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Mine File

PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

COAL
PRICE RIVER COAL CO

RECEIVED
MAR 18 1986
DIVISION OF
OIL, GAS & MINING

March 12, 1986

Dr. Dianne R. Nielson, Director
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

ACT/007/004
#3

Re: Proposed Drainage Control Modifications
Hardscrabble Canyon, Carbon County, Utah

Dear Dr. Nielson:

The following responses are submitted to address the comments contained in Mr. D. Wayne Hedberg's letter of February 19, 1986 pertaining to the proposed drainage control modifications at our facilities in Hardscrabble Canyon near Helper.

COMMENT 1: Comment #2 made by the Division in the December 30, 1985, deficiency letter required that the plan view of diversion D-6 on Exhibit 3.3-11 be correlated and referenced to a topographic map depicting all diversion structures. The applicant must delineate the locations of the cross-sections on Exhibit 3.3-11 on Exhibit 3.3-4a.

RESPONSE: Exhibit 3.3-4(A) has been revised to show the requested information.

COMMENT 2: Comment #5 made by the Division in the December 30, 1985 deficiency letter required that the proposal must contain designs for the channel to replace culvert C-3. The applicant has stated that a small diversion, D-3A, will replace culvert C-3. The proposal states that the diversion will be excavated into rock. An on site visit performed by the Division on January 15, 1986 indicated that the location for diversion D-3A is not in rock but rather on an unstable slope. Therefore, complete designs for stabilizing the fill prior to the excavation of diversion D-3A are required. Additionally, Table 3.3-5(D) includes a Mannings "n" value of 0.045. Since the diversion will have to be excavated in stabilized fill a Mannings "n" value that is representative of a riprapped lined channel must be used to compute the velocity during the design event.

RESPONSE: Due to the unstable nature of the existing slope, it is proposed to stabilize the slope by placing additional fill against the slope. The outslope of the new fill will be sloped at 2H:1V. The proposed diversion D-3A will be constructed on top of the fill. Diversion D-3A will be lined with a half round culvert consisting of an 18-inch diameter CMP split in half. Figure 3.3-9(A) and Exhibit 3.3-10(A) have been revised to show the proposed modifications. Table 3.3-5(D) has been revised and contains a rating of the proposed diversion lined with the half round culvert.

COMMENT 3: Comment #6 made by the Division in the December 30, 1985 deficiency letter requested channel stability measures for the reclaimed section of diversion D-5 in the vicinity of culvert C-2 after removal. Table 3.3-5(C) indicates that the design discharge will flow with a velocity of approximately 9.8 feet/second. Therefore, plans for a channel lining to minimize erosion at the design discharge must be submitted. Additionally, Table 3.3-5(C) includes a Mannings "n" value of 0.045. A Mannings "n" value that corresponds to the D50 rip rap size must be used for computation of velocity at the design event. Figure 3.3-11(A) must be revised to incorporate the channel lining design to be used.

RESPONSE: Due to the inter-relationship of Manning's "n", flow velocity and riprap size, the design of riprap linings is an iterative process. The process consists of computing a flow velocity based upon an assumed "n" value, determine the riprap size necessary to protect the channel at the computed flow velocity, calculate a new "n" value based on the riprap size selected, and if the new "n" value is appreciably different from the assumed value, recompute the velocity and riprap size. An empirical equation relating Manning's "n" and riprap size is presented in Applied Hydrology and Sedimentology of Disturbed Areas, Barfield, Warner and Haan, 1981. Equation 3.34 is n =0.0395xD50**0.1666, where D50 is the median riprap size. The above method and equation in conjunction with Figure 7-9(A), contained in the January 16, 1986 submittal, were used to design the riprap lining. Table 3.3-5(C) has been revised using an "n" value of 0.040. The computed flow velocity indicates a median riprap size of 1 foot is required. Figure 3.3-11(A) has been revised to show the proposed riprap lining. Section 3.3-3(1)B has been revised to reflect the above design modifications.

COMMENT 4: Comment #9 made by the Division in the December 30, 1985 deficiency letter required designs to demonstrate that each proposed channel will be stable at the design flows. The applicant must submit channel lining designs for diversions D-2, D-3, D-3A, D-5 and D-6. A Mannings "n" value that is representative of the riprap size to be used must be used for velocity computations. All figures of diversion cross-sections must be drawn to scale and revised to incorporate channel lining designs. Additionally, the applicant must commit to placing rip rap on all sections of diversion D-6 that are not excavated in bedrock.

RESPONSE: Since the purpose of this and previous submittals was to satisfy in part Condition #2 placed on the approved MRP, design information is being submitted for structures directly affected by modifications necessary to meet Condition #2. This information includes channel lining designs for diversion D-2 below the proposed culvert C-3 outlet and D-5 in the vicinity of culvert C-2. The other information requested was deemed unnecessary pursuant to a telephone conversation with Mr. David J. Cline on March 6, 1986.

