Canyon Fuel Company, LLC
A Subsidiary of Wolverine Fuels, LLC

#6069

Dugout Canyon Mine
Kirt Tatton
General Manager
PO Box 1029
Wellington, UT 84542
(435) 636-6360
Fax (435) 636-2897

February 7, 2020

Permit Supervisor
Utah Coal Regulatory program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Permit Revision Associated with Phase II Contemporaneous Reclamation Soils, Refuse Pile, Canyon Fuel Company, LLC, Dugout Canyon Mine, C/007/039

Dear Sirs:

Please find enclosed with this letter an amendment to update information associated with the Phase II Reclamation Soils at the Dugout Canyon Mine Refuse Pile. The amendment was requested by Pricilla Burton per a phone call and follow up e-mail to Robert (Jay) Marshall on January 21, 2020.

If you have questions or need addition information, please contact Vicky Miller at (435)286-4481.

CANYON FUEL COMPANY
Dugout Canyon Mine

R. Jay Marshall

Robert Marshall
Technical Services Manager

Encl.

cc: DOGM Correspondence File

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APPLICATION FOR COAL PERMIT PROCESSING

Permit Change X New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Revision to M&RP - Phase II Contemporaneous Reclamation Soils at Refuse Pile
Description, Include reason for application and timing required to implement:

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

☐ Yes X No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes X No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes X No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes X No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes X No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes X No 6. Does the application require or include public notice publication?
☐ Yes X No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes X No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes X No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes X No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes X No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes X No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes X No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes X No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
X Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes X No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes X No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes X No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes X No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes X No 20. Does the application require or include subsidence control or monitoring?
☐ Yes X No 21. Have reclamation costs for bonding been provided?
☐ Yes X No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes X No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach one (1) review copy of the application.

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.

R. Jay Marshall
Print Name

R. Jay Marshall Engineering Manager 2/14/20
Sign Name, Position, Date

Subscribed and sworn to before me this 7th day of February, 20 20

Teresa L Guymon
Notary Public

My commission Expires: 12-27-2020
Attest: State of Utah } ss:
County of Carbon

TERESA L GUYMON
NOTARY PUBLIC - STATE OF UTAH
COMMISSION# 692687
COMM. EXP. 12-27-2020

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Form DOGM- C1 (Revised 9/17/2013)

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

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Revision to M&RP - Phase II Contemporaneous Reclamation Soils at Refuse Pile

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.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☐ Replace	☐ Remove	
☐ Add	☒ Replace	☐ Remove	Chapter 2, Pages2-iv, 2-11, 2-17 thru 2-23 and RATable 2-2
☐ Add	☒ Replace	☐ Remove	RA Attachment 2-2
☐ Add	☒ Replace	☐ Remove	RA Plates 2-2 and 5-1
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

2/7/2020

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CHAPTER 2

SOILS

LIST OF TABLES

RA Table 2-1 Soil Map Unit Features ..... End of Text
RA Table 2-2 In-Place Soil Salvage Volumes (2016) ..... End of Text

LIST OF PLATES

RA Plate 2-1 Soils Map
RA Plate 2-2 Soil Stockpiles (As Built)

LIST OF ATTACHMENTS

RA Attachment 2-1 Soils Report
RA Attachment 2-2 Soil Salvage and Distribution

RA Attachment 2-3 Soil Borrow Area

The operator will endeavor to remove and store as much soil as possible in the designated stockpiles, thereby maximizing the protection of the soil resources of the site. The salvaged soil will be treated in compliance with R614-201-234.300.

231.200 Suitability of Topsoil Substitutes/Supplements

See Section 233.200.

231.300 Testing of Topsoil Handling and Reclamation Procedures Regarding Revegetation

See Sections 232 through 234 and Section 240.

231.400 Construction, Modification, Use, and Maintenance of Topsoil Storage Piles

See Section 234.

232 Topsoil and Subsoil Removal

232.100 Topsoil Removal and Segregation

Due to the disturbed nature of the site area, all available soil materials will be removed and stockpiled, since the soil resource is limited on the site (refer to Section 231.100). RA Plate 2-1 shows the areas of soils to be stripped and the approximate depth ranges for each soil. Supporting calculations are presented in Section 242.100 ~~RA Attachment 2-2~~. The estimate is based on an average of the recommendations of Mr. Larsen's soils report presented in RA Attachment 2-1. During the actual salvaging activities, efforts will be made to maximize the soil volume to be salvaged.

