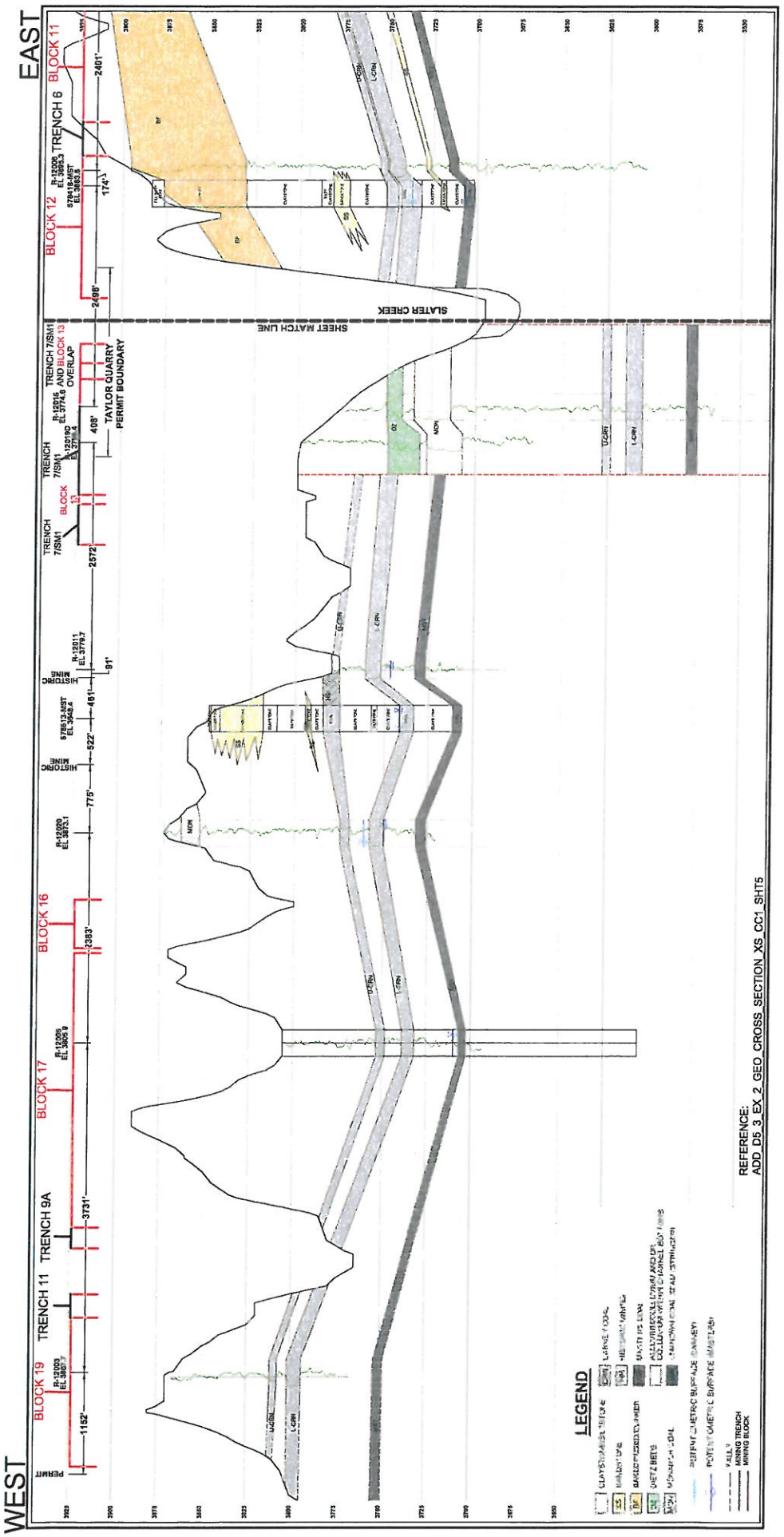

FIGURE 4.17 WEST SECTION OF CROSS-SECTION C-C' SHOWING MINING BLOCK AND TRENCH EXTENTS OF THE PROPOSED BROOK MINE

Exhibit 14

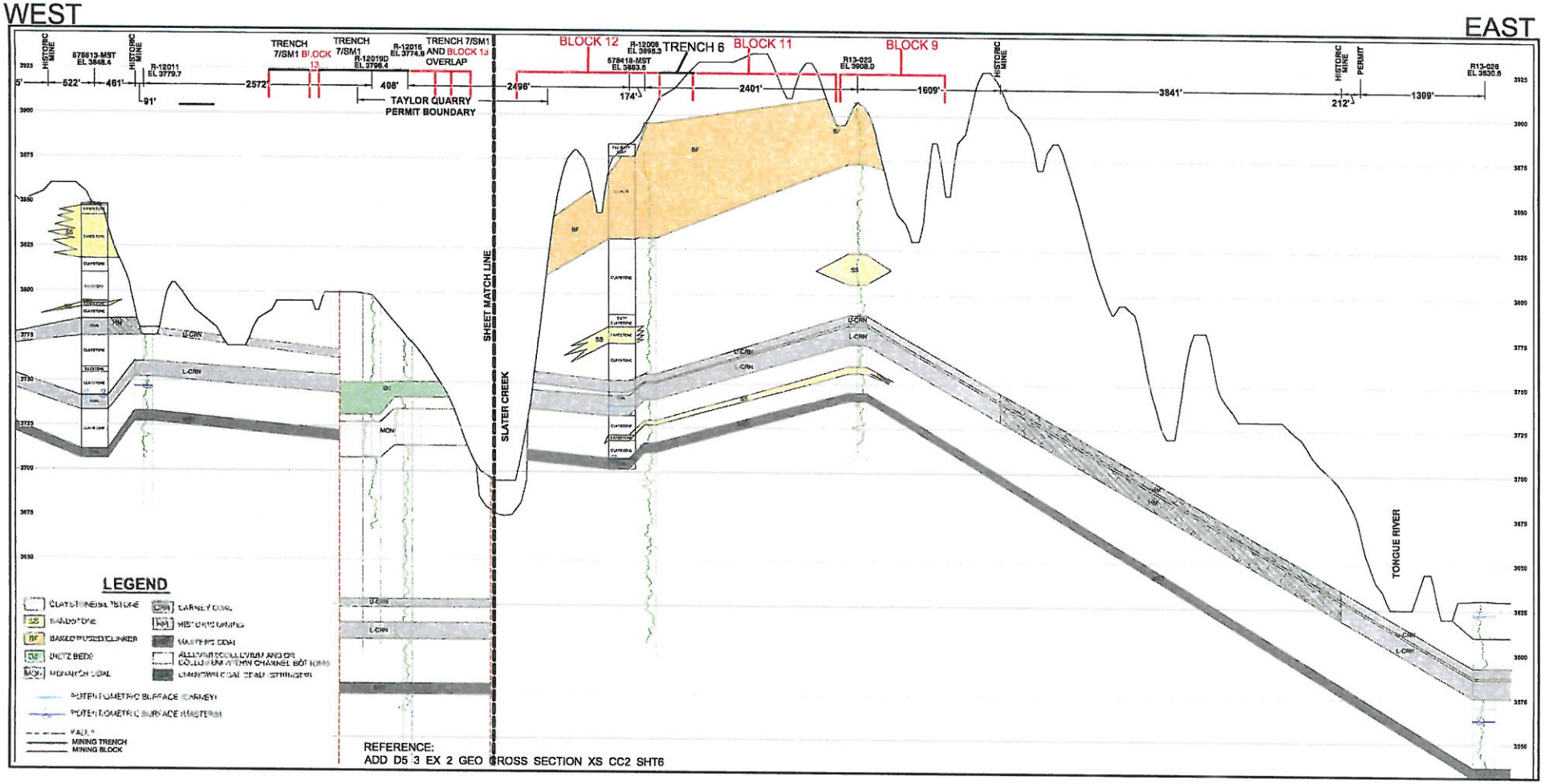

FIGURE 4.18 EAST SECTION OF CROSS-SECTION C-C' SHOWING MINING BLOCK AND TRENCH EXTENTS OF THE PROPOSED BROOK MINE