Table 3.3-5(A) and Figure 3.3-8(A) have been revised to contain the requested information for diversion D-2 below the outlet of culvert C-3.

The requested information for diversions D-3A and D-5 have been presented in the responses to Comments 2 and 3 above, respectively.

Figure 3.3-12(A) has been revised to show the proposed riprap lining of diversion D-6. Section 3.3-3(1)B has been revised to commit to placing riprap on all sections of diversion D-6 that are not excavated in bedrock.

COMMENT 5: Exhibit 3.3-4a depicts diversion D-3 as extending only to within 300 feet of the Number 4 Mine Portal. The applicant must clarify how diversion D-3 collects runoff from the portion of sub-watershed HC-3 that is located upstream of the head of the diversion.

RESPONSE: Diversion D-3 actually extends to the head of the canyon near the No.4 mine portal and collects the runoff from all of sub-area HC-3. The actual extent of D-3 is show on Exhibit 3.3-2(A) in the approved MRP. Exhibit 3.3-4A has been revised to show the actual extent of diversion D-3.

COMMENT 6: Section 3.3-3(1)B states that diversion D-2 was constructed in rock. An on site visit performed by the Division on January 15, 1986 indicated that diversion D-2 is not constructed in rock but rather a valley fill material. The slope of diversion D-2, as determined from Exhibit 3.3-4a is 26% rather than the 10% which was used on Table 3.3-5(A). The design of diversion D-2 must be modified to reflect the unstable nature of the material, the correct slope, and a Manning's "n" value that corresponds to the size of rip rap to be used as a channel lining.

RESPONSE: As stated in the response to Comment 4 above, a channel lining design for D-2 is being submitted for the reach of channel downstream of the outlet from culvert C-3. Actual field survey data indicates that the slope of the D-2 channel below C-3 varies from 13% to 17%. The maximum slope of 17% was used in the channel lining design. A Manning's "n" value of 0.045 was used in the rating presented in Table 3.3-5(A). This resulted in a computed velocity of approximately 11.7 feet/second. Figure 7-9(A) indicates that 18-inch stone riprap will withstand that velocity. The "n" value computed using a D50 of 1.5 feet is 0.042 which was judged to be close enough to the assumed value for design purposes. As stated above, Table 3.3-5(A) and Figure 3.3-8(A) have been revised to contain the design information for the channel lining. Section 3.3-3(1)B has been revised to contain a description of the riprap lining.

In addition to the above comments, Mr. Hedberg's letter contained a copy of a letter from Mr. Allen D. Klein of the Office of Surface Mining. In a telephone conversation with Mr. David J. Cline on March 6, 1986, Mr. Cline stated that OSM's comments had been satisfied and no further response to their concerns was necessary.

We hope the above responses and attached information satisfy your agency's concerns regarding the proposed permit modifications. If there are any questions regarding the information being submitted, please contact me at 801-472-3411 or Richard Allison at 801-472-5523. Thank you for your prompt consideration of the proposed modifications.

Sincerely,
Price River Coal Company

K B Hutchinson

Kenneth B. Hutchinson
Chief Engineer

KBH:jwb
Attachments

3.3-3 (1) B DIVERSION DITCHES (ADDENDUM) (Revised 3/12/86)

Condition No. 2 to the MRP required the redesign of diversions D-1, D-4 and D-6. The reclamation of the Goose Island area was completed in November 1984. Diversion D-1 was eliminated by the reclamation and subsequent reconstruction of the main stream channel through the Goose Island area. The elimination of diversion D-1 also significantly reduced the watershed area contributing flow to D-4. The former watershed area was approximately 540 acres while the present area is about 3.5 acres. This information was previously presented in PRCC's letter dated February 25, 1985 to Mr. Mark Humphrey with the OSM. This letter was submitted to address, in part, Condition No. 2.

In this letter, PRCC also proposed to reconstruct D-6 from the warehouse storage yard to downstream of Pond 009 to the design specifications submitted for reclamation channel RC-5. Reclamation channel RC-5 was designed for the peak flow resulting from a 100-year, 24-hour storm event. Operational changes being considered for the Hardscrabble Canyon facilities would make the reconstruction of D-6 to the specifications of RC-5 unworkable. At the present time, it is being considered to continue to utilize the Hardscrabble Canyon facilities for approximately 15 to 20 years. With this operational change in mind, it is proposed to modify the existing diversion D-6 to convey the peak discharge resulting from a 10-year, 24-hour storm event.

