



HOMESTAKE MINE

- Mine Infrastructure
- Geology / Rock Properties
- Underground (4850,6950,7400)



Mill Complex

Open Cut

Highway 85

East Sub

Shops

WWTP

Yates Complex

Kirk Fans

Ross Complex

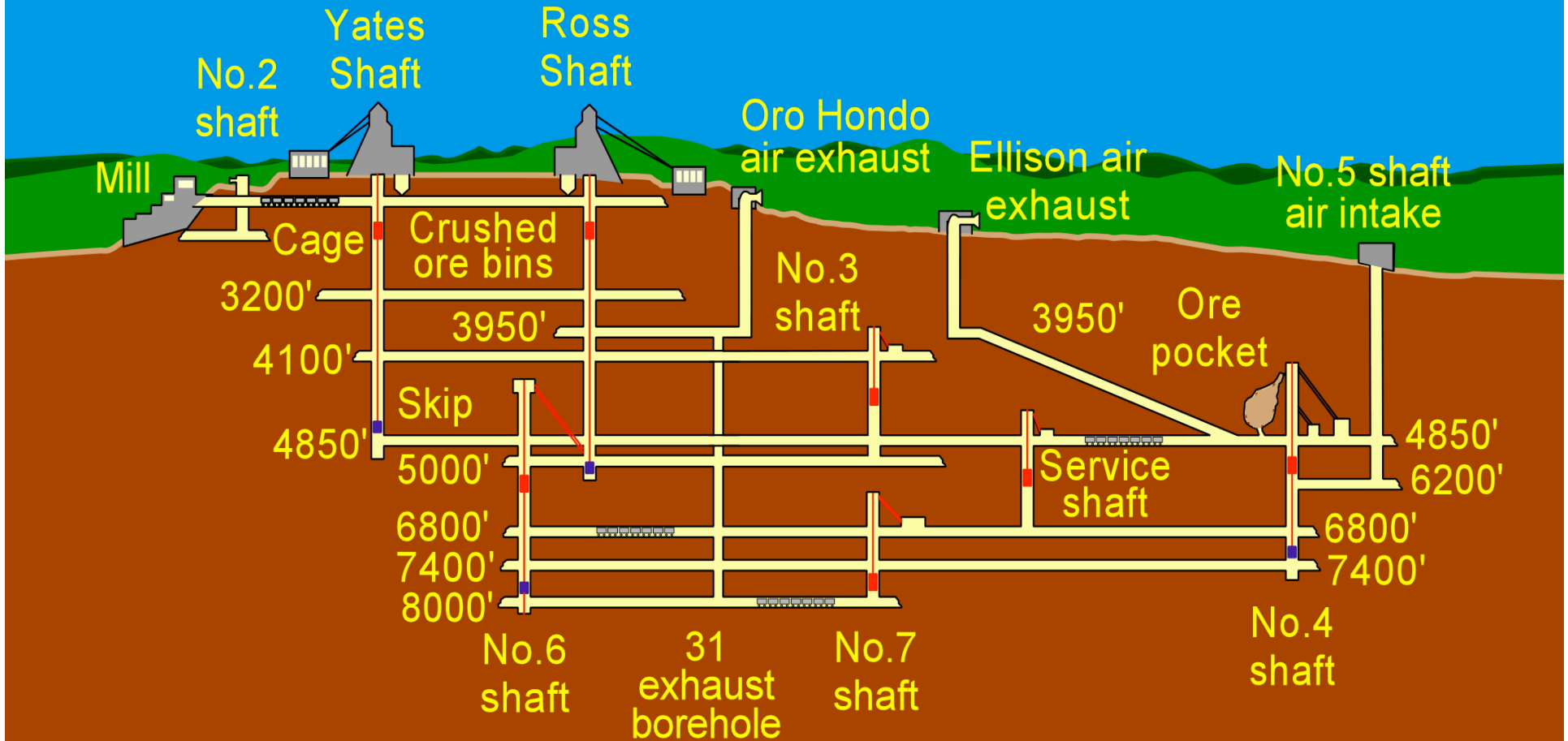
Ross Sub

Oro Hondo Fan

Oro Hondo Sub



General Homestake Mine Development





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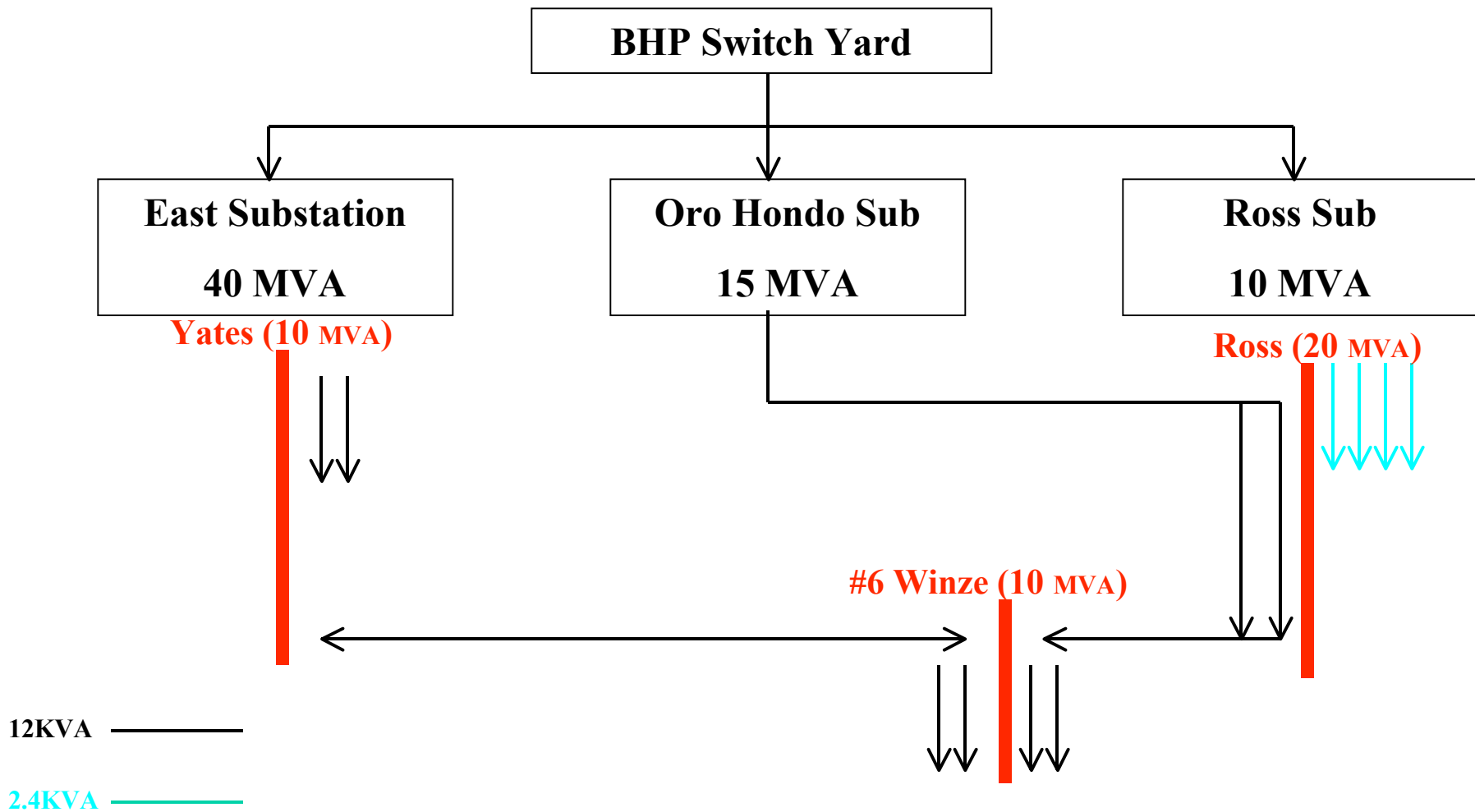