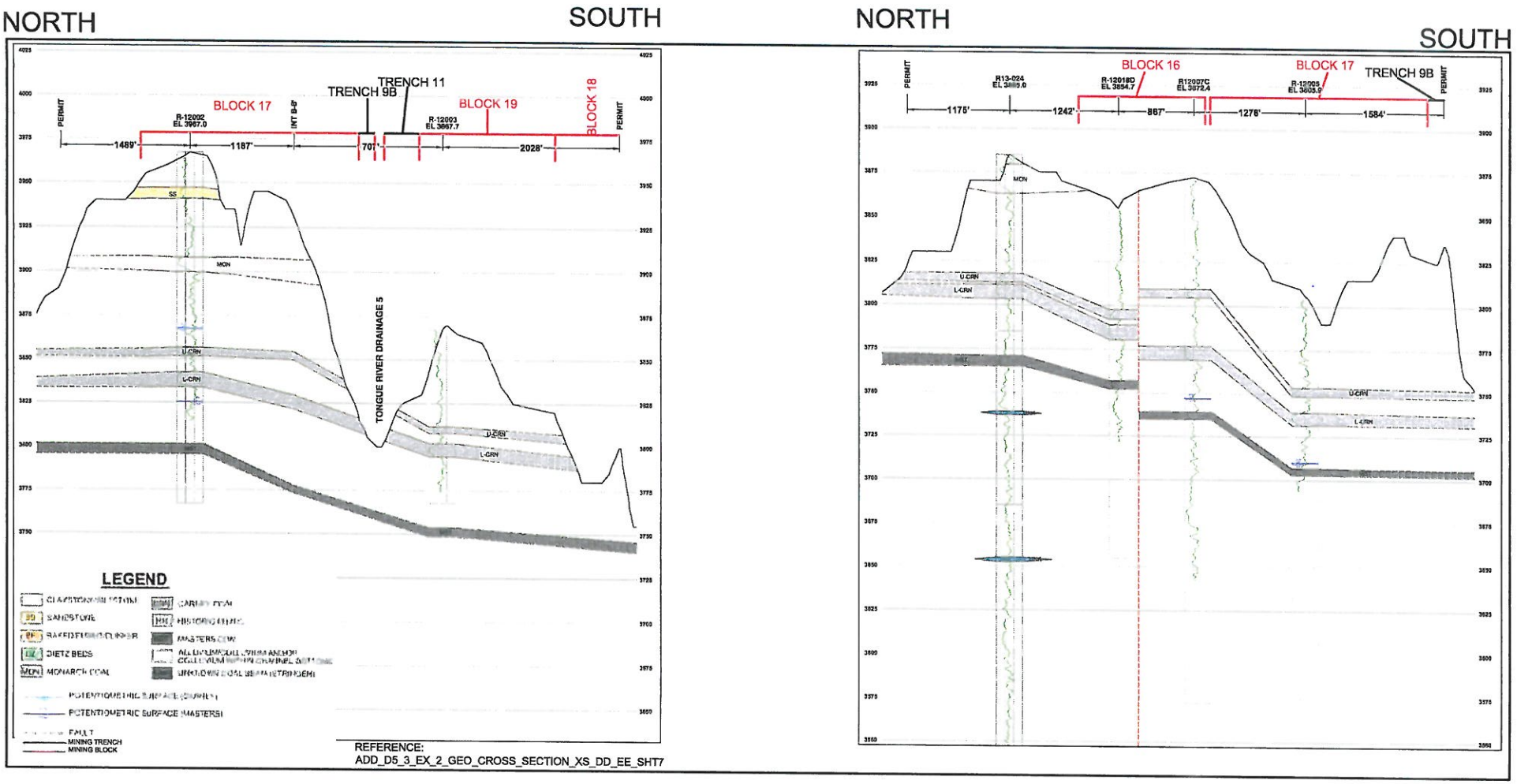

FIGURE 4.19 CROSS-SECTION D-D' AND E-E' SHOWING MINING BLOCK AND TRENCH EXTENTS OF THE PROPOSED BROOK MINE

NORTH

SOUTH

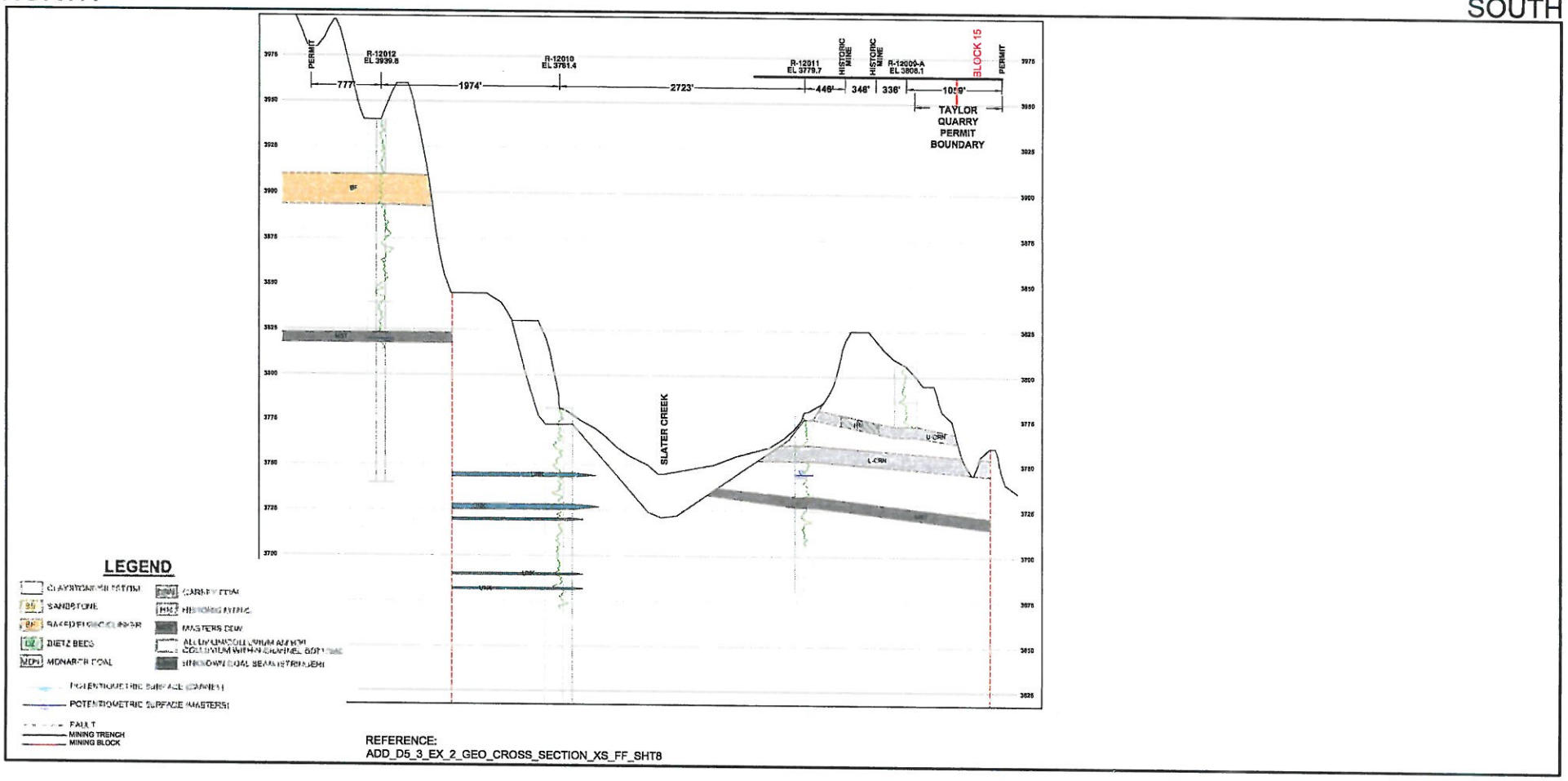

FIGURE 4.20 CROSS-SECTION F-F' FOR THE PROPOSED BROOK MINE (NO MINING IS PLANNED ALONG THIS CROSS-SECTION)