The existing diversion D-6 was modeled using the U.S. Army Corps of Engineers HEC-2 Water Surface Profile computer program. The modeling was completed for a reach of approximately 2550 feet of the diversion commencing just upstream of pond 009 and terminating just downstream of culvert 5 near the upper bath house. See Exhibit 3.3-4a for the location of the referenced strutures. The peak discharge resulting from the 10-year, 24-hour storm is 368 cfs. The peak discharge determination is presented in the Addendum to Chapter VII contained in this submittal. The water surface profile for the design storm is presented in Exhibit 3.3-11 contained in this submittal. Stream channel cross-sections of the existing diversion used in the computer model are presented in Exhibit 3.3-12. The purpose of the HEC-2 modeling was to determine if the confining berm was adequate to contain the design discharge.

The results of the flood routing indicate that the confining berm along a portion of the diversion channel is too low to contain the design discharge. To contain the design discharge and provide the necessary 0.3 feet freeboard, the berm will need to be raised a minimum of 0.3 feet at cross-section 0+00 and a maximum of 2.45 feet at cross-section 4+00. The total length of berm that must be raised is approximately 1160 feet from near cross-section 0+00 to about cross-section 11+60. See exhibit 3.3-4a for the locations of the referenced cross-sections. The HEC-2 computer run indicates that the channel velocities in the reach to be modified are in the range of 8.6 to 10.5 feet/second.

A typical cross-section of the diversion channel and berm depicting the raising of the berm is presented in Figure 3.3-12(A). The additional fill material will be compacted and the left channel side slope protected with riprap. Existing diversion D-6 was constructed in rock. The right side slope, bottom and varying heights of the left side slope are composed of intact rock. Figure 7-9(A) indicates that 12-inch stone riprap placed on a 2H:1V slope can withstand the velocities predicted by the HEC-2 model. Within 15 days of the completion of the raising of the confining berm and prior to placement of the riprap, PRCC will contact the UDOGM and after an on-site investigation and consultation with the

UDOGM the need for a filter blanket or filter fabric will be determined. PRCC will place riprap on all sections of D-6 that are not constructed in intact bedrock.

The proposed replacement of culvert C-3 discussed in Section 3.3-3 (1) C will increase the flow to diversion D-2. The adequacy of D-2 to convey the additional flow was evaluated. Attached Table 3.3-5(A) contains the results of the rating of a typical cross-section of D-2 downstream of the proposed culvert. The rating shows the design discharge will flow at a depth of approximately 1.1 ft. The existing channel has a minimum depth of 2.3 ft and is therefore adequate for the 10-year, 24-hour design discharge of 69 cfs. The rating of D-2 indicates a flo velocity of about 11.7 fps. Figure 7-9(A) indicates that 18-inch riprap will withstand the computed flow velocity. Figure 3.3-8(A) contains a typical cross-section of diversion D-2 below the outlet of C-3 showing the proposed riprap lining. Within 15 days prior to the placement of the riprap, PRCC will contact the UDOGM and after an on-site investigation and consultation with UDOGM, the need for a filter blanket or filter fabric under the riprap will be determined.

The replacement of C-3 will also require the installation of a small diversion, D-3A, to convey the runoff from undisturbed area HC-3A to the main diversion. The location of proposed diversion D-3A is shown on Exhibit 3.3-4a. A typical cross-section of the proposed D-3A diversion channel is presented in Figure 3.3-9(A). Table 3.3-5(D) contains a HYDRO peak discharge determination for the contributing watershed, HC-3A, as well as a rating of the proposed ditch channel. Due to the unstable nature of the existing slope, it is proposed to stabilize the slope by placing additional fill against the slope. The outslope of the new fill will be placed at a 2H:1V slope. The proposed diversion D-3A will be constructed on top of the fill. Diversion D-3A will be lined with a half round culvert consisting of an 18-inch diameter CMP split in half. The discharge rating indicates that the design discharge will flow at a depth of about 0.25 feet and at a velocity of approximately 5.0 fps.

The removal of culvert C-2 discussed in Section 3.3-3(1)C will require reshaping the channel in the vicinity of the removed culvert. It is proposed to reshape the channel to conform to the existing stream channel geometry upstream and downstream of the culvert. Final reclamation of the channel is not proposed at this time since areas adjacant to the diversion channel will still be required for continuing operations in the area. Upon completion of mining activities in the area, final reclamation of the channel will be accomplished according to the reclamation plan in 3.3-4. Table 3.3-5(C) contains a rating of the proposed channel configuration after removal of culvert C-2. The rating indicates the design discharge of 270 cfs will flow at a depth of about 2.1 feet and a velocity of about 10.7 feet/second. Figure 7-9(A) indicates that 1 foot stone riprap can withstand the computed velocity. A typical cross-section of the proposed channel geometry and riprap lining is shown in Figure 3.3-11(A). Within 15 days prior to the placement of the riprap, PRCC will contact the UDOGM and after an on-site investigation and consultation with UDOGM the need for a filter blanket or filter fabric under the riprap will be determined.

