Volume Calculations
North Face Corner Pit
Denali National Park

Phase 3

X-Section	Average Cross Section Depth (ft)	Estimated Overburden Depth (ft)	Estimated Gravel Depth (ft)	Area of Influence (sq ft)	Overburden Volume (cu.ft.)	Overburden Volume (cu.yds.)	Gravel Volume (cu.ft.)	Gravel Volume (cu.yds.)
1	47.0	2.0	45.0	10,017	20,034	742	450,765	16,695
2	48.3	2.0	46.3	10,097	20,194	748	467,491	17,314
3	51.0	2.0	49.0	10,028	20,056	743	491,372	18,199
4	54.7	2.0	52.7	10,002	20,004	741	527,105	19,522
5	52.4	2.0	50.4	10,017	20,034	742	504,857	18,698
6	47.6	2.0	45.6	6,604	13,208	489	301,142	11,153

TOTAL OVERBURDEN CUT =	4,205	Cubic yards	TOTAL PIT AREA =	56,765	Square feet
TOTAL GRAVEL CUT =	101,583	Cubic yards		1.3	Acres
TOTAL CUT =	105,788	Cubic yards			

Volume Calculations
North Face Corner Pit
Denali National Park

Phase 4

X-Section	Average Cross Section Depth (ft)	Estimated Overburden Depth (ft)	Estimated Gravel Depth (ft)	Area of Influence (sq ft)	Overburden Volume (cu.ft.)	Overburden Volume (cu.yds.)	Gravel Volume (cu.ft.)	Gravel Volume (cu.yds.)
1	51.0	2.0	49.0	4,817	9,634	357	236,033	8,742
2	52.5	2.0	50.5	10,085	20,170	747	509,293	18,863
3	52.1	2.0	50.1	10,025	20,050	743	502,253	18,602
4	55.6	2.0	53.6	10,002	20,004	741	536,107	19,856
5	52.4	2.0	50.4	9,021	18,042	668	454,658	16,839
6	0.0	2.0	-2.0	0	0	0	0	0

TOTAL OVERBURDEN CUT =	3,256	Cubic yards	TOTAL PIT AREA =	43,950	Square feet
TOTAL GRAVEL CUT =	82,902	Cubic yards		1.0	Acres
TOTAL CUT =	86,157	Cubic yards			

Volume Calculations
North Face Corner Pit
Denali National Park

Phase 5

X-Section	Average Cross Section Depth (ft)	Estimated Overburden Depth (ft)	Estimated Gravel Depth (ft)	Area of Influence (sq ft)	Overburden Volume (cu.ft.)	Overburden Volume (cu.yds.)	Gravel Volume (cu.ft.)	Gravel Volume (cu.yds.)
1	0.0	2.0	-2.0	0	0	0	0	0
2	59.6	2.0	57.6	7,407	14,814	549	426,643	15,802
3	52.2	2.0	50.2	10,022	20,044	742	503,104	18,633
4	55.5	2.0	53.5	9,888	19,776	732	529,008	19,593
5	0.0	2.0	-2.0	0	0	0	0	0
6	0.0	2.0	-2.0	0	0	0	0	0

TOTAL OVERBURDEN CUT =	2,023	Cubic yards	TOTAL PIT AREA =	27,317	Square feet
TOTAL GRAVEL CUT =	54,028	Cubic yards		0.6	Acres
TOTAL CUT =	56,051	Cubic yards			