A professional soil scientist will be on-site during soil salvage operations to monitor and supervise salvage activities for the purpose of maximizing soil salvage volumes, quantities and to determine medium to be left in place (i.e. gravel, boulders). Should a professional soil scientist be unavailable,

Protection from Contaminants and Compaction. Stockpiled soil will be protected from contaminants and unnecessary compaction. To protect the soil from contaminants and unnecessary compaction that could interfere with vegetation, the stockpiles will be isolated from the main refuse pile area (Section 234.100). A sign designating "topsoil" will be installed on the stockpile.

The stockpile will be constructed in such a manner as to allow equipment access around the base of the stockpiles for repair of the surfaces and diversion structures as needed.

Furthermore, berms will be constructed around the stockpiles to further separate the soils from the materials stored on the site. The berm will be constructed as specified in Chapter 7, Plate 7-2a.

Wind and Water Erosion Protection. The stockpiles will be protected from wind and water erosion by prompt establishment and maintenance of a vegetative cover. Berms will be constructed around the stockpiles to help trap sediment runoff from the stockpiles. Refer to Section 242 .100 for additional protection information.

Topsoil Redistribution. A limited quantity of stockpiled soil may be distributed on the refuse pile to determine the quantity of soil cover necessary to meet revegetation reclamation requirements. The remainder of the stockpiled soil will not be moved until redistributed during reclamation operations unless approved by the Division.

234.300 Topsoil Stockpile Relocation

Stockpiled soil in jeopardy of being detrimentally affected in terms of its quantity and quality by refuse pile operations may be temporarily redistributed upon approval by the Division and modification of this M&RP.

During 2017/2018/2019 stockpiled and salvaged soils were redistributed on the north/northeastern end of the refuse pile. Soils not redistributed in this contemporaneous activity remained on top of the refuse pile. These soils will be redistributed as soon as possible when the contemporaneous reclamation of the refuse pile continues in 2020/2021.

Host Site. Soil relocation may occur provided that such action does not permanently adversely affect soil of the host site.

Topsoil Suitability. Stockpiled soil relocation may occur provided the material is retained in a condition more suitable for redistribution than if stockpiled.

240 RECLAMATION PLAN

241 General Requirements

Reclamation of the site (soil redistribution, amendments, and stabilization) is discussed in Sections 242, 243, and 244, respectively.

242 Soil Redistribution

242.100 Soil Redistribution Practices

The stored soil will be redistributed after recontouring of the site has occurred during reclamation activities. The refuse pile will be covered with a minimum depth of the following;1 foot of equally blended coal waste and subsoil, approximately 2.6 feet of subsoil and approximately 0.4 feet of topsoil (approximately 4 feet). The volume of material needed to cover the refuse pile is 117,403 CY as calculated below. The calculation was previously in RA Attachment 2-2.

Area covered by the refuse pile in 2017 = 736,810 ft^2

To obtain the surface area to be covered by soil the above area must be adjusted to account for the 2:1 slopes of the refuse pile. A 2:1 slope increases the surface area by 11.8%.

Slope area = 471,724 ft^2

Area of flatter space on top of the pile = 265,086 ft^2
Adjusted slope area= 1.118 x 471,724 ft^2 = 527,387 ft^2
Adjusted surface area of the pile to be covered= 792,473 ft^2

The refuse pile will be covered with approximately 4 feet of cover material. The cover material will consist of topsoil, subsoil, and a blend of coal waste and subsoil.

Soil will be salvaged from the southern expansion from the soil map units H and J. It is anticipated that the soil map unit H will have a soil salvage area of 0.73 acres. This will provide an average topsoil (A+B Horizons) salvage depth of 4 to 12 inches providing 1,178 to 3,533 CY and subsoil (C Horizons) salvage of 18 to 47 inches providing 5,342 to 13,948 CY. It is anticipated that the soil map unit J will have a soil salvage area of 2.5 acres with an average topsoil (A+B Horizons) salvage depth of 5 to 8 inches providing 5,041 to 8,066 CY and subsoil (C Horizons) salvage of 8 to 10 inches providing 8,122 to 10,152 CY. The salvage area (January 2020) is outlined on drawing RA Attachment 2-2.

The topsoil salvaged from the southern expansion will be used to provide contemporaneous reclamation and ~~will~~ may provide additional soil to the current topsoil stockpiles. ~~Topsoil will be salvaged Topsoil pile #3 will be added and stored in subsoil pile's#2 location.~~ Topsoil will be moved from topsoil pile previously adjacent to the fence line on the western site boundary (RA Plate 2-2) and will be temporarily stored atop the refuse pile and used for contemporaneous reclamation. In addition, a pile of topsoil removed from a flooded/blocked drainage which was temporarily stored in the immediate area will be moved to the top of the refuse pile. Both the topsoil pile and the drainage clean out topsoil was combined into one pile and will be used to contemporaneously reclaim the refuse pile in the area shown on RA Plates 2-2 and 5-1.