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* ************************************ *
*          +++  DITCH  +++             *
*          DYNAPLAN Worksheet          *
*     Ver. 1.0 - James W. Buck, P.E.   *
* ************************************ *
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INPUT DATA

```
Project Title    : Diversion D-2 Rating D/S of C-3 Outlet
Location         : Hardscrabble Canyon near Helper, Utah
                   Price River Coal Company
Channel Slope    =   0.1740 feet/foot
Mannings 'n'     =   0.0450
Bottom Width     =     4.00 feet
Left Sideslope   =     1.50 H    1.00 V
Right Sideslope  =     1.50 H    1.00 V
Depth Increment  =     0.10
```

DESCRIPTION

DITCH is a DYNAPLAN worksheet which will calculate uniform flow information for trapezoidal or triangular channels. This information can assist a user in sizing a channel configuration to pass a given discharge or in determining if an existing channel configuration will adequately pass a certain diacharge.

The following formulas are used to calculate channel parameters and flow information:

Area = ((0.50)*(Left Sideslope H/Left Sideslope V)*(Depth**2))+ (Depth*Bottom Width)+((0.50)*(Right Sideslope H/ Right Sideslope V)*(Depth**2))

Wetted Perimeter = ((Depth)*(1+(Left Sideslope H)/ Left Sideslope V)**2)+(Bottom Width)+ ((Depth)*(1+(Right Sideslope H/ Right Sideslope V)**2)

Hydraulic Radius = Area/Wetted Perimeter

Topwidth = ((Left Sideslope H/Left Sideslope V)*(Depth)+ (Bottom Width)+((Right Sideslope H/Right Sideslope V)* (Depth))

Discharge (Q) =((1.486)*(Area)*(Hydraulic Radius**0.667)* (Slope**0.5))/(Manning's Roughness Coefficient)

Average Velocity = Discharge(Q)/Area

Froude Number = Average Velocity/((32.2)*(Area/Topwidth))**0.5)

The source for these equations was Open Channel Hydraulics (Chow, 1959).

TABLE 3.3-5(A) Cont. (Revised 3/12/86)

OUTPUT DATA

Depth (feet)	Q (cfs)	Velocity (ft/sec)	Froude Number	Area (sq ft)	Perimeter (feet)	Radius (feet)	Topwidth (feet)
0.00	0.00	0.00	0.000	0.00	4.00	0.00	4.00
0.10	1.19	2.87	1.628	0.42	4.36	0.10	4.30
0.20	3.80	4.42	1.803	0.86	4.72	0.18	4.60
0.30	7.54	5.65	1.907	1.34	5.08	0.26	4.90
0.40	12.30	6.68	1.980	1.84	5.44	0.34	5.20
0.50	18.03	7.59	2.036	2.38	5.80	0.41	5.50
0.60	24.72	8.41	2.081	2.94	6.16	0.48	5.80
0.70	32.36	9.15	2.119	3.54	6.52	0.54	6.10
0.80	40.95	9.84	2.152	4.16	6.88	0.60	6.40
0.90	50.50	10.49	2.180	4.82	7.24	0.66	6.70
1.00	61.03	11.10	2.206	5.50	7.61	0.72	7.00
1.10	72.55	11.67	2.229	6.21	7.97	0.78	7.30

TABLE 3.3-5(C) (REVISED 3/12/86)

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* ************************************ *
*          +++  DITCH  +++             *
*          DYNAPLAN Worksheet          *
*     Ver. 1.0 - James W. Buck, P.E.   *
* ************************************ *
```

INPUT DATA