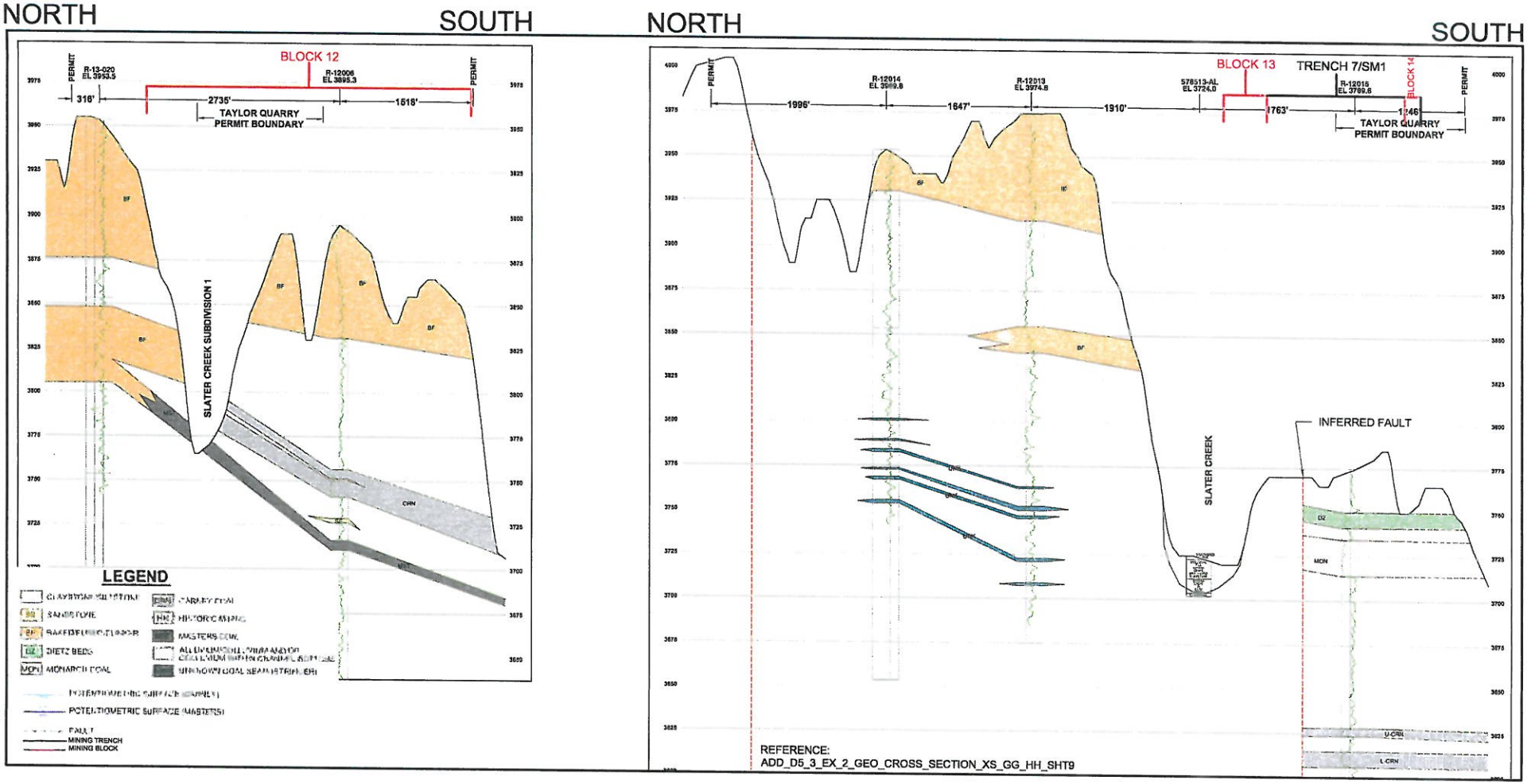

FIGURE 4.21 CROSS-SECTIONS G-G' AND H-H' SHOWING MINING BLOCK AND TRENCH EXTENTS FOR THE PROPOSED BROOK MINE

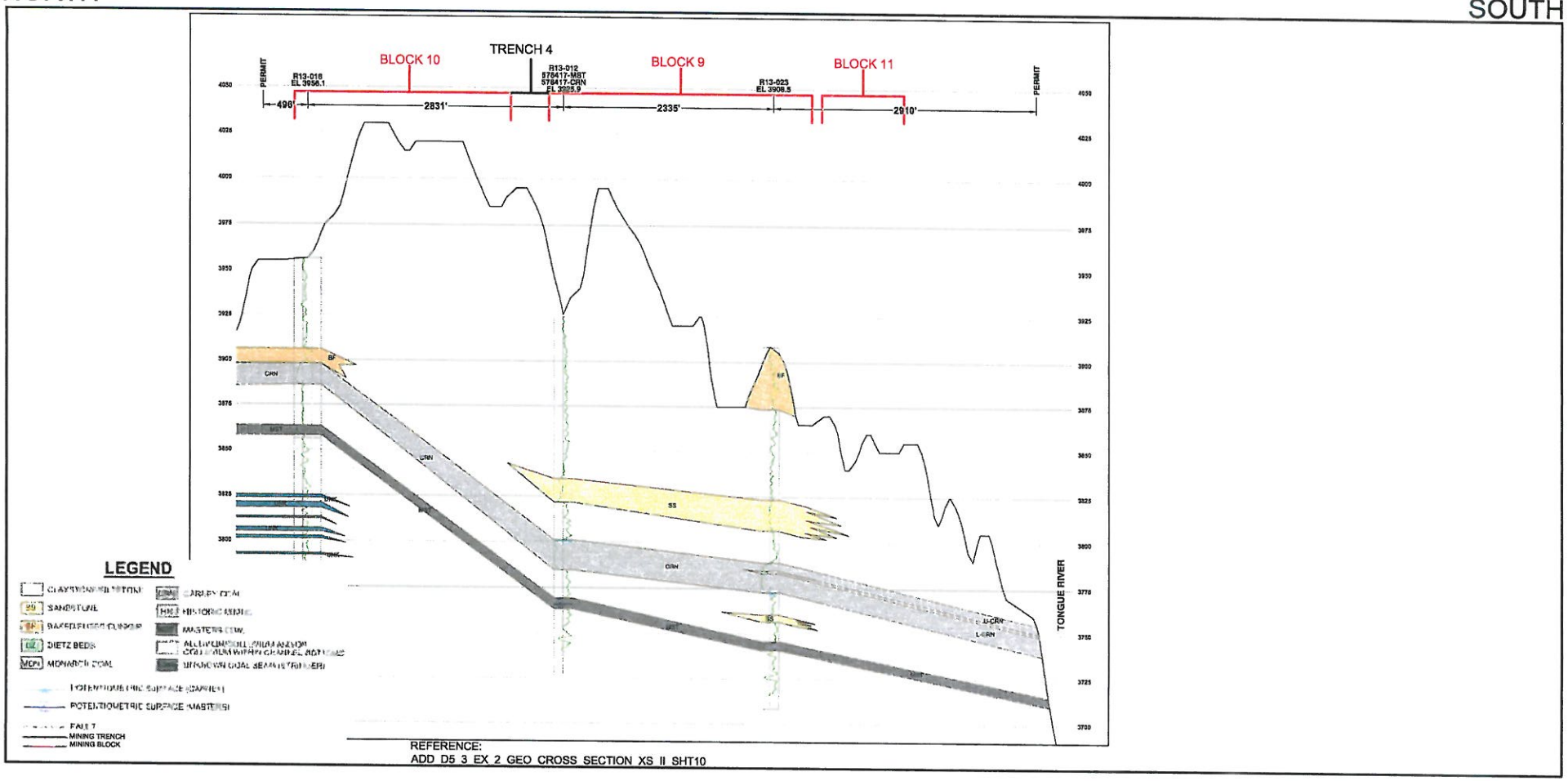

FIGURE 4.22 CROSS-SECTION I-I' SHOWING MINING BLOCK AND TRENCH EXTENTS FOR THE PROPOSED BROOK MINE