The subsoil extracted from the southern expansion will be used to provide contemporaneous reclamation and the excess will add additional soil to the current subsoil stockpile #1. The subsoil in pile ~~#2~~ moved from the fence line on the western site boundary to atop the refuse pile will be used for contemporaneous reclamation.

The contemporaneous reclamation will commence on the northeastern area of the refuse pile and will continue to the southern end of the pile as needed. See RA Plate 2-2 for more details.

There ~~are currently~~ were topsoil and subsoil stockpiles located in the northeastern and southwestern portions of the site. The southwestern piles were relocated temporarily to atop the refuse pile and will be used to contemporaneously reclaim the refuse pile.

~~Topsoil Stockpile #1 volume =5,612CY (Existing) + 4,088CY (Phase II Expansion) = 9,700CY~~
~~Topsoil Stockpile #2 volume = 2,937 CY (Existing)~~
~~Topsoil Stockpile #3 volume = 4,426 CY (Phase II Expansion)~~
~~Contemporaneous Reclamation Topsoil volume = 3,086 CY (Phase II Expansion)~~
~~Total Available Topsoil volume = 9,700 CY+2,937 CY+4,426 CY+3,086 CY = 20,149 CY~~
~~Subsoil Stockpile #1 volume = 9,211 CY (Existing) + 2,920 CY (Phase II Expansion) = 12,131 CY Contemporaneous Reclamation Subsoil volume = 2,753CY (Subsoil Pile #2) + 21,180 CY (Phase II Expansion) = 23,933 CY~~
~~Total Available Subsoil volume = 12,131 CY+23,933 CY = 36,064 CY~~

~~Total anticipated cover material available in the stockpiles or contemporaneously reclaimed is estimated to be 56,213 CY. There are currently topsoil and subsoil stockpiles located in the northeastern and southwestern portions of the site. Aero-Graphics, Inc. surveys estimated the volume in each stockpile as:~~

Aero-Graphics, Inc. surveys from 2008, 2009, 2015, 2017 and 2019 were used to estimate the volume in the stock piles, area of the refuse pile, and the location of Phase II in-place soils.

Reclamation Soils (Quantities Approximate) – February 2020

TOPSOIL				
Location	Quantity Available for Salvage (CY)*	Quantity Salvaged (CY)*	Quantity Used 2017/2018 Contemporaneous Reclamation (CY)*	Remainder (CY)*
Topsoil Stock Pile #1 (2009)		5612		5612
Phase II Expansion	3544		1180	2364

Atop Refuse Pile 2019/2020		5204		5204
Total				13,180
SUBSOIL				
Location	Quantity Available for Salvage (CY)*	Quantity Salvaged (CY)*	Quantity Used 2017/2018 Contemporaneous Reclamation (CY)*	Remainder (CY)*
Subsoil Stock Pile #1 (2009)		9211		9211
Phase II Expansion	24,598		7696	16,902**
Atop Refuse Pile 2018-2020		10,703		10,703
Total				36,816

* Estimates Only

** Areas J & H, RA Plate 2-1

The February 2020 total anticipated cover material available in the stockpiles and in the area yet to be salvaged during Phase II of the refuse pile expansion ~~contemporaneously reclaimed~~ is estimated to be 13,180 CY of topsoil and 36,816 CY of subsoil (49,996 CY total).

To reduce the volume of imported cover material the bottom foot of cover material will be a blend of coal waste and subsoil. Equal portions of coal waste and subsoil will be used to create this blended cover material. Thus, the volume of available cover material may be increased. Blending methods are discussed in RA Attachment 2-2. ~~by 14,675 CY of subsoil (792,473 ft^2 x 0.5 ft. / 27 ft^3/CY) to a total of 64,671 CY (49,996 CY + 14,675). (see RA Attachment 2-2)70,888 The total volume of material required to cover the pile minus the available cover material equals the volume of cover material to be imported = 117,403 – 70,888 = 46,515 CY (see RA Attachment 2-2).~~

~~Summary of Volumes (Approximate)~~

~~Volume of material needed to obtain 4 feet of cover = 82,976 CY~~

~~Total cover material available at the site = 20,542 CY~~

~~Vol. of coal waste blended with sub-soil to produce the first foot of cover = 10,372 CY~~

