuity of these veins over any major distance.

The known features of the Anglo-Saxon vein are: There is a total of four (4) levels, with any one level having a maximum length of 200 feet according to drawings on file. These tunnels are immediately subjacent to the Saxon Saddle and under the discovery outcrop of that vein. Three of these levels and possibly the fourth level are connected to the Discovery Shaft and/or the Cribbed Shaft. The strike and dip of the vein is described in U. S. G. S. Professional Paper 63 as North 70° East and "vertical to a slight inclination toward the north." Mr. Goodspeed, after the Anglo-Saxon Co. opened one of the levels of these early workings for a short distance, found the same strike but a north dip of 70° North. This later figure is the only positive dip recorded in any of the notes and observations searched by the writers. The elevation for this data is about 10,400 feet.

Any north dip other than vertical will displace this vein north of the Upper Aunt Jack Tunnel. The decreasing dip will show a corresponding displacement of this vein to the north which, if the figure of 70° is accepted, would locate the vein as indicated on the level map of that area at the Upper Aunt Jack Tunnel (elevation 9754). Further, this dip figure would indicate that the Anglo-Saxon vein should be found near the present heading of the Upper Aunt Jack Tunnel (9754 elevation) as driven in 1951. The vein has

not been found to date and the platted field notes of the tunnel show no vein entering from the northwest side, crossing nor leaving the tunnel on the southeast side in about 1,200 feet. This observation lends credence to this dip figure as being the minimum value. The district as a whole has steep dips and generally in the range of 60°-70°, so the observations by Mr. Goodspeed are in the proper area for acceptability.

For this reason, the writers contend that the Anglo-Saxon vein is north of the Upper Aunt Jack Tunnel and has not been explored at any time at that level, i.e., 9754 elevation.

The Upper Aunt Jack Tunnel was first driven on random courses for approximately 600 feet before finally getting onto a "vein" which strikes from N.52° E. to N. 63° E. with a north dip. The writers cannot find in any of the recorded notes, dips taken for this "Tunnel vein" except at the extreme northeast end where both North and South dip of the order of 80° are noted. The writers doubt that there is any feasible and reasonable correlation of this vein to any known vein on the surface at this time. For the purposes of this report, the vein is referred to as the "Tunnel vein." Verbal information given by Mr. Berry indicates that he remembers the dip figures as about 70° north. As this is different from the other values indicated above, all figures are subject to question. For purposes of projection and study, however, the writers used the 70° North value. The basis of this is that the Anglo-Saxon vein, if at some value greater than

70° North, the vein would have been intersected somewhere during the driving of the Upper Aunt Jack Tunnel which it apparently did not. Also, if this vein had an essentially vertical dip, it should have been noted in or near the Saxon Saddle area or on the slope to the southwest. This has not been found to be the case. Further, the Tunnel vein appears to be a breccia reef zone into which metallization has been "injected" irregularly along subordinate fault planes and/or slips. This observation by Mr. Prommel is further confirmed by the geologic map notes of Mr. Gabelman.

The Federal vein is exposed on surface and in the caved workings immediately north of the Anglo-Saxon vein and in the Saxon Saddle or immediately subjacent to the outcrop. The Saxon Saddle elevation is about 10,400 feet. The workings on this vein, approximately 10,300 to 10,400 feet elevation, are unknown as to extent but there are indications that some several tens of feet and possibly 200 feet were driven on the lower of the two drifts. These drifts are both above the point of intersection of the Anglo-Saxon and Federal vein, however the lower is only a few feet above that intersection as exposed on surface.

An interesting speculation, particularly as to the continuity of this Federal vein to the northeast, is the relationship of the Woodley Tunnel and its reported "high-grade" production to this vein. The Woodley Tunnel is caved and the extent of workings are totally unknown to the writers. The location of the Woodley Tunnel is indicated on the older maps, but is not

included on the present maps (in pocket) as no survey tie has been run. This tunnel is northwest of the strike line of the Federal vein about 400 feet. From the indicated direction at the portal, toward the southeast, this tunnel would intersect the Federal vein northeast of the known workings which are found in the area of the Saxon Saddle.

The strike of the Federal vein is indicated as being N. 42° E. and the dip is nearly or is strictly vertical. For purposes of study, the strike is assumed as right with a vertical dip. Briefly we have approximately 200 feet of vein with an apparently reliable strike and dip. In addition there is the possibility of further extension of this distance to the northeast if the Woodley Tunnel did in fact produce ore from the Federal vein.

The last known vein about which there is any measured length of exposure and upon which there are definite values given for strike and dip is the "Anglo-Saxon Extension vein" generally at elevations from 9,700 down to 9,300 feet. U.S.G.S. Professional Paper 63 gives 2,500 feet of workings and the principal production at or above the level noted on the enclosed maps as the Anglo-Saxon Extension Tunnel about 9,424 feet elevation. By correlation with the surface and the apparent location of the several levels as mentioned in Professional Paper 63, the ores occurred principally between 9,425 and 9,650 feet elevation. The lowest level of written descriptions as indicated is apparently the old diggings about 100 feet below the Anglo-Saxon Extension as labeled on the maps (in pocket) and from which no production of interest was found.

The above summary is the total known and apparently consistently provable information from the many sources available about the several veins in the area. Other veins are known or indicated by the several patented claims in the area. Some of these veins are obscured by being behind caved workings with no access and no written records available. Other veins are only reported as the result of the gossan and float in pits or other shallow workings. Generally, there can be no proof of continuity and/or attitudes for these several veins. However, the writers included these veins for the sake of argument and/or study. Strikes as used are the center lines of the several claims with the dip assumed to be 70° North, or the same as the Tunnel vein and/or the Anglo-Saxon vein on surface. The point of discovery on the several claims is used as the point for elevation for projection.

Accordingly, the following is the assessment of the information available. In spite of the time spent trying to assemble the complete information, the writers are very much limited by the lack of factual information from reliable observers. Briefly this information is summarized above.

Accordingly, the writers suggest no targets for exploration of immediate interest other than at the elevations proposed and shown in the proposals as drawn on the maps (in pocket). Further, the writers suggest

that all exploration be directed toward the veins upon which the data available gives measurable distances, apparently reliable strike and dip values, and upon which there has been some production. These veins are: The Anglo-Saxon Extension, the Federal, the Anglo-Saxon, and the "Tunnel" veins. It shall be noted that the writers do not make any prediction of tonnages and grade. The writers make the delineation of the "objective areas" for exploration based upon the projection of structure, a pitch direction and the geologic factors involved. These areas thus delineated are: (1) The Anglo-Saxon vein in the area of that vein's intersection with the Saxon Saddle Fault, and (2) the continuation to the east of the Anglo-Saxon Extension vein past the old workings.

RESULTS The several plan maps and the section through the Saxon Saddle Fault at the Saxon Saddle showing the relationship between the Saxon Saddle Fault and the several veins, summarize the information and correlations to the proposed elevation of exploration to that information and data as available. In doing so, the writers did project from the apparent outcrop in the case of several "veins" in an attempt to arrive at this correlation of information. These straight-line projections of the veins in the area are not to be accepted without many reservations. The one vein about which the most data is known, i.e., the "Tunnel" vein as exposed in the Upper Aunt Jack Tunnel for a distance of

about 1,000 feet on the 9754 elevation level, shows a swing in strike of some 11 degrees in that distance. The strike of the several other veins should be expected to show corresponding changes, if in fact there are not larger changes in direction in strike in the same distance. Dip values should be expected to show a corresponding variation. Accordingly, the writers offer the level maps with the proposed development plans thereon with this reservation--the distances to and between the several veins is subject to further proof and serious question as to absolute values as indicated above.

In contrast, the only area about which there is any major information is that locale establishing the relationship of the Saxon Saddle Fault, the Tunnel vein, the Anglo-Saxon vein and the Federal vein. The Saxon Saddle Fault, the Anglo-Saxon vein and the Federal vein are related and their physical relationships are shown by their respective outcrops on surface. In the Upper Aunt Jack Tunnel at 9754 elevation, we have information on the Saxon Saddle Fault, the Tunnel vein and its apparent continuity to the east of the fault which has displaced the vein an apparent 70 feet north on the hanging wall or east side. Some drag structure is possible on the footwall and hanging wall sides of the fault which would increase this distance possibly by another 30 feet.

The several level plats and their proposed exploration indicate that there is one major objective for exploration, i.e., the area east of the

Saxon Saddle Fault on these veins. Preliminary estimates for the exploration are attached for comparison. (See Appendix.)

The examination of the information of the several projected locations of the veins and the fault and the interpretation of the structures as found, indicated the following findings for consideration:

1. The Anglo-Saxon or Upper Aunt Jack Tunnel did not follow the Anglo-Saxon vein as developed and worked in the Saxon Saddle area, the site of the early production. Rather, the Upper Aunt Jack Tunnel followed a nearly parallel vein to the Anglo-Saxon vein and which intersects the latter at a very acute angle, apparently about 10°. The Anglo-Saxon vein would have been encountered in the Upper Aunt Jack Tunnel in another hundred feet or so if no disturbing factors had entered the picture, i. e., the Saxon Saddle Fault. Further, the Upper Aunt Jack Tunnel vein, the "Tunnel vein" of this report, is not correlative at present to any vein presently exposed on the surface and known as to its location and attitudes. Further exploration and study should disclose this correlation at a future date, at least as to the upward extension and where the "Tunnel vein" will be found and exposed on the surface.

2. The Saxon Saddle Fault exercised a definite influence upon the several veins in the area. The strike was found to be N. 4° E. and dip of 46° E. in the Upper Aunt Jack Tunnel, at an elevation of 9754 feet. The last operations in the Upper Aunt Jack Tunnel penetrated the fault and found the indicated location of a vein at the very breast of the tunnel. The

exposure of the vein in the breast is less than 10 feet. The character of the vein as exposed is not disclosed as to the values contained nor the strike and dip of that vein over any appreciable distance.

The upward projection of this Saxon Saddle Fault from the Upper Aunt Jack Tunnel indicated that it outcropped in the area just to the west of Saxon Saddle and in general coincides with the area where the early tunnels were driven on the Anglo-Saxon and Federal veins, just west of and subjacent to their discovery locations. The extreme brecciation of the rock in this area is also suggestive of this fault and the character thereof. If the writers correctly interpreted the information of Mr. Goodspeed and Mr. Prommel's notes of 1950, this fault is post-mineral. The observations of Mr. Goodspeed were in the Upper Aunt Jack Tunnel.

However, the writers can definitely state that the brecciation area as exposed on the west side of Saxon Saddle is definitely post-mineral. The true nature of this brecciation and its significance were only appreciated after the correlation with the underground workings in the Upper Aunt Jack Tunnel as mapped and plotted from information in the Company files.

At this time there is no provable direction and magnitude of movement on this fault. The apparent horizontal component as shown, the Upper Aunt Jack Tunnel at 9754 feet elevation, is about 70 feet north on the hanging or east wall as referred to the foot or west wall of the fault

zone. This fault is a zone about 100 feet in horizontal measurement across its width. The initial impression is that the rock has been brecciated, thence "shook loose" into a very porous and unconsolidated mass. Openings between the breccia fragments are large on the surface, sometimes several inches across. Openings, if observed, were not indicated in the underground workings on the notes made there.

3. The district has a general pattern of production of commercial ores generally limited to about 600 or 700 feet below the surface outcrop of the individual vein. After referring to the prepared long section showing the Anglo-Saxon vein and its relation to surface (in pocket), the areas of interest and economic potential are limited to the following areas in relation to the proposed exploration tunnels, as discussed below and form part of the basis for the recommended exploration as discussed in a subsequent section.

PROPOSED EXPLORATION

Five (5) possible sites for the beginning of exploration have been considered and analyzed including the preliminary estimates of costs of the several proposals. The results are given below.

1. Initially, the rehabilitation and use of the Upper Aunt Jack Tunnel was considered, but a preliminary attempt to reopen the portal of this tunnel proved uneconomical. The caving was a major item in the

previous "access" to the area of interest. This proposed operation site was examined and rejected as to any economic value during May, 1966.

2. Use of the Lower Aunt Jack Tunnel and thence driving easterly to the area of the Saxon Saddle Fault--Anglo-Saxon and Tunnel veins and their mutual intersections on the 9,360 elevation. The immediate veins near the heading of the Lower Aunt Jack Tunnel contain one which has had production in the past and forms an immediate objective for exploration. This vein is the Anglo-Saxon Extension which has been mined as previously described to the west of the area of this Lower Aunt Jack Tunnel. This vein can be intersected by driving about 200 feet from the present east heading of this tunnel. This vein may also be intersected near the end of the previous workings and at a lower level or about 65 feet below the 7th level as described previously. The distance is apparently less than 50 feet. These two tunnel drives are justifiable together with drifting on the vein an additional 200 to 300 feet easterly from the more easterly heading. This tunnel "drive and drifting" is the only justifiable development on this level. The other veins in the immediate area have an unknown potential and poorly defined location. The additional exploration as delineated on the plat of this level at the 9,360 elevation was delineated to follow the projected location of the several veins leading toward the major objective, the intersection of the Saxon Saddle Fault, the Saxon vein and the Tunnel vein, and their mutual points of intersection.

This proposal is subject to criticism: (a) There is not enough information about the several veins to make any attractive intermediate potential of interest. (b) The cost of maintaining the tunnel as proposed would be similar to the difficulties encountered in the Upper Aunt Jack Tunnel where timbering was required for the entire length of that tunnel. (c) The cost of maintenance of the tunnel is over and above the preliminary estimates, hence are an unknown quantity at this time. (d) Continuity of the several veins is subject to question, and the depth from outcrop to the tunnel after advancing past the immediate area of the Anglo-Saxon Extension vein rapidly approaches 900 to 1,000 feet from surface.

3. The third proposed site for exploration was the adit to be driven southeasterly from the Beaver Creek area at an elevation of 9,757 feet at the portal. The property requirements for the portal site, in fact the only reasonable location for that portal location, are found to be within the limits of the claims composing the group of Mineral Survey 18737. This property is not for sale as determined by a conference between the owners and Mr. Walter Berry on August 5, 1966. However, estimates having been previously prepared, are made a part of the appendix for consideration. This site is not available for use, hence is not further considered.

4. The fourth considered site is the "9754 Tunnel Site," which is approximately due east of Survey Station 98 and on the main road to the previously considered Upper Aunt Jack Tunnel. This site is also about 300 feet south and west of that portal and is at the same elevation, i. e., 9754 feet. Site preparation and other delays in getting started on the driving of the tunnel would be reduced to a minimum as the semi-developed area as now found adjacent to the Upper Aunt Jack Tunnel including a previously constructed "ore house" would be immediately available. The tunnel, as proposed, is laid out to avoid the known bad or heavy ground as much as possible as found in the prior existing Upper Aunt Jack Tunnel. This was done by crossing the areas of the veins, and/or vein reefs, such as the "Tunnel vein," with a minimum reasonable length of tunnel, thence paralleling these veins as much as possible. In particular, the major portion--about 1,400 feet of the tunnel--would be about 100 feet southeasterly of the indicated heavy ground of the Federal and Tunnel veins. This proposed tunnel is essentially parallel to the old Upper Aunt Jack Tunnel which followed the "Tunnel vein" as previously discussed. The disadvantages are the rather considerable distance to be driven prior to the approach to the objective--the area of the intersection of the Saxon Saddle Fault, the Anglo-Saxon vein and the Tunnel vein, as found on this elevation by projection from their several outcrops or known locations. During this major distance,

1950

about 1,950 feet, the tunnel will cross "veins" of unknown potential, but judging from the lack of major effort on these veins, there is a questionable potential to be expected when these veins are encountered during the tunnel drive as proposed and labeled the "9754 Tunnel." The tunnel will go through an area about which we know the most by extrapolation from the map of the underground geology of the Upper Aunt Jack Tunnel and the conditions there encountered. It is further recommended that if heavy ground is encountered at the proposed turn, i.e., portal plus 550 feet, an additional 100 feet be driven on the initial direction to clear this condition; thence turn northeasterly for the courses and distances as needed to reach the initial objective or the point now determined as the intersection of the Anglo-Saxon vein east of the Saxon Saddle Fault at an estimated total tunnel drive distance of 2200 feet and at a point about 100 feet east of that fault.

5. A shaft was considered at the location of the approximate west end line of the "Motto Group" of Mineral Survey 18678. Preliminary estimates were prepared. These costs are considerably larger than any of the other examined proposed sites, hence were rejected for that reason. The cost figures are made a part of the appendix for comparison.

CONCLUSIONS The property has a totally untested potential in the unexplored area east of the Saxon Saddle Fault on the several veins. Some production may be expected west of this fault on or above the 9754 level on the presently known and partially explored "Tunnel vein." Further, there is the area above the Lower Aunt Jack Tunnel (9,360 elevation) which is the easterly continuation of the past production on the Anglo-Saxon Extension vein. The values and conditions to be encountered are unknown as no previously existing workings on this vein are accessible. Two major veins which have produced on the east or hanging wall side of the Saxon Saddle Fault have not been explored. However, these two veins, the Anglo-Saxon and the Federal, should be found on the west side of the fault. As the result of the proposed exploration, the first of these veins, the Anglo-Saxon, will be explored in the area of known past production at depth.

It is the opinion of the writers that the major objective will be found to the east of the Saxon Saddle Fault on the Anglo-Saxon vein. With this objective in mind, the writers studied the various proposals for exploration as summarized previously, and make their recommendations accordingly.

RECOMMENDATIONS These recommendations are as follows: (1) The Company expend the needed funds to explore the major objective in sufficient detail to develop the initial potential of the Anglo-Saxon vein east of the Saxon Saddle Fault, using the "9754 Tunnel" plan for this program. The "Tunnel vein" is a secondary objective and apparently will be crossed in reaching this major objective. (2) The Company expend the limited sums needed to extend the present Lower Aunt Jack Tunnel to intersect and drift on the Anglo-Saxon Extension vein on the 9360 elevation.

The details of these two exploration programs and their estimated preliminary costs are viven in the appendix. Mr. Berry, the President, and Mr. Hudson, the Manager of the Company, are developing the cost distribution in detail and will be made a part of the proposal for exploration.

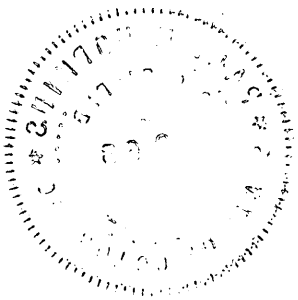
The writers definitely state that if there is any question as to the use of any monies, the first and foremost consideration must be given to driving of the recommended exploration of the "9754 Tunnel" to the major objective--the Anglo-Saxon vein adjacent to, and particularly east of, the Saxon Saddle Fault at this elevation.

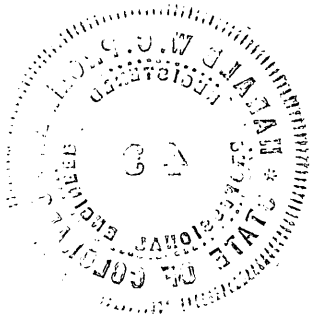
Respectfully submitted,

Harald W. C. Prommel

Paul M. Hopkins

Harald W. C. Prommel Paul M. Hopkins
Consulting Mining Geologists and Engineers





APPENDIX

GEOLOGIST
MINING ENGINEER

PETROGRAPHIC ANALYSES AND
GEOLOGY OF ORE DEPOSITS A SPECIALTY

G. E. GOODSPEED
5504 TWENTY-FIRST AVENUE NORTHEAST
SEATTLE

August 2, 1966

BERRY METAL COMPANY

Harmony, Pennsylvania

Attention: Walter V. Berry, President

REPORT ON ANGLO SAXON GROUP OF CLAIMS

Introduction

This group of claims is situated less than two miles northeast of Georgetown, Clear Creek, Colorado on the northwest slope of Saxon Mountain in a rugged part of the Front Range. This complex vein system belongs to a belt of strong fractures trending east northeast from Georgetown to Idaho Springs. This area has been more fully described by Spurr and Gorrey in Professional Paper 63 and by Lovering and Goddard in Professional Paper 223, United States Geological Survey. More recently (1960) S. M. Del Rio in Mineral Resources of Colorado makes these statements: - (p. 100 and 101)

> "It is probable that the belt of strong fractures which trend east-northeast from the head of Silver Creek to the valley of Clear Creek near the mouth of Fall River, of which the Lamertine and Freeland veins are a part, continues southwest of Lamertine to Georgetown. This intervening terrain has not yet been adequately studied and it is possible that blind ore bodies, as was the Lamertine Lode could be discovered in this area through proper scientific exploration."

> "Outlook - The Lamertine and Freeland veins have had a substantial output and the possibility of undiscovered ore shoots in the extension of this belt should be considered, especially as the Lamertine ore body did not outcrop and was apparently discovered by accident."

Geology

The dominant rocks in this area are the early pre-Cambrian para schists and gneisses of the Idaho Springs formation locally transected by pegmatite. In the mineralized vein zone both of those rocks are highly altered by vein

forming solutions. Granite which is a more competant rock becomes soft and porous, whereas the altered schist is compressed to a nearly impervious gouge. The solutions penetrated along fractures and fissures forming a very complex vein system. This vein system was recently studied by H.W. C. Prommel and Paul M. Hopkins. They prepared two plan view maps showing possible vein trends and post mineral faulting at elevations of 9,360 and 9,760 feet. According to Burchard, of the Mint, the production from the Anglo Saxon Mine prior to 1883 was about $700,000 from relatively shallow workings approximately 72 feet below surface at point of discovery. This rich production from shallow workings was the incentive for the development work carried on from 1937 to the present, which included a small exploratory tunnel driven approximately 1,800 feet at an elevation of 9,760. This tunnel is now caved. A mineralized zone was encountered 900 feet east of the portal. At 1,514 feet from the portal numerous irregular intersecting veinlets of silver sulphides occurred. The character of both ore and gangue was similar to that of the oxidized ore from the dumps of the upper workings. In the tunnel from 1,504 to 1,683 feet the veinlets of high grade silver sulphides became more numerous where the wall rock was a relatively porous altered granite.

When I visited the mine in August, 1948, the vein and ore shoot had been cut by a north-south post mineral fault. Before the fault was encountered the vein, as shown in a raise 40 feet above the tunnel level, consisted of about 15 inches of hard, brownish, fine grained somewhat fractured quartz containing a considerable amount of disseminated silver sulphide with a wall rock of altered granite. As later reported to me, the wall rock - in the next 30 feet upward in the raise - changed from granite to schist and the ore narrowed

to a streak two inches wide as it approached the post mineral fault zone.

The ore encountered in the exploratory tunnel can be expected to extend laterally and vertically upward and downward depending upon the character of the wall rock.

The ore in the floor of the exploratory tunnel averaged about two feet in width and did not give any indication of narrowing downward on the west side of the north-south post mineral fault zone.

Other factors may be involved in the formation of an ore shoot such as: a decrease in pressure or temperature of the vein solutions as well as the physical character of the wall rock and its alteration products. Several of these factors may be present at the intersection of veins or where a change in dip and strike may widen a vein channel so that mineralizing solutions become slow moving thus allowing more time, with a decrease in temperature, for the precipitation of ore minerals. One of the most striking features shown on the Plan View of veins recently prepared by Prommel and Hopkins is the multiplicity of possible vein intersections which in this region are targets for ore. From my observations of the character of the ore and wall rock in the exploratory tunnel dating from 1937, it is my opinion that a development tunnel should be driven at an elevation of about 9,760 feet to provide an optimum depth of 600 feet below surface, which is a depth at which the richest and most productive ore shoots have been mined in the Georgetown-Idaho Springs area as indicated by the writings of Spurr and Garrey; Lovering and Goddard.

The prime target of this development tunnel would be the area in virgin ground beyond the north-south fault encountered in the old surface workings and in the exploratory tunnel. This is the northeasterly trending belt referred to by S. M. Del Rio in Mineral Resources of Colorado (1960, p. 101) wherein "It is possible that blind ore bodies, as was the Lamertine Lode, could be

discovered." On the easterly side of the north-south fault several vein extensions and junctions should be present which as previously indicated are targets for ore in this region. As shown on the Plan View of Veins this tunnel is so positioned that relatively short cross-cuts can be driven to several possible vein intersections which would provide additional targets for ore.

The secondary target of the development program should include a cross-cut from the Lower Aunt Jack Tunnel at an elevation of 9,360 feet to explore the en echelon fault zone of the Anglo Saxon Extension Vein. In addition, several vein intersections can be prospected from this tunnel by diamond drilling or cross-cutting which will provide additional targets for ore.

It is my considered opinion that this development program has excellent possibilities of developing commercial ore bodies.

Respectfully submitted,

G. E. Goodspeed

G. E. Goodspeed

Geologist & Mining Engineer

GEG:rjw

PROPOSAL NO. 2

LOWER AUNT JACK TUNNEL

DESCRIPTION: Construct 0.2 miles road, prepare tunnel site including surface facilities as required. Drive tunnel on the several courses as shown on Plan Map No. 1 to Anglo-Saxon vein east of Saxon Saddle Fault and explore immediate area. (Plan Map No. 1.)

Cost Estimates - (Two-year program):

Road	$ 2,000
Power (Electric)	10,000
Portal Site	1,000
Portal Buildings (Minimum)	10,000
Expendable Supplies	3,000
Engineering	10,000
Machinery	10,000
Trucks and Tractor	22,000
Management and Overhead	30,000

Tunnel and Exploration:

Tunnel drive and drifts - 3,730 feet at $55.00 per foot*	205,700
*No estimate is included for timbering requirements which are expected to be rather extensive. Possibly 1,000 feet minimum @ $40.00 per foot. (	(40,000)

Contingency - 15% of all items except Management and Overhead	41,055
Grand Total	$344,755

PROPOSAL NO. 3

BEAVER CREEK TUNNEL SITE

DESCRIPTION: Construct 0.8 mile road, prepare portal site including surface facilities as required. Drive tunnel South 31° East to Anglo-Saxon vein and explore area generally east of the Saxon Saddle Fault on this vein. (Plan Map No. 2).

Cost Estimates - (Two-year period for program):

Road	$ 25,000
Power (Electric)	15,000
Portal Site	1,000
Portal Buildings (Minimum)	10,000
Expendable Supplies	3,000
Engineering	15,000
Machinery	10,000
Management and Overhead	30,000
Trucks and Tractor	22,000

Tunnel and Exploration:

1,850 feet Crosscut and/or Drifting @ $55.00 per foot	101,500
200 feet Raise @ $110.00 per foot	22,000
500 feet Drifting (9960 elevation) @ $60.00 per foot	30,000

Contingency - 15% all items, except Management and Overhead	38,175

Grand Total $322,675

PROPOSAL NO. 4

"9754 TUNNEL"

DESCRIPTION: Prepare portal site, reconstruct track and trestle to existing ore bin, surface facilities as required. Drive tunnel on the several courses as shown to Anglo-Saxon vein east of Saxon Saddle Fault and explore immediate area.

Tunnel drive: Courses and distances--as proposed:

South 89° East	550 feet
North 43° 31' East	700 feet
North 60° East	700 feet
North 5° East	250 feet
Drifts and crosscuts--1030 feet as shown on the several veins.	Total 3,230 feet

Cost Estimates:

Road	No cost
Power	$ 10,000
Portal Site	2,197
Portal Buildings	10,000
Trestle to Ore Bin	1,500
Expendable Supplies	3,000
Engineering	15,000
Machinery	10,000
Trucks and Tractor	22,000
Management and Overhead	30,000

Tunnel Drive and Exploration:

3,230 feet: $55.00 per foot	177,650
Timbering as required at faults and veins 750 feet @ $40.00 per foot	30,000

Contingency - 15% of all items except Management and Overhead 42,202

Grand Total $353,549

PROPOSAL NO. 5

SHAFT ON WEST END OF M. S. 18678 CLAIMS ("MOTTO GROUP")

DESCRIPTION: Construct 1.5 miles road, prepare shaft site including buildings as required. Sink shaft and explore area near Saxon Saddle Fault on the Anglo-Saxon vein and adjoining area on elevation 9,754 feet.

Cost estimates - (Two-year program):

Road	$ 65,000
Shaft Site	3,000
Power	15,000
Shaft Equipment	40,000
Portal Buildings	15,000
Trucks and Tractor	22,000
Expendable supplies	3,000
Engineering	20,000
Machinery	10,000
Management and Overhead	30,000

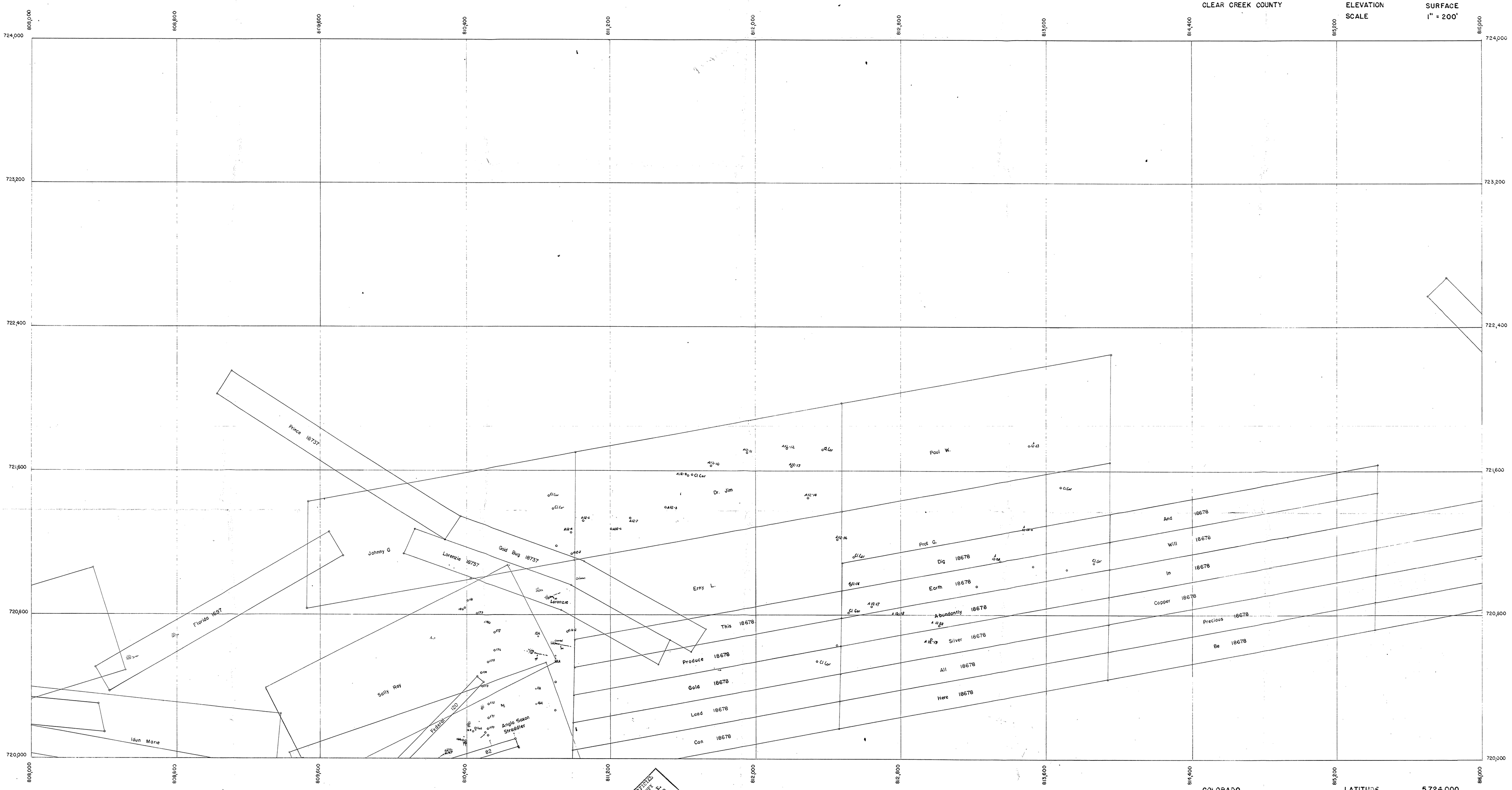
Shaft and Exploration:

Shaft sinking 3 compartment 7' x 18' - $170.00 per foot 650 feet	110,500
Stations at 300, 400, 500, and 600 feet - $10,000 each	40,000
Tail shaft and ore pocket on 600 level	40,000
Drifts - 1,500 feet @ $60.00 per foot	90,000
Contingency - 15% of all items except Management and Overhead	71,025

Grand Total $574,525

U.S. GRID ZONE "E"
COLORADO
CLEAR CREEK COUNTY

LATITUDE 5,724,000
DEPARTURE 2,816,000
ELEVATION SURFACE
SCALE 1" = 200'



COLORADO
CLEAR CREEK COUNTY
SCALE 1" = 200'

LATITUDE 5,724,000
DEPARTURE 2,816,000
ELEVATION SURFACE

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U. S. GRID ZONE "E"
COLORADO
CLEAR CREEK COUNTY

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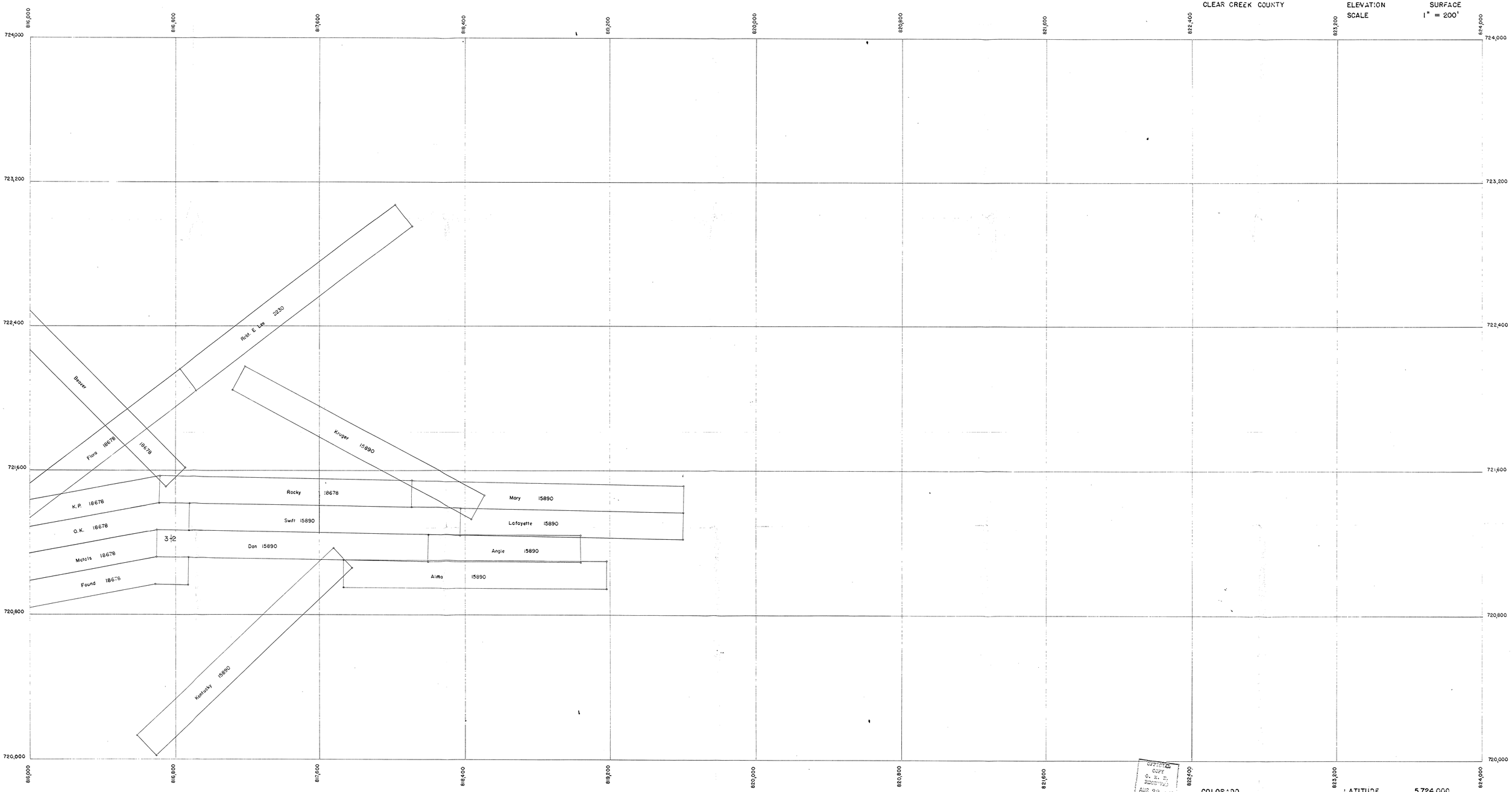
DEPARTURE 2,824,000
ELEVATION SURFACE
SCALE 1" = 200'



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COLORADO
CLEAR CREEK COUNTY
SCALE 1" = 200'

LATITUDE 5,724,000
DEPARTURE 2,824,000
ELEVATION SURFACE

U.S.GRID ZONE "E"
COLORADO
CLEAR CREEK COUNTY

LATITUDE 5,720,000
DEPARTURE 2,816,000
ELEVATION SURFACE
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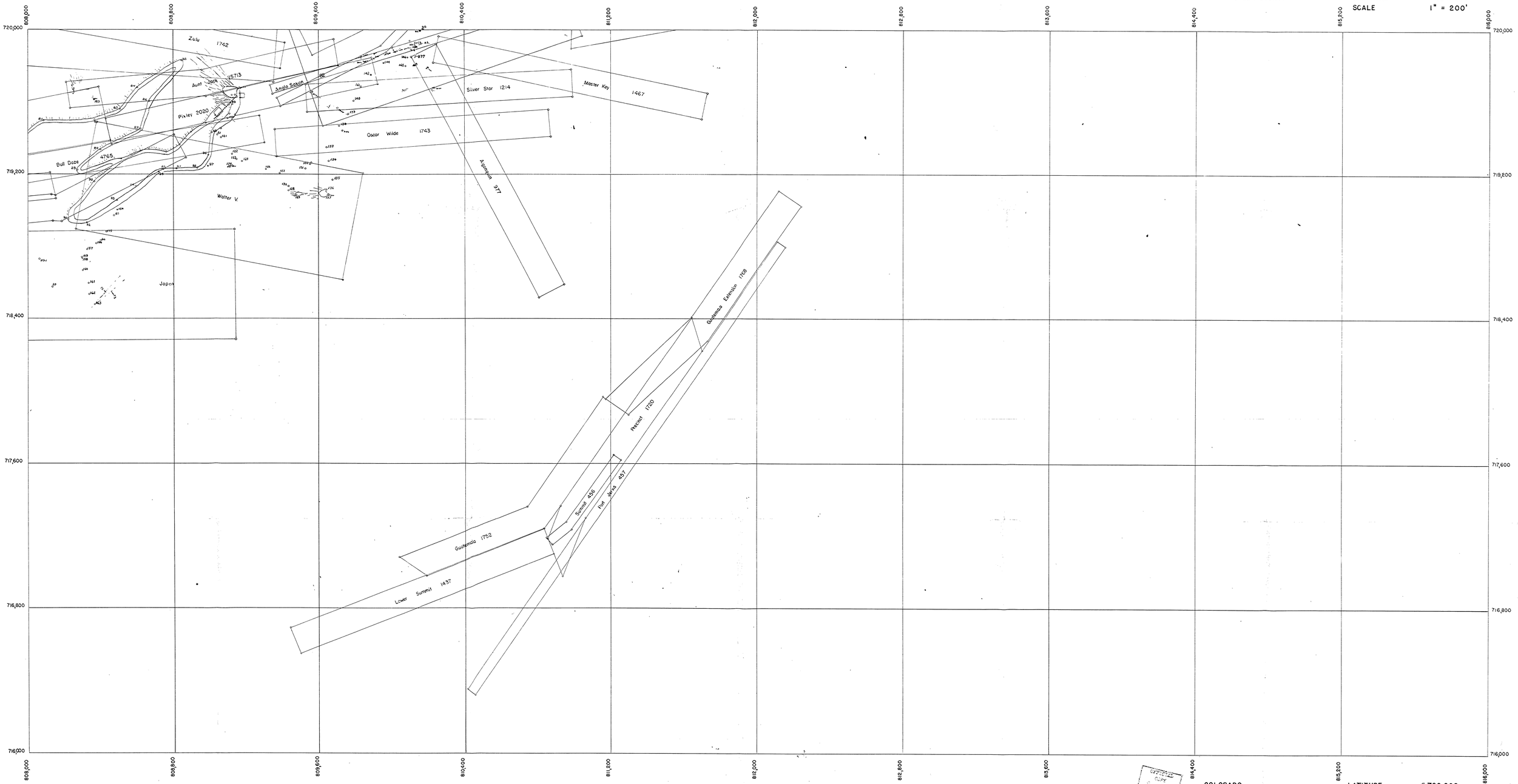

COLORADO
CLEAR CREEK COUNTY
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LATITUDE 5,720,000
DEPARTURE 2,816,000
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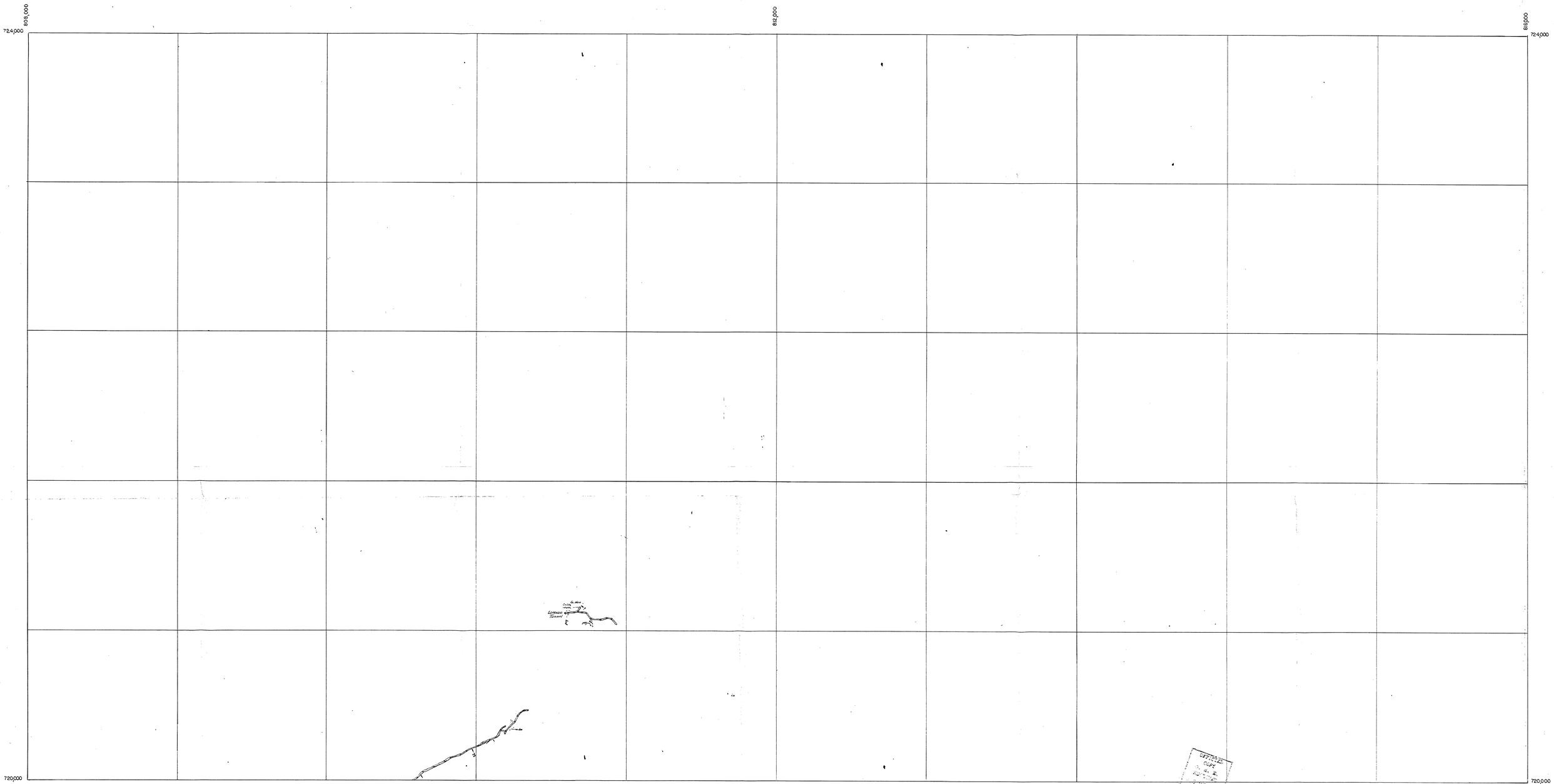

COLORADO
CLEAR CREEK COUNTY
SCALE 1" = 200

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DEPARTURE 2,816,000
UNDERGROUND

U.S. GRID ZONE E
COLORADO
CLEAR CREEK COUNTY

LATITUDE 5,720,000
DEPARTURE 2,808,000
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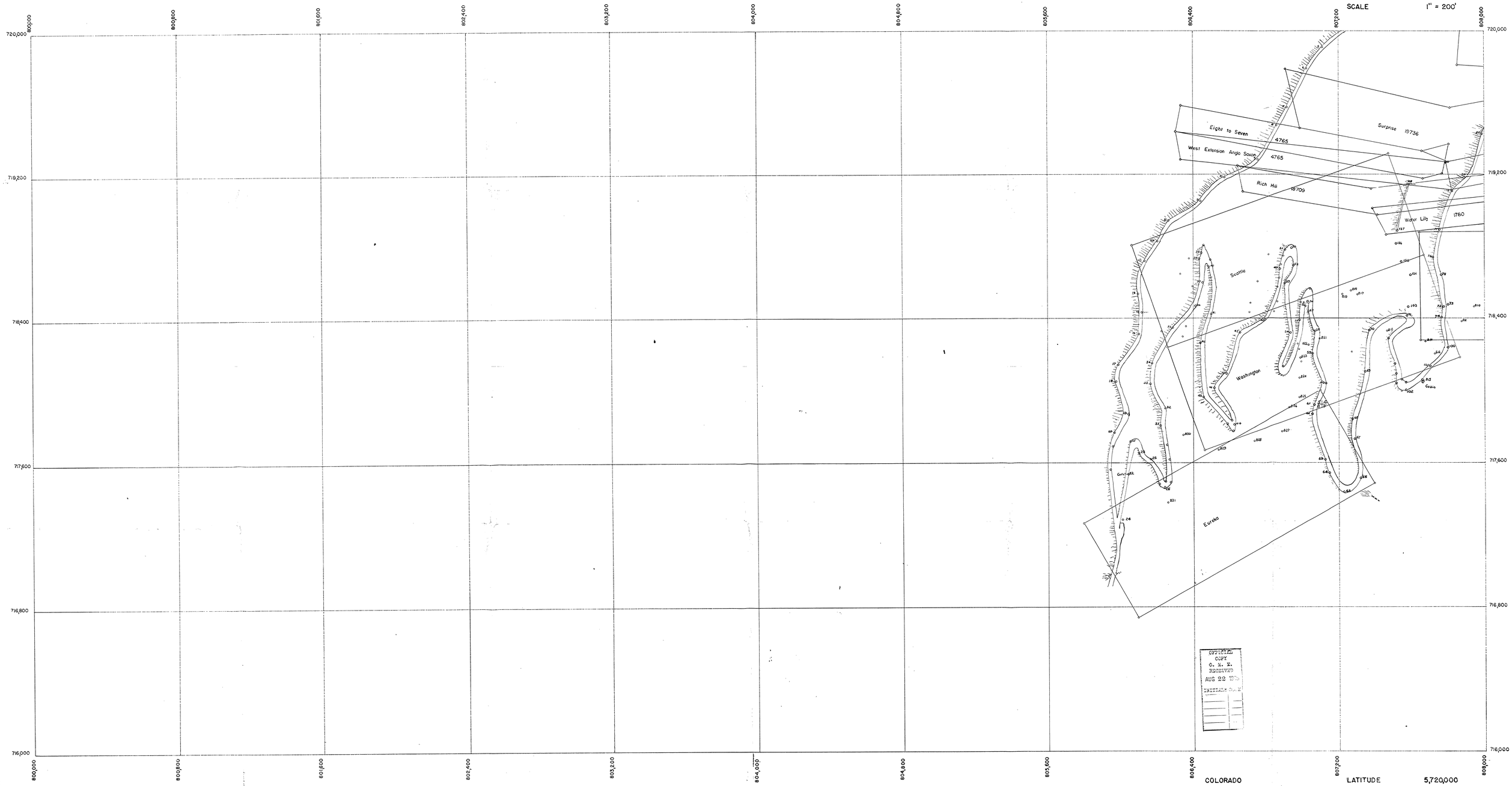

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COLORADO
CLEAR CREEK COUNTY
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DEPARTURE 2,808,000
ELEVATION SURFACE

U.S.GRID ZONE "E"
COLORADO
CLEAR CREEK COUNTY

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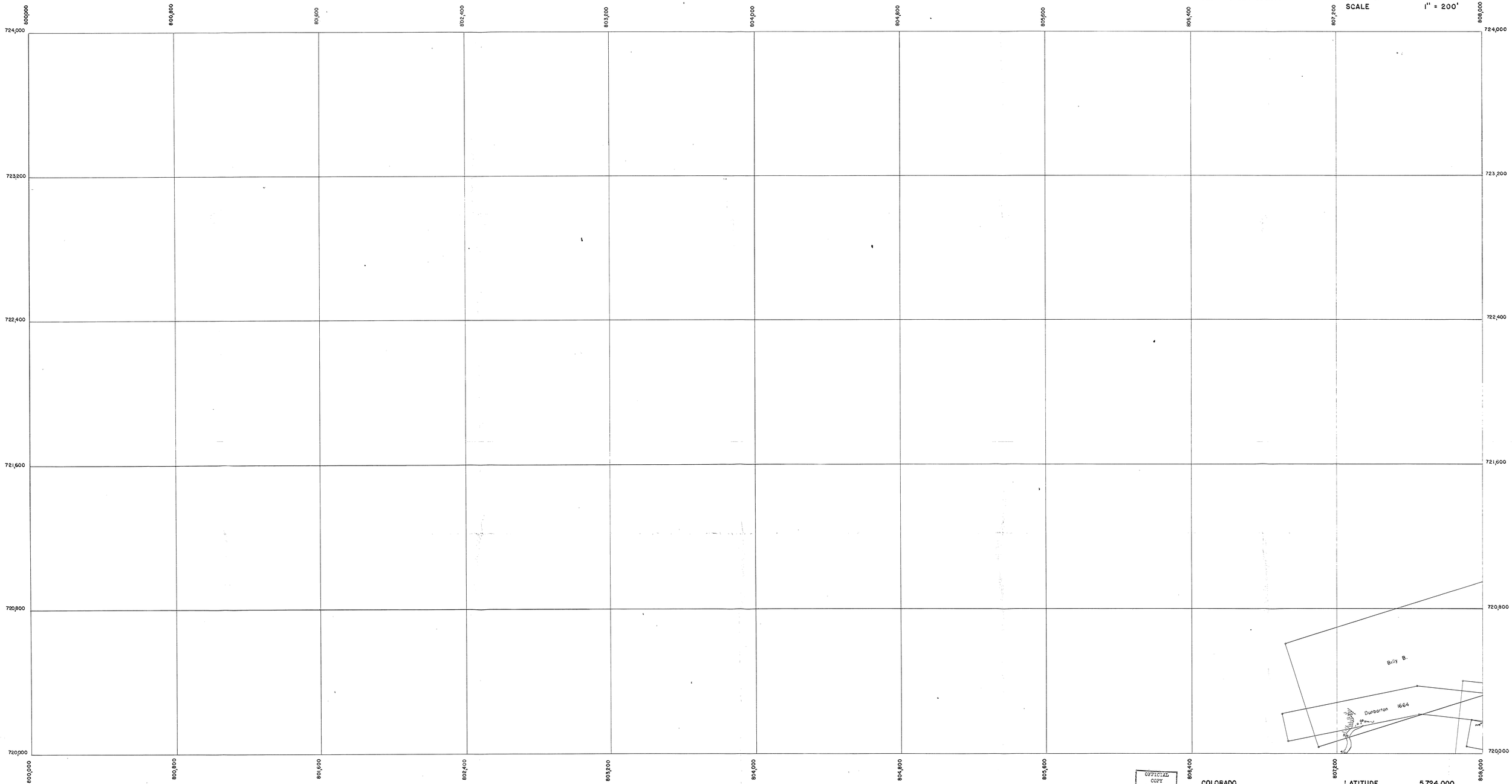

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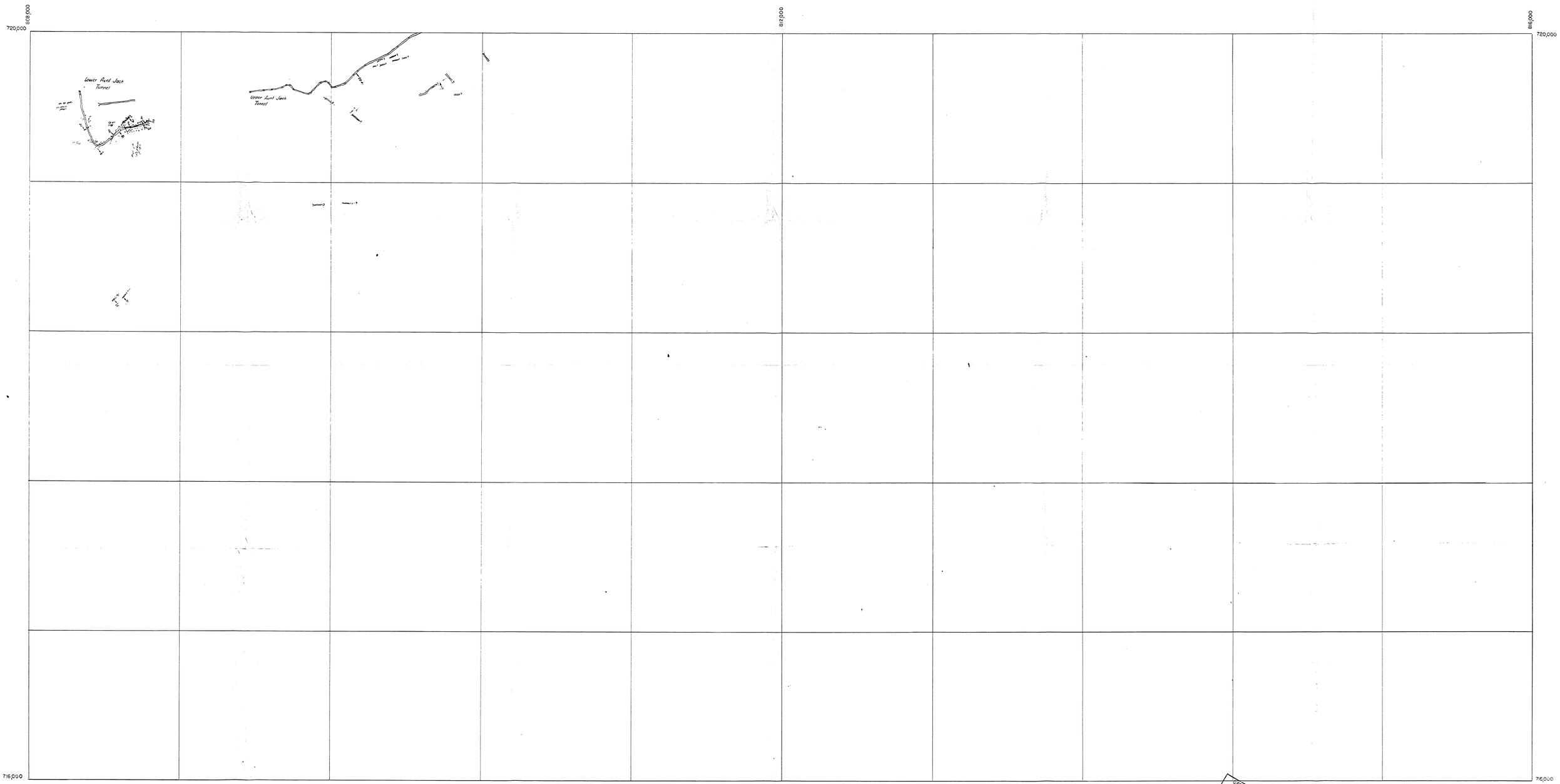

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INSPECTION DIV.

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CLEAR CREEK COUNTY
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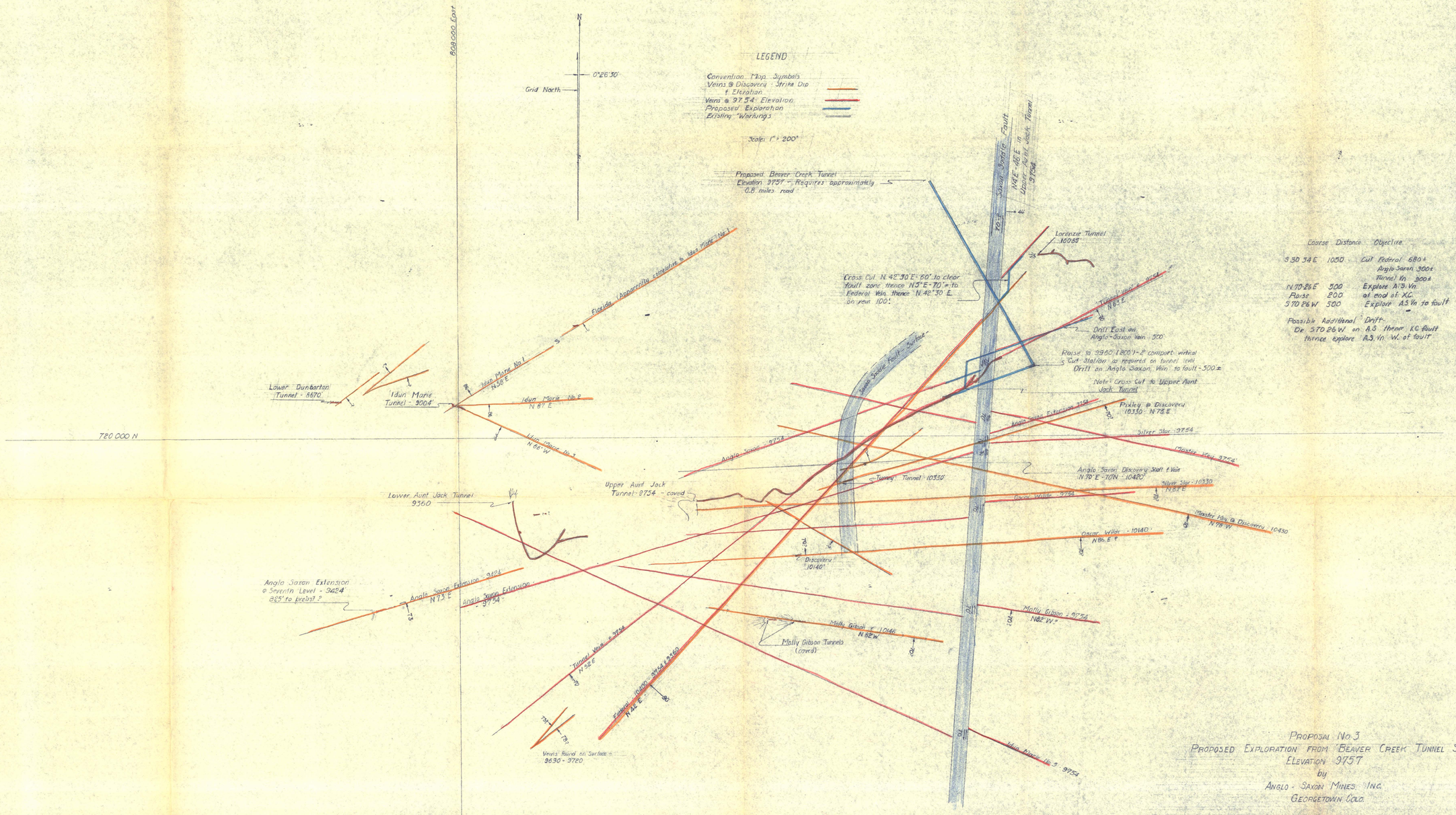
DEPARTURE 2,816,000
UNDERGROUND

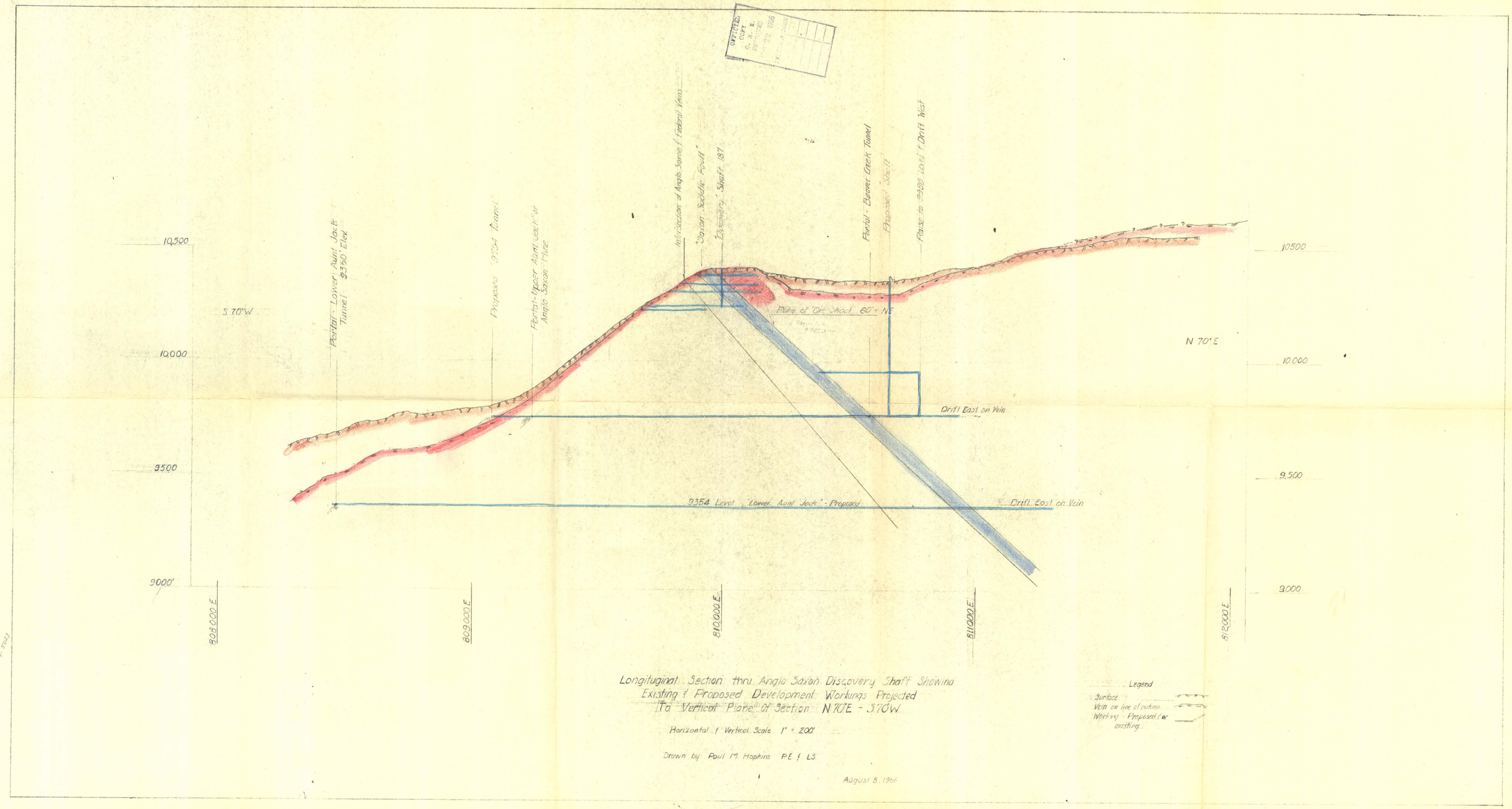


PROPOSAL No. 3
PROPOSED EXPLORATION FROM "BEAVER CREEK TUNNEL SITE
ELEVATION 9757
by
ANGLO - SAXON MINES INC.
GEORGETOWN COLO.

Drawn by Paul M. Hopkins P.E. & L.S.

Plan Map No 2.

August 8, 1966



Longituginal Section thru Anglo Saxon Discovery Shaft Showing
Existing & Proposed Development Workings Projected
To Vertical Plane of Section N 70°E - S 70°W

Horizontal & Vertical Scale 1" = 200'

Drawn by Paul M. Hopkins P.E. & L.S.

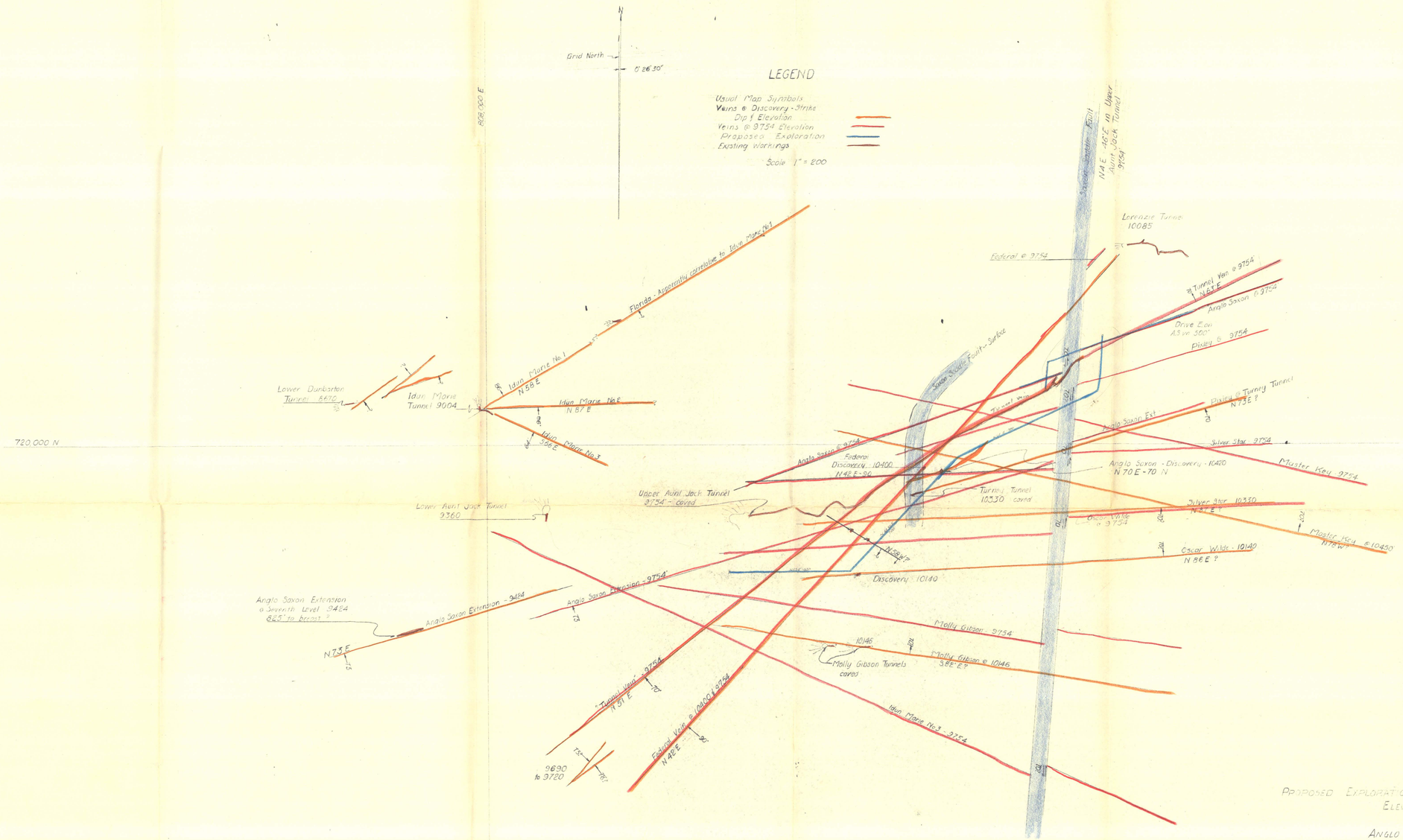
August 8, 1966

Legend

Surface

Vein on line of outcrop

Working - Proposed & or existing



Course	Distance	Description
S 89° E	550'	- S. Side of Federal Vn
N 43 30 E	700	- XC parallel to Federal Vn
N 60° E	700	XC parallel to Tunnel Vn to E side of Fault
N 5 E	250	Anglo Saxon Vn

Exploration on Vns as indicated

PROPOSED EXPLORATION FROM 9754 TUNNEL SITE
ELEVATION 9754
by
ANGLO SAXON MINES INC
GEORGETOWN, COLO

Drawn by Paul M. Hopkins PE & LS

Plan Map No. 3 August 8, 1966

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