```
Project Title    : Diversion D-5 Rating After C-2 Removal
Location         : Hardscrabble Canyon near Helper, Utah
                   Price River Coal Company
Channel Slope    =   0.0500 feet/foot
Mannings 'n'     =   0.0400
Bottom Width     =     8.00 feet
Left Sideslope   =     2.00 H    1.00 V
Right Sideslope  =     2.00 H    1.00 V
Depth Increment  =     0.30
```

DESCRIPTION

DITCH is a DYNAPLAN worksheet which will calculate uniform flow information for trapezoidal or triangular channels. This information can assist a user in sizing a channel configuration to pass a given discharge or in determining if an existing channel configuration will adequately pass a certain diacharge.

The following formulas are used to calculate channel parameters and flow information:

Area = ((0.50)*(Left Sideslope H/Left Sideslope V)*(Depth**2))+ (Depth*Bottom Width)+((0.50)*(Right Sideslope H/ Right Sideslope V)*(Depth**2))

Wetted Perimeter = ((Depth)*(1+(Left Sideslope H)/ Left Sideslope V)**2)+(Bottom Width)+ ((Depth)*(1+(Right Sideslope H/ Right Sideslope V)**2)

Hydraulic Radius = Area/Wetted Perimeter

Topwidth = ((Left Sideslope H/Left Sideslope V)*(Depth)+ (Bottom Width)+((Right Sideslope H/Right Sideslope V)* (Depth))

Discharge (Q) =((1.486)*(Area)*(Hydraulic Radius**0.667)* (Slope**0.5))/(Manning's Roughness Coefficient)

Average Velocity = Discharge(Q)/Area