~~Vol. of subsoil blended with coal waste to produce the first foot of cover = 10,372 CY~~

~~Volume of subsoil and topsoil needed to cover the pile = 72,604 CY~~

~~Volume of cover material to be imported from borrow site = 52,000 CY~~

Summary of Soil Volumes required to cover 15.06 Acres (Estimates for 2020)

Volume of material needed to obtain 4 feet of cover on refuse pile = 91,702 CY

Total cover material available at the site = 49,996 CY

Vol. of coal waste blended with sub-soil to produce the first foot of cover = 11,463 CY

Vol. of subsoil blended with coal waste to produce the first foot of cover = 11,463 CY

Volume of subsoil and topsoil needed to cover the pile = 80,239 CY

Volume of cover material to be imported from borrow site to complete reclamation = 30,243 CY

Volume of available material at borrow site = 106,000 CY

These quantities do not include:

Soils needed to reclaim the access roads, sediment ponds, and the sediment pond outlet;

Additional 2 feet of soils if required to added to the contemporaneously reclaimed 2-foot test plot; or meeting the following requirement:

The mixing of coal waste and subsoil, to produce the first foot of cover for the refuse pile, will occur only if the coal waste has been demonstrated through sampling and analysis to not be acid or toxic forming. Otherwise the entire 4 feet of cover material will be composed of subsoil and topsoil.

Contemporaneous Reclamation: In the future, the applicant may decide to demonstrate that two feet of cover material over the refuse pile is sufficient to meet reclamation standards for bond release. Additional information and clarification of the project will be provided at that time. An area on the refuse pile will receive reclamation treatments contemporaneously to justify the decrease of required cover soils from four feet to two feet for final reclamation.

During the southern expansion, contemporaneous reclamation will occur on the northeastern potion of the refuse pile. A two feet cover test plot will be designated in this area. See RA Plate 2-2 for the location.

Soil Thickness: The topsoil will be distributed to the disturbed areas illustrated on RA Plate 5-1.

Currently, it is planned that the refuse pile portion of the site be covered with approximately 48 inches of soil. Based on the proposed pile configuration this will require about 117,403 CY of soil. The remainder of the site area, not used for refuse storage will be covered with approximately 6 inches of substitute topsoil. Calculations of the soil cover volumes are presented in Section 242.100 ~~RA Attachment 2-2.~~

Compaction. To prevent compaction of topsoil, soil-moving equipment will refrain from unnecessary operation over spread soil. Front-end-loaders and other wheel-mounted equipment may be used to transport and dump soil. However, to minimize compaction, only track-mounted equipment (e.g. bulldozers, trackhoes) will be used to spread the soil. The soil will be loosened prior to seeding as described in Section 341.200. Soils will be handled when they are in a loose or friable condition.

Erosion. Care will be exercised to ensure the stability of soil on graded slopes to guard against erosion during and after soil application. Erosion control measures will include but not be limited to extreme surface roughening (also known as pocking and gouging). The addition of erosion control matting will be placed along the pile slopes as needed. A 10 foot wide terrace will be

RA TABLE 2-2

IN-PLACE SOIL SAVLAGE VOLUMES (2016)

AREA	VOLUME ANTICIPATED (CY*)	VOLUME SALVAGED APPROXIMATE (CY*)	
		Topsoil	Subsoil
A	4719		1,787
B	15,559		3,549
C	5,467		2,778
D	2,957	2,083	
E	4,616	1,313	1,066
F	3,393	2,423	
G	2,603	2,595	
I	2,356		
K	206		407
M	5,116		2,084
H & J (Spillway)		135	293
TOTAL	46,992 CY	8,549 CY	11,964 CY
Soil Borrow Area (approximate available soil)			106,000 CY

~~*Exact Subsoil and Topsoil volumes are found on RA Plate 2-2~~
*All soil quantities are estimated. Refer to Section 242.100 for additional information

RA ATTACHMENT 2-2

SOIL SALVAGE AND DISTRIBUTION

RA ATTACHMENT 2-2
Dugout Refuse Pile Site

Soils Temporarily Stored Atop the Refuse Pile

The topsoil and subsoil stored atop the refuse pile will be used as soon as possible for contemporaneous reclamation of the refuse pile. Until the soils are distributed:

- A sign will be installed on the stockpiles to identify topsoil storage areas and subsoil storage areas.

-The stockpiles will be protected from wind and water erosion by being revegetated with a quick growing vegetative cover (interim seed mix), extreme surface roughening and by installing berms (subsoil) around the stockpiles to help trap sediment coming off the stockpiles.