Volume Calculations
North Face Corner Pit
Denali National Park

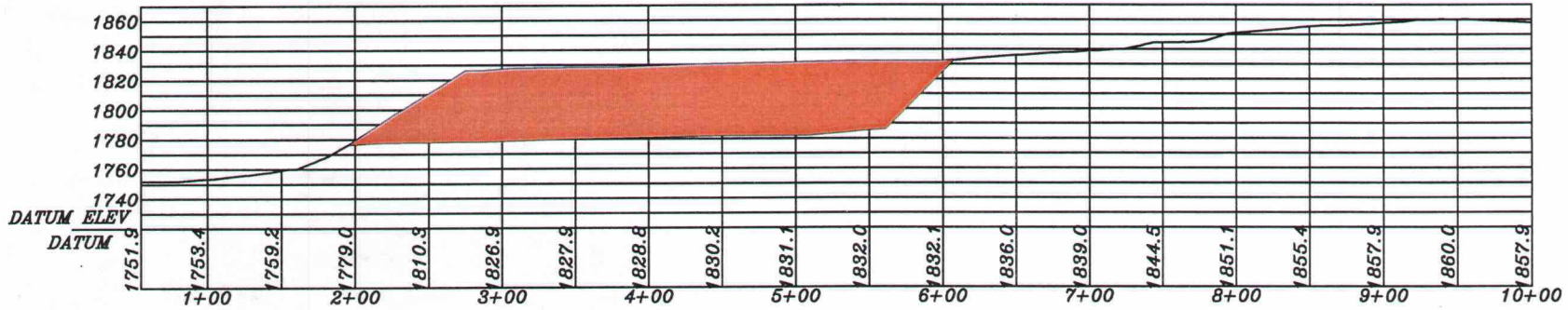
Phase 6

X-Section	Average Cross Section Depth (ft)	Estimated Overburden Depth (ft)	Estimated Gravel Depth (ft)	Area of Influence (sq ft)	Overburden Volume (cu.ft.)	Overburden Volume (cu.yds.)	Gravel Volume (cu.ft.)	Gravel Volume (cu.yds.)
1	0.0	2.0	-2.0	0	0	0	0	0
2	0.0	2.0	-2.0	0	0	0	0	0
3	59.6	2.0	57.6	2,550	5,100	189	146,880	5,440
4	58.9	2.0	56.9	6,760	13,520	501	384,644	14,246
5	0.0	2.0	-2.0	0	0	0	0	0
6	0.0	2.0	-2.0	0	0	0	0	0

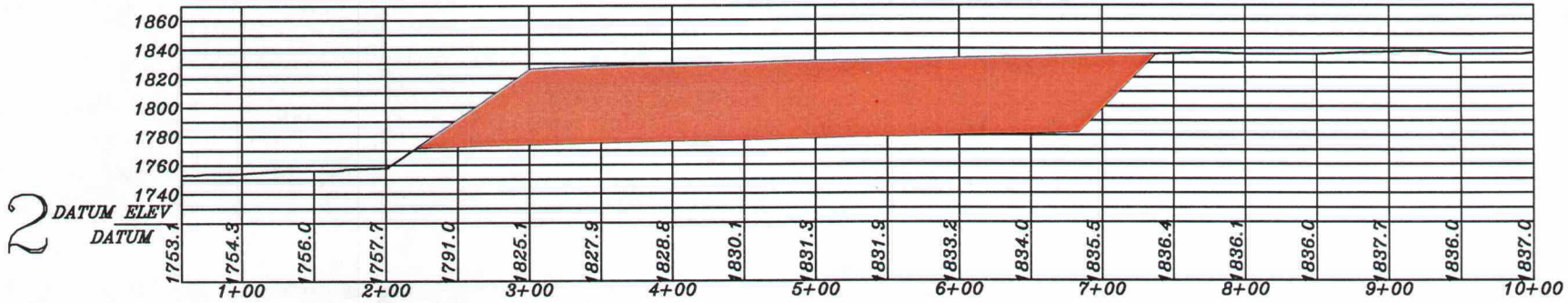
TOTAL OVERBURDEN CUT =	690	Cubic yards	TOTAL PIT AREA =	9,310	Square feet
TOTAL GRAVEL CUT =	19,686	Cubic yards		0.2	Acres
TOTAL CUT =	20,376	Cubic yards			