Froude Number = Average Velocity/((32.2)*(Area/Topwidth))**0.5)

The source for these equations was Open Channel Hydraulics (Chow, 1959).

TABLE 3.3-5(C) Cont. (Revised 3/11/86)

OUTPUT DATA

Depth (feet)	Q (cfs)	Average Velocity (ft/sec)	Froude Number	Area (sq ft)	Wetted Perimeter (feet)	Hydraulic Radius (feet)	Topwidth (feet)
0.00	0.00	0.00	0.000	0.00	8.00	0.00	8.00
0.30	9.09	3.52	1.172	2.58	9.34	0.28	9.20
0.60	29.52	5.35	1.294	5.52	10.68	0.52	10.40
0.90	59.58	6.76	1.365	8.82	12.02	0.73	11.60
1.20	99.03	7.94	1.416	12.48	13.37	0.93	12.80
1.50	147.99	8.97	1.456	16.50	14.71	1.12	14.00
1.80	206.72	9.90	1.489	20.88	16.05	1.30	15.20
2.10	275.58	10.76	1.517	25.62	17.39	1.47	16.40
2.40	354.93	11.55	1.541	30.72	18.73	1.64	17.60
2.70	445.19	12.30	1.563	36.18	20.07	1.80	18.80
3.00	546.75	13.02	1.583	42.00	21.42	1.96	20.00
3.30	660.05	13.70	1.601	48.18	22.76	2.12	21.20
3.60	785.47	14.35	1.618	54.72	24.10	2.27	22.40
3.90	923.45	14.99	1.634	61.62	25.44	2.42	23.60
4.20	1,074.39	15.60	1.649	68.88	26.78	2.57	24.80
4.50	1,238.70	16.19	1.664	76.50	28.12	2.72	26.00
4.80	1,416.78	16.77	1.677	84.48	29.47	2.87	27.20
5.10	1,609.03	17.33	1.690	92.82	30.81	3.01	28.40
5.40	1,815.85	17.89	1.702	101.52	32.15	3.16	29.60
5.70	2,037.62	18.43	1.714	110.58	33.49	3.30	30.80
6.00	2,274.74	18.96	1.725	120.00	34.83	3.45	32.00

TABLE 3.3-5(D)
(Revised 3/12/86)
Diversion D-3A Discharge Rating