-Seeds will be incorporated with a small amount of mulch and applied by hydroseeding equipment. Hydroseeding will be accomplished in two applications, the first being the application of the seed to the soil and the second an application of mulch (2000 pounds) per acre and tackifier on top of the seed. This application method needs ambient temperatures above 45 degrees C due to the method requiring the mulch and seed be mixed with water during application and the potential for freezing the tanks and hoses. The ground needs to be 50 degrees to allow germination of the seeds.

The seed mix is described in Chapter 3, Section 341.200.

Drawing: Refuse Pile Facility Relocated Soils

The drawing in this attachment illustrated the extent of topsoil and subsoil being temporarily piled atop the refuse pile. The soils will be used to continue the contemporaneous reclamation of the east facing slopes in 2020/2021. An approximate area of soils yet to be salvaged has been outlined. Refer to Section 242.100 for additional detail.

Examples of Soil/Waste Rock Mixing Procedure

Depending on conditions there are many ways that the imported soil and coal waste can be effectively mixed. Examples of methods that may be used are:

1. Mixing with a tractor mounted tiller or similar equipment. On flatter areas of the pile a 6-inch layer of soil will be spread on the surface and then tilled with the coal waste to a depth of 12-inches. This tilled material may be left in place and the additional 3-feet of soil placed on top or the mixed material may be pushed

onto the slopes as the initial 12-inches of soil cover.

2. Mixing with an excavator or front-end loader. Equal amounts of soil and coal waste will be dumped on the surface of the pile and mixed together using an excavator or front-end loader. A dozer will then push the mixture onto the surface of the pile in a 12-inch layer.

3. Loading equal amounts of coal waste and soil into a dump truck. Trucks hauling soil to the site can be loaded with an equal amount of coal waste. Mixing will occur as the material is being loaded as well as when the load is dumped. Additional mixing will occur when the mixture is pushed out over the pile by a Dozer. ~~and~~

4. Mixing with a dozer. A 6-inch layer of soil can be spread on the surface of the pile and then a dozer will push the soil and 6-inches of coal waste into a pile. The rolling action of the material in front of the dozer blade will mix the soil and coal waste. Additional mixing will occur as the material is pushed back out in a 12-inch layer.

~~**Reclamation Soil Thickness**~~
~~**Dugout Refuse Pile Site**~~

~~The Refuse Pile is to be covered with 1 foot of equally blended coal waste and subsoil, approximately 2.6 feet of subsoil and approximately 0.4 feet of topsoil, to obtain a total depth of cover on the pile of 4 feet. The volumes of subsoil and topsoil needed to cover the pile are discussed below.~~

~~Area covered by the refuse pile= 736,810 ft^2~~

~~To obtain the surface area to be covered by soil the above area must be adjusted to account for the 2:1 slopes of the refuse pile. A 2:1 slope increases the surface area by 11.8%.~~

~~Slope area = 471,724 ft^2~~
~~Area of flatter space on top of the pile = 265,086 ft^2~~
~~Adjusted slope area= 1.118 x 471,724 ft^2 = 527,387 ft^2~~
~~Adjusted surface area of the pile to be covered= 792,473 ft^2~~

~~The refuse pile will be covered with 4 feet of cover material. The cover material will consist of topsoil, subsoil, and a blend of coal waste and subsoil.~~

~~The volume of material needed to cover the refuse pile= 117,403 CY~~

There are currently topsoil and subsoil stockpiles located in the northeastern and southwestern portions of the site. These stockpiles have been surrounded by a full containment berm. EarthFax Engineering Group, LLC estimated the volume in each stockpile.

Topsoil Stockpile #1 volume =5,612CY (Existing) + 4,088CY (Phase II Expansion) = 9,700CY

Topsoil Stockpile #2 volume = 2,937 CY (Existing)

Topsoil Stockpile #3 volume = 4,426 CY (Phase II Expansion Addition)

Contemporaneous Reclamation Topsoil volume = 3,086 CY (From Phase II Expansion)

Total Available Topsoil volume = 9,700 CY+2,937 CY+4,426 CY+3,086 CY = 20,149 CY

Subsoil Stockpile #1 volume = 9,211 CY (Existing) + 2,920 CY (Phase II Expansion) = 12,131 CY

Contemporaneous Reclamation Subsoil volume = 2,753CY (Subsoil Pile #2) + 21,180 CY (From Phase II Expansion) = 23,933 CY

Total Available Subsoil volume = 12,131 CY+23,933 CY = 36,064 CY

Total cover material anticipated to be placed in the new stockpiles or contemporaneously reclaimed = 56,213 CY.

