32

475 Robert B. Hicks
417 S. Hill St - Los Angeles, Calif

Ray R. Cogan
R. J.

229 32-36 15508

AGREEMENT

THIS AGREEMENT, made and entered into this 1st day of ~~August~~ September, 1959, by and between TOMBSTONE DEVELOPMENT COMPANY, an Arizona corporation, as "Lessor", and FRANK J. FRANKOVICH, of Phoenix, Arizona, as "Lessee",

WITNESSETH, That

In consideration of the sum of Ten Dollars ($10), receipt whereof Lessor does hereby acknowledge, and in further consideration of the covenants, royalties and agreements by the said parties to be kept and performed, it is mutually agreed as follows:

1. Lessor does hereby lease, demise and let unto Lessee all of its right, title and interest in and to that certain patented lode mining claim situate, lying and being in the Tombstone Mining District, in the County of Cochise, State of Arizona, known as the VIZINA Patented Lode Mining Claim, U. S. Mineral Lot No. 59 and Patent Number 5156, included in the description of the property conveyed from Bunker Hill Mines Company to Tombstone Development Company by deed dated July 10, 1935, recorded July 22, 1935 in Book 34 of Deeds of Mines at page 368 in the office of the County Recorder of said Cochise County;

TO HAVE AND TO HOLD the same unto the said Lessee for a term of three (3) years commencing on the date hereof and expiring August 31, 1962, unless sooner forfeited or terminated in the manner herein provided, for the purposes of exploring and prospecting for, developing and mining of ore, materials and minerals of all kinds, and with the right to remove, ship, treat, sell and dispose of the same and to retain the proceeds therefrom for Lessee's own use upon payment to the Lessor of the royalties hereinafter set forth. Upon the expiration of the said term and provided this lease shall not have been sooner forfeited or terminated, the Lessee shall have the option to extend this lease for an additional term of five (5) years, by giving written notice thereof to the Lessor at least sixty (60) days prior to the expiration date of said initial term.

2. Lessee acknowledges having been advised and agrees that the rights acquired by him under this lease shall be subject to any exclusions of surface rights in the original patent, and restricted in accordance with the terms of certain deeds and quitclaims heretofore executed by Lessor in favor of others, including owners of residences situate and lying in whole or in part within the leased premises. It is further agreed that for lack of exact surveys in any disputes arising as to the limits of said leased premises, the decision of the Lessor shall be conclusive and binding upon the parties hereto.

3. Upon commencement of the term of this lease, Lessee may enter into and upon the leased premises and take immediate possession thereof and initiate and carry on exploration and development work thereon, including, without

limitation, such geological and geophysical surveys, mapping, drilling, excavation, tunnelling and sampling activities as in the judgment of Lessee may seem justifiable or advisable. Upon discovery in Lessee's opinion of mineable ore in commercial quantity within the leased premises, and provided this lease shall not have been forfeited, surrendered or terminated, Lessee shall commence and thereafter continue with diligence to mine and remove from the leased premises, all such ore encountered therein.

4. All such work shall be performed by Lessee at his own expense, and shall be carried out in a proper miner-like manner with reasonable dispatch and continuity, and with due regard to the development and preservation of the leased premises as a workable mining property. Lessee shall pay promptly for all labor employed and for all materials and supplies used in his operations hereunder, and shall keep the leased premises free and clear from all liens resulting from his said operations. Lessee shall file or cause to be filed with the office of the County Recorder, County of Cochise, State of Arizona, an appropriate notice of Lessor's non-responsibility in connection with operations hereunder. Lessee, his agents and engineers, shall at all times comply in all respects with all laws and regulations pertaining to the performance of such work, shall provide industrial or workmen's compensation insurance covering all such operations in the amount and form required by law, and shall make all reports and conform to all laws and regulations affecting the same.

5. Lessee hereby undertakes to perform during the first twelve (12) month period of the said term hereof a minimum of 1,000 linear feet of core drilling consisting of at lease one drill hole on the leased premises. Said drilling work shall begin not later than four (4) months from the beginning of the term of this lease. Upon completion of said minimum core drilling work within the period of time herein specified, and provided this lease shall not have been forfeited or terminated, Lessee agrees, during the last eighteen (18) months of the initial term hereof, to make expenditures on the leased premises at an annual rate of not less than $2,000. Thereafter, and provided this lease shall have been extended for an additional term of five (5) years, as in paragraph 1 set forth, Lessee shall perform a minimum of 100 shifts of work per annum during the continuation of this lease on the leased premises.

6. All marketable ores and products therefrom produced from the leased premises shall be shipped by lessee for treatment and sale to the smelter, mill or other metal purchaser which, in Lessee's opinion, offers the most favorable terms, transportation and other costs and charges considered. The Lessee shall pay to the Lessor a royalty calculated on the net returns, as herein defined, received by the Lessee from the sale of all ores, minerals and metals produced from the leased premises in accordance with the following schedule:

For all ore, minerals and metals
from which net returns equal $10
per ton or less 3%

For all ore, minerals and metals from which net returns equal more than $10 per ton up to and including $30 per ton, for each dollar per ton increase an increase of . . . . . 1/4 of 1%

For all ore, minerals and metals from which net returns equal more than $30 per ton 10%

"Net returns", as used herein, is agreed to mean the amount of the payments received by the Lessee from the smelter, mill or mint to which any ore or concentrates derived from the leased premises are delivered for treatment and sale, after deduction has been made of all smelter, mill or mint charges and deductions, and all freight and transportation costs from the leased premises to the smelter, mill or mint, as the case may be. Such transportation costs shall not exceed the charges fixed by the lowest bidding Public Utilities Commission trucking contractor in the Tombstone District. All royalty due the Lessor upon the net returns from said ore shall be paid by check or draft made payable to the Lessor by the smelter or other purchaser, with a copy of the settlement sheet, and all such royalty not previously paid shall become due and payable to Lessor on or before the last day of each calendar month for all returns received by the Lessee during the preceding calendar month. All mine ore shall remain the property of Lessor until full settlement has been made for the royalty due Lessor hereunder.

7. Lessee shall keep all tunnels, drifts, shafts and other mine workings of a permanent nature constructed or used by him, free and clear of loose rock and rubbish except when prevented from doing so by mining casualty or other causes beyond his control. All underground openings made by Lessee shall be timbered where necessary and properly drained, and shall be of such size as will meet all requirements of good mining practice. Lessee, however, shall not be obligated to maintain abandoned tunnels, stopes, or sections which have been worked out, or which are, in the opinion of Lessee, unnecessary to his operations hereunder.

8. Lessee agrees to pay all taxes levied and assessed upon the leased premises, or any part thereof, including taxes measured on production, and also including taxes measured on improvements placed upon the leased premises by Lessee during the continuance of this lease, commencing with taxes levied and assessed for the calendar year 1939, and to make payments thereof when and as required by the Statutes of the State of Arizona so that no default in taxes upon the leased premises shall occur, and to deliver to Lessor upon request the original or duplicate tax receipts for payments made. Should Lessee be in possession under this lease for only a portion of a year, the tax for that year shall be prorated between the Lessor and the Lessee on the basis of taxes for the last preceding year.

Lessor may elect to pay such taxes in the first instance, and in such event shall give Lessee timely notification of its intention to do so. Lessee shall reimburse Lessor promptly for all taxes so paid by Lessor which are allocable to the premises or to production therefrom.

9. The Lessor shall have access to the leased premises at all reasonable times to inspect the same and to take samples therefrom, and shall have the right at all times to be present at the weighing and sampling of ores mined from the leased premises, all at Lessor's own risk and expense. The Lessee shall make and keep accurate maps and records of all his operations on the leased premises, and costs pertaining thereto, and the same shall be available at all reasonable times for inspection and the making of copies by Lessor. Beginning one year from the date hereof and annually thereafter during the term of this lease, as extended, Lessee shall furnish Lessor with a written, reasonably detailed statement of his expenditures on the leased premises for the preceding twelve (12) month period. Upon request, Lessee shall also furnish Lessor with copies of maps, assays, diamond drill logs, and records pertaining to the leased premises and the mineralization thereof.

10. In the event of termination of this lease by expiration of the term thereof, or for any other reason whatever, the Lessee agrees to surrender the leased premises to the Lessor in good condition. The Lessee, however, shall have the right to remove from the leased premises any and all track, pipe, cables, machinery, equipment, tools, supplies, fixtures and appliances of any nature whatsoever installed by him on or in the leased premises, but if any such be not removed within ninety (90) days following the termination of this lease the same shall thereupon become and remain the property of the Lessor.

11. Lessee hereby agrees at all times to indemnify, save and keep Lessor harmless from and against any and all claims, suits, losses, damages or liability of any kind arising from or as a result of the exercise by him or his agents of any of the rights herein granted, and Lessee shall further, within thirty (30) days from the date hereof, furnish to the Lessor evidence that he has secured insurance for such purposes with a carrier satisfactory to the Lessor, and to an amount of not less than $500,000 per person and $500,000 per occurrence for personal injury, and $500,000 per accident for property damage.

12. If Lessee shall fail to perform any term or condition on Lessee's part to be performed, Lessor may give Lessee notice in writing specifying such failure, and the Lessee shall have ten (10) days thereafter to remedy such default within said ten (10) day period, this lease shall terminate. The failure of Lessor in any one or more instances to insist upon the performance of any of the terms and conditions hereunder shall not be construed as a waiver or relinquishment of the right to insist upon the strict performance in the future of any such terms or conditions.

13. Lessee may surrender and terminate this lease upon thirty (30) days prior written notice to Lessor, and upon such surrender or upon such termination for any default, Lessee shall be freed from any and every obligation and liability hereunder, excepting only the following obligations, which, by the express provisions hereof, have then become fixed and unconditional, to-wit: (a) Lessee's obligation to pay percentage royalty upon the net returns from all ore extracted from the leased premises; (b) Lessee's obligation to keep the said property free and clear from all liens resulting from its operations hereunder; (c) Lessee's obli-

gation to indemnify Lessor against liabilities to third parties attributable to or resulting from Lessee's operations on the leased premises; and (d) Lessee's obligation to pay taxes levied and assessed in the current year in which such termination becomes effective, apportioned on the basis of taxes for the last preceding calendar year as in paragraph 8 hereof provided.

14. Time shall be of the essence of this Agreement, but whenever the time for performance thereof is hindered, prevented or delayed by any fact or circumstance beyond the reasonable control of the party obliged to perform, and which such party could not have avoided by the use of due diligence, then the time for performance of any such act, obligation or expenditure shall be extended for a period equal to the extent of such delay.

15. Notice given under this Agreement shall be deemed sufficiently given if sent by registered mail, postage prepaid, addressed to the parties, as follows:

Lessor: Tombstone Development Company
Office of the Secretary (Nineteenth Floor)
300 Park Avenue
New York 22, New York

Lessee: Frank J Frankovich
3351 North Sixth Avenue
Phoenix, Arizona

16. The rights of Lessee hereunder shall not be subject to assignment or subleasing, except with the previous written consent of the Lessor; and in the event any such assignment or sublease without Lessor's consent is made, whether voluntary or involuntary, the same shall constitute grounds for termination of all rights hereunder. Subject to this condition, the provisions of this lease shall be binding upon the parties hereto, their heirs, successors, administrators and assigns.

IN WITNESS WHEREOF, this Agreement has been executed by the duly authorized officers of Lessor and by the Lessee on the day and year first above written.

TOMBSTONE DEVELOPMENT COMPANY (Lessor)

By _____
President

Attest:

Jayne L. Leroy

Frank J. Frankovich
Frank J. Frankovich (Lessee)

STATE OF NEW YORK } SS
COUNTY OF NEW YORK }

This instrument was acknowledged before me this 3rd day of August, 1959, by

_____
Notary Public

MARY A. TARANTINO
NOTARY PUBLIC, STATE OF NEW YORK
No. 30-7[illegible]
Qualified in Bronx County
Certificate filed in New York County
Commission Expires March 30, 1961

STATE OF NEW YORK } SS
COUNTY OF NEW YORK }

This instrument was acknowledged before me this [illegible] day of August, 1959, by FRANK J. FRANKOVICH.

_____
Notary Public

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of June, 1961, by and between ARNOLD J. REINARTZ, a single man, FRANK S. PACK, a single man, both of Cochise County, Arizona, and GEORGE E. KENNEDY, a married man, of Los Angeles County, California, Parties of the First Part, hereinafter referred to as Lessors, and FRANK J. FRANKOVICH, a married man, of Maricopa County, Arizona, Party of the Second Part, hereinafter referred to as Lessee,

WITNESSETH:

WHEREAS, Lessors are the owners of the MOUNTAIN MAID patented mining lcaim located in Section 11, Township 20 South, Range 22 East, Cochise County, Arizona; and

WHEREAS, the parties hereto are desirous of entering into an agreement to provide for the exploration and mining of said property;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements to be kept and performed by the parties hereto, it is agreed as follows, to-wit:

(1) Exploration and Mining Rights. The Lessee shall have the exclusive right to enter upon the above described premises, with necessary equipment, for the purpose of exploration for, and mining of, mineral deposits, for a period of time as set forth under "Obligation of the Lessee" as stated in this agreement. During such period the Lessors agree that they will make no agreement, contract, or disposition affecting the said property or title thereto.

(2) No-Lien Notice. The Lessee shall file for record the original no-lien notice required by law, in the office of the County Recorder of Cochise County, Arizona. Copies of said notice shall be posted, and kept posted, by the Lessee,

during the life of this agreement, at the corner of all shafts, tunnels, entrances to the mine, and offices on said property.

(3) Taxes. The Lessee shall pay all taxes or assessments assessed against the said property from date of this agreement, together with all excise or sales taxes on all ores mined, milled or shipped under this agreement. Lessors shall pay all taxes assessed against the said mining claim prior to date of agreement. Should the Lessee fail to pay the taxes or assessments, then the Lessors shall have the right, at their election, to pay such taxes or assessments and the amount or amounts thereof shall be added to and become a part of the principal lease price, and such amount shall bear interest at the rate of 8% per annum from the date of payment thereof, or Lessors may declare a forfeiture of this agreement, the same as for failure to make the payments or meet the agreements hereunder.

(4) Materials Claims. The Lessee shall pay all claims for labor, materials, supplies, services and equipment incurred by him. The Lessee further agrees to save the Lessors harmless from any claims, debts, or liens against the property incurred by the Lessee, or his contractors or employees.

(5) Workmen's Compensation. The Lessee shall obtain and keep in force, during the life of this agreement, adequate insurance under the Workmen's Compensation Act, or the Employer's Liability Act, of the State of Arizona, as the case may be, for injuries or deaths from accidents in operation of said mining property.

(6) Motor Vehicle Insurance. If the Lessee operates, or causes to be operated, any motor vehicle, such operation shall be adequately insured against public liability and property damage.

(7) Public Liability. The Lessee at his sole expense shall provide public liability insurance in an adequate amount, and be responsible for any damage to

property or injury to persons occurring on the mining claim, unless occasioned by the negligence of the Lessors, hereafter occurring, it being understood in this connection that the insurance provided by the Lessee shall cover the mining claim in the condition in which the Lessee finds it when he takes possession.

(8) Workmanlike Manner. The Lessee shall conduct all work upon the property in a workmanlike manner and minerlike manner, in conformity with the applicable laws of the State of Arizona.

(9) Termination by Lessee. Lessee may, at any time after sixty (60) days written notice to Lessors, declare this contract to be terminated, and be released of any liability whatsoever from the termination date, provided that such termination shall not relieve Lessee of any obligation incurred by him before the termination date. In this event, all monies paid to the Lessors by the Lessee shall be retained by the Lessors as rent and liquidated damages.

(10) Termination by Lessors. In the event the Lessee shall fail or refuse to make the payments provided for herein, or violate any other terms of this agreement, Lessors shall have the right to terminate and forfeit this agreement in the manner provided by Arizona law, and, upon said forfeiture and termination, this agreement shall become null and void and the Lessee shall lose and forfeit all of his right, title and interest therein and in the aforesaid mining claim, and Lessors shall be entitled to retain all sums theretofore paid them and also be entitled to recover any sums due them up to the date of said termination and forfeiture.

(11) Distribution and Removal of Property upon Termination. Upon termination of this contract by either party before the set time, or on or after the set time, all improvements to the real property shall become the property of the Lessors. All machinery, equipment and supplies shall remain the property of the Lessee.

(12) Right to Assign. The Lessee shall have the right to assign this agreement or any portion thereof, providing, however, that any such assignee will be bound by the terms of this agreement to the same extent as the Lessee herein.

(13) Waiver by Lessors. Waiver by the Lessors of any failure to comply with any of the work or obligations set forth herein shall not constitute waiver of other or succeeding compliance failures.

(14) Time is of the Essence. It is understood and agreed that time is of the essence of this agreement.

(15) Obligation of the Lessee. In addition to the agreement hereinabove contained, Lessee agrees: In exchange for mineral rights and such surface rights as are necessary to conduct an efficient mining and drilling program on the Mountain Maid patented mining claim, Frank J. Frankovich, Lessee herein, will:

1. Pay to Lessors ten per cent (10%) of net smelter returns on ore mined from their claim. Smelter returns will be regarded as smelter payments less all taxes payable on claims.

2. Within three (3) months after date of this Agreement, make and file with the Office of Mineral Exploration, Department of the Interior, a loan application for not less than $15,000.00, with provision that the loan proceeds will be matched by funds provided by Lessee, the whole of said sum to be used by Lessee in prospect cross-cutting and drilling on the Mountain Maid claim and the adjoining Vizina claim.

3. Within twelve (12) months after date of this Agreement, complete not less than 200 feet of cross-cutting and not less than 500 feet of diamond core drilling on the Mountain Maid claim and the adjoining Vizina claim.

4. Meeting the above and below conditions will keep this lease Agreement valid for a period of twelve (12) months. On the first anniversary date of this Agreement, and on each succeeding anniversary date, there shall be due to Lessors and Lessee shall pay to Lessors a minimum annual lease rental

of $100.00, or a royalty on production, paid according to the above schedule, whichever is greater; Provided, however, that said minimum annual lease rental shall be increased to $500.00 per year beginning on the anniversary date of this Agreement next following any new discovery of commercial ore by any person which discovery shall be within one-half (1/2) mile of the premises herein leased.

5. Have a copy of all smelter returns sent to Lessors.

6. Make available to Lessors all records of drilling and assays of cors and logs of holes.

7. Failure to meet any of the above conditions will cause all rights conveyed under this agreement to revert back to Lessors.

(16) Royalties may be Escrewed. If anyone not a party to this lease shall file suit against the Lessee or both parties to this lease, claiming to be the owner of and entitled to all or any part of the earned royalties due under this lease or from mining operations beneath the surface of said Mountain Maid claim then Lessee shall have the right to deposit all earned royalties in an escrow fund with any bank in Cochise County, Arizona, until the ownership thereof be judicially determined in such litigation.

(17) All payments required to be made by Lessee to Lessors and all returns, notices and other instruments required to be given or sent by Lessee to Lessors under the terms of this Agreement shall be mailed by Lessee by regular mail to Lessors in care of W. K. Meloy, 1021 G Avenue, Douglas, Arizona.

(18) Successors. This contract shall extend to, and be binding upon, the heirs, successors, administrators, assigns or personal representatives of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

ARNOLD J. REINARTZ

FRANK S. PACK

By: _____

ARNOLD J. REINARTZ,

Attorney in Fact.

_____

GEORGE E. KENNEDY

LESSORS

_____

FRANK J. FRANKOVICH

LESSEE

STATE OF CALIFORNIA }
COUNTY OF LOS ANGELES }

On June 6, 1961, before me, the undersigned, a Notary Public in and for said County and State, personally appeared ARNOLD J. REINARTZ known to me to be the person whose name is subscribed to the within instrument, as the Attorney in fact of FRANK S. PACK, and acknowledged to me that he subscribed the name of FRANK S. PACK thereto as principal and his own name as Attorney in fact.

WITNESS my hand and official seal.

_____

Notary Public in and for said
County and State
ANN MURPHREE
My Commission Expires March 15th 1962

STATE OF CALIFORNIA }
COUNTY OF LOS ANGELES } SS.

On June 6, 1961, before me, the undersigned, a Notary Public in and for said County and State, personally appeared ARNOLD J. REINARTZ, a single man, and GEORGE E. KENNEDY, a married man, known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

_____

Notary Public in and for said
County and State
ANN MURPHREE
My Commission Expires March 15th, 1962

STATE OF ARIZONA)
) ss.
COUNTY OF COCHISE)

This instrument was acknowledged before me this _____ day of _____, 1961, by Frank J. Frankovich, a married man.

