

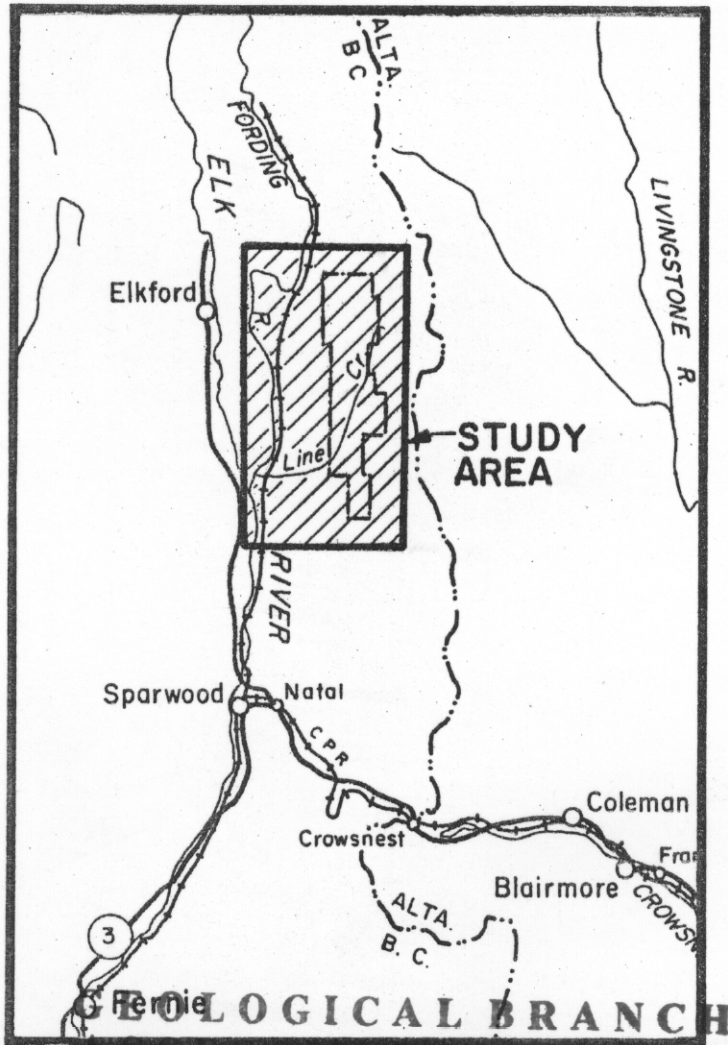
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184

CROWS NEST INDUSTRIES LTD.

LINE CREEK COAL PROJECT



GEOLOGICAL BRANCH
ASSESSMENT REPORT

PROSPECTUS
00 414

CROWS NEST INDUSTRIES

K-SHELL-LINE CR. 76(7)A

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LINE CREEK COAL PROJECT

PROSPECTUS

PREPARED BY:

Crows Nest Industries - Mitsui & Company

SUBMITTED TO:

Deputy Minister of Mines and Petroleum Resources
Government of British Columbia
Victoria, B.C.

July, 1976

CROWS NEST INDUSTRIES

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SUMMARY

1. Crows Nest Industries Limited (C.N.I.) holds 36 coal licences covering 18,650 acres within the "Upper Elk Coal Field" of southeastern B.C. (Figure 1). It is estimated that over 11,000 acres of the above are underlain by Kootenay coal-bearing strata.
2. C.N.I. proposes to develop an open pit mining operation on Line Creek Ridge and construct a coal preparation plant some seven miles southwest in the Elk Valley.
3. The total area affected by mine, plant, waste dumps, roads, etc. is estimated to be 4,000 acres of which about 3,000 acres are located on Crown land and 1,000 acres on C.N.I. property.
4. Exploration conducted between 1968 and 1973 focused on the open pit potential, of Line Creek Ridge, Horseshoe Ridge and Ewin Pass (Figure 2). Total proven and partially proven reserves in the areas are:
 - 107.6 million short tons raw metallurgical grade coal
 - 14.6 million short tons raw thermal coal at an overall ratio of 8.5:1.
5. Current mine design calls for a total raw coal production of 31.6 million short tons over 18 years which would yield 7.5 million short tons raw thermal coal and 15.9 million long tons clean metallurgical product. Overall ratio for this operation would be 5.75:1 generating 181.6 million cubic yards of waste rock.
6. Extensive deposits of coal that could be won by underground mining have not yet been defined.

INTRODUCTION

Crows Nest Industries Limited (C.N.I.) acquired during February 1968, 32 coal licences covering 17,320 acres and in October 1970 a further four licences for an additional 1,280 acres, all in the "Upper Elk Coal Field" of southeastern British Columbia.

C.N.I. together with Mitsui & Company of Japan intend to develop an open pit mine on Line Creek Ridge and erect a cleaning plant in the Elk Valley some 715 rail miles (C.P.R.) from the port of Roberts Bank. The mine site lies about 15 miles north of Sparwood and is roughly midway between Kaiser Resources and Fording Coal operations.

Exploration, which commenced in 1968, has been completed and the company in conjunction with Mitsui & Company, is now undertaking a final feasibility study of the "Line Creek project".

GEOLOGY AND EXPLORATION

The "Upper Elk Coal Field" refers to a belt of coal measures (Kootenay formation) which extend from a point on the west side of Alexander Creek, about due east of Sparwood, B.C., northward for nearly 60 miles to the Elk Lakes close to the Alberta - B.C. boundary. The fields are narrow on the north and south ends with a maximum width of about seven miles immediately north of "Fording Coal" operations.

North of the junction of Line Creek and South Line Creek, the belt is continuous but south of this point it consists of several erosional remnants.

A narrow, steep limbed asymmetric syncline can be traced from Line Creek Ridge northward for at least 23 miles. This is locally referred to as the "Fording River Syncline". The east limb is drag folded along high-angle thrust faults which have repeated parts of the Kootenay formation. In most instances, fault surfaces parallel the beds and result in exaggerated thickness' of measures.

In the project area, the lowest several hundred feet of Kootenay strata are best exposed along the west face near the top of Line Creek Ridge. These beds lie in the west limb of the "Fording River Syncline" which in this locality plunges north at about 10 degrees. Increasingly higher stratigraphic beds are encountered northward along the same ridge where up to 1,700 feet of strata containing 15 seams of coal have been noted. In two other areas examined, namely Horseshoe Ridge and Ewin Pass, eleven and twelve seams were found in somewhat thinner (eroded) sections (Figure 3).

The principal coal beds, in the projected mine on Line Creek Ridge, are the lowest four namely: 8, 9, 10B and 10A, aggregating almost 80 feet. Limited reserves also occur in four upper seams: 2, 4, 6 and 7.

Exploration, which is now completed, was conducted during the period 1968 - 1973. Activities on Line Creek Ridge included:

1. Air photography, mapping and construction of a three-dimensional plastic model showing seams, drill holes, faults, etc. on a scale of 1":400'.
2. Drilling of 50 reverse circulation holes and logging same with Gamma Neutron and, in some instances, Density logs.
3. Eleven coal-cored holes alongside previously drilled reverse circulation holes for comparison purposes (Table 1).
4. Seam outcrop tracing followed by 8 test pits and 12 adits. (Figure 4 shows seam outcrops, drill holes, adits and test pits). Erosion control was effected by two retention ponds from Test Pits 9 and 10 which have been reclaimed by contour stabilization and hydroseeding.
5. Proximate, sulfur, F.S.I., ultimate, thermal rheological, carbonization and washability tests were conducted for C.N.I., by commercial laboratories and by Energy, Mines & Resources in Ottawa.
6. Two full scale plant tests were conducted in the Coleman Collieries plant at Coleman. A Deister table test was conducted in Fort Wayne, Indiana and pilot plant assessment was made by Birtley Engineering plant in Calgary.
7. Public access was originally available through the Line Creek valley by a logging road. Access to Line Creek Ridge for exploration purposes is also shown in Figure 4. Crows Nest Industries has maintained an open access policy in its fee lands. From the safety standpoint it will be necessary to maintain a no-shooting zone around Line Creek Ridge during construction and operation.

COAL RESERVES - LINE CREEK RIDGE

1. Ninety-one and one half percent of coal reserves lie in the bottom four seams:

<u>Seam</u>	<u>Thickness(ft)</u>
8	35
9	19
10B	15
10A	9

2. Minor amounts of reserves (8.5%) are to be utilized from upper seams 6, 7, 4 & 2.
3. Coal reserves (Table 2) were calculated using the following parameters:
 - a) Minimum seam height of 4 ft.
 - b) Overall slope on highwall of 45°.
 - c) Tonnage calculated on basis of 84 lb/ft³ coal in place.
 - d) Average of 5% of calculated coal in place deducted to allow for errors in geological data, losses due to inferior quality, losses due to stratigraphic thinning or thrust faulting.
 - e) A mining recovery of 85% applied to cover losses from roof, floor, spillage, wind etc. resulting in an average net recovery 81% of coal in situ.
 - f) Proven and partially proven reserves of metallurgical blend metallurgical and thermal coal are shown in Table 2.

PROPOSED MINE DEVELOPMENT

(Figure 2 illustrates the proposed development)

An open pit mine on Line Creek Ridge would deposit overburden (spoil) in the valley to the west. Coal would be truck-hauled approximately seven miles down Line Creek Valley to a cleaning plant in the Elk Valley located on the existing C.P.R. Fording River spurline.

Mine office, maintenance and related facilities would be located as close as possible to the pit area. The project office, warehousing, bulk storage, main electrical substation etc. would be in the plant site area.

The main coal haul road (joining plant and mines) has been designed to also act as a dike for the containment of all water runoff from the mine and waste dump. Eleven settling ponds have been located along the west side of the road, wherein water will be clarified before being allowed to enter Line Creek.

Low ratio coal in the south and westerly portion of Line Creek Ridge contains a large percentage of oxidized coal. Ordinarily, this coal would be mined first but such a procedure would result in production of excessive amounts of oxidized coal in the initial years. In order to obtain a better mix of oxidized and metallurgical grade coal, a two-pit operation has been designed; an "upper pit" commencing at final highwall intersection with a ridge line, working downward southeasterly and, a second smaller, short-lived pit located low on the eastern side. The "low operation" would meet two important objectives:

1. It would provide an early source of metallurgical grade coal.
2. Granular quartzite located between seams 8 and 9 would be used in the construction of a toe dam near the mouth of West Line Creek, and as ballast and riprap in the construction of the main haulroad and settling pond dams, etc.

The stages of mine development are shown by Figures 6 - 15.

Two slots would be cut through the ridge to reduce uphill hauling, one to the north having a base elevation of 6,000 feet and the second farther south at 5,800 feet (Figures 6, 7 and 8).

Following diversion of West Line Creek to a course clear of the ultimate waste dump configuration, excavated overburden will be disposed of into West Line Creek valley. Initial waste dumping is expected to result in segregation of coarse material in the valley bottom which will facilitate drainage of nondivertable water from the disposal area. The maximum ultimate angle of repose for the waste will be 26° to allow permanent stability. The top portion material from the mine development area will be removed and stockpiled separately, prior to mass overburden movement. Bottom spoil material will therefore be composed largely of sandstone and shale fragments, the former having low erosion characteristics.