Mine Infrastructure

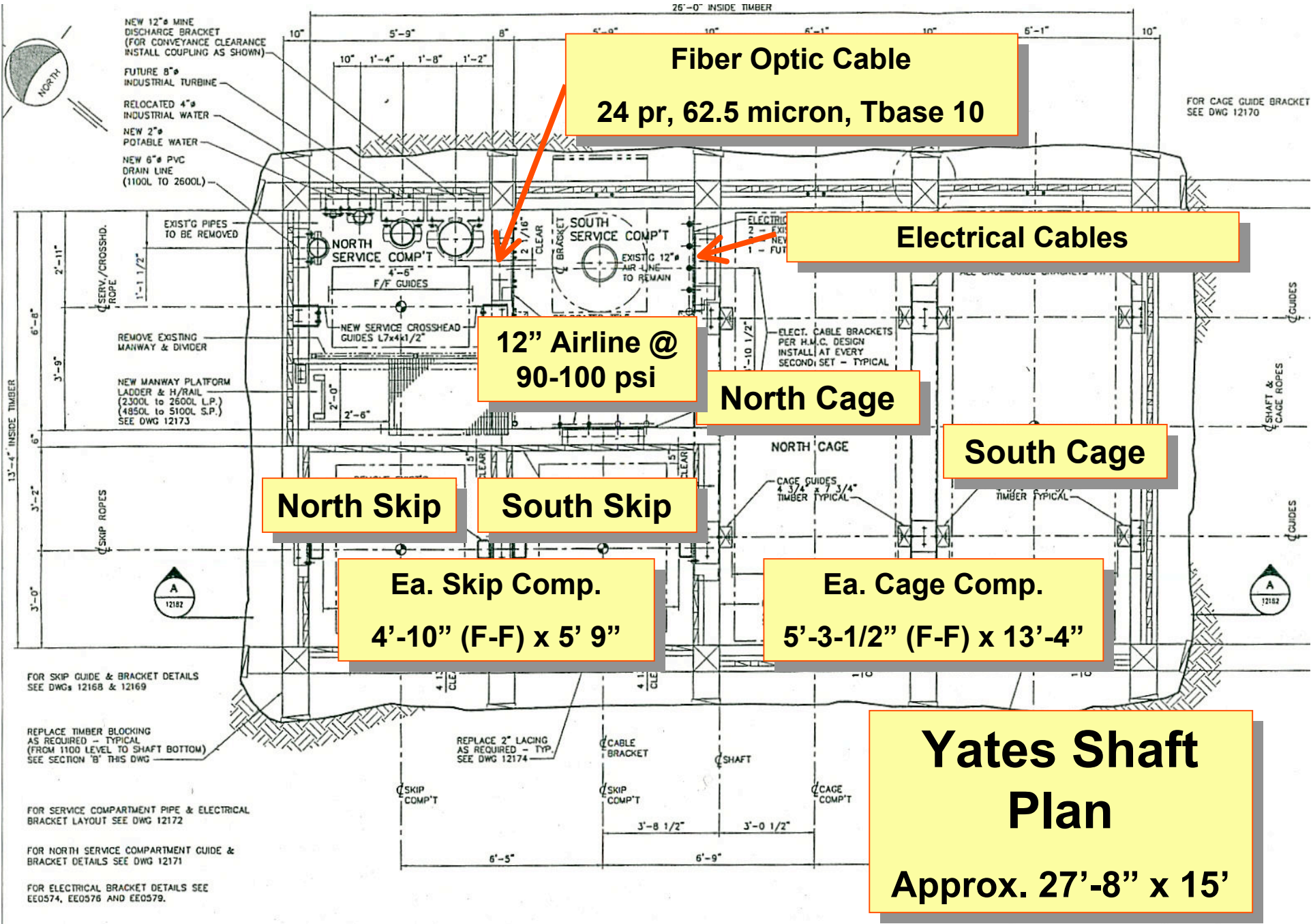
- Electrical System
- Two Surface Shafts
- Two Winzes on the 4850
- Fiber Optic Communication to Underground
- Pumping System
- Compressed Air System
- Ventilation System
- Bell Phone System
- Water System
- Sand Backfill System
- Hoisting Systems
- Monitoring / Control System