To reduce the volume of imported cover material the bottom foot of cover material will be a blend of coal waste and subsoil. Equal portions of coal waste and subsoil will be used to create this blended cover material. Thus, the volume of available cover material may be increased by 14,675 CY (792,473 ft^2 x 0.5 ft. / 27 ft^3/CY) to a total of 70,888 CY.

The mixing of coal waste and subsoil, to produce the first foot of cover for the refuse pile, will occur only if the coal waste has been demonstrated through sampling and analysis to not be acid or toxic forming. Otherwise the entire 4 feet of cover material will be composed of subsoil and topsoil.

Volume of cover material needing to be imported= 117,403 – 70,888 = 46,515 CY

Summary of Volumes

Volume of material needed to obtain 4 feet of cover= 117,403 CY
Total cover material available at the site= 56,213 CY
Vol. of coal waste blended with sub-soil to produce the first foot of cover= 14,675 CY

~~Vol. of subsoil blended with coal waste to produce the first foot of cover= 14,675 CY~~
~~Volume of subsoil and topsoil needed to cover the pile= 102,728 CY~~
~~Volume of cover material to be imported from borrow site= 46,515 CY~~

For Relocated Soil Quantities
Refer To Section 242.100

REVISIONS OR UP-DATES			DATE: 02/03/2020	
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	JKS
			CHECKED BY:	
			SCALE:	NTS

FILENAME: Waste Rock Piles Relocated.Dwg

Canyon Fuel Company, LLC
Dugout Canyon Mine

Refuse Pile Facility
Relocated Soils

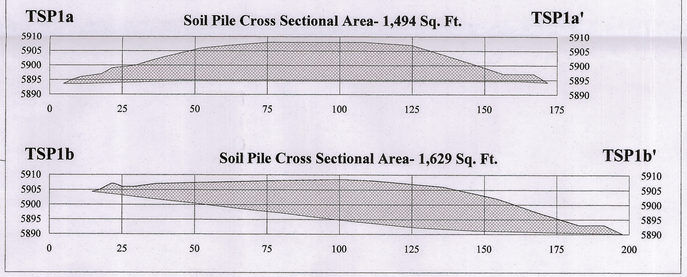
P.O BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR MAP NUMBER
RA Attachment 2-2

CROSS SECTIONS
SCALE: 1" = 25'

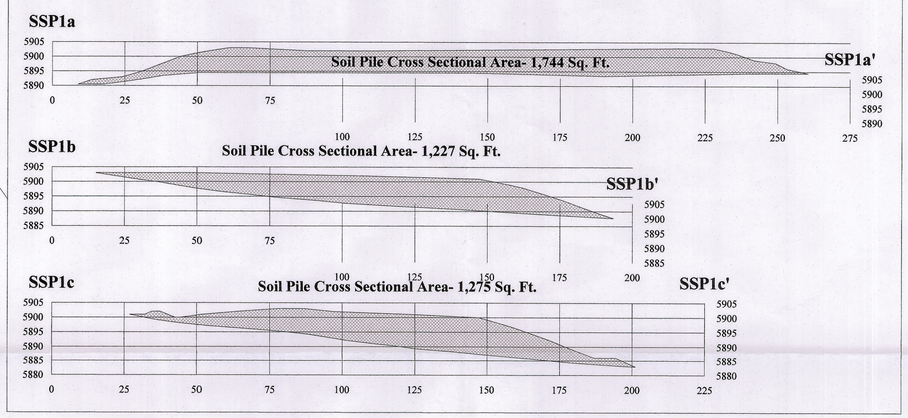
TOPSOIL PILE #1 STORAGE AREA
Approx. 5,612 Cu. Yd. (Can be expanded to approx. 9,700 Cu. Yd - See Plate 5-1.)

Base Topo - Olympus Aerial Survey Dated June 9, 2008
Operational Topo - Aero-Graphics, Inc. Survey Dated May 6, 2009



SUBSOIL PILE #1 STORAGE AREA
Approx. 9,211 Cu. Yd. (Can be expanded to approx 12,131 Cu. Yd - See Plate 5-1.)

Base Topo - Olympus Aerial Survey Dated June 9, 2008
Operational Topo - Aero-Graphics, Inc. Survey Dated May 6, 2009



INITIAL APPROXIMATE CONTEMPORANEOUS RECLAMATION AREA

As Topsoil and Subsoil are removed from the southern expansion area of the refuse pile these soils will be contemporaneously reclaimed in the northeastern portion of the refuse pile. Some temporary storage of topsoil and subsoil may occur.