Mining will utilize a standard truck-shovel system, probably employing 15 cubic yard shovels loading into 80 - 85 ton end-dump trucks. Drilling and blasting will be required with different rock types entailing variable hole spacing and powder factors. Three lifts of 33 ft increments will be taken for each 100 ft bench where a 75 ft berm will be left. Bench sloping will be 1/4 to 1 with a resultant highwall angle of 45 degrees. Field investigations, concerning highwall, footwall, dump, settling pond dams, and plant waste dump stabilities are currently underway by the firm of "Golder Associates".

Coal will be transported by a conveyor belt from pit to a breaker station located at the foot of Line Creek Ridge. Following sizing, coal will be loaded onto truck-trains and hauled to the cleaning plant.

It is estimated that the preparation plant will take two years to build and will begin operation early in the third year. These years have been designated as -2 and -1 during which time pre-stripping and

coal hauling will be undertaken. The third year is designated year +1 and is the first year of full production. During years -2, -1 and +1, some 2,000,000 short tons raw coal will be mined and 17,399,000 cubic yards of waste removed. The preceding forecast coal production is based upon plant design capacity and assumes that: (a) coal is not stockpiled raw for processing at the later date (b) coal is not marketed raw.

The targeted plant production is 1,000,000 long tons clean metallurgical grade coal (taken as coal which has a raw F.S.I. of 2 or better) per year.

The second plant production year is designated +2, the third, +3 and so on to pit exhaustion, approximately year +18. Over the life of the mine some 7,571,000 short tons raw thermal coal (less than 2 F.S.I. raw) and, 23,860,000 raw short tons metallurgical grade coal will be produced. Coincidentally, 181,581,000 cubic yards of overburden will be removed for an overall ratio of 5.75:1.

PROPOSED CLEANING PLANT

- A. Conceptual circuitry is shown in Figure 5.
1. Investigations have been and are being conducted toward elimination of tailings ponds, except for an emergency pond, and for mechanical and indirect drying to avoid use of a thermal dryer.
 2. The plant essentially will use:
 - a) A dense media vessel for 2" x 1/4".
 - b) Deister tables or Hydro cyclones for 1/4" x 100M.
 - c) Flotation for 100M x 0.
 3. Plant capacity will be 500 short tons per hour of raw coal to yield one million long tons clean coal per year. Thermal coal can also be processed.
 4. Plant make-up water would be about 250 gal/min, to be drawn from Line Creek.
 5. There will be no positive discharge of plant waste water. Sanitary waste water will be treated and disposed of separately.
 6. The plant will utilize a magnetite recovery system for the dense media circuit. Flotation chemicals such as kerosene, methylisobutyl carbinol, pine oil etc. will largely be absorbed by coal the remainder being recycled in the process water with minor amounts going out to waste. All plant waste will be trucked to a refuse pile which will be designed with drainage collection ditch, dike etc. to contain runoff.
 7. Dust suppression measures will be instituted as required to control any emissions from the raw coal stockpile, crusher, coal transfer points, truck and train movements.

LOADING, TRANSPORTATION & STORAGE

At the mine site exposed coal will be loaded into 85 ton end-dump coal trucks using a 15 cubic yard front end loader and 11 cubic yard electric shovels, assisted by a D8 tractor. Coal will then be transported by truck to the preparation plant site. Coal loading and hauling operations from mine to the preparation plant are scheduled for five days per week, 245 days per year.

Clean coal reclaimed from ground storage or obtained directly from the plant will be loaded through a batch silo onto unit trains on a C.N.I. loop. It is expected that metallurgical coal will be delivered by existing trackage to ship loading facilities in the Vancouver area. Existing facilities are Westshore Terminals at Roberts Bank or Neptune Terminals. Marketing arrangements for thermal coal have not been completed.

POWER

Power will originate from the Canelk transmission line on the west side of the Elk River.

A step down transformer with transmission lines across Elk River to Line Creek plant and mine will be required.

MINE EMPLOYMENT

Employment aspects can be divided into four periods:

- A. First period, currently underway, involves a feasibility study covering all aspects of the proposed operation. This is being conducted primarily by the staff of C.N.I. and their prospective joint venture partners, Mitsui & Company of Japan. Consultants have been commissioned to conduct detailed investigation into specific concerns such as mine and plant designs, slope stabilities, waste disposal etc. An ongoing program of environmental studies by B.C. Research was initiated in July 1975. This first phase ought to be completed by April 1977 (Table 3).
- B. Second period classed as "Construction" would commence spring 1978. Anticipated work force would be 300, the bulk of which (80%) would be journeymen and the remainder labourers and supervisors. A construction camp will be built at the plant site (Figure 2) utilizing the same services to be used for subsequent plant and ancillary operations. Coincident with this preproduction work at the mine would be initiated. These employees would eventually become permanent (Table 4).
- C. Third period classed as "Operating" would commence early in 1980. Work force distribution would be similar to that outlined in Table 4.
- D. Fourth period can be classed as "Post Operational" would be about 1998. Should circumstances be favorable there are at least an additional 100 million tons of similar quality coal in the Line Creek area which could be economically viable and thus sustain the operation for an indefinite period.

TOWNSITE OPTIONS

- A. Line Creek reserve area is about 15 miles northeast of Sparwood and a similar distance southeast of Elkford.
- B. A good blacktop public highway joins Elkford and Sparwood. Midway between the two a connecting blacktop road together with a bridge across the Elk River will be built so that access to the proposed plant site will be about 12 miles from either town. The distance from Fernie would be 32 miles (Figure 1).
- C. It is contemplated that the greater number of employees would choose to reside in Sparwood and Fernie. A reasonable guess would be 80% with the remainder split between Elkford and elsewhere.
- D. The proposed minesite is located within the Regional District of East Kootenay. The District occupies 11,000 square miles of southeastern of British Columbia. It is sparsely settled with a total population of just under 50,000 - half of whom live in Cranbrook and Kimberley areas about 100 miles distant from the minesite. The largest community within commuting distance of the development is the City of Fernie. Its population was 5,000 in 1975 excluding about 1000 residents who live nearby on the outskirts of town. The two, smaller communities of Sparwood and Elkford have populations of 3,500 and 2,500 respectively and both of these are about 12 miles distant from the site access.
- E. Mining is the leading primary resource industry in the region. Between 1971 and 1975 this industry experienced an impressive 41.5% increase in employment and consequently was the only industry to significantly increase its contribution to total employment. Each job in the primary and secondary sector would appear to be supported by about one other job in a back up industry such as trade or public administration.

TABLE 1

COMPARISON OF COAL - CORE AND REVERSE CIRCULATION DRILL HOLE SAMPLES, LINE CREEK RIDGE

<u>DRILL HOLE NO.</u>		<u>SEAM NO.</u>	<u>ASH %</u>		<u>VOLATILE MATTER %</u>		<u>F FSI</u>		<u>CONSOL % COAL RECOVERY</u>
<u>CONSOL</u>	<u>CNI</u>		<u>CONSOL</u>	<u>CNI</u>	<u>CONSOL</u>	<u>CNI</u>	<u>CONSOL</u>	<u>CNI</u>	
LC-2	39	8	6.0	19.2	21.2	21.6	1.0		100.0
LC-4	40	8	6.2	6.6	21.1	22.0	0.8	1.0	93.2
LC-5	-	9	5.4	-	21.4	-	0.3	-	82.0
	-	10-B	6.4	-	22.3	-	8.0	-	82.0
LC-6	37	8	6.3	7.6	21.3	21.3	2.9	1.5	88.4
LC-7	-	9	6.4	-	21.8	-	5.8	-	86.9
	-	10-B	8.6	-	21.3	-	8.0	-	86.9
	-	10-A	8.2	-	20.5	-	1.0	-	86.9
LC-8	3	7	6.1	10.0*	22.3	22.8	7.0	5.0*	75.8
LC-9	-	8	6.2	-	21.4	-	2.7	-	99.5
LC-10	-	7	6.1	-	22.9	-	0.4	-	86.5
LC-11	50	6	5.5	5.5	33.6	23.9	7.0	4.0	69.3
		7	6.8	7.5	22.9	23.6	6.75	6.0	69.3
LC-15	16				No Analyses				71.3

CNI = Crows Nest Industries Limited

Consol = Consolidation Coal Company

* Estimated

TABLE 2

COAL RESERVES IN THE LINE CREEK RIDGE AREA (BOYD 1974)

Coal Classification	FSI	Net Tons (000's)		
		Proven	Partially Proven	Total
Metalurgical	>4	46,721	4928	51,649
Coking Blend	2-4	3,317	595	3,912
Subtotal	> 2	50,038	5,523	55,561
Oxidized (Thermal)	0-2	5,744	603	6,347
Total		55,782	6,126	61,908

Based upon:

- 1) Average in-situ bulk density of 84 lb/ft³.
- 2) Average mining recovery of 81%.
- 3) Raw F.S.I. values:
 - a) + 4 F.S.I. considered metallurgical grade coal
 - b) 2-4 F.S.I. semi-oxidized to be blended with +4 F.S.I. coal