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Electrical System (to be renewed)





Fiber Optic Cable
 24 pr, 62.5 micron, Tbase 10

Electrical Cables

12" Airline @
 90-100 psi

North Cage

South Cage

North Skip

South Skip

Ea. Skip Comp.
 4'-10" (F-F) x 5' 9"

Ea. Cage Comp.
 5'-3-1/2" (F-F) x 13'-4"

Yates Shaft
Plan
 Approx. 27'-8" x 15'

PLAN - TIMBER SETS - 1100 LEVEL TO BOTTOM
 SCALE: 1/2" = 1'-0"
 EXISTING SET CRACKING CLOSURE

FOR SKIP GUIDE & BRACKET DETAILS
 SEE DWGS 12168 & 12169

REPLACE TIMBER BLOCKING
 AS REQUIRED - TYPICAL
 (FROM 1100 LEVEL TO SHAFT BOTTOM)
 SEE SECTION 'B' THIS DWG

FOR SERVICE COMPARTMENT PIPE & ELECTRICAL
 BRACKET LAYOUT SEE DWG 12172

FOR NORTH SERVICE COMPARTMENT GUIDE &
 BRACKET DETAILS SEE DWG 12171

FOR ELECTRICAL BRACKET DETAILS SEE
 E0574, E0576 AND E0579.

FOR CAGE GUIDE BRACKET
 SEE DWG 12170



Yates Cage Hoist

Nordberg Mfg. Co

Two 1,250 hp DC Motors

Normal Cage Load = 12,000 lb.