LEGEND

- DISTURBED AREA BOUNDARY AND PERMIT AREA BOUNDARY
- 5900 / 5895 — OPERATIONAL CONTOURS
- CROSS-SECTION LOCATIONS
- FENCE LINE

NOTES

1. REFER TO RA PLATE 5-1 FOR MORE SURFACE DETAIL. THIS DETAIL WILL INCLUDE THE EXTENT OF THE PHASE II EXPANSION AND THE EXPANSION OF THE NORTHEAST TOPSOIL AND SUBSOIL STOCKPILES.
2. SUBSOIL STOCKPILE #1 AND TOPSOIL STOCKPILES #1 VOLUMES ILLUSTRATED WERE CALCULATED BY AERO-GRAPHICS, INC.- MAY 06, 2009.
3. TOPSOIL STOCKPILE #2 VOLUME ILLUSTRATED WAS ORIGINALLY CALCULATED BY AERO-GRAPHICS, INC.- MAY 06, 2009. SOME ADDITIONAL VOLUME WAS ADDED TO THE SOUTHERN END OF THIS STOCKPILE DURING THE PHASE I EXPANSION. THIS ADDITIONAL VOLUME WAS CALCULATED BY AERO-GRAPHICS, INC.- DECEMBER 17, 2015.
4. SUBSOIL STOCKPILE #2 WILL BE USED FOR CONTEMPORANEOUS RECLAMATION.
5. THE INITIAL CONTEMPORANEOUS RECLAMATION AREA IS APPROXIMATELY 4.5 ACRES. DURING PLACEMENT OF SOIL, TOPSOIL & SUBSOIL MAY BE TEMPORARILY STOCKPILED AT THE TOP OF THE REFUSE PILE, BERMS. SILT FENCES, OR OTHER CONTROLS WILL BE USED TO RETAIN SEDIMENT FROM THE TEMPORARY STOCKPILES.

N W E S

100' 50' 0' 100' 200' 300'

PROJECT AREA LOCATED ENTIRELY WITHIN
SEC. 18, T. 14 S., R. 12 E., SLBM
CONTOUR INTERVAL: 1'

REGISTERED PROFESSIONAL ENGINEER #152606 R. JAY MARSHALL STATE OF UTAH

REVISION	
DATE	BY
3/2015	TAJ
2/2016	DGS/JSE
10/2016	TAJ
12/2016	BK
02/2020	JKS

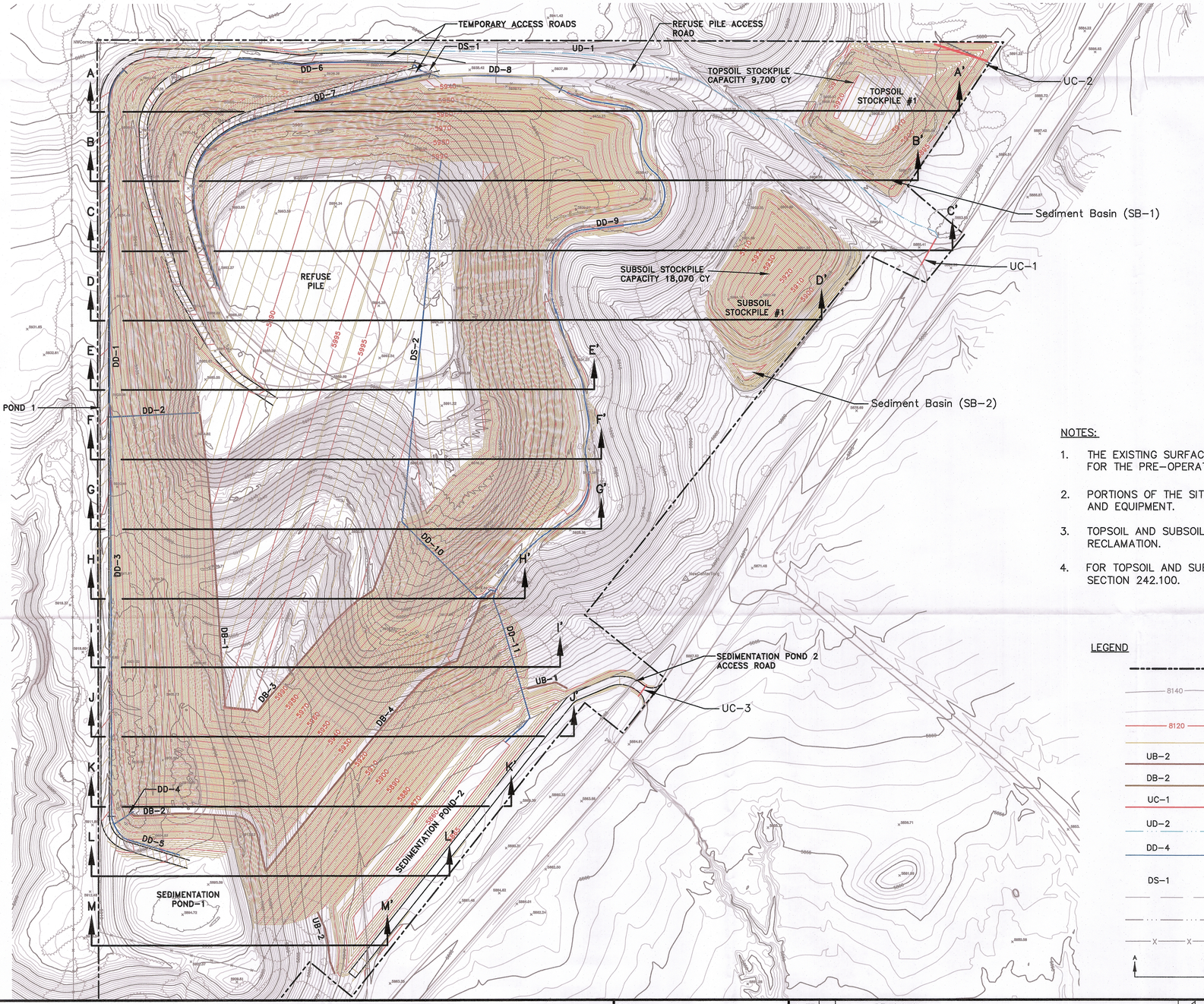
Canyon Fuel Company, LLC
Dugout Canyon Mine

SOIL STOCKPILES (AS BUILT)

Dugout Canyon Mine

DRAWN BY: STV/TAJ	DATE: March 10, 2015	SCALE: 1" = 100'	
APPROVED BY: DGS	FILE NAME: RA Plate 2-2.DWG	DRAWING OR MAP NUMBER	RA PLATE 2-2

DUGOUT REFUSE PILE
DESIGN



NOTES:

1. THE EXISTING SURFACE IS FROM AREO-GRAHICS DECEMBER 17, 2015 FOR THE PRE-OPERATIONAL SURVEY SURFACE SEE RA PLATE 5-3
2. PORTIONS OF THE SITE MAY BE USED FOR STORAGE OF SNOW AND EQUIPMENT.
3. TOPSOIL AND SUBSOIL STOCKPILES WILL BE USED FOR CONTEMPORANEOUS RECLAMATION.
4. FOR TOPSOIL AND SUBSOIL STOCKPILE QUANTITIES IN STORAGE REFER TO SECTION 242.100.

LEGEND

- PERMIT AREA BOUNDARY
- 8140 — EXISTING GROUND MAJOR CONTOUR (5 FOOT)
- EXISTING GROUND MINOR CONTOUR (1 FOOT)
- 8120 — OPERATIONAL GROUND MAJOR CONTOUR (5 FOOT)
- OPERATIONAL GROUND MINOR CONTOUR (1 FOOT)
- UB-2 — UNDISTURBED BERM
- DB-2 — DISTURBED BERM
- UC-1 — UNDISTURBED CULVERT
- UD-2 — UNDISTURBED DITCH
- DD-4 — DISTURBED DITCH
- DS-1 — DISTURBED SWALE
- EXISTING DIRT ROAD
- EXISTING STREAM
- FENCE/GATE
- CROSS-SECTION (SEE RA PLATES 5-1A AND 5-1B)

0 80 160 FEET

EarthFax Engineering, Inc.
Engineers/Scientists

SEAL:

REGISTERED PROFESSIONAL ENGINEER #152606 R. JAY MARSHALL STATE OF UTAH

DATE	No.	REVISIONS	
04/06/17	1		AKS
02/03/20	2		AKS

DUGOUT REFUSE PILE DESIGN
OPERATIONAL PLAN
PHASE II

Canyon Fuel Company, LLC
Dugout Canyon Mine

P.O. BOX 1029 WELLINGTON, UTAH 84542 435-637-6360	DATE: 2/2017	CK.BY:TAJ	REVISION: 1
CAD FILE: RA PLATE 5-1.DWG	SCALE: AS SHOWN	DR.BY:SWF	
DWG. NO.:		RA PLATE 5-1	