Total Pit Summation: Phases 1 through 6

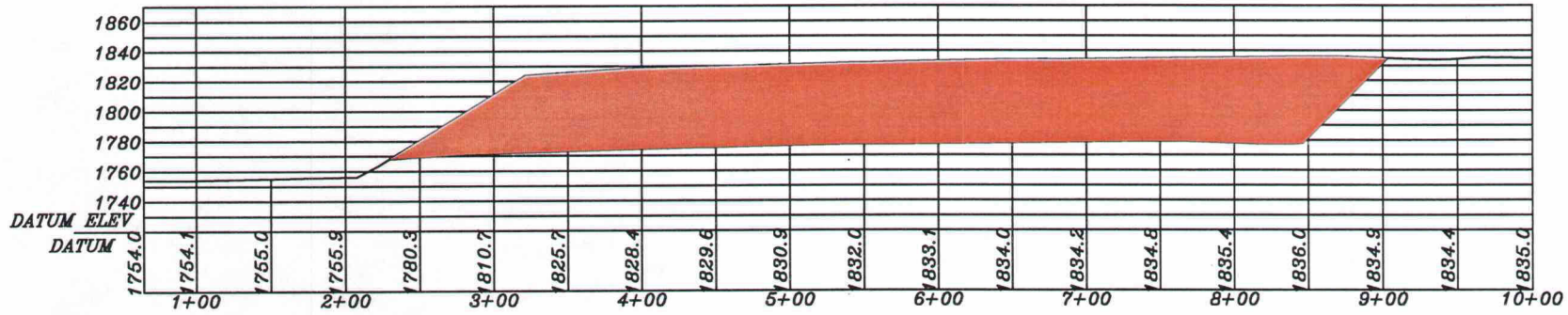
TOTAL OVERBURDEN CUT =	27,334	Cubic yards	TOTAL PIT AREA =	369,008	Square feet
TOTAL GRAVEL CUT =	572,723	Cubic yards		8.5	Acres
TOTAL CUT =	600,057	Cubic yards			



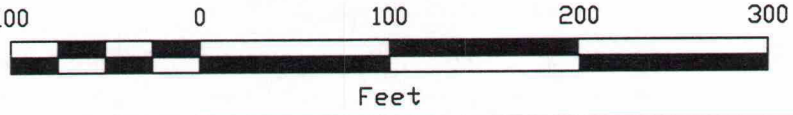
Cross Sectional Pit Area: 18,322 sq ft
Length of Cross Sectional Area: 455 ft
Average Depth of Cross Sectional Area: 40.3 ft



Cross Sectional Pit Area: 27,353 sq ft
Length of Cross Sectional Area: 607 ft
Average Depth of Cross Sectional Area: 45.1 ft

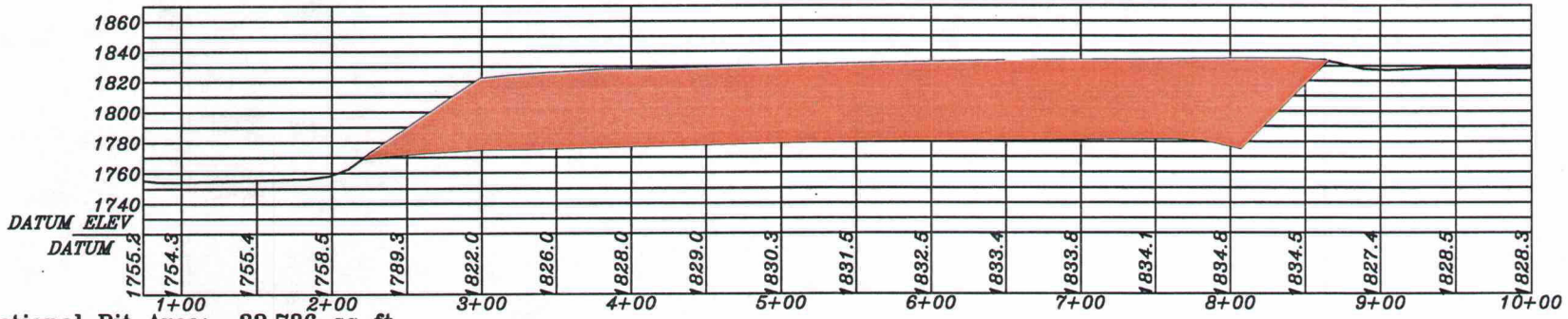


Cross Sectional Pit Area: 29,644 sq ft
Length of Cross Sectional Area: 644 ft
Average Depth of Cross Sectional Area: 46.0 ft