Max Cage Load = 13,400 lb

Yates Ore Hoist

Nordberg Mfg. Co

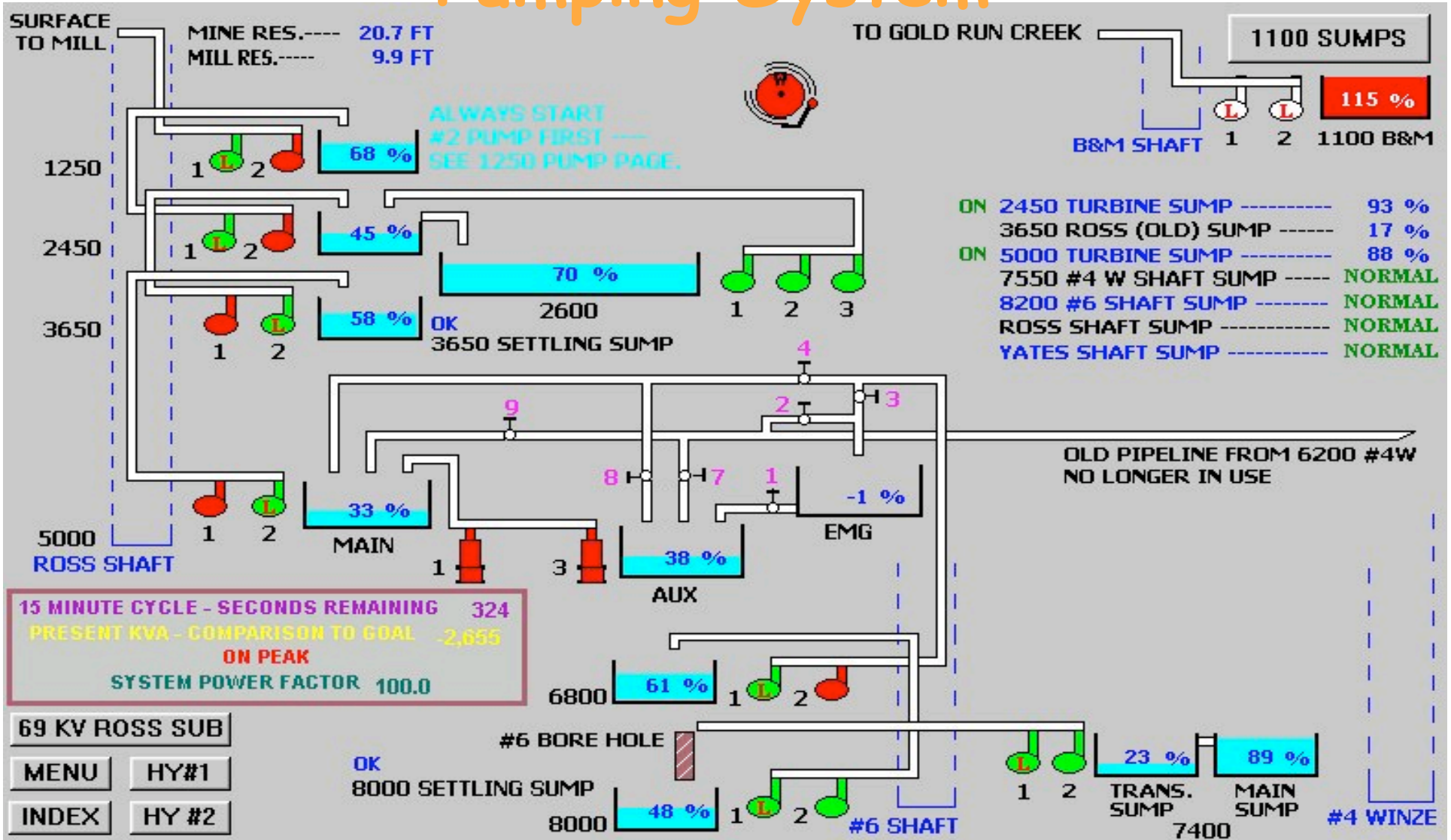
Two 1,500 hp DC Motors

Skip Payload Load = 20,000 lb.



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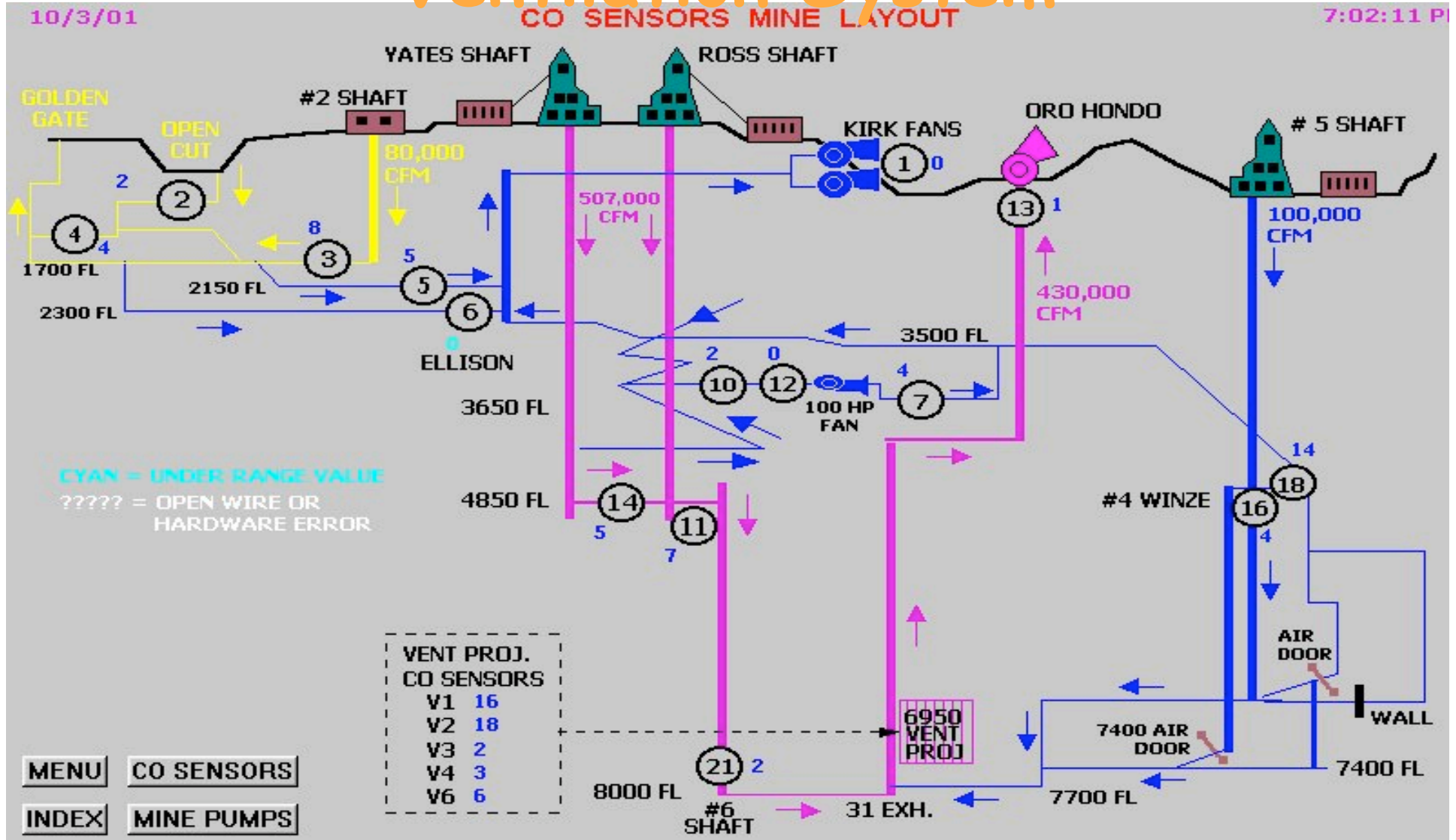
Pumping System





