Twentymile Coal, LLC
Foidel Creek Mine
29515 RCR 27
Oak Creek, CO 80467
970.879.3800

April 22, 2024

Hunter Ridley
Division of Reclamation, Mining, and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203
(303) 868-7757

RE: Twentymile Coal, LLC - Foidel Creek Mine (Permit No. C-82-056), Minor Revision (MR24-325) Adequacy Response #1

Dear Ms. Ridley:

Twentymile Coal, LLC (TC) Has reviewed your adequacy review dated April 12th, 2024. TC is providing the following responses to the comments or concerns noted in the review:

1) The cover letter submitted with MR325 states that a short 200-foot access road will need to be constructed to access the new WC Mains Utility Borehole site from pre-existing access roads. Additionally, a 900-foot access road will need to be constructed to access the possible 6 East Utility borehole site. Please specify by what means existing two track roads will be upgraded and please specify what materials the construction of any new access roads will require. i.e. Will gravel be used to improve access roads / create new roads? Or will all access roads and improved roads remain only as dirt roads?
    a) The new construction of access roads will require an 8 inch layer of gravel to be placed on the road to allow for a sturdy base for the equipment accessing the site. Topsoil will be stripped from the new construction areas and stockpiles.
    b) The existing roads have some gravel but not enough to withstand the traffic of the larger equipment and would not hold up well in wet conditions. TC will place gravel in locations necessary to keep the road passible for all equipment. Since the roads are already in place no topsoil will not be salvaged from these areas. The road improvements will remain in place and not be removed through the reclamation process.
2) Will the railroad crossing to be installed by Union Pacific also be removed by Union Pacific once final reclamation of the access road to 6 East is completed? Or will this be part of the mine's final reclamation costs?
    a) The railroad crossing will be installed by Union Pacific and will have a life with the railroad. The landowner has requested that the crossing remain in place once the site is reclaimed to allow additional access to his property.

3) The MR325 cover letter requests that both new borehole sites be certified as small area exemptions (SAE). While the borehole pads meet the size and drainage type requirements for SAE pursuant to Rule 4.05.2(3)(b)(i), the Division requires a technical demonstration that runoff from these areas will not breech effluent standards. A SEDCAD demonstration is the Division's preferred method, as similar demonstrations have been completed previously for other boreholes onsite. However, a RUSLE equation may also be used.
    a) A SedCAD demonstration has been completed for each site and is submitted with this response. The 6E site has a large watershed that will require diversion ditches to divert the water around the site and not contribute to the stormwater flows of the disturbed area. The WC Mains Site is at the top of a watershed

and has no area reporting through the site and therefore no diversion ditches will be required and the SedCAD demonstration is relatively short.

Please review our responses and let us know it you have any further questions or concerns regarding MR325.

Sincerely,

Miranda Kawcak

Miranda Kawcak
Environmental Manager
mkawcak@peabodyenergy.com
970-870-2718

cc: Nick Aromando

6 EAST UTILITY BOREHOLE PAD

M. Kawcak

Twentymile Coal, LLC
29515 RCR 27
Oak Creek, CO 80467

Phone: 970-870-2718

General Information

Storm Information:

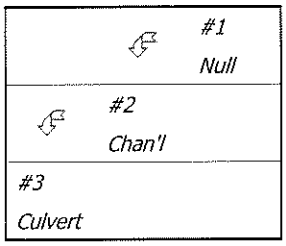
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	1.800 inches

Particle Size Distribution:

Size (mm)	Coutis		
32.0000	100.000%	0.000%	0.000%
16.0000	100.000%	0.000%	0.000%
10.0000	100.000%	0.000%	0.000%
4.7500	100.000%	0.000%	0.000%
2.0000	100.000%	0.000%	0.000%
0.4250	97.000%	0.000%	0.000%
0.0500	45.000%	0.000%	0.000%
0.0020	40.000%	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#2	0.071	0.267	BASIN 1
Channel	#2	==>	#3	0.000	0.000	DIVERSION DITCH 1
Culvert	#3	==>	End	0.000	0.000	ROAD CULVERT



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	3. Short grass pasture	6.00	30.00	500.00	1.95	0.071
#1	**Muskingum K:**					**0.071**

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	3.950	3.950	0.02	0.01
#2	0.000	3.950	0.02	0.01
#3	0.000	3.950	0.02	0.01

Structure Detail:

Structure #1 (Null)

BASIN 1

Structure #2 (Erodible Channel)