North Face Corner Pit
Cross Sections 1, 2, 3

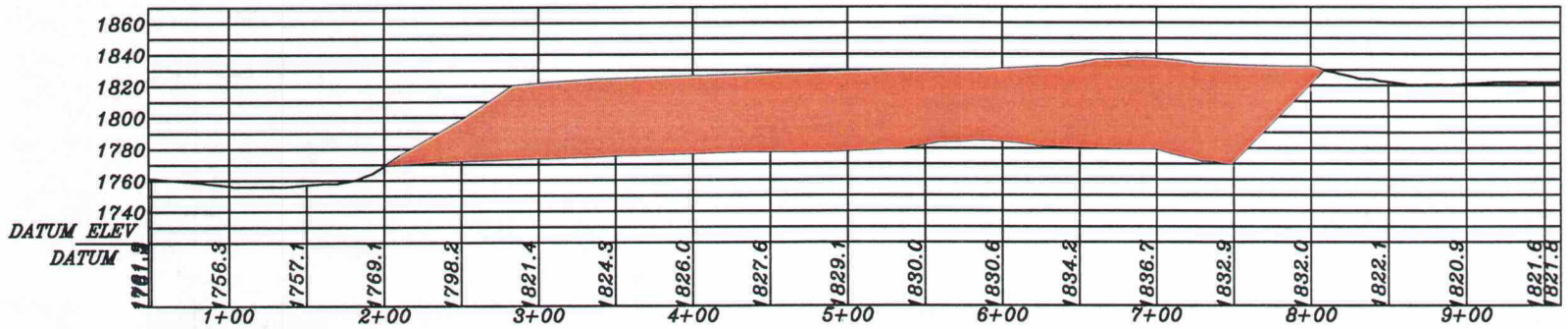
4



4'

Cross Sectional Pit Area: 32,786 sq ft
Length of Cross Sectional Area: 673 ft
Average Depth of Cross Sectional Area: 48.7 ft

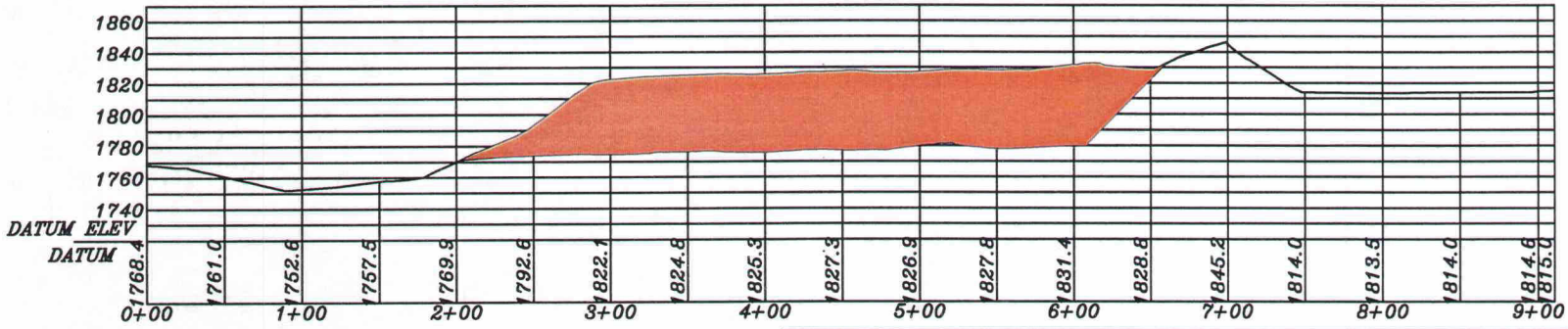
5



5'

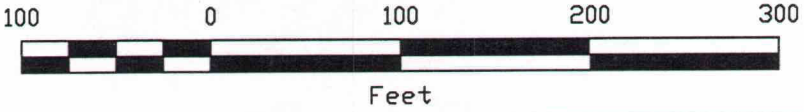
Cross Sectional Pit Area: 23,474 sq ft
Length of Cross Sectional Area: 515 ft
Average Depth of Cross Sectional Area: 45.6 ft

6



6'