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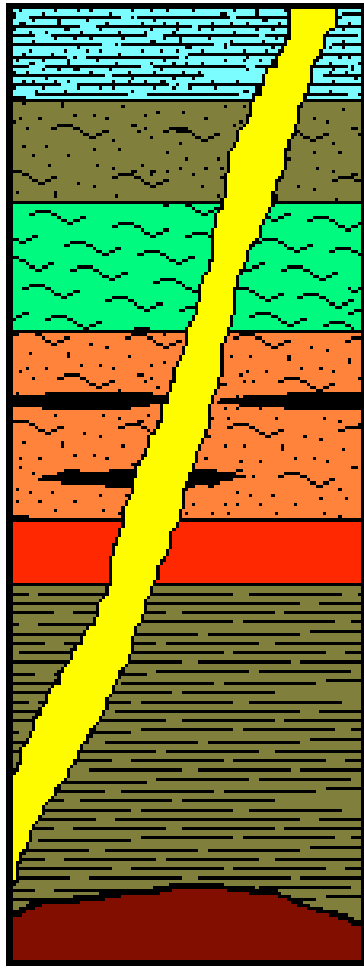
Ventilation System





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Proterozoic Stratigraphy



Grizzly Fm - Metagraywacke, sericite-biotite schist

Flag Rock Fm - Biotite-sericite schist, graphitic phyllite

Northwestern Fm - Biotite-qtz-sericite-garnet schist

Ellison Fm - Quartzites, Sericite-biotite schist and phyllite

Homestake Fm - Grunerite/Siderite schist, chert

Poorman Fm - Well-banded sericite-biotite carbonate phyllite

Yates Unit - Hornblende-plagioclase schist



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Rock Properties

- In Situ Stress Estimation (NIOSH)

$$\sigma_v = 1.25 h \quad (\text{vertical psi})$$

$$\sigma_{h1} = 2078 + 0.53 h \quad (\text{dip direction psi})$$

$$\sigma_{h2} = 121 + 0.55 h \quad (\text{strike direction psi})$$



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Rock Properties

- Laboratory Rock Properties (psi)

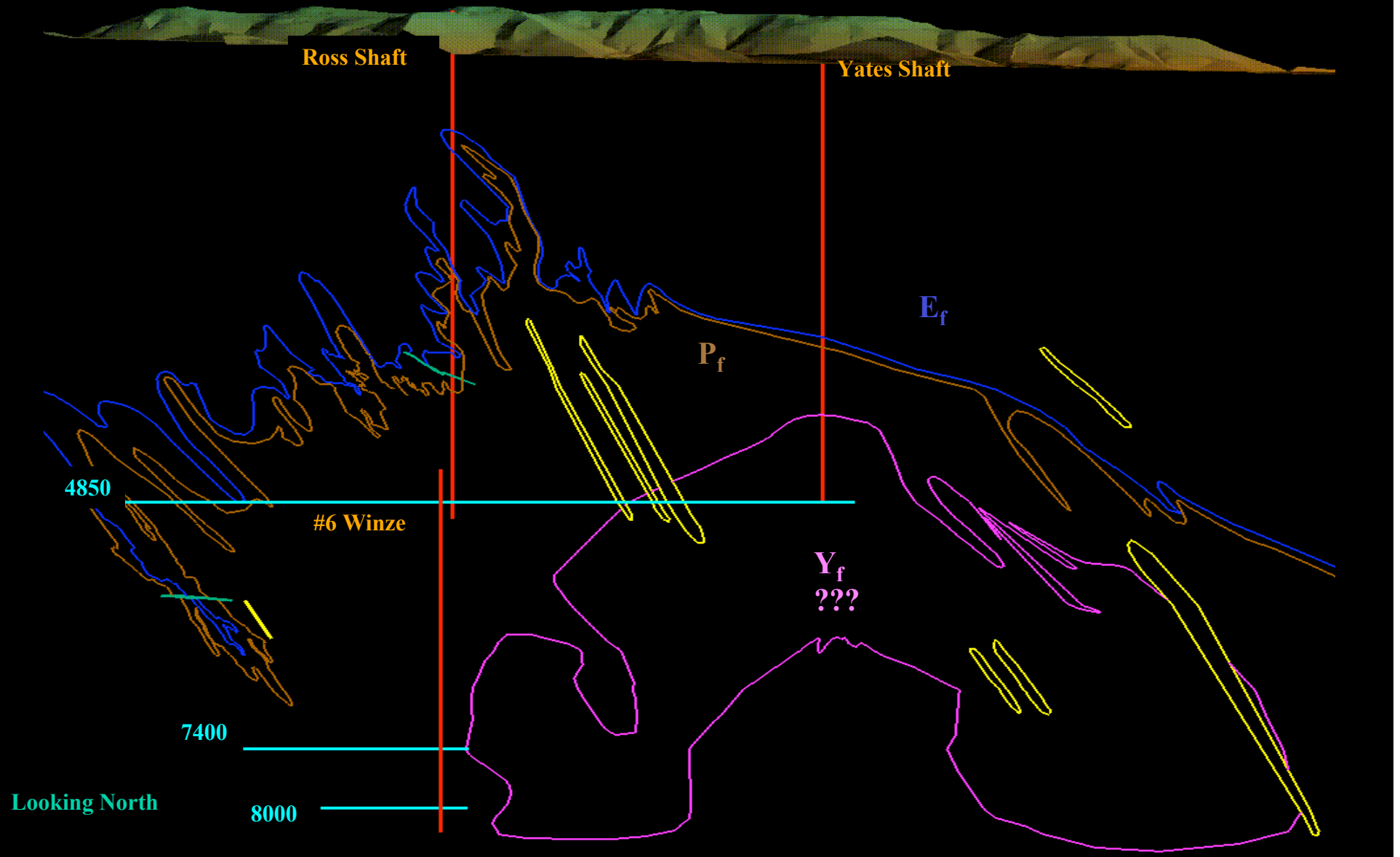
Property	Homestake	Poorman	Ellison	Yates
C_1	20,150	13,630	11,340	N/A
C_2	11,550	10,000	11,410	N/A
C_3	13,270	12,270	8,150	N/A
T_1	1,380	2,990	2,350	N/A
T_2	1,140	820	590	N/A
T_3	1,920	1,910	1,650	N/A