Hardscrabble Canyon near Helper, Utah

Watershed Area = 1.8 acres
Design Discharge = 1.0 cfs (10-yr, 24-hr)

Proposed diversion lining is a 18-inch diameter CMP split in half, S=0.10'/' (2.67"x0.5" corrugations, unpaved; n=0.024)

Determine discharge rating using Manning's Equation:

$$Q = 1.486/n x A x R^{2/3} x S^{1/2}$$

Where: Q= Discharge; cfs
n= Manning Friction Factor
A= Cross-sectional Area; square feet
R= Hydraulic Radius; feet
S= Channel Slope; feet/foot

For an 18-inch pipe flowing full:

n= 0.024
A= 1.767 sq. feet
R= 0.375 feet
S= 0.10 ft/ft

$$Qfull = 1.486/0.024(1.767)(0.375)^{2/3}(0.10)^{1/2}$$
Qfull= 18.0 cfs

Vfull= Qfull/A = 18.0/1.767 = 10.2 fps

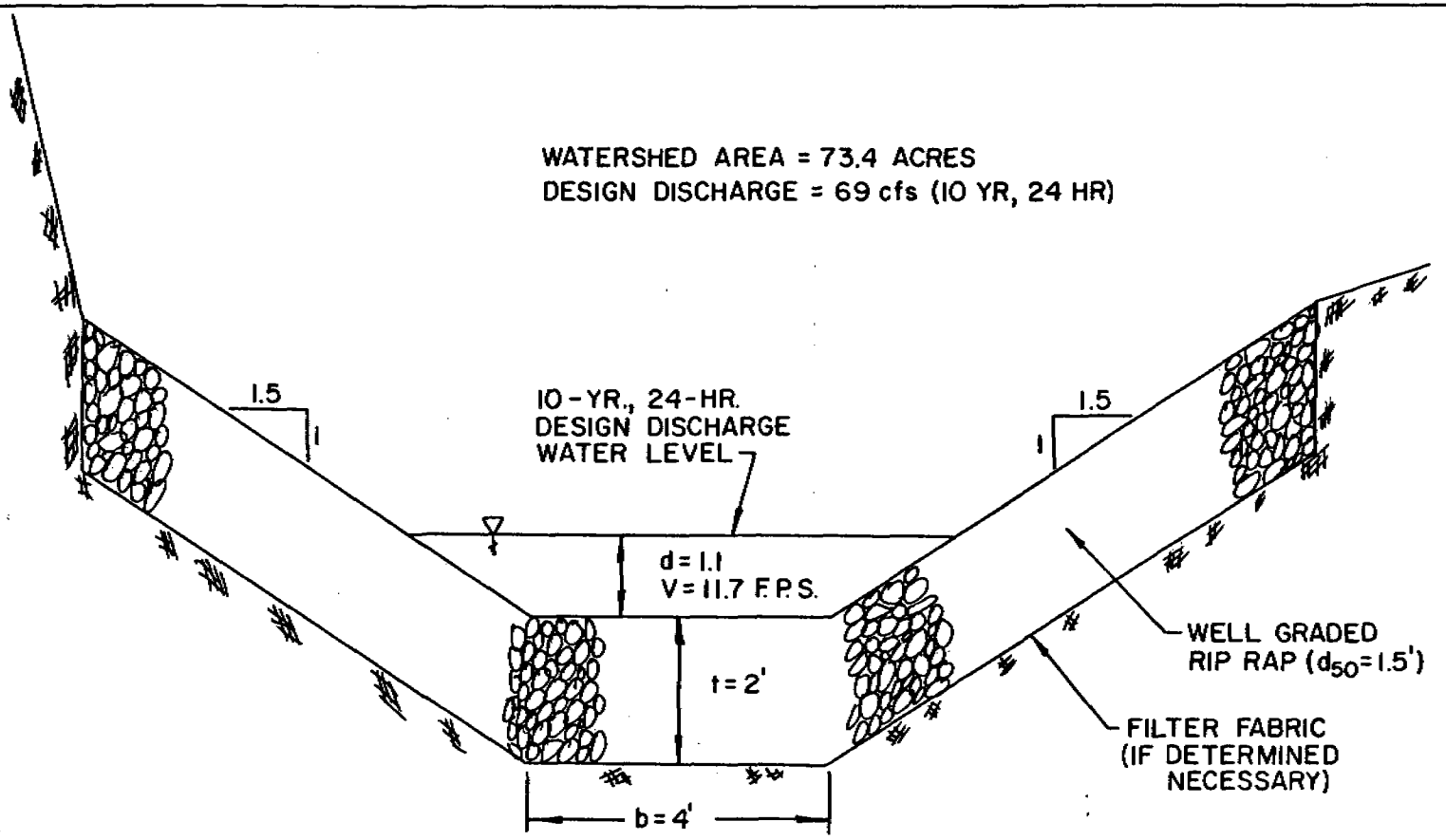
For part full pipe flow:
(from Fig. 36 Handbook of Concrete Culvert Pipe Hydraulics, Portland Cement Assoc. 1981)

d/D	Q/Qfull	V/Vfull
0.1	0.03	0.40
0.2	0.09	0.62
0.3	0.20	0.78
0.4	0.33	0.90
0.5	0.50	1.00

For an 18-inch CMP:

D= 1.5 feet
Qfull= 18.0 cfs
Vfull= 10.2 fps

d	Q	V
0.15'	0.54 cfs	4.1 fps
0.30'	1.62 cfs	6.3 fps
0.45'	3.60 cfs	7.9 fps
0.60'	5.90 cfs	9.2 fps
0.75'	9.00 cfs	10.2 fps

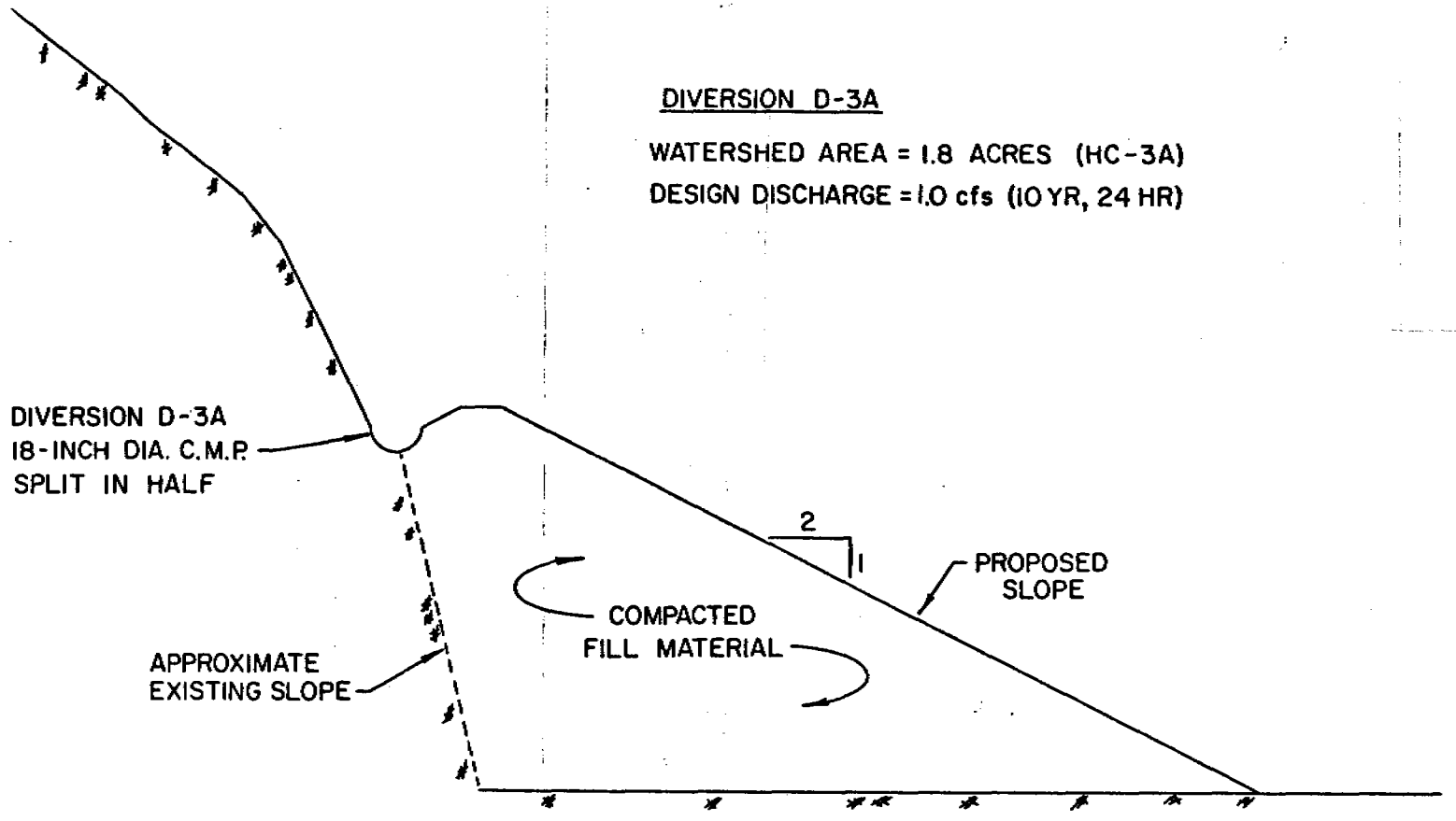


TYPICAL CROSS-SECTION
DIVERSION D-2
BELOW PROPOSED CULVERT C-3

1" = 2.5' HORZ. & VERT.

PRICE RIVER COAL COMPANY
AMERICAN ELECTRIC POWER
SERVICE CORPORATION
HELPER, UTAH

FIGURE 3.3-8(A)
(REVISED - 3-11-86)



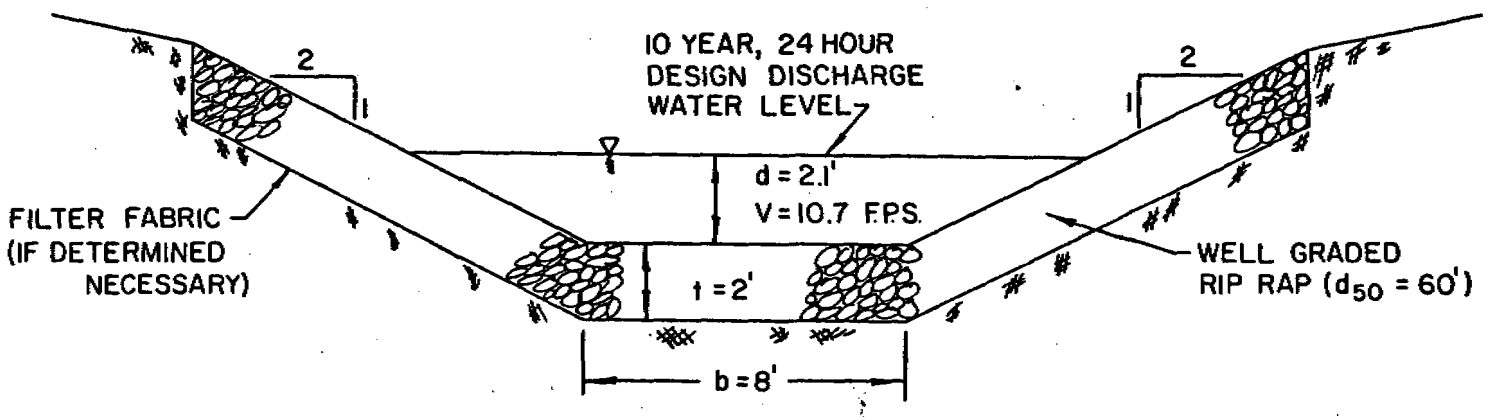
