OGMCOAL DNR <ogmcoal@utah.gov>

Stream Alteration Permit #07-85-0002, Lower Robinson Creek reconstruction plans. Alton Coal Development LLC., Coal Hollow Mine, Task 4871.

Priscilla Burton <priscillaburton@utah.gov> Mon, Apr 13, 2015 at 4:40 PM
To: Charles Williamson <charleswilliamson@utah.gov>
Cc: Keenan Storrar <kstorrar@utah.gov>, Kirk Nichols <knicholes@altoncoal.com>, Daron Haddock <daronhaddock@utah.gov>, OGMCOAL DNR <ogmcoal@utah.gov>, Dana Dean <danadean@utah.gov>

Hello Mr. Williamson,

The Division of Oil, Gas, & Mining (OGM) is reviewing an amendment to the reclamation plan for Lower Robinson Creek near Alton, Utah within the Coal Hollow Mine permit area. The revised engineering designs pertain to stream alteration permit 07-85-0002, originally issued in 2007 to Alton Coal Development, LLC. You indicated in an earlier communication, that this stream alteration permit expired in 2011 and a new application would need to be filed. I have relayed that information to Mr. Nichols, Environmental Coordinator, Alton Coal Development, LLC. I expect that he will be in contact with you.

Since Utah Coal Rule R645-301-742.312.4 requires that all temporary and permanent diversions be in compliance with all applicable local, Utah and federal rules, OGM is providing a courtesy copy of the amendment to you. We understand that the channel work may not proceed further until a valid stream alteration permit is in place.

Our technical review of this amendment to the reclamation plan will be completed on May 11, 2015. We'd like to work with you to ensure that the final design will be acceptable to Water Rights. Please review the attached stream channel design and respond with written comments or technical suggestions before May 11. (An email reply is adequate.) If you would like to discuss technical issues, please contact Keenan Storrar, OGM Hydrologist, 801-538-5345. Or contact Kirk Nichols, 435-691-1551.

Thank you.

Priscilla Burton, MS, CPSSc
Soil Scientist
Utah Division of Oil, Gas & Mining
Price Field Office
phone: 435-613-3733

04102015.4871.pdf
3074K

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

C/025/0005
Received 4/10/15
Task ID #4871

April 10, 2015

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

Subject: **Engineering Evaluation of Lower Robinson Creek, LLC, Coal Hollow Mine, Kane County, Utah, C/025/0005, NOV 16149**

Dear Mr. Haddock,

In response to NOV 16149 Appendix 5-10 has been generated to satisfy the request for an Engineering Evaluation of Lower Robinson Creek reconstruction. C1C2 along with Appendix 5-10, revised Drawings 5-20A and 5-21A has been has been uploaded to the Divisions server. Upon acceptance of the amendment two clean copies certified by the Engineer will be mailed for inclusion into the permit.

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: Engineering evaluation of Lower Robinson Creek Reconstruction

Description, Include reason for application and timing required to implement:
Result of Citation 16149

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 # 16149
☐ 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	04/09/2015	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 9 day of April 2015

Notary Public: _____, state of Utah.

My commission Expires: 9-11-2017
Commission Number: 670359
Address: 1670 E Millstone Cir
City: Enoch State: UT Zip: 84721

} ss:

Notary Public
MARTY NICHOLES
Commission #670359
My Commission Expires
Sept 11, 2017
State of Utah

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Alton Coal Development, LLC
Mine: Coal Hollow Mine
Title: Engineering evaluation of Lower Robinson Creek Reconstruction

Permit Number: C/025/0005

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

Add	Replace	Remove	DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☒	☐	☐	Appendix 5-10
☐	☒	☐	Vol. 3 Chapter 5 TOC page V
☐	☒	☐	Chapter 5, Drawing 5-20A
☐	☒	☐	Chapter 5, Drawing 5-21A
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	Received by Oil, Gas & Mining

Appendix 5-10

EVALUATION AND EROSION CONTROL DESIGN

OF THE RECLAIMED

LOWER ROBINSON CREEK CHANNEL

COAL HOLLOW PROJECT

EVALUATION AND EROSION CONTROL DESIGN
OF THE RECLAIMED
LOWER ROBINSON CREEK CHANNEL
COAL HOLLOW PROJECT

BY

DAN W. GUY

REGISTERED PROFESSIONAL ENGINEER

STATE OF UTAH

APRIL 2015

EVALUATION AND EROSION CONTROL DESIGN

OF THE RECLAIMED

LOWER ROBINSON CREEK CHANNEL

COAL HOLLOW PROJECT

General

This report was completed by Dan W. Guy, a registered professional engineer, State of Utah, DBA Dan W. Guy, P.E., 1926 Wide River Drive, St. George, Utah 84790.

Evaluation

The Lower Robinson Creek channel has been reclaimed and reseeded; however, it will not be connected to the original drainage for at least 3 growing seasons. Diversion Ditch 4 has been extended along the channel and will continue to divert runoff to Sediment Pond 3. This means the reclaimed channel will only see direct precipitation until vegetation is firmly established. The original design of the reclaimed channel is shown on drawings 5-20A and 5-21A of the MRP. These designs show a channel with 12" minimum rip-rap in the bottom 10' of the channel. The channel side slopes were to be 2H:1V in the rip-rap section, 10H:1V in the floodplain and 3H:1V to the top of the channel. The actual reclaimed channel has an average bottom width of 3.2', with average 2.36H:1V side slopes and an average depth of approximately 8.5'. No rip-rap was placed in the restored channel; however, the entire channel was seeded with the approved seed mix for the Coal Hollow Project (Table 3-37 of the MRP).

This evaluation was performed to assess the adequacy of the restored channel. It was based on an erodible soil with stable vegetation, using the 100 year – 6 hour design flow of 347 cfs, taken from MRP Appendix 5-3, "Lower Robinson Creek Culvert and Diversion Analysis", by Dr. James E. Nelson.

Calculations were performed using the Office of Surface Mining Storm Program 6.20, by Gary E. McIntosh. A conservative value of 5.0 fps was used as the allowable velocity in this channel to prevent erosion. This value was selected from Table 3.4, Permissible Velocities for Vegetated Channels, "Applied Hydrology and Sedimentology for Disturbed Areas", by Barfield, Warner and Haan. Based on a review of numerous websites and Table 3.1, Typical Values for Manning's n, in the above referenced "Applied Hydrology and Sedimentology for Disturbed Areas", by Barfield, Warner and Haan, a Manning's number (n) of 0.030 was considered reasonable for the vegetated channel.

The flow calculations were performed on the average channel configuration, based on 6 cross-sections taken along the length of the reclaimed channel. The following is a list of parameters used in the calculations:

- Design Flow - 347 cfs
- Bottom Width - 3.2 ft.
- Side Slopes - 2.36H:1V
- Channel Slope - 1.83%
- Manning's n - 0.030

Using the above criteria, the calculated flow velocity would be 9.85 fps at a depth of 3.24 feet. Since this velocity is above the estimated allowable velocity of 5.0 fps for vegetated channels, a further evaluation was performed using adequately sized rip-rap along the existing length of the channel. The following criteria were used to evaluate the channel with rip-rap down to the point of transition to the main channel below. The reclaimed channel is shown on Figure 1 "Robinson Creek Reconstruction Plan View".

- Design Flow - 347 cfs
- Bottom Width - 3.2 ft.
- Side Slopes - 2.36H:1V
- Channel Slope - 1.83 %
- Manning's n - 0.035

Using the above criteria, the calculated flow velocity would be 8.78 fps at a depth of 3.47 feet. Based on the calculations, it is proposed to place 12" D50 rip-rap to a minimum depth of 24" along the length of this channel section. The rip-rap will be extended up the side slopes to provide protection for a minimum of 4 feet up from the channel bottom. The 12" D50 sizing is shown to be adequate for the calculated velocity and side slopes based on the Rip-Rap Chart in Figure 3.

Transition to Main Channel

At approximately location 1500' of the reclaimed channel, the configuration and slope change to blend into the main rip-rapped channel below. At this point, the reclaimed channel becomes more "U"-shaped with an approximate 4' bottom width, 1H:1V to 1.8H:1V side slopes and an average slope of 8.0%. When the design runoff of 347 cfs is routed through this section, calculations show a velocity of 18.24 fps at a depth of 2.50 feet. Since this is a steep slope and potentially very erosive section, it is proposed to provide additional protection through this transition area.

It is proposed to widen the channel throughout the transition area to at least a 15 foot bottom width with maximum 2H:1V side slopes. In addition, the channel gradient will be reduced by grading from Station 13+50 to Station 15+50. This section of channel will be lined with 18" D50 rip-rap to a minimum depth of 36" and extended up the side slopes to a depth of at least 3 feet above the channel bottom. The rip-rap will also be grouted for further protection. At the base of the regraded slope (Station 15+50) the transition area from Station 15+50 to Station 16+50 will be widened and deepened to provide an energy control basin at least 2 feet deep and approximately 50 feet wide by 100 feet long. The inlet to this basin will be fitted with at least 30" rocks spaced on approximately 4 foot centers across the channel. The entire basin will be lined with 18" D50 rip-rap and grouted.

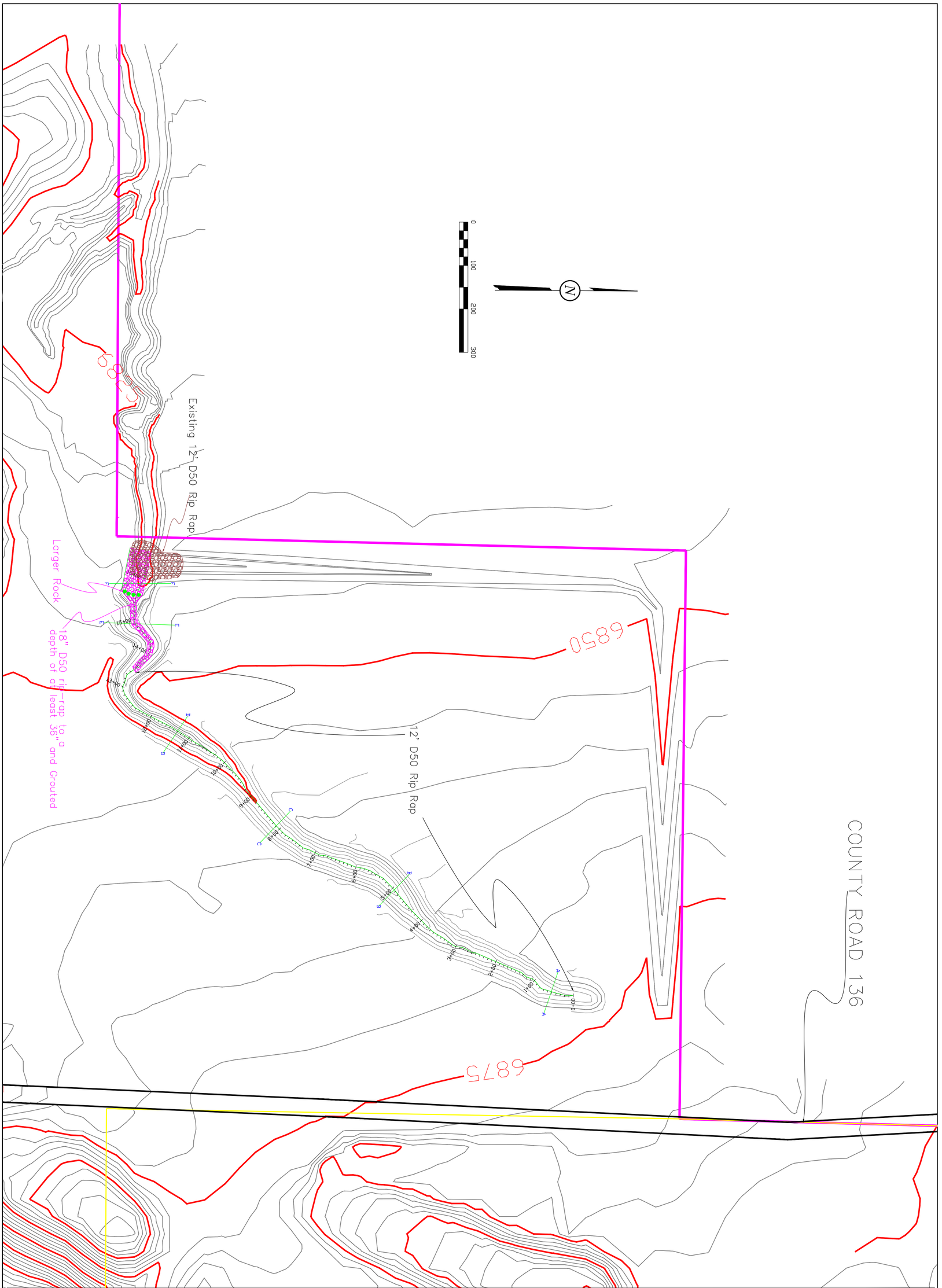
The flow characteristics through the transition zone were evaluated using the criteria after placement of the rip-rap with the above channel dimensions. The following are the parameters used:

- Design Flow - 347 cfs
- Bottom Width - 15.0 ft.
- Side Slopes - 2H:1V
- Channel Slope - 8.0%
- Manning's n - 0.038 (Considered conservative for large rock lining).

Using the above criteria, the calculated flow velocity would be 12.83 fps at a depth of 1.50 feet. The attached Rip-Rap Chart in Figure 3 shows that 18" D50 rock is considered adequate to resist displacement at the projected velocity in the transition area. This rip-rap and catchment basin will also tie into the existing, repaired outfall of the Robinson Creek diversion.

It should be noted that an additional erosion control method was evaluated for the transition zone utilizing multiple rock chutes to convey the runoff down the slope from Station 14+50 to Station 15+50, with a similar control basin at the bottom from Station 15+50 to Station 16+50. This method would also provide adequate erosion protection for the transition area; however, the above single rip-rapped slope was proposed because it provides a less complicated design and a more natural transition to the undisturbed drainage below.

The channel side slopes will be reseeded with the approved seed mix for the Coal Hollow Project after placement of the rip-rap and every year thereafter until vegetation cover is adequately established.



LEGEND:

PERMIT BOUNDARY

FEDERAL COAL OWNERSHIP

FOUND SECTION CORNER

DRAWN BY: K. NICHOLES	CHECKED BY: DWG
DRAWING: Figure 1	DATE: 03/16/15
	SCALE: 1" = 100'
JOB NUMBER: 1400	SHEET

REVISIONS	
DATE:	BY:

ROBINSON CREEK RECONSTRUCTION PLAN VIEW

COAL HOLLOW PROJECT
ALTON, UTAH

FIGURE 1

UTAH REGISTERED PROFESSIONAL ENGINEER
#154168
DAN W. GUY

Alton Coal Development
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Cedar City, Utah 84720
Phone (435)867-5331
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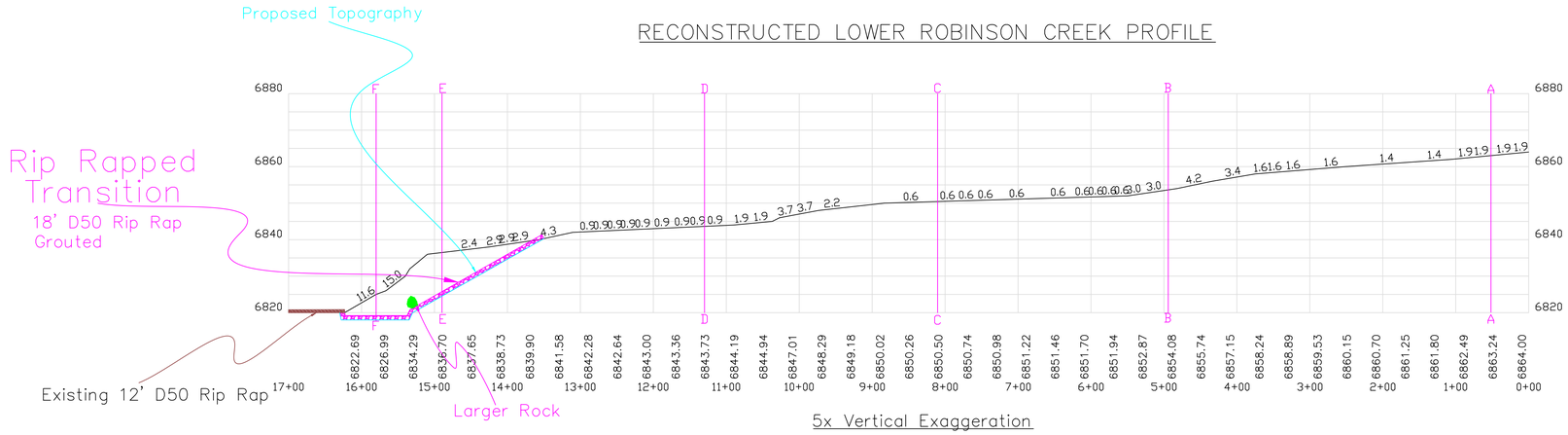

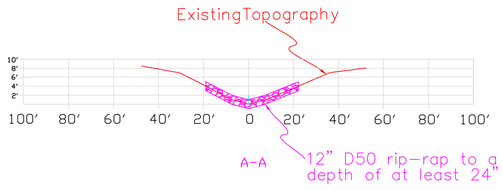

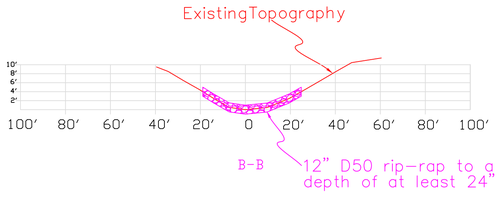

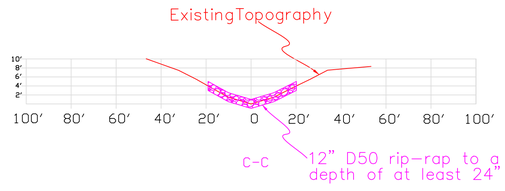

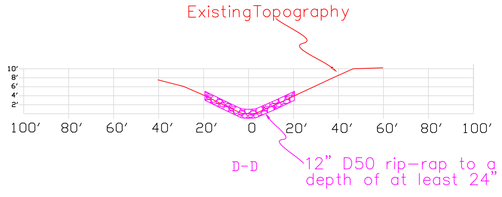

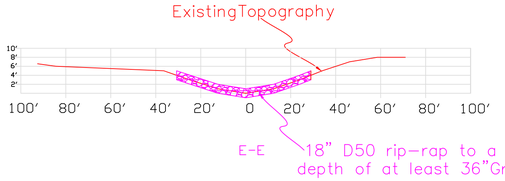

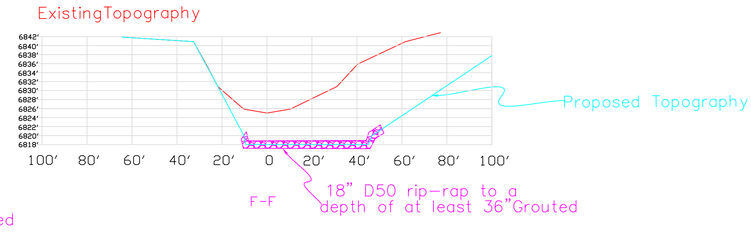

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Fax (435)867-1192

UTAH REGISTERED ENGINEER #154168 DAN W. GUY PROFESSIONAL

ROBINSON CREEK RECONSTRUCTION DESIGN & DETAILS

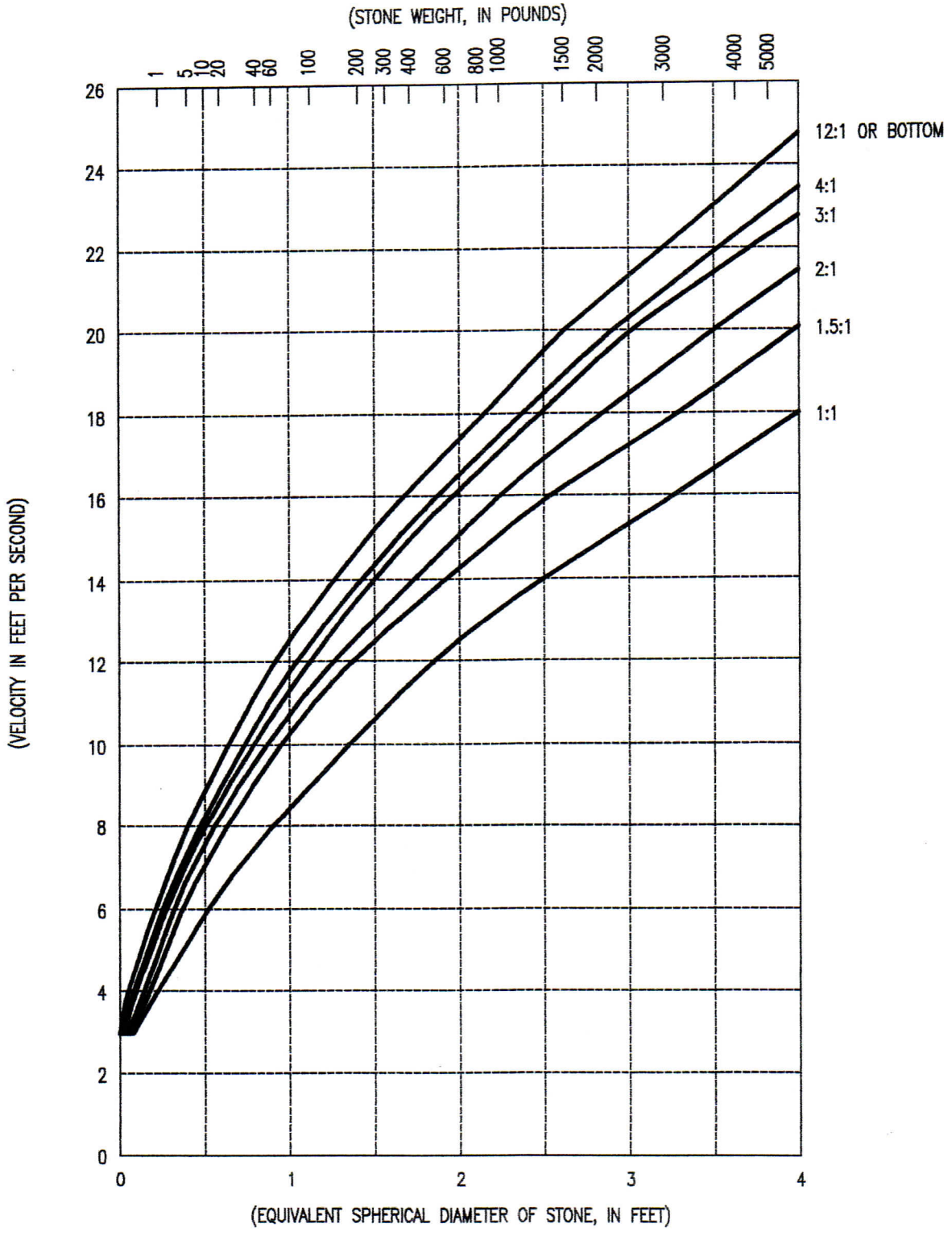
COAL HOLLOW PROJECT
ALTON, UTAH

FIGURE 2

REVISIONS	
DATE:	BY:

DRAWN BY: K. NICHOLES	CHECKED BY: DWG		
DRAWING: Figure 1	DATE: 03/16/15	SCALE: AS SPECIFIED	SHEET
			JOB NUMBER: 1400

RIP-RAP CHART



SIZE OF STONE THAT WILL RESIST DISPLACEMENT FOR VARIOUS VELOCITIES AND SIDE SLOPES

NOTE:

ADAPTED FROM REPORT OF SUBCOMMITTE ON SLOPE PROTECTION, AM. SOC. CIVIL ENGINEERS PROC. JUNE 1948.
FOR STONE WEIGHING 165 LBS. PER CUBIC FEET.

Figure

APPENDICES

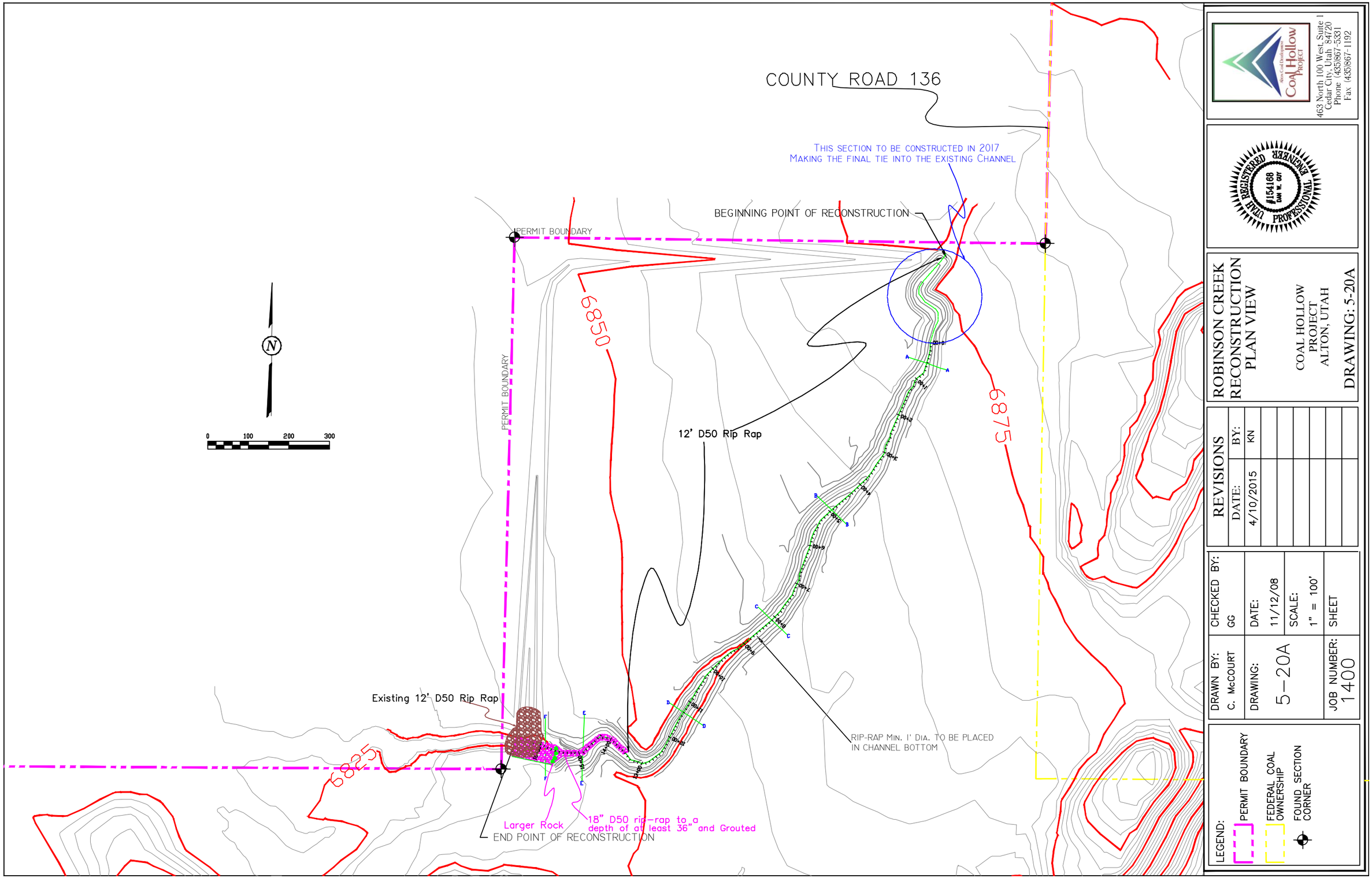
DRAWINGS

General

Facilities (5-3 to 5-8C)

Coal Recovery (5-9 to 5-14)

Overburden Handling (5-15 to 5-19)



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UTAH REGISTERED ENGINEER #154168 DAN W. GUY PROFESSIONAL

ROBINSON CREEK RECONSTRUCTION PLAN VIEW

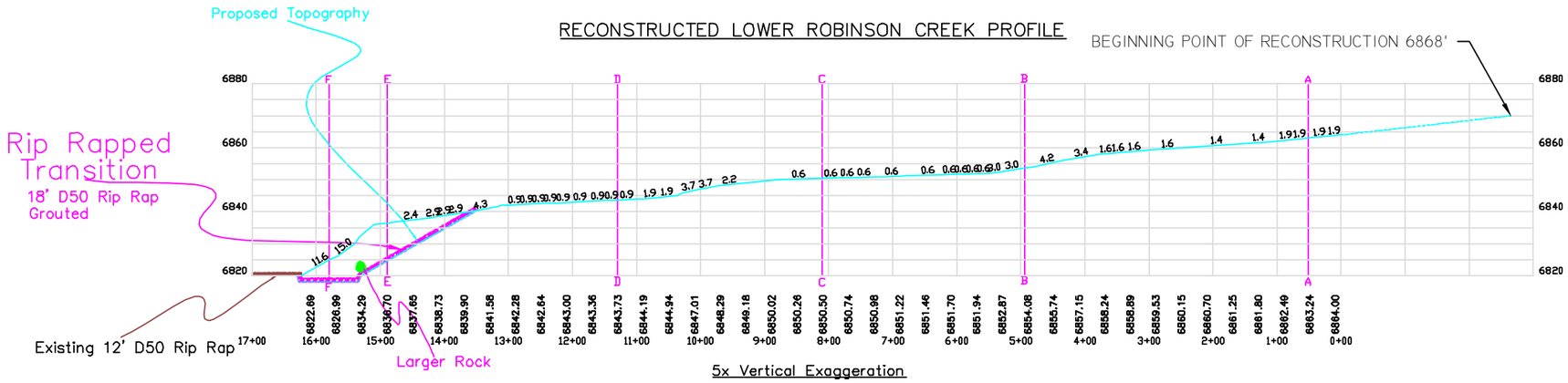
COAL HOLLOW PROJECT
ALTON, UTAH

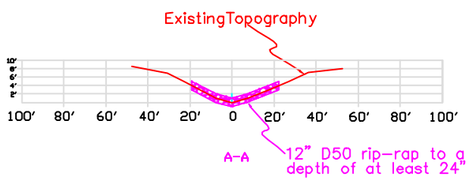
DRAWING: 5-20A

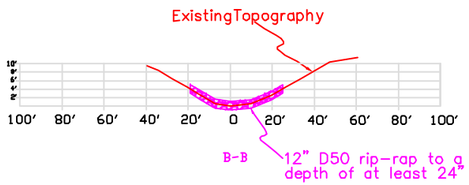
REVISIONS	
DATE:	BY:
4/10/2015	KN

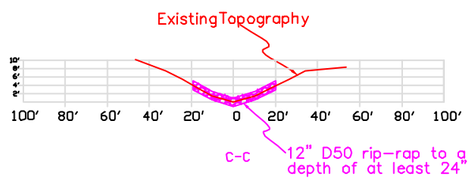
DRAWN BY: C. McCOURT	CHECKED BY: GG		
DRAWING: 5-20A	DATE: 11/12/08	SCALE: 1" = 100'	SHEET
			JOB NUMBER: 1400

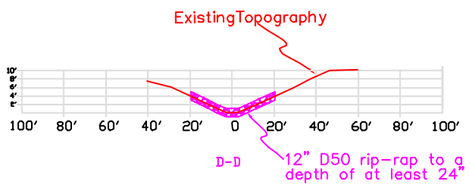
LEGEND:
- PERMIT BOUNDARY
- FEDERAL COAL OWNERSHIP
- FOUND SECTION CORNER

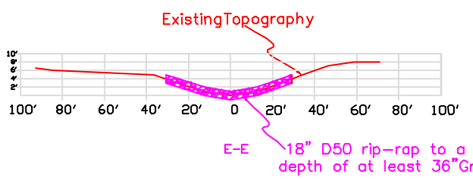


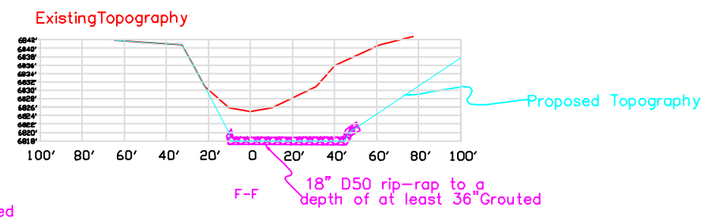












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ROBINSON CREEK
RECONSTRUCTION
DESIGN & DETAILS

COAL HOLLOW
PROJECT
ALTON, UTAH

DRAWING: 5-21A

REVISIONS	
DATE:	BY:
4/10/2015	KN

DRAWN BY: C. MCCOURT	CHECKED BY: GG		
DRAWING: 5-21A	DATE: 11/13/08	SCALE: AS SPECIFIED	SHEET
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