

C/025/005 Incoming ✓
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NOV 09 2015
DIV. OF OIL, GAS & MINING
#5018



Alton Coal Development, LLC

463 North 100 West, Suite 1
Cedar City, Utah 84720
Phone (435) 867-5331 • Fax (435) 867-1192

November 6, 2015

Daron R. Haddock
Coal Program Manager
Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Subject: **Engineer's Statement for the Reclaimed Robinson Gulch, Alton Coal Development, LLC, Coal Hollow Mine, Kane County, Utah, C/025/0005, Task Id# 5018**

Dear Mr. Haddock,

Alton Coal Development, LLC is providing a copy of the "Engineer's Statement for the Reclaimed Robinson Gulch". This statement is an amendment to Appendix 5-10, was requested to be submitted under task id. # 5018 along with the attached C1:C2 form.

Please do not hesitate to contact me if you have any questions 435-691-1551.

Sincerely

B. Kirk Nicholes
Environmental Specialist

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Alton Coal Development, LLC

Mine: Coal Hollow Mine

Permit Number:

C/025/0005

Title: Nov. Requested Engineers Statement Task 5018

Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight questions, this application may require Public Notice publication.

- Yes No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ increase decrease.
- Yes No 2. Is the application submitted as a result of a Division Order? DO# _____
- Yes No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes No 6. Does the application require or include public notice publication?
- Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes No 9. Is the application submitted as a result of a Violation? NOV # _____
- Yes No 10. Is the application submitted as a result of other laws or regulations or policies?

Explain: _____

- Yes No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes No 13. Does the application require or include collection and reporting of any baseline information?
- Yes No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes No 15. Does the application require or include soil removal, storage or placement?
- Yes No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes No 19. Does the application require or include certified designs, maps or calculation?
- Yes No 20. Does the application require or include subsidence control or monitoring?
- Yes No 21. Have reclamation costs for bonding been provided?
- Yes No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes No 23. Does the application affect permits issued by other agencies or permits issued to other entities?
- Yes No 24. Does the application include confidential information and is it clearly marked and separated in the plan?

Please attach three (3) review copies of the application. If the mine is on or adjacent to Forest Service land please submit four (4) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

B. Kirk Nicholes Environmental Specialist 11/03/2015

B. Kirk Nicholes

Print Name Position Date Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 3 day of November, 2015

Notary Public: *Marty Nicholes*, state of Utah.

My commission Expires:

Commission Number: 670359

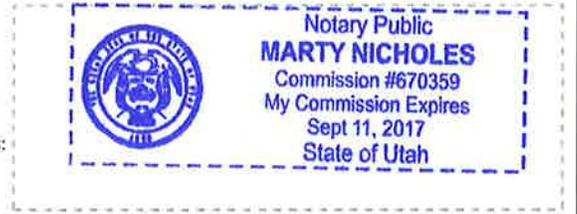
Address: 1670 E Millstone Cir

City: Enoch

State: UT

Zip: 84721

} ss:



For Office Use Only:

Assigned Tracking Number:

Received by Oil, Gas & Mining

**ENGINEER'S STATEMENT
FOR THE
RECLAIMED ROBINSON GULCH CHANNEL**

**ALTON COAL DEVELOPMENT, LLC
COAL HOLLOW PROJECT**

**BY
DAN W. GUY
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH**

ENGINEER'S STATEMENT
FOR THE
RECLAIMED ROBINSON GULCH CHANNEL

To Whom It May Concern:

Proposed (Upper Channel) - The design for the reclamation of the lower Robinson Gulch Channel was approved by the Utah Division of Oil, Gas & Mining as Appendix 5-10 in the Coal Hollow Project Mining and Reclamation Plan. In this plan, the upper approximately 1500' of the channel was to be reclaimed by placing at least 12" D50 rip-rap to a minimum depth of 24" along its length. The reclaimed channel was to have a bottom width of at least 3.2' with minimum 2.36H:1V side slopes and rip-rap up the side slopes for at least 4' up from the channel bottom.

Actual Reclamation (Upper Channel) - The channel has been slightly altered, resulting in a bottom width, ranging from 8.33' to 11.67', averaging 9.63', and flatter side slopes ranging from 4.01H:1V to 4.50H:1V, with an average of 4.26H:1V. The actual channel slope is 1.70%, which is also less than the design slope of 1.83%. The installed rip-rap was also considerably larger than design, with an estimated D50 of 15" to 18". Each of these factors is considered to be a positive asset for the reclaimed channel. Their combined effect will be to provide reduced flow depth, as well as reduced velocities and better erosion protection against the design flow. It should be noted that the rip-rap appears to be a very hard, non-slaking basaltic lava, and should provide long-term protection for the channel.

Proposed (Transition Area) - At approximately station 15+00 of the reclaimed channel, it turned and steepened to meet the main channel below. The proposed design was to widen the channel bottom to at least 15' with maximum 2H:1V side slopes. In addition, the channel gradient was to be reduced to approximately 8% by grading from Station 14+00 to 16+00. This section of the channel was to be lined with a minimum 18" D50 rip-rap to a minimum depth of 3' and extended at least 3' up the side slopes from the channel bottom. The rip-rap was to be grouted for further protection. At the base of the regraded slope, it was proposed install an energy control basin at least 2' deep and approximately 50' wide by 100' long. The inlet was to be fitted with at least 30" rocks on approximately 4' centers across the channel. The entire basin was to be lined with 18" D50 rip-rap and grouted. The rip-rap and catchment basin were also planned to tie into the existing, repaired outfall of the Robinson Creek diversion.

Actual Reclamation (Transition Area) - The transition area has been regraded and re-sloped throughout its length. Existing curves in the drainage have been reduced along with a reduction of side slopes. The entire transition area and basin were rip-rapped with the same type rock as above, with a D50 of at least 18" - 20" and some rock up to 42". The reclaimed channel has an average 17.08' bottom width and average side slopes of 3.17H:1V. The entire area was also grouted as proposed. It should be noted that after the channel was regraded to reduce the slope and provide the tie-in to the existing diversion rip-rap, the remaining area for the catchment basin was less than proposed. As a result, there is not a well-defined basin in the grouted section. The grouted rip-rap is widened to 53' in the lower section, with flatter side slopes (6.5H:1V to 7.0H:1V). At the end of the grouted section, the reclaimed portion joins the rip-rap from the Robinson Diversion. At this point, the wider, grouted section and existing rip-rap combine to provide a catchment and reduce flow velocity, as proposed. It should also be noted that the rock in this area is considerable larger than proposed, adding to the protection and velocity reduction provided by the catchment.

As-Constructed Calculations - The entire reclaimed channel has been surveyed upon completion. The as-constructed plan, profile and channel sections are shown in attached Figures 1, 2 and 3, respectively. The average channel widths, slopes and side slopes mentioned above were taken directly from these figures. The 100-year / 6- hour design flow of 347 cfs used in these calculations was taken directly from the approved MRP Appendix 5-3, "Lower Robinson Creek Culvert and Diversion Analysis", by Dr. James E. Nelson. The design bottom widths, side slopes, channel slopes and Manning's n values were taken directly from the MRP Appendix 5-10, Evaluation and Erosion Control Design of the Reclaimed Lower Robinson Creek Channel", by Dan W. Guy, P.E.. The actual bottom widths, side slopes and channel slopes are the average values based on the as-built survey described above, and shown in Figures 1, 2 and 3 of this report. The Manning's n values remained the same as the design values.

Using the above described parameters, the flow velocities and depth calculations were then performed using the Office of Surface Mining, "Storm 6.20 Program" to determine the expected flow depths and velocities in trapezoidal channels. The following is a comparison of calculated flow characteristics for the ungrouted and grouted portions of the as-constructed channel verses the design calculations:

<u>Parameter</u>	<u>Upper (Ungroued)</u>		<u>Lower (Groued)</u>	
	<u>Design</u>	<u>Actual</u>	<u>Design</u>	<u>Actual</u>
Flow	347 cfs	347 cfs	347 cfs	347 cfs
Bot. Width	3.2 ft	9.63 ft	15.0 ft	17.08 ft
Side Slopes	2.36H:1V	4.26H:1V	2H:1V	3.78H:1V
Channel Slope	1.83%	1.70%	8.0%	6.57%
Manning's n	0.035	0.035	0.038	0.038
Flow Velocity	8.78 fps	7.41 fps	12.38 fps	10.90 fps
Flow Depth	4.00 ft	2.37 ft	1.50 ft	1.42 ft

The above calculations show the reclaimed channel to be wider than the approved design with milder side slopes and less gradient, resulting in a reduction of flow velocity and depth from the 100- year / 6-hour storm event used for design.

Conclusion - I have made at least 3 site visits to evaluate the reclaimed Lower Robinson Gulch channel during various stages of its construction. In each case, any needed corrections or enhancements were discussed to ensure the channel would meet the design requirements. Based on these visits, as well as the additional measurements and as-constructed survey data, it is my opinion that the reclaimed Lower Robinson Creek channel meets or exceeds the protection in the approved design in Appendix 5-10.



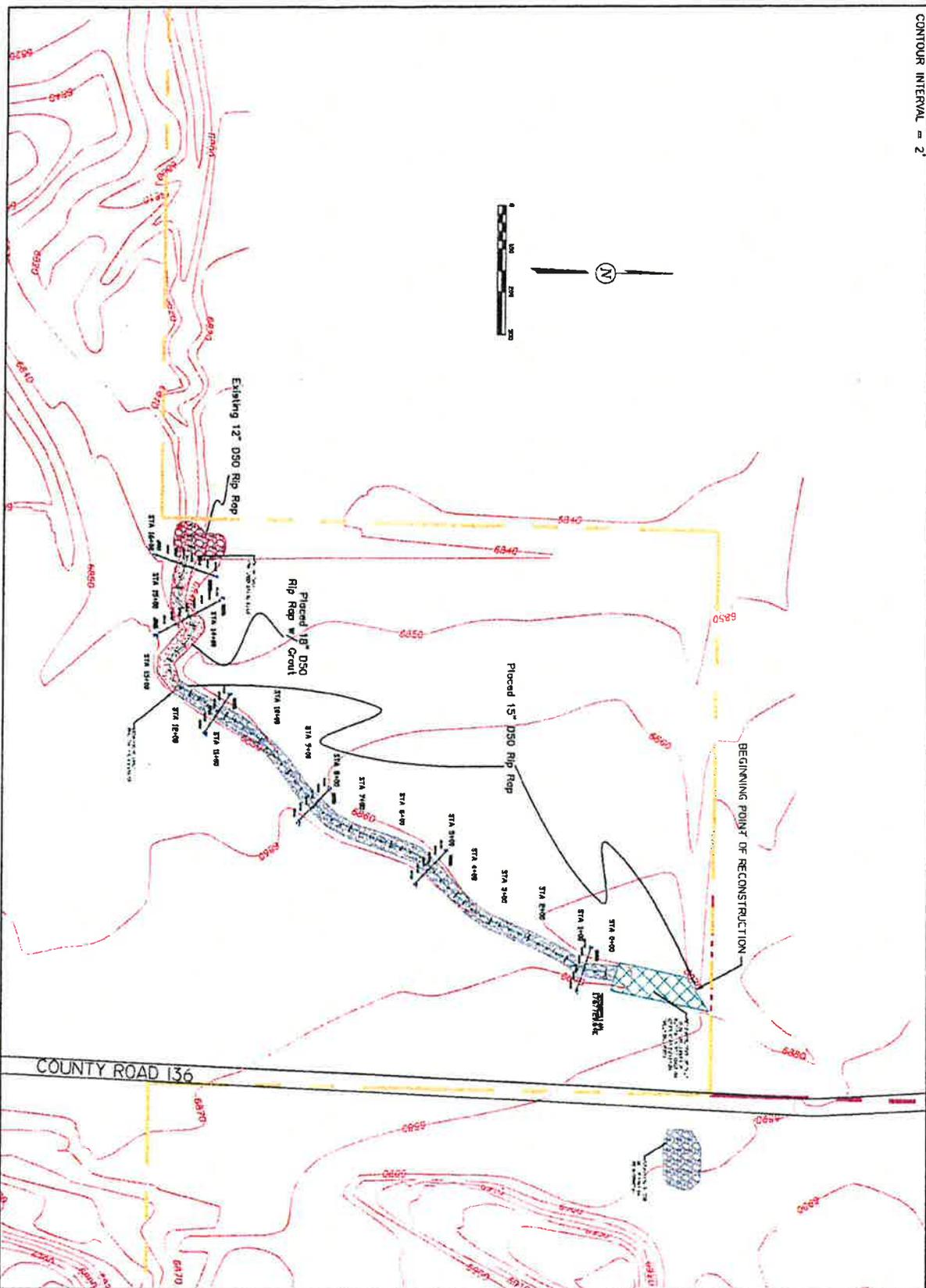
Dan W. Guy

Registered Professional Engineer

State of Utah No. 154168



CONTOUR INTERVAL = 2'



LEGEND:

- PERMIT BOUNDARY
- FEDERAL COAL OWNERSHIP
- FOUND SECTION CORNER

DRAWN BY:
A. CHRISTENSEN

DRAWING:
Figure 1

JOB NUMBER:
1400

CHECKED BY:
DWG

DATE:
9/30/2015

SCALE:
1" = 100'
Printed on 24" x 36"

SHEET

REVISIONS	
DATE:	BY:

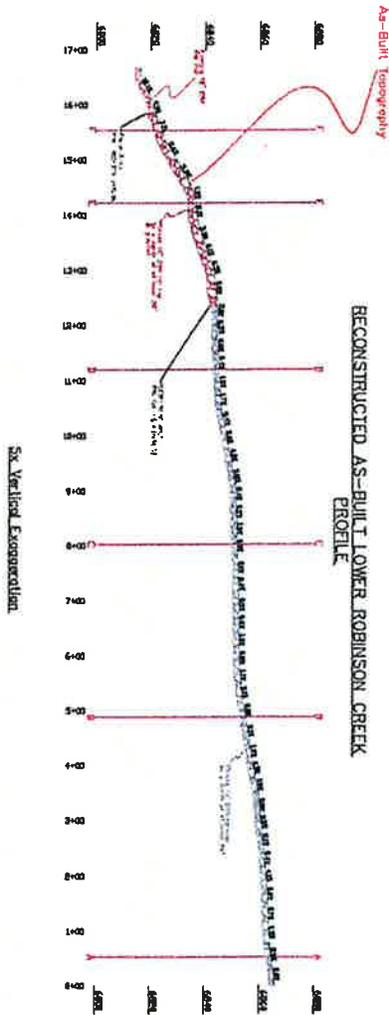
ROBINSON CREEK RECONSTRUCTION AS-BUILT PLAN VIEW

COAL HOLLOW PROJECT
ALTON, UTAH

FIGURE 1



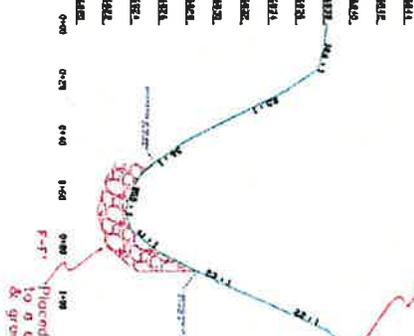
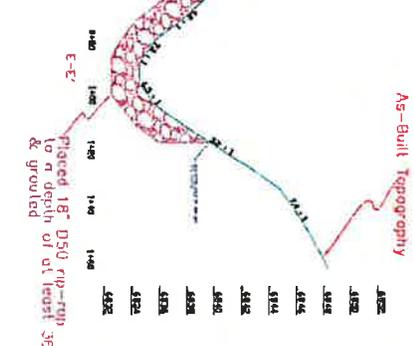
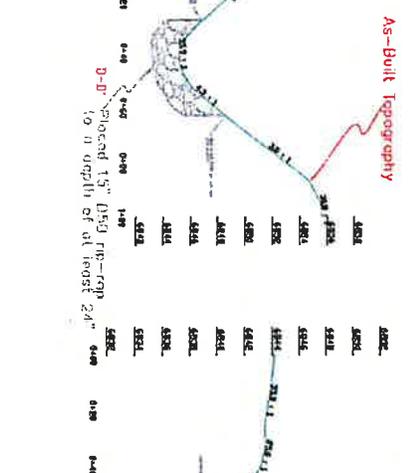
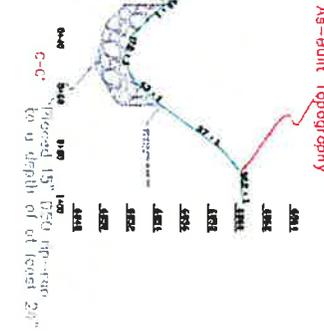
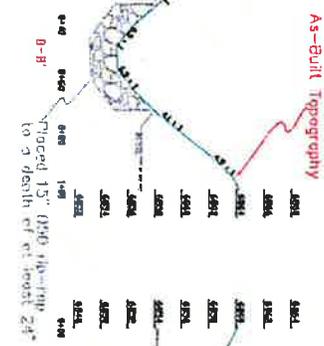
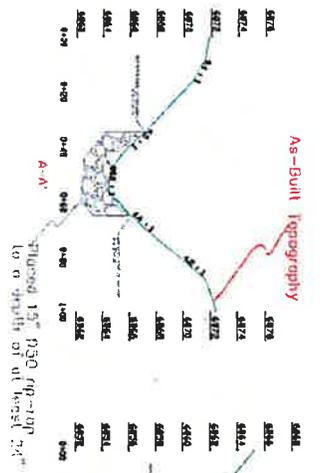
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RECONSTRUCTED AS-BUILT LOWER ROBINSON CREEK
PROFILE

Vertical Elevation

Figure 2	DRAWN BY: A. CHRISTENSEN	CHECKED BY: DWG	REVISIONS		ROBINSON CREEK RECONSTRUCTION AS-BUILT PROFILE COAL HOLLOW PROJECT ALTON, UTAH FIGURE 2		
	DRAWING:	DATE: 9/28/2015	DATE:	BY:			
	JOB NUMBER: 1400	SCALE: 1" = 100'					
	SHEET						
						452 North 100 West, Suite 1 Cedar City, Utah 84720 Phone: (435)867-4311 Fax: (435)867-1192	



5x Vertical Exaggeration

	DRAWN BY: A. CHRISTENSEN	CHECKED BY: DWG	REVISIONS		ROBINSON CREEK RECONSTRUCTION AS-BUILT SECTION DETAILS COAL HOLLOW PROJECT ALTON, UTAH FIGURE 3		
	DRAWING: Figure 3	DATE: 9/28/2015	DATE:	BY:			
	JOB NUMBER: 1400	SCALE: 1" = 20'	SHEET				

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