DIVERSION DITCH 1

Triangular Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Manning's n	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.0:1	2.0:1	6.0	0.0300	0.30			3.8

Erodible Channel Results:

	w/o Freeboard	w/ Freeboard
Design Discharge:	0.02 cfs	
Depth:	0.07 ft	0.37 ft
Top Width:	0.28 ft	1.48 ft
Velocity:	1.20 fps	
X-Section Area:	0.01 sq ft	
Hydraulic Radius:	0.031 ft	
Froude Number:	1.14	

Structure #3 (Culvert)

ROAD CULVERT

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
30.00	2.50	0.0150	2.00	0.00	0.90

Culvert Results:

Design Discharge = 0.02 cfs

Minimum pipe diameter: 1 - 2 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)
#1	1	3.950	0.071	0.071	0.267	61.000	M	0.02	0.013
	Σ	**3.950**						**0.02**	**0.013**
#2	Σ	**3.950**						**0.02**	**0.013**
#3	Σ	**3.950**						**0.02**	**0.013**

Subwatershed Time of Concentration Details:

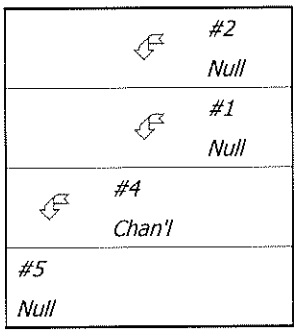
Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.00	30.00	500.00	1.950	0.071
#1	**1**	**Time of Concentration:**					**0.071**

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.00	30.00	500.00	1.950	0.071
#1	**1**	**Muskingum K:**					**0.071**

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#4	0.077	0.270	BASIN 2 & 4
Null	#2	==>	#4	0.064	0.283	BASIN 3
Channel	#4	==>	#5	0.000	0.000	DIVERSION DITCH 2
Null	#5	==>	End	0.000	0.000	ROCK CHECK DAM



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	3. Short grass pasture	6.25	35.00	560.00	2.00	0.077
#1	**Muskingum K:**					**0.077**
#2	3. Short grass pasture	7.77	40.00	515.00	2.22	0.064
#2	**Muskingum K:**					**0.064**

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#2	51.400	51.400	0.23	0.17	0.6	2,769	1.25	1.10
#1	2.900	2.900	0.01	0.00	0.0	3,914	1.14	1.06
#4	0.000	54.300	0.24	0.17	0.6	6,823	3.04	1.10
#5	0.000	54.300	0.24	0.17	0.6	6,823	3.04	1.10

Particle Size Distribution(s) at Each Structure

Structure #2 (BASIN 3):

Size (mm)	In/Out
32.0000	100.000%
16.0000	100.000%
10.0000	100.000%
4.7500	100.000%
2.0000	100.000%
0.4250	98.551%
0.0500	45.719%
0.0020	40.640%

Structure #1 (BASIN 2 & 4):

Size (mm)	In/Out
32.0000	100.000%
16.0000	100.000%
10.0000	100.000%
4.7500	100.000%
2.0000	100.000%
0.4250	100.000%
0.0500	66.758%
0.0020	59.340%

Structure #4 (DIVERSION DITCH 2):

Size (mm)	In/Out
32.0000	100.000%
16.0000	100.000%
10.0000	100.000%
4.7500	100.000%
2.0000	100.000%
0.4250	98.611%
0.0500	46.587%
0.0020	41.411%

Structure #5:

Size (mm)	In/Out
32.0000	100.000%
16.0000	100.000%
10.0000	100.000%
4.7500	100.000%
2.0000	100.000%
0.4250	98.611%
0.0500	46.587%
0.0020	41.411%

Structure Detail:

Structure #2 (Null)

BASIN 3

Structure #1 (Null)

BASIN 2 & 4

Structure #4 (Erodible Channel)

DIVERSION DITCH 2

Triangular Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Manning's n	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.0:1	2.0:1	2.0	0.0300	0.30			3.8

Erodible Channel Results:

	w/o Freeboard	w/ Freeboard
Design Discharge:	0.24 cfs	
Depth:	0.27 ft	0.57 ft
Top Width:	1.06 ft	2.26 ft
Velocity:	1.70 fps	
X-Section Area:	0.14 sq ft	
Hydraulic Radius:	0.119 ft	
Froude Number:	0.82	

Structure #5 (Null)