TYPICAL CROSS-SECTION
PROPOSED
SLOPE STABILIZATION AT NO. 4 LOADOUT
AND
DIVERSION D-3A LINING

1" = 5' HORZ. & VERT.

PRICE RIVER COAL COMPANY
AMERICAN ELECTRIC POWER
SERVICE CORPORATION
HELPER, UTAH

FIGURE 3.3-9(A)
(REVISED - 3-11-86)

WATERSHED AREA = 584.1 ACRES
DESIGN DISCHARGE = 268.8 cfs (10 YR, 24 HR)

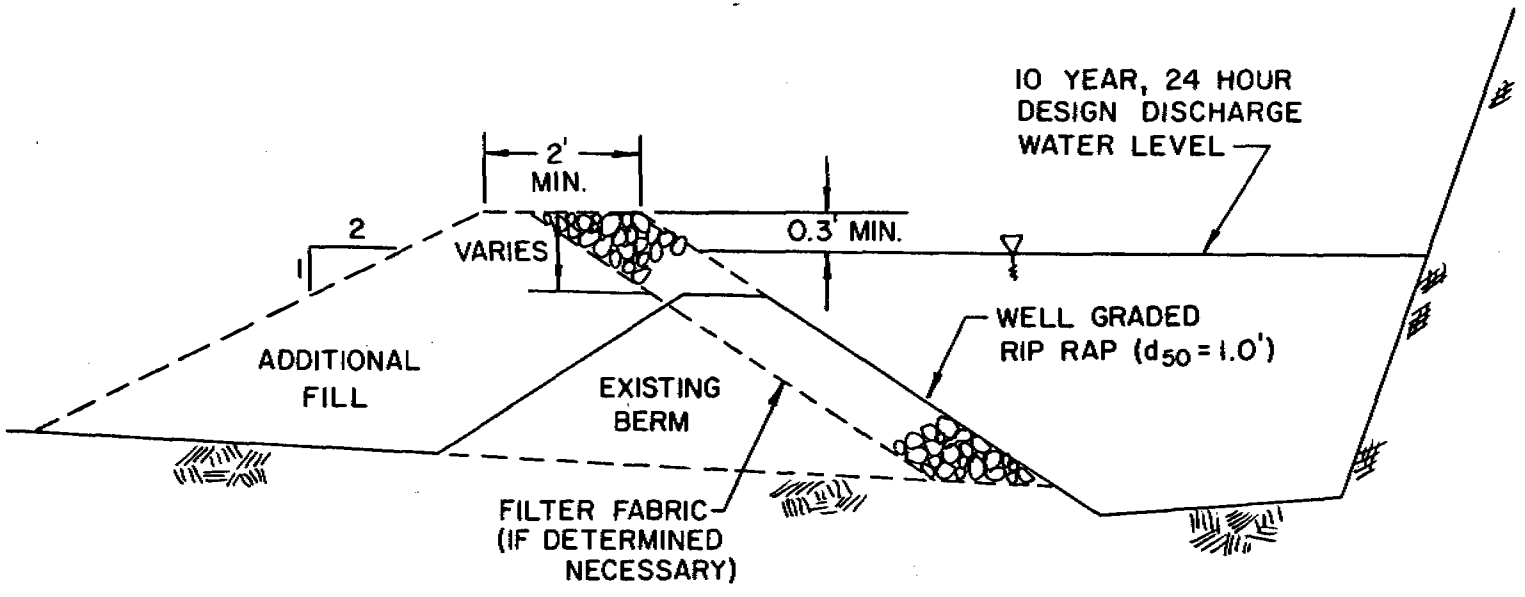


TYPICAL CROSS-SECTION
RECONSTRUCTION OF DIVERSION D-5
AT
LOCATION OF CULVERT C-2
AFTER REMOVAL OF CULVERT

1" = 5' HORZ. & VERT.

FIGURE 3.3-11(A)
(REVISED - 3-11-86)

PRICE RIVER COAL COMPANY
AMERICAN ELECTRIC POWER
SERVICE CORPORATION
HELPER, UTAH



TYPICAL CROSS-SECTION
MODIFICATIONS
OF
DIVERSION D-6
1" = 2.5' HORZ. & VERT.

PRICE RIVER COAL COMPANY
AMERICAN ELECTRIC POWER
SERVICE CORPORATION
HELPER, UTAH

FIGURE 3.3-12(A)
(REVISED - 3-11-86)

Document Information Form

Mine Number: C/007/004

File Name: Incoming Castle Gate

To: Dianne Nielson

From:

Person Kenneth Hutchinson

Company Price River Coal Co.

Date Received: 3-18-86

Explanation: Map - Hardscrabble Canyon Existing and Proposed Drainage Controls.

cc:

Document Information Form

Mine Number: C/007/004

File Name: Incoming Castle Gate

To: Dianne Nielson

From:

Person Kenneth Hutchinson

Company Price River Coal Co.

Date Received: 3-18-86

Explanation: Map - Proposed Drainage Control Modifications Hard Scrabble Canyon.

cc: