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Quality Coal Co., Inc.
Dutton Hill Mine, P-3920
Primary Road No. 3
Rock Branch Crossing
Station 7+50

10 Year 6 Hour Event

Sanford M. Hendon, P.E.

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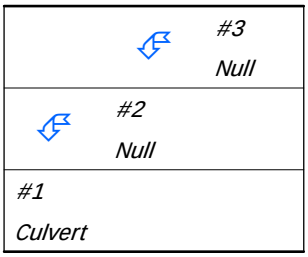
General Information

Storm Information:

Storm Type:	SCS 6 Hr
Design Storm:	10 yr - 6 hr
Rainfall Depth:	4.250 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Proposed Haul Road
Null	#2	==>	#1	0.000	0.000	Railroad 4x4 Arch Box
Null	#3	==>	#2	0.000	0.000	HWY 124 Double 4x4 Box



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#3	404.590	404.590	331.69	56.28
#2	124.660	529.250	417.68	73.51
#1	108.260	637.510	496.92	88.61

Structure Detail:

Structure #3 (Null)

HWY 124 Double 4x4 Box

Structure #2 (Null)

Railroad 4x4 Arch Box

Structure #1 (Culvert)

Proposed Haul Road

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0240	10.00	0.00	0.90

Culvert Results:

Design Discharge = 496.92 cfs

Minimum pipe diameter: 1 - 96 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#3	1	141.440	0.402	0.201	0.426	72.700	M	123.16	19.892
	2	263.150	0.442	0.116	0.419	72.300	M	215.66	36.383
	Σ	**404.590**						**331.69**	**56.276**
#2	1	124.660	0.300	0.035	0.417	72.300	M	118.01	17.236
	Σ	**529.250**						**417.68**	**73.511**
#1	1	108.260	0.238	0.000	0.000	72.500	M	111.22	15.097
	Σ	**637.510**						**496.92**	**88.608**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	8.63	80.00	927.00	0.740	0.347
		9. Small streams flowing bankfull	2.36	65.00	2,750.04	13.830	0.055
#1	**1**	**Time of Concentration:**					**0.238**
#2	1	1. Forest with heavy ground litter	16.00	145.00	906.00	1.010	0.249
		9. Small streams flowing bankfull	1.05	18.00	1,717.00	9.210	0.051
#2	**1**	**Time of Concentration:**					**0.300**

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	9. Small streams flowing bankfull	1.49	50.00	3,367.00	10.960	0.085
		9. Small streams flowing bankfull	0.96	25.00	2,602.26	8.820	0.081
		9. Small streams flowing bankfull	0.90	10.00	1,107.05	8.550	0.035
#1	**1**	**Muskingum K:**					**0.000**
#2	1	9. Small streams flowing bankfull	0.90	10.00	1,107.00	8.550	0.035
#2	**1**	**Muskingum K:**					**0.035**