_____
Notary Public

My commission expires

_____

[illegible] of Attorney 476

[illegible] FRANK S. [illegible] of Cochise County

Arizona

the undersigned (jointly and severally, if more than one) hereby make, constitute and appoint

ARNOLD J. RINEHART, County of Los Angeles, State of California

my true and lawful Attorney for me and in my name, place and stead and for my use and benefit:

[illegible]

Witness my hand this [illegible] day of [illegible] 19[illegible]

STATE OF CALIFORNIA
COUNTY OF [illegible]

[illegible]

Frank S. [illegible]

[illegible]

TOMBSTONE MINING LEASE

This lease, made this 29 day of June, 1961, by and between WALTER C. FOSTER, in his capacity as Mayor of the City of Tombstone, Cochise County, State of Arizona, and in no other capacity, and as ex-officio Trustee for the several use and benefit of the occupants of the Tombstone Townsite of Cochise County, Arizona, hereinafter referred to as Lessor, and FRANK J. FRANKOVICH, a married man whose wife is Marcene D. Frankovich of Maricopa County, Arizona, hereinafter referred to as Lessee:

W I T N E S S E T H :

WHEREAS, it appears to the Lessee by virtue of certain title reports and investigations that Lessor in his ex-officio capacity as Trustee, may be the owner of all or part of the mineral rights of the area described in Exhibit A attached hereto, to which reference is hereby made for a more particular description, and which is located within Township 20 South, Range 22 East, Cochise County, Arizona; and

WHEREAS, the parties hereto are desirous of entering into an agreement to provide for the exploration, leasing and mining of minerals forty feet below the surface of said described area and to any depth below the said forty feet; and

WHEREAS, Lessor does not make any representation or warranty as to ownership of the minerals beneath the surface of any portion of the said described area and makes no warranties or representations relative to his authority to lease the same to Lessee, but to the extent of his authority and his ownership, as such Trustee, Lessor, acting for and on behalf of the several use and benefit of the occupants of the Tombstone Townsite and pursuant to such authority as is vested in him by law, enters into this lease with the Lessee for the purpose of producing,

for and on behalf of the occupants of the Tombstone Townsite, such income as may be available from the mining operations conducted by the Lessee under this lease.

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements to be kept and performed by the parties hereto, it is agreed as follows, to-wit:

(1) Exploration and Mining Rights. Insofar as Lessor is legally capable of granting the same, Lessee shall have the exclusive right to enter within said described area, as stated in this lease. Lessor agrees, if Lessee requests permission of the City of Tombstone to enter upon the surface of any of said described area, (within the streets and alleys or any portions of the surface not claimed by an owner thereof) to use his good offices to procure such permission from the Mayor and Common Council of the City of Tombstone, it being understood that such permission may or may not be granted and then only upon such conditions as the Council shall specify. The word "surface" as used herein shall mean the surface to a depth of forty feet. During the term of this lease Lessor agrees that he will make no agreement, contracts, or disposition affecting the mineral rights forty feet beneath the surface of any of said described area or the title thereto, except as he may be otherwise required by law to do so.

(2) No-Lien Notice. The Lessee shall file for record no-lien notice as required by law, in the office of the County Recorder of Cochise County, Arizona. Copies of said notice shall be posted, and kept posted, by Lessee, during the life of this lease, as required by Arizona Statutes.

(3) Taxes. Lessee shall pay all taxes assessed against the sub-surface minerals of said described area from date of this lease, together with all excise or sales taxes on all ores mined, milled or shipped under this lease. Lessee

shall pay all taxes assessed against Lessor's interest in said described area. Should Lessee fail to pay said taxes, then Lessor shall have the right, at his election, to declare a forfeiture of this lease, the same as for failure to make the payments due hereunder.

(4) Materials Claims. Lessee shall pay all claims for labor, materials, supplies, services and equipment incurred by him. Lessee further agrees to save Lessor harmless from any claims, debts, or liens against the property incurred by Lessee or his contractors or employees.

(5) Workmen's Compensation. Lessee shall obtain and keep in force, during the life of this agreement, adequate insurance under the Workmen's Compensation Act, or the Employer's Liability Act, of the State of Arizona, as the case may be, for injuries or deaths from accidents in operation of said mining property.

(6) Motor Vehicle Insurance. If the Lessee operates, or causes to be operated, any motor vehicle, such operation shall be adequately insured against public liability and property damage.

(7) Public Liability. Lessee at his sole expense shall provide public liability insurance in amounts not less than 100/300 thousand dollars to protect against injury and/or damage to persons or property occurring in or as the result of the operation of said mining operations in connection therewith, whether on the surface or beneath the surface and Lessee agrees to hold Lessor harmless thereby against any claims or demands for injury to the person or property of any person arising out of the mineral operations of Lessee contemplated under this lease.

(8) Workmanlike Manner. The Lessee shall conduct all work upon the property in a workmanlike miner-like manner, and in conformity with the applicable laws of the State of Arizona.

(9) Termination by Lessee. Lessee may, at any time after sixty (60) days' written notice to Lessor, declare this contract to be terminated and be released of any liability whatsoever from the termination date, provided that such termination shall not relieve Lessee of any obligation incurred by him before the termination date. In this event, all monies paid to Lessor by Lessee shall be retained by Lessor as rent and liquidated damages.

(10) Termination by Lessor. In the event Lessee shall fail or refuse to make the payments provided for herein, or violate any other terms of this agreement, Lessor shall have the right to terminate and forfeit this lease within ninety days after written notice and, upon said forfeiture and termination, this lease shall become null and void and Lessee shall forfeit all right, title and interest therein and in said described area, and Lessor shall be entitled to retain all sums theretofore paid and also be entitled to receive any sums due him up to the date of said termination and forfeiture.

(11) Distribution and Removal of Property upon Termination. Upon termination of this lease by either party as herein provided, or upon the expiration of this lease, all improvements to the real property shall become the property of the Lessor and Lessee shall leave intact all pipe, well and timber underground; all machinery, equipment and supplies shall remain the property of the Lessee.

(12) Right to Assign. Lessee shall have the right to assign this lease providing, however, that any such assignee shall be bound by the terms of this agreement to the same extent as the Lessee herein.

(13) Waiver by Lessor. Waiver by the Lessor of any failure to comply with any of the work or obligations set forth herein shall not constitute waiver of other or succeeding compliance failures.

(14) Time is of the Essence. It is understood and agreed that time is of the essence of this agreement.

(15) Obligation of the Lessee. In addition to the agreement hereinabove contained, Lessee agrees: In exchange for the mining and mineral rights in the described area, FRANK J. FRANKOVICH, Lessee herein, will:

1. a) Pay to Lessor a royalty of 10% of the net smelter returns of ores extracted, smelted, milled, or removed from said property in accordance with the pro-rata plan hereinafter set forth (referred to hereafter as "earned royalties").

b) The amount of the royalty due and payable to Lessor shall be computed upon the royalty schedule above set forth and based upon the pro-rata amount of the surface ground of the described area which has not been conveyed to third parties by Lessor or his predecessors; it being understood that Lessee shall pay to Lessor and Lessor is entitled to receive from Lessee that pro-rata share of the net smelter return represented by that proportionate part of the surface area of said described area the title to which is held by Lessor, as such trustee, as the same bears to the entire surface of said described area.

c) To explain the meaning of this paragraph, the parties agree that if the Lessor, as such Trustee, holds title to one-fourth of the surface of said described area, Lessor shall be entitled to receive one-fourth of the 10% royalty called for herein; it being further understood that the area of all streets, alleys and/or pathways shall be included as surface ground held by the Lessor as such trustee; provided, further, that if it be judicially determined that the Lessor, as Trustee, owns all of the minerals under the surface of said described area, then Lessor is entitled to all of the royalties due and payable hereunder.

2. Net Smelter Returns. The term "the net smelter returns" as used herein shall mean the total amount paid on each shipment of crude ores or concentrates by the smelter or mill after the deduction of treatment charges and railway or truck freight charges from the mine to the mill and/or smelter;

EXHIBIT A

Forty feet beneath the surface of all those lands lying westerly of the center line of 5th Street, Tombstone, Arizona, and within the original Townsite of said City of Tombstone and also within the subsequent addition thereto known as Bowman Addition, hereinafter referred to as "said described area", and located within the City of Tombstone, Township 23 South, Range 22 East, Cochise County, Arizona.

3. Financing. Within three (3) months after date of this Agreement, Lessee will make to and file with the Office of Mineral Exploration, Department of the Interior, a loan application for not less than Five Thousand Dollars ($5,000.00), with provision therein that the loans proceeds will be matched by funds to be provided by the Lessee, the whole of said loan proceeds and matching funds to be used by Lessee in prospect crane-cutting and drilling on the said described area and the adjoining Vinina claim.

4. Exploration. Within thirty-six (36) months after date of this Agreement, Lessee shall spend not less than [illegible] in exploratory drilling and mining operations on the said described area and on the adjoining Vinina claim, said sum to be expended by Lessee at the rate of at least $8,000.00 per year; PROVIDED, however, that the Lessee may accelerate the expenditure of said sum and spend the whole of the said $24,000.00 in the first year or in the first and second years of said thirty-six (36) months period.

5. Minimum Annual Rental. Meeting the above and below conditions will keep this lease agreement valid for a period of thirty-six (36) months from date of signature. At the end of the thirty-sixth (36th) month after date hereof there shall be due to Lessor a payment of $100.00; annually thereafter a minimum payment of $100.00 will be due Lessor, or a royalty on production paid according to the schedule above, whichever is greater, continuously, as long as Lessee desires to keep this agreement valid and in effect, but for a maximum of 15 years; it being understood that if the royalties paid to Lessor in the annual period preceding the date on which any of said $100.00 payments is due, equals or exceeds $100.00, then no minimum payment of $100.00 shall be due and owing hereunder. Lessee further agrees that the minimum annual lease rental of $100.00, herein provided for, shall be increased to $500.00 beginning on the annual payment date next following any new discovery of commercial ore by any person which discovery shall be within one-half (1/2)

mile of the premises herein leased.

6. Smelter Returns. Have a copy of all smelter or mill returns sent to Lessor.

7. Records and Reports. Make available to Lessor all records of drilling and assays of core and logs of holes, together with all geological data obtained in the corresponding operations, including the assays that may be made of samples taken in said operation.

8. Default. Failure to meet any of the above conditions will cause all rights conveyed under this agreement to revert back to Lessor; and the Lessor may terminate this lease and take such action as is available to him to recover the premises if Lessee does not voluntarily surrender possession of same.

(16) Royalties May Be Escrowed. If anyone shall file suit against Lessee, Lessor, or both parties to this lease, claiming to be the owner of and entitled to all or any part of the minerals beneath the described area or the earned royalties due under this lease or any royalties from mining operations beneath the surface thereof, then Lessee shall have the right to deposit all earned royalties in an escrow fund with any bank in Cochise County, Arizona, until the ownership thereof be judicially determined in such litigation.

(17) Successors. This lease shall extend to, and be binding upon the heirs, successors, administrators, assigns or personal representatives of the parties hereto.

IN WITNESS WHEREOF, the parties have hereunto set their hands this 29 day of June, 1961.

Signed: Walter C. Foster

[redacted]
Mayor of the City of Tombstone,
ex-officio Trustee for the several use
and benefit of the occupants of the
Townsite of Tombstone

Lessor

[redacted]

Lessee

STATE OF ARIZONA)
) ss.
COUNTY OF COCHISE)

On this the ____ day of _____, 1961, before me, the undersigned notary public, personally appeared Walter C. Foster of the State and County aforesaid, known to me to be the person described in the foregoing instrument, and acknowledged that he executed the same in the capacity therein stated and for the purpose therein contained.

In Witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

My commission expires:

_____

STATE OF ARIZONA)
) ss.
COUNTY OF COCHISE)

This instrument was acknowledged before me this _____ day of _____, 1961, by Frank J. Frankovich.

_____
Notary Public

My commission expires:

_____

EXHIBIT A

The Mountain Maid Patented Mining Claim, located within the original Townsite of the City of Tombstone, Arizona, and all those certain lands lying westerly of the center line of Fifth Street, Tombstone, Arizona, and within the said original townsite of the City of Tombstone, and also within the subsequent addition thereto known as Bowman Addition, all hereinafter referred to as "said described area," and located within the City of Tombstone, Township 20 South, Range 21 East, Cochise County, Arizona.

OME Loan Application

Frank J. Frankovich
3351 N. 6th Ave.
Phoenix, Arizona

INFORMATION REQUIRED WITH APPLICATION

1. Financial Eligibility:

(a) Evidence of efforts to obtain other credit. Following this page are copies of letters showing that I have applied for a loan with the bank with which I have my regular accounts and which has loaned me money for other purposes in the past, and also a request of Transworld Resources Corporation for a similar loan. The answers to my requests for loans are also on the following pages. These are but two examples of my many efforts to obtain financing for my silver exploration. I can not obtain a loan on practically any terms to continue my work.

(b) Affiliated Company: Transworld Resources Corporation
417 South Hill St., Room 1256
Los Angeles 13, California
and
2000 National Bank of Commerce Bldg.
San Antonio, Texas

Transworld Recources Corporation owns a 25½% net profits interest in the Vizina and Mountain Maid claim leases. The legal document under which this interest was conveyed is a letter-contract between the applicant and Transworld Redources Corp. and it is not recorded.

(c) Method by which applicant will furnish his share of the cost of the exploration work. It is the applicant's plan to organize an Arizona Corporation when and if this application is approved, and sell shares to a few Phoenix business men. Several men have already agreed to go along with me and have deposited most of the needed matching funds in a trust account pending approval of this loan application and formation of the corporation. When the corporation is formed I will assign the leases on the subject mineral properties to the corporation, subject to the OME's lien subordination agreement.

2. Applicant's Rights in Land:

(a) I am the lessee of the subject mineral properties, namely, the Vizina and Mountain Maid patented mining lode claims, and also certain mineral rights owned by the Townsite of the City of Tombstone, Arizona. Copies (one is true of each lease) are included with this application, and will be found in the pocket inside the front cover of this folder. There are not any liens or other encumberances on the properties, other than the 10% royalty to be paid the owners on production.

1-(a) 2

Bank credit request

FRANK J. FRANKOVICH
Consulting Geologist
3351 NORTH SIXTH AVENUE
PHOENIX, ARIZONA

June 21, 1961

Valley National Bank
Indian Central Branch
Phoenix, Arizona

Attention: Donald ". Kirkman, Assistant Manager

Re: Loan Application for Silver Exploration in Tombstone, Arizona

Dear Mr. Kirkman:

I applied in person with you today for a loan to carry on my silver exploration work in Tombstone, Arizona. This letter is written to further that application by providing information on the subject not not covered on your standard loan application form.

The money from the $25,000 loan I am applying for will be supplemented by an additional $25,000 inm other funds to provide sufficient funds to adequately test the silver prospect. I am sure the loan can be repaid in five annual installments with 8% interes and I request the loan on those terms.

Although we discussed the use of the loan and matching funds in some detail, I will summarize the use again here for your record. The principal exploration effort will be driving underground mine workings on on a level 100 feet below the surface to test highly favorable rock strata and geologic structures for silver ore. Just 200 feet from the proposed exploration work the same rock strata and structures produced millions of dollars worth of high grade silver ore. I have geologic reports from two independent geologists and one from a mining engineer who have examined the property and concur with my geologic interpretations, and they have recommended the property to their clients.

The total funds of $50,000 will be used approximately as follows:

Recondition shaft, surface plant, install track to face of present cross-cut	$10,000
West Vizina Exploration:	
300' of crosscut @ $40 per foot	12,000
200' of raising @ $30 " "	6,000
1,000' of diamond drill hole	5,500
East Vizina Exploration	
200' of crosscut @ $40 per foot	8,000
150' of raising @ $30 " "	4,500
727' of diamond drilling @ $5.50 per ft.	4,000
Total exploration cost.....	$50,000

The foregoing information is highly generalized, but I hope it is sufficient to permit you to act favorably on my loan application which was filled out while I was in your office. If more detailed information of any kind is desired, I will be glad to promptly send it to you.

With thanks for any consideration you may give this application.

Very truly yours,

F. J. Frankovich

Frank J. Frankovich

(4)

VALLEY NATIONAL BANK

MEMBER FEDERAL RESERVE SYSTEM

HOME OFFICE
PHOENIX
ARIZONA

June 28, 1961

ROBERT V SABECK
VICE PRESIDENT & MANAGER

INDIAN CENTRAL OFFICE

Frank J. Frankovich
3351 North Sixth Avenue
Phoenix, Arizona

RE: Loan Application for Silver Exploration in Tombstone, Arizona, your letter of 6/21/61

Dear Mr. Frankovich:

We have reviewed your application for a $25,000 five-year term loan to be used in silver exploratory work in Tombstone, Arizona.

Unfortunately, we are not in a position to make this loan under the terms you requested.

We hope that you are understanding of our declining this loan, and that you will continue to favor our bank with your business when possible.

Very truly yours,

Vice President and Manager

R. V. Sabeck
rb

1-(a) (5)

FRANK J. FRANKOVICH
Consulting Geologist
3351 NORTH SIXTH AVENUE
PHOENIX, ARIZONA

2nd request for a loan

June 21, 1961

Mr. Robert Hicks, President
Transworld Resources Corporation
417 South Hill
Los Angeles, California

Re: Loan to continue silver exploration in Tombstone, Arizona

Dear Mr. Hicks:

As you know I am endeavoring to continue my silver exploration work in Tombstone, Arizona. Since talking to you last I have contacted a number of people in Arizona about financing the additional work I wish to do. At this point I have commitments from several people to put up $25,000 for the work, but the total required as I estimate it is $50,000. Having the latter sum available will assure that sufficient work can be done to lead to finding ore in quantity.

I am asking your Company in this letter if it will loan to me $25,000 to make up the total of $50,000 needed to finish the exploration work. I would like to borrow the money for a total of 5 years at 8% interest and repay the loan in 5 equal annual installments.

It seems that your company would be the best one to approach for a loan because of your adequate finances, your activities in the mining field, your previous participation in the venture, and the fact that you have had favorable geologic reports on the project.

Although I believe you are familiar with how the money would be spent, I will summarize the general schedule of expenditures as follows:

Install surface plant, recondition shaft, install track to face of present crosscut	$10,000
West Vizina Exploration:	
300' of crosscut @ $40 per foot	12,000
200' of raising @ $30 " "	6,000
1000' of diamond drill hole @ $5.50/ foot	5,500
East Vizina Exploration:	
@ 200' of crosscut @ $40 per foot	8,000
150' of raising @ $30 " "	4,500
727' of diamond drilling @ $5.50 per foot	4,000
Total exploration cost.....	$50,000

The foregoing information is rather generalized, but I hope it is sufficient to appraise my proposal and act favorably on my request for a loan. If more detailed information of any kind is desired, I will be glad to promptly send it to you.

With thanks for any consideration you may give this request.

Sincerely yours,

F. J. Frankovich

Frank J. Frankovich

(7)

TRANSWORLD

Resources CORPORATION

417 South Hill Street Room 1256
Los Angeles 13, California
Madison 8-7514

2000 National Bank of Commerce Bldg.
San Antonio, Texas
Capitol 7-5031

Plant
Box 9, Hesperia, California

Los Angeles
July 12, 1961

Mr. Frank Frankovitch
3351 N. Sixth Avenue
Phoenix, Arizona

Re: Your Request For a Loan To Continue Silver Exploration In Tombstone, Arizona

Dear Frank:

Transworld Resources Corporation is in no position at this time to loan or invest any additional funds on the Tombstone silver project. The primary reason is that our principal exploration activities are now in Alaska where all our exploration budget has been committed for this year.

Although the prospect and potential for your Tombstone project appears as good as ever, we have invested as much as we intended to when we first got into the venture and we would prefer to reduce our interest and bring in a new partner or obtain loans from other sources for further exploration.

Sincerely yours,

Robert B. Hicks
President

RBH:en
cc: Gesick
Shaw
Slick

TRANSWORLD

Resources CORPORATION

417 South Hill Street Room 1256
Los Angeles 13, California
MAdison 8-7814

2000 National Bank of Commerce Bldg.
San Antonio, Texas
CAPitol 7-5031

Plant
Box 9, Hesperia, California

Los Angeles
May 16, 1961

Mr. Frank Frankovitch
P. O. Box 297
Tombstone, Arizona

Dear Frank:

According to your request I am stating in this letter the results of assaying the samples that I took during my visits to Tombstone while you were conducting the exploration program. I took six samples on the two visits I made to the property. The results of the assay are as follows:

	Gold		Silver		Copper	Lead
	Ounces	Value	Ounces	Value	Percentage	Percentage
#1	0.02	$0.70	338.4	$304.56		
#2	Trace		536.6	482.95	3.4	
#3	Trace		140.2	126.18	1.9	
#4	Trace		427.0	384.30	4.1	0.4
#5	0.02	0.70	122.8	110.52		

Although samples assayed up to 536.6 ozs. of silver per ton, we used up all of the funds budgeted for this program before sufficient ore was discovered to justify a mining operation.

The veins from which I took the samples appeared to be about four inches in width but on further drifting the veins pinched out instead of opening up into a large ore deposit as we had hoped. I realize that the work that has been done to date does not prove or disprove these claims but at the time we could not commit any additional money for this program. Possibly with an OME loan we might be able to continue your program at Tombstone.

Sincerely yours,

Robert B. Hicks
President

RBH:en

OME Loan Application

Frank J. Frankovich
3351 N. 6th Ave.
Phoenix, Arizona

INFORMATION REQUIRED WITH APPLICATION

2. Applicant's rights in Land

(b) Legal description of subject mineral properties and adjacent land which applicant owns or controls. All properties and adjacent lands of interest are located in Sec's. 2 and 11, T. 20 S., R. 22 E., Gila and Salt River Meridian, Arizona.

Enclosed in the front cover pocket of this folder will be found a map showing the location of the various properties. This map is a composite of prints of official survey plats from the Office of the Bureau of Land Management in Phoenix, Arizona.

The ~~xxxx~~ claims on which all of the loan and matching funds will be spent, and which contain the largest mineral potential, are the Vizina patented lode mining claim (Lot no. 59 and patent no. 5156), and the Mountain Maid Patented Lode Minging claim (U. S. Mineral Lot no. 64 and patent no. 6310). These two claims are outlined in green on the accompanying ownership map, and also on the geological map (Plate I in back pocket) to show the relationship of these claims to the principal exploration targets.

Adjoining the above claims is an area covered by a lease to the applicant from the Mayor of Tombstone who is Trustee for for the original Townsite patent and the subsequent Bowman Addition Patent. These areas are also outlind on the ownership map in green, but no work will be done on these leases.

South of the main area of interest was "open" Federal land designated as lots numbered 3, 4, and 10 of Sec. 11. Part part of ~~m~~lots number 3 and 10, and all of lot number 4 are covered by mineral lode mining locations named Silver Ledge Claims numbered 1 through 5 recorded in Docket (book) No. 277, pages 585 through 589. These claims are owned entirely by me and have no encumberances against them, and are valid with respect to location requirements. No exploration work is planned on these claims with OME loan money.

Applicant owns a ¼th undivided interest in the Intervenor Patented Lode Mining Claim, General Land Office No. 6029, Mineral Patent No. 62. The warranty deed to this interest is recorded in Docket No. 267, pages 237, and 238. The other three-quarters of the claim is ~~xxx~~ owned by the Costello family who have given me their verbal agreement to lease to me when I want to.

There are seven other patented mining claims in the area on which I had valid mining leases, and I am trying to secure them again. These leases were terminated because my partner in them

OME Loan Application

Frank J. Frankovich
3351 N. 6th Ave.
Phoenix, Arizona

INFORMATION REQUIRED WITH APPLICATION

2. (b) (Continued)

died and the legal aspects of the situation became too complex. I can not immediately re-lease the Poor-X, the Survey, or the Defense claims because the owner (the Tombstone Development Co.) is contemplating a sale. I expect to have these claims leased in the near future, however. The owners of the other four claims (Hardup, Governor Henderson, Metallic Accident, and Townsite) have given me verbal assurance they will give me new leases. I simply have not had the time to get the new leases drawn up and signed. For all practical purposes these claims are under my control, but no work is planned on them for the present even though they have a demonstrably high mineral potential.

All of the properties mentioned lie in the area known as the "Western part of the Tombstone District". There are no particular mine pr property names currently in use--the properties being known only by the individual claim names. For purposes of convenience and reference I have designated the Visina and Mountain Maid claims and immediately adjacent area the Silver Reef Prospect.

(c) All of the exploration work to be done with the requested loan and matching funds will be done on the Mountain Maid claim, except for work on the Visina claim necessary to gain access to the Mountain Maid claim. The Visina claim owners (the Tombstone Development Co., see letter on following page) have refused to sign a Lien Subordination Agreement. This is of little consequence, however, because the main target of the exploration lies on the Mountain Maid claim which covers the best remaining mineral potential.

The necessary Lien Subordination Agreements, except that on the Visina claim, have been signed, namely:

Transworld Resources Corporation
The City of Tombstone
Owners of the Mountain Maid claim

The signed Lien Subordination Agreements will be found in the pocket of the front cover. No other properties should be subject to lien subordination agreements because no work is contemplated on other properties at present.

3. Physical Description:

(a) Description of all mining and exploration activities, past and present, known to applicant. All exploration and mining activ-

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TOMBSTONE DEVELOPMENT COMPANY
300 PARK AVENUE
NEW YORK 22, N. Y.

June 2, 1961

Mr. Frank J. Frankovich
3351 North Sixth Avenue
Phoenix, Arizona

Dear Frank:

Replying to your letter of May 23rd to Bob Fulton, this is to advise that we have carefully considered your several requests in light of all circumstances and that we have concluded this is not the time for Tombstone Development Company to enter into further mining leases.

Our principal reason is that we are actively negotiating with a company interested in acquiring all of Tombstone's land (both surface and mineral rights) and that, particularly in their case, the existence of several leases (and long term ones at that) might turn out to prejudice further negotiations.

Also, we are reluctant, as Bob previously indicated to you, to risk encumbrance of some of the claims with production obligations incidental to any OME loans.

We regret not to be able to give you satisfaction at this time, but, should our negotiations work out, perhaps we will be able to interest the buyer in getting in touch with you.

Yours sincerely,

Jacques L. Leroy

JLL/mm

Air Mail

OME Loan Application

Frankovich
Phoenix, Arizona

INFORMATION REQUIRED WITH APPLICATION

8. (a) (Continued)

ities prior to 1938 are well documented and described (with many maps and sections) in the Arizona Bureau of Mines Bulletin No. 143 "Geology and Ore Deposits of the Tombstone District, Arizona", by B. S. Butler, Wilson, and Rasor, 1938. Two copies accompany this application. Plate I in the back pocket of this folder is a composite of two maps in Bull. 143 and will the basis on which the applicant will set forth his knowledge of past mining and exploration activities.

Activities After the Bulletin 143 Record to Present. Several major exploration efforts were made in Tombstone after publication of Bulletin 143. Between August 1936 and May1938 the Eagle-Picher Mining Comapny, under the direction of George Fowler, conducted a ratherextensive exploration program in the district. Eagle-Picher was exceedingly generous in allowing the applicant to inspect and reproduce all of the geologic data which they acquired and developed in their program. All of the work done by E-P was east of the Tribute dike and fault, and none in the area the applicant intends to explore. E-P's work did not find any ore.

The Anaconda Company had an option to buy all of the Tombstone Development Co.'s property in 1948 and 1949 and had a crew of geologists in the District for several months, mostly engaged in underground mapping. Their mapping activity (verbal statement to applicant by their man in charge) started in the eastern-most part of the district, from which they worked westward, north, and south. Anaconda dropped its option and withdrew its men before their mapping reached and included the stopes near the Tribute dike. They did no work west of the Tribute dike. Anaconda did no underground mining exploration, no drilling, and did not find any ore. Anaconda did no work in the area held by the applicant.

The Newmont Mining Corporation, which owns stock control of the Tombstone Development Company, also did considerable work in the district in about 1955, '56, and '57. Newmont generously offered to make available to the applicant all their information on the distrcit and gave him a brief summary of their work. They spent a rather large sum of money on underground drifting and drilling and in pumping down the water level. They found that water is no problem with modern pumps, but they did not find any ore or silver values of consequence beneath the water table or elsewhere. Their work was entirely in the deep areas in the eastern part of the district, presumably looking for copper, and they did no work in the area held by the applicant.

3. (a) (Continued)

Applicant's Exploration Activities Dec. 1958 to Present. In April 1957 the applicant made a trip to Tombstone to check on a statement made in Bulletin 143, page 108, that the productive limestones of Tombstone were untested east of the Tribute fault even though silver ore was mined from fissures above those limestones. The statement was found to be true, and the area appeared to be quite promising even though specific exploration targets were not immediately evident. It was also determined that water would not be any problem (see letter on following page from E. N. Pennebaker for a concurring opinion of the water problem). In Dec. 1958 the applicant staked open ground and obtained leases on most of the claims west of the Tribute fault. He then obtained financial support from C. Andrade, III of Dallas, Texas and started diamond core drilling in April 1959. Drilling was done on the Survey and Poor-X claims and in the area to the south of those claims and west of the Tribute fault and dike. Seventeen holes drilled totalled 3600 feet and served to outline the overall geologic structure. The favorable beds and rather extensive, but low grade silver mineralization were found. It was proved that the ore-forming solueions permeated the area, even though ore-grade concentrations were not found. This drilling had the unexpected result of indicating a hitherto unknown movement of the Tribute fault, a matter of great significance regarding ore potential. Additional mapping and reconnaissance in the old stopes proved that the Tribute fault and dike were post-mineral, and that the most accessible ore possibility remaining in Tombstone was under the Vizina and Mountain Maid claims.

At this point Andrade did not put up more money and the applicant took in Transworld Resources Corporation as a partner to do work on the "Silver Reef Prospect" (Vizina and Mountain Maid claims). Transworld agreed to spend $15,000 on the prospect for an interest, but no more in any event. Diamond drilling the prospect was first considered, but dropped because of the high cost and the unfavorable results expected. The applicant drove a 238' crosscut on the 100' level of the Vizina claim west of the Tribute dike on the Bonanza fissure (unknown previously, named by appliant), and drilled seven underground holes. See Plate I for districtwise location of the prospect, and the location and area of Plate II. Plate II shows plan detail of the Bonanza crosscut and the geology. Plate IV shows the geologic section exposed in the Bonanza crosscut, the location of diamond drill holes, and the details of mineralization.

In February 1961 the applicant ceased further work because of a lack of funds, and the work was short of the original, main objective. No underground work has been done since except for the diamond drilling shown of Plate IV to meet a lease drillin requirement. Further work was delayed by a serious injury to the applicant, the deathe of Mr. Andrade, and the difficulty of getting enough money to carry on the work on an adequate basis.. See the letter, following page, from Mr. Andrade, October 1960 for his affidavit on the results of the work to that date.

E. N. PENNEBAKER
CONSULTING GEOLOGIST
P. O. BOX 817
SCOTTSDALE, ARIZONA

May 17, 1961

Mr. Robert C. Smith
140 E. Lawrence Road
Phoenix, Arizona

Dear Mr. Smith:

Concerning the water situation at Tombstone with respect to the Frankovich-Smith project.

Bulletin No. 143, Arizona Bureau of Mines, published in 1938, states that "Water is encountered in the mines of the eastern part of the district at an elevation of 4,120 feet above sea level" (page 7). In the present area of interest water would be expected at approximately this same horizon.

Exploration proposed by the Frankovich-Smith project is near a sea level elevation of about 4,450 feet, some 330 feet above where water becomes a serious hazard. Deep exploration is not contemplated, and it is expected that any rich ores found would remain at relatively shallow horizons.

I have been underground in workings at about this same horizon (4,450 feet) and found them dry and dusty.

In my opinion, the encountering of underground water does not endanger the project as now planned.

Yours very truly

E. N. Pennebaker

ENP:mc

COPY

15

C. ANDRADE, III
INDEPENDENT OIL PRODUCER
TOWER PETROLEUM BUILDING
DALLAS, TEXAS

October 31, 1960

TO WHOM IT MAY CONCERN:

RE: Andrade Syndicate and Frankovich Silver Prospect in Tombstone, Arizona

In response to the request of Mr. F. J. Frankovich, I am setting forth the essential facts regarding my participation in his search for silver ore in Tombstone, Arizona. The purpose of this letter is to state that money supplied to Mr. Frankovich has been spent according to plan, its use verified, and the technical results of the work as appraised by our own engineer were found to be entirely favorable and worthy of substantial additional investment.

In January, 1959, a syndicate of myself and nine others decided to put up $36,000.00 after hearing Mr. Frankovich's proposal in the company of other geologists. This money was to be used for diamond drilling in Tombstone under a contractual agreement where we were mutually responsible to each other only regarding certain specified claims.

About July, 1960, most of the original funds were spent and Mr. Frankovich advised us that the results were favorable but no commercial ore was found. We were not inclined to put up more money at that time and Mr. Frankovich continued to work on his own in the area.

In January, 1960, Mr. Frankovich advised me that he had raised additional money to work on leases adjoining the original group. At his suggestion, we had our own mining engineer from San Francisco visit Tombstone, examine Mr. Frankovich's work and property, and report to us.

The report was favorable, and recommended we make an additional investment. We decided to put up an additional $30,000.00 , but we could not reach a satisfactory agreement with Mr. Frankovich's new partner (Trans-World Resources Corporation) as to terms. Later when an agreement might have been reached with Trans-World Resources Corporation, our syndicate members were too occupied with other affairs to consider another mining venture.

C. ANDRADE, III
Dallas, Texas

REPUBLIC NATIONAL BANK

OF DALLAS

CAPITAL AND SURPLUS $100,000,000

DALLAS 22, TEXAS

January 27, 1959

Mr. Frank J. Frankovich
Dallas Athletic Club
Dallas, Texas

Re: C. ANDRADE, III
2010 Tower Petroleum Building
Dallas, Texas

Dear Mr. Frankovich:

This letter is written to respond to your oral inquiry concerning Mr. C. Andrade, III, and it is our pleasure to advise you that Mr. Andrade has been our valued and highly satisfactory customer for a long number of years.

He is a successful petroleum producer and, in recent years, has acquired rather substantial corporate interests which have proven profitable to him and added substantially to his net worth and financial responsibility.

Mr. Andrade has borrowed from us on occasions for amounts well above one-half million dollars, although presently he is not in our debt. Usually his indebtedness to us is secured by satisfactory collateral; nevertheless, we would not hesitate to lend him reasonable amounts for specific transactions without collateral security. We consider him financially good and able to pay as much as $200,000 or $300,000 unsecured obligations, should he choose to undertake such liabilities.

We hold Mr. Andrade in highest esteem and commend him to you as a successful businessman and oil and gas producer.

Very truly yours,

Senior Vice President

-RRVb

OME Loan Application Information

Frank J. Frankovich
Phoenix, Arizona

3. (a) (Continued)

The bulletin, maps and plates mentioned show all of the existing mine workings, and undoubtedly all that were ever made. There are no existing mine facilities. No machinery or plant of any knid remain. Waste rock developed by the applicant in driving a crosscut (using wheel barrows) on the Vizina claim was gobbed in old stopes. The shaft is open on the Vizina claim is open but it must be retimbered and equipped for hoisting. The underground workings must be corrected for grade, straightened, and equipped with track.

(b) Applicant's present ownership remaining is shown on the map for Item 1-(b), "Map showing land owned or controlled by applicant". Applicant's participation in operations described in (a) above is set forth in (a) above. In summary, the applicant was manager, geologist, and principal owner in an exploration program which drilled 17 holes from the surface, seven holes underground, and drove 238 feet of crosscut on the Vizina claim.

(c) The most comprehensive record of production of metals from the Tombstone district is contained in the Arizona Bureau of Mines Bulletin 143. Total production from the Tombstone District as stated on page 49 of the bulletin was about $36, 538, 000. The distribution of values according to metal from page 102---"Of the production by value from 1879 to 1933, silver amounted to about 81% and gold to about 14% of the total. The remaining 5% was mainly from lead, with some copper, manganese, and zinc." There has been no significant production since 1933, and there is no current production from Tombstone.

(d) There is no known ore reserve in Tombstone at present. All the stope walls in Tombstone are incredibly clean and devoid of mineral. Inthe very few places where blue, green, and yellow staining is found on the walls, the best assays obtainable show only 0.5 oz. of silver per ton. Small quantities of ore are rumored to exist in a few of the deep, small stopes in the southeastern part of the district, but on examination these rumors proved to be false.

The best mineralization that can now be seen in Tombstone was exposed by the applicant in his Bonanza crosscut (see Plated II and IV). On the right side are somewhat detailed notes on the mineralization found in the crosscut. High grade ore, though small, was found atlocality no. 2 on Plate IV. This ore, though only six inches thick and five feet wide, would have carried a full sized crosscut at sixty dollars per ton. This estimate is based on a 30 pound sample taken from three channels cut three feet long vertically across the ore bed and into the barren limestone above and below.

3. (d) (Continued)

All pieces of obviously high grade ore were removed for specimens and to be sure of a conservative result. This 30 pound sample assayed 129.60 oz. Ag, 1.4% Cu, 2.8% Pb, and 65.8% SiO_2. The best assay obtained from the ore was 537 oz. Ag. See following page for assay certificate of 30 pound sample, and page 8 for letter from Transworld Resources stating the assay values of samples they took. The only mineral now remaining in locality no. 2 is a small streak of manganese mineralization assaying 14 oz. of silver.

At locality no. 3 shown on Plate IV, silver-manganese mineralization in the form of a small, irregular shoot (a feeder?) is visible in the Bonanza fissure. Various parts of the shoot have assayed differently (from 6 oz. to 100 oz. Ag), and it is likely that an assay of at least 30 oz. of silver can now be obtained from it.

(e) General Description of the District Geology. The geology of the Tombstone district is adequately treated in Bulletin 143, and only a summary and differences fromthe common concepts will be given here. The principal ore bodies were found in a rather restricted stratigraphic interval in basal Cretaceous sedimentary rocks, with a little ore in the Naco limestone at the top of the Paleozoic section. The basal Cretaceous limestones interbeded with acid clastic rocks were the most favorable for replacement.

The district is essentially a southeast trending synclinal "basin" with a number of lessor folds within it, and south of it is a major east-west fault beyond which the favorable beds are eroded away. The north side of the "basin" is formed by a southeast trending anticlinorium. See Plate I. It is the north flank of this anticlinorium, containing the folded and untested limestones, that is the object of the planned exploration program. The northeast-southwest compressional stresses that produced the major folding, also produced thrust faulting in the later stages (see plate V in back pocket and Plates XXIV-A and XV of the Bulletin). Contemporaneously, shear and fault planes developed roughly parallel to the fold axes and are now known as the northeasterly faults and fissures which are mineralized. The pre-mineral structures are folds, thrsut faults, northeast faults and shear zones, and all contain ore in various parts of the district. The later structures, faults, and shear zones with a more northerly strike, are not mineralized, but in places are intruded by barren quartz-latite porphyry. The porphyry dikes are part of the last phase of igneous activity.

The published bulletin on the district does not attempt an

18-A

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE ALpine 3-6272 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX

Chemists . . . Engineers

For Mr. F. J. Frankovich
3351 North 6th Avenue
Phoenix, Arizona

Date January 11, 1960

Sample of ore

Received: ----------

Submitted by: Same

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce.

Silver figured at $ 0.90 per ounce.

Lab. No.	Identification	Gold		Silver		Percentages		
		Oz. per Ton	Value	Oz. per Ton	Value	COPPER (Cu)	SILICA (SiO_2)	LEAD
150091	No Mark	0.02	$ 0.70	129.60	$116.64	1.40	65.80	2.85

REGISTERED ASSAYER
CERTIFICATE EXPIRES
CLAUDE E. McLEAN
DEC. 31, 1960
ARIZONA

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean,

Charges: $ 18.00

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3. (e) (Continued)

explanation of the origin of the ore, but it does imply that it was associated with the dikes. A tremendous amount of unsuccessful exploration work was based on the concept that the ore forming solutions came from the dikes, although clear and ample evidence is available to show that the dikes, and the faults along which they were intruded, were both post mineral. Because the dike material weathers quickly and caves after being opened up underground, geologists visiting the district after 1910, have not had a really good opportunity to observe the dike-ore relationships--due also to the fact that no good ore bodies were left after that time.

There are no geological reports or descriptions of the district of any consequence whatever other than Bulletin 143 and the two references it contains:

1. "The Tombstone, Arizona, Mining District", J.A. Church, AIME Trans. Vol. 33, 1903

2. "The Geology and Veins of Tombstone, Arizona", W.P. Blake, Vol. 10, 1882.

Both are well worth reading.

Nowhere in the literature is there a description of the ore as such, except for the very meager statement by Blake in 1881--the deposits "may be regarded as filling irregular cavernous spaces eroded from the strata by metalliferous solutions, and without any regular boundaries. These bedded masses do not have any symetrical arrangement of the ore, except such as may be referred to stratification or deposition by gravity." The applicant considers the latter statement to be extremely important, particularly since the small amount of ore he found was definitely stratified. All the evidence compels the conclusion that the ore bodies were not replacement ore bodies as such are commonly envisioned, but very definitely cavern filling. Whether or not the deposits are of the cavern filling type has a great deal of bearing on the probable age of the ore, how much more ore one might expect to find, and where one should look for additional ore.

