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KAISER STEEL

KAISER STEEL CORPORATION
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RECEIVED
JUL 5 1984
DIVISION OF OIL
GAS & MINING

July 4, 1984

Mr. Tom Munson
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

Dear Tom:

Here is the revised culvert drawing and calculations for the manshaft area. I am sorry that the the material is late. Please call if you have any questions on the material.

Sincerely,

Douglas C Pearce
Mine Engineer

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GAS & MINING

SEDIMENT STRUCTURE WORKSHEET

Sediment Structure:	RC7-3, see Plate III-28
Soil Type:	Various types
Hydrologic Group:	B
Land Use:	Woods
Land Condition:	Good
Curve Number:	55
Storm Event:	
10-year 24-hour:	1.84"
x 25-year 24-hour:	2.20"
50-year 24-hour:	2.49"
100-year 24-hour:	2.66"
Contributing Area:	3,354 acres
Slope of Area:	35%
Length of Drainage:	3000'
Slope of Drainage:	35%

RUNOFF CALCULATIONS

$$S=\frac{1000}{CN}-10 = 8.18$$

$$Q = \frac{(P-.2(S))^2}{P+.8(S)} = 0.04$$

PEAK RUNOFF CALCULATION

$$T_1 = \frac{1.8(S+1)^{.7}}{1900(\text{Slope})^{.5}} = 2.54$$

$$T_c = T_1/.6 = 4.23$$

$$q_p'=10^{(2.50963)-(0.6995)(\log T_c)-(0.14808)(\log T_c)^2+(0.07074)(\log T_c)^3}$$

$$q_p' = 107.25$$

$$q_p = q_p'(\text{Area Square Miles})Q = 22.5$$

CULVERT CALCULATION

$$H = \frac{2.5204(1+K_e)}{D^4} + \frac{466.18n^2L}{D^{16/3}} \left[\frac{Q}{10}\right]^2$$

Where H = head in feet
K_e = entrance loss coefficient = 0.5
D = diameter of pipe in feet
n = Manning's roughness coefficient
L = length of culvert in feet
Q = design discharge rate in cfs

D = 7' 10"
L = 31'
Q = 100* + 22.5 = 122.5
H = 0.18'

The existing culvert adequately handles the expected flow.

*Maximum outflow from Grassytrail Reservior

SEDIMENT STRUCTURE WORKSHEET

Sediment Structure:	RC-1, see Plate III-28
Soil Type:	CIC, JT6
Hydrologic Group:	A-B
Land Use:	Woods
Land Condition:	Good
Curve Number:	50
Storm Event:	
10-year 24-hour:	1.84"
25-year 24-hour:	2.20"
50-year 24-hour:	2.49"
100-year 24-hour:	2.66"
Contributing Area:	30.0 acres
Slope of Area:	57%
Length of Drainage:	1500'
Slope of Drainage:	57%