ROCK CHECK DAM

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)
#2	1	51.400	0.064	0.064	0.283	61.000	M	0.24	0.168
	Σ	**51.400**						**0.23**	**0.168**
#1	1	2.900	0.077	0.077	0.270	61.000	M	0.01	0.005
	Σ	**2.900**						**0.01**	**0.005**
#4	Σ	**54.300**						**0.24**	**0.172**
#5	Σ	**54.300**						**0.24**	**0.172**

Subwatershed Sedimentology Detail:

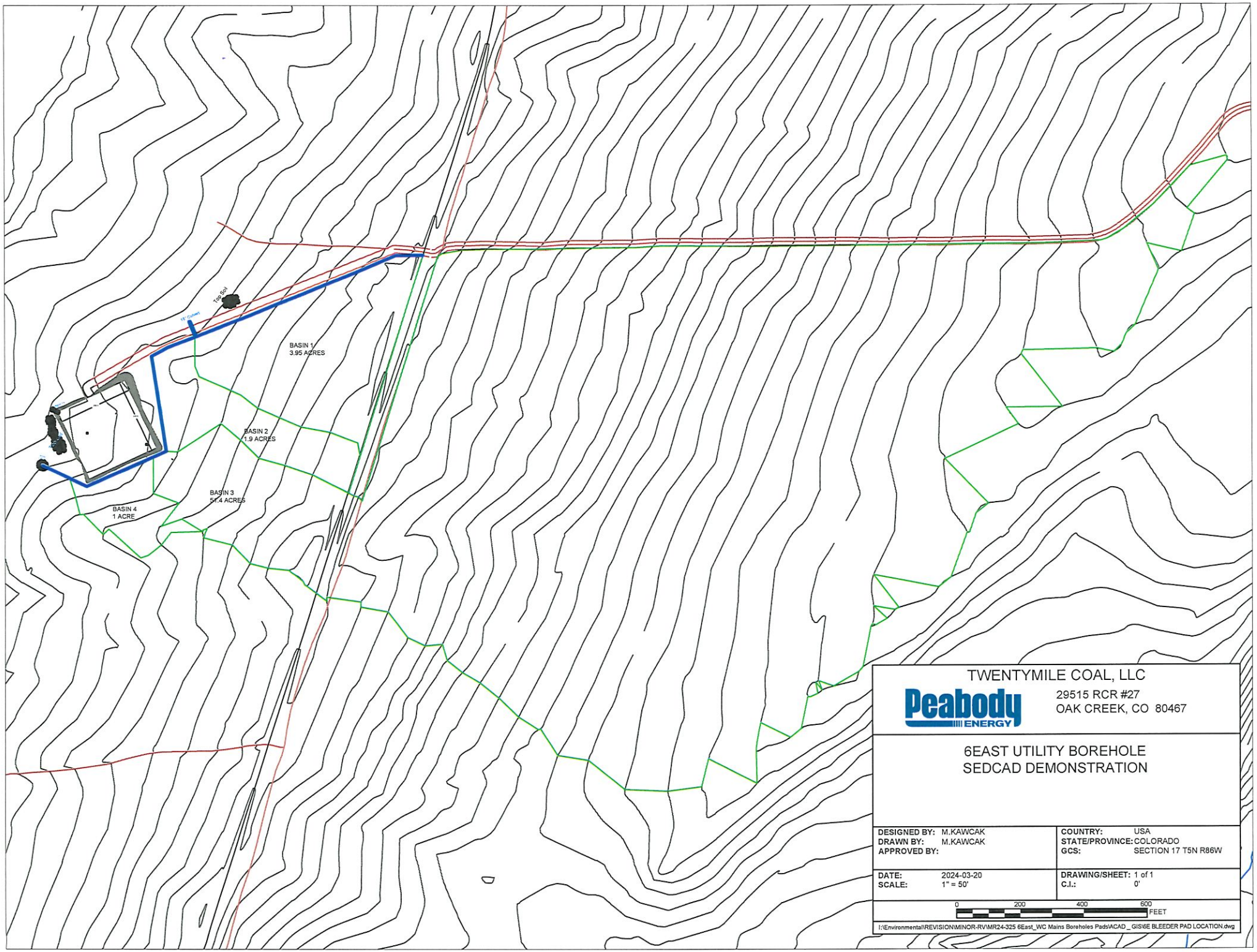
Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#2	1	0.240	515.00	7.77	0.0700	1.0000	1	0.6	2,813	1.29	1.13
	Σ							**0.6**	**2,769**	**1.25**	**1.10**
#1	1	0.240	560.00	6.25	0.1300	1.0000	1	0.0	5,801	2.66	2.46
	Σ							**0.0**	**3,914**	**1.14**	**1.06**
#4	Σ							**0.6**	**6,823**	**3.04**	**1.10**
#5	Σ							**0.6**	**6,823**	**3.04**	**1.10**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.25	35.00	560.00	2.000	0.077
#1	**1**	**Time of Concentration:**					**0.077**
#2	1	3. Short grass pasture	7.77	40.00	515.00	2.220	0.064
#2	**1**	**Time of Concentration:**					**0.064**