1 & 3 directions are parallel to the schistosity
2 direction is perpendicular to the schistosity

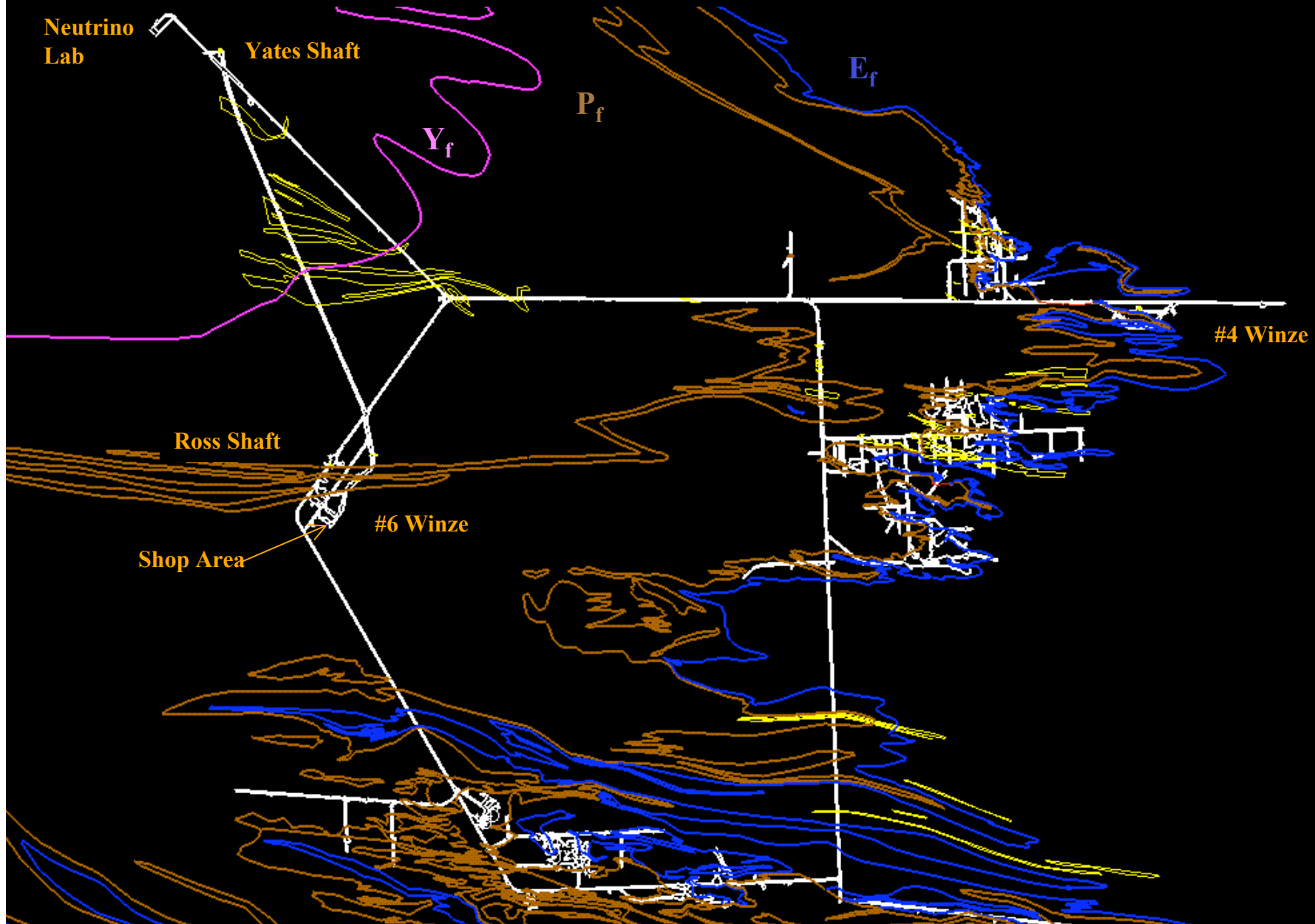


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GENERALIZED X-SECTION

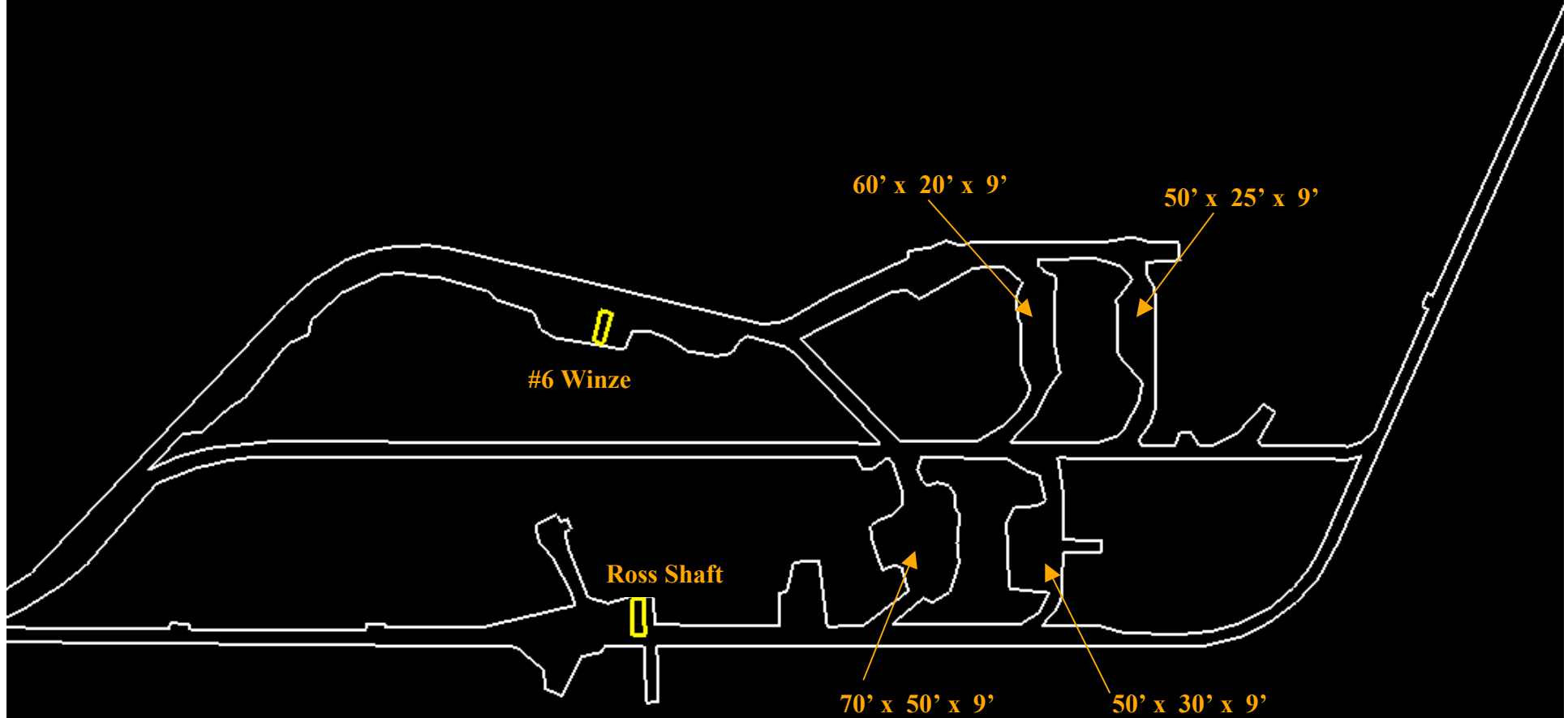


HOMESTAKE MINE 4850



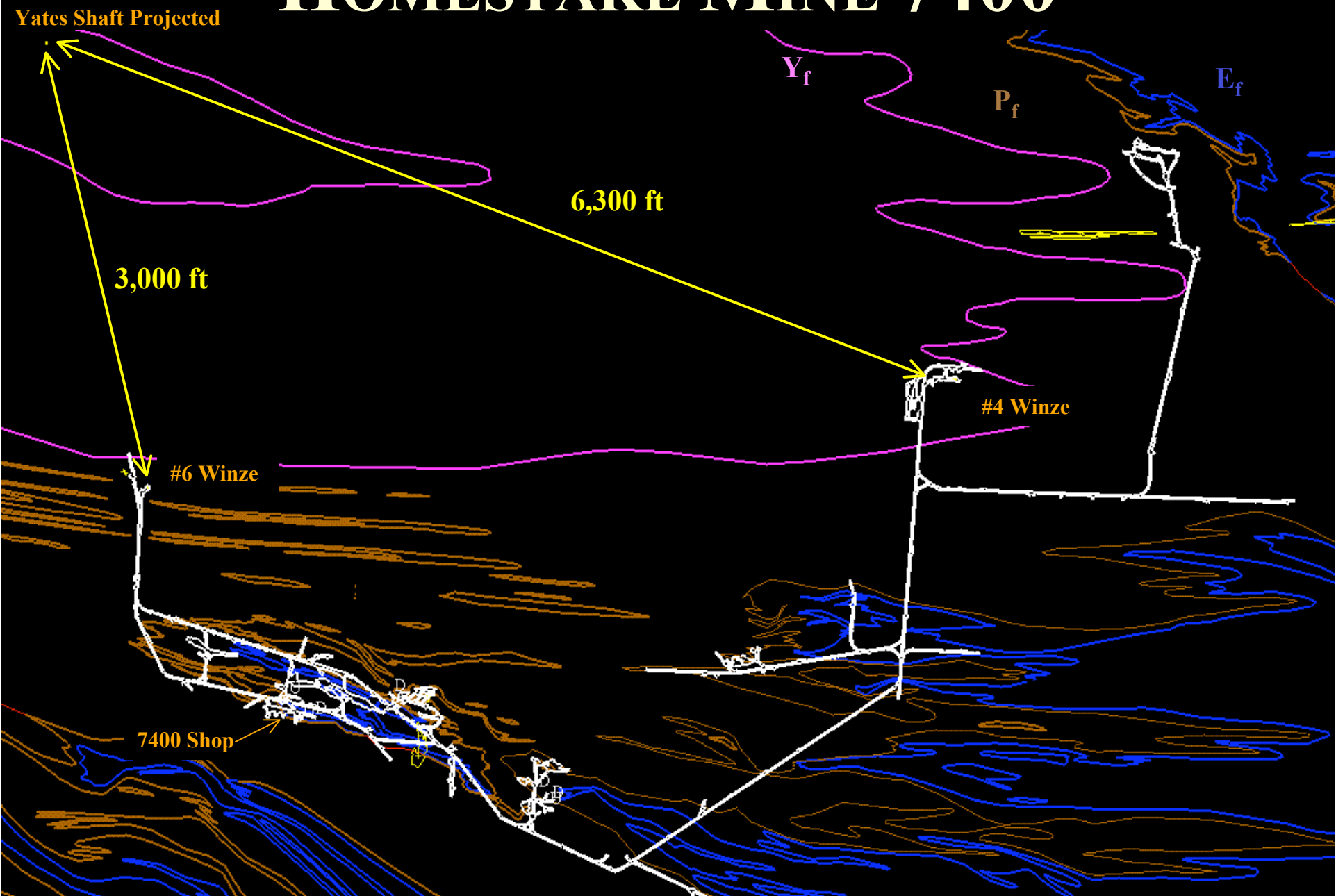


HOMESTAKE MINE 4850 SHOPS

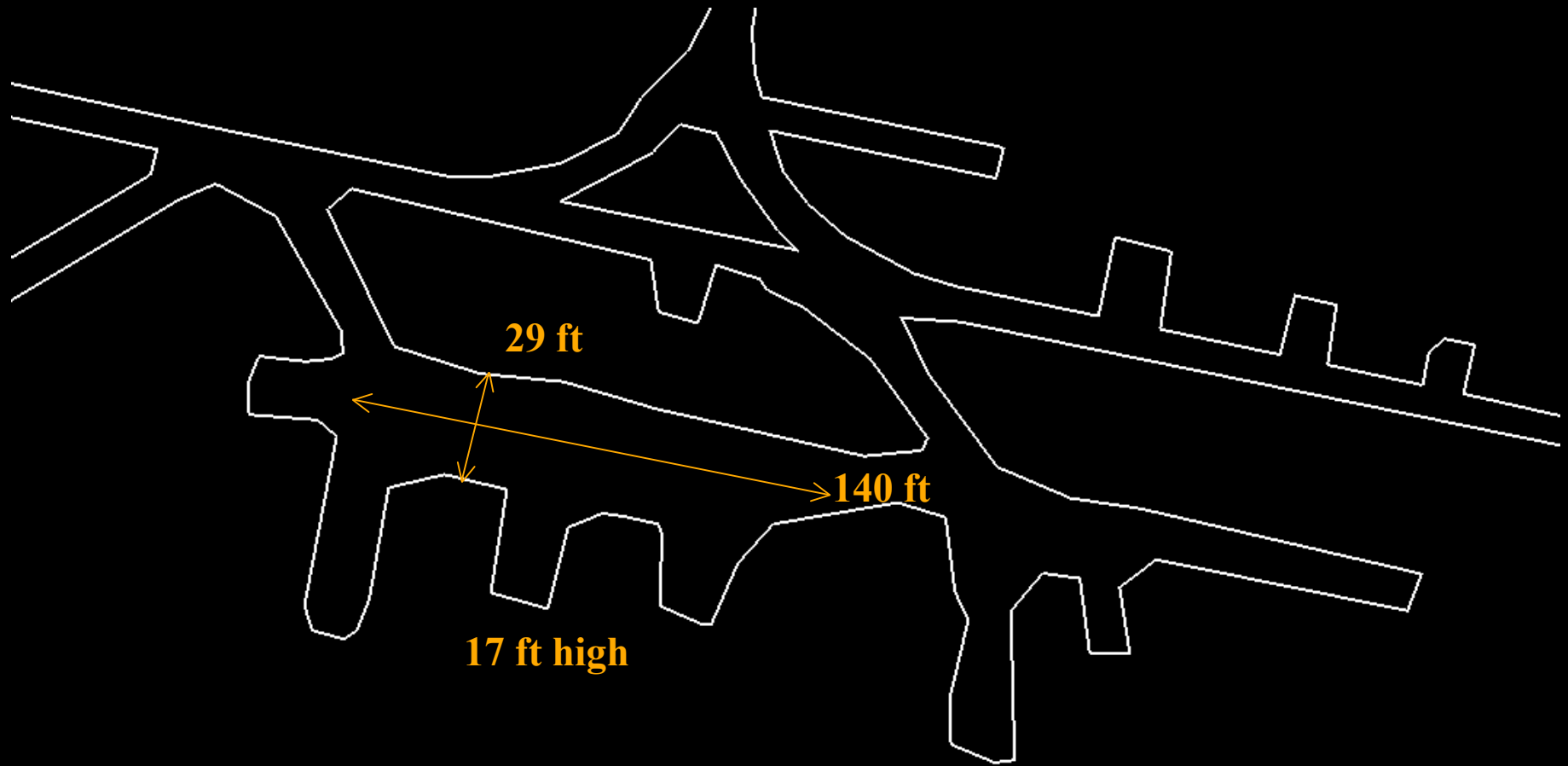




HOMESTAKE MINE 7400



HOMESTAKE MINE 7400 SHOP



HOMESTAKE MINE 6950 VENT