With respect to the relationship of the ore bodies to the dikes, John A. Church is the only man who specifically studied the problem and was able to observe the geology after many miles of crosscut and drifts were opened, but did not arrive on the scene so late that the workings were caved and inaccessible. Church reported, "In no case that I have found, has a dike been a seat of original ore deposition.----------The dikes have been drifted on and crosscut in

3. (e) (Continued)

the anticlinals, and in all other situations, and the trivial amount of ore they have yielded must be attributed in part to the secondary deposition, aided, perhaps, by the quickly diminishing influence of some crevice. In the Contention and Grand Central, where it is probable that the deposition of ore has been determined by strong fissuring, the dikes may have been more affected than elsewhere; but all that is known about these mines indicates that their ore bodies lay near, but not in dikes."

The applicant believes that the simplest and most logical explanation for some ore being near or in the dikes is as follows: Some of the northeast fissures, being pre=mineral, were in places ore-bearing. Inevitably the late north-south faults cut the ore-bearing fissures in places, displaced them, and left some drag ore along the fault. Lastly, the north-south faults were intruded by dike material, which became intimately mixed with the drag ore previously in the fault plane, in places where it displaced an ore bearing NE fissure. This simple geologic situation has been erroneously interpreted in the Bulletin and by others, as the ore fissure being "refracted" into the dike and along it, and then away from it. Unfortunately, a term taken from dynamic physics has been grossly misapplied to a totally dissimilar geologic situation making a simple geologic concept incomprehensible.

Bulletin 143 is an immensely valuable and good compilation of many people's work in earlier times. Understandably, it contains the errors made by earlier workers who were not working on a districtwise basis, but who were working with one or two claims as an individual property. Without a great deal of work, these errors were not and are not apparent, and caused geologists to ignore the ore potential west of the Tribute dike, including that now knows as the Silver Reef Prospect.

Description of The Geology of The Silver Reef Prospect

The geology of the Silver Reef Prospect involves essentially three elements: 1) The Vizina Roll, (properly, an anticlinorium), 2) The Tribute fault and dike, 3) Silver ore, its relation to structure and stratigraphy, and its age relative to the Tribute fault and dike.

Plates I through V found in the back pocket of this folder were designed with the hope they would facilitate the understanding of the prospect's geology. The important features of Plate I are:

a. Outline of the two principal claims of the Silver Reef Prospect--the Vizina (owners would not sign Lien Subordination

3. (e) (Continued)

agreement), and the Mountain Maid claim(owners have signed lien agreement). The cross-hatched area shows the general position of the main targets of exploration, including one on the east side of The Tribute Dike.

b. The Tribute dike and fault, and parallel dikes of the same composition are of the same age. The published surface geology incorrectly shows the outcrop of the Blue limestone crossing the Tribute fault without off-set on the Toughnut claim. If the latter situation were true, it would mean there was no movement of the Tribute fault and that the favorable ore beds west of the Tribute would have been eroded away. This is one reason why the area west of the dike has not been explored. Ample, reliable evidence can be observed which shows the block west of the dike to be down in excess of 20' and moved north about 250 feet. The amount of movement is established by the shift in position of the Vizina anticlinal axis on either side of the fault as shown on Section a-A' (Pl. IV) and section B-B' (Pl. III).

c. The district-wise distribution of stopes, with their long axes generally parallel to the major fold axes. Note that the stopes increase in size from ~~w~~ east to west in plan dimensions. The increase in size in vertical dimension from east to west is, if anything, somewhat greater. The stope on the Toughnut claim increases tremendously in size from east to west to a maximum against the Tribute fault, but the increase is only in the vertical dimension. Therefore, the increase in size from east to west is very much greater than first appears from an inspection of Pl. I. Note that the stopes appear to butt against the dike, and the small amount of exploration work on the west side of the dike. This dike in the early days became known as the "west side cutoff", with the dike acting as a dam to farther westward movement of the ore fluids. Although this concept seems to have been tacitly accepted without scrutiny, by all geologists who have worked in the district, it can be shown to be an "old wives" tale, so long repeated that it has been accepted as a fact. It is also interesting to note that the biggest stope (the Combination--now known as the Million Dollar Stope) on the SE end of the Vizina claim has had no exploratory crosscuts driven from it. Compare this with the great number of crosscuts driven from all the small ore bodies to the southeast.

Plate II is a 40 scale plan map of the 100' level of the Silver Reef Prospect (its area is outlined on Pl. I). The stoped areas (shown in pink) east of the dike are projected down to the 100 foot level to give an idea of their relationship to structure and faulting. The ore was actually mined out between the 50' level and the surface. On this level positive evidence of major fault movement along the Tribute fault can be seen. In the crosscut from the Vizina Shaft one can see

3. (e) (Continued)

south-dipping Novaculite just across the fault from north dipping Naco limestone. This is unmistakable proof that large movement exists, and that the structural interpretation shown on Plate XVIII of Bulletin 143 is certainly wrong. (See Plates IV and V of geologist Gerald Weather's report accompanying this application for the correct interpretation.) The incorrect geological interpretation shown on Plate XVIII discouraged exploration west of the Tribute dike. Access to the 100' level was so difficult to find that the applicant is sure that no person has been on it for thirty years prior to the applicant's first examination of it in September, 1959. Shown on Plate II is the Bonanza Crosscut driven by the applicant in November and December of 1959. The crosscut was stopped short of its objective for a lack of funds, but it did prove some very valuable geology. The applicant has been unable to resume work, except for some diamond drilling as part of a lease requirement, since that time because of financial reasons.

Plate III is a cross-section of the geology as exposed in the old stopes east of the Tribute dike. The location of this section (B-B') is shown on Plates I and II. The important geologic features which this section shows or indicates are:

a. The south side of the Visina anticline did not produce ore.

b. The top and "saddle" of the structure produced some ore but it was discontinuous along the axis of the structure. For example, the ore shown at the top of the structure pinches out completely just a few feet west of the section. Similarly, the ore in the "saddle" is gone completely just a few feet east of the section. The ore in the folds in the base of the blue limestone is continuous and gets larger in the direction of the dike. It is this feature of the stopes that resulted in the naive conclusion by many people and geologists that the dike acted as a dam, and that mineralization would not be found on the west side of it. It could not have functioned as a physical barrier because of its highly shattered and brecciated character and it was obviously never a dense solid. Nor could it have been a "chemical" dam because it shows no chemical difference next to the ore from what it is distant from the ore zone. Further, the dike is not permeated at all with the ore minerals or the associated gangue minerals. Conclusive proof of the dikes post mineral age can be seen in pieces of mineralized host rock randomly oriented within the dike with no corresponding mineralization found in the surrounding dike material.

c. That part of the section northeast (to the right) of the mined out ore bodies is hypothetical, but it is certain that the favorable beds are present and have the general folded and faulted configuration shown. This is evident from the published sections drawn across the same structure along fissures which were mined and prospected to the southeast. (See Plate V)

3. (e) (Continued)

c. Compare this section with that shown on page 90 of the bulletin. Both are drawn along the same line. It can be seen that the published version is little more than a sketch which is not only incorrect but is very misleading as to the relationships of the ore to the structure and stratigraphy. The applicant's geologic section can be easily verified underground in a one-half hour inspection. The section on page 90 is an example of the primitive geologic work done in the early days, and it is easy to understand why some fundamental misconceptions guided early exploration work and remained undetected for so long.

d. Note that the top of the Blue limestone, which was highly productive elsewhere, especially where crossed by northeast fissures, is not tested in this area east of the dike, even though all the essential criteria for finding ore are present. The criteria are: highly mineralized northeast fissures, favorable structure, favorable limestone contact, and being in immediate vicinity of the best ore mined in Tombstone. The proposed "Combination" crosscut is intended to test these ore possibilities. The name "combination" is used because Blake's report of 1881 identifies these stopes as the Combination ore body. Presumably so named because of the many ore bodies occurring in different stratigraphic and structural positions were practically all inter-connected with ore.

Plate IV is the section A-A' drawn along the Bonanza fissure shown on Plate II. Fortunately, enough geology is exposed in the old workings and in the new crosscut to permit certain interpretation of the structural and stratigraphic geology. The structure and stratigraphy are in this section are identical with that mapped east of the dike and shown on Plate III. Projecting the anticlinal structural axes on to the plane of the Tribute fault, and noting their displacement, affords the most reliable method of determining the movement on that fault. The structure on the west side of the fault plane is about 250 feet north, and in excess of 20 feet down from that on the east side. This was enough movement so that the "old timers" could not go from ore on one side of the fault to ore on the other side, nor could they even recognize the structure or stratigraphy on the west side of the fault.

The mineral found in the crosscut is described in the notes on the right side of the Plate. The most interesting is the mineral found at localities #2 and #8. The fissure is very tight and not mineralized in the first few feet of the Bonanza crosscut, but it soon took on a mineralized appearance and became wide open to cavernous and filled with limestone debris--some of it mineralized. The fissure was still quite open at locality #7, but in the last 30 feet of the crosscue it became filled with a radically different mineral from any previously encountered. The solid fissure filling at the end of the crosscut contains a high iron content, some manganese, and yellow and green mineral, all of which were the miner's best guide to ore in the past. This is particularly true when it is found in a northeast fissure.

3. (e) (Continued)

The lease on the Vizina claim required that 1000 feet of core drilling be done in the first year to keep the lease valid. The drill holes shown on the section were done to meet this requirement, even though the applicant did not want to do this drilling before the cross cut was sufficiently advanced to permit drilling in the most favorable areas. The drilling done did not find ore nor substantial mineralization, and may appear at first glance to have tested an important part of the prospect's potential and found it wanting. It must be remembered, however, that the structure is barren on the south side, that on the tope of the structure the ore bodies were small and discontinuous and in the saddle they were larger but very irregular. Drill holes can pass within inches of an ore body and show no evidence of it. One of the outstanding features of the Tombstone ore bodies is the sharp ore boundaries. The mineral generally did not penetrate the wall rock more than a fraction of an inch.

The part of Plate IV shown as "sectionB' is taken from the section shown on Plate III, and is used to show the expected position of ore targets ahead of the Bonanza crosscut. It is reasoned that if the structure exposed in the first part of the Bonanza crosscut is the same as that on Plate III, then the structure ahead of the Bonanza crosscut is very likely to be the same as that on Plate III also. The hypothetical portion of the section on Plate III is also added to show the purpose in planning to drive the Bonanza Crosscut 300 feet to test additional ore potential which could easily be greater than any mined to date.

The orangish-red areas shown ahead of the Bonanza Crosscut on Plate IV are the outlines of the stopes as mined out on the east side of the Tribute fault and shown on Plate III. The more pink areas shown in "Section C" of Plate IV are the areas in the theoretical section which should be tested for ore, namely the top and bottom of the blue limestone on the north side of the fold axes, the ten foot and six foot limestones, certain sections within the Novaculite formation , and the top of the Naco limestone.

The applicant's interpretation of the geological history differs from earlier concepts mainly in the age of the ore minerals and the northerly striking faults with dikes intruded into them. The applicant believes that the faults and dikes are post-mineral and that stopes on one side of these faults will have a "mirror image" equivalent on the other side when all the ore present in Tombstone is eventually mined. The general spacial relationships of the ore distribution and dikes suggests that this is true, although one or two items in the published data might at first glance indicate that the dikes are pre-mineral. The applicant has found enough serious mistakes in the early geologic work to make it unwise to decide that the ore is post-dike on the basis of one, or several, geologic features in the published data which cannot be checked.

3. (e) (Continued)

The most conclusive evidence for the post-mineral age for the dikes is the discovery by the applicant of silver-mineralized host rock fragments isolated within the Tribute dike and randomly oriented with no mineralization whatever in the dike rock immediately surrounding the fragments. The fact that the northerly striking faults and dikes off-set and displace the ore-bearing northeast fissures, clearly dates the northerly striking faults as being after the ore. Therefore the northerly striking Tribute fault should have some very valuable ore bodies on the untested west side of it.

The ultimate origin the mineralizing solutions is of considerable acedemic interest, and the applicant has some very definite thoughts in that regard. It is not really important, however, in evaluating this prospect. A few considerations which the applicant thinks one should bear in mind when considering the remaining ore potential in Tombstone:

1. With the exception of the quartz-latite dikes, which are later than ore the granodiorite intrusive on the west side of the Tombstone district is the only intrusive younger than the host rock of the ore, and therefore it is the only intrusive which could be associated with the ore. A hypothermal origin must be considered until proven otherwise, and if the origin is hypothermal it is most likely to be associated with the granodiorite. The favorable limestones lying between the granodiorite and the productive areas are essentially untested. The ore mined from the west side of the Tribute fault on the north end of the Defense claim is stratigraphically high, and the most productive limestones under that stope have not been tested.

2. The ore bodies, overall, increase in plan and vertical dimension from east to west, and the silver values increase from east to west. This might be interpreted in many ways, but a simple and logical conclusion might be that the source of the mineralization was in the west, and that the solutions, as they permeated to the east, became weaker and lower in silver values.

3. The ore bodies on the Lucky Cuss, Herschel and Blue Monday claims are on the west side of the Tribute dike and are of the same type as those found elsewhere in the limestones. The limestones in these deposits are dipping so steeply that the deposits were regarded as vein types rather than bedding replacements which they are. These deposits make untenable any explanation of the origin of the ore which does not recognize a very sizeable ore potential existing in the favorable structures and limestones west of the Tribute dike.

3. (f) Reasons for expecting to find ore. In the narrative description of the geology preceding, the applicant has set forth in some detail his reasons for expecting to find ore. Because of the geological nature of the prospect it seems to be the natural thing to do. Following is a summary of reasons for expecting to find ore.

1. The applicant proposed to explore west of the Tribute fault for additional ore bodies, particularly the area under the Vizina and Mountain Maid claims. This area has not yet been prospected other than the limited work done by the applicant.

2. The prospect area contains all the elements known to be related to the deposition of ore:

a. A mineralized northeast fissure, which are thought to be feeders:"

b. Favorable structures; anticlinal and synclinal folds, and premineral thrust faults, with accompanying drag folding.

c. Favorable limestone contacts and beds: the top of the Naco, the limestones within the Novaculite formation, the top and bottom of the Blue limestone, the Ten-foot and Six-foot limestones.

d. The presence of small, but ore-grade silver mineralization.

3. The biggest and highest grade ore body (originally named the Combination ore body, now called the Million Dollar Stope) is terminated on the west by a fault and dike. The only positive evidence of the relative ages of the ore and the fault, points clearly to the fact that ore was cut off by a post-mineral fault. Proof has been established that the ore-bearing structure and limestones are still present on the west side of the fault, and are not eroded away as previously thought, and also, they are untested for ore by drill hole or mine workings. Samples taken and their significance is shown on Plate IV. The only assays obtained were from the proposed prospect area and were described with reference to certificates in 3 (d) above.

(g) With this application are included two copies each of several reports, all of which the applicant would like to have eventually returned.

1. "Geology and Ore Deposits of the Tombstone District", Arizona Bureau of Mines Bulletin No. 143, 1938.

2. "Report on the Frankovich-Smith Project at Tombstone, Arizona by E.N. Pennebaker, Consulting Geologist, February 1961.

3. "Report on the Possibility of the Extension of the "Million Dollar Stope, Tombstone, Arizona", by Gerald Weathers, Consulting Geologist. Jan. 1961.

3. (g) (Continued)

4. "Initial Report on Frankovich - Transworld Leases, Tombstone, Arizona, for Mr. C. Andrade, III," by Charles W. Yetter, Consulting Mining Engineer, February 23, 1960.

5. Letter of Opinion on the prospects of finding additional ore in Tombstone, from Charles H. Dunning, Consulting Mining Engineer, June 21, 1961. (after field examination for client) attached to letter of transmittal

4. Accessibility of Property:

(a) The person who will meet the OME representative will be:

Frank J. Frankovich, Geologist
3351 North 6th Avenue
Phoenix, Arizona (13)
Telephone: CRestwood 4-0820

Frankovich, who is the applicant, is often away from his home address above, and he would appreciate the earliest possible notice of an intended visit by the OME. His schedule is generally quite flexible and a visit at any time is likely to be convenient.

The property is located in Tombstone, Arizona, which is on Highway 80, seventy miles southeast of Tucson, Arizona. Adequate lodgins and restaurant facilities are available in Tombstone, which now has a population of about 1250. The property is located under and adjacent to the southwest corner of the Townsite of Tombstone (see Plate I, which shows the city blocks of Tombstone). Access to the underground workings is gained by driving up to the entrance to an old incline on the Goodenough claim. The opening and first incline are shown on Plate III. From the entrance to the workings on the Vizina 100' level the route is traversed on foot. It is easy, dry, safe, and require about 8 minutes. All the underground workings of interest in this project are safe and readily accessible.

(b) Shipping and supply points. Everything needed in the way of equipment, material and supplies can be obtained from Tucson 70 miles distant. Many supplies can be obtained in Tombstone through the local hardware store. Others can be obtained in Bisbee 24 miles distant.

Any ore produced can be shipped to Douglas, Arizona, 50 road miles away. A railroad siding 7 miles distant is downhill all the way via good paved road.

5. Exploration Work:

(a) General Considerations: The applicant's proposed exploration program is designed to test two promising geological areas by: 1)cross-

5. (a) (Continued)

cutting into them on the 100' level; 2) raising on promising structures and mineralization and 3) finally, if necessary, by diamond drilling. It has been found desirable to drive a crosscut its entire planned length before any raising is done. Because of the limited amount of raising available, it should await completion of the crosscutting in order that all the best localities for raising are exposed.

The applicant has probably done more diamond drilling than any other person or company in Tombstone and he feels qualified to speak authoritatively on it. He believes that drilling should be done after all the contemplated raising is done when the positions of ore targets can be more closely predicted than with the crosscut data alone. A drill hole in this type of geologic environment yields little more than a direct test for ore in a very small area, therefore targets have to be well defined. Other than assays little of value can be obtained by drilling because lithologic characteristics as seen in the core are not distinctive. Raises, on the other hand, yield much structural and mineral detail and they can be deflected to follow the most promising leads for maximum results.

In Tombstone shallow prospecting is likely to prove the most profitable because anything found can be followed to depth. The record shows that ore bodies were highest in grade and biggest near the surface, decreasing in grade and size with depth, although many were highly profitable down to the water table. With this in mind it would seem clearly advantageous to explore at the shallowest practical depth (in this instance the 100' level) and then raise or drill toward the surface in the most promising localities.

The planned program has been divided into "Phases" and further into "Parts" for purposes of reference and designating portions of the cost report drawn up by a consulting mining engineer. The program is divided and termed as follows:

Preparatory Work

Part 1 The surface plant
Part 2 The Vizina Shaft
Part 3 The main first level drift--shaft to Bonanza crosscut

Phase I West Vizina Exploration Work

Part 1 Prepare Bonanza crosscut
Part 2 Extend Bonanza crosscut
Part 3 Raising from Bonanza crosscut

5. (a) (Continued)

Phase I I East Vizina Exploration Work

Part 1 Prepare main drift from Bonanza crosscut to combination crosscut.

Part 2 Rehabilitation of Combination crosscut.

Part 3 Extending Combination crosscut 200' as shown on Plate II.

Part 4 Raising from Combination crosscut.

Phase I I I Diamond Drilling 1,000 feet of EX core.

Discussion of Exploration Program: The proposed program is designed to test ore possibilities on the north flank of the Vizina anticlinorium on the west side of the Tribute dike (termed the "West Vizina Exploration"), and also ore possibilities on the north flank of the Vizina anticlinorium on the east, or productive side of the Tribute dike (termed the "East Vizina Exploration"). Some geologists may believe for some reason or another that the ore possibilities are not very good on the west side of the Tribute dike, therefore, the applicant believes that the program should also include work on the east side of the dike. The proposed work on the east side (the Combination crosscut and raises) has real merit no matter what the origin of the ore is thought to be. The Combination crosscut will be driven on a northeast fissure that produced much ore near the Tribute dike in the base of the Blue limestones and in limestones stratigraphically lower. This fissure has not been prospected where it crosses the top of the Blue and higher limestones. It also crosses additional thrust faults and fold structures north of the main Vizina fold which should be prospected. The 200 feet proposed for this crosscut is really not enough, but if it does not find ore, the geology revealed will give private capital sufficient reason to carry the work further. The ore possibilities on the north flank of the structure can best be appraised by examining Plates III and V. Plate V shows how ore occurred north of and on the north flank of the structure, but far down the plunge of the axis where the ore bodies were comparatively very small.

Also on this section can be seen an example of the most successful exploration technique used in the past. Notice that the Jeanes Roll was found by driving a crosscut on the lower level across the structure to locate where the favorable Blue limestone was folded into an anticline, and then a raise was put up into the top of it and found ore. The applicant proposes to do the same thing with the Combination crosscut but much farther west and much nearer the surface where ore bodies are known to be much larger and richer.

Frank J. Frankovich
Phoenix, Arizona

The "West Vizina Exploration" is intended to do the same thing in an area where even the known productive structures and limestones have not been tested.

Description of the Exploration Program

PREPARATORY WORK:

Part I Surface plant. The shaft which will be used has no surface plant on it and is covered over and partially surrounded with a dump of waste. It will be necessary to remove the waste, clear and level the surface. The collar set must be replaced, and a head frame erected. The building necessary will be a simply hoist house, compressor shed, and powder room, and a track and tresle for waste disposal. A hoist, compressor, and air-receiver must be installed.

Part 2 See page 8 of following mining engineer's cost report on the program.

Part 3 The main haulage way will have to be straightened somewhat and have track laid from the shaft to the heading of the Bonanza crosscut and the Combination Crosscut.

EXPLORATION WORK - PHASE I West Vizina Exploration Work

Part I Prepare Bonanza crosscut--same work as part three above. Grade, shtraightene and lay track, install air, water, pipe and ventilation tubing.

Part 2 Extend Bonanza crosscut 300 feet to test favorable limestones and structures and possible ore bodies shown on Plate IV. It is hoped that the plate shows with reasonable clarity the reason for driving it. The geologic reasons are discussed at length in parts 3.-(e) "Plate III & IV, and in part 3.=(f). The crosscut will be 5' by 7' in crossection.

Part 3 Drive about three raises of the smallest practical prospect size possible for a total of about 200' if ore is not found in the crosscut. After the crosscut is completed, the three best localities, (based in structure, lithology, stratigraphy, and mineralization) will be raised on. These raises may not be vertical but should follow ore or structure on an incline if necessary.

EXPLORATION WORK PHASE II East Vizina Exploration Work

Part I Prepare main drift from Bonanza crosscut to Combination crosscut or to a point just on the east side of the Tribute dike where the gob begins. Clean and lay track. Install water and air pipe and ventilation tube.

5. (a) Continued

Part 2 Rehabilitation of Combination crosscut. The beginning of the crosscut is gobbed and it is unknown how much gob is in it. Nor is it known just how far the old workings extend in the direction of the proposed new Combination crosscut. The situation as it is shown on Plate II, however, is undoubtedly close enough for cost estimate purposes. In the cost estimate materials are included for 115' of this phase, although it is shown on the map as 70 feet. This was done because there may not be as much gob to remove as appears at the start.

Part 3 Extend Combination Crosscut 200 feet with a 5 by 7 foot ceossection for reasons discussed above.

Part 4 Raises totalling 100 feet will be driven on the most favorable structures and mineralization revealed. For example, if the Blue limestone is folded or dragged into an anticlinal structure, a raise should be put up to test the top of the Blue Limestone on the crest of the anticline. It would seem that a drill hole could do this just as well, but it is not so. Often the top of the anticline is sheared off and moved by a thrust fault out of its predicted position. In such an instance a drill hole would not find ore even though it would be nearby. The core information would not ~~permit the correct~~ be sufficient to permit the correct interpretation of a thrust fault moving the ore, and thus, a very good orebearing structure would be written off as barren.

Raises should also be driven on shoots of mineralization which may be found in the fissure the crosscut is driven on. Such shoots may be "feeder" mineralization from depth to an ore body in overlying favorable limestones, or they may be secondary mineral leached from an ore body above. Such shoots are very irregular and can only be followed by raises, not drill holes.

PHASE III Diamond Drilling 1,000 Feet of Ex Core

Often the ore is not on the very top of a structure, but can be off to either side. Or it may not be within the expected stratigraphic unit, but above or below. If a raise is driven on a good structure or mineralized fissure and does not expose ore, then it is practical to diamond drill from within the raise to thoroughly test nearby areas on the favorable structure. Drill holes can be used also to test beyond the end of a crusscut, up from the top of raises, laterally from the sides of the crosscut, and downward.

5. (a) Continued

The planned 1,000 feet of drilling is really not enough for a good final test, but more is not planned because of its cost. The cost is high because of the low footage, and the many "setups" expected for short holes. It is hoped that if anything is found that would indicate additional footage should be drilled, private capital will be available for the job, or perhaps an OME loan can be obtained for the purpose.

(b) No access road is required.

(c) If an OME contract is executed, work would start within 45 days. Because the applicant is a consulting geologist, it is likely that he would be obligated for awhile on another project, and would require some time to be free of it. It is quite possible that the applicant would be free at the time of the contract execution, and then work would start immediately.

The questions regarding daily or monthly rate of progress can best be answered by referring to the detailed cost report of the project included as part of Item 7 of this application. The cost report was prepared by consulting mining engineer, Harry E. Krumlauf of Tucson, Arizona. Mr. Krumlauf is now teaching at the University of Arizona. On page 17 of Mr. Krumlauf's report is a "Summary of Time and Costs" wherein he gives the time in working days for each separate part of the whole proposed program.

If a loan is given on the whole program as proposed, the total number of working days is 304. Within the body of the report the detailed rate of progress is given for crosscutting and raising as 4 feet per shift for each. If the OME should propose alternate work to that planned in this application, or if some of the planned work is deleted, then the change in total time required can be readily arrived at by changing the figures in Krumlauf's summary on page 17.

6. Experience:

The applicant, Frank J. Frankovich, will be the manager and geologist on the project. A summary of his qualifications for this work:

Age:	40
Education:	B.S. Degree in Geological Engineering from the Montana School of Mines. While in college worked part time and summers as a miner in Butte mines, and as a geological map draftsman for the Anaconda Co.
1947 & '48:	Geologist for Anaconda Co. at Butte. Responsible for geology at Leonard and Tramway mines. Did some outside examination work. Resigned.

6. (Continued)

1949 & 1950 — Geologist for Arabian American Oil Co. Saudi Arabian surface geology reconnaissance, land an marine structural geology, and deep well geology. Resigned.

1951 & 1952 — Geologist, U. S. Atomic Energy Commission. District geologist for SE Utah. Organized several mapping and drilling crews. Developed and directed the exploration program which lead to the discovery in White Canyon Utah, of the first non-outcropping ore body in the Shinarump formation.

1953 & 1954 — Geologist USAEC, Northern Territory, Australia. Loaned to the Australian Government to assist in the development of the Rum Jungle deposit. After that job was underway I visited ore deposits in all of eastern Australia and much of New Zeland. This was an unparallelled opportunity to examine all types of mineral deposits, and to become acquainted with the geologic philosophy of men from all over the world.

1955 to present — Consulting geologist, Phoenix, Arizona. Worked for many individuals examining all kinds of properties and projects, and conducted at my own expense a rather thorough examination of mineral deposits in SE Arizona. This activity lead to my finding what I think is an excellent prospect in Tombstone.

During this time I also discovered an important uranium ore body in Red Canyon, Utah, for the ULA Mining Co. in which I was a stockholder and director at the time.

1958 & 1961 — At various times and sometimes lengthy periods worked on the geology of Tombstone including surface and underground mapping, surface and underground drilling, and driving the Bonanza crosscut. In the course of surface drilling contractors would not bid less than $7.00 per foot. I rented wire-line coring equipment and drillers on a daily basis and obtained about 97% core recovery for BX at about $5.50 per foot. This involved some extremely hard drilling in brecciated and silicated limestone. My costs in driving the Bonanza crosscut were quite low compared to usual costs for such work.

7. Estimate of costs:

Because the applicant is a geological engineer only, he has obtained the services of consulting mining engineer Harry E. Krumlauf of Tucson, Arizona, to examine the proposed exploration program for the purpose of drawing up a complete and detailed cost estimate. His detailed report follows and is prefaced by a table of contents written by the applicant to facilitate reference to it.

Mr. Krumlauf's report does not present the cost information in exactly the order asked for in MMe Form 40 because he did not have the form available when he compiled the report. He subsequently summarized his first report for the complete proposed program according to the form asked for by the OME. This second four-page report is included in the front pocket of this folder, and has the disadvantage of not being broken down for each major item of work.

Mr. Krumlauf's following detailed report does break down the whole program into all the separate items of work, but not in the precise form asked for by the OME. Because of the nature of the program it is hoped that the OME will find the form of Krumlauf's report acceptable. Difficulty in using Krumlauf's form of report may arise in arriving at cost totals should part of the applicant's program be altered or deleted. This is not as bad as it first might appear. Krumlauf includes labor in the cost of each item of work, and separates it from "personal services" under which he includes only engineering, geological, and supervision costs totaled for the complete project.

If part of the program proposed were deleted, a new total cost can be easily computed. The total material and labor cost for the part deleted can be found in the summary on page 17, and be subtracted from the total. Other costs (certain supplies, page 5, personal services, and miscellaneous) would be reduced from the totals given by a percentage based on time required for the deleted part as it relates to the total time required.

Items (a) through (f) It is hoped that Krumlauf's following cost report adequately gives the information required under these items.

Item (g) Information for this item is summarized on page 4 of Krumlauf's second report found in the front pocket.

8. General Economic Considerations of the Project.

The applicant would like to bring attention to several economic considerations that will contribute much to the successful development

8. (Continued)

of a profitable mining operation on the Silver Reef Prospect:

1. No mill will be required.
2. A smelter is only 50 miles away, with several more not far distant.
3. The ore will be siliceous, with a minimum or no smelter charge.
4. Local municipal power and water are available at moderate cost.
5. It is not necessary to build a camp or access road.
6. An adequate supply of competent labor lives in the vicinity.
7. Ventilation costs will be a minimum, no pumping will be required and very little timber, because the ground stands very well.

The above considerations will assure that private capital will carry on the project after an OME loan, to build a successful mining venture. It is further certain that such a success will do much to stimulate additional prospecting in the several other promising areas in the district. It will also cause a careful re-evaluation of other districts from a fresh viewpoint which will result in more discoveries.

7. Estimate of Costs (Continued)

ENGINEERING REPORT

ON

PROPOSED VIZIN MINE EXPLORATION

by

HARRY J. KRUMLAUF

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SUMMARY OF TIME AND COSTS

(Summarizes total costs for separate major items for Preparatory Work, and totals for complete parts of phases of exploration work. Totals for days required for each major item.)	17
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H. E. Krumlauf, Mining Engineer
1933 East Third Street
Tucson, Arizona

June 22, 1961

Mr. Frank J. Frankovich
Consulting Geologist
3351 North Sixth Avenue
Phoenix, Arizona

Dear Mr. Frankovich:

As requested by you, I have examined the surface and the underground workings of the Vizina Mine located on the Vizina Mining Claim, T20S, R22E, Section 11, in the town of Tombstone, Arizona.

In the enclosed report I have described the amount of preparatory work that must be done before any underground exploration work can be started. There is also a detailed cost analysis of this work included in the report.

There is a detailed description of the work necessary to carry out the first two phases of the exploration. There is also a detailed cost analysis of this work included.

For the third phase of the work, diamond drilling, cost estimates stated by drilling companies are included.

With kindest regards, I am

Sincerely yours

Harry E. Krumlauf

Harry E. Krumlauf

HEK/knh

REGISTERED MINING ENGINEER
CERTIFICATE EXPIRES
HARRY E. KRUMLAUF
DEC. 31, 19 61
ARIZONA, U.S.A.

Engineering Report
on

PROPOSED VIZINA MINE EXPLORATION

for

Frank J. Frankovich
Consulting Geologist
3351 North Sixth Avenue
Phoenix, Arizona

by

Harry E. Krumlauf
Consulting Mining Engineer
1833 East Third Street
Tucson, Arizona

REGISTERED MINING ENGINEER
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KRUMLAUF
DEC. 31, 1964
ARIZONA, U.S.A.

Harry E Krumlauf

INTRODUCTION

The Vizina Mine is located on the Vizina Mining Claim, T20S,R22E, Section 11 in the town of Tombstone, Cochise County, Arizona. The area is described by B. S. Butler, E. D. Wilson and C. A. Rasor in the bulletin "Geology and Ore Deposits of the Tombstone District, Arizona," and published by the Arizona Bureau of Mines, University of Arizona, Tucson, Arizona.

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Harry E Krumlauf

Explanation of labor distribution, rates, unit costs and certain assumptions used in preparing this report.

1. It is assumed, that the average crew to be continuously employed from the start of this project to the completion of Phase 2 will consist of a foreman, miner, hoistman and mucker or employees of equivalent classification. It is realized that at times, especially during the preparatory period, a greater or lesser number will be employed and the classification may vary.

2. It is assumed that there are 24 working days in an average month. Total calendar time and daily rental rates are based upon this assumption.

3. The day, as used in this report, means one 8-hour shift.

4. Labor rates used in calculations

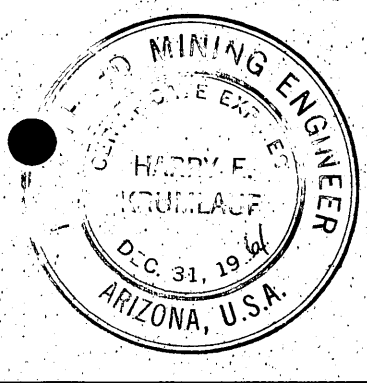
Worker	Base Pay/Day	Actual cost/Day
Foreman	$16.00	$ 19.63*
Miner	15.00	18.41
Carpenter	15.00	18.41
Hoistman	15.00	18.41
Mucker	14.00	17.16

Employer's taxes and insurance on payroll wage
Social Security tax rate (F.I.C.A.) 3%
Unemployment tax 3%
Industrial Insurance 7.29%

*Method of calculating actual cost

Foreman's base pay ----------		$ 16.00 per day
Add 1/6 of weekly overtime		1.33
Pay roll wage		$ 17.33 per day
Social security tax		
3% of $17.33 =	$ 0.52	
Unemployment tax		
3% of $17.33 =	0.52	
Industrial Insurance		
7.29% of $17.33 =	1.26	
	$ 2.30	2.30
Actual cost per day =		$ 19.63

Other daily costs computed in like manner.



Harry E Krumlauf

5. Supply costs as quoted

The last dealer in southern Arizona who sold used mine supplies closed his business in March of this year, 1961. Therefore, the costs in this report have been based upon the use of new supplies, except where stated to the contrary.

Quotations:

Colorado Fuel and Iron Company representative:
16-lb mine rail @ 14¢ per pound
Track spikes 3½" x 3/8" @ 15¢ per pound
Track bolts @ 22¢ per pound - 1/2 x 2"
Splice bars @ 80¢ per pair

Arizona Hardware Co. - Tucson, Arizona
2½ inch black iron pipe @ 98¢/foot
2 " " " " @ 62¢/ "
1 " galvanized " @ 33¢/ "

Ed Holderness Supplies, Inc., Tucson, Arizona
Mine timber @ $130 per M - delivered
Ventilation duct and fittings as shown.

Parkhill-Denton Company, Tucson, Arizona.
40% - 7/8" x 8" - Extra Gel. $30.00/cwt. - delivered.
Fuse @ $15.00 per 1000 feet.
No. 6 caps @ $3.40 per 100.

Western Machinery Co. - Tucson, Arizona.
125 c.f.m. compressor rental @ $310 per month
Hoist - 4000-lb rope pull est. cost @ $ 116.00 per month
Air-leg drill - 55 pound - @ $96.00 per mo.
Stopes - 2 3/4" @ $85.00 per month
Mine fan 10" - 220V. - used - $175
Air Receiver 24" x 72" - used - $150
Cage - used - 4' x 4' shaft - $200
Drill steel
2' x 7/8" @ $ 6.80 each
4' x 7/8" @ 8.95 "
6' x 7/8" @ 11.20 "
8' x 7/8" @ 13.50 "
Line oiler for drills @ $30.35 each
Tungsten carbide bits 1½" for 7/8 steel @ $13.50 each
Mine car - 16 to 18 cu.ft. - used $135.
1" air hose - 50' length with fittings $ 37.50 each
½" water " - 50' " " " 19.80 each

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6. Equipment to be purchased

3 mine cars @ $135 each (used)	$ 405.00
10 inch mine fan (used)	175.00
Air receiver (used)	150.00
Mine cage (used)	200.00
Auxiliary hoisting equipment	
Sheave wheel (used, if possible)	75.00
Cable, bell system, telephones etc.	225.00
1 6-unit lamp charger	96.00
Total	$ 1326.50

7. Supplies to be purchased - NOT listed elsewhere:

Drill steel - (either integral steel or steel for detachable bits may be used)	
12 pieces - 2' lengths @ $ 6.80 ea.	$ 81.60
12 " - 4' " @ 8.95 ea.	107.40
12 " - 6' " @ 11.20 ea.	134.40
6 " - 8' " @ 13.50 ea.	81.00
2 air hoses @ $37.50 ea.	75.00
2 water " @ 19.80 ea.	39.60
2 line oilers @ 30.35 ea.	60.70
35 tungsten carbide bits @ $13.50 ea.	472.50
General tools:	
Shovels, picks, saws, wrenches, etc. Est.	500.00
6 electric cap lamps @ $30.00 ea. (Wheat)	180.00
Total	$ 1732.20

8. Personal services

Mining Consultant-Engineer	
Estimated fee @ $350/mo. for 12.7 mo.	4445.00
Geologist-supervisor	
Salary $800/mo for 12.7 mo.	10160.00
Total	$14605.00

9. Miscellaneous

Accounting @ $100/mo. for 12.7 months	$1270.00
Assaying-estimated	400.00
State sales tax - 3%	443.33

Rent for equipment when not in use but kept on job since in the following calculations rents are charged only as the equipment is used.

Compressor for 34 days @ $8.75/day	297.50
Hoist " 34 " @ 4.83/ "	164.22
Air Leg drill "105 " @ 4.00/ "	420.00
Stoper "141 " @ 3.56/"	501.96
	$ 3497.01

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PREPARATORY WORK TO BE DONE

Before any phase of the exploration may be carried out, the following preparations must be made:

1. Construct and equip a surface plant.
2. Rehabilitate the Vizina shaft from surface to first level.
3. Clean and lay track in first level drift.
4. Widen and lay track in the Bonanza crosscut that is located on the west side of the Tribute Dike for Phase 1.
5. Clean and lay track in the Combination crosscut that is located on the east side of the Tribute Dike for Phase 2.
6. Install compressed air and water piping in shaft, drift and crosscuts.
7. Install ventilation fan and ducts.

Preparatory work described in detail

Part 1. The surface plant

A. Site preparation

Waste rock from some source other than the mine has been piled around the shaft collar. The quantity is estimated to be at least 100 tons and must be removed.
Some clearing and leveling of the surface must be done.
Estimated time for 4-man crew is 4 days

Foreman at	$19.63 per day		
Miner at	18.41 " "		
Mucker at	17.16 " "		
Labor at	17.16 " "		
	$72.36 per day x 4	=	$ 289.44

B. Replace shaft collar set and install landing chair.

Estimated time for 4-man crew is 2 days.

Labor	$72.36 per day x 2	=	144.72
Timber			
2 longwall plates - 10"x 10"x 16			
	267 b f x .13	=	34.71
2 end plates - 10x 10 x 12			
	200 b f x .13	=	26.00
1 divider - 10 x 10 x 5			
	42 b f x .13	=	5.46
Landing chair - estimated			60.00
	Total		$ 270.89

C. Build suitable head frame

It is assumed that a crew of 4 men, consisting of a foreman, carpenter and two laborers can build the head frame in 6 days.

Labor - $72.36 x 6		$ 434.16
Supplies		
1500 b f of timber @ 13¢/bf		195.00
Bolts, washers, angles, spikes etc.		30.00
Total		$ 659.16

289.44
270.89
1091.52
141.36
164.72
738.82
178.72
3540.13

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Description-Preparatory work(cont'd).

D. Building for hoist, shop and storage - 12' x 30'
Frame construction with partition for store room

Labor - 7 days @ $72.36/day		$ 506.52
Lumber 2200 b f @ 175/M		385.00
Roofing, windows, hardware, etc.	Estimate	200.00
Total		1091.52

E. Build compressor shed

Labor 1 day @ $72.36/day		72.36
Lumber 200 b f & supplies -	Estimate	75.00
Total		147.36

F. Install hoist, compressor and receiver
Time required 2 days

Labor $72.36 x 2		$ 144.72
Cement, sand, bolts, etc.	Estimated	20.00
Total		$ 164.72

G. Track-shaft to waste dump - 250 feet
including 1 switch - 2 days time

Labor - 2 x $72.36		$ 144.72
Supplies		
3000 lbs--16-lb mine rail @ 14¢/lb	=	420.00
23 prs. splice bars @ 80¢/pr.	=	18.40
70 lbs bolts @ 22¢/lb.	=	4.40
Track spikes 192 lbs @ 15¢/lb	=	28.80
Ties @ 3 b f/tie		
300 x 3 = 900 b f @ 13¢/bf	=	117.00
Switch - used -	Estimated	15.00
Total		$ 738.32

H. Powder house and cap & fuse storage
Time estimated at 2 days

Labor 2 x 72.36	=	$ 144.72
Supplies		
200 b f timber @ 13¢/bf	=	26.00
Hardware - hinges, locks etc.		8.00
Total		$ 178.72

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Statement and analysis of the underground exploration.

The exploration work is to be done in three phases, as follows:

Phase 1 To be known as the "West Vizina Exploration", will be to extend the Bonanza crosscut from the main level drift (Figure 1) for a distance of 300 feet in a northeasterly direction and nearly parallel to the Tribute Dike and raise 200 feet from this crosscut.

The objective of this phase is the exploration of that part of the Vizina "Roll" that has been faulted to the northeast along the Tribute Dike.

Phase 2. To be known as the "East Vizina Exploration," will be to extend the Combination crosscut on the east side of the Tribute Dike in a northeasterly direction (Figure 1) for a distance of 200 feet and do 100 feet of raising from this crosscut.

The objective of this phase is the search for other ore bodies on the northeastern flank of the Vizina "Roll" at the intersection of a northeast fissure and the top of the Blue limestone.

Phase 3. To drill about 1000 feet of EX diamond drill hole to explore favorable geologic structure not examined in phases 1 and 2.

Part 2 - The Vizina Shaft Figures 1 & 2

Rehabilitation of the Vizina shaft

The shaft is lined with interlocking 2" x 12" cribbing from the surface to the first level. There are no regular shaft sets in this part of the shaft and there is no timber below the first level. The cribbing is in only fair condition and must be reinforced. A new station set must be placed in the shaft at the first level to support the cribbing immediately above the level.

The shaft has two compartments. There are no ladders or guides in either compartment. It is probable that the earlier timbering had been removed and the cribbing was placed at a later date. It appears that hoisting done at this later date was with a bucket.

One compartment of the shaft must be prepared as a manway, since access to the proposed working area through the old stopes is dangerous and time consuming. It is estimated that four men can place a station set on the level, build ladders and prepare the manway and shore up the cribbing in a period of 18 days. It will require an additional 5 days to place guides in the hoisting compartment.

HFKrumlauf

Part 2 The Visina shaft (cont'd)

The following material will be needed:

		Board-feet
Lumber		
Ladders -	3" x 4" - 275 ft	275
	1" x 3" x 18"	50
Landings	2" x 10" @ 60bf/landing	
	10 landings = 10 x 60	600
Station set		
	8 posts 10' long - 8 x 8	320
	4 wall plates 10' long - 8 x 8	216
	4 end " 8' " - 8 x 8	130
	2 dividers 5' " - 8 x 8	55
	2 x 10 lagging	200
	6 x 6 station flooring over shaft 12 pieces 8' long	300
Guides -	4' x 6" x 360'	520
Guide stiffeners 2" x 10" x 200'		660
Brace cribbing at corners		
	2 x 4 x 1200'	800
		4125
Loss in cutting, etc. add 5%		210
	Estimated total needed	4335

Estimated cost to rehabilitate shaft

Labor for 24 days			
Foreman	24 x $19.63	=	471.12
Miner	24 x $18.41	=	441.84
Mucker	24 x $17.16	=	411.84
Hoistman	24 x $18.41	=	441.84
	Total labor		$1766.64
4335 b.f. of timber @ $130/M			563.55
Nails, bolts, lag screws, wedges,		estimated	100.00
150' of 2 1/2" pipe			147.00
150' of 1" pipe			49.50
Fittings			22.00
	Total		$2648.69

1766
2648
294
832
736
2285
520
9164
5483
294
762
441
1276

Part 3 - The main first-level drift.

Rehabilitation of main drift to Bonanza crosscut Figure 1. Shaft to crosscut 115' along main drift to cost as follows:

Labor to clean drift, lay track, install air and water pipe for 4 days

Foreman	4 x 19.63	=	78.52
Miner	4 x 18.41	=	73.64
Mucker	4 x 17.16	=	68.64
Hoistman	4 x 18.41	=	73.64
	Total labor		294.44

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Part 3 - The main level drift (cont'd)

Supplies

16 lb. rail		
1230 lbs @ 14¢/lb	=	172.20
Splice bars (wt/pr 4.55#)		
12 pairs @ 80¢/pr	=	9.60
Bolts @ 22¢/lb - 12 lbs	=	2.64
Spikes @ 15¢/lb - 70 lbs	=	10.50
Ties 4"x 4"x 36" - 3456		
115 ties x 3 x .13	=	44.85
Pipe		
115 ft. of 2½" pipe @ 98¢/ft.	=	112.70
115 ft. of 1" " @ 33¢/ft.	=	37.95
Fittings - estimated	=	25.00
Water pressure regulator	=	40.00
Miscellaneous		
Compressor 4 days @ $ 8.75/day	=	35.00
Hoist 4 " @ 4.83/day	=	19.32
Fuel, elec.power, water--est. 7.00/day	=	28.00
Total		832.20

Phase 1 - West Virginia Exploration

Part 1 - Prepare crosscut

Main drift to face of Bonanza crosscut, a distance of 240 ft. Fig. 1. This drift is too narrow in places to accommodate a mine car and must be slabbed. Estimated time for 4 man to complete the slabbing, cleaning, laying track, pipe, etc. is 10 days.

Labor

Foreman	10 x 19.63	=	196.30
Miner	10 x 18.41	=	184.10
Mucker	10 x 17.16	=	171.60
Hoistman	10 x 18.41	=	184.10
	Total labor		736.10

Supplies

2560 lbs 16-lb rail @ 14¢/lb	=	358.40
Splice bars - 24 prs @ 80¢/pr	=	19.20
Bolts 21 lbs @ 22¢/lb	=	4.65
Spikes 154 lbs @ 15¢/lb	=	23.10
Ties 720 bf @ .13/bf	=	93.60
Pipe		
240' of 2" pipe @ 62¢/ft.	=	148.80
240' of 1" " @ 33¢/ft.	=	79.20
Fittings - estimated	=	15.00
Ventilation pipe - 10" @ 1.40/ft		
360 ft to fresh-air intake		504.00
1 - 90° L @ 12.80 ea.		12.80

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Phase 1 Part 1 - West Vizina Expl.(cont'd)

Miscellaneous

Compressor rent 10 days x 8.75	=	87.50
Hoist " 10 days x 4.83	=	48.30
Fuel,etc. @ 7.00/day	=	70.00
Powder, fuse, etc. - estimate	=	45.00
Drilling machine - rent	=	
10 days @ $ 4.00/day	=	40.00
Total		$285.65

Phase 1 - Part 2 - To extend Bonanza crosscut 5' x 7' in cross section 300 feet as shown in Figure 1. In general the ground stands very well and it is expected that only a small amount of timber will be needed.

Estimated rate of advance with a 4-man crew is 4 feet per day. Total time required 300 ÷ 4 = 75 working days.

Labor

Foreman	75 x 19.63	=	1472.25
Miner	75 x 18.41	=	1380.75
Mucker	75 x 17.16	=	1287.00
Hoistman	75 x 18.41	=	1380.75
	Total labor		5520.75

Supplies

Powder @ 30¢/lb at 6 lbs. per foot of advance 300 x 6 x .30	=	540.00
Fuse @ 1.5¢/ft at 12 ft per foot of advance 300 x 12 x .015	=	54.00
Caps @ 3.4¢ ea. at 2 per ft. of advance 300 x 2 x 3.4	=	20.40
3200 lbs 16 lb rail @ 14¢/lb	=	448.00
Splice bars - 30 prs x .80	=	24.00
Bolts - 26 lbs @ 22¢/lb	=	5.72
Spikes 267 lbs @ 15¢/lb	=	40.05
Ties - 300 @ 3bf/tie 900 b.f. @ 13¢/b.f.	=	117.00
Pipe		
300' - 2" air pipe @ 62¢/ft	=	186.00
300' - 1" gal. " @ 33¢/ft	=	99.00
Fittings - estimated		15.00
Ventilation pipe - 10" @ 1.40/ft		420.00

Miscellaneous

Compressor rent 75 x 8.75	=	656.25
Hoist rent 75 x 4.83	=	362.25
Drilling machine rent 75 x 4.00	=	300.00
Fuel, etc. @ 7.00 / day	=	525.00
Assume that 25 feet ofthis crosscut must be timbered and will require 2½ days additional time		
Labor 73.61 x 2½	=	184.02

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Phase 1 - Part 2 Miscellaneous(cont'd)

Timber @ 50 bf/ft * 1250bf		
1250 x .13	=	162.50
wedges & blocking - estimated		10.00
Total		9164.94

$\frac{9160.94}{300}$ 30.53/ft.

Phase 1 - Part 3. Raising from the Bonanza crosscut.

Ave. 3 raises will be driven in the three most favorable geological structures encountered in the crosscut. Total length of raising to be 200 feet. Under normal mining conditions, some raising could be done while crosscutting is in progress. However, the most favorable places for the raises can be determined only after the crosscut has been completed.

Assume an advance of 4 feet per day with a 4-man crew.

200 ÷ 4 = 50 working days

Labor		
Foreman 50 x 19.63	=	981.50
Miner 50 x 18.41	=	920.50
Mucker 50 x 17.16	=	858.00
Hoistman 50 x 18.41	=	920.50
		3680.50
Stulls - 400 b.f. @ .13/bf		52.00
Lagging - 1800 b.f. @ .13/bf		234.00
Ladders - 240 b.f. @ .13/bf		31.20
Chutes - 810 b.f. @ .13/bf		105.30
wedges, blocks, etc.		30.00
Miscellaneous		
Compressor 50 x 8.75	=	437.50
Hoist 50 x 4.83	=	241.50
Stoper 50 x 3.56	=	178.00
Fuel,etc. 50 x 7.00	=	350.00
Powder 1000 lbs. @ .30/lb	=	300.00
Fuse 2000 feet @ .015/ft	=	30.00
Caps 400 @ .034 ea.	=	13.60
		5663.60

Phase 2 - East Vizina Exploration

Part 1 - Rehabilitation of main drift from the Bonanza crosscut to the Combination crosscut, a distance of 105 feet, Fig. 1.

Labor consisting of a 4-man crew to clean drift, lay track and install air and water pipe. Estimated time required is 4 days.

Foreman 4 x 19.63	=	78.52
Miner 4 x 18.41	=	73.64
Mucker 4 x 17.16	=	68.64
Hoistman 4 x 18.41	=	73.64
Total labor		294.44

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Phase 2 - Part 1 (cont'd)

Supplies		
14 lb rail - 1120 lbs x.14	=	156.80
Splice bars - 11 prs x .80	=	8.80
Bolts - 11 lbs x .22	=	2.42
Spikes - 64 lbs x .15	=	9.60
Ties - 315 b.f. x .13	=	40.95
Pipe		
105 ft of 2½" @ 98¢/ft	=	102.90
105 ft. of 1" @ 33¢/ft	=	34.65
Fittings - estimated	=	15.00
Track switch		15.00
Miscellaneous		
Compressor 4 days @ 38.75/day		35.00
Hoist 4 days @ 4.83/day		19.32
Fuel, power, water etc. 4 x 7.00		28.00
Total		762.88

Phase 2 - Part 2. Rehabilitation of Combination crosscut for a distance of 115 feet. Fig. 1. This crosscut, when cleaned, may require some timber support. Six days are allowed for this rehabilitation with the full crew of four men.

Labor		
Foreman 6 x $19.63	=	117.78
Miner 6 x 18.41	=	110.46
Mucker 6 x 17.16	=	102.96
Hoistman 6 x 15.41	=	110.46
Total		441.66
Supplies		
16-lb rail - 1230 lbs x .14	=	172.20
Splice bars - 12 prs. x .80	=	9.60
Bolts - 12 lbs x .22	=	2.64
Spikes - 70 lbs x .15	=	10.50
Ties - 345 b.f. x .13	=	44.85
Timber for 5 drift sets		
1250 b.f. x .13	=	162.50
Wedges, blocking, etc.		10.00
Pipe		
115 ft of 2" pipe @ 62¢/ft		71.30
115 ft of 1" " @ 33¢/ft		37.95
Fittings - estimated		10.00
Ventilation pipe 115' @ $1.40/ft =		161.00
Vent pipe "T"		18.35
Miscellaneous		
Compressor 6 days x $8.75	=	52.50
Hoist 6 days x 4.83		28.98
Fuel, etc.		42.00
Total		1276.03

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Phase 2 - Part 3. Extending the Combination crosscut as shown in Figure 1.
Estimated average rate of advance is 4 feet per day with a 4-man crew.
Time required 200 ÷ 4 = 50 working days.

Labor			
Foreman	50 x 19.63	=	981.50
Miner	50 x 18.41	=	920.50
Mucker	50 x 17.16	=	858.00
Hoistman	50 x 18.41	=	920.50
	Total labor		3680.50
Supplies			
Powder 6 x 200 = 1200 lbs.			
	1200 x .30		360.00
Fuse 12 x 200 x .015		=	36.00
Caps 2 x 200 x .034		=	13.60
16-lb rail - 2140 lbs x .14		=	299.60
Splice bars - 20 prs. x .80		=	16.00
Bolts - 17 lbs x .22		=	3.74
Spikes - 178 lbs x .15		=	26.70
Ties - 800 b.f. x .13		=	78.00
Pipe			
200 ft of 2" @ 5.62/ft		=	124.00
200 ft of 1" @ .33/ft			66.00
Pipe fittings - estimated			12.00
Ventilation pipe 200' @ 1.40/ft.			280.00
Miscellaneous			
Compressor	50 x 8.75	=	437.50
Hoist	50 x 4.83	=	241.50
Drill	50 x 4.00	=	200.00
Fuel, etc.	50 x 7.00	=	300.00
Assume 20 ft of this crosscut must be timbered and two days additional time is necessary.			
Labor $73.51 x 2		=	147.02
Timber @ 50 b.f./ft. of crosscut			
20 x 20 = 1000 b.f. x .13		=	130.00
Wedges, blocking, etc.			5.00
	Total		6450.36

Phase 2 - Part 4. 100 feet of raising from the Combination crosscut.
Raising will start after the crosscutting has been completed. At this time the most favorable geological structure to be explored by raising can be determined.

Assumed rate of advance with the 4-man crew is 4 feet per day
100 ÷ 4 = 25 working days

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Phase 2 - Part 4 -(cont'd)

Labor			
Foreman	25 x $19.63	=	$ 490.75
Miner	25 x 18.41		460.25
Mucker	25 x 17.16		429.00
Hoistman	25 x 18.41		460.25
	Total labor		$ 1840.25
Supplies			
4 x 8 stulls - 200 b.f. @ .13/b.f.		=	26.00
2 x 10 lagging - 900 b.f. @ .13/b.f.		=	117.00
Ladders - 120 b.f. @ .13		=	15.60
2 chutes @ 270 b.f./chute		=	35.10
Wedges, blocks, spikes etc.		=	20.00
Miscellaneous			
Compressor	25 x 8.75	=	218.75
Hoist	25 x 4.83	=	120.75
Stoper	25 x 3.56	=	89.00
Fuel	25 x 7.00	=	175.00
Powder	500 lbs @ 30¢/lb	=	150.00
Fuse	1000 feet @ 1.5¢/ft	=	15.00
Caps	200 @ 3.4¢ ea	=	6.80
	Total		2829.25

Phase 3 - Diamond drilling

After completing Phases 1 and 2, about 1000 feet of EX diamond drill hole will be drilled to explore other favorable geological structure in area adjacent to Tribute Dike.

Estimates of the cost of drilling this amount of hole were obtained from Hoagland and Dodge Drilling Company, Inc., and Joy Manufacturing Company.

Estimates as follow:

Hoagland and Dodge $6.00 per foot

Joy Manufacturing Co. 5.95 per foot

Compressed air and water must be furnished, without charge, to these companies.

It is recognized that this is a small contract and costs per foot are higher.

Estimated time @ 33 1/3 feet/day = 1000 ÷ 33 1/3 = 30 days.

Labor			
Hoistman	30 x 18.41	=	552.30
Compressor	30 x 8.75	=	262.50
Hoist	30 x 4.83	=	144.90
Fuel, etc.	@ $5/day	=	150.00
Drilling	@ $5.95/ft for 1000 ft.	=	5950.00
	Total		$ 7059.70

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LABOR DISTRIBUTION

Work	Foreman	Carpenter	Miner	Hoistman	Mucker or Labor
1. Site preparation	4	0	4	0	4 & 4
2. Collar set.	2	2	0	0	2 & 2
3. Head frame	6	6	0	0	6 & 6
4. Building-hoist.	7	7	0	0	7 & 7
5. Compressor shed	1	1	0	0	1 & 1
6. Install hoist	2	2	0	0	2 & 2
7. Surface track	2	0	2	0	2 & 2
8. Powder house	2	2	0	0	2 & 2
9. Rehabit. shft.	24	0	24	24	24
10. Prepare 1st level I	4	0	4	4	4
11. Prepare Cons.X-cut	10	0	10	10	10
12. Extend " "	75	0	75	75	75
13. Bonanza raises	50	0	50	50	50
14. Prepare 1st level II	4	0	4	4	4
15. " Combin. X-cut	6	0	6	6	6
16. Extend " "	50	0	50	50	50
17. Combination raises	25	0	25	25	25
18. D. Drilling	0	0	0	30	0
	274	20	254	278	300
	$ 19.63	$ 18.41	$ 18.41	$ 18.41	$ 17.16
	$5,378.62	$ 368.20	$4676.14	$5117.98	$ 5148.00

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SUMMARY OF TIME AND COSTS

	Item	Working Days	Total Cost
1.	Equipment to be purchased	0	$ 1,326.50
2.	Supplies to be purchased	0	1,732.20
3.	Personal services	0	14,605.00
4.	Miscellaneous - acc. - taxes - assaying etc.	0	3,497.01
5.	Site preparation	4	289.44
6.	Collar set	2	270.89
7.	Head frame	6	659.16
8.	Building	7	1,091.52
9.	Compressor shed	1	147.36
10.	Install hoist, etc.	2	164.72
11.	Surface track	2	738.32
12.	Powder house	2	178.72
13.	Rehabilitate shaft	24	2,648.69
14.	First level main drift - Part 1	4	832.20
15.	Prepare Bonanza crosscut	10	2,285.85
16.	Extend Bonanza crosscut	75	9,164.94
17.	Bonanza raises	50	5,683.60
18.	First level drift - Part 2	4	762.88
19.	Prepare Combination crosscut	6	1,276.03
20.	Extend Combination crosscut	50	4,460.36
21.	Combination raises	25	2,829.25
22.	Diamond drilling	39	7,059.70
		304	
	TOTALS		63, 704.14
	Add for contingencies 7.5%		4, 777.81
	Total estimated cost of project		$ 68, 481.95

Harry E Krumlauf

1933 E. 3rd Street

June 22, 1961

TO WHOM IT MAY CONCERN:

The preceding report entitled "Proposed Vinina Mine Exploration" consists of seventeen pages, including the title page. Each page is stamped with the professional seal of the author and is signed by him.

The author has no financial interest in this property and compensation for the work involved in the preparation of this report will be in cash.

Harry E Krumlauf

Harry E. Krumlauf

REGISTERED MINING ENGINEER
CERTIFICATE EXPIRES
HARRY E.
KRUMLAUF
DEC. 31, 1961
ARIZONA, U.S.A.

Krumlauf's 2nd summary cost report according to MME form

Frank J. Frankovich
3351 N. 6th Avenue
Phoenix, Arizona

United States Department of the Interior
Office of Minerals Exploration
Data for MMF Form 40

7: Estimate of Costs

The work to be done for this project consists of the following, in the order shown:

A. Construct and equip a surface plant.
B. Rehabilitate the Vising shaft.
C. Clean and lay track in the first level drift.
D. Widen and lay track in the Bonanza crosscut.
E. Extend Bonanza crosscut 300 feet.
F. Drive 200 feet of raise from Bonanza crosscut.
G. Clean and lay track in the Combination crosscut.
H. Extend Combination crosscut 200 feet.
I. Drive 100 feet of raise from Combination crosscut.
J. Drill 1000 feet of EX diamond-drill holes.

The total estimated time for this project is 304 working days or for an average month containing 24 working days; the total time in months is 12.7. On this basis the following costs are shown:

	TOTALS
a. Independent Contracts	
1000 feet of EX diamond drill hole	$ 5950.00

Estimates given by:

Heagland and Dodge Drilling Co. @ $6.00 per feet
Joy Manufacturing Co. @ $5.95 per feet

Total	$ 5950.00

b. Personal Services	
1-Mining Consultant-Engineer.* Fee @ $350/mo.	$ 4445.00
1-Geologist-Supervisor** @ $800/mo. for 12.7 mos.	10160.00
1-Working Foreman 261 days at $16.00/day	4176.00
1-Miner 254 days @ $15.00 / day	3810.00
1-Carpenter 7 days @ $15.00 / day	105.00
1-Mucker 274 days @ $14.00 / day	3836.00
1-Hoistman 278 days @ $15.00 / day	4170.00
Total base pay and fee	$30702.00

The above services are available:

** Geologist-Supervisor on monthly rate for entire period of 12.7 months.
* Mining Consultant-Engineer- estimated fee at $350 per month for entire period.