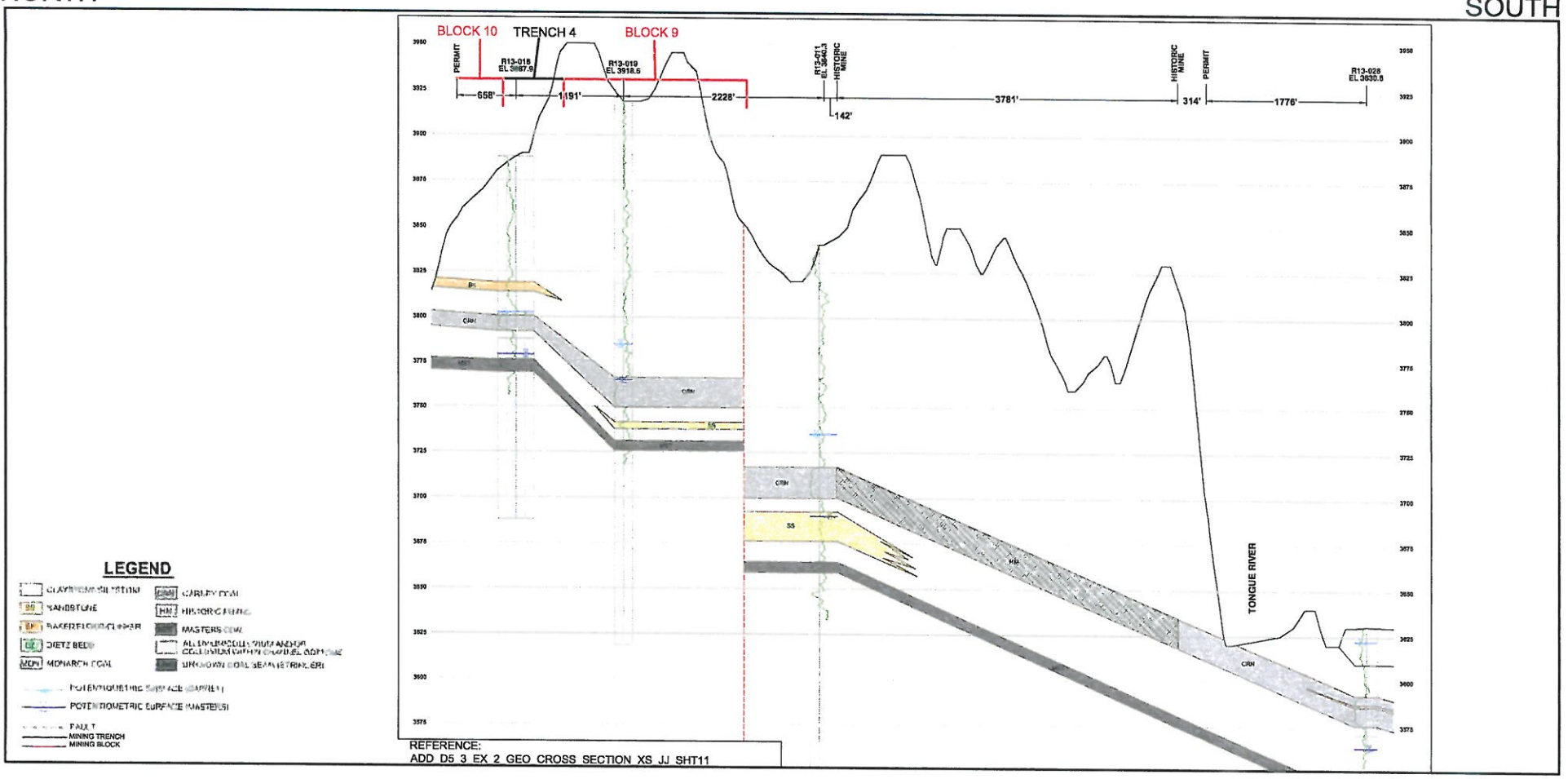

FIGURE 4.23 CROSS-SECTION J-J' SHOWING MINING BLOCK AND TRENCH EXTENTS FOR THE PROPOSED BROOK MINE

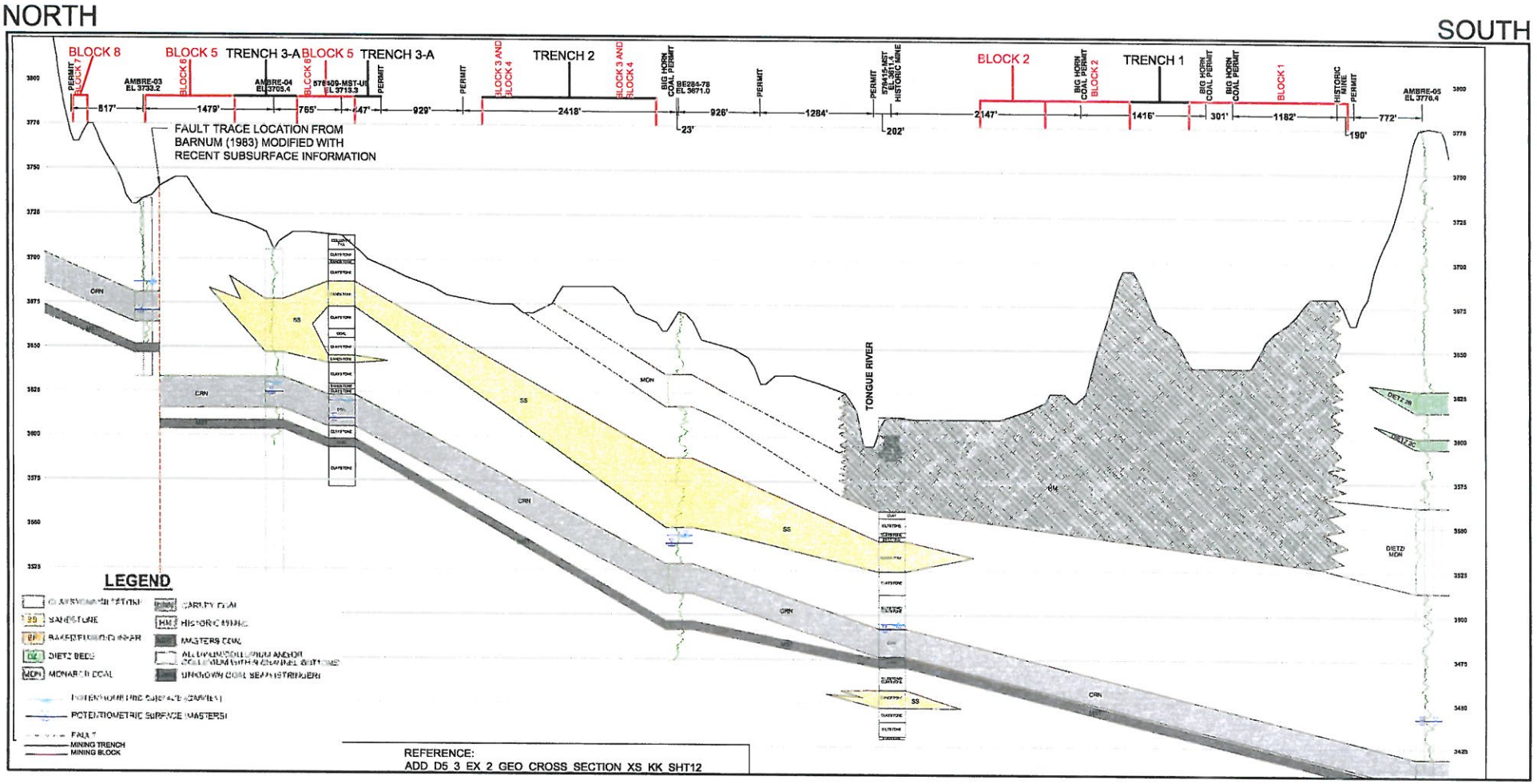

FIGURE 4.24 CROSS-SECTION K-K' SHOWING MINING BLOCK AND TRENCH EXTENTS FOR THE PROPOSED BROOK MINE

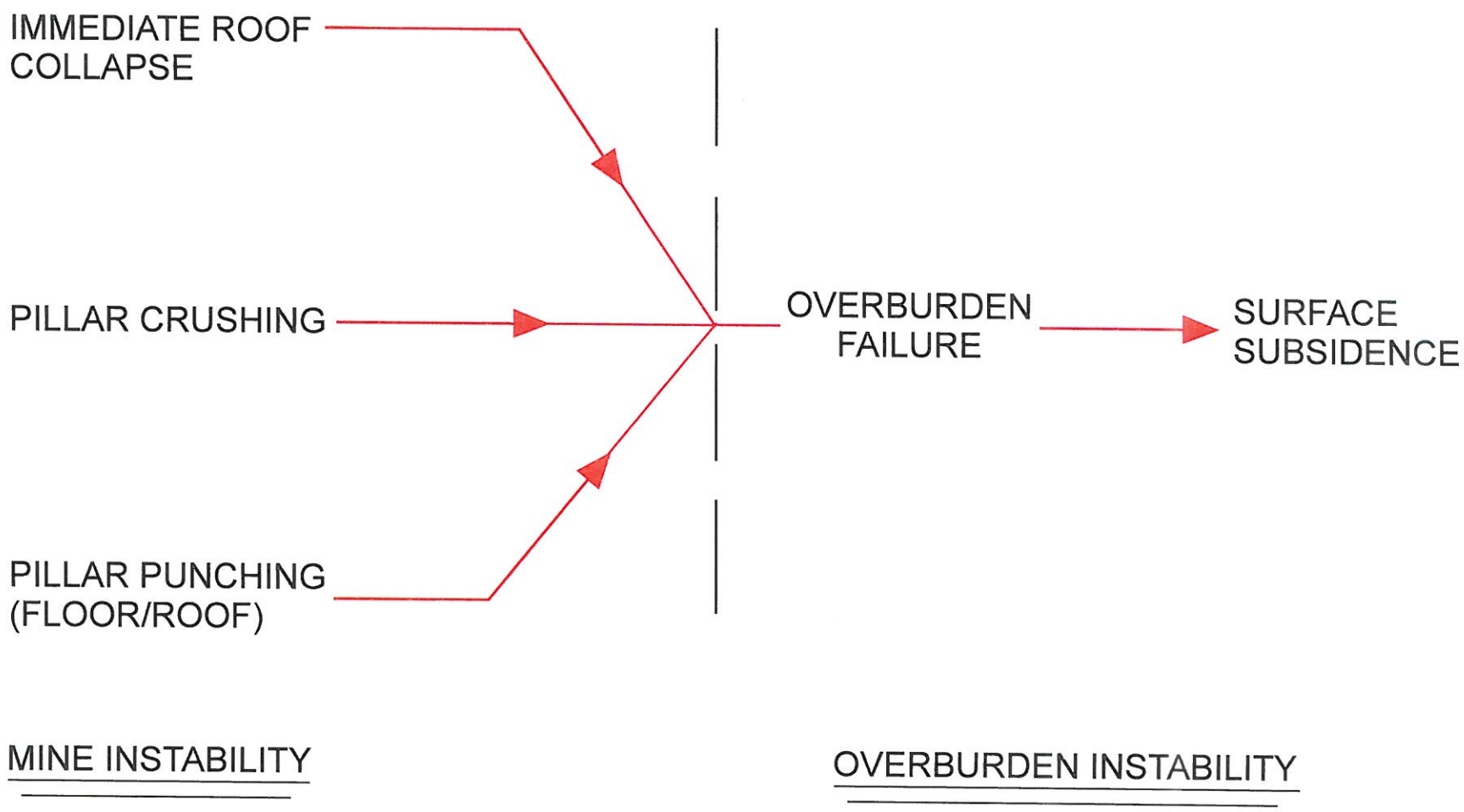

FIGURE 5.1 SUBSIDENCE FAILURE MECHANICS OF ROOM-AND-PILLAR WORKINGS AND THE OVERBURDEN

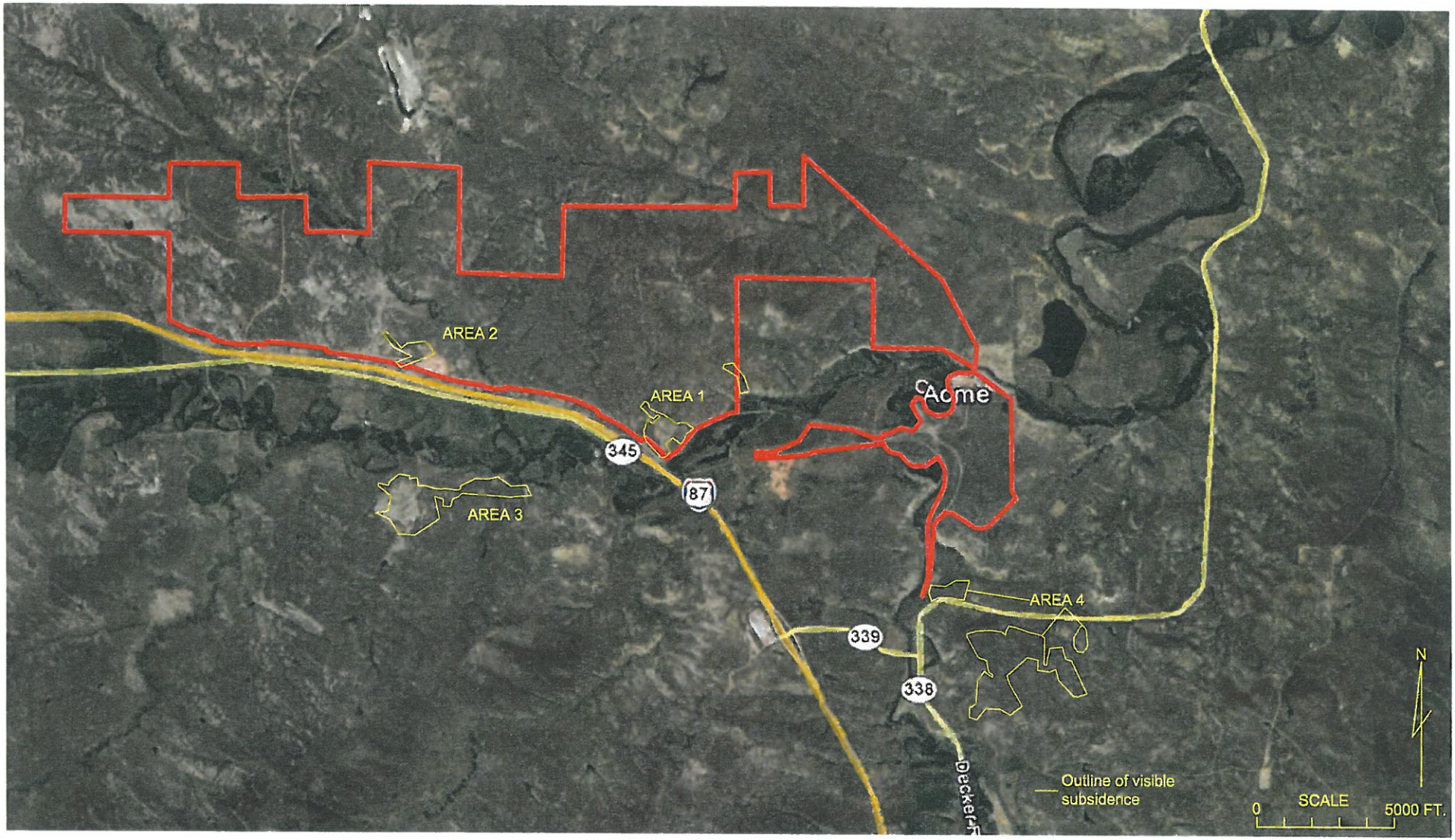

FIGURE 7.1 MINE APPLICATION BOUNDARY AND OUTLINE OF VISIBLE MINE SUBSIDENCE OVER EXISTING UNDERGROUND WORKINGS

FIGURE 7.2 AREA 1 MINE SUBSIDENCE FROM UNDERGROUND MINING OF THE CARNEY NO. 44 MINE. MINE DEPTH IN NOTED SUBSIDENCE AREA RANGED FROM 50 TO 160 FT. (ADD_D5-4_EX_1_OVB_ISO_R1)

FIGURE 7.3 AREA 2 MINE SUBSIDENCE FROM UNDERGROUND MINING OF THE OLD ACME NUMBER 3 MINE IN THE UPPER CARNEY SEAM. MINE DEPTH IN THE NOTED SUBSIDENCE AREA IS 60 TO ABOUT 160 FT. (ADD_D5-4_EX_1_OVB_ISO_R1).