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.25	35.00	560.00	2.000	0.077
#1	**1**	**Muskingum K:**					**0.077**
#2	1	3. Short grass pasture	7.77	40.00	515.00	2.220	0.064
#2	**1**	**Muskingum K:**					**0.064**



TWENTYMILE COAL, LLC

Peabody ENERGY

29515 RCR #27
OAK CREEK, CO 80467

6EAST UTILITY BOREHOLE SEDCAD DEMONSTRATION

DESIGNED BY: M.KAWCAK	**COUNTRY:** USA
DRAWN BY: M.KAWCAK	**STATE/PROVINCE:** COLORADO
APPROVED BY:	**GCS:** SECTION 17 T5N R86W
DATE: 2024-03-20	**DRAWING/SHEET:** 1 of 1
SCALE: 1" = 50'	**C.I.:** 0'

0 200 400 600 FEET

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WC Mains Utility Borehole Pad Site

M. Kawcak

Twentymile Coal, LLC
29515 RCR 27
Oak Creek, CO 80467

Phone: 970-870-2718

General Information

Storm Information:

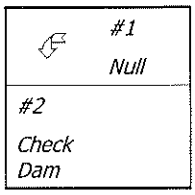
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	1.800 inches

Particle Size Distribution:

Size (mm)	Coutis		
32.0000	100.000%	0.000%	0.000%
16.0000	100.000%	0.000%	0.000%
10.0000	100.000%	0.000%	0.000%
4.7500	100.000%	0.000%	0.000%
2.0000	100.000%	0.000%	0.000%
0.4250	97.000%	0.000%	0.000%
0.0500	45.000%	0.000%	0.000%
0.0020	40.000%	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#2	0.041	0.252	PAD SITE
Check Dam	#2	==>	End	0.000	0.000	ROCK CHECK STRUCTURE



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	5. Nearly bare and untilled, and alluvial valley fans	3.00	7.80	260.00	1.73	0.041
#1	**Muskingum K:**					**0.041**

Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1		0.920	0.920	0.55	0.04	1.1	41,044	18.64	9.00
#2*	In	0.000	0.920	0.55	0.04	1.1	41,044	18.64	9.01
	Out			0.00	0.00	0.0	0	0.00	0.00

**Denotes structures with incomplete design parameters. Results for these structures have not been evaluated, and may affect downstream structures.*

Particle Size Distribution(s) at Each Structure

Structure #1 (PAD SITE):

Size (mm)	In/Out
32.0000	100.000%
16.0000	100.000%
10.0000	100.000%
4.7500	100.000%
2.0000	100.000%
0.4250	97.991%
0.0500	45.460%
0.0020	40.409%

Structure #2:

Size (mm)	In	Out
32.0000	100.000%	0.000%
16.0000	100.000%	0.000%
10.0000	100.000%	0.000%
4.7500	100.000%	0.000%
2.0000	100.000%	0.000%
0.4250	97.991%	0.000%
0.0500	45.460%	0.000%
0.0020	40.409%	0.000%

Structure Detail:

Structure #1 (Null)

PAD SITE

Structure #2 (Check Dam)

ROCK CHECK STRUCTURE

Structure design parameters are not specified. No results to show.

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)
#1	1	0.920	0.041	0.041	0.252	82.000	M	0.55	0.040
	Σ	**0.920**						**0.55**	**0.040**
#2	Σ	**0.920**						**0.55**	**0.040**

Subwatershed Sedimentology Detail:

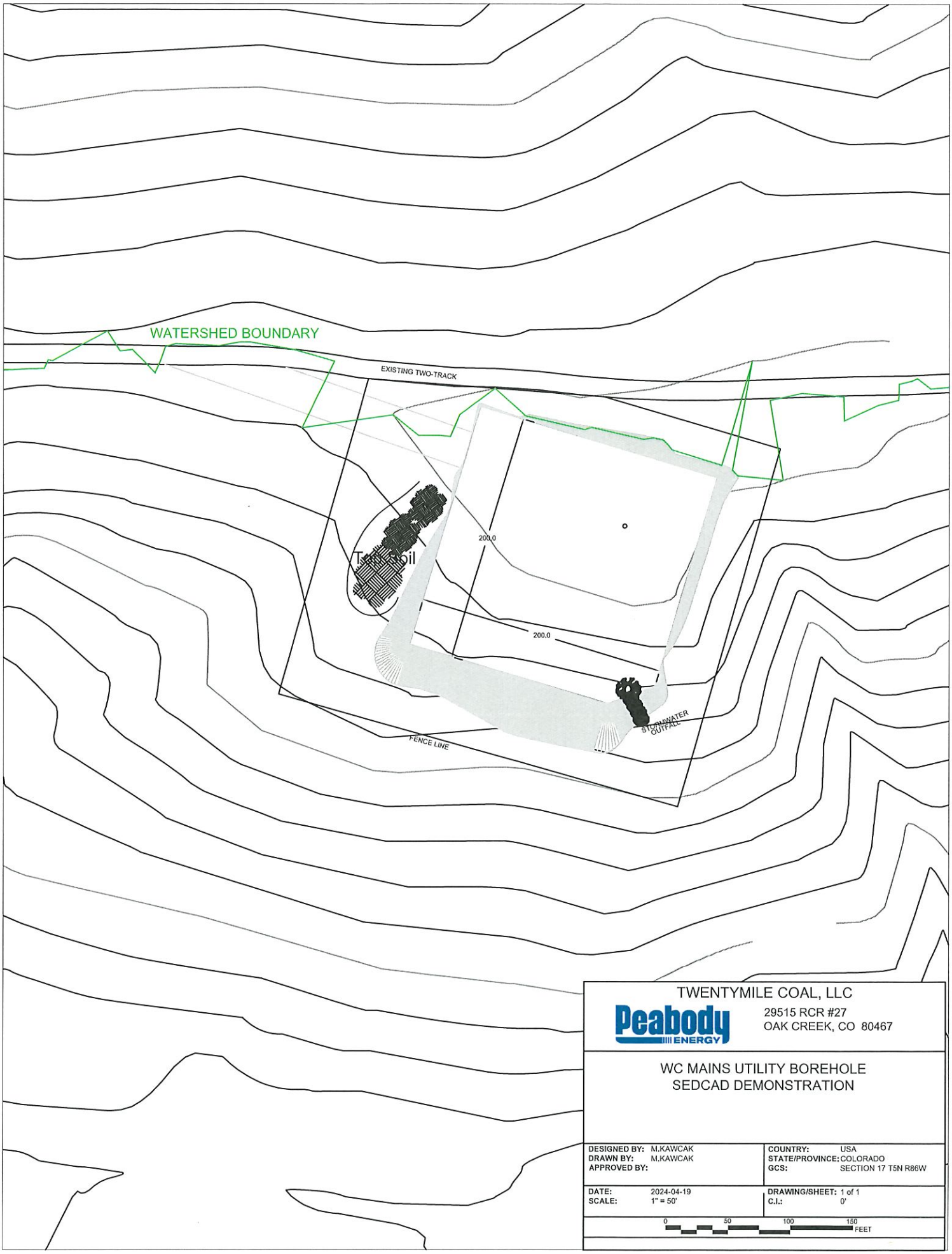
Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	260.00	3.00	1.2000	1.0000	1	1.1	41,457	18.98	9.16
	Σ							**1.1**	**41,044**	**18.64**	**9.00**
#2	Σ							**1.1**	**41,044**	**18.64**	**9.01**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	5. Nearly bare and untilled, and alluvial valley fans	3.00	7.80	260.00	1.730	0.041
#1	**1**	**Time of Concentration:**					**0.041**

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	5. Nearly bare and untilled, and alluvial valley fans	3.00	7.80	260.00	1.730	0.041
#1	**1**	**Muskingum K:**					**0.041**



TWENTYMILE COAL, LLC

Peabody ENERGY

29515 RCR #27
OAK CREEK, CO 80467

WC MAINS UTILITY BOREHOLE
SEDCAD DEMONSTRATION

DESIGNED BY: M.KAWCAK	**COUNTRY:** USA
DRAWN BY: M.KAWCAK	**STATE/PROVINCE:** COLORADO
APPROVED BY:	**GCS:** SECTION 17 T5N R86W
DATE: 2024-04-19	**DRAWING/SHEET:** 1 of 1
SCALE: 1" = 50'	**C.I.:** 0'

0 50 100 150 FEET