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DEC. 31, 1961
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c. Operating Materials and Supplies

Item	Quantity	Unit Cost	Total Cost
Mine timber	17,264 b.f.	13¢/b.f.	$ 2244.32
Wedges, blocking, etc.		estimated	68.00
Hardware, bolts, spikes etc.		"	128.00
16-lb mine rail	14,480 lbs.	14¢/lb	2027.20
Splice bars	132 pairs	80¢/pr	105.60
Track bolts	119 lbs.	22¢/lb	26.18
Track spikes	995 lbs	15¢/lb	149.25
2½ inch black iron pipe	370 ft.	98¢/ft.	362.60
2 " " " "	855 ft.	62¢/ft	530.10
1 " galvanized "	1225 ft.	33¢/ft.	404.25
Pipe fittings(valves,Ts etc)		estimated	154.00
Fuel,electricity, water etc.		estimated	1640.00
Ventilation pipe-10-inch	975 ft.	$1.40/ft.	1365.00
Ventilation pipe fittings			31.15
Dynamite - 40% gelatin	4626 lbs	30¢/lb	1387.80
Fuse	9300 ft	1.5¢/ft	139.50
Caps - #8	1650	3.4¢ ea.	56.10
Drill steel - 2 ft. lengths	12	6.80 ea.	81.60
" " - 4 " "	12	8.95 ea.	107.40
" " - 6 " "	12	11.20 ea.	134.40
" " - 8 " "	6	13.50 ea.	81.00
1 in.air hose with fittings	2	37.50 ea.	75.00
½ " water " " "	2	19.80 ea.	39.60
Airline oilers	2	30.35 ea.	60.70
Tungsten carbide bits	35	13.50 ea.	472.50
General tools - shovels, saws, picks, wrenches, etc.		estimated	500.00
Electric cap lamps(Wheat)	6	30.00 ea.	180.00
Auxiliary hoisting equipment cable,clips,bell system, etc.		estimated	225.00
Track switches - 18" (used)	2	15.00 ea.	30.00
Total			$12,908.25

d. Operating equipment*

Item	Unit Cost	Total Cost
Mine fan-10 inch-220V.(used)	175.00	$ 175.00
Air Receiver-24"x72" (used)	150.00	150.00
Cage-4' x 4' (used)	200.00	200.00
3 mine cars-15 to 18 cu.ft. (used)	135.00	405.00
Sheave wheel-48" diam. (used)	75.00	75.00
Landing chairs (used)	60.00	60.00
Lamp charger-6 unit (Wheat)	96.50	96.50
Total		$ 1161.50

* To be purchased.

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DEC. 31, 1961
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7. (continued)
d. (cont'd).

Item (to be rented)	Unit Cost	Total Cost
Compressor-125 cfm-gasoline	$210.00/mo.	
Rent for 12 months		$ 2520.00
Hoist-4000 lb rope pull	116.00/mo.	
Rent for 12 months		1392.00
Drill-air-leg type-55 lb.	96.00/mo.	
Rent for 10 months		960.00
Drill-steper-2 3/4"	85.00/mo.	
Rent for 9 months		765.00
Total		$ 5637.00

e. Initial rehabilitation and repairs
None

f. New buildings, fixtures, installations

			Cost
Head frame - 6 days construction time			
* Labor:			
1 working foreman	6 x 16.00	=	$ 96.00
1 carpenter	6 x 15.00	=	90.00
2 laborers	12 x 14.00	=	168.00
Supplies			
1500 b.f. timber @ 13¢/bf		=	195.00
Bolts, washers, spikes, angles, etc.		est.	30.00
Total			$ 579.00

Hoist, shop & storage - 12' x 30'
Frame construction with partition
for store room - 7 days const. time.

			Cost
* Labor			
1 working foreman	7 x 16.00	=	$ 112.00
1 carpenter	7 x 15.00	=	105.00
2 laborers	14 x 14.00	=	196.00
Supplies			
Lumber-2200 bf @ $175/M			385.00
Roofing, windows, hardware -		est.	200.00
Total			$ 998.00

* This labor has not been included in part b.

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7. (continued)

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Phoenix, Arizona

g. Miscellaneous

No repairs anticipated at this time

Equipment maintenance (estimated)	$ 250.00
Assaying (estimated)	400.00
Accounting - $100/mo for 12.7 mo.	1270.00

Base pay without consultants fee (from 7 b&f) is---- $ 27,024.00

Overtime @ 1/12 base pay

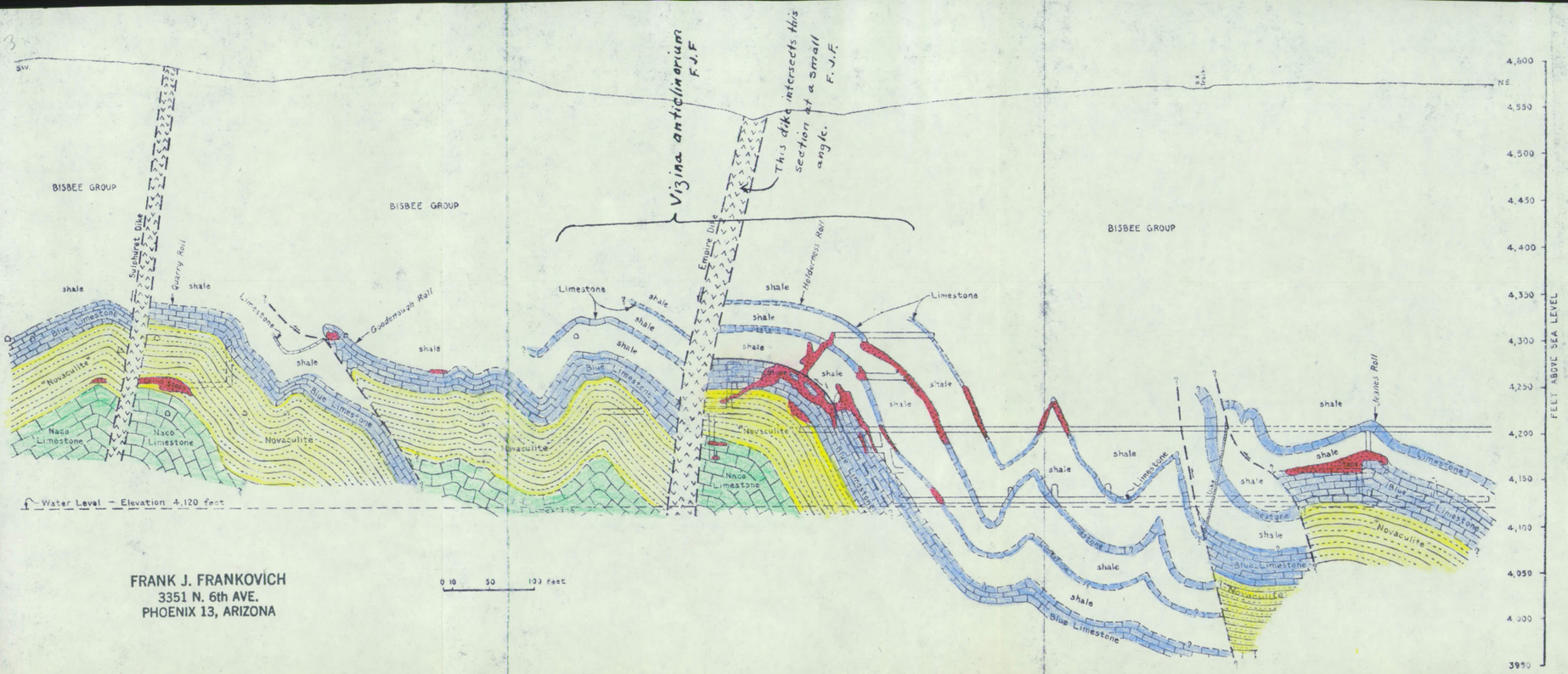
Foreman	274	x 1.33	=	364.12	
Miner	254	x 1.25	=	317.50	
Carpenter	20	x 1.25	=	25.00	
Mucker	274	x 1.16	=	317.84	
Laborer	26	x 1.16	=	30.16	
Hoistman	278	x 1.25	=	347.50	
Pay roll wage				$ 28,426.12	

Payroll taxes & Insurance

Social Security (FICA) @	3.00%	
Unemployment @	3.00%	
Industrial insurance	7.29%	
Total	13.29%	
28,426.12 x 13.29	=	3,777.83
State Sales Tax of 3% for items in 7 c,d,f, above 3% of 14,777.75		443.33
Total		$ 8,141.16

Total Cost of project as shown	$ 63,874.91
Add for contingencies 7.5 per cent	4,798.00
Total	68,772.91

Harry E Krumlauf



FRANK J. FRANKOVICH
3351 N. 6th AVE.
PHOENIX 13, ARIZONA

Plate XV.—Section along "409" fissure, looking northwest.

From Arizona Bur. of Mines Bull. 143

FRANK J. FRANKOVICH
3351 N. 6th AVE.
PHOENIX 13, ARIZONA

POINTS TO NOTE ON THIS SECTION — PLATE V

1. This section is drawn along a northeast fissure ACRoss the Vizina anticlinorium, in the same manner of Plate IV of this application.

2. The Emire dike has the same strike and composition as the Tribute dike and is of the smae age.

3. The west side of the Empire fault is dropped down the same as it is on the Tribute fault.

4. The ore is found in the top of the Blue limestone on the north flank of the structure. Ore in this position is the target of both exploration crosscuts proposed in this application.

5 Ore is found in the Ten-foot and Six-foot limestones above the Blue limestone, and also in minor structures to the north.

6. The axis of a major structure containing ore, the "Jeanes Roll" is found about 850 feet north of the main anticlinal axis of the Vizina anticlinorium. The same structure and ore potential lies north of the proposed exploration crosscuts and considerably enhances the worth of the project.

7. If a section were drawn on the same bearing as this through the Tribute dike at a point where it is crossed by the Vizina crosscut, it would show the same geologic picture as does this section. The dike, however, would appear about 150' south of where it does on this section, and the ore would appear at the bottom of the blue limestone.

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Open, caved stope known as "Million Dollar" stope. Originally named "Combination" ore body. Very high grade.

The top of the Blue Ls contained some of the largest and richest ore bodies, particularly where crossed by NE fissures. Also the 10-foot and 6-foot limestones were productive. These possibilities are not tested in this area. The proposed "Combination" X-cut is intended test these possibilities on a N.E. fissure east of the Tribute dike. See PLATE XV of Bulletin to see type of structure and ore bodies which were found on this north flank of the structure.

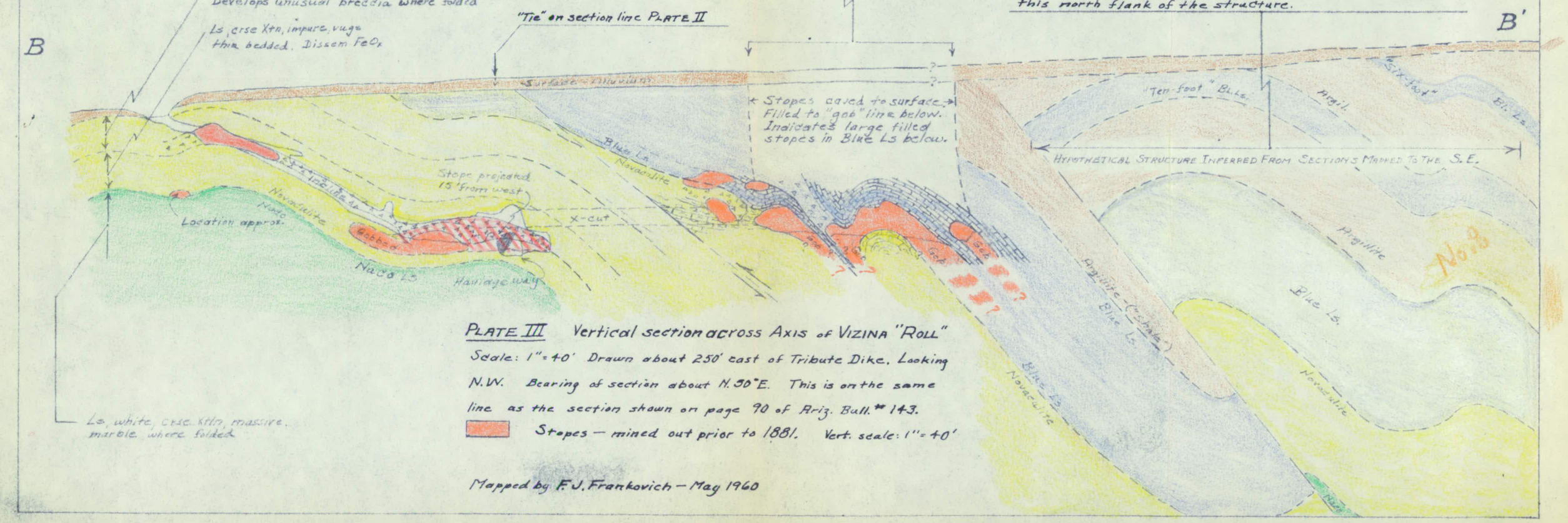

PLATE III Vertical section across Axis of VIZINA "ROLL"

Scale: 1" = 40' Drawn about 250' east of Tribute Dike. Looking N.W. Bearing of section about N.30°E. This is on the same line as the section shown on page 90 of Ariz. Bull. # 143.

Stopes — mined out prior to 1881. Vert. scale: 1" = 40'

Mapped by F.J. Frankovich — May 1960

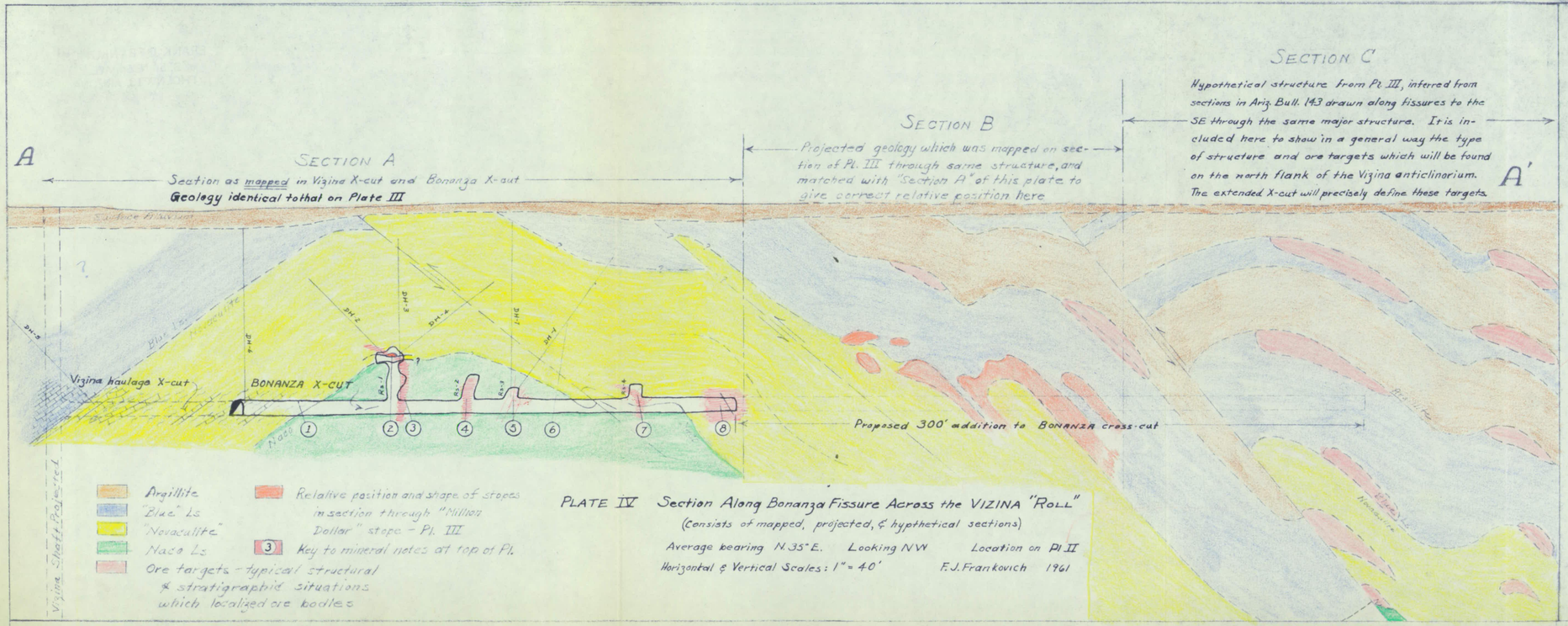

PLATE IV Section Along Bonanza Fissure Across the VIZINA "ROLL"

(Consists of mapped, projected, & hypothetical sections)

Average bearing N 35° E. Looking NW Location on Pl II

Horizontal & Vertical Scales: 1" = 40' F.J. Frankovich 1961

NOTES ON MINERALIZATION

1 At twenty-eight feet in the crosscut the fissure in the back looked highly altered & mineralized (assay 1'--2.8 oz. Ag).

2 Replacement ore in bedding in top of Naco, 6" thick by 5' wide and pinched out in 12' to the west, clearly faulted off by east side of fissure (max. assay 537 oz Ag, 4% Cu, 70¢ Au, and 65% SiO_2), vuggy with much Mn., stratified.

3 Shoot of min. in fissure, very irreg. dimensions--Mn, Ag, quartz. "Chlorides" visible--assays 6 to 100 oz. Ag.

4 Small vein of green silver "chlorides" (max. assay 227 oz Ag), 2" to 6" wide by 3' to 6' long, faulted off in top of raise. Some Cu, Mn now visible in ends of raise.

5 Veins of mangano-calcite with minor Ag in raise, steep dip, 1" to 5" thick. Hematite &limonite, dissem. Mn, yellow and green secondary min. in shear and crushed zones. Type of mineral found only in the wallrock of stopes.

6 This drill hole had an encouraging amount of iron and Mn oxides throughout in a brecciated, vuggy Ls which is the typr favorable for replacement. All other drill holes were essentially barren for little Fe & Mn oxides, and quartz.

7 Small irregular shoot of sooty Mn with low Ag in fissure. Veinlets and dissem Mn in Ls. Favorable environment.

8 Vertical fissure (1' to 2' wide) in last 30' of crosscut becomes solidly filled with a very unusual mineral assemblage consisting of iron oxides, white clay (prob. montmorillinite), calcite, specks of Mn, specks and veinlets of yellow and green secondary minerals of a type usually associated with Ag ore. Filling has very distinctive brown and white "zebra skin" pattern. Ag assay 0 to 0.5 to 1.0 oz. This type filling has been found in other fissures containing valuable ore shoots, principally the West Side fissure.

PLATE I

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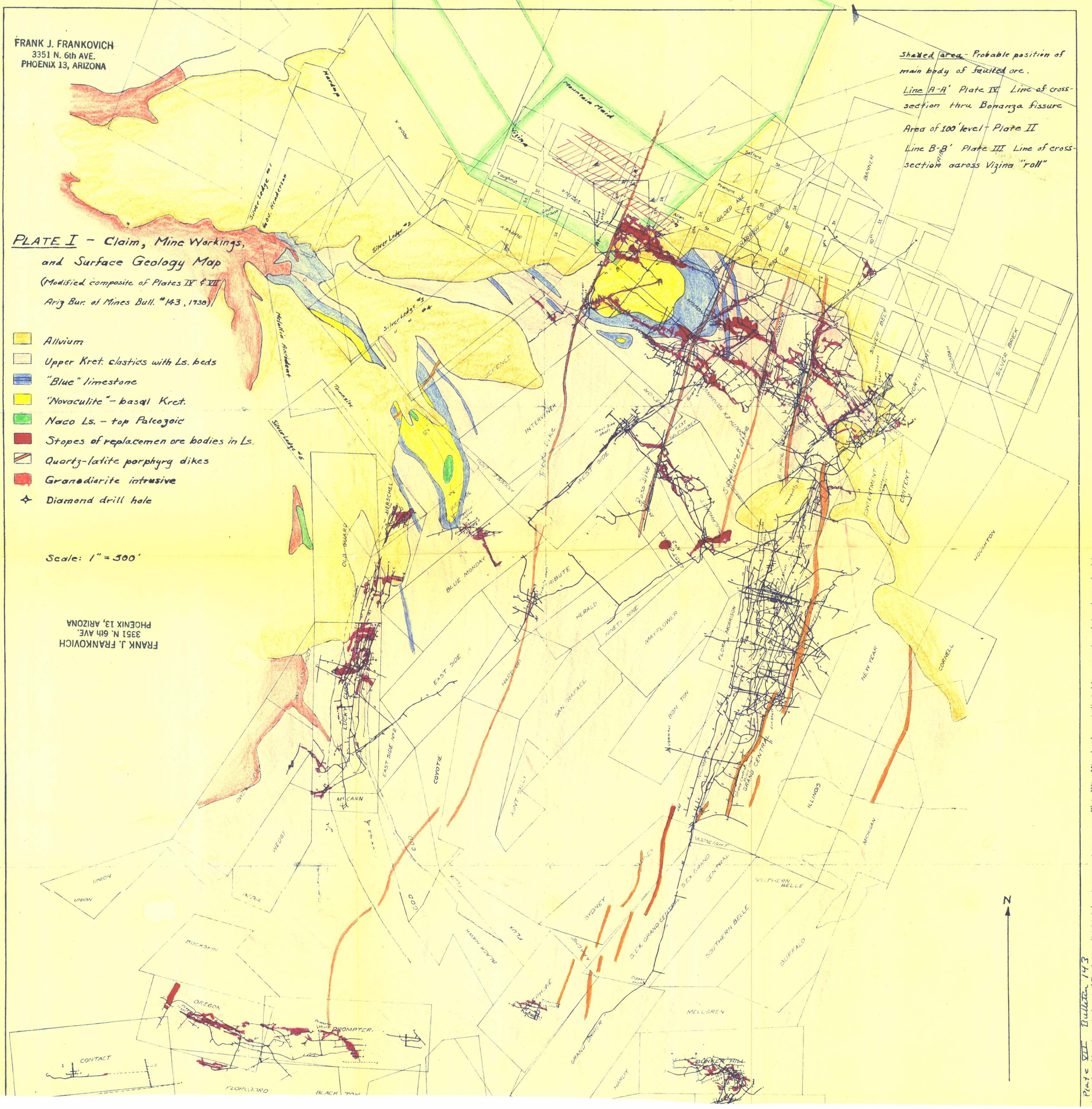

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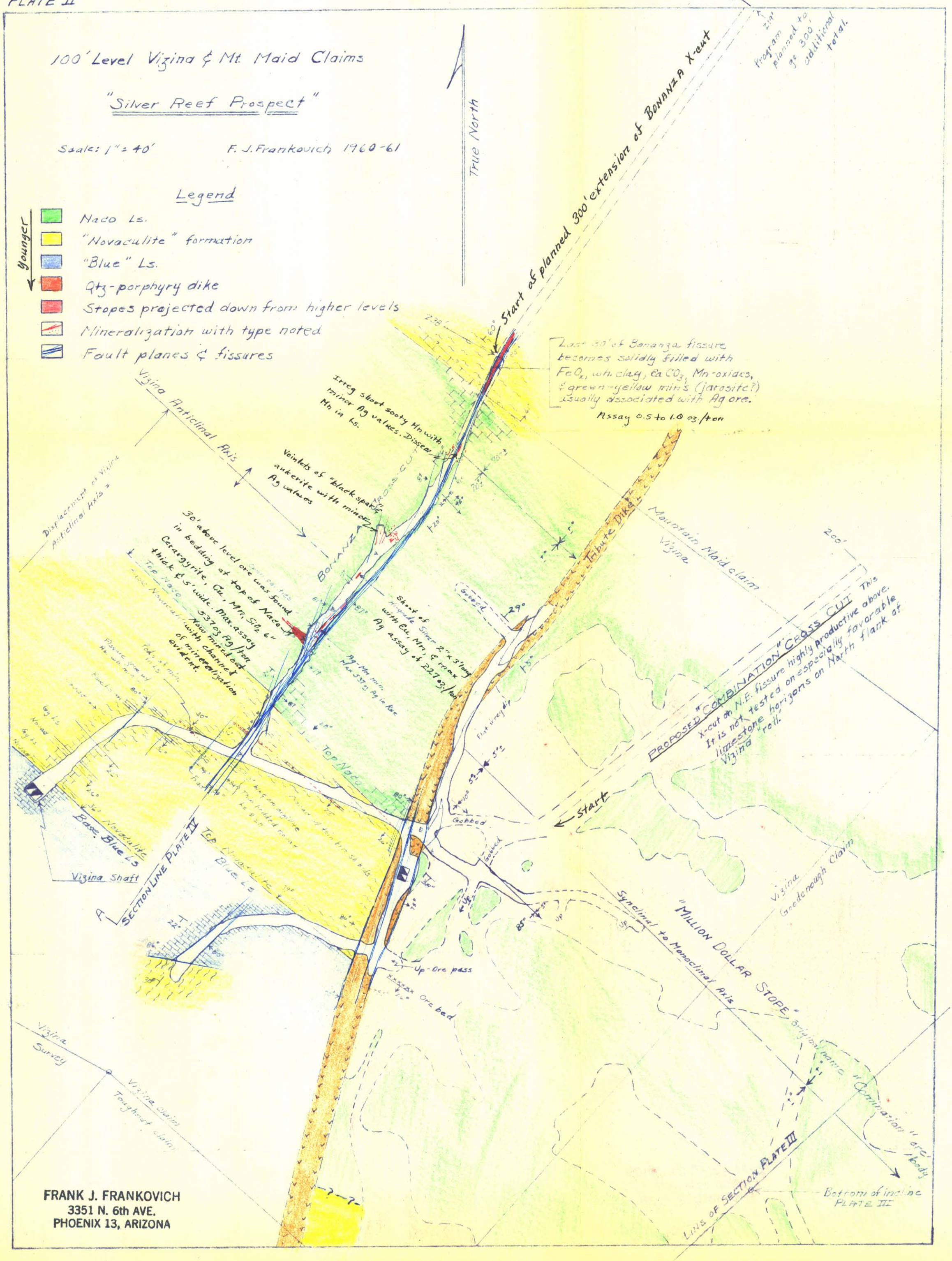
Plate VII Bulletin 143

aims and workings in central part of Tombstone district (place transparent paper over Plate IV). Mine levels are indicated by numerals and stoped areas by dots.


100' Level Vizina & Mt. Maid Claims
"Silver Reef Prospect"
Scale: 1" = 40'
F. J. Frankovich 1960-61
Legend
Younger
Naco Ls.
"Novaculite" formation
"Blue" Ls.
Qtz-porphyry dike
Stopes projected down from higher levels
Mineralization with type noted
Fault planes & fissures
True North
A'
Start of planned 300' extension of BONANZA X-cut
Program planned to go 300' additional total.
Last 30' of Bonanza fissure becomes solidly filled with FeOx, wh. clay, CaCO3, Mn-oxides, & green-yellow min's (jarosite?) usually associated with Ag ore.
Assay 0.5 to 1.0 oz./ton
Irreg. shoot sooty Mn with minor Ag values. Dissem. Mn in ls.
Veinlets of "black sparkle" ankerite with minor Ag values
Vizina Anticlinal Axis
Displacement of Vizina Anticlinal Axis
BONANZA CROSS-CUT
30' above level ore was found in bedding at top of Naco. Cerargyrite, Cu, Mn, Sb. 6" thick & 5' wide. Max. assay 5373 Ag/ton. Now mined out with charmed of mineralization evident.
Shoot of hi-grade Silver 2" x 3' long with Cu, Mn, & max Ag assay of 2273 oz/ton
Ag-Mn min. Max 5373 Ag in ton
Tributary Dike
Mountain Maid claim
Vizina
PROPOSED "COMBINATION" CROSS CUT
This X-cut on N.E. fissure highly productive above. It is not tested on especially favorable limestone horizons on North flank of Vizina "roll."
Start
Gobbed
Top Naco
Base Blue Ls
Vizina Shaft
SECTION LINE PLATE IV
Top Blue Ls
Up-Ore pass
Ore bed
Syncline to Monoclinal Axis
"MILLION DOLLAR STOPE"
Original name "Combination" ore body
Vizina Goodenough Claim
Vizina Survey
Vizina claim
Toughnut claim
LINE OF SECTION PLATE III
Bottom of incline PLATE III
B'
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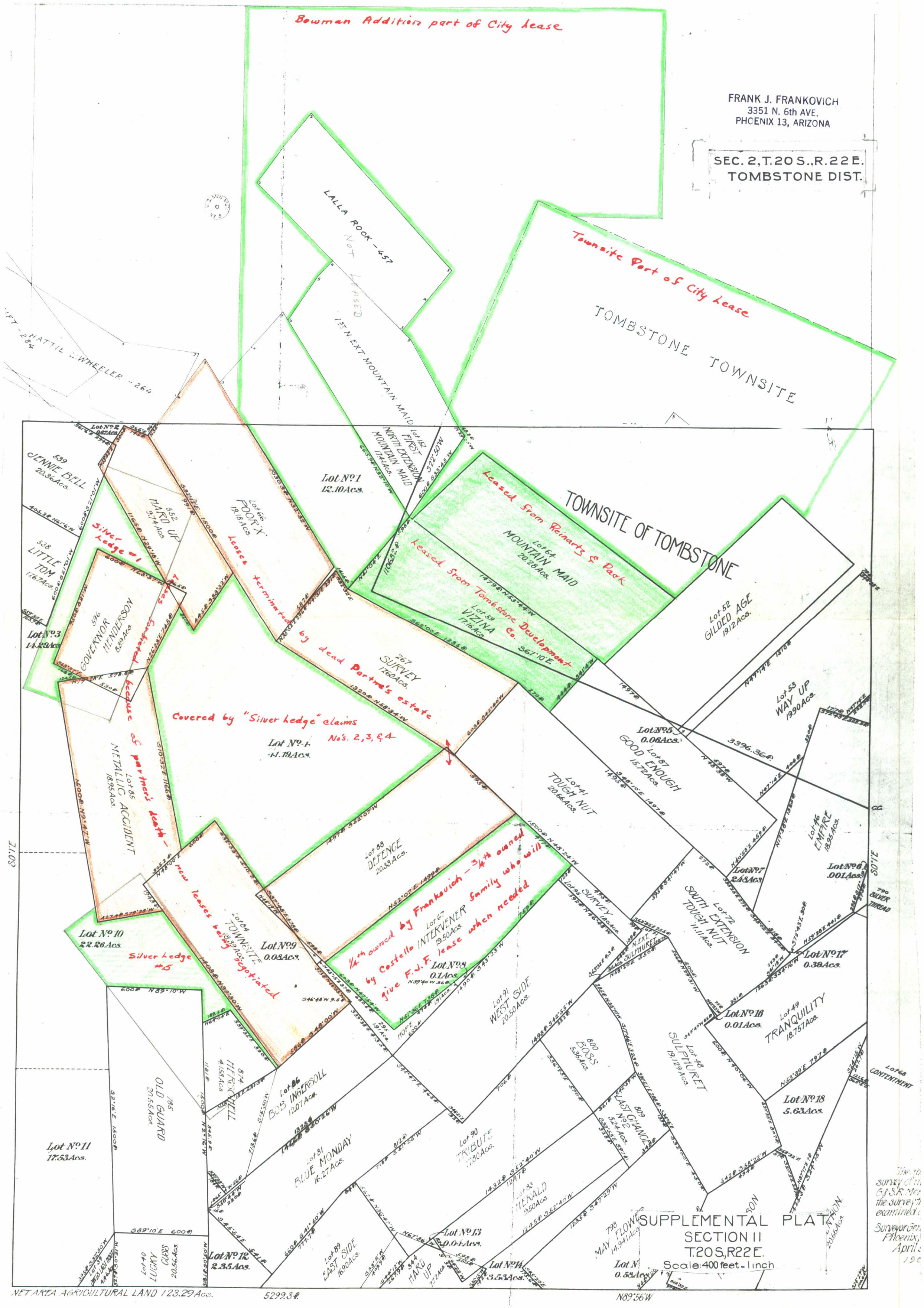
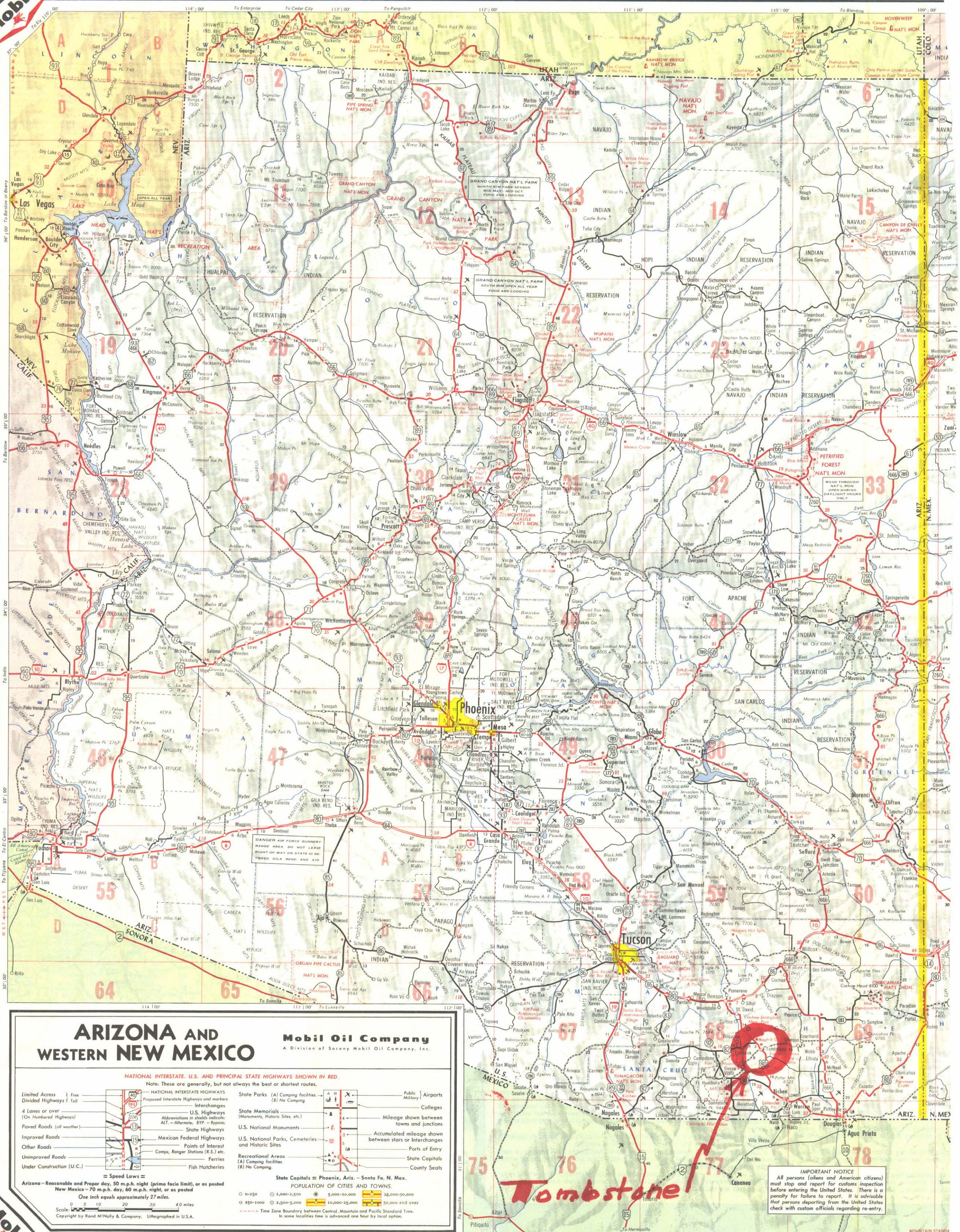

Bowman Addition part of City lease
FRANK J. FRANKOVICH
3351 N. 6th AVE.
PHOENIX 13, ARIZONA
SEC. 2, T.20 S., R.22 E.
TOMBSTONE DIST.
LALLA ROOK - 457
Not Leased
1st N. EXT. MOUNTAIN MAID
Townsite Part of City lease
TOMBSTONE TOWNSITE
HATTIE WHEELER - 264
Lot 152 FIRST NORTH EXTENSION MOUNTAIN MAID 17.41Acs.
Lot No. 1 12.10Acs.
539 JENNIE BELL 20.36Acs.
538 LITTLE TOM 17.67Acs.
552 HARD UP 9.74Acs.
Lot 66 POOR X 19.18Acs.
Silver Ledge #1
Leases terminated by dead Partner's estate
Leased from Reinarts & Park
Lot 64 MOUNTAIN MAID 20.28Acs.
Leased from Tombstone Development Co.
Lot 59 VIZINA 17.16Acs.
TOWNSITE OF TOMBSTONE
Lot 52 GILDED AGE 19.12Acs.
Lot 53 WAY UP 19.90Acs.
596 GOVERNOR HENDERSON 8.39Acs.
Lot No. 3 14.29Acs.
267 SURVEY 17.60Acs.
Covered by "Silver Ledge" claims No's. 2, 3, & 4
Lot No. 4 41.19Acs.
Lot No. 5 0.06Acs.
Lot 87 GOOD ENOUGH 15.72Acs.
Lot 41 TOUGH NUT 20.66Acs.
Lot 46 EMPIRE 18.95Acs.
Lot No. 7 2.48Acs.
Lot No. 6 .001Acs.
Lot 85 METALLIC ACCIDENT 18.95Acs.
Lot 88 DEFENCE 20.33Acs.
Lot 72 SOUTH EXTENSION TOUGH NUT 11.11Acs.
Lot No. 10 22.26Acs.
Silver Ledge #5
Lot 84 TOWNSITE 18.39Acs.
Lot No. 9 0.08Acs.
Lot No. 8 0.1Acs.
1/4th owned by Frankovich - 3/4th owned by Costello INTERVENER family who will give F.J.F. lease when needed
Lot 67 INTERVENER 19.50Acs.
Lot 95 SURVEY 1.80Acs.
Lot No. 17 0.39Acs.
Lot 91 WEST SIDE 20.50Acs.
Lot No. 16 0.01Acs.
Lot 49 TRANQUILITY 18.757Acs.
Lot 48 SULPHURET 19.129Acs.
800 BOSS 5.36Acs.
Lot No. 18 5.63Acs.
Lot 68 CONTENTMENT
Lot No. 11 17.53Acs.
785 OLD GUARD 20.55Acs.
874 HERSCHELL 4.158Acs.
Lot 86 BOB INGERSOLL 12.07Acs.
Lot 81 BLUE MONDAY 16.27Acs.
Lot 90 TRIBUTE 17.80Acs.
809 LAST CHANCE No. 2 3.24Acs.
Lot 83 EMERALD 9.50Acs.
Lot No. 13 0.04Acs.
Lot No. 14 3.53Acs.
Lot No. 12 2.35Acs.
Lot 89 EAST SIDE 16.90Acs.
344 HARD UP 7.72Acs.
Lot 40 LUCKY BOSS 20.56Acs.
798 MAY FLOWER 14.94Acs.
SUPPLEMENTAL PLAT
SECTION 11
T.20 S., R22 E.
Scale: 400 feet - 1 inch
NET AREA AGRICULTURAL LAND 123.29 Acs.
5299.3 ft.
N89°56'W
S0°1'E
Note: Each mineral acreage given is total net area of the lode claim
FRANK J. FRANKOVICH
3351 N. 6th AVE.
PHOENIX 13, ARIZONA
Controlled by Applicant
Item 1-(4) Land owned or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Prescott
Yuma
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Other Roads
Unimproved Roads
Under Construction (U.C.)
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Proposed Interstate Highways and markers
Interchanges
U.S. Highways
Abbreviations in shields indicate: ALT. = Alternate; BYP. = Bypass;
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Mexican Federal Highways
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Camps, Ranger Stations (R.S.) etc.
Ferries
Fish Hatcheries
= Speed Laws =
Arizona = Reasonable and Proper day, 50 m.p.h. night (prima facie limit), or as posted
New Mexico = 70 m.p.h. day, 60 m.p.h. night, or as posted
One inch equals approximately 27 miles.
Scale: 0 5 10 20 30 40 miles
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Mileage shown between towns and junctions
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Ports of Entry
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County Seats
State Capitals = Phoenix, Ariz. – Santa Fe, N. Mex.
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0-250
250-1000
1,000-2,500
2,500-5,000
5,000-10,000
10,000-25,000
25,000-50,000
50,000 and over
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DANGER AIR FORCE GUNNERY RANGE AREA. DO NOT LEAVE RIGHT-OF-WAY ON STATE 85 BETWEEN GILA BEND AND AJO.
GRAND CANYON NAT'L PARK
NORTH RIM PARK SEASON MID MAY–MID OCT. FOOD AND LODGING
GRAND CANYON NAT'L PARK
SOUTH RIM OPEN ALL YEAR FOOD AND LODGING
ROAD THROUGH NAT'L MON. OPEN DURING DAYLIGHT HOURS ONLY
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