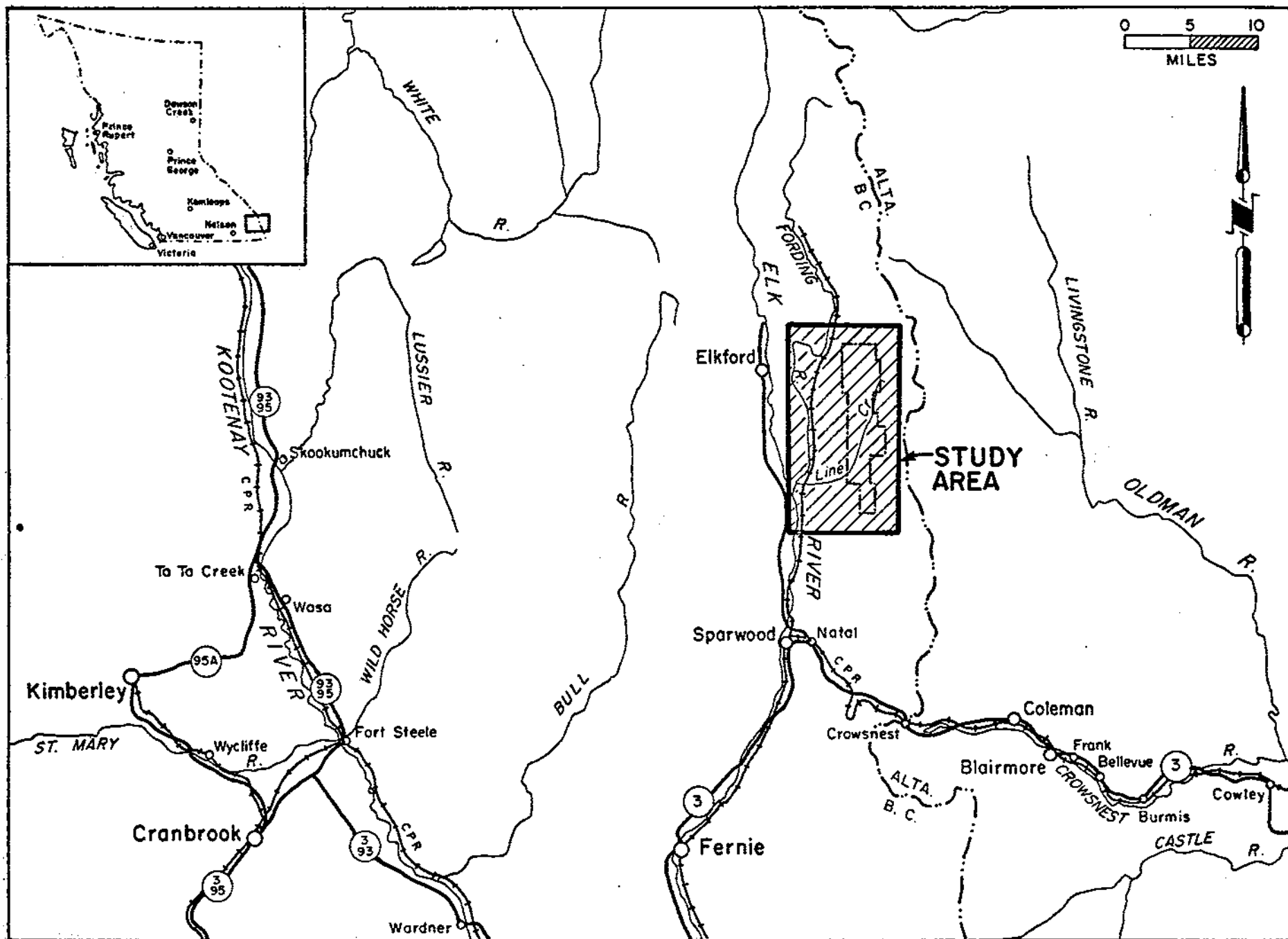
TABLE 4
PRELIMINARY ESTIMATION OF SIZE AND COMPOSITION OF THE WORKFORCE

	No. (a)			No. (a)			
	Men	Manshifts	Dollars	Men	Manshifts	Dollars	
A	*MINE SUPERINTENDENT & STAFF			E	COAL LOADING & HAULAGE		
Mine Superintendent	1	250	25,000	*Foremen	3	750	45,000
Assistant Mine Superintendent	1	250	20,000	Shovel Operator, 11 Cu. Yd.	3	750	42,800
Maintenance Superintendent Int.	1	250	20,000	Shovel Oiler	3	750	35,100
Preparation Plant Superintendent	1	250	20,000	Front-end Loader Operator, 15 Cu. Yd.	3	750	42,800
General Mine Foreman	1	250	17,500	Dozer Operator, D-8	2	375	20,300
General Foreman Preparation Plant	1	250	16,000	Truck Driver, 85-Ton	18	4,500	248,500
Mine Engineer	1	250	20,000	Maintenance	16	4,100	228,000
Assistant Mine Engineer	1	250	17,500	Total - Item E	48	11,975	662,500
Draftsmen and Surveyors	4	1,000	52,000	F	RECLAMATION		
Central Maintenance Foreman	1	250	16,000	Dozer Operator	3	750	40,700
Maintenance Shift Foreman	4	1,000	60,000	Dump Truck and Labor	1	250	12,100
Accounting Supervisor	1	250	18,000	Reseeding	1	250	12,100
Payroll and Cost Clerks	3	750	39,000	Maintenance	3	750	41,700
Personnel and Safety Supervisor	1	250	18,000	Total - Item F	8	2,000	106,600
Assistant Personnel and Safety Supervisor	1	250	15,000	G	AUXILIARY SERVICES		
Purchasing Agent	1	250	16,000	*Foremen	1	250	15,000
Equipment and Supply Clerk	1	250	13,000	Water Truck and Snow Blower Operator	2	500	24,200
Storekeeper	3	750	36,000	Road Patrol	8	2,000	106,800
Clerk-Stenographer	2	500	20,000	Dump Truck Driver	2	500	24,200
Total - Item A	30	7,500	459,000	Fuel and Lube Truck	4	1,000	47,600
B	PREPARATION, STORAGE & LOADOUT			Pump Men	3	750	35,700
*Foremen	3	750	45,000	Power Distribution	3	750	41,700
Reclamation Operator	3	750	45,300	Dozer - Rock Dumps and Roads, D-9	10	2,500	141,500
Mobile Equipment	9	2,250	120,200	Exploration Crew	2	500	27,100
Lab, TBCA	3	750	35,100	General Labor	8	2,000	90,300
Plant Operator	3	750	40,700	Maintenance	15	3,750	208,500
Flotation Attendant	3	750	38,500	Total - Item G	58	14,500	762,600
Tipple Attendant	6	1,500	77,000	TOTAL - Items A through G	348	87,000	4,835,400
Mechanics	6	1,500	81,300	Daily Overtime - 5%			241,800
Electrician	3	750	40,700	Total Labor Cost			5,077,200
Utility	3	750	33,800	Total Salaried Personnel	43		
Load Out	3	750	40,700	Total Wage Personnel	305		
Dozer Operator	4	1,000	53,400				
Truck Drivers	6	1,500	80,100				
Total - Item B	55	13,750	731,800				
C	OVERBURDEN DRILLING & BLASTING						
*Foremen	2	500	30,000				
Drillers - 60-R	6	1,500	86,500				
Drill Helpers - 60-R	6	1,500	74,600				
Air Driller	3	750	42,600				
Air Driller Helper	3	750	37,300				
Powder Men	9	2,250	129,700				
Maintenance	4	975	54,200				
Total - Item C	33	8,225	454,900				
D	ROCK LOADING & HAULAGE						
*Foremen	4	1,000	60,000				
Shovel Operator, 20 Cu. Yd.	8	2,000	121,400				
Shovel Oilers	8	2,000	99,400				
Dozer Operators, D-9	8	2,000	115,300				
Truck Drivers, 120-Ton	43	10,000	631,000				
FEL Operator, 15 Cu. Yd.	2	500	30,400				
Maintenance	43	10,800	600,500				
Total - Item D	116	29,050	1,658,000				

* Salaried Personnel
(a) Based on 250 Manshifts per Year

Note: Labor rates based on Kaiser Resources Ltd. contract with UMWA Local No. 7292 effective January 1, 1974 and new rates effective October 1, 1974.

Figure 1
 LOCATION OF THE PROPOSED LINE CREEK MINE DEVELOPMENT



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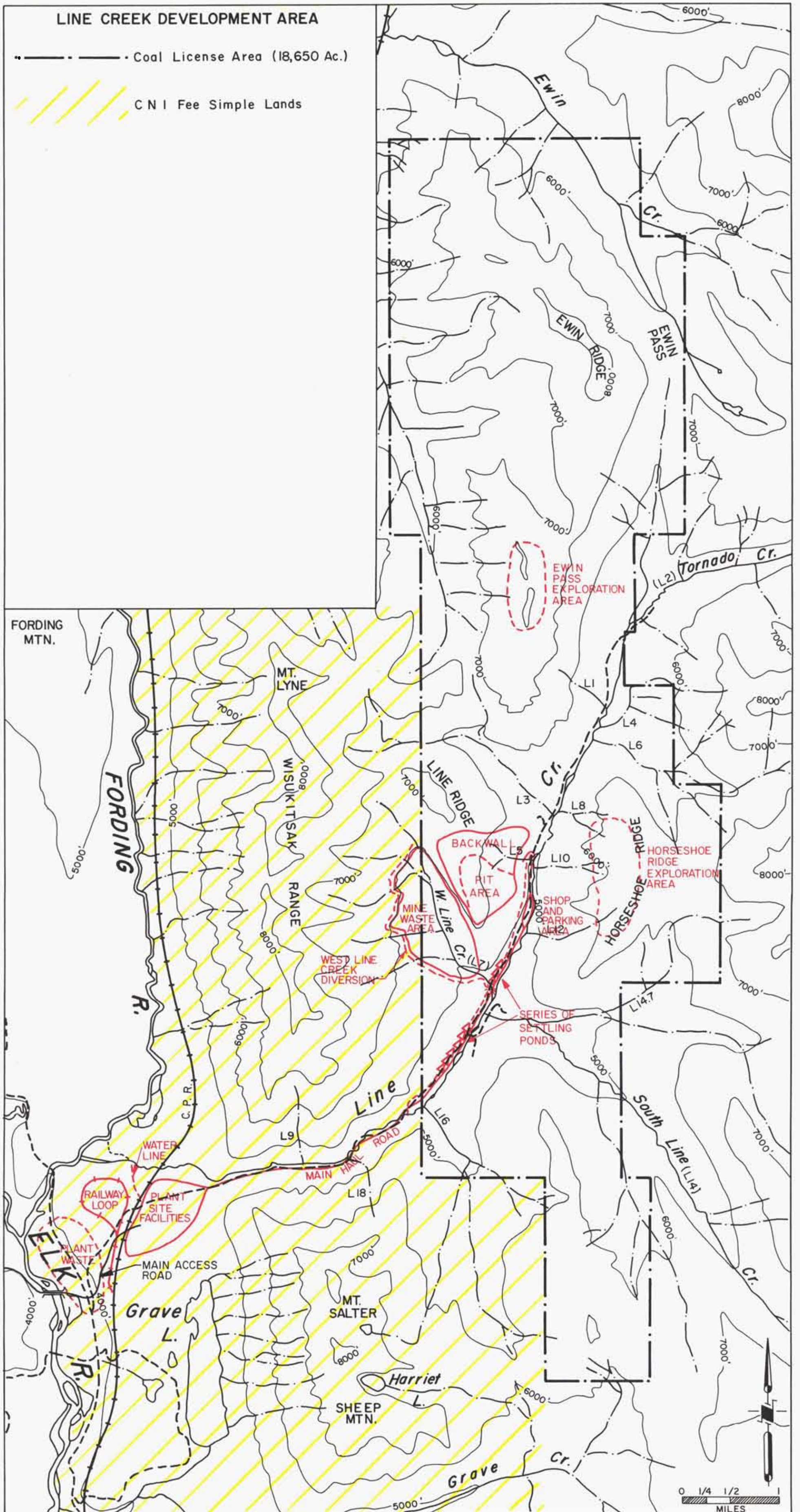
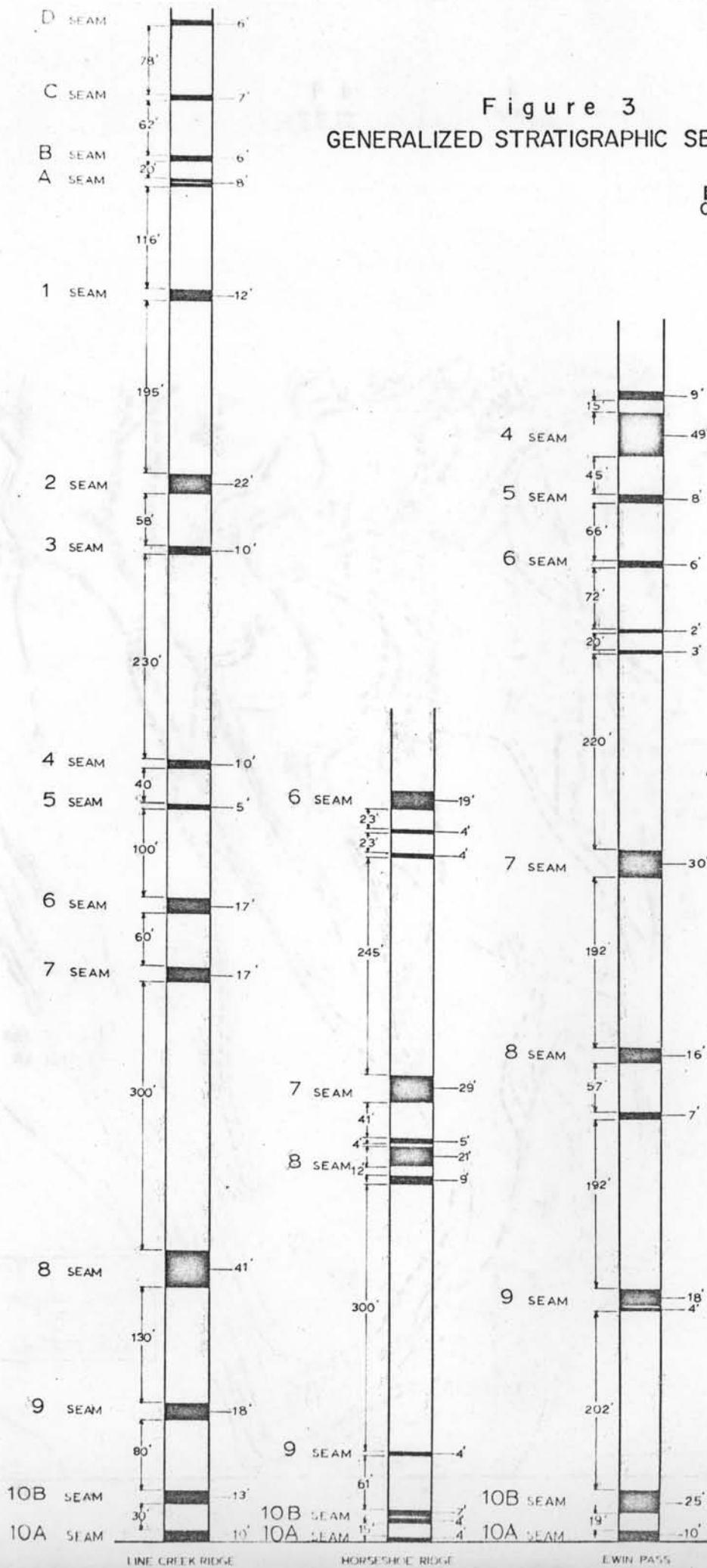
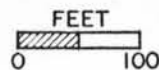