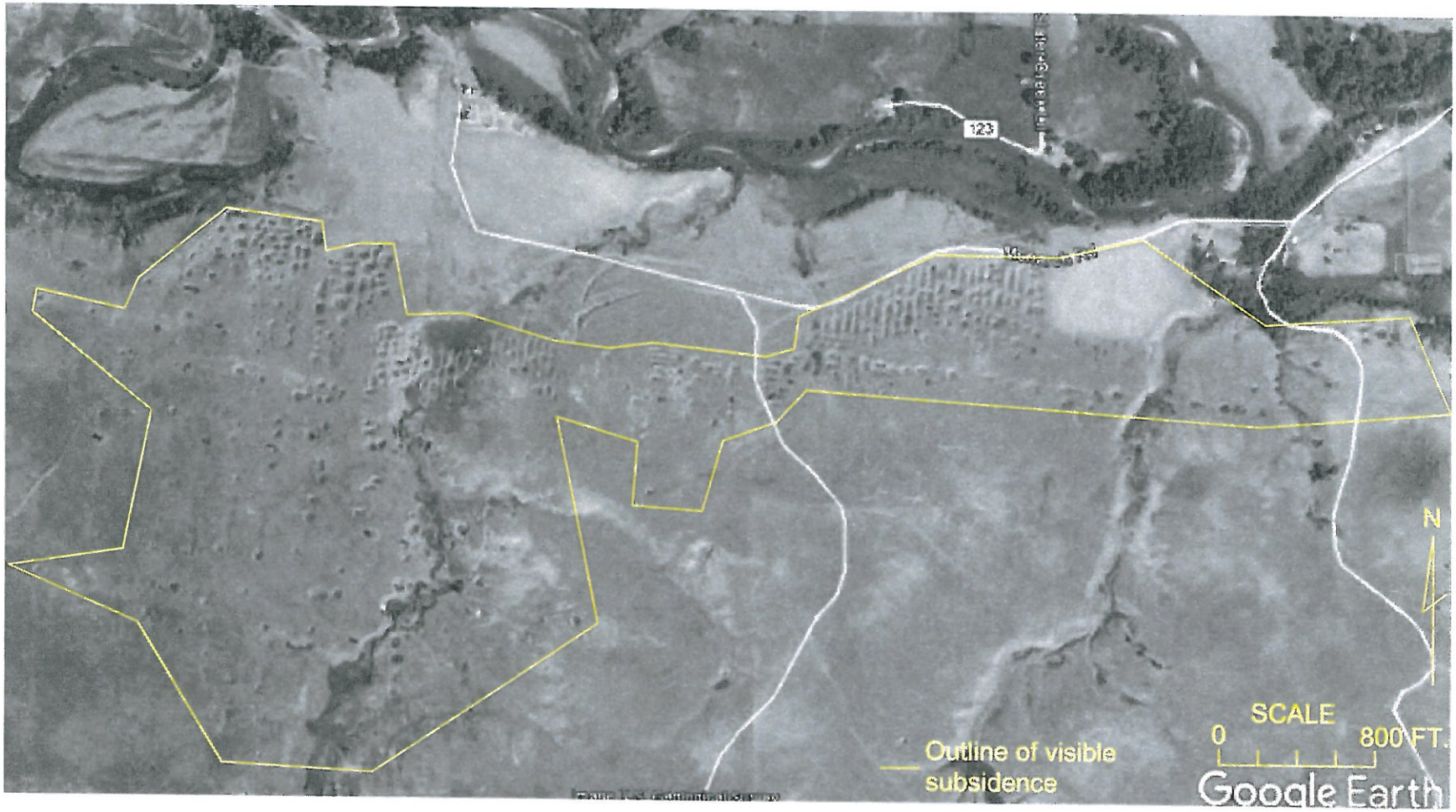

FIGURE 7.4 AREA 3 MINE SUBSIDENCE FROM UNDERGROUND MINING OF THE OLD MONARCH MINE IN THE MONARCH SEAM. MINE DEPTH IS APPROXIMATELY 35-50FT (DUNRUD, C. R., AND OSTERWALD, F.W., 1980).

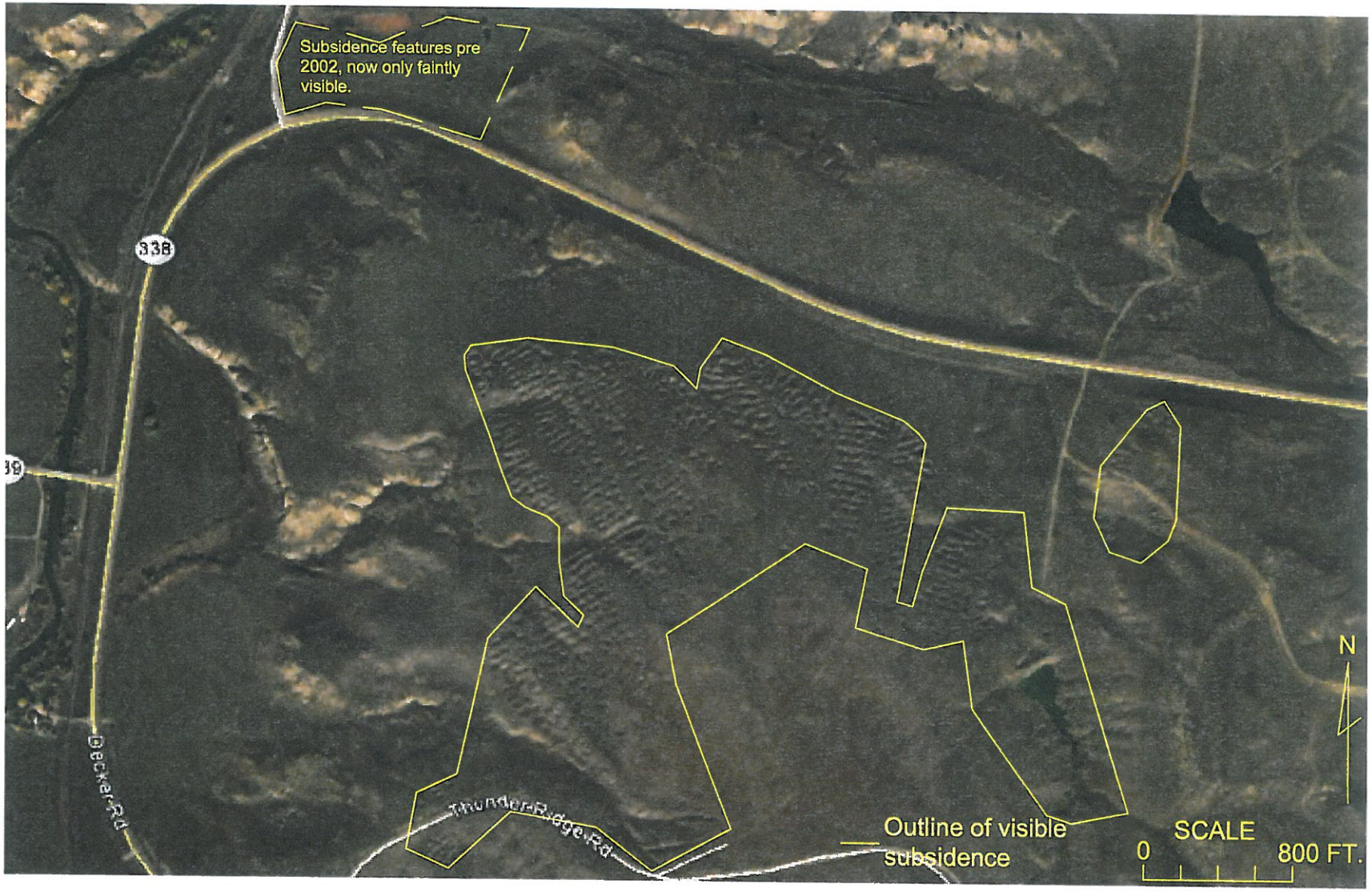

FIGURE 7.5 AREA 4 MINE SUBSIDENCE FROM UNDERGROUND MINING OF DIETZ MINES NO. 5 TO 8. IN THE DIETZ COAL SEAMS AT ROUGHLY 20 TO 150 FT. BELOW GROUND SURFACE (DUNRUD, C. R., AND OSTERWALD, F.W., 1980).

TABLE 3.1 SUMMARY OF LABORATORY TEST RESULTS ON ROCK MOISTURE, DENSITY, AND BRAZILIAN AND UNIAXIAL COMPRESSION STRENGTHS

SAMPLE	BORING	DEPTH	MOISTURE CONTENT	WET DENSITY	BRAZILIAN TENSILE STRENGTH	UNIAXIAL COMPRESSION STRENGTH	REMARKS
CLAYSTONE	R13-019	150-152 FT.	10.0%	139 pcf	170 psi	--	immediate roof
CARNEY COAL	R13-019	152-153 FT.	25.0%	80.9 pcf	90 psi	1,460 psi	
SILTSTONE WITH CLAY	R13-019	168-169 FT.	8.8%	144.8 pcf	60 psi	500 psi	immediate floor
SILTSTONE	R13-023	110-112 FT.	7.9%	159.4 pcf	440 psi	3,500 psi	likely siltstone, main roof of the Upper Carney
COAL	R13-023	110-112 FT.	20.1%	79.1 pcf	--	--	Coal is not described at this depth - Upper Carney?

References: D5-5-4, D5-5-8, D5-5-10, D5-5-12

TABLE 4.1 DIETZ, MONARCH, CARNEY, AND MASTERS RELATED CONDITIONS PER BLOCK

MINE BLOCK	COAL SEAM	HEIGHT OF SEAM (FT.)	DEPTH OF SEAM TOP (FT.)	ROOF		FLOOR	
				HEIGHT (FT.)	THICKNESS (FT.)	DEPTH (FT.)	THICKNESS (FT.)
1	MONARCH	41	100-1115				
1	CARNEY	14	220-390				
1	MASTERS	5	235-405				
2	MONARCH	MINED OUT	MINED OUT				
2	CARNEY	15-16	120-185				
2	MASTERS	5	145-210				
3	MONARCH	13-15	0-30			29-32	20-32
3	CARNEY	16	80-130	20-35	20-32		
3	MASTERS	5	106-176				
4	MONARCH	13-15	0-30			29-32	20-32
4	CARNEY	16-17	130-370	20-35	20-32		
4	MASTERS	5	156-417				
5	CARNEY	16-17	70-260	3-50WP	0-36		
5	MASTERS	5	93-289				
6	CARNEY	17-18+	70-345	3-50WP	0-36		
6	MASTERS	5	97-373				
7	CARNEY	8 -15	40-105				
7	MASTERS	5	58-160				
8	CARNEY	13-16+	30-225				
8	MASTERS	5	53-256				
9 EAST	CARNEY	6-16	100-220	12-13WP	0-12	7.5-9WP	0-3.5
9 EAST	MASTERS	6	126-256	6.5-7WP	0-3.5		
9 WEST	U CARNEY	4-8	80-220	17.5-18	16.5		
9 WEST	L CARNEY	5-8	85-231			12.5	2.5-4
9 WEST	MASTERS	6	100-259	10-11	2.5-4		
10 EAST	CARNEY	4 - 16	60-240	20WP	0-1.5		
10 EAST	MASTERS	6	74-286				
10 WEST	U CARNEY	4-8	120-200				
10 WEST	L CARNEY	4	125-211				
10 WEST	MASTERS	6	139-245				
11	U CARNEY	3-6	20-160	22-30 WP	0-10		
11	L CARNEY	4-8+	25-172			12	2.5-3.5
11	MASTERS	6	49-210	10-11	2.5-3.5		
12	U CARNEY	4	20-200	8-21WP	0-9		
12	L CARNEY	8-10	25-208			0-16WP	0-3
12	MASTERS	>6-12+	53-248	7.5-10WP	0-3		
13	DIETZ	0-8.5	0-25				
13	MONARCH	0-20	0-40				
13	U CARNEY	4	15-80				
13	L CARNEY	9	21-114				
13	MASTERS	6-14+	50-143				
14	DIETZ	8	0-6				
14	MONARCH	20	16-22				
14	U CARNEY	4	120-150				
14	L CARNEY	9	146-180				
14	MASTERS	5	175-209				

15	U CARNEY	4	100-180				
15	L CARNEY	9	128-214				
15	MASTERS	4	147-253				
16	MONARCH	0-15	0-3				
16	U CARNEY	4-6	40-100				
16	L CARNEY	8-9	47-136				
16	MASTERS	6	65-185				
17	MONARCH	0-17	0-89	30-39WP	0-5.5		
17	U CARNEY	2-5	20-160				
17	L CARNEY	8-9	31-193				
17	MASTERS	4-6	64-237				
18	U CARNEY	0-4	15-45				
18	L CARNEY	2-6	15-61				
18	MASTERS	5	37-97				
19	U CARNEY	4-6	20-60				
19	L CARNEY	2-8	24-76				
19	MASTERS	5	56-124				
20	MONARCH	0-7	0-32				
20	U CARNEY	2-5	20-60				
20	L CARNEY	2-7	22-74				
20	MASTERS	5	54-111				

Notes: WP = where present, as much of the sandstone exists as lenses of varying thicknesses and may not show up in the entire block. Blocks 1, 2, 7, 8, 10 west, 13-16, and 18-20 have no sandstone. In Blocks 3 and 4, the sandstone is present as a thick bed of sandstone. This sandstone thickens towards the south and is thickest south of the blocks and is present as roof of the Carney and floor of the Monarch. In Blocks 5 and 6, the sandstone is thickest in the middle and thins north and south. It is closer to the Carney in the south half of the block and becomes further above the Carney towards the north, where it pinches out to become absent. Between Blocks 5 and 6 in Borehole 578409-MST-UB, there exists 4 small sand intervals above the Carney, the first is 3 ft. above and 3 ft. thick, the second is 18 ft. above and is 3 ft. thick. Between this is an unnamed coal bed which is 5 ft. thick at 32 ft. above the Carney. 50 ft. above the Carney is a 14 ft. thick bed and at 74 ft. above is a 2 ft. thick bed. In Block 9 east of the Carney split, the sandstone exists for both floor and roof material for the Carney and roof material for the Masters. In Block 9 west of the split, sandstone is present in various thicknesses as the roof of the upper Carney, floor of the lower Carney, and roof of the Masters. In Block 10, the sandstone is only present in the southern 35 ft. in Section I-I' and thickens to the south. For Blocks 11 and 12, the sandstone is present in various thicknesses where it exists and is found in the roof of the upper Carney, floor of the lower Carney, and roof of the Masters. In Block 17, the sandstone is only present in northwest corner above the Monarch.