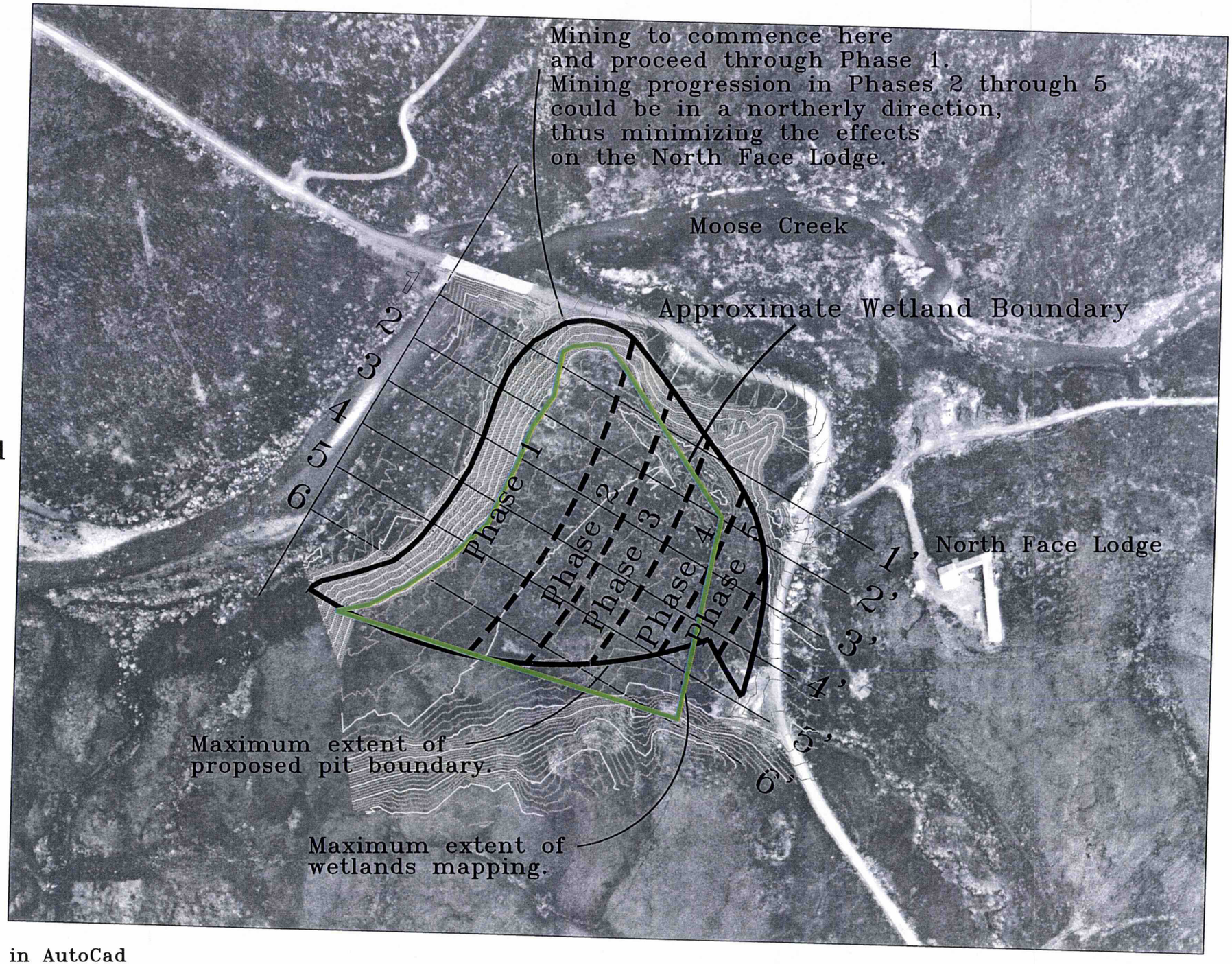
Cross Sectional Pit Area: 16,494 sq ft
Length of Cross Sectional Area: 411 ft
Average Depth of Cross Sectional Area: 40.1 ft



North Face Corner Pit
Cross Sections 4, 5, 6

Numbers identify cross section locations.

Phase 1 – 6 to be mined in succession with mining to proceed in a southerly direction.



Contours were generated in AutoCad from a GPS survey of the project area.

Aerial Photo: 9-19-86, # 7420

100 50 0 100 200 300

GRAPHIC SCALE
IN FEET
CONTOUR INTERVAL 2'

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
ALASKA SYSTEMS SUPPORT OFFICE
PHYSICAL RESOURCES

GRAVEL ACQUISITION PLAN
NORTH FACE PIT
KANTISHNA, ALASKA
DENALI NATIONAL PARK AND PRESERVE

DRAWING NO.

AUTO CAD FILE NAME