Figure 2
 PROPOSED MINE DEVELOPMENTS, MARCH, 1976

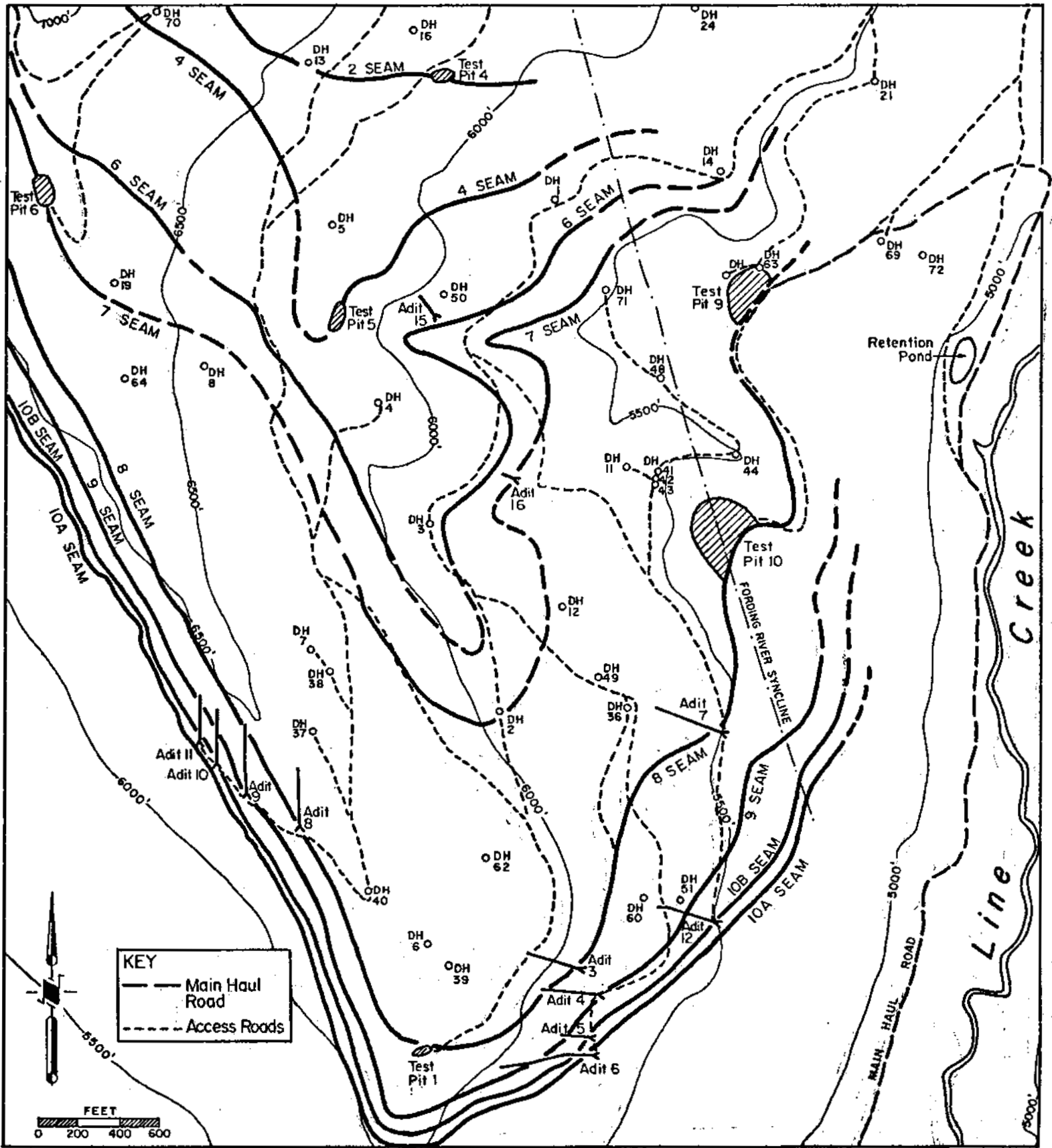
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Figure 3
GENERALIZED STRATIGRAPHIC SECTIONS



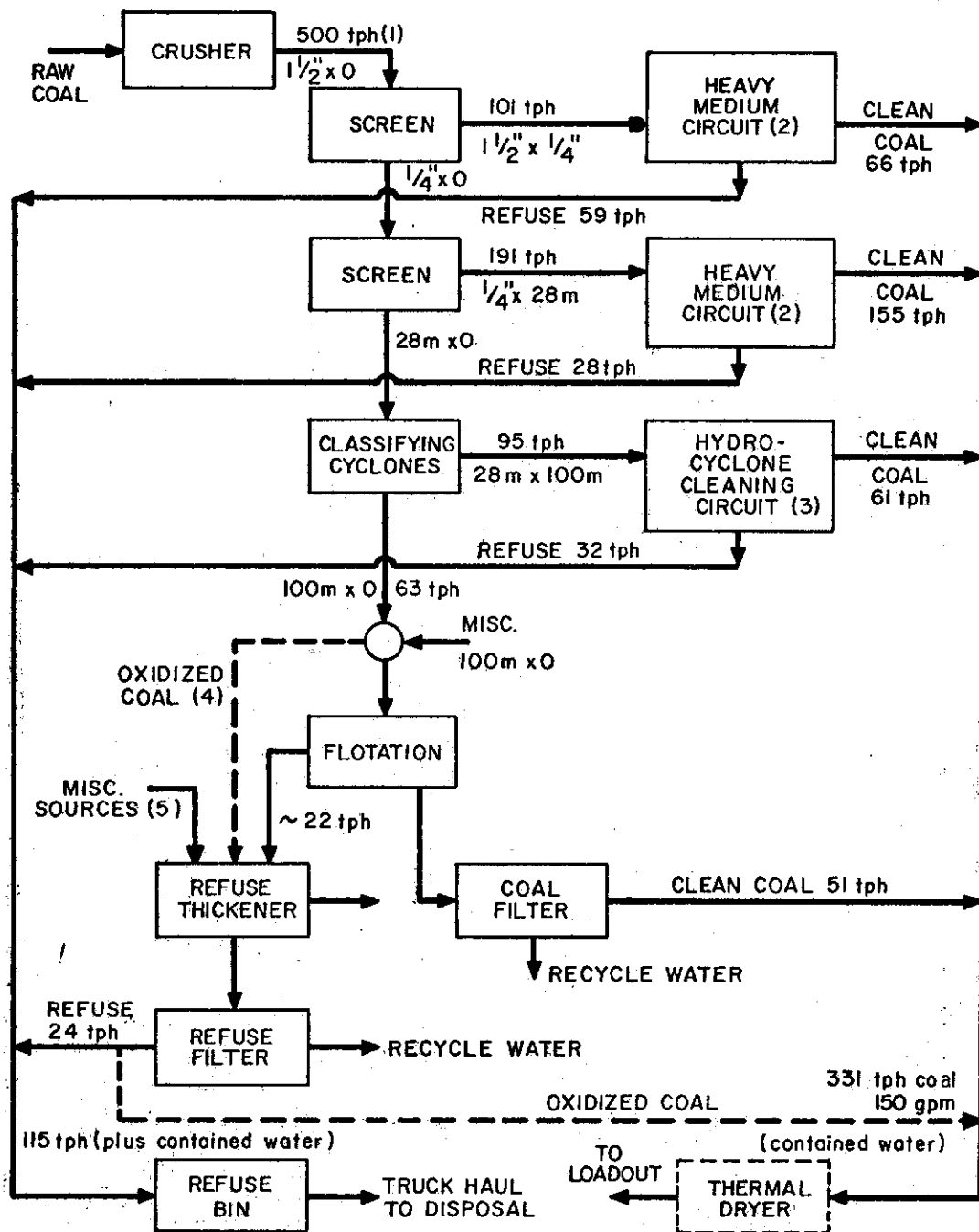
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Figure 4
LINE CREEK RIDGE EXPLORATION



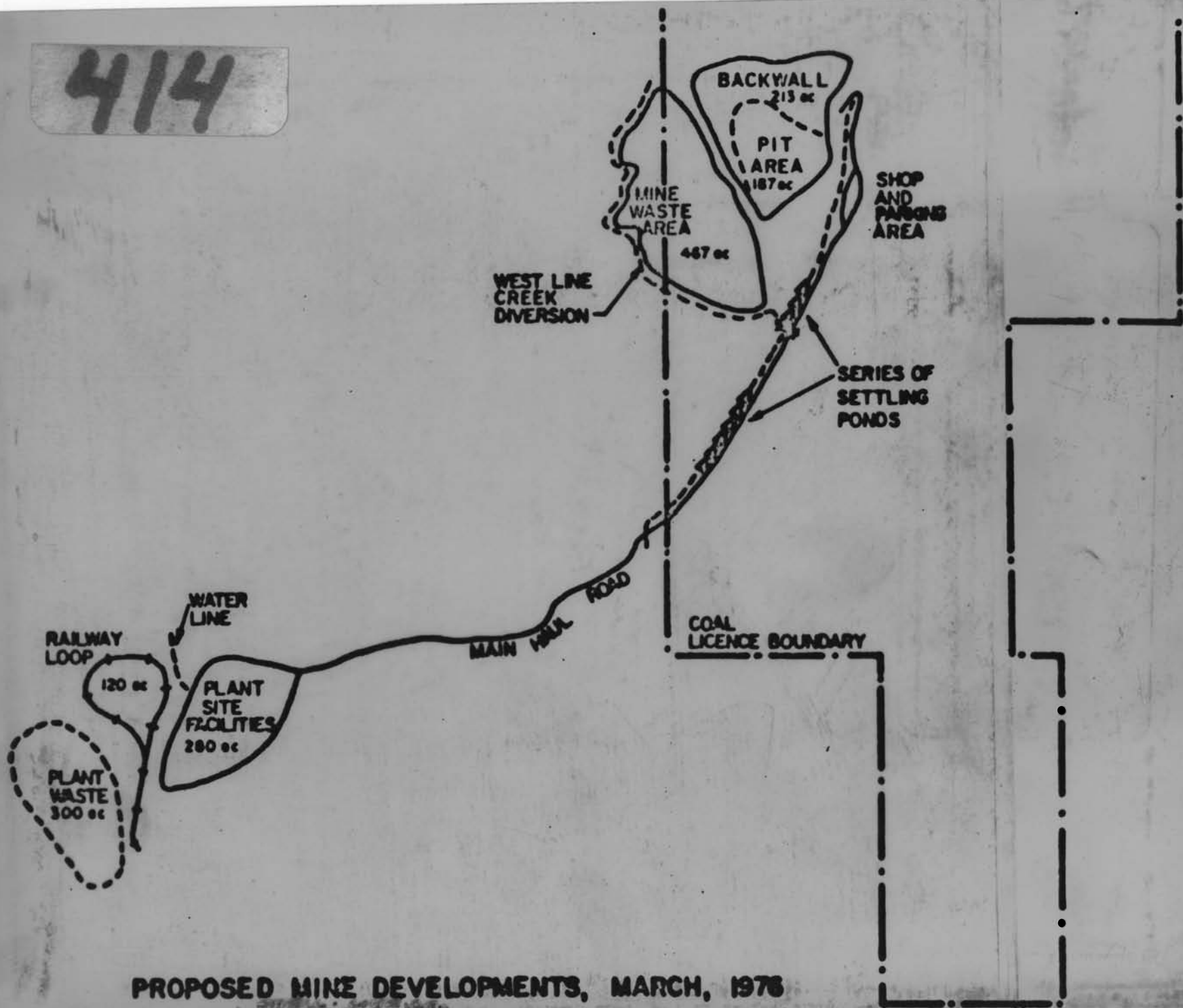
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Figure 5
SIMPLIFIED SCHEMATIC FLOWSHEET OF PROPOSED TREATMENT PLANT



- Notes: (1) Throughput figures are approximate, dry weight basis except as noted.
- (2) Includes magnetite reclaim and centrifugal dewatering of coal and refuse.
- (3) Includes centrifugal dewatering of coal and refuse.
- (4) 100 m x 0 oxidized (thermal grade) coal cannot be cleaned by flotation.
- (5) Process water is recycled directly, or via the thickener and filters.

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PROPOSED MINE DEVELOPMENTS, MARCH, 1976

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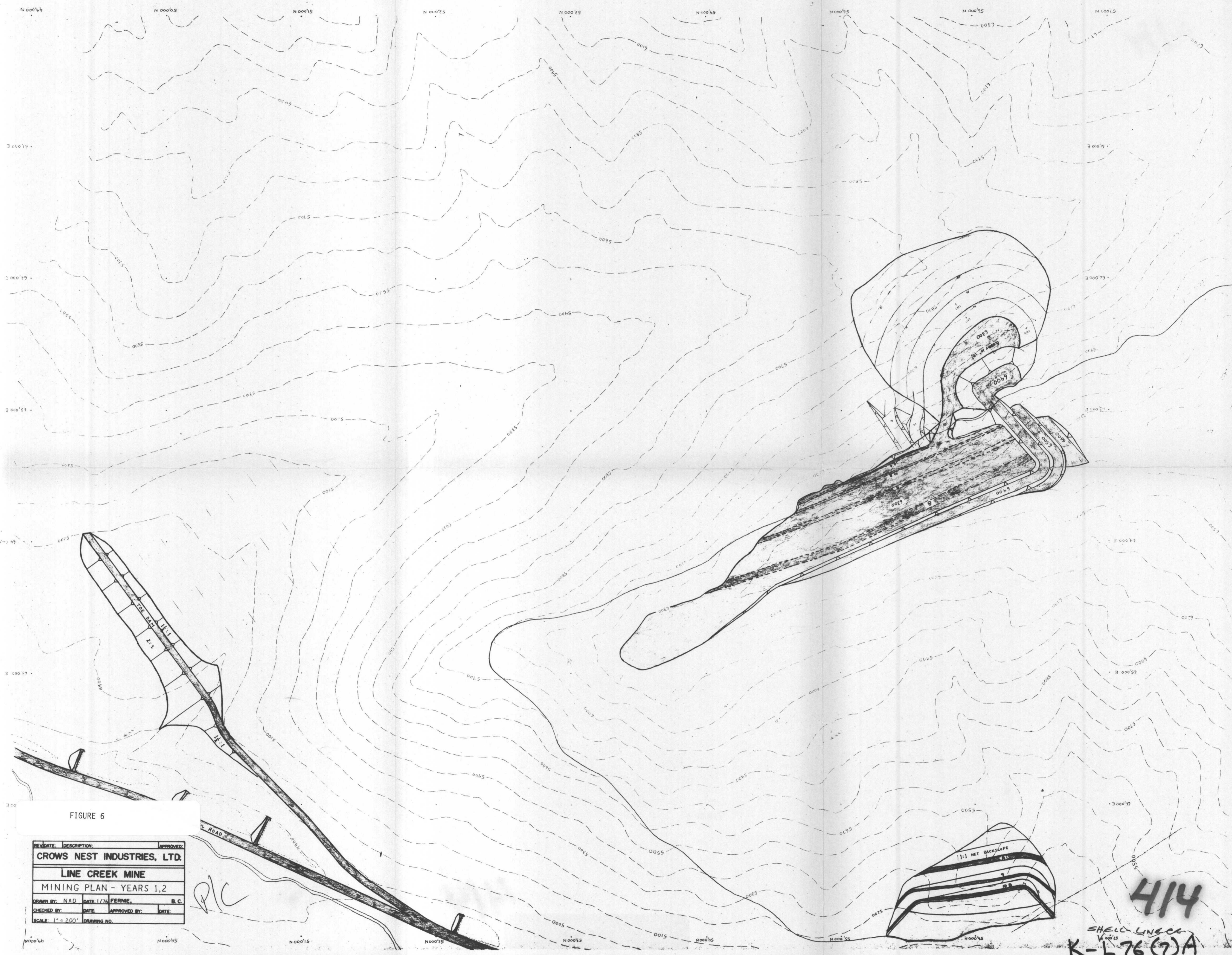


FIGURE 6

REV. DATE:	DESCRIPTION:	APPROVED:
CROWS NEST INDUSTRIES, LTD.		
LINE CREEK MINE		
MINING PLAN - YEARS 1,2		
DRAWN BY: NAD	DATE: 1/76	PERMIE. B.C.
CHECKED BY:	DATE:	APPROVED BY: DATE:
SCALE: 1" = 200' DRAWING NO.		

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SHELL-LINE CR.

H1H

LINE CREEK
OPEN PIT MINING QUANTITIES

END OF YEAR	MAIN PIT FLOOR ELEVATION	ACCUMULATED TOTAL WASTE MATERIAL, INCLUDING SOE SWELL. (M.C.T.)	ACCUMULATED TOTAL RAW COAL (M.S.T.) MINUS TO SLAB (INCLUDING LOW OPERATION)
1	6490	3.2	.06
2	6390	6.8	2.15
3	6290	17.3	3.52
4	6100	33.7	5.40
5	6000	60.0	7.27
6	5930	85.4	9.14
7	5840	101.6	11.02
8	5790	125.9	12.90
9	5670	151.1	14.77
10	5590	176.3	16.64
11	5520	191.8	18.52
12	5460	206.3	20.40
13	5400	220.3	22.27
14	5340	234.3	24.14
15	5280	248.3	26.02
16	5220	262.3	27.90
17	5160	276.3	29.77
18	5060	290.3	31.64
19	4900	294.6	33.52
LOW OPERATION = 3.7			
		298.3	

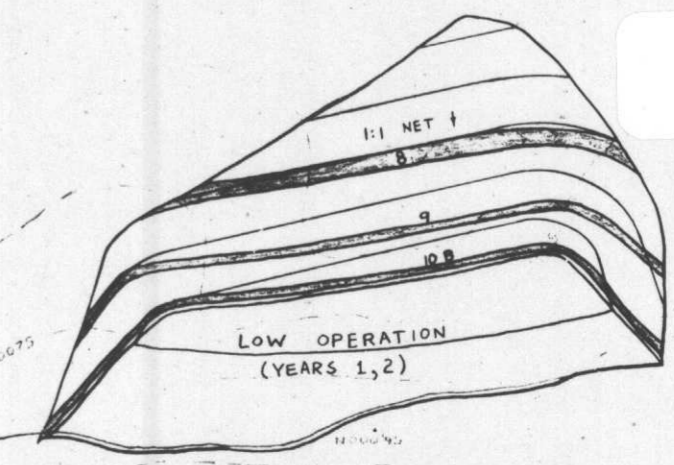
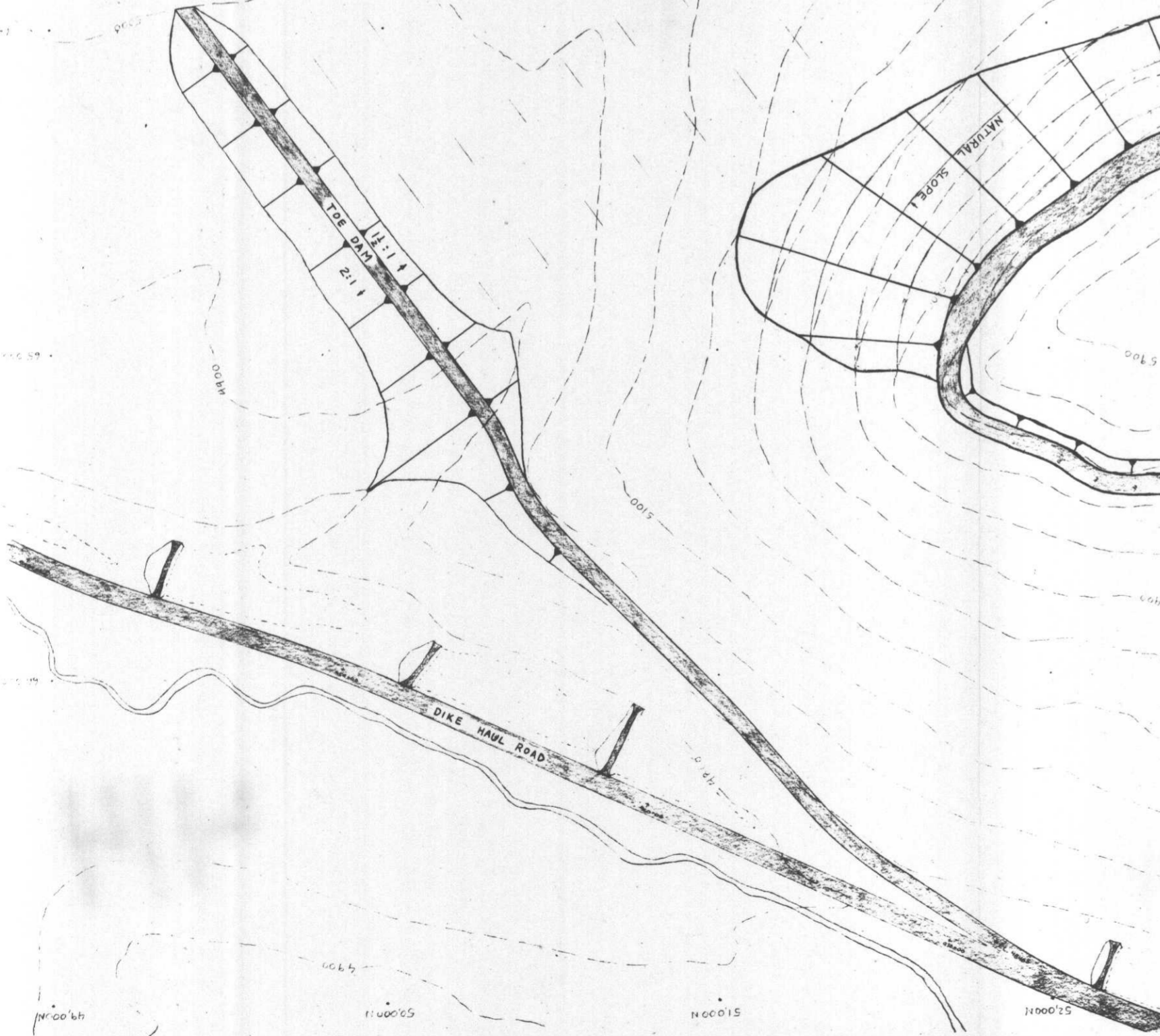
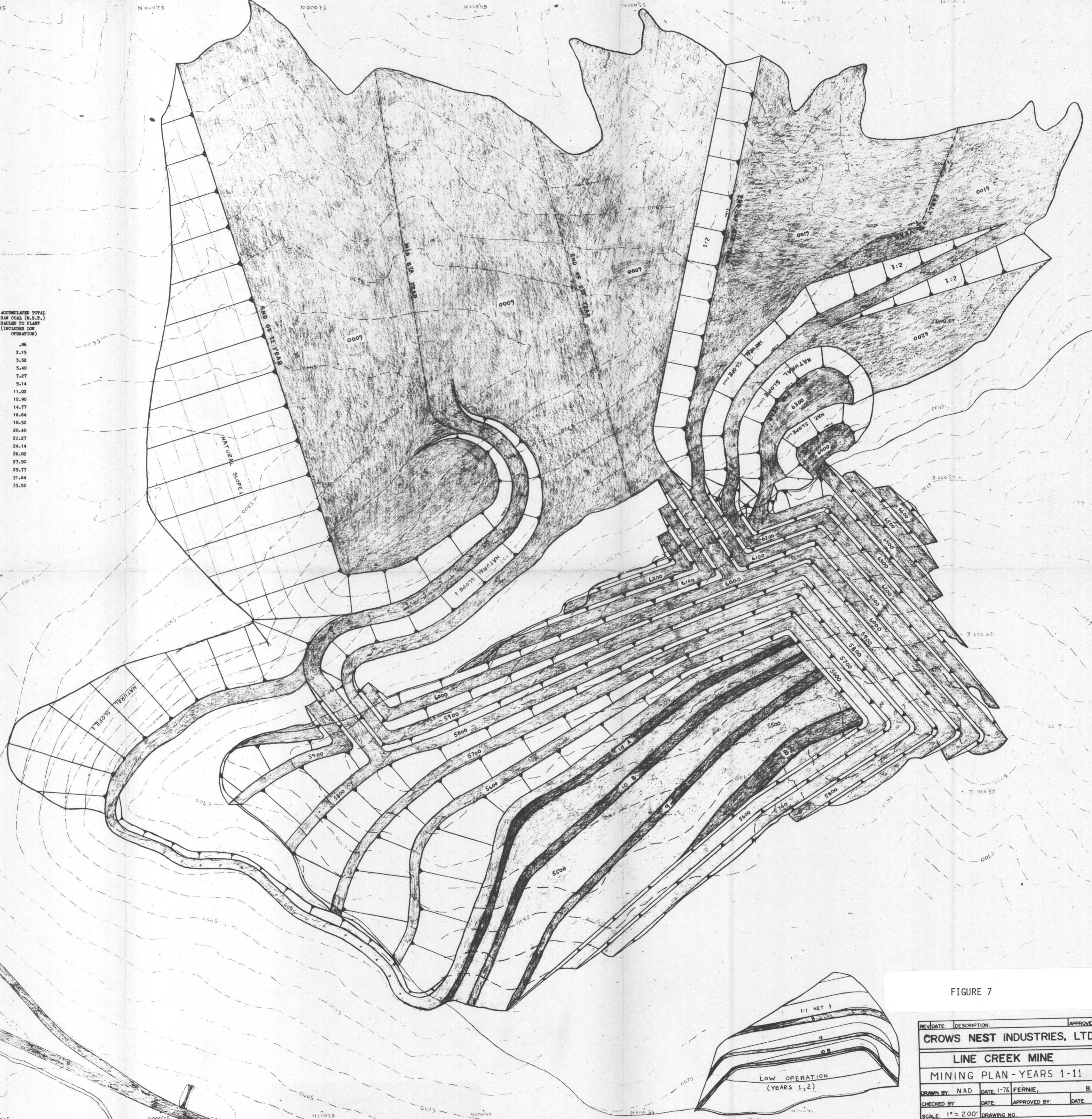


FIGURE 7

REV/DATE	DESCRIPTION	APPROVED
CROWS NEST INDUSTRIES, LTD.		
LINE CREEK MINE		
MINING PLAN - YEARS 1-11		
DRAWN BY: NAD	DATE: 1-76	FERNIE, B.C.
CHECKED BY:	DATE:	APPROVED BY: DATE
SCALE: 1" = 200' DRAWING NO.		



LINE CREEK
OPEN PIT MINING QUANTITIES

END OF YEAR	MAIN PIT FLOOR ELEVATION	ACCUMULATED TOTAL WASTE MATERIAL INCLUDING 30% SWELL (P.C.T.)	ACCUMULATED TOTAL RAW COAL (M.B.T.) HAULING TO PLANT (INCLUDING 10% OPERATOR)
1	6450	3.2	.86
2	6350	6.8	2.15
3	6250	17.3	5.52
4	6100	33.7	10.40
5	6000	50.0	15.27
6	5950	65.4	19.14
7	5840	80.6	23.02
8	5750	95.9	26.90
9	5670	111.1	30.77
10	5590	126.3	34.64
11	5550	141.8	38.52
12	5460	156.3	42.40
13	5400	170.3	46.27
14	5340	184.3	50.14
15	5280	198.8	54.02
16	5220	212.8	57.90
17	5140	226.3	61.77
18	5060	240.3	65.64
19	4900	254.6	69.52
LOW OPERATOR		3.7	
		258.3	

FIGURE 8

REVISE DATE	DESCRIPTION	APPROVED
CROWS NEST INDUSTRIES, LTD.		
LINE CREEK MINE		
MINING PLAN - YEARS 1-19		
DRAWN BY: NAD	DATE: 2-76	FERNIE, B. C.
CHECKED BY:	DATE:	APPROVED BY: DATE:
SCALE: 1" = 200'	DRAWING NO.	

SHELL - LINE CR
K-L76(7)A
414

LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

6300
6100
5900
5700
5500
5300
5100
4900
4700
4500

6300
6100
5900
5700
5500
5300
5100
4900
4700
4500

SECTION 52+500

SECTION 52+000

- 0-2 FSI
- 2-4 FSI
- 4+ FSI
- NAD MINE PLAN BY 100' LEVELS

414

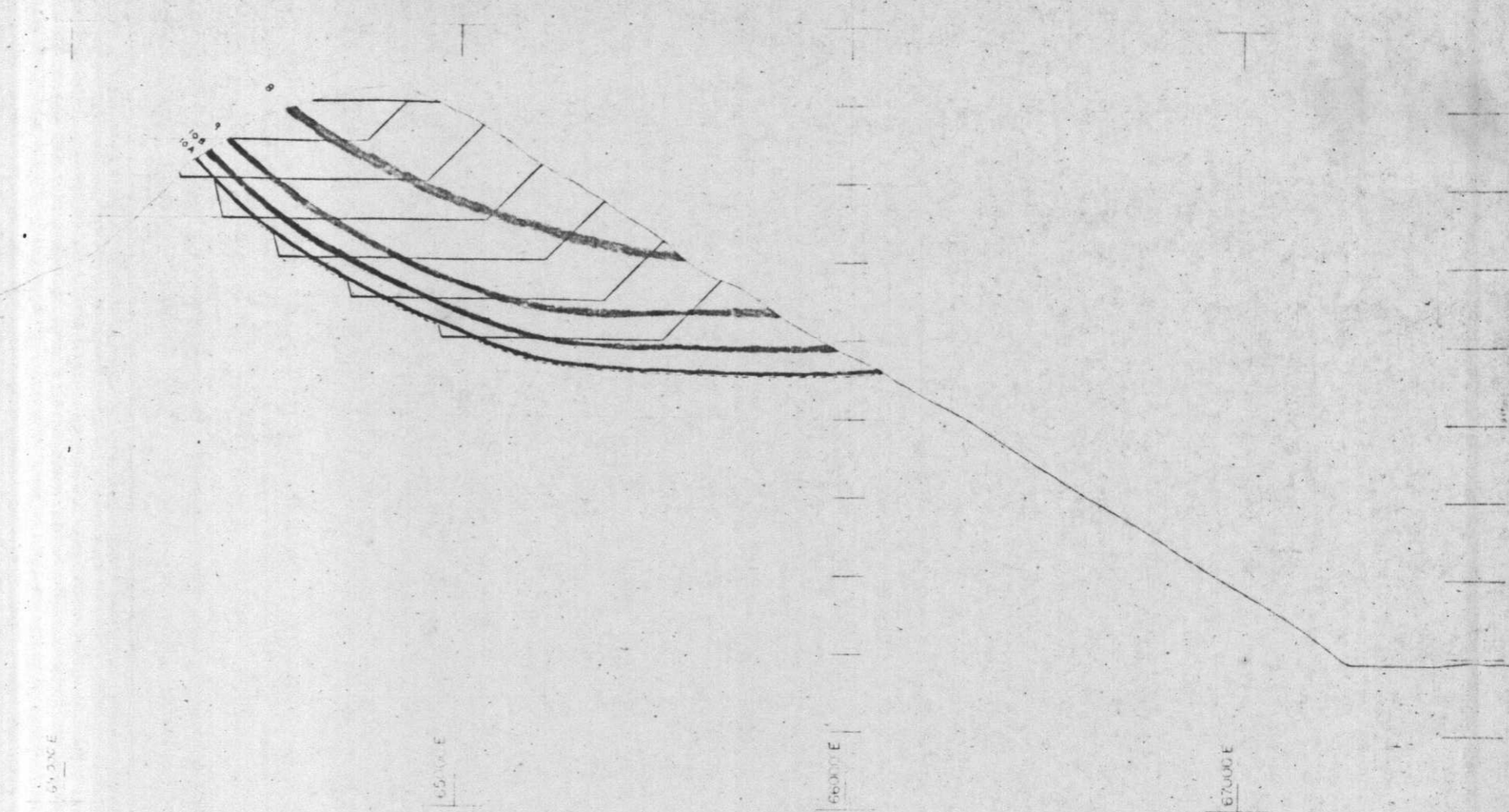
SHELL-LINE CR.
K-L 76 (7) A

LINE CREEK RIDGE

CROSS SECTION
SCALE: 1" = 200'

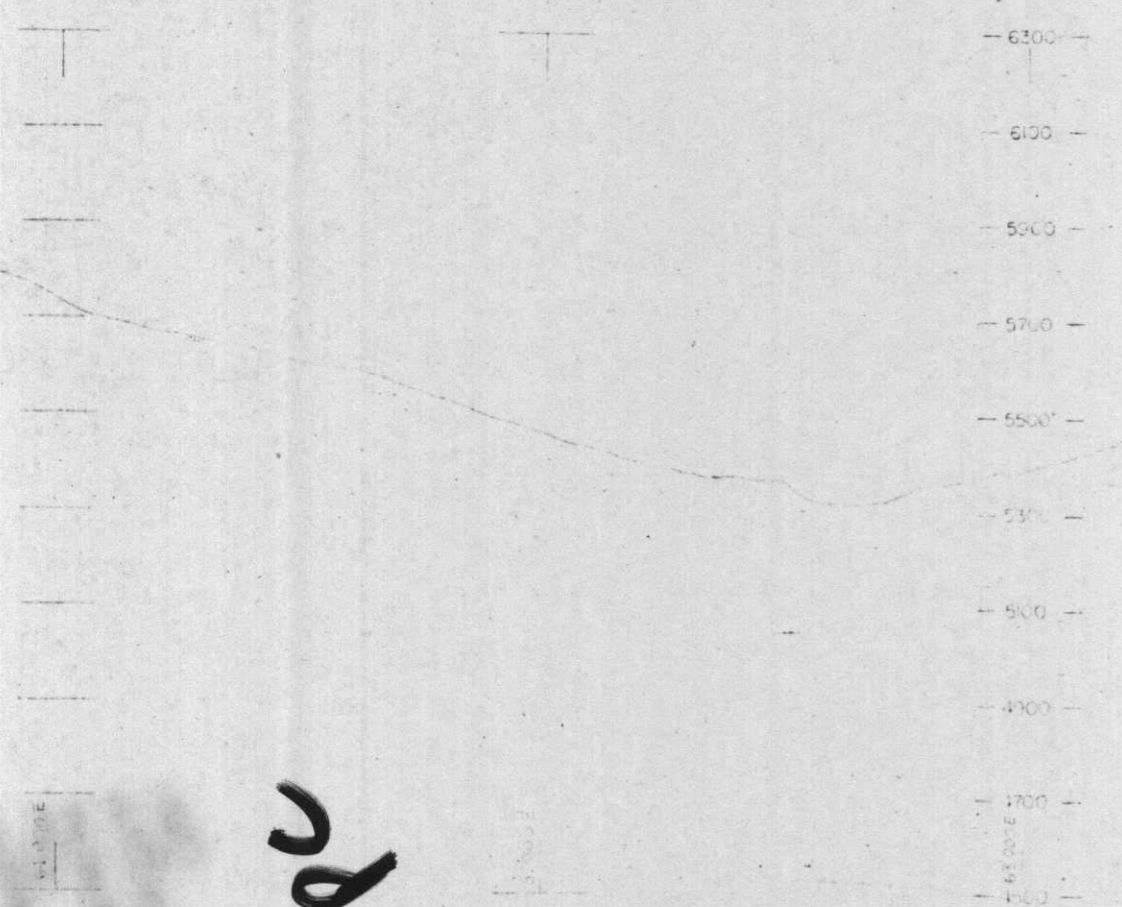


SECTION 53+500

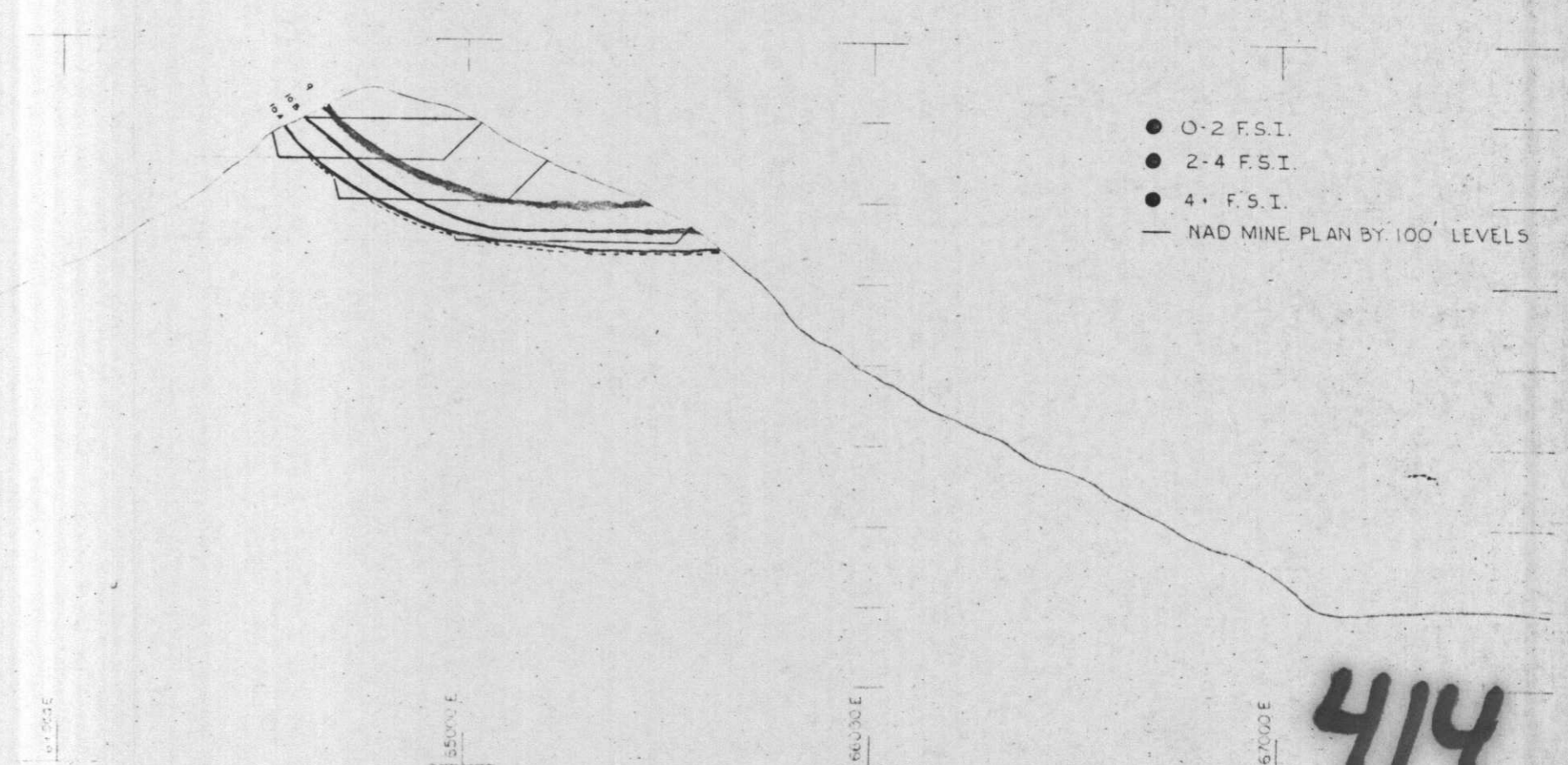


LINE CREEK RIDGE

CROSS SECTION
SCALE: 1" = 200'



SECTION 53+000



- 0-2 F.S.I.
- 2-4 F.S.I.
- 4+ F.S.I.
- NAD MINE PLAN BY 100' LEVELS

2

414

SHELL - LINE CR.
K-L 76(?)A

LINE CREEK RIDGE
CROSS SECTION
SCALE 1" = 200'

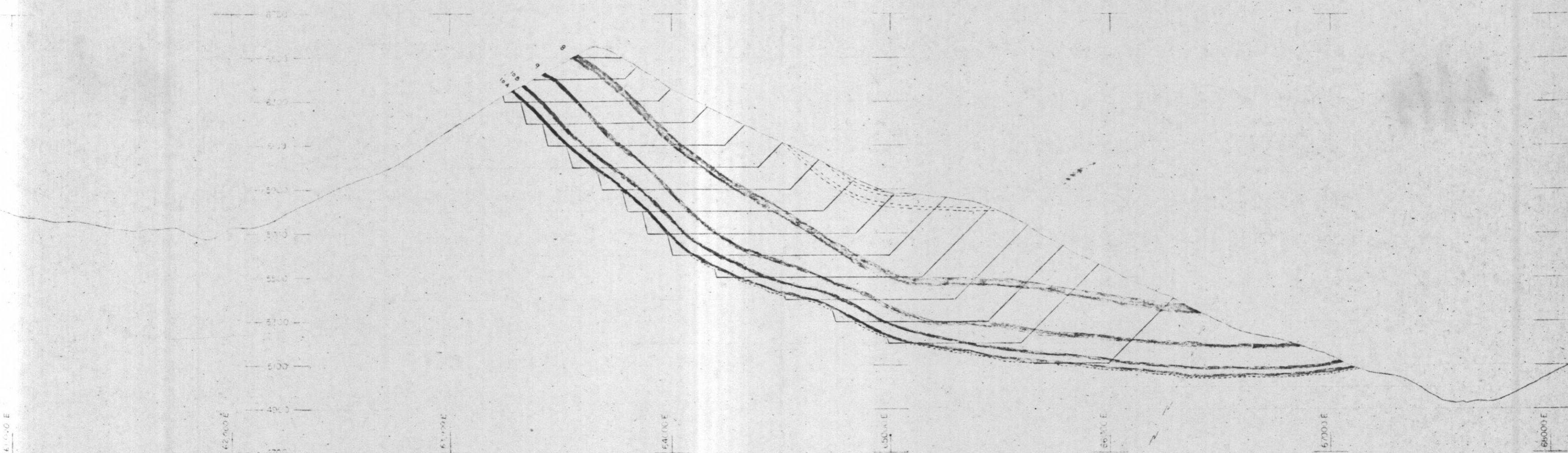
SECTION 54+500

LINE CREEK RIDGE
CROSS SECTION
SCALE 1" = 200'

- 0-2 F.S.I.
- 2-4 F.S.I.
- 4+ F.S.I.
- NAD MINE PLAN BY 100 LEVELS

SECTION 54+000

414
SHELL-LINE CR
K-L76(7)A

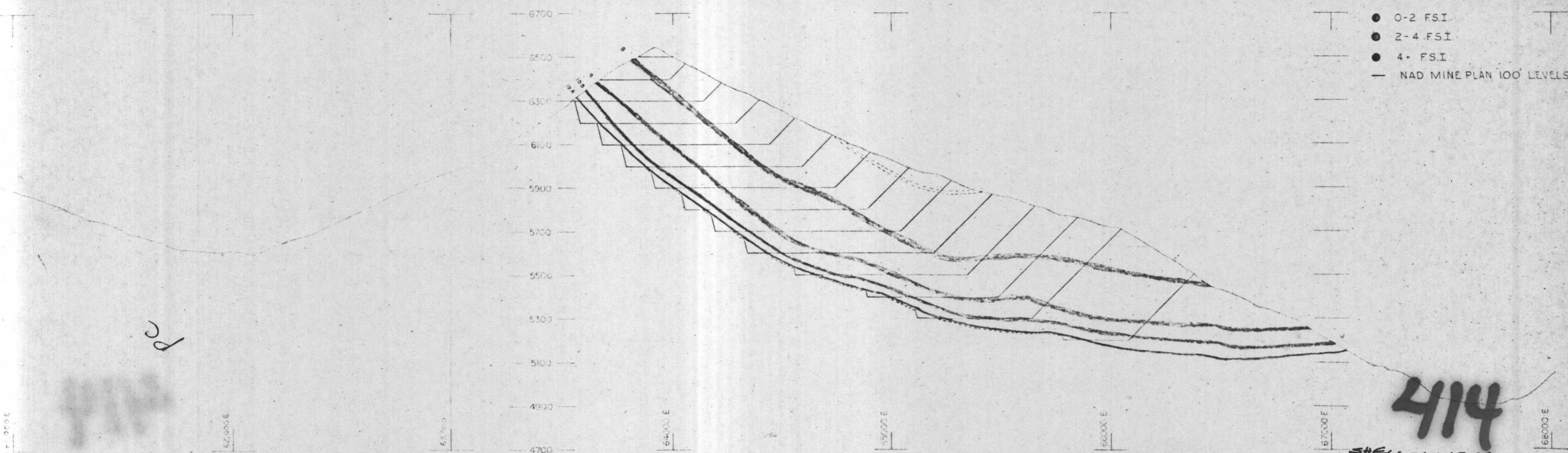


LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

SECTION 55+500

LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

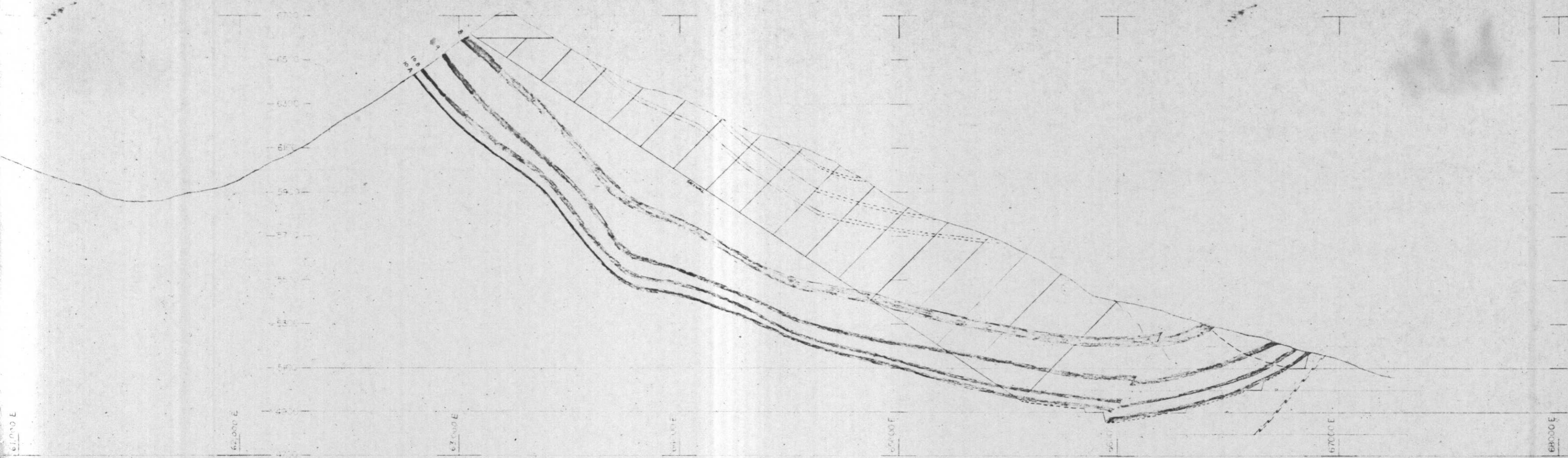
- 0-2 FSI
- 2-4 FSI
- 4+ FSI
- NAD MINE PLAN 100 LEVELS



SECTION 55+000

414

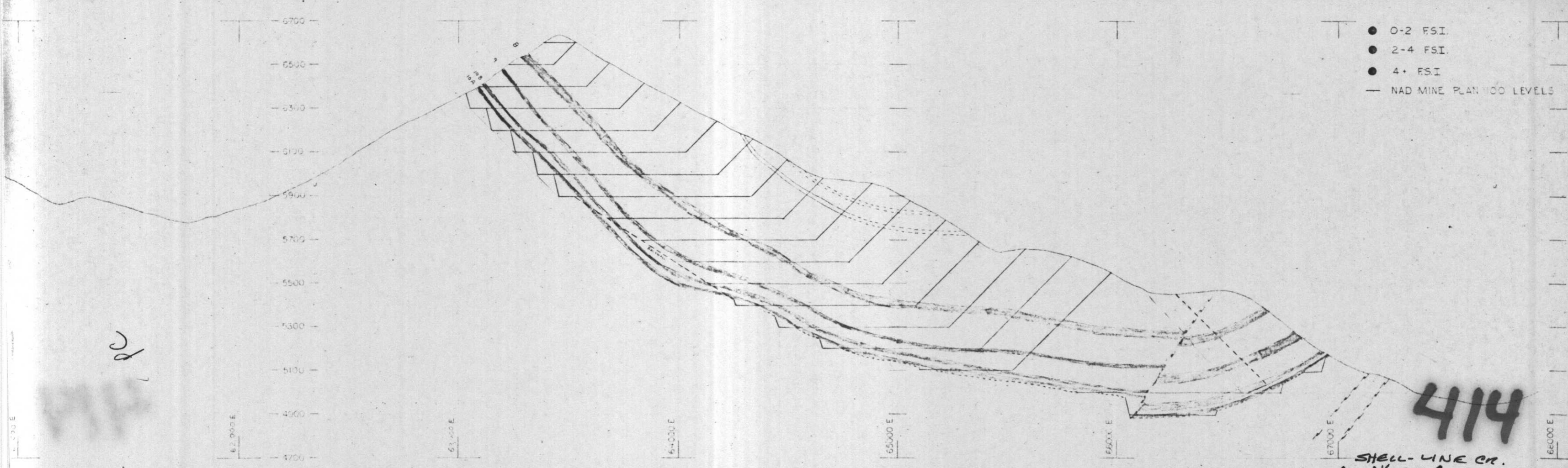
SHELL-LINE CO.
K-L 76(7)A



LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

SECTION 56+500

LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'



- 0-2 FSI
- 2-4 FSI
- 4+ FSI
- NAD MINE PLAN 100 LEVELS

SECTION 56+000

414
SHELL-LINE CR.
K-L76(7)A

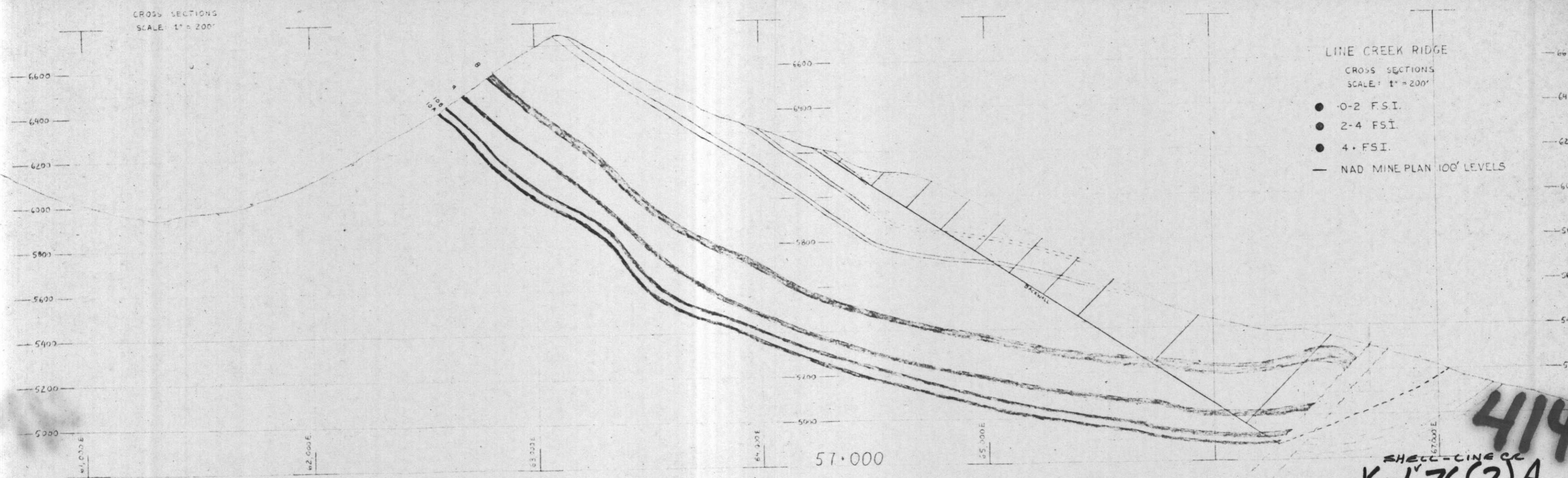
2



LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

LINE CREEK RIDGE
CROSS SECTIONS
SCALE: 1" = 200'

- 0-2 F.S.I.
- 2-4 F.S.I.
- 4+ F.S.I.
- NAD MINE PLAN 100' LEVELS



57+000

pc

414

SHELL-CINE CO
